

HARNESS

CORDWAINERS' LIBRARY

EXCUSES FOR NOT ADVERTISING

Some manufacturers, when times are good, will not advertise because they say that their plant and hands are occupied in their other capacity and they cannot handle more business, consequently that it would be a waste of time and money to advertise. This is an unreasonably narrow, and yet the worst of it would be to increase the plant and hands, especially when the prospects were bright for a good run of business for some time to come.

The excuse for advertising, however, is often met with the same answer in the minds of the manufacturer who has not the same reason for giving it, because neither his plant nor his employees are working to their fullest extent. He has got into the way of selling to a certain number of firms all that he makes, and is indifferent as to seeking new business, although he does not make for considerably more than it turns out and profitably can be increased without trouble. Such an attitude is not only out of place in these days, showing as it does a lack of aggressiveness and energy, but it also does not show an industry-minded competitor who will try to outdo his competitors with the result that he frequently drives successful buyers of his manufacturing concerns. For this reason, advertising in the latter is very apt to result in all respects to the manufacturer, consequently, instead of being a waste of time and money, it is an improved machinery, which will be a good investment if the better than those who do not advertise, with the further advantage of doing so. Advertising is not only a good way to find out what you are doing, but it is a sure way to find out what your competitors are doing, because it shows a quality of goods, which is a present size can with the aid of improved machinery and apparatus.

Some manufacturers of goods are not content to produce a single advertisement, and very quickly they get the market before them they usually do. In each case, however, the advertiser is an experienced manager can be obtained and an increase of business made under his direction. This under the circumstances, is the normal way of doing business when trade conditions are good. With facilities improved under competent management, and a judicious use of printer's ink to let the wide world what you have an increased and profitable business is assured.

MINNAPOLIS HARNESS TRADE GOOD

Business men of Minn. City, Ia., are at the moment of doing good work, and their customers are now doing well for the same reason. Goods are going out, heavy harness being the principal article of sale. Light harness has not begun to move, and will not for a month or two weeks yet. Collars, breechings and harness trimmings are being sold to replace exhausted stocks.

The prices of leather have not changed and the harness manufacturers believe they will have to make the harness of the lower quality, plain or sell it at higher prices than have been paid for harness for years. Heavy leathers seem to be going in demand for collars in the east and the demand will take some time. Good harness makers and leather workers. Heavy harness was always been so popular for harness wear, particularly harness, collars and trimmings for automobiles and carriages. The light harness was also in demand as long as it was, but the business men have the product heavily used for harness, collars and trimmings, it remains as usual.

LARGE ORDER DELIVERED

The following firm has just received a large order of harness for the Department of Justice...

SHAFT TUGS FOR LIGHT AND HEAVY WORK

Our illustrations show several types of shaft tugs for light and heavy work and explain in detail the construction of each. The shaft tug for light work is made of a single piece of material and is attached to the shaft by a simple hook. The shaft tug for heavy work is made of two pieces of material and is attached to the shaft by a more complex hook. The shaft tug for very heavy work is made of three pieces of material and is attached to the shaft by a very complex hook. The shaft tug for the heaviest work is made of four pieces of material and is attached to the shaft by a very complex hook.

Fig. 1 is another style of shaft tug, made of two pieces of material, which is attached to the shaft by a simple hook. It is called by some the "hook" style shaft tug.

Fig. 2 is a shaft tug, made of two pieces of material, which is attached to the shaft by a simple hook. It is called by some the "hook" style shaft tug. It is designed for light work.

Fig. 3 is a shaft tug, made of two pieces of material, which is attached to the shaft by a simple hook. It is called by some the "hook" style shaft tug. It is designed for light work.

Fig. 4 is a shaft tug, made of two pieces of material, which is attached to the shaft by a simple hook. It is called by some the "hook" style shaft tug. It is designed for light work.

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Fig. 6 is a shaft tug, made of two pieces of material, which is attached to the shaft by a simple hook. It is called by some the "hook" style shaft tug. It is designed for light work.

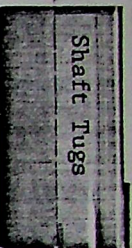
Fig. 7 is a shaft tug, made of two pieces of material, which is attached to the shaft by a simple hook. It is called by some the "hook" style shaft tug. It is designed for light work.

Fig. 8 is a shaft tug, made of two pieces of material, which is attached to the shaft by a simple hook. It is called by some the "hook" style shaft tug. It is designed for light work.

ANCHOR BRAND LEATHER

Anchor Brand Leather is made of the best quality of leather and is known for its strength and durability. It is used for a wide variety of leather goods, including harness, collars, and carriages. The Anchor Brand Leather is made in the United States and is available in a variety of colors and finishes.

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EXCUSES FOR NOT ADVERTISING.

Some manufacturers, when times are good, will not advertise because they say that their plant and hands are occupied to their fullest capacity and they cannot handle more business; consequently that it would be a waste of time and money to advertise. That is an understandable answer, and yet the moral of it would be to increase the plant and hands, especially when the prospects were bright for a good run of business for some time to come.

The canvasser for advertising, however, is often met with the same excuse at the hands of the manufacturer who has not the same reason for giving it, because neither his plant nor his employes are working to their fullest extent. He has got into the way of selling to a certain number of firms all that he manufactures, and is indifferent as to seeking new business, although his plant is ample for considerably more than it turns out and his hands can be increased without trouble. Such an ultra-conservative policy is not only out of place in these days, showing as it does a lack of progressiveness and energy, but it also opens the door for a sharp-witted competitor who will lay himself out to get business, with the result that he frequently draws away much of that of his slower-moving confrere. For this intense conservatism in the latter is very apt to extend to all the details of his business, and, consequently, instead of being ever on the lookout for new and improved machinery, which turns out just as good products, if not better than those previously manufactured, with the further advantage of doing so at a much less cost, he is content to plod along with what he has, until he wakes up some day to find his business gradually dropping away, because he cannot supply as choice a quality of goods as cheaply as someone else can with the aid of improved machinery and apparatus.

Some manufacturers, of course, are not competent to oversee a large establishment, and recognizing this fact, are satisfied with what they already have. In such cases, however, the services of an experienced manager can be obtained and an extension of business made under his direction. This, under the circumstances, is the rational way of doing business when trade conditions warrant it. With facilities increased, under competent management, and a judicious use of printer's ink to let the trade know what you have, an increased and profitable business is assured.

SIoux CITY HARNESS TRADE GOOD.

Harness men of Sioux City, Ia., are at the pinnacle of their spring trade, and their salesmen are now taking orders for next winter. Goods are going out, heavy harness being the principal seller as yet. Light harness has not begun to move, and will not for a month or six weeks yet. Collars, sweat pads and harness sundries are being sold to replenish exhausted stocks.

The prices of leather have not changed and the harness manufacturers believe they will have to make the harness of the future wonderfully plain or sell it at higher prices than have been paid for harness for years. Fancy leathers seem to be much in demand for dress in the east and the demand will take them away from harness makers and leather workers. Never before has leather been so popular for hunting coats, automobile jackets, caps and trimmings for automobiles and carriages. Just what uses will now be made of leather is hard to say, but the harness maker sees the product formerly used for harness, shoes and gloves, becoming as common as cloth.

LARGE ORDER DELIVERED.

The Studebaker Bros. Mfg. Co. have just finished delivering 100 sets very fine cart harness to the Department of Street Cleaning of New York City.

SHAFT TUGS FOR LIGHT AND HEAVY HARNESS.

Illustrated on opposite page.

Our illustrations this month represent shaft tugs in use on light and heavy driving and express or delivery harness. Fig. 1 is a round shaft tug for a buggy harness, and is made either flat or raised inside. It is stitched on outside and channeled on the inside. The illustration shows a box loop and rubber wire buckle. Made this way the tug is for a short backband with wrap billets on girth. For long backband or Goddard style, the loop is set down much lower, or it has an extra metal loop below the leather one.

Fig. 2 is another style of buggy shaft tugs. This is made with billet attached to bottom to take the outside girth, which does away with the wrap billets. It is called by some the lazy man's shaft tug on that account.

Fig. 3 is a safety shaft tug made to straddle the regular tug when speeding or racing. It is made either single or lined and stitched, but the object is to catch the shaft if the regular tug should break from any cause. It is attached to a separate backband, which runs over the top of saddle and is entirely independent of the saddle.

Fig. 4 is a cast shaft tug, domestic style. In making this the tug is made straight and is then bent and passed over the tongue of buckle and stitched down between the loop and buckle. The plate shows two leather loops and a metal loop. This is also stitched on the outside and channeled on the inside and is stitched two or four rows, according to the grade of work.

Fig. 5 is another make of shaft tug, different from Fig. 4, as it is made up and stitched in shape. The leather passes around twice, making it without a lap at buckle. This is called English style. It is expensive to make and is only used in good grades of work.

Fig. 6 is a hansom cab shaft tug. This is made like Fig. 5, but made as near round inside as possible, and is much heavier in every way. The illustration shows two narrow loops and one metal one. The tongue of the buckle has heavy piece of leather sewed around it part way, to prevent it extending up through the backband when the shafts lift up.

Fig. 7 is of a regular tilbury shaft tug, made to wrap around the shaft.

Fig. 8 is French style shaft tug. In this style the tug is iron and is covered with leather. The billet is lined and stitched. The buckle has a safe under it, which is attached to the tug back.

Fig. 9 is an English tilbury pattern. This is also an iron tug, but instead of the billet the backband passes around the shaft, forming a loop like Fig. 7.

Fig. 10 is New York style express or delivery shaft tug. It is made with a lap below the buckle, and if correctly made makes a very strong shaft tug. The illustration shows a link, with billet at bottom.

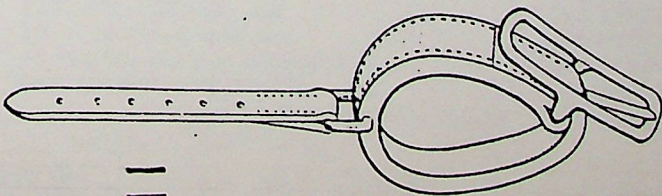
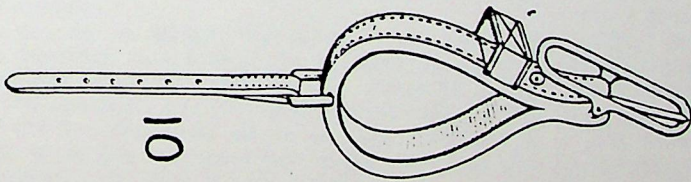
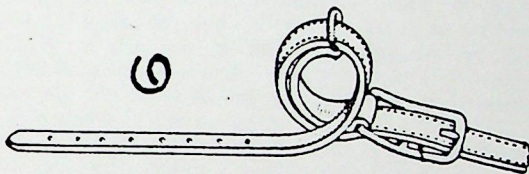
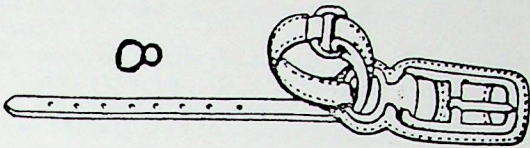
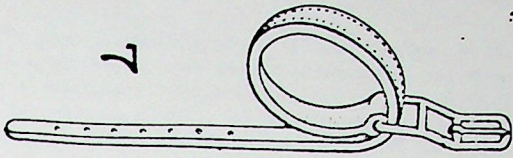
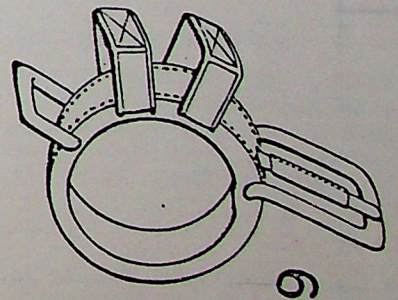
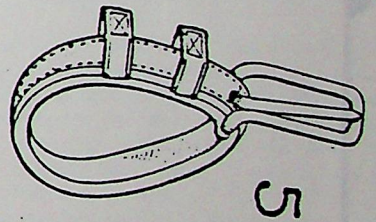
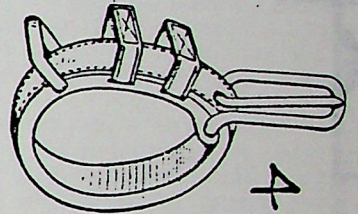
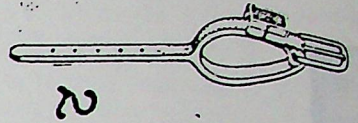
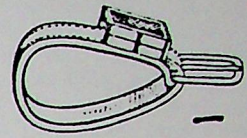
Fig. 11 is a more common style of express shaft tug, made round, with link and billet at bottom.

ANCHOR BRAND LEATHER.

R. Suhre's Sons, Cincinnati, O., tanners of the well-known Anchor Brand of harness leather, are about to move in their new tannery on the corner of Harrison Street and Western Avenue. With their increased capacity and excellent facilities they will not only be able to take care of all their old customers but will be looking for many new ones. The Anchor Brand is so well and favorably known that new trade should come easy.

Whenever you quit planting plants it won't take long for your garden to be a back number. Just so with advertising. Whenever you stop advertising, your business will soon be a thing of the past.

Harness



SHARP TUGS FOR LIGHT AND HEAVY HARNESS.
Described on opposite page.

THE DUTY ON HIDES

The industry in the leather trade examines the subject of "The Duty on Hides" in a communication to the Rev. Frank Lee, as follows:

I received in your Washington edition of last Wednesday that Mr. Lee is suggesting a more general extension of the rebate provision as a satisfactory "compromise" between the views of the various professional and the various other sides, and the leather industry in discussion proposing to extend the rebate system now in force to that made by the shoe manufacturers.

In view of this reference, it may be interesting to note the views of others under the duty rebate system in that particular trade and its collateral branches as following light on the expediency of the rebate provision in most instances in the present tariff.

Since 1890, when the rebate system was first introduced, the average price of packer hides, figured on quotations for the principal raw leather varieties, has risen about 45 per cent. while that of tanned, figured on Chicago quotations, has fallen about a percent.

During this period the packing industry has gradually expanded and under various rates, into the most complete and extensive department in the country, controlling within certain limits the supply of both raw and tanned hides (and skins) on the market. The rebate has been obtained only on a very small portion of the hides imported, and has been of correspondingly small advantage to the trader.

Imported hides, mostly of foreign origin, are a rate on a parity with the duty on imported hides, namely at the rate of the product imported.

The duty on hides used in this country has been reduced.

In other words, the duty on hides with the rebate provision has proved to be a disadvantage and not a monopoly, in view of the fact, especially in this case, to enlarge the volume of the market and thus facilitate the work of the importer in the acquisition of a commodity but far of course to protect the tariff revenue for which purposes it was originally designed.

The rebate allows us to export leather on about the same basis as Canada has originally suggested, and its extension to the shoe manufacturers would probably increase their exports, provided they could identify the hides as the law requires; but does this in any way bear on the view that relatively under the operation for tariff revenue?

It is the discrimination of the present tariff, the taxation of the whole commodity by and for particular purposes, that is causing this professional protest, and the shelter on our export trade which is steadily working out its own salvation in spite of the tariff and its "discrimination" will surely which does not at least modify this condition.

The duty duty was an arbitrary discrimination, for no other trade had any other benefit to the trade, and it should be noted that the rebate was. While the tariff generally should be revised gradually and cautiously, this particular duty demands a more drastic and the Legislature party can do so while doing that in respect to the free list, where with a few exceptions they have always been.

ANN'S SUCCESSOR.

In January 1890 her seven days,
And every day is mine,
And I have not been changing hands
Since she was first my wife,
I believe that will fight you,
Let her be followed by you,
And each day that I live I'll love you,
For when I'm dead I'll love you still.

—The Daily News

VARIOUS STYLES OF HAME TUGS

See illustrations on page 20

The illustrations show several styles of hame tugs and their uses. Fig. 1 shows a style of hame tug with a long neck and a wide base, used for pulling heavy loads. Fig. 2 shows a style of hame tug with a shorter neck and a wider base, used for pulling lighter loads. Fig. 3 shows a style of hame tug with a long neck and a narrow base, used for pulling heavy loads. Fig. 4 shows a style of hame tug with a shorter neck and a narrow base, used for pulling lighter loads. Fig. 5 shows a style of hame tug with a long neck and a wide base, used for pulling heavy loads. Fig. 6 shows a style of hame tug with a shorter neck and a wider base, used for pulling lighter loads. Fig. 7 shows a style of hame tug with a long neck and a narrow base, used for pulling heavy loads. Fig. 8 shows a style of hame tug with a shorter neck and a narrow base, used for pulling lighter loads.

Hame Tugs

Fig. 1 is an improved hame tug with a full angle and a long neck, used for pulling heavy loads. Fig. 2 is a hame tug with a shorter neck and a wider base, used for pulling lighter loads. Fig. 3 is a hame tug with a long neck and a narrow base, used for pulling heavy loads. Fig. 4 is a hame tug with a shorter neck and a narrow base, used for pulling lighter loads. Fig. 5 is a hame tug with a long neck and a wide base, used for pulling heavy loads. Fig. 6 is a hame tug with a shorter neck and a wider base, used for pulling lighter loads. Fig. 7 is a hame tug with a long neck and a narrow base, used for pulling heavy loads. Fig. 8 is a hame tug with a shorter neck and a narrow base, used for pulling lighter loads.

LORD'S LIST OF TRADE PAPERS.

The Lord Archbishop of Canterbury has issued a list of trade papers which will be required for the registration of trade papers. The list includes various types of trade papers, including those for the sale of goods, the purchase of goods, and the transfer of property. The list is intended to provide a clear and concise guide for the registration of trade papers.

THE DUTY ON HIDES.

AN authority in the leather trade discusses the subject of "The Duty on Hides" in a communication to the *New York Sun*, as follows:

I noticed in your Washington article of last Wednesday that Mr. Shaw, in suggesting a more general extension of the rebate provision as a satisfactory "compromise" between the views of the extreme protectionists, and the revisionists, cites the hide and leather industry in illustration—proposing to extend the rebate system now in force in that trade to the shoe manufacturers.

In view of this reference, it may be interesting to trace the course of affairs under the duty rebate system in this particular trade and its collateral branches as throwing light on the adequacy of the rebate provision to meet objections to the present tariff.

Since June, 1897, the month before the present law was enacted, the average price of packer hides, figured on quotations for the five principal sole leather varieties, has risen about 45 per cent., while that of cattle, figured on Chicago quotations, has fallen about 5 per cent.

During this period the packing industry has gradually organized itself, under various styles, into the most complete and effective combination in the country, controlling within certain limits the price of cattle on one hand and of hides (and beef) on the other.

The rebate has been obtained only on a very small portion of the hides imported, and has been of correspondingly little advantage to the tanner.

Domestic hides, mostly packers, have sold, as a rule, on a parity with duty-paid imported hides, namely at the limit of the protection afforded.

The cost of leather used in this country has been raised.

In other words, the duty on hides with the rebate provision attached has served to develop and enrich a monopoly, to tax the people, principally to this end, to impair the fortunes of the tanning and shoe industries, two of the most important in the country, and incidentally has failed entirely to protect the cattle interests, for which purpose it was nominally designed.

The rebate allows us to export leather on about the same basis as Canada, our principal competitor, and its extension to the shoe manufacturers would probably increase their exports, provided they could identify the hides, as the law requires; but does this in any way bear on the evils that evidently underlie the agitation for tariff revision?

It is the discrimination of the present tariff, the taxation of the whole community by and for particular interests, that is making even protectionists uneasy, not the shackles on our export trade, which is steadily working out its own salvation in spite of the tariff; and no "compromise" will satisfy which does not at least modify this condition.

The hide duty was an unhappy illustration, for no other lends itself more completely to the tendencies protested against than this rebated one. While the tariff generally should be revised gradually and cautiously, this particular duty demands radical action, and the Republican party can do no wiser thing than to restore hides to the free list, where, with a few exceptions, they have always been.

ANN'S SUCCESSOR.

If Johnnie Jones has seven dogs,
And every dog is white,
And fourteen cats come chasing 'round,
Each one as black as night;
Before they kill eight cats,
Less three destroyed by rats,
And each two cats have eighteen lives—
How many lives must three dogs take?

—*Des Moines Daily News.*

The machinery man is not trying to "skin" you; he is merely trying to earn his salary and sell you some machines.

VARIOUS STYLES OF HAME TUGS.

See illustrations on page 299.

Our illustrations this month represent a line of hame tugs for both light and heavy harness. Fig. 1 shows a pole or single buggy hame tug, and is made with a box loop with figured patent leather clip end, with three rows of stitching, inside clip, and rivets, lined or single safe under the buckle, according to the grade of work or harness they are made for. The length should never be over $8\frac{3}{4}$ in. from clip to heel of buckle, and shorter if the buckles are long. The draft eye is finger design. Fig. 2 is of a light surrey or Goddard buggy, and is made with inside or outside clips. The illustration shows the outside clip. This hame tug is close finished, with a safe under the buckle only. When made for inside clip great care is required in fitting the clip ends, or they will appear drawn or narrow, back to the loops. This is also a finer draft eye. Fig. 3 is of a $1\frac{1}{4}$ in. single or double surrey harness with a full lined safe, inside clips, and outside rivets. The clip ends are straight, with four rows of stitching, which only go through the top of safe; the loops are narrow English diamond. The draft eye is English finger pattern. Fig. 4 is a coupé hame tug, made up with a full lined safe; four narrow loops and narrow plain leather clip end, with short inside clip and rivets, which makes a flexible hame tug. There are four rows of stitching in the clip ends. The buckle piece is long enough to double back to hame clip to catch the rivets. Hame tugs should be made heavy throughout. The draft eye is London anchor style. Fig. 5 is a rainy day hame tug for a coupé harness. The buckle is rubber or leather covered; the hame tug is made with full lined safe and tapered clip end and box loop. Clip ends are sometimes made of patent leather, when inside rivets are used.

Fig. 6 is an express hame tug, with a full single safe lined at hame tug as far as the wave; the buckle piece runs around draft eye, and down back of safe as far as loop. The draft is jug handle pattern, made rounding, which allows the tug to swing up or down as the draft requires.

Fig. 7 is for a long tug coach harness, made with a full lined and stitched safe, plain leather clip, with four rows of stitching, inside clip and outside rivets, four loops in hame tug, and two in market tug, finished in English diamond pattern. The girth points are lined and stitched in two rows. The draft eye is London anchor. This is the most popular long hame tug in use to-day. It is used, with a few slight changes, in the cheapest factory hames and the best custom make.

Fig. 8 is a French style hame tug with swell safes and clip end; the clip end is made either plain or patent leather. The latter is the most showy. There are two rows of stitching all around clip, with a figure between the ornament and loop. The draft is twist.

Fig. 9 is a coach hame tug with patent leather clip end, box loop, close safe, with a safe under the buckle. We have here illustrated the three popular styles of hame tugs. Fig. 7 is the English style; Fig. 8, the French style; and Fig. 9, the American style.

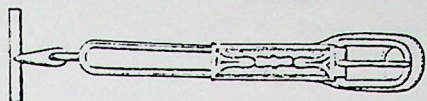
Fig. 10 is a road four-in-hand hame tug, made with lined safe under tug, but none under buckle. It is made with three heavy loops and everything heavy and strong. The girth point is heavy single leather, with market tug made like a hame strap. The draft is anchor pattern with ring.

LORD'S LIST OF TRADE PAPERS.

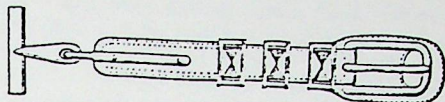
The Lord Advertising Agency, of Scranton, Pa., has just gotten out a list of trade papers in booklet form which will be regarded as especially valuable and convenient by present and prospective trade paper advertisers. Manufacturers of machinery, appliances and materials used in technical industries will do well to have Lord's list at hand for reference.

Only a good man can afford to be ugly in his manners, and it is not consistent for a really good man to act that way.

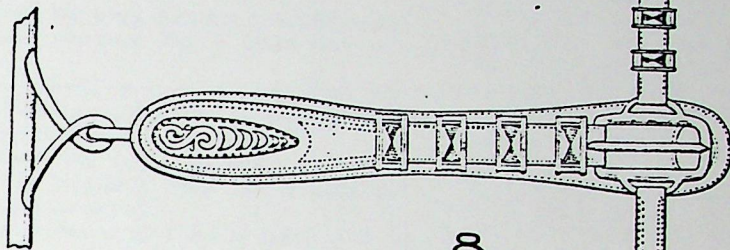
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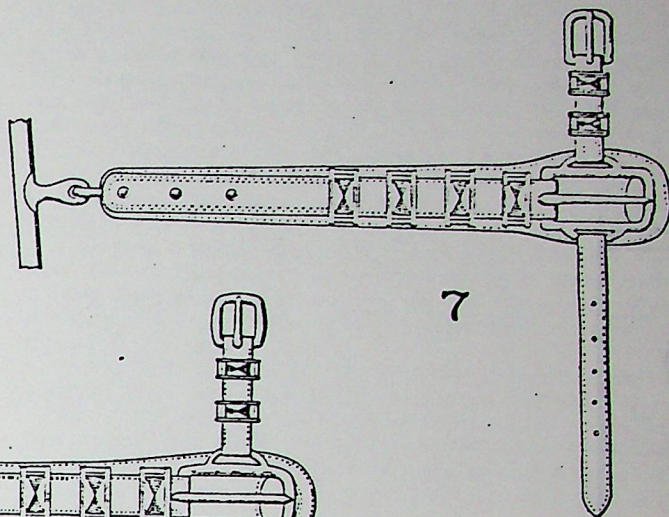
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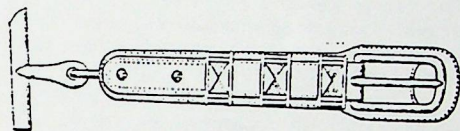
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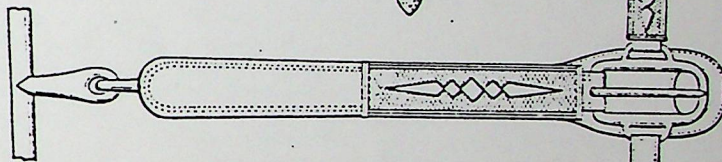
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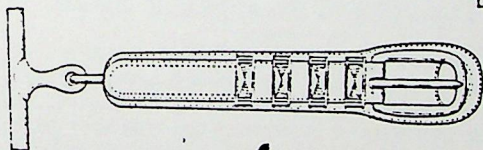
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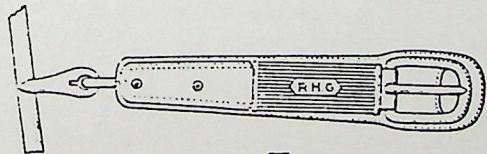
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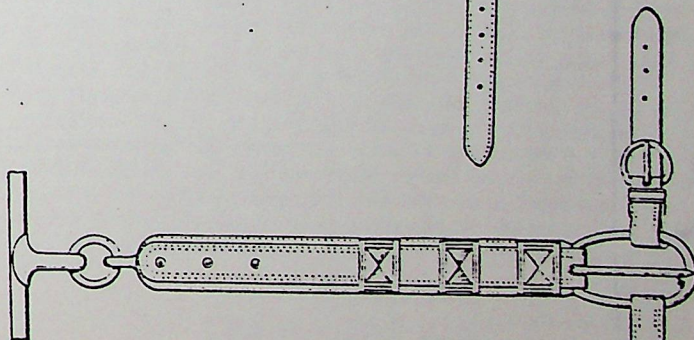
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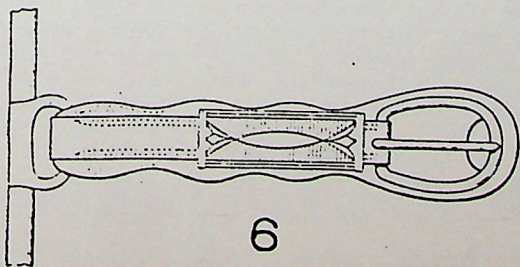
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TURNBACKS AND HIP STRAPS OF DIFFERENT STYLES OF HARNESS.

Illustrated on opposite page.

In this issue we illustrate three styles of turnbacks and eight styles of hip straps for various styles of harness.

Fig. 1 shows a buggy or road harness turnback with plain waved body, docks split and sewed on, and body lined. The reef is single leather. Hip strap runs through a space in second wave from split.

Fig. 2 is a plain flat hip strap, lined and stitched; it is also made single and to reef at breeching instead of at the buckle.

Fig. 3 shows a higher grade of turnback, with rounded splits to match a rounded road or pole harness. The body is lined throughout and has raised top and bottom. In these turnbacks the wave pattern can be changed to suit the harness maker's fancy.

Fig. 4 illustrates a round hip strap with flat ends and center, and is made to use with turnback, Fig. 3, when used as a rounded road harness.

Fig. 5 shows a coach turnback, with return strap. This turnback is lined and stitched throughout, and is single or part lined to suit taste and quality.

Fig. 6 represents a coupe hip strap with waved center and split points to buckle in breeching body. It is lined and stitched or single according to quality.

Fig. 7 is a straight center hip strap which is used for coupe and surrey harness.

Fig. 8 is a coach hip or loin strap. It is called a three frog hip, having an ornament on both sides of rump and an outside trace carrier. The inside is made to reef up. We show here a lined point and center with a single leather reef part. The patent leather ornaments have two rows of stitching all around.

Fig. 9 shows a three frog hip strap, with only one buckle. The ornaments have ovals at each end.

Fig. 10 is a two-ornament hip strap. In this hip strap both ends are made to reef.

Fig. 10 illustrates a hip strap for team harness with ornaments showing on the outside and the inside left plain. This is often made with a buckle at ornament on rump and the inside to reef instead of buckle, as is shown in plate.

SOME SEASONABLE REFLECTIONS.

"It is a strange thing," said Mr. Cyrus Beasley of John Moore & Co., 59 Warren Street, New York, "that in spite of automobiling there has been an increase in road driving. I am in a position to know, and I am now assured that it is a fact, for this season has already clinched it. For two or three years I had not been sure, for I had started out with the natural conclusion that automobiling would lessen driving."

Mr. Beasley was speaking to the representative of *Harness*, and went on concerning trade matters:

"Business is on the increase on light road harness, but not so on heavy harness. Now that looks like a contradiction of what I have said before, but it is really not a contradiction; it is rather an endorsement. It goes to show that for freight traffic and all sorts of trucking, automobile vehicles are growing in favor. That speaks well for the future of both, for I think that most men who are interested in the subject are in agreement in regarding driving as one of the most pleasurable of sports. Aside from all the other defects of the automobile as a sporting instrument, no true sportsman would for one moment consider the mechanical evolutions essential in the propelling of an automobile, as comparable to the pleasure of holding the reins over a breathing, sentient creature more or less in sympathy with himself.

"The designs of this season, both for carriage harness and for carriages, are for 'cut-unders.' In fact, the most popular vehicle of the season is a certain 'cut-under' runabout. It is

a specially attractive design, but the interest in it is very significant. For these 'cut-unders' are not nearly so likely to upset as are the vehicles of other designs. They can be turned in very much shorter space, too. But the immunity from danger is the main consideration. For this has grown out of the much more frequent tendency of horses to shy. Even the most staid and steady of family horses is likely to get scared, when suddenly like a flash from a clear sky a meteor-like apparition approaches from down the road, comes as it appears to the demoralized horse straight at itself, and then quickly recedes, and is gone with the same precipitancy attended by an affrighted rumble which probably is even jarring to the nerves of the reasoning man who is holding the reins over the sensitive animal. How much greater the tendency to shy becomes, when a flying automobile approaches from the rear, is a problem that is rather difficult to solve. The 'runabout' vehicle minimizes the probabilities of overturning.

"Another popular vehicle design of the season is that of a station wagon, which has already caught the general fancy.

"The Swiss harness for runabouts is the proper caper for this summer, and has superseded the English hame collar. It is much lighter and cooler than the latter, and as it shows off the horse to better advantage, will doubtless prove more acceptable.

"A subject on which all are to be congratulated is the constant betterment of roads throughout the country, and of streets in the cities. All that seems to have been necessary is to give this movement an impetus, whereupon 'appetite came with the eating.' The general public having had an inkling of what was possible, could not and did not remain contented with the old state of affairs, and so every season has seen more and more miles of streets and roads made so good that we can well be proud of them. I dare say that now it is already possible to traverse every section of the country as far west as the Mississippi River over roads that are almost ideal. The road wagon associations throughout the land are to be credited with a great proportion of these results, and deserve commendation; more power to their arms.

"Just compare the streets of New York to-day with their condition say only five years ago. There are comparatively few of them now that have had the cobble stones which we used to think so absolutely essential, and which now that we look back upon them seem so absurd. I wonder that they didn't make nervous wrecks of everybody. In spite of the heavy traffic on these streets, just as heavy as ever it was, the streets do not suffer.

"Asphalt does not seem to have proven the success that the wooden block system is. Just take the very street in front of this door, for instance. For a few years it was asphalted. For the first twelve months the asphalt was all right, but after that it was out of order all the time, and repairing on it was continuous. Finally the wooden blocks were put down, superseding asphalt. So far they have worked like a charm, always in repair, no jar, or wear and tear to speak of on vehicles or on themselves, and absolutely no noise to jar the nerves. I am told, however, that vitrified bricks, which have been tried on some streets in other cities, are even better than wooden blocks. However that may be, as far as roads and streets are concerned, the United States is yearly growing to be a better country to live in."

THE FLY NET MAN.

Mr. R. H. Wagner is one of the pioneers in the fly net business, and has been continually in the manufacture of fly nets for the last twenty years. Wagner nets are known and appreciated all over the country, and if horses could talk you would hear nothing but words of praise from them. He is now manufacturing an all cotton net as well as his regular leather bar nets, and as his stamped plate is on every net it will be easy to distinguish them. Be sure to look for it.

Harness

THE HIP STRAP.

Occasionally a teamster is met with who is disposed to criticise the hanging of the hip strap in heavy harness. They say the strap is sometimes placed too far back and looks ungainly, and that sometimes it is placed too far forward so that it tends to draw over the hip bone or fall in front of it. These teamsters are disposed to find fault with the harness maker, but it must be remembered that the harness maker has not before him a photograph or picture of the particular horse which is to wear the strap. Harness, like clothing, is better for being fitted to each particular animal, although, of course, the necessity is not so great in the case of the horse as in the case of a man. There is, however, something to be gained by keeping an eye upon the horse which is to wear the particular set of harness. There is a certain unnecessary strain, wear and tear upon a set of harness which is not exactly suitable to the size and figure of the horse. Heretofore this obstacle has been overcome practically by making harness of different sizes, but even in the case of footwear for humans it is not always possible to adapt harness to every fine requirement by making it in different sizes.

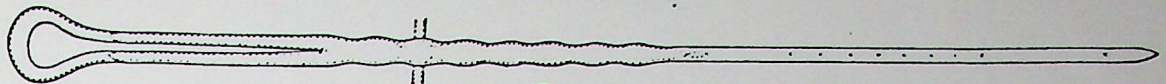


Fig. 1

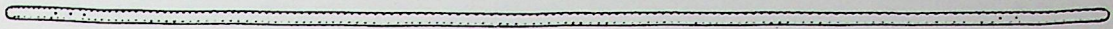


Fig. 2

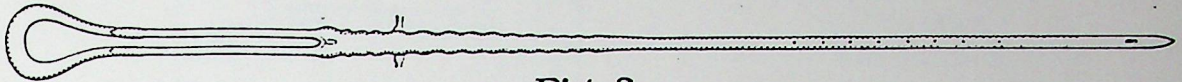


Fig. 3



Fig. 4

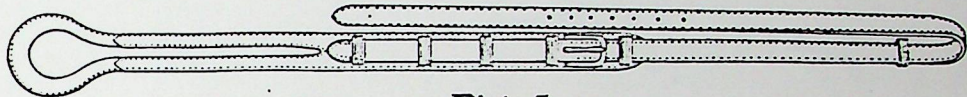


Fig. 5

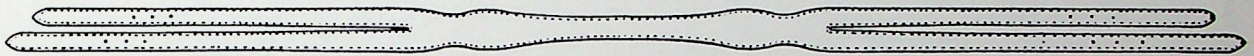


Fig. 6

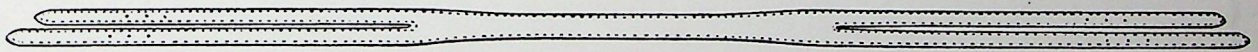


Fig. 7

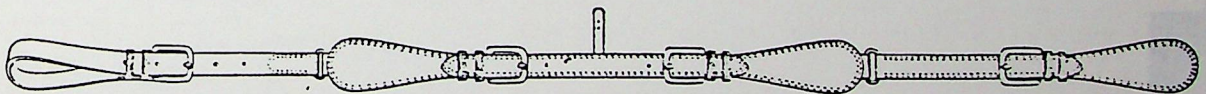


Fig. 8

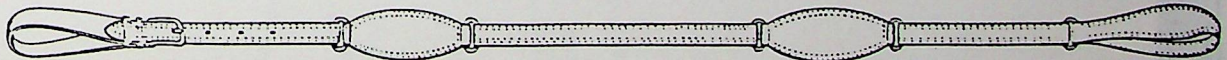


Fig. 9

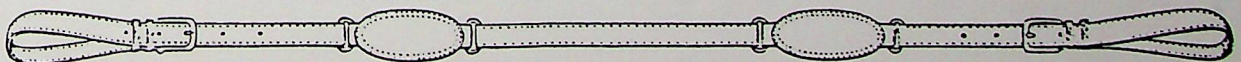


Fig. 10

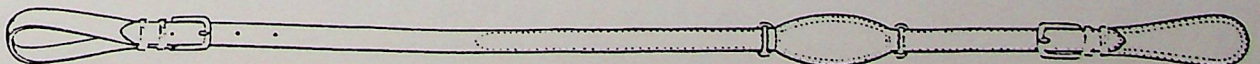


Fig. 11

Harness



PLATE 1
ENGLISH
BRECHING

PLATE 2
SPRING
CART
BRECHING

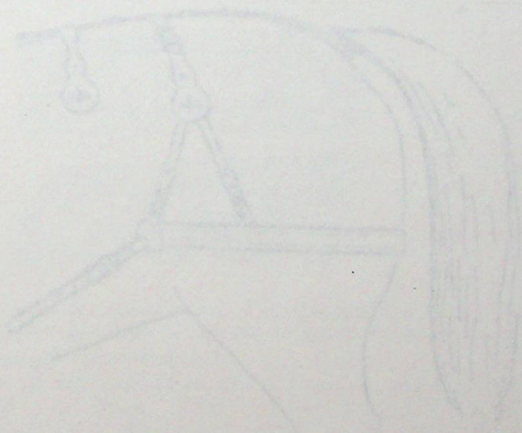
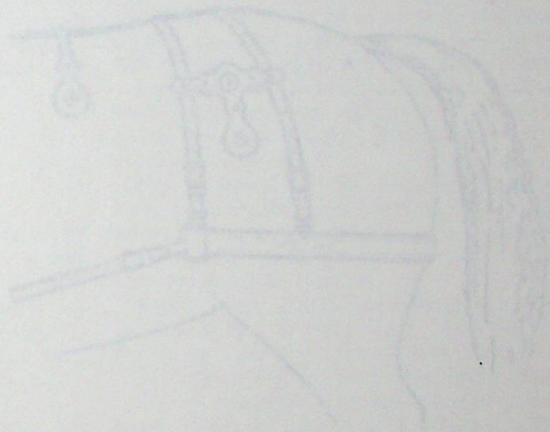


PLATE 3
HARROW
CART
BRECHING

THREE STYLES OF BRECHING

Revised by [illegible]

Breeding

Harness

A MOVABLE HARNESS SHOP

NINE PATTERNS OF SADDLE-RING BODIES

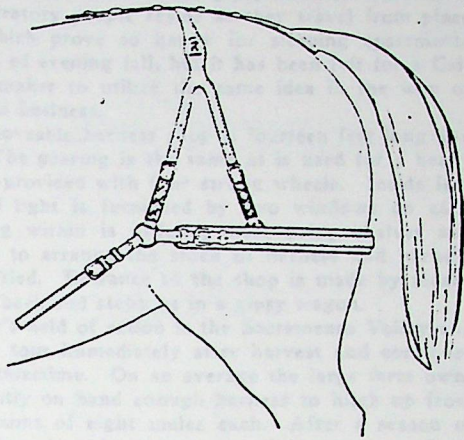


PLATE 1.
ENGLISH
BREECHING.

PLATE 2.
SPRING
CART
BREECHING.

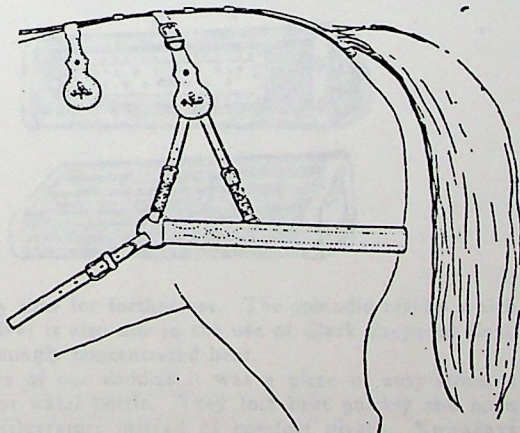
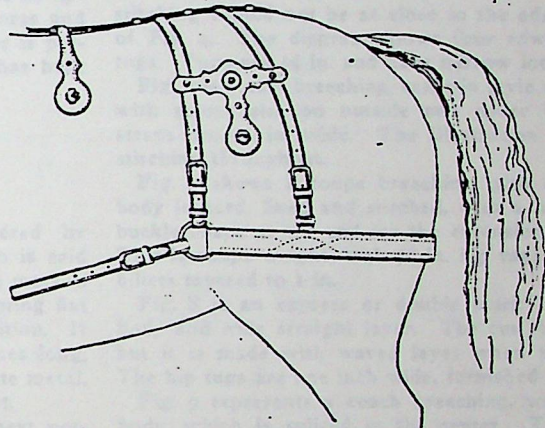


PLATE 3.
HANSOM
CAB
BREECHING.

THREE STYLES OF BREECHINGS.
Described on opposite page.

A MOVEABLE HARNESS SHOP.

Most people are familiar with the gipsy vans or wagons, in which these migratory people reside as they travel from place to place and which prove so handy for sleeping apartments when the shades of evening fall, but it has been left for a California harness maker to utilize the same idea in the way of aiding his harness business.

This unique moveable harness shop is fourteen feet long and six feet wide. The gearing is the same as is used for a heavy wagon and it is provided with four strong wheels. Inside is a work bench and light is furnished by two windows on each side. Everything within is orderly, there being shelves and hooks on which to arrange the stock of harness and harness parts always carried. Entrance to the shop is made by means of a door in the back and steps, as in a gipsy wagon.

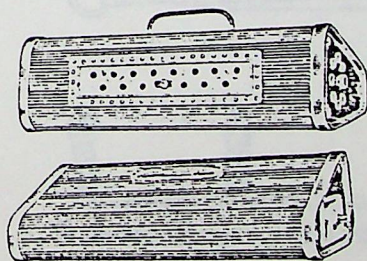
The proprietor's field of action is the Sacramento Valley and he starts on his tour immediately after harvest and continues till nearly Christmastime. On an average the large farm owners have constantly on hand enough harness to hitch up from one to eighty teams of eight mules each. After a season of plowing and harvesting the teams are given a rest and all equipments are thoroughly overhauled, oiled and repaired. To execute the large amount of repair work for some of these extensive farm-owning proprietors takes from one to three weeks of this harness maker's time at each place. He is an up-to-date business man, and carries quite a stock of harness and hardware, so that in case a harness is beyond repair, he is prepared to furnish, instantly, a brand new article. He has built up a good business in this way.

A GOOD SELLER.

In the large list of carriage heaters manufactured by the Chicago Flexible Shaft Co., Chicago, is one which is said to be, by far, the heaviest selling heater ever put on the market.

It is known as Clark Heater No. 7D, and has a slanting flat top which allows the feet to rest on it in a natural position. It has both side and end adjustable ventilators, is 14 inches long, and weighs nine pounds. The ends are of stamped white metal, and the cover is extra quality attractive Brussels carpet.

With this heater one can regulate the amount of heat perfectly, or it may be entirely shut off and coal extinguished. This is a very economical arrangement, as the coal can be re-



ignited at any time for further use. The splendid results which this heater gives is also due to the use of Clark Prepared Coal, which is seemingly concentrated heat.

In the days of our daddies it was a piece of soap-stone, a brick or a hot water bottle. They lost heat quickly and soon turned to refrigerators instead of comfort givers. Nowadays it's altogether different, and a heater like the Clark No. 7D becomes a real misery chaser for all cold weather drivers. It would be a good plan for every dealer to lay in a stock of the 7D's for cold weather. People like comfort, and it is no effort to educate them to use a good, economical carriage heater like this one.

NINE PATTERNS OF BREECHING BODIES.

Illustrated on opposite page.

Our illustrations for this month represent several patterns of breeching bodies, showing the hard and folded styles, for single and double harness.

Fig. 1 is a folded breeching for speedway or track harness; made very light, yet strong, and finished with a narrow waved layer. The bearers are flat lined and stitched, with box loop in hip tugs for hip strap.

Fig. 2 shows a folded road or buggy breeching. This is made heavier than the preceding one, and has a wider layer with longer waves. The bearers are flat like Fig. 1.

Fig. 3 is a breeching with body of single leather, having short layers at each end, and rounded bearers. The body has a heavy round edge on under side, and a narrow edge, creased, on top.

Fig. 4 is a folded surrey breeching body, with straight layer. In this style of body the fold is made about 3-16 in. wider than the layer, at each edge, and should be well rounded on back and flat on outside or top. There are four tugs with narrow loops for hip straps. The stitching should be very close to the edge of layer. The illustration shows four rows of stitching at ring.

Fig. 5 presents a surrey breeching with a hard lined body. Flat outside or top, with well rounded or raised back. The stitching should not be as close to the edge as shown on layer of Fig. 4. The diagram shows four rows of stitching to the tugs. Tugs are $\frac{3}{4}$ in. and have narrow loops.

Fig. 6 is a cart breeching, same in style as Fig. 5, but is made with more raise on outside and wider body. Tugs for hip straps are $\frac{3}{4}$ in. wide. The illustration shows four rows of stitching throughout.

Fig. 7 shows a coupe breeching with extension ends. The body is hard, lined and stitched, with a layer which forms the buckle chape at the end for the extension billet to buckle into. This is coupe weight, with $\frac{3}{4}$ in. hip tugs, $1\frac{1}{2}$ in. body and $1\frac{1}{2}$ billets tapered to 1 in.

Fig. 8 is an express or double truck breeching with folded body and wide straight layer. The cut shows a straight layer, but it is made with waved layer when the price warrants it. The hip tugs are one inch wide, furnished with box loops.

Fig. 9 represents a coach breeching, with $1\frac{1}{2}$ in. hard lined body, which is spliced in the center. The top or outside of body forms the breeching strap points, which buckle in hame tugs, underneath the trace. The body can be made with a narrow fold like Fig. 4, but the narrow hard body is best. It can be made with single or double breeching straps, according to price and grade of work. The body is made about 4 ft. 4 in. long, with about three feet of breeching strap on each side. The tugs shown are one inch wide and are three feet apart. The billets are intended to buckle trace carriers to. This breeching is sometimes made for split hip straps, with four tugs, but, unless the horses are very large, the single hip is the most appropriate for driving. The double hip has the appearance of a delivery or advertising harness.

THE P. K. & L. LINE.

A more picturesque and interesting journey could not be arranged for the pleasure of the trade than a trip through the P. K. & L. line of summer lap dusters. With a trio of artists, such as Pollitz, Kaufman and Lefort, the trade is always attracted to the show, because of the many absolutely new novelties and star attractions they always have billed for the season. Any jobber who cannot wait until the big show comes to town can arrange to have a line of samples shipped for inspection at once. Summer lap dusters are a specialty with Pollitz, Kaufman and Lefort, of Philadelphia, Pa., and wise buyers cannot afford to let the opportunity pass.

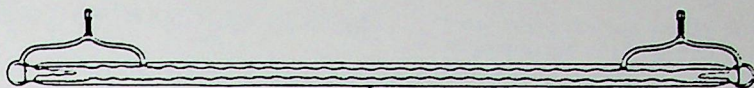


Fig. 1

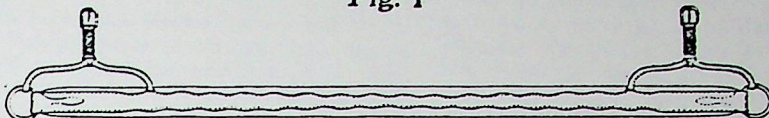


Fig. 2

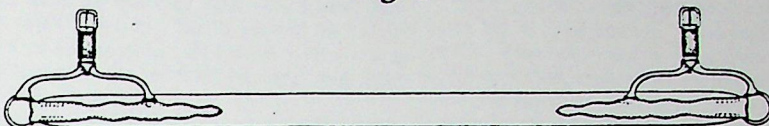


Fig. 3

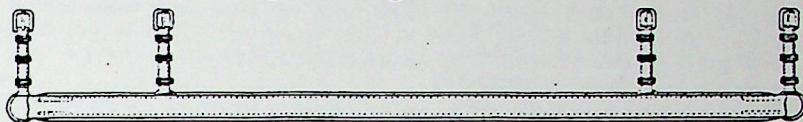


Fig. 4

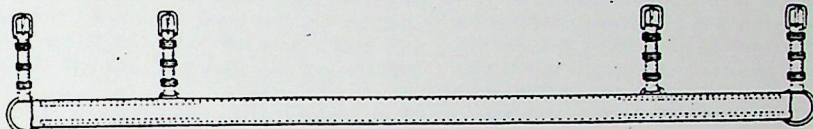


Fig. 5

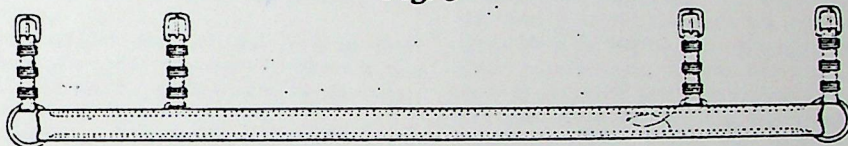


Fig. 6

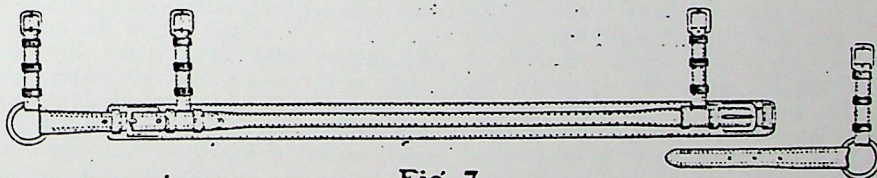


Fig. 7

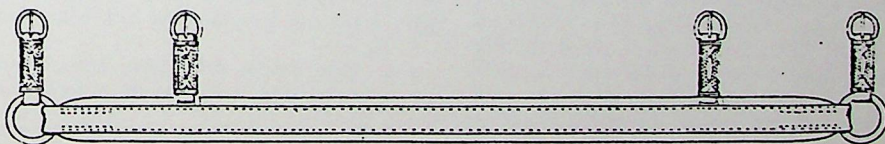


Fig. 8

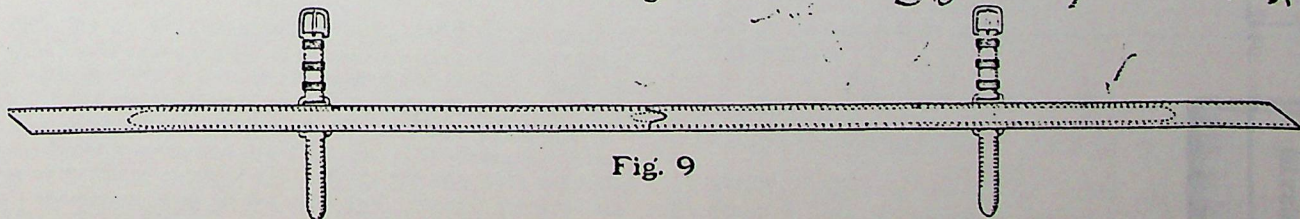


Fig. 9

Nine Patterns of Breaching Bodies.
Described on opposite page.

VARIOUS STYLES OF HARNESS GIRTHS.

Illustrated on opposite page.

The illustrations shown represent the different styles of girths used in driving harness.

Fig. 1 shows the girth for a road harness. The saddle or inside girth is folded, with a straight layer and safe under buckle, the outside or shaft girth is single throughout with $\frac{7}{8}$ in. body, and slides through two loops in the layer or inside girth. Billets are $\frac{3}{4}$ in. wide and long enough to permit wrapping around shafts. This is known as the combination girth.

Fig. 2 presents a girth used on track as well as on road harness. The body is also folded, and the lay is looped up in the center to take lower end of martingale. The fold forms a safe under the buckle; the latter is made with three bars, and wrap billets sew into outer end of buckles.

Fig. 3 shows another track girth, known as the Rose medium girth. The fold in this girth is made very soft and is from 28 in. to 30 in. long, extending above the saddle billet, which passes through a hole about 5 in. from the end. The wrap billets extend beyond end of fold. The center layer is looped up as in Fig. 2. This is a very popular girth, and if made right is easy on the horse.

Fig. 4 is a girth for pole harness. It shows a folded body waved layer, safe in ends under buckles and loops just back of the latter.

Fig. 5 illustrates the girth for a double surrey harness. This body is also folded, but shows a straight layer and narrow loop.

Fig. 6 shows a folded girth for coach harness. This fold forms a safe under the buckle, and, like Fig. 5, it has straight lay and narrow loops.

Fig. 7 is an outside girth for a long tug coach harness, made of single leather, with $5\frac{1}{2}$ in. laps on each end, two loops to take billets. In the better grades of work this is made lined throughout.

Fig. 8 shows another style of pad girth for long or short girth. The body forms a safe under buckles, with short buckle chapes under each end. In the better grades of work this is made lined.

Fig. 9 is a long or English pad girth. This is single leather and forms the inner side to pad. The buckle chape has three loops, to take the extra billet end.

Fig. 10 is a French pattern of an outside girth for long tug, made with a swell in center and lined throughout.

Fig. 11 represents a coupe saddle girth, made straight and long enough to sew on saddle flap on off side. It is single leather, with a layer throughout, three loops back of buckle for the extra billet end, and a large loop for the outside girth.

Fig. 12 illustrates a coupe saddle girth, swell pattern. The loops for the billets are the same as in Fig. 11. The large loop is sewed down on body at the rear of layer.

Fig. 13 is a coupe shaft girth. This is made either single or lined. The loops are spread and are intended for extra billet end.

Fig. 14 presents an express girth with folded body, center seam, with short buckle chapes on each end.

DON'T "DO" YOUR CUSTOMERS.

"Do you know I often feel sorry for some of the 'jays' to whom I have sold a big bill of goods. I occasionally load a man up with so large a line of my stuff it's a shame to take the money, and my conscience troubles me afterward."

The above remarks were made by my fellow passenger on a West Madison grip car a few days ago. The speaker apparently was about thirty years of age, and the remarks were addressed to a companion of about the same age. Being a salesman myself, I was interested.

From the further talk I gathered that the salesman who had experienced the occasional twinge of conscience was a com-

paratively new man on the road. At least the tone of his conversation indicated as much, and further, that he would be a failure as a salesman if he continued to pursue the tactics he had described.

One of the cardinal principles which a salesman should observe is, never to sell a customer more goods than he would purchase himself were their positions reversed. Sales of the kind mentioned always act as a boomerang. Instead of making a "customer," they have the opposite effect—the salesman has simply secured one order, and in getting it he has lost the confidence of a possible customer.

The general manager once said to me, when I was starting out for a new house: "Remember, now, we don't care for orders; what we want is customers. The remark sounded so paradoxical that I inquired his meaning, and he explained at length. He didn't want his salesmen placed in a position where their conscience would trouble them.

No man can succeed as a salesman unless he wins the confidence of his trade. And there is just one way to do this—by fair and square dealing. He may pick up occasional orders, and "load up a jay" here and there, but he will find in a short while that his competitor is doing the bulk of the business in his territory; that is, if his competitor be made of the proper stuff, and guards the interests of his trade as zealously as he does those of his employer. Unless this is done, failure is the inevitable fate of a salesman.

It frequently happens that a salesman's suggestions are not asked by a customer. More frequently, however, his advice is sought, and when it is, it should be given conscientiously and with an eye to the future—not to the size of the single order he is taking.

Every salesman has among his trade a few "know it alis," who "know just what they want" and regard a salesman's suggestions with suspicion. The only way to handle a customer of this kind is to let him have his own way. Put down his order as he gives it, but be sure to treat him with respect, though be chary with advice. Nearly every man believes his own judgment is the best, and doesn't like to have it questioned. After you have his order you can incidentally mention a few articles which are having a good sale in other localities, but which he has overlooked. Don't press him to buy any of these, however. He'll do it the next time you call; he don't want you to think you furnished the initiative.

The buyer who takes the salesman into his confidence is the one who gets all the best of it. He secures the full benefit of the salesman's experience, and not infrequently a better price than his "know it all" competitor.

Of course, a salesman's first duty is to his house, but no reputable business house wants to "load up" a customer with a stock of goods which he cannot handle to advantage, and, incidentally, pay for when due. The new salesman is especially prone to look for large orders. He loses sight of the fact that he must "build up" his trade, and, in his anxiety and zeal, is liable to do things which have just the opposite effect. Here are two good rules for new salesmen to paste in their hats. They come from two houses in the same line of trade:

"Don't try to get orders; try to make customers."

"Never misrepresent anything to a customer and never sell him an article he does not need."

If new salesmen will follow these rules and work hard their chances of success will be bright, indeed.—Frank R. Atwood, in Chicago News.

FRANK A. McCAFFREY MAKES A CHANGE.

Frank A. McCaffrey, who has for several years represented the Frazer & Jones Company, of Syracuse, N. Y., as traveling salesman, has become associated in a similar capacity with the well known house of O. B. North & Co., of New Haven, Conn.

Harness

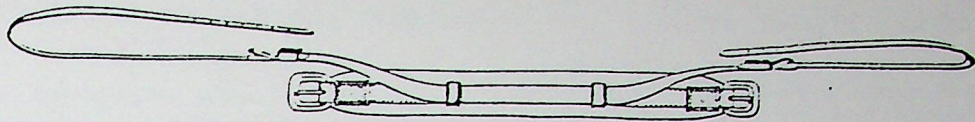


Fig. 1

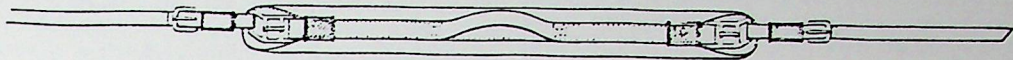


Fig. 2

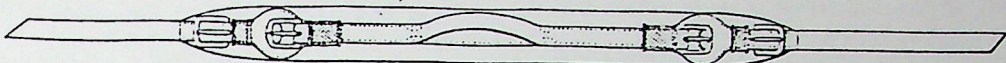


Fig. 3

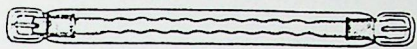


Fig. 4

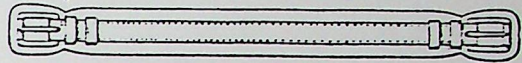


Fig. 5

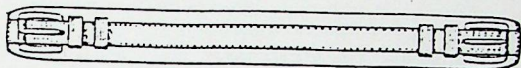


Fig. 6

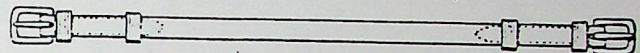


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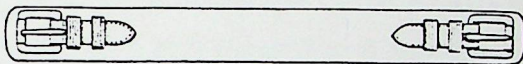


Fig. 8

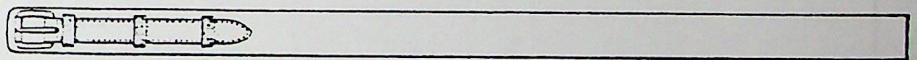


Fig. 9



Fig. 10

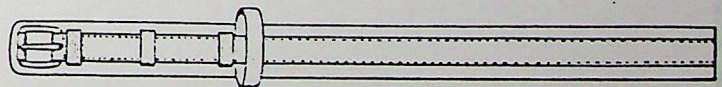


Fig. 11

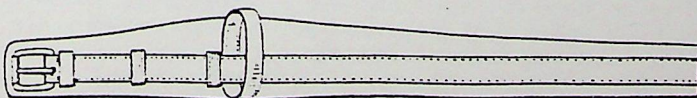


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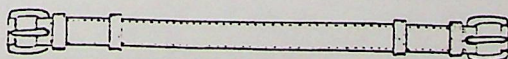


Fig. 13

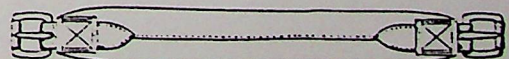


Fig. 14

VARIOUS STYLES OF HARNESS GIRTHS.

Described on opposite page.

LEADING PATTERNS OF HARNESS SADDLES.

Illustrated on opposite page.

This month we present a series of harness saddles, representing those in general use. Ten styles are shown, each of which we shall describe individually.

Fig. 1 represents a flexible tree saddle, without a seat. This saddle is intended for road, track or speedway harness. The trees are made of brass or steel, and will bend to fit a round or sharp back. The backband has a ring below the jockey and is sewed down solid to the flap, above the ring. The part of backband below the ring swings loose. The ring is intended for trotting attachments to buckle into. This saddle, while not very dressy, is very popular with horsemen.

Fig. 2 is used on a road harness for either a round or flat trace. This illustration shows a short jockey with backband rounded above the loop and made with a little swell below that point. In this instance the backband is secured stationary to the saddle, and is also held secure by the terret which passes through it, into the socket in tree, allowing no side motion to the shaft tugs. The tree is made of iron.

Fig. 3 presents a road harness saddle with half track length tree. The backband is made in one piece and hangs loose in tree running under terret nuts, allowing a side motion to shafts.

Fig. 4 illustrates a runabout or surrey saddle, size 4½ in. This style is made in both flexible and stiff trees. The shape, however, is the same and is used with either Tilbury, French or cart style of shaft tugs.

Fig. 5 is a 4½ in. regular surrey saddle, with long running backband for cart. The billets are sewed on English style. This is made on an iron tree in imitation of English wood tree.

Fig. 6 is an English Cramp style of saddle, made on a wood tree. There is no jockey on the saddle. The tree is bridged over to support the terrets and hook, allowing the backband to run free.

Fig. 7 shows a 5½ in. brougham English style saddle, with wide girth on off side and long billet on nigh.

Fig. 8 is an illustration of a public hansom cab saddle, with a metal bridge over backband. The backband is loose running over saddle tree. The tree is of iron. The backband is made of two heavy straps and is not stitched in center.

Fig. 9 represents an express or delivery saddle with iron tree and metal backband loop.

Fig. 10 presents a quick hitch or ambulance saddle with long backband. This is made with a loose ring in center, to hang it from. There is no billet on flap on nigh side. The backband runs through a D on end and has a D link on the lower end of extension to take snap on girth. The off side has a billet for drawing up girth. The off side of backband has a point to take a third buckle in girth.

STRANGE THINGS HAPPEN.

It so happened that in a little village in the Southwestern part of Massachusetts, known as Westfield, there were many large and prosperous manufacturing institutions, most numerous among them being whip factories, and in another part of the country a buyer of whips, who, as it were, had been so inflated with the hot air for which whip salesmen are famous, that after making an extensive purchase seemed to have entirely forgotten the name of the company from which he made the purchase; so, to make sure of reaching the proper concern, made out his check and addressed his letter to the "Most Modern and Complete Facilities, Westfield, Mass."

It was up to the postal authorities to deliver the goods, which he loaded at the proper place the first crack out of the bag. It belonged to the Independent Whip Co., the manufacturers of the celebrated "Electric" rawhide whip. This plant is certainly modern and complete, and facilities for producing whips perfect.

GAUDY-COLORED SADDLES.

It is a well-known fact that people who dwell in hot, arid, or semi-arid countries have a strange inclination for bright colors, whether it be for their own apparel, household furnishings or anything else in their surroundings. This has been accounted for by the fact that the eye gets tired in dwelling on the sun-burnt soil and leafless or dried-up shrubs and so takes relief in substituting for nature's greenness and scenery bright coloring in things under the control of man. This is, probably, the reason why in Australia the coloring of the saddles is more gaudy than those in use here and in Great Britain.

A writer in *The Australasian Saddler* in discussing this question says:

Colonial saddlers, in comparison with many of those in other leather trades, show a regrettable want of taste in the colors they use. Only in the Australasian colonies will you see such brilliant yellows, flaring orange, and reddish colored leathers used in the manufacture of saddles and harness, particularly saddles. The appearance of this class of goods is completely spoiled by the use of these vivid colors, and in a good many instances the purchaser requires them darkened before he will use them. This is borne out by the fact that most people would sooner buy a saddle that has been used than a new one. Hence the practice of breaking in new saddles, which simply means dirtying them. Saddlers might save themselves a lot of trouble by using milder colored leathers at the start; colors such as self, London, light brown, nut brown. There would be plenty of variety in these, and little to offend the eye, and, besides, there are several shades of the two last which could be used instead of the ones in use at present. Take, for instance, English goods imported. They are nearly all London color, saddles and bridlware in particular, and I feel sure that most saddlers will agree with me that this color has a much better appearance than the colonial. In other kindred leather trades, bag and portmanteau makers, belt and brace makers, ladies' satchels, dressing cases, and other lines, the use of highly colored leathers is a thing of the past, except for the commonest kind of work. Saddlers would find it very much to their advantage to use all one color in leather, say, all London color. Every piece would match. Stained leather now being largely used, you may have three sides each of a different shade, and a piece off one would not match either of the other two. This must be the fault of the saddler for buying all sorts of colors, and if saddlers insisted on standard colors from the tannery in milder shades, I think there would soon be a difference in the appearance of colonial saddles.

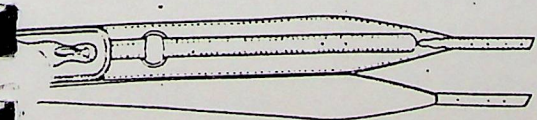


Fig. 1

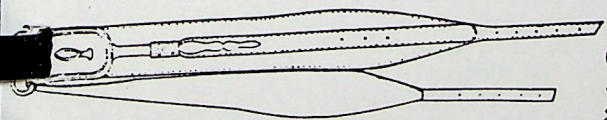


Fig. 2

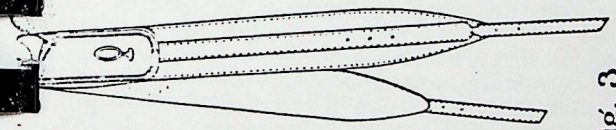


Fig. 3

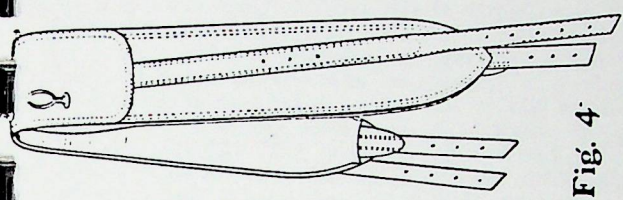


Fig. 4

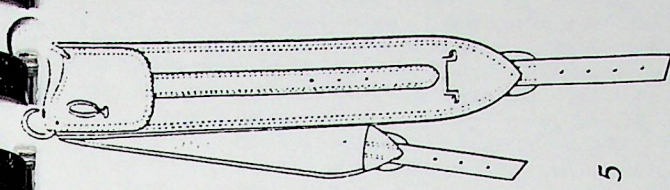


Fig. 5

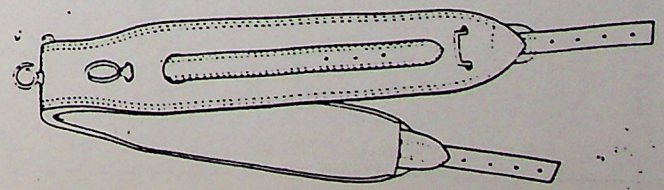


Fig. 6

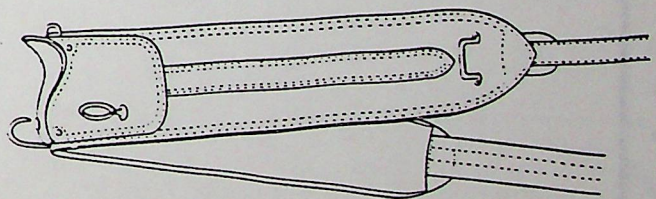


Fig. 7

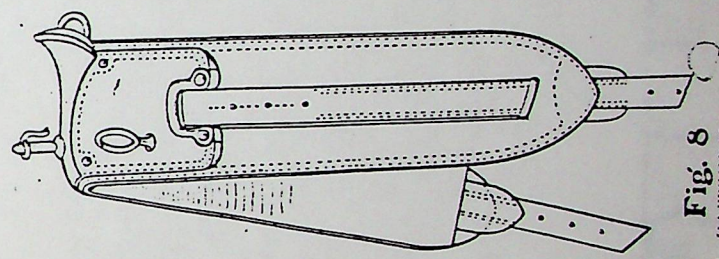


Fig. 8

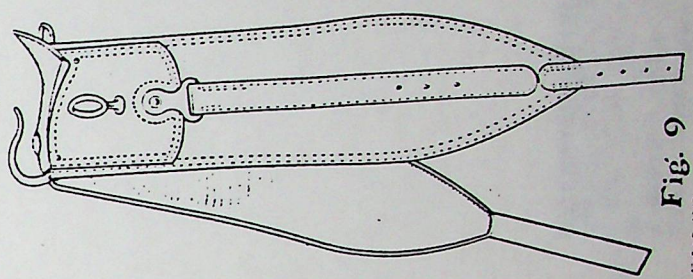


Fig. 9

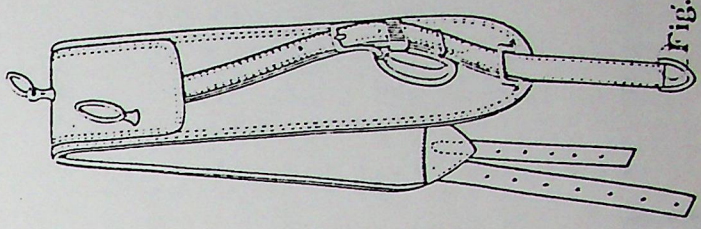


Fig. 10

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Harness

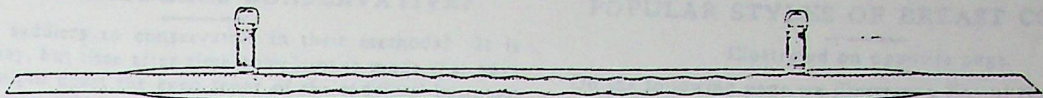


Fig. 1

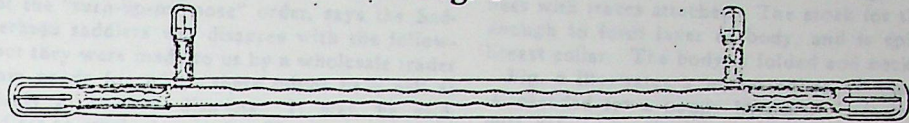


Fig. 2

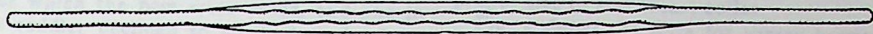


Fig. 3

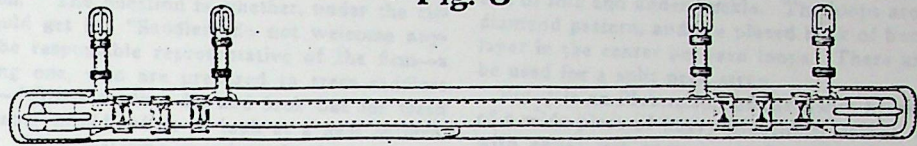


Fig. 4

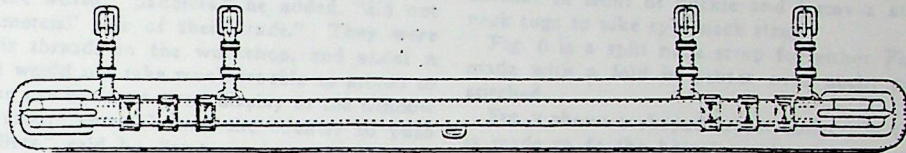


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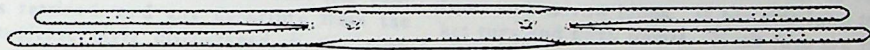


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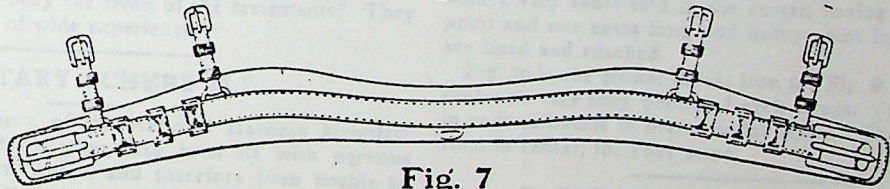


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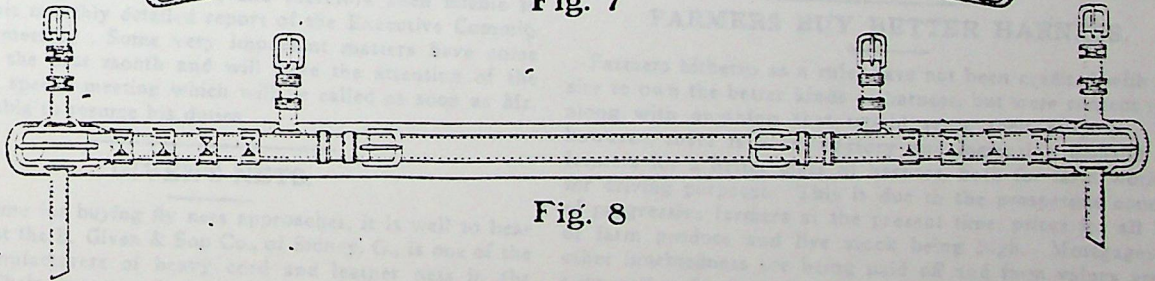


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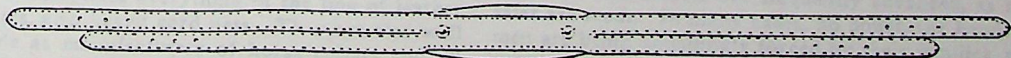


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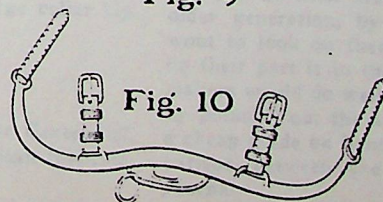


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Specifications for Single Surry Harness

Pattern in separate part

The harness described in articles on separate page and shown assembled on this page requires a minimum yardage of 100 yds. of material.

Fig. 1 illustrates the collar, which is 12 in. high. The length is 7 in. between clips, and the strap is provided with easy eye loops.

Fig. 2 shows one of the girths, which are made up like a saddle

girth and made up like a collar. The collar is 12 in. high and 7 in. between clips.

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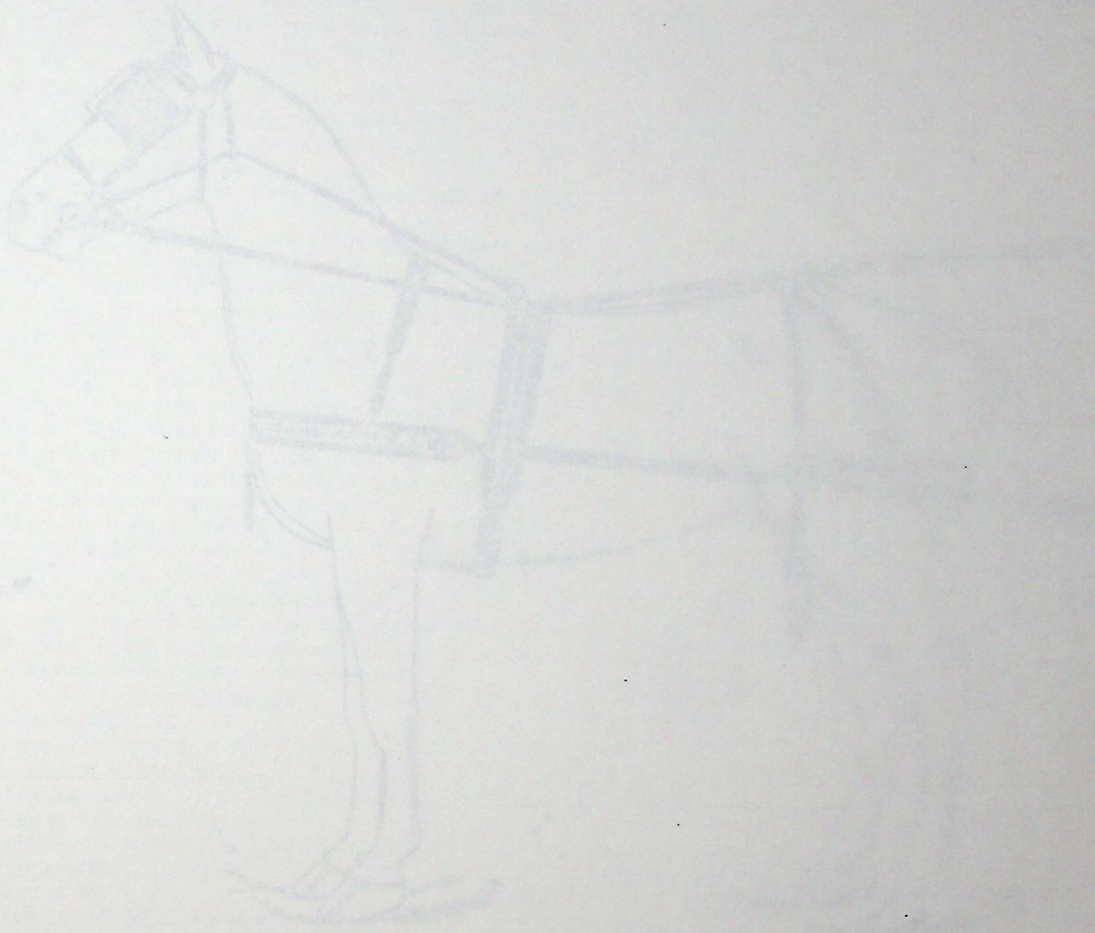


FIGURE 1. SINGLE SURRY HARNESS
Showing main harness

with a side loop on each. It is made up like a collar and is 12 in. high and 7 in. between clips.

Fig. 3 represents the throat strap, which is made up like a collar and is 12 in. high and 7 in. between clips.

Fig. 4 shows the back strap, which is made up like a collar and is 12 in. high and 7 in. between clips.

Fig. 5 shows the water belt and describes the former in detail with a 12 in. high, which is 12 in. wide at each end.

The water belt is 12 in. wide at each end and 12 in. long. There are two clips on each side between the buckles, with two loops of rope and two loops of heavy leather. The clips are 12 in. long with an eye loop on the inside. The clips are 12 in. square. The clips are 12 in. wide at each end.

Fig. 6 illustrates the shaft belt, which is made up like a collar and is 12 in. high and 7 in. between clips.

Fig. 7 shows the collar, which is made up like a collar and is 12 in. high and 7 in. between clips.

Fig. 8 is the collar, which is made up like a collar and is 12 in. high and 7 in. between clips.

Single Surry
Harness

Specifications for Single Surrey Harness

Patterns on opposite page.

The harness illustrated in sections on opposite page and shown assembled on this page represents a medium priced surrey or runabout style.

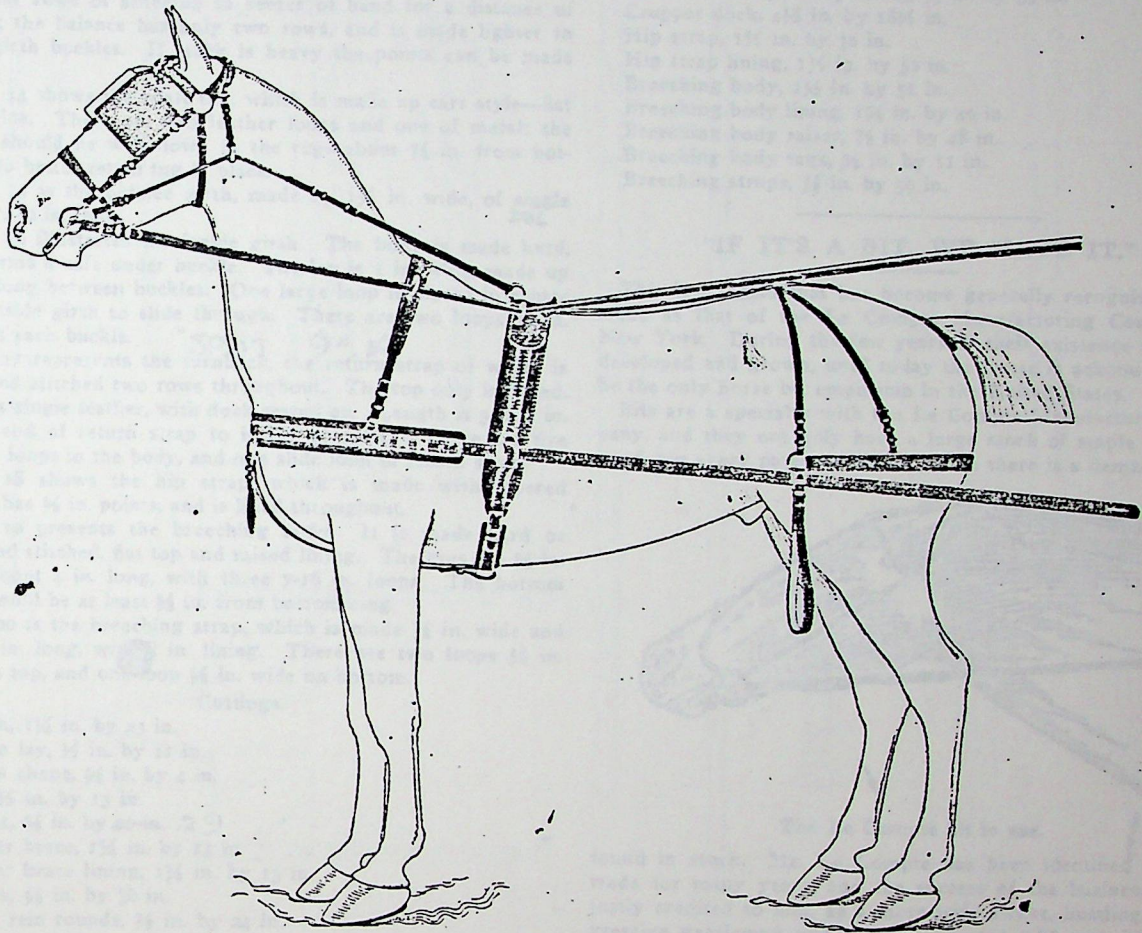
Fig. 1 illustrates the crown, which is split $6\frac{1}{2}$ in. The layer is 7 in. between rings, and the chape is provided with only one loop.

Fig. 2 shows one of the gags, which are made up like a hame

loops and $1\frac{3}{4}$ in. by $\frac{5}{8}$ in. lap at ring. The center is made to reef at both sides.

Fig. 7 represents the noseband, made up 30 in. over all, with $\frac{5}{8}$ in. buckle end and billet. Center is 1 in. wide, tapered to $\frac{3}{4}$ in. at cheek loops; the latter are $12\frac{1}{2}$ in. apart; lining is 18 in. long.

Fig. 8 presents the Swiss breast collar, which is made up 41 in. long from end to end of fold. Width of body is 3 in., lay



SURREY OR RUNABOUT HARNESS

Showing parts assembled.

strap with a slide loop on point. It is made up $10\frac{1}{2}$ in. long to heel of buckle.

Fig. 3 represents the throat strap, which is made up 20 in. long, with two loops in lap.

Fig. 4, the face drop, is made with patent leather top and plain leather back, and is cut by pattern.

Fig. 5 shows the winker brace and cheeks; the former is made with a $5\frac{1}{2}$ in. point, which is $\frac{5}{8}$ in. wide at buckle hole. The splits are 9-16 in. wide and $7\frac{1}{2}$ in. long. Cheeks are made up $7\frac{1}{2}$ in. long between the buckles, with two loops at top and three loops at lower buckle. Billets are 11 in. long, with no lap below the buckle. Winkers are $5\frac{1}{2}$ in. square. The loops in bridle are $\frac{3}{4}$ in. wide.

Fig. 6 illustrates the check rein, which is rounded 19 in. from ring to bend of billet. There is a $1\frac{1}{2}$ in. lap at buckle, with two

$1\frac{1}{4}$ in. wide, and 2 ft. 10 in. between the buckles. There are three $\frac{3}{4}$ in. loops back of each buckle, creased English diamond pattern. The tugs are made up $2\frac{5}{8}$ in. between the D loops and buckle. There are three 7-16 in. loops on each tug. Tugs are 25 in. apart. The end of fold is sewed around to the under side. Fold is made with open side down.

Fig. 9 illustrates the neck strap, which is made with a single $\frac{3}{4}$ in. point, 9 in. long from end of fold, with a tapered lay over body. Body is 22 in. long and made up $1\frac{3}{4}$ in. wide, or scant $\frac{3}{4}$ in. under the layer at center on each side.

Fig. 10 shows one of the traces, which are made 75 in. long from point to heel. There is a dart hole in heel and four buckle holes for buckle tongue in point. There are four rows of stitching in traces near edges.

Fig. 11 is the martingale, made up with $\frac{7}{8}$ in. body, which is

made to reef up at the bottom. The length is 30 in. from the bend of reef to heel of buckle. There is a patent leather frog or ornament in the billet lap. The billet is made 10 in. long from heel of buckle to point. The patent leather ornament has one false row and one genuine row of stitching around edge.

Fig. 12 represents one of the reins, which are made of russet leather. There are two loops in the billet lap. The hand part lap or splice is $3\frac{1}{2}$ in. long, with an English point at end. Reins are 13 ft. long and $\frac{7}{8}$ in. wide throughout.

Fig. 13 presents the saddle. It is 4 in. wide and made on an iron tree, with a running cart backband. The pad is all leather, tufted to flap. Girth billets are 1 in. and made single. Backband is $1\frac{1}{2}$ in. wide and 6 ft. long from point to point. There are four rows of stitching in center of band for a distance of 46 in.; the balance has only two rows, and is made lighter to take girth buckles. If stock is heavy the points can be made single.

Fig. 14 shows the shaft tug, which is made up cart style—flat on inside. There are two leather loops and one of metal; the latter should be well down in the tug—about $\frac{7}{8}$ in. from bottom—to better retain tug in place.

Fig. 15 is the outside girth, made up $1\frac{1}{2}$ in. wide, of single leather, 19 in. long.

Fig. 16 illustrates the inside girth. The body is made hard, and forms a safe under buckle. The lay is 1 in. wide, made up 17 in. long between buckles. One large loop is placed in center for outside girth to slide through. There are two loops $\frac{1}{2}$ in. wide at each buckle.

Fig. 17 represents the turnback, the return strap of which is lined and stitched two rows throughout. The top only is raised. Body is single leather, with dock sewed on. Length is 3 ft. 2 in. from bend of return strap to inside of dock. There are five 7-16 in. loops in the body, and one slide loop in return strap.

Fig. 18 shows the hip strap, which is made with tapered center, has $\frac{5}{8}$ in. points, and is lined throughout.

Fig. 19 presents the breeching body. It is made hard or lined and stitched, flat top and raised lining. The tugs are $\frac{5}{8}$ in. wide, about 4 in. long, with three 7-16 in. loops. The bottom loop should be at least $\frac{5}{8}$ in. from bottom ring.

Fig. 20 is the breeching strap, which is made $\frac{7}{8}$ in. wide and 4 ft. 3 in. long, with 1 in. lining. There are two loops $\frac{1}{2}$ in. wide on top, and one loop $\frac{5}{8}$ in. wide on bottom.

Cuttings.

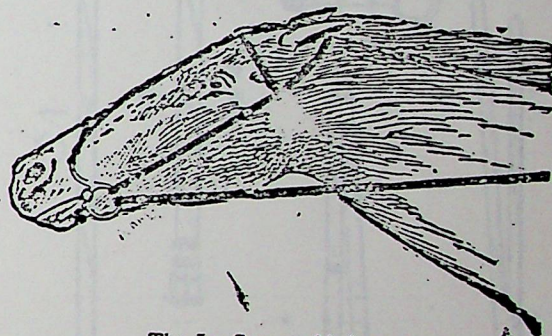
- Crown, $1\frac{1}{4}$ in. by 23 in.
- Crown lay, $\frac{1}{2}$ in. by 11 in.
- Crown chape, $\frac{5}{8}$ in. by 4 in.
- Gag, $\frac{1}{2}$ in. by 13 in.
- Throat, $\frac{5}{8}$ in. by 26 in. 29
- Winker brace, $1\frac{1}{4}$ in. by 13 in.
- Winker brace lining, $1\frac{1}{4}$ in. by 13 in.
- Cheeks, $\frac{5}{8}$ in. by 30 in.
- Check rein rounds, $\frac{7}{8}$ in. by 24 in.
- Check rein billets, $\frac{5}{8}$ in. by 10 in.
- Check rein center, $\frac{5}{8}$ in. by 68 in.
- Check rein round filling, $\frac{3}{8}$ in. by 12 in.
- Noseband, 1 in. by 32 in.
- Noseband lining, 1 in. by 18 in.
- Breast collar body, $6\frac{1}{8}$ in. by 41 in.
- Breast collar lay, $1\frac{1}{4}$ in. by 45 in.
- Breast collar tugs, $\frac{5}{8}$ in. by 9 in.
- Breast collar loops, $\frac{3}{4}$ in. by 5 in.
- Neck strap body, $3\frac{5}{8}$ in. by 22 in.
- Neck strap lay, $1\frac{1}{4}$ in. by 41 in.
- Neck strap lining, 1 in. by 13 in.
- Trace tops, $1\frac{1}{2}$ in. by 75 in.
- Trace backs, $1\frac{1}{2}$ in. by 75 in.
- Martingale body, $\frac{7}{8}$ in. by 40 in.
- Martingale billet, $\frac{7}{8}$ in. by 13 in.
- Martingale frog, $2\frac{1}{8}$ in. by 6 in.
- Rein fronts, $\frac{7}{8}$ in. by 78 in.
- Rein billets, $\frac{7}{8}$ in. by 14 in.

- Rein hand parts, $\frac{7}{8}$ in. by 84 in.
- Saddle flap, 4 in. by 22 in.
- Saddle billet, $\frac{7}{8}$ in. by $13\frac{1}{2}$ in.
- Backband tops, $1\frac{1}{8}$ in. by 38 in.
- Backband lining, $1\frac{1}{8}$ in. by 72 in.
- Shaft tug, $1\frac{1}{8}$ in. by 23 in.
- Shaft tug filling, $1\frac{1}{8}$ in. by 8 in.
- Outside girth, $1\frac{1}{8}$ in. by 27 in.
- Inside girth body, $2\frac{1}{4}$ in. by 27 in.
- Inside girth lay, 1 in. by 24 in.
- Turnback body, $1\frac{1}{2}$ in. by 21 in.
- Turnback return strap, $\frac{7}{8}$ in. by 43 in.
- Turnback return strap lining, $\frac{7}{8}$ in. by 55 in.
- Crupper dock, $4\frac{1}{2}$ in. by $18\frac{1}{2}$ in.
- Hip strap, $1\frac{1}{2}$ in. by 52 in.
- Hip strap lining, $1\frac{1}{2}$ in. by 52 in.
- Breeching body, $1\frac{1}{2}$ in. by 51 in.
- Breeching body lining, $1\frac{1}{2}$ in. by 40 in.
- Breeching body raiser, $\frac{7}{8}$ in. by 48 in.
- Breeching body tugs, $\frac{5}{8}$ in. by 11 in.
- Breeching straps, $\frac{7}{8}$ in. by 59 in.

"IF IT'S A BIT, WE HAVE IT."

This is a motto that has become generally recognized in the trade as that of the Le Compte Manufacturing Company, of New York. During the few years of their existence they have developed and grown, until today the house is acknowledged to be the only horse bit emporium in the United States.

Bits are a specialty with the Le Compte Manufacturing Company, and they not only have a large stock of staple goods on hand, but every patented bit for which there is a demand can be



The Le Compte bit in use.

found in stock. Mr. Le Compte has been identified with the trade for many years, and the success of the business can be justly credited to him, as a more wide awake, hustling and aggressive gentleman was never connected with any institution. He has developed the business and has established a trade of which he may feel proud. The original idea of a bit emporium has been the foundation on which the business has been built, and the trade has come to recognize in this house a mart where anything in the bit line can be obtained.

LUTZ AT CINCINNATI.

L. D. Lutz, for a number of years Western representative of Fred M. Barnet, bit manufacturer, of Newark, N. J., has severed his relations with the latter and is now identified with the Eberhard Manufacturing Company, and will make headquarters in Cincinnati, Ohio. Mr. Lutz succeeds John McGrath, whose services are required at the home office in Cleveland.

One sentiment expressed in an unguarded moment, puts a new stamp on us in a moment and makes an impression sharp as the engine stamps the coin.

Harness

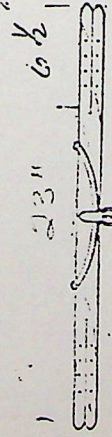


Fig. 1

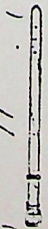


Fig. 2

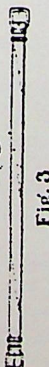


Fig. 3

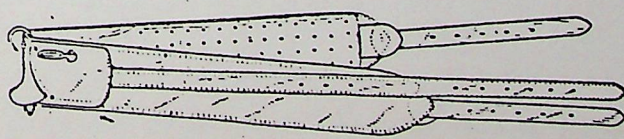


Fig. 4

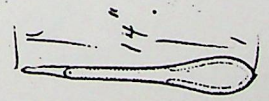


Fig. 5

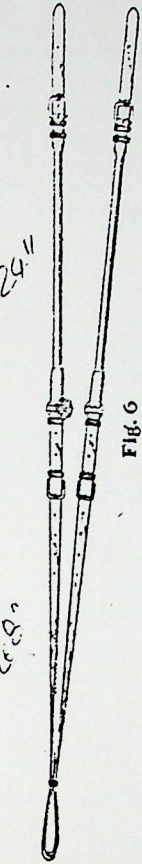


Fig. 6

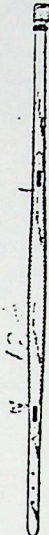


Fig. 7

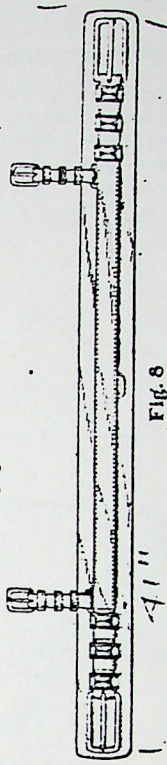


Fig. 8

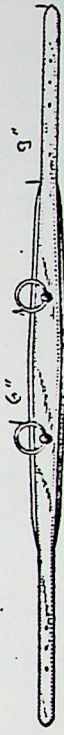


Fig. 9

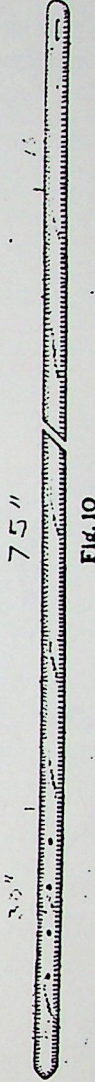


Fig. 10

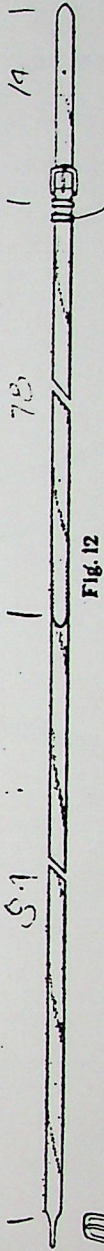


Fig. 11

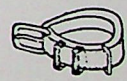


Fig. 12

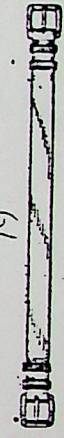


Fig. 13

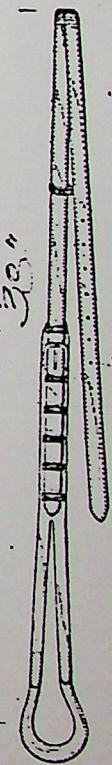


Fig. 14

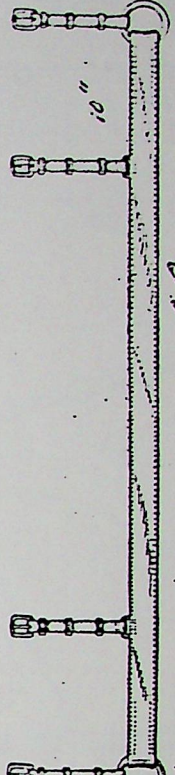


Fig. 15

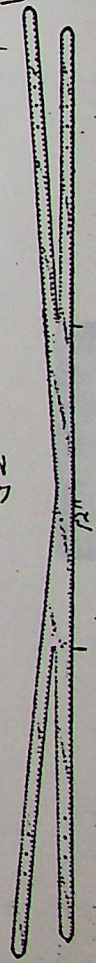


Fig. 16

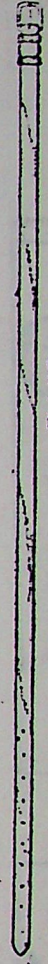


Fig. 17

Specifications for Hansom Cab Harness

Described on opposite page.

We have selected the most for illustrating a hansom cab harness. The harness appears to be the preceding page and the accompanying dimensions of the various parts for cutting and making up the complete and correct and will make a harness which is readily understood the construction of a harness of this character. Our plan on this page shows the parts shown in

Fig. 1 shows the harness which is made up from the head of buckle and is in between the neck bands. It is 18 in.

Fig. 2 illustrates the harness, 12 in. 2 in. wide and 20 in. long from head of head to head of neck. The front of buckle is 18 in. long. The dimensions are 18 in.



HANSON CAB HARNESS
showing parts assembled.

shown and will represent a plan of the harness under construction.

Fig. 1 represents the head collar, which is made up of 1/2 in. strap and is 18 in. in width and 20 in. in length. There is a 1/2 in. strap at the end and a wrought iron buckle, strap for gag strap.

Fig. 2 shows the throat, which is made up of 1/2 in. strap with eye at the end and a wrought iron buckle, strap for gag strap.

Fig. 3 is the neck strap, which is made up of 1/2 in. strap and eye at the end.

Fig. 4 represents the saddle, which is made up of 1/2 in. strap through the buckle and is 18 in. in length and 12 in. in width. The saddle is 18 in. long from the buckle. The buckle is 18 in. in diameter and 1/2 in. in width. The saddle is 18 in. in length and 12 in. in width.

Fig. 5 shows the harness and traces. The harness is made up of 1/2 in. strap and is 18 in. in length and 12 in. in width. The traces are 1/2 in. in width and 18 in. in length.

Fig. 6 is the head of neck, which is made up of 1/2 in. strap and is 18 in. in length and 12 in. in width. The head of neck is 18 in. in length and 12 in. in width.

Fig. 7 represents the collar, which is made up of 1/2 in. strap and is 18 in. in length and 12 in. in width. The collar is 18 in. in length and 12 in. in width.

Fig. 8 represents the breeching, which is made up of 1/2 in. strap and is 18 in. in length and 12 in. in width. The breeching is 18 in. in length and 12 in. in width. The breeching is 18 in. in length and 12 in. in width.

Fig. 9 is the harness, which is made up of 1/2 in. strap and is 18 in. in length and 12 in. in width. The harness is 18 in. in length and 12 in. in width.

Harness

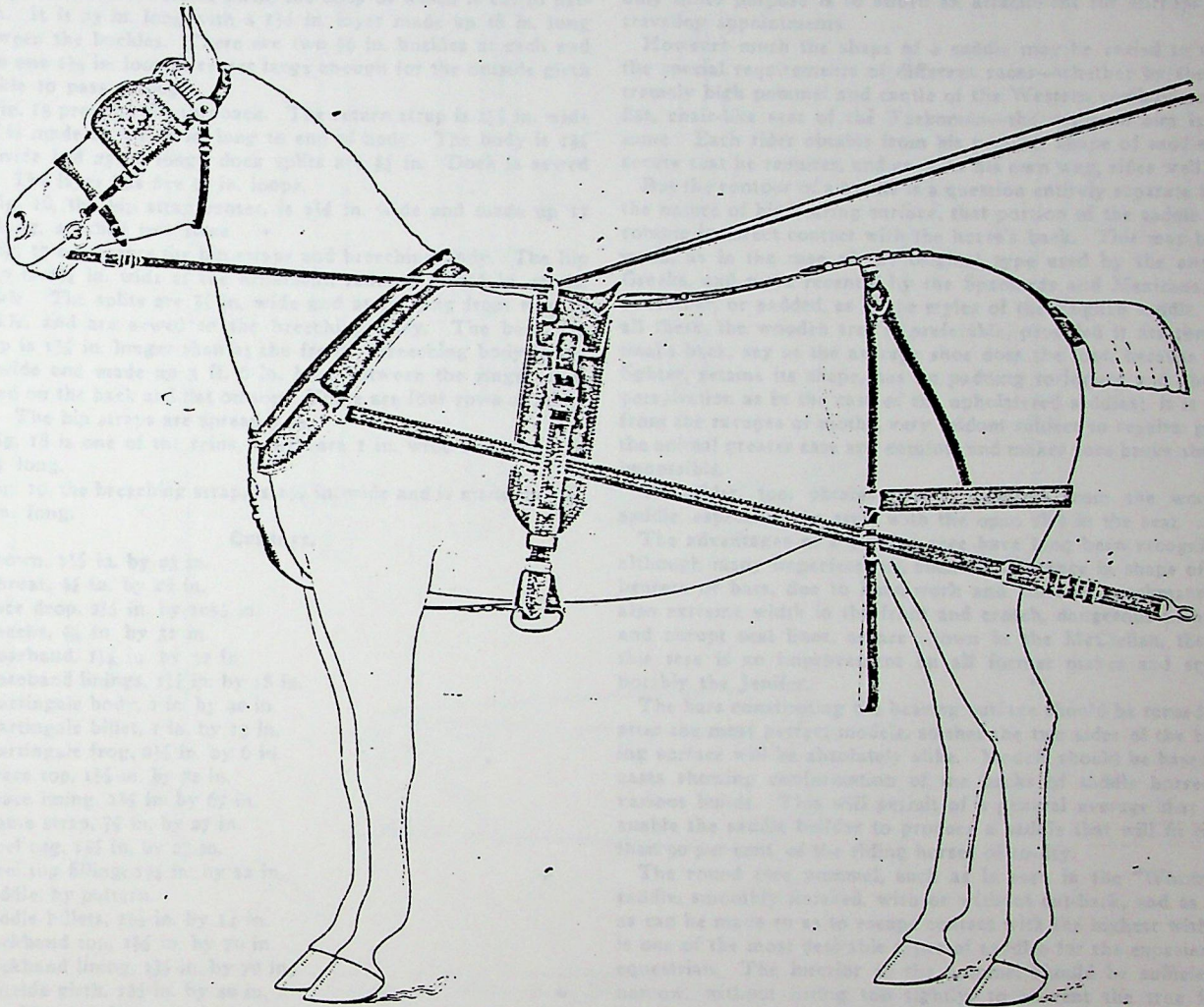
Specifications for Hansom Cab Harness

Patterns on opposite page.

We have selected this month for illustrating a hansom cab harness. The patterns appearing on the preceding page and the accompanying dimensions of the various parts for cutting and making up are complete and correct and will enable a harness maker to readily understand the construction of a harness of this character. Our plate on this page shows the parts placed in

Fig. 5 shows the noseband which is made up 30 in. long to the heel of buckle and 13 in. between the cheek loops. It is lined 18 in.

Fig. 6 illustrates the martingale. It is 1 in. wide and made up 30 in. long from bend of reef to heel of buckle. The billet in front of buckle is 10½ in. long. The ornament is cut by pattern.



HANSOM CAB HARNESS.
Showing Parts Assembled.

position and will convey, at a glance, the style of the harness under consideration.

Fig. 1 represents the bridle crown, which is made up 23 in. long and is split 6½ in. at each end. There is a ¾ in. chape at center and a straight layer, without rings for gag straps.

Fig. 2 shows the throat, which is made 20 in. long with two ¾ in. loops in the lap, at each end.

Fig. 3 is the face drop, which is made of patent leather and cut by pattern.

Fig. 4 presents the cheeks, which are made up 7½ in. wide between the buckles and provided with five 7-16 in. loops. The billets are 12 in. long from the buckle. The winkers are 6½ in. deep and of same width. The winker brace has ¾ in. splits with ¾ in. point.

Fig. 7 shows the hames and traces. The former are ¾ in. full plate with a ring draft into which the traces are sewed. The traces are 1½ in. wide and 5 ft. 3 in. long from ring to point.

Fig. 8 is the heel tug of traces. It is made up 9 in. between the heel of buckle and the cockeye. There are three 1 in. loops back of buckle.

Fig. 9 represents the hame strap, which is made up 7½ in. wide and 24 in. long.

Fig. 10 presents the saddle, which is made up on a 7 in. tree. The flaps are 22 in. long from the hook to point. The jockey is blocked up very high and has a metal trough at bottom to accommodate the backband. The pad is of leather made with a hard bearing.

Fig. 11, the backband, is 1¾ in. wide and made up 5 ft. 10 in.

long from point to point. It is stitched 21 in. at each end or to the first hole for shaft tug. The center is not stitched, because the motion of the shafts would loosen the stitching and besides the backband is more pliable without it.

Fig. 12 illustrates the shaft tug which is 13½ in. wide and made up round or Irish style, 10½ in. long from hole to hole. There are two 1 in. leather loops and one metal loop in each tug, and four rows of stitching all around.

Fig. 13 represents the outside girth. It is made up 13½ wide and 3 ft. 4 in. long and is lined and stitched throughout. There are two 1 in. loops at each end, which are 2½ in. apart.

Fig. 14 shows the inside girth, the body of which is cut to pattern. It is 23 in. long with a 1½ in. layer made up 18 in. long between the buckles. There are two ¾ in. buckles at each end with one 1¾ in. loop at center large enough for the outside girth buckle to pass through.

Fig. 15 presents the turnback. The return strap is 1½ in. wide and is made up 3 ft. 6 in. long to end of body. The body is 1¾ in. wide and 23 in. long; dock splits are ¾ in. Dock is sewed on. The layer has five ½ in. loops.

Fig. 16, the hip strap center, is 1¾ in. wide and made up 17 in. long, stitched two rows.

Fig. 17 represents the hip straps and breeching body. The hip strap is 2¼ in. wide at the ornament, reduced to 1½ in. at the buckle. The splits are ¾ in. wide and 21 in. long from ring to buckle, and are sewed to the breeching body. The back hip strap is 1¾ in. longer than at the front. Breeching body is 1¾ in. wide and made up 3 ft. 6 in. long between the rings; it is raised on the back and flat on top. There are four rows of stitching. The hip straps are spread 7 in.

Fig. 18 is one of the reins, which are 1 in. wide and made up 20 ft. long.

Fig. 19, the breeching strap, is 1½ in. wide and is made up 2 ft. 10 in. long.

Cuttings.

Crown, 1½ in. by 23 in.
 Throat, ¾ in. by 26 in.
 Face drop, 2¼ in. by 10½ in.
 Cheeks, ¾ in. by 31 in.
 Noseband, 1¾ in. by 32 in.
 Noseband linings, 1¾ in. by 18 in.
 Martingale body, 1 in. by 40 in.
 Martingale billet, 1 in. by 13 in.
 Martingale frog, 2½ in. by 6 in.
 Trace top, 1½ in. by 72 in.
 Trace lining, 1½ in. by 67 in.
 Hame strap, 7¼ in. by 27 in.
 Heel tug, 1¾ in. by 27 in.
 Heel tug filling, 1¾ in. by 12 in.
 Saddle, by pattern.
 Saddle billets, 1½ in. by 14 in.
 Backband top, 1¾ in. by 70 in.
 Backband lining, 1¾ in. by 70 in.
 Outside girth, 1¾ in. by 40 in.
 Outside girth lining, 1¾ in. by 47 in.
 Inside girth, body, 4½ in. by 23 in.
 Inside girth, lay, 1½ in. by 26 in.
 Shaft tug, outside, 1¾ in. by 27 in.
 Shaft tug lining, 1¾ in. by 12½ in.
 Turnback return strap, 1¾ in. by 43½ in.
 Turnback body, 1¾ in. by 23 in.
 Turnback layer, 1¾ in. by 13 in.
 Dock, 4¾ in. by 19 in.
 Hip strap, center, 1¾ in. by 17 in.
 Hip strap, center, lining, 1¾ in. by 17 in.
 Hip strap, top, 2½ in. by 23 in.
 Hip strap lining, 2½ in. by 23 in.
 Breeching body, 1¾ in. by 30 in.
 Breeching body lining, 1¾ in. by 42 in.
 Breeching body filling, 1 in. by 48 in.
 Breeching straps, 1¾ in. by 42 in.
 Rein, billets, 1 in. by 14 in.
 Rein, front, part 1, 1 in. by 37 in.

Rein, front, part 2, 1 in. by 45 in.

Rein, front, part 3, 1 in. by 37 in.

Rein, hand part, 1 in. by 8½ in.

ABOUT SADDLES GENERALLY.

Every saddle has for its foundation a frame-work or skeleton, called the tree, the quality and shape of which are the deciding factors in both the value and contour of a finished saddle. The primary purpose of a saddle is to so modify the shape of a horse's back as to give the rider a comfortable seat; and the only other purpose is to afford an attachment for stirrups and traveling appointments.

However much the shape of a saddle may be varied to meet the special requirements of different races—whether by the extremely high pommel and cantle of the Western cowboy, or the fiat, chair-like seat of the Turkoman—the common aim is the same. Each rider obtains from his peculiar shape of saddle the secure seat he requires, and each, in his own way, rides well.

But the contour of a saddle is a question entirely separate from the nature of his bearing surface, that portion of the saddle tree coming in direct contact with the horse's back. This may be of wood, as in the case of the original type used by the ancient Greeks, and more recently by the Spaniards and Mexicans; or of leather, or padded, as in the styles of the English saddle. Of all these, the wooden tree is preferable, provided it fits the animal's back, say as the average shoe does the foot, because it is lighter, retains its shape, has no padding to induce and absorb perspiration as in the case of the upholstered saddles; it is free from the ravages of moths, very seldom subject to repairs, gives the animal greater ease and comfort and makes sore backs almost impossible.

The rider, too, obtains greater comfort from the wooden saddle, especially the style with the open slot in the seat.

The advantages of a wooden tree have long been recognized, although many imperfections, such as difference in shape of the bearers or bars, due to hand-work and slovenly workmanship; also extreme width in the front and crotch, dangerous pommel, and abrupt seat lines, as are shown in the McClellan, though this tree is an improvement on all former makes and styles, notably the Jenifer.

The bars constituting the bearing surface should be turned out after the most perfect models, so that the two sides of the bearing surface will be absolutely alike. Models should be based on casts showing conformation of the backs of saddle horses of various builds. This will permit of a general average that will enable the saddle builder to produce a saddle that will fit more than 90 per cent. of the riding horses of to-day.

The round tree pommel, such as is seen in the "Whitman" saddle, smoothly finished, with or without cut-back, and as low as can be made so as to escape contact with the highest withers, is one of the most desirable types of saddles for the experienced equestrian. The interior of the pommel should be sufficiently narrow, without fitting too tightly, to prevent the tree from slipping forward.

The saddle with the narrow contact has its advantages inasmuch as it not only assists the rider in assuming the perfect riding seat, but allows him to maintain that thorough grip of the thighs, so highly essential to a good control of the seat, while its compactness brings the rider nearer to the horse, thus, by lowering the center of gravity, the rider is enabled to readily obtain his balance, and so to realize the exquisite pleasure occasioned by complete unison with the horse's movements.

One of the natural effects of this type of saddle is to correct the bad habit of riding the upright or forked seat. It throws the weight of the rider as near the middle of the back as possible, where it should be. The stirrups should be hung so that when the rider has assumed an easy, natural seat, they will fall exactly opposite his feet.

The position of the saddle is important to the horse's comfort as well as that of the rider. If placed too far forward it comes in contact with the working point of the shoulder-blade, interfering with the horse's movements when in action.

Harness

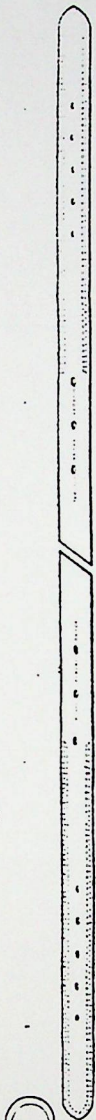


Fig. 1



Fig. 2

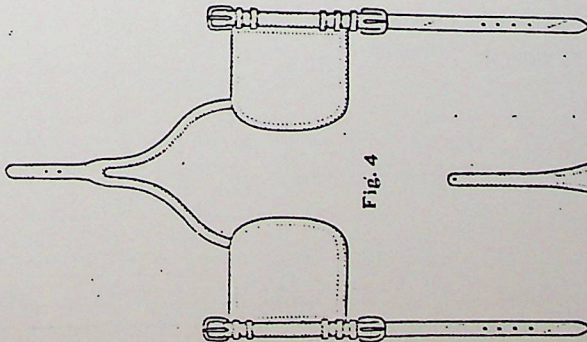


Fig. 3

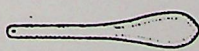


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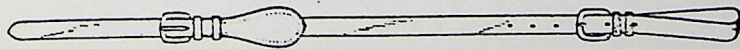


Fig. 5



Fig. 6



Fig. 7



Fig. 8



Fig. 9

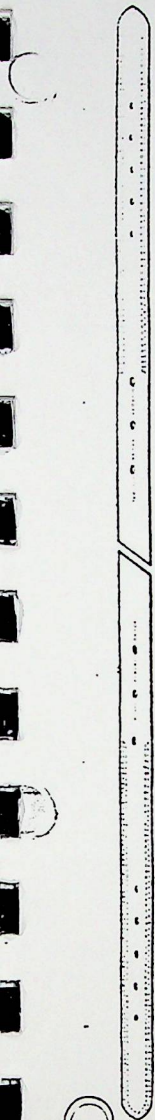


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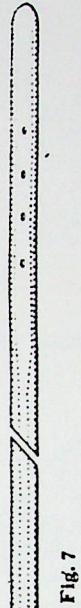


Fig. 11

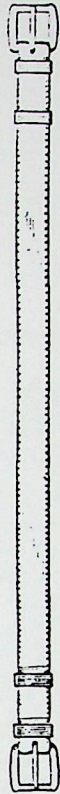


Fig. 12

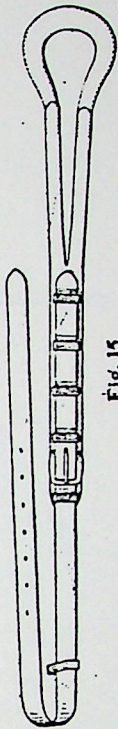


Fig. 13

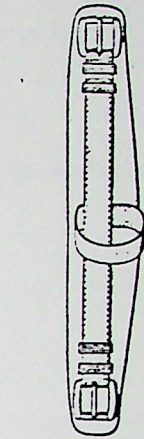


Fig. 14

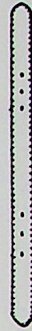


Fig. 15

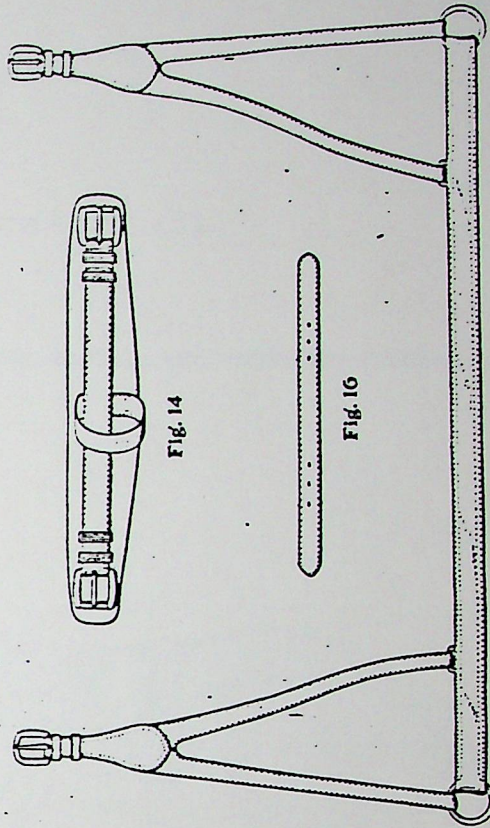


Fig. 16

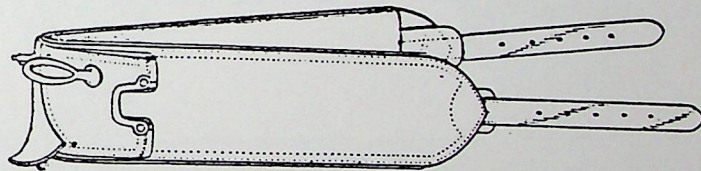


Fig. 17

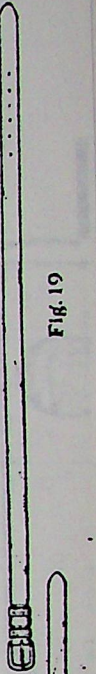


Fig. 18

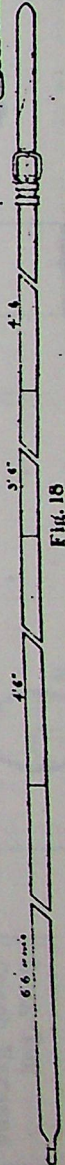


Fig. 19

NEW AND POPULAR STYLES

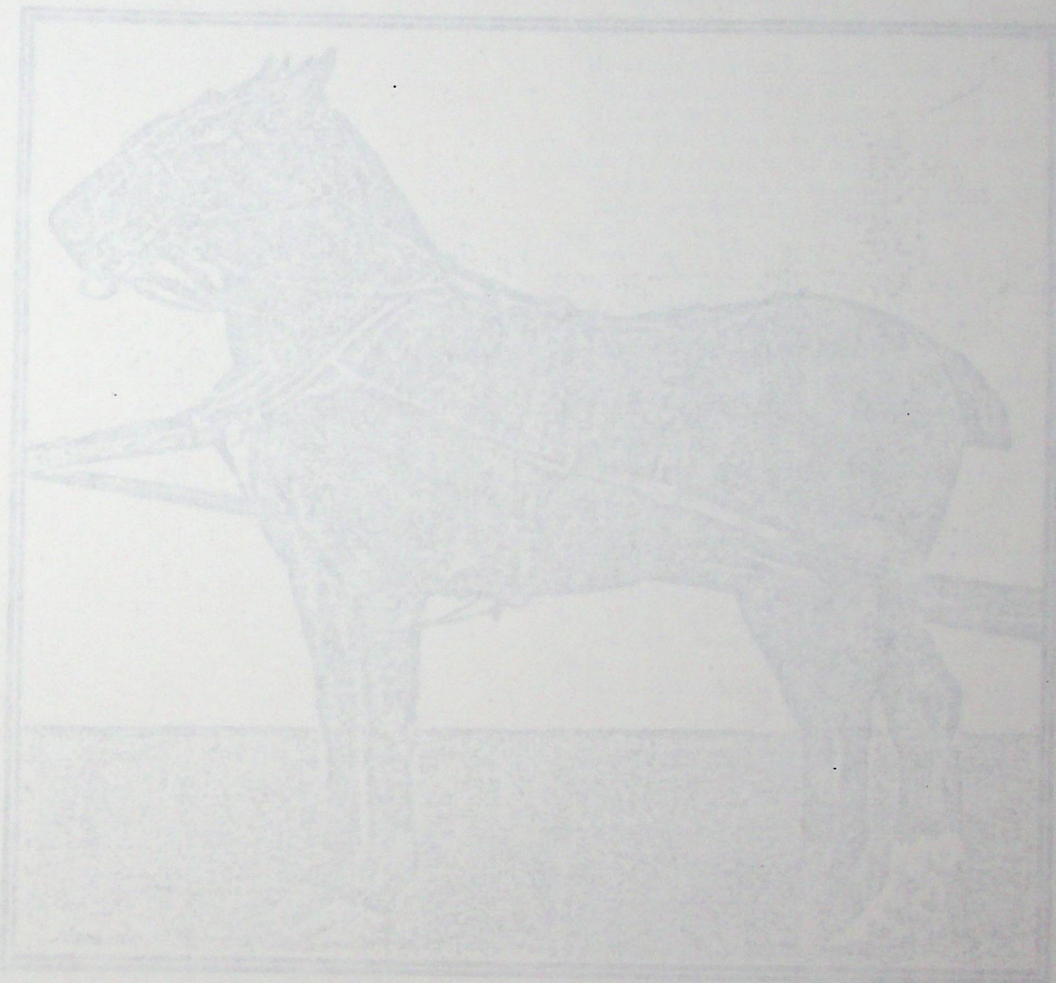


Plate 101 - Long-Tug Coach Harness
Number on page 12

Long-Tug
Coach Harness

NEW AND POPULAR STYLES

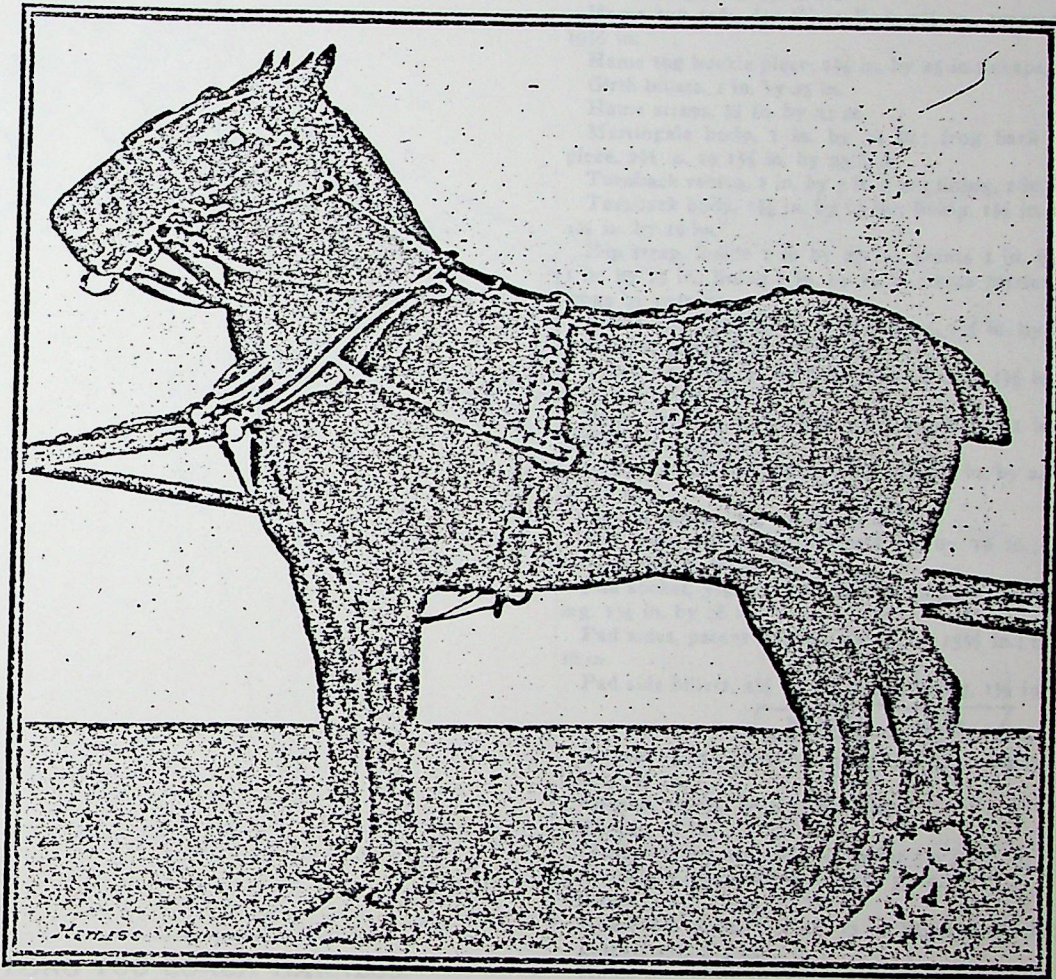


Plate 219. Long Tug Coach Harness.

Described on page 48.

Harness

Specifications for Long Tug Coach Harness

Plate 219 shows a full set of long tug coach harness. The bridles are 3/4 in., with square winkers in the cheeks, a long noseband, 1/2 in. gags, pulley bradoon checkrein. The driving bit is Buxton, with pulley check bit. Reins are made English style. Hame tugs are made with a full safe, lined and stitched all around; the clip ends are plain leather, with inside clips and outside beaded rivets. The loops in hame tug and market tug are English diamond creased. The pads are 2 1/4 in. wide, outside side piece and top patent leather, with long English pad girth on inside; the pad bottoms are stuffed with hair or English wool flock. The market points are 1 1/2 in., tapered down to 1 in., and made 9 in. long. The turnback is lined throughout. The hip strap is made with three frogs, which are cut by pat-

LONG TUG COACH HARNESS.

Illustrated on page 52.

tern. Inside of hip is made to reef up at bottom, the loop forming the inside trace carrier. Traces are 1 3/4 in. wide, 6 ft. 10 in. long, with loose flies at heel. The turnbacks are 1 in. lined throughout. Mountings are wire pattern.

Following are given sizes of cuttings and made-up lengths of above harness:

Cuttings.

Crown, 1 1/2 in. by 23 in.; layer, 9-16 in. by 1 in.; chape, 3/4 in. by 4 in.; billets, 5/8 in. by 7 1/2 in.; cheeks, 3/4 in. by 30 in.

Throat, 3/4 in. by 26 in.

Winker brace, 1 1/2 in. by 13 in.; lining, 1 1/2 in. by 13 in.

Checkrein, round 1 1-16 in. by 36 in., center 3/4 in. by 70 in.

Gags, 1/2 in. by 13 in.

Noseband, 1 3/8 in. by 30 in.; lining, 1 3/8 in. by 32 in.

Market tug, 1 in. by 11 in.

Hame tug safe, for West End, 2 3/8 in., tapered to 2 1/4 in. by 19 1/2 in.

Hame tug buckle piece, 1 3/8 in. by 25 in.; chape, 1 3/8 in. by 8 in.

Girth billets, 1 in. by 25 in.

Hame straps, 3/4 in. by 24 in.

Martingale body, 1 in. by 34 in.; frog back and billet, one piece, 2 7/8 in. to 1 1/8 in. by 23 1/2 in.

Turnback return, 1 in. by 3 ft. 7 in.; lining, 1 in. by 4 ft. 7 in.

Turnback body, 1 3/8 in. by 23 in.; lining, 1 3/8 in. by 23 in.; dock, 4 3/4 in. by 19 in.

Hip strap, inside 1 in. by 27 in., points 1 in. by 19 in., center 1 in. by 15 in., lining 1 in. by 15 in., trace carrier 1 in. by 12 in., frogs by pattern.

Inside girth, 2 1/4 in. by 40 in.; chape, 1 1/8 in. by 13 in.

Outside girth, 1 in. by 50 in.

Trace tops, 1 3/8 in. by 6 ft. 10 in.; lining, 1 3/8 in. to 6 ft. 10 in.; flies, 1 3/8 in. by 7 1/2 in.

Reins, front 1 in. by 6 ft. 7 in., hand part 1 in. by 7 ft. 6 in., billet 1 in. by 14 in.

Reins, cross 1 in. by 7 ft. 1 in., splice 1 in. by 24 in., billets 1 in. by 18 in.

Market points, 1 1/8 in. by 19 in.

Pad tops, patent leather, 2 1/4 in. by 18 in.; lining, harness leather, 2 3/8 in. by 18 in.

Pad socket, 3 1/8 in. by 24 in.; bottom, 4 1/4 in. by 24 1/2 in.; binding, 1 1/2 in. by 28 in.

Pad sides, patent leather, 2 1/4 in. by 15 1/2 in.; lining, 2 1/4 in. by 16 in.

Pad side billets, 1 1/8 in. by 18 in.; lining, 1 1/8 in. by 16 in.

Made-Up Lengths.

Crown, 23 in.; split, 6 in.; lay, 7 1/2 in.; chapes, 2 in.; bradoon billet, 7 1/2 in.

Cheeks, 7 1/2 in., with 11 in. billet.

Throat, 20 in.

Winker brace, split 7 1/2 in., point 5 1/2 in.

Checkrein, round 26 in., center 54 in.

Gags, 11 in.

Noseband, 30 in. over all, 13 in. between cheeks; point, 5 1/2 in.

Market tug, 3 3/4 in.

Hame tug, 17 in. to center of market tug.

Girth points, 12 in.

Hame strap, 22 in.

Martingale body, 30 in. from bend to heel of buckle; billet, 18 in.

Turnback, return strap 3 ft. 6 in. to end of body; 13 in. lay on body.

Turnback body, 23 in.; split, 9 1/2 in.; dock, 18 in.

Hip strap, inside 17 in., points 9 in., center 15 in., frogs by pattern, whole length 4 ft. 4 in.

Inside girth, 40 in.

Outside girth, 24 in.

Traces, 6 ft. 10 in.; flies, 3 1/2 in.

Reins, 14 ft.; cross rein, 8 ft. 6 in.

Market points, 9 in.

Pad tops, 18 in.; pad side, 15 1/2 in.; billet, 18 in.

Specifications for Long Tug Coach Harness

Patterns on opposite page.

AMERICAN STYLE

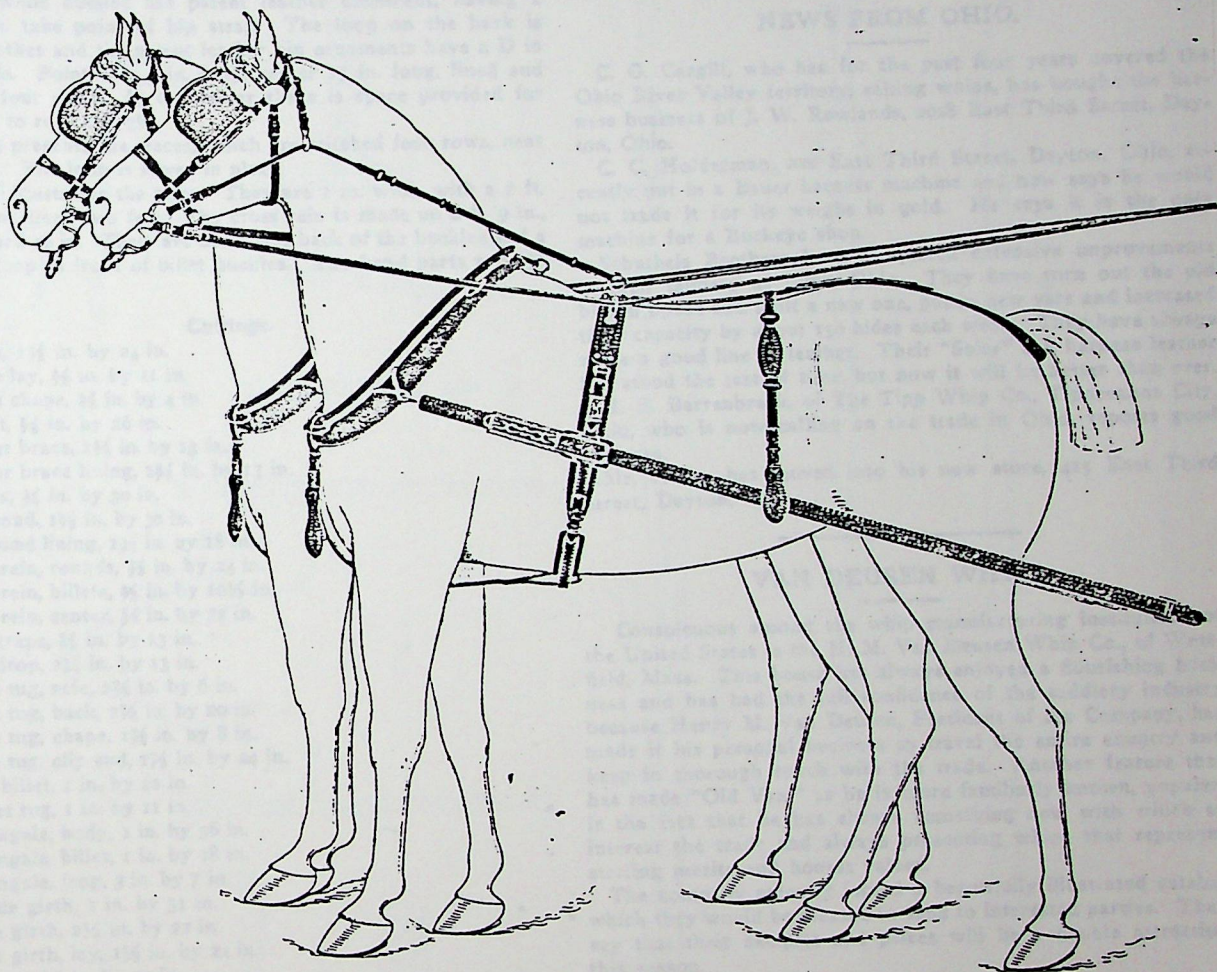
In the last issue of *Harness* we published the dimensions for making a long tug coach harness of English style. To show the difference, we give, on opposite page, the patterns of the American style. The English style has almost entirely supplanted that of domestic pattern in the East, but the American style is still largely used in the West.

Fig. 1 represents the crown which is split $6\frac{1}{2}$ in. Check bil-

lap at ring, a box loop back of billet buckle and one narrow loop in front. The center is made to reef up on both sides.

Fig. 6 is the gag, which is $\frac{5}{8}$ in. wide and made up with metal gag sewed in and provided with center bar buckle and one narrow loop back of buckle and one in front.

Fig. 7 represents the face drop which is finished with one row of stitching on edge and two rows of false stitching on inside.



LONG TUG COACH HARNESS

Parts Assembled.

lets are $\frac{3}{4}$ in. wide and throat billets $\frac{5}{8}$ in. The layer is $\frac{5}{8}$ in. wide, made $7\frac{1}{2}$ in. long between rings. The chape is $\frac{5}{8}$ in. and made with two loops. Fig. 2 shows the throat band, is $\frac{5}{8}$ in. wide and made up 20 in. with $1\frac{1}{4}$ in. box loop in lap.

Fig. 3 presents the cheeks, winkers and winker braces. The latter are made lined and stitched, and have a $\frac{5}{8}$ in. point $5\frac{1}{2}$ in. long. Winkers are round style $6\frac{3}{8}$ in. by $5\frac{1}{2}$ in. Cheek loops are $7\frac{1}{2}$ in. long with figure creased in loop. Cheek billets are 11 in. long with a lap below the buckle at bottom of loop.

Fig. 4 is the noseband which is finished with three-wave stitching and ornament in center. It is lined 18 in.

Fig. 5 shows the checkrein. The rounds are made up with a

Fig. 8 illustrates the hame tugs which are made with a short lined safe under the buckle. Clip end is patent leather with an ornament at the front; box loop is $7\frac{1}{2}$ in. long; market tug is $3\frac{3}{4}$ in. long, with $2\frac{1}{2}$ in. box loop; girth point is made 10 in. long and is lined and stitched.

Fig. 9 presents the martingale. It is made to reef at bottom and is sewed to ring at back of frog. The billet runs down on the back of frog to the ring. The loop is $13\frac{1}{4}$ in. long; a narrow one is also used in front of the buckle.

Fig. 10 shows outside girth, which is 1 in. wide and 23 in. long, furnished with two $\frac{7}{8}$ in. loops.

Fig. 11 represents inside girth, made to buckle on both sides.

It is made with a single leather body, a $1\frac{1}{8}$ in. layer and $1\frac{1}{4}$ in. box loops.

Fig. 12 illustrates the pad, $2\frac{1}{8}$ in. wide, having one row of stitching around edge and two rows of false stitching inside. The bottom is filled with felt and covered with collar leather. The sides are patent leather finished with four rows of stitching. Billets are lined and stitched two rows, except at laps where there are four rows.

Fig. 13 shows the turnback which is 1 in. wide, stitched in four rows. The body is 24 in. long, split $9\frac{1}{2}$ in. with $\frac{3}{4}$ in. points; two box loops in body, $2\frac{1}{2}$ in. long and placed back of buckle. Body is lined and stitched.

Fig. 14, the hip strap, represents the so-called three-frog hip. Both trace carriers are made to buckle on, one on inside is single leather, while outside has patent leather ornament, having a pocket to take point of hip strap. The loop on the back is single leather and the patent leather hip ornaments have a D in both ends. Points are 9 in. long, center 15 in. long, lined and stitched four rows. In the center there is space provided for turnback to run through.

Fig. 15 presents the traces, which are stitched four rows, near the edge. The loop is sewed in place.

Fig. 16 illustrates the reins. They are 1 in. wide, with a 7 ft. 6 in. front, lined two feet. The cross rein is made up 6 ft. 9 in., and is lined 18 in. There are box loops back of the buckles and a narrow loop in front of billet buckles. The hand parts are $1\frac{1}{2}$ in. wide.

Cuttings.

Crown, $1\frac{3}{8}$ in. by 24 in.
 Crown lay, $\frac{5}{8}$ in. by 11 in.
 Crown chape, $\frac{5}{8}$ in. by 4 in.
 Throat, $\frac{5}{8}$ in. by 26 in.
 Winker brace, $1\frac{3}{8}$ in. by 13 in.
 Winker brace lining, $1\frac{5}{8}$ in. by 13 in.
 Cheeks, $\frac{3}{4}$ in. by 30 in.
 Noseband, $1\frac{3}{8}$ in. by 30 in.
 Noseband lining, $1\frac{3}{8}$ in. by 18 in.
 Checkrein, rounds, $\frac{7}{8}$ in. by 24 in.
 Checkrein, billets, $\frac{5}{8}$ in. by $10\frac{1}{2}$ in.
 Checkrein, center, $\frac{5}{8}$ in. by 72 in.
 Gag straps, $\frac{5}{8}$ in. by 13 in.
 Face drop, $2\frac{3}{4}$ in. by 13 in.
 Hame tug, safe, $2\frac{7}{8}$ in. by 6 in.
 Hame tug, back, $2\frac{7}{8}$ in. by 20 in.
 Hame tug, chape, $1\frac{3}{8}$ in. by 8 in.
 Hame tug, clip end, $1\frac{7}{8}$ in. by 24 in.
 Girth billet, 1 in. by 22 in.
 Market tug, 1 in. by 11 in.
 Martingale, body, 1 in. by 36 in.
 Martingale, billet, 1 in. by 18 in.
 Martingale, frog, 3 in. by 7 in.
 Outside girth, 1 in. by 51 in.
 Inside girth, $2\frac{1}{2}$ in. by 22 in.
 Inside girth, lay, $1\frac{3}{8}$ in. by 24 in.
 Pad top, $2\frac{1}{8}$ in. by 19 in.
 Pad top, lining, $2\frac{1}{4}$ in. by $17\frac{1}{2}$ in.
 Pad socket, 3 in. by 23 in.
 Pad bottom, $4\frac{1}{2}$ in. by 23 in.
 Pad side, top, $2\frac{1}{4}$ in. by 17 in.
 Pad side, lining, $2\frac{1}{4}$ in. by 17 in.
 Pad side, filling, $1\frac{1}{2}$ in. by $15\frac{1}{2}$ in.
 Pad girth billet, $1\frac{1}{8}$ by $13\frac{1}{2}$ in.
 Pad girth billet, lining, $1\frac{1}{2}$ in. by 12 in.
 Turnback return, 1 in. by 43 in.
 Turnback return, lining, 1 in. by 55 in.
 Turnback return, body, $1\frac{5}{8}$ in. by 24 in.
 Turnback return, body lining, $1\frac{5}{8}$ in. by 23 in.
 Crupper docks, $4\frac{1}{2}$ in. by $17\frac{1}{2}$ in.
 Hip strap, inside, 1 in. by 15 in.
 Hip strap, center, 1 in. by 34 in.
 Hip strap, points, 1 in. by 20 in.

Outside trace carrier, 1 in. by 6 in.
 Outside trace loop, 1 in. by 12 in.
 Hip ornament, tops, $2\frac{1}{2}$ in. by $4\frac{1}{4}$ in.
 Hip ornament, lining, $2\frac{3}{8}$ in. by 12 in.
 Trace top, $1\frac{3}{8}$ in. by 90 in.
 Trace lining, $1\frac{3}{8}$ in. by 82 in.
 Trace fly, $1\frac{3}{8}$ in. by $7\frac{1}{2}$ in.
 Rein front, 1 in. by 93 in.
 Rein front, lining, 1 in. by 36 in.
 Cross rein, 1 in. by 84 in.
 Cross rein lining, 1 in. by 18 in.
 Rein billets, 1 in. by 15 in.
 Rein hand parts, $1\frac{1}{8}$ in. by 84 in.

NEWS FROM OHIO.

C. G. Cargill, who has for the past four years covered the Ohio River Valley territory, selling whips, has bought the harness business of J. W. Rowlands, 2028 East Third Street, Dayton, Ohio.

C. C. Holderman, 220 East Third Street, Dayton, Ohio, recently put in a Bauer harness machine and now says he would not trade it for its weight in gold. He says it is the only machine for a Buckeye shop.

Schutheis Brothers have completed extensive improvements in their tannery at Lima, Ohio. They have torn out the old bleach house and built a new one, put in new vats and increased their capacity by about 150 hides each week. They have always made a good line of leather. Their "Solar" oak harness leather has stood the test of time, but now it will be better than ever.

H. G. Barrenbrack, of The Tipp Whip Co., Tiptecanoe City, Ohio, who is now calling on the trade in Ohio, reports good business.

Mr. Hager has moved into his new store, 415 East Third Street, Dayton, Ohio.

VAN DEUSEN WHIPS.

Conspicuous among the whip manufacturing institutions of the United States is the H. M. Van Deusen Whip Co., of Westfield, Mass. This house has always enjoyed a flourishing business and has had the full confidence of the saddlery industry because Henry M. Van Deusen, President of the Company, has made it his personal business to travel the entire country and keep in thorough touch with the trade. Another feature that has made "Old Van," as he is more familiarly known, popular, is the fact that he has always something new with which to interest the trade and always presenting whips that represent sterling merits and honest values.

The company recently issued a beautifully illustrated catalog which they would be pleased to send to interested parties. They say that their samples and prices will be a double attraction this season.

1,500 TO 1,800 PER MINUTE.

For a little wonder the "Puritan" harness machine is attracting more than ordinary attention, because it is more than an ordinary machine. This machine produces a remarkably well finished piece of work, running from 1,500 to 1,800 stitches per minute. To appreciate the quality of work produced by the "Puritan" harness sewing machine the harness maker must see specimens of its work. The Puritan Mfg. Co., of 22 Lincoln Street, Boston, Mass., are always pleased to communicate with interested parties and will submit specimens or any information that may be desired. In the company's advertisement appears a beautiful illustration of machine. Turn to it and write for full particulars.

Harness

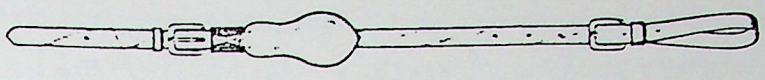
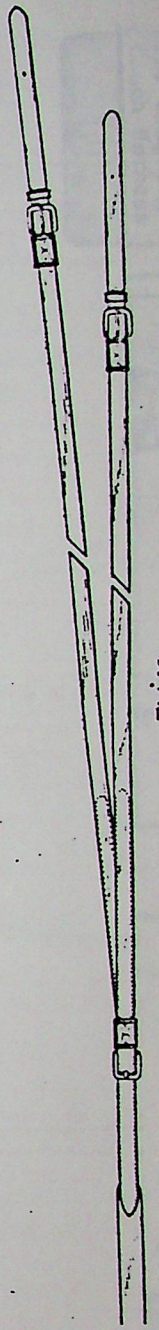
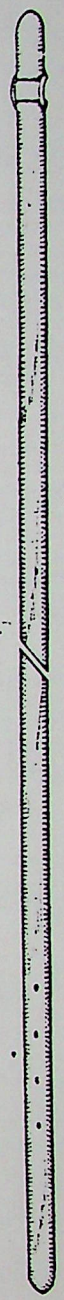
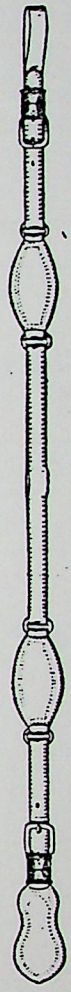
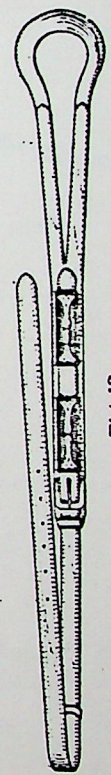
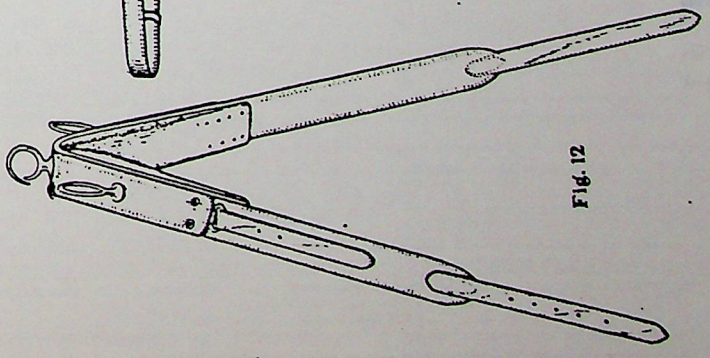
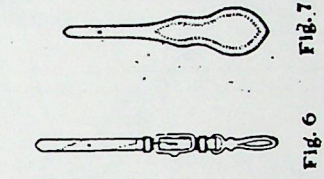
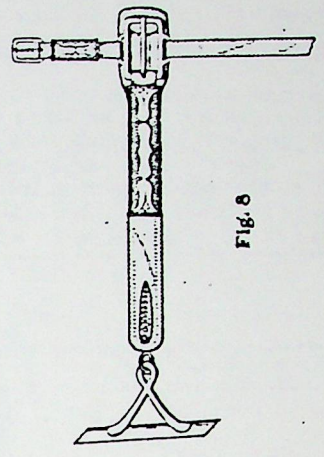
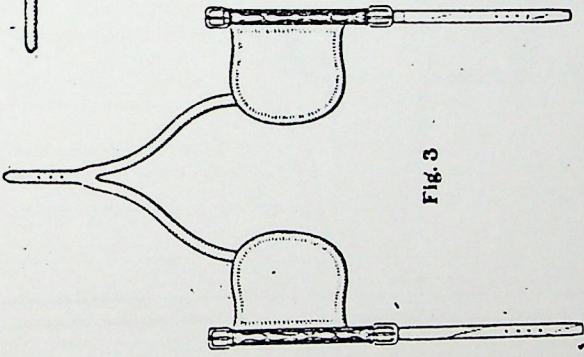
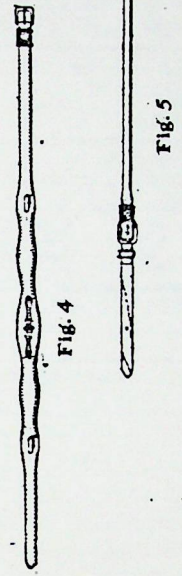
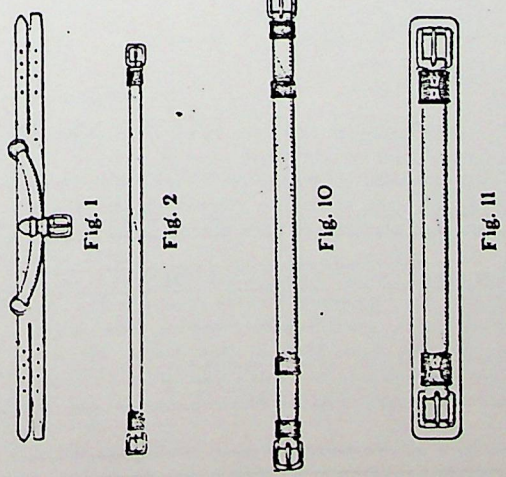


Plate X. Long Tug Coach Harness—American Style.

Harness

Long-Tug Coach Harness, French Style

Pattern on opposite page

The French or English set of pieces for a long-tug coach harness will be French style. As there is a very marked difference in the position of some parts of the French and English harness, we give, in preference, the English lengths.

Fig. 1 is the bridle piece, made 15 1/2 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 2 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 3 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is



Long-Tug Coach Harness, French Style
Showing Full Assembly

It is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 4 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 5 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 6 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 7 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 8 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 9 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fig. 10 is the collar, made of leather or cloth, and is 12 in. wide and 12 in. long. It is cut by pieces, and the lower is cut by pieces, being a single piece. It is 12 in. from D to D. The chest is

Fr. Long-Tug
Coach Harness

Long-Tug Coach Harness, French Style

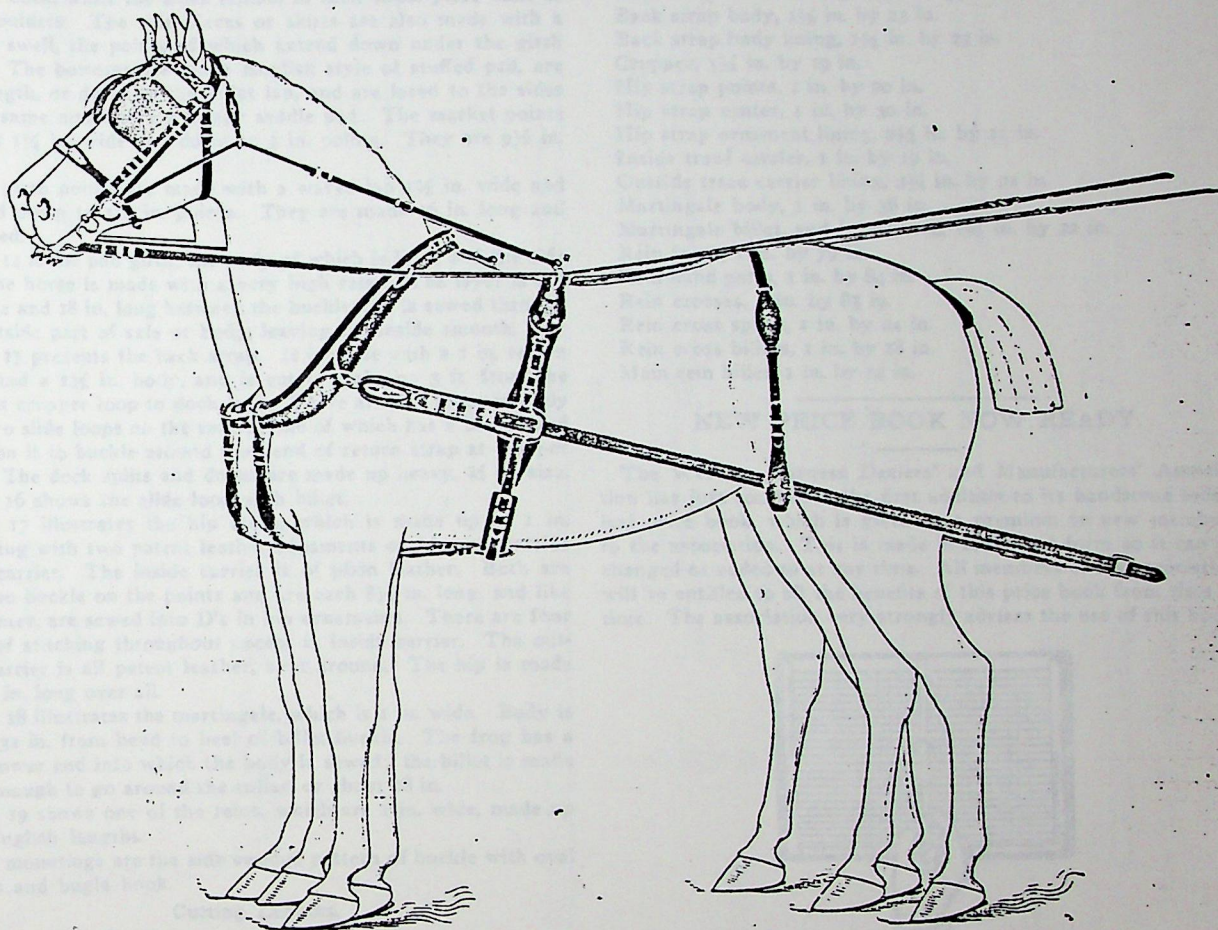
Patterns on opposite page.

This month we illustrate a set of patterns for a long-tug coach harness, made up French style. As there is a very marked difference in the lengths of some parts of the French and English harness, we give, in preference, the English lengths.

Fig. 1 is the bridle crown, made $1\frac{1}{2}$ in. wide and 23 in. long, split $6\frac{1}{2}$ in., $\frac{3}{4}$ in. wide each end. The layer is cut by pattern, being a shaped layer. It is $7\frac{1}{2}$ in. from D to D. The chape is

Fig. 6, the nose band, is made up three-swell pattern. It is 30 in. long, with $\frac{3}{4}$ in. point and buckle ends; $13\frac{1}{2}$ in. long between the cheek loops. There is a patent leather ornament on center swell which carries a metal ornament.

Fig. 7 illustrates the French style of bearing rein, made with snaps instead of buckle and billets. The rounded parts are made $19\frac{1}{2}$ in. from snap to ring with a regular length of center check.



Long-Tug Coach Harness, French Style.

Showing Parts Assembled.

$\frac{3}{4}$ in. wide and is made with one loop in the lap. We show in dotted lines the French cheek billets, which are sewed on the underside of crown. They are $5\frac{1}{8}$ in. wide and $8\frac{1}{2}$ in. long.

Fig. 2 shows the cheeks, which are made $7\frac{3}{4}$ in. long between the buckles, and provided with five 7-16 in. loops. The bit billets are 12 in. long.

The winkers shown are a round pattern, made very large, and finished with one false row of stitching.

Fig. 3 shows a pattern of face drop to match the winkers.

Fig. 4, the throat, is $\frac{3}{4}$ in. wide, made up 21 in., and has two 7-16 in. loops in the lap; there is also a soft, narrow loop on the back of lap to take cheek billet on crown when driving without bearing rein.

Fig. 5 is one of the gags, which are made with a hook in the upper end and a metal gag loop in lower end with a patent leather ornamental piece, having a metal ornament.

Fig. 8 represents the French cheek to go with the bearing rein. They are made with a $\frac{5}{8}$ in. buckle at upper end, which buckles on to the third billet of crown, and a snap in lower end to take bit. It is made flat, and lined throughout.

Fig. 9 presents one of the hames and hame tugs. The former are $\frac{7}{8}$ in. iron, full plated, with loose terrets, twist draft eye and link end eyes at bottom. The hame tugs are made up with full lined safe having a swell at the clip end. The clip end is made with a swell to match the safe and carries a metal ornament corresponding in pattern to those on the nose and gag. There are four loops for trace point, creased diamond pattern; the tug is made $18\frac{1}{2}$ in. long from clip end to center of market-tug. The market tug is made up 1 in. wide, with $3\frac{3}{4}$ in. of stitching, and has two $\frac{3}{4}$ in. loops which are creased to match the loops in hame tug. The space below loops should measure nearly 1 in. and have four rows of stitching, stitched from the face side. The

Girth points are 1 in. wide and made 12 in. long with two or four rows of stitching.

Fig. 10 is the hame strap, which should be $\frac{7}{8}$ in. wide for a $\frac{7}{8}$ in. hame.

Fig. 11 is the outside girth, which is 1 in. wide and made 25 in. long. It has two $\frac{1}{2}$ in. loops in each end, which are $2\frac{1}{2}$ in. apart and is lined throughout.

Fig. 12 is one of the traces, which are $1\frac{1}{2}$ in. wide and made 6 ft. 10 in. long to loop and is sewed in. Fly is $3\frac{1}{2}$ in. long. There are four rows of stitching, equally divided.

Fig. 13 represents the pad, which is made on a swell pattern of plate. They also have a sweep backward or sideways at the center or hook which throws the latter well back in center of horse's back, while the sides remain in their usual place back of the shoulders. The side pieces or skirts are also made with a double swell, the points of which extend down under the girth billet. The bottoms are made English style of stuffed pad, are full length, or down to the billet lap, and are laced to the sides in the same manner as a buggy saddle pad. The market points are cut $1\frac{1}{4}$ in. wide and down to 1 in. points. They are $9\frac{1}{2}$ in. long.

The girth points are made with a waved lap $1\frac{3}{8}$ in. wide and tapered down to $1\frac{1}{8}$ in. points. They are made 16 in. long and are lined.

Fig. 14 is the pad girth, the body of which is lined and the side next the horse is made with a very high raise. The layer is $1\frac{1}{8}$ in. wide and 18 in. long between the buckles; it is sewed through the outside part of safe or body, leaving the inside smooth.

Fig. 15 presents the back strap. It is made with a 1 in. return strap and a $1\frac{3}{8}$ in. body, and is cut to make up 3 ft. from the bend at crupper loop to dock laps. There are five loops in body and two slide loops on the return, one of which has a buckle and billet on it to buckle around the bend of return strap at crupper loop. The dock splits and docks are made up heavy, $\frac{3}{4}$ in. size.

Fig. 16 shows the slide loop with billet.

Fig. 17 illustrates the hip strap, which is made up of 1 in. strapping with two patent leather ornaments on hip and outside trace carrier. The inside carrier is of plain leather. Both are made to buckle on the points and are each $8\frac{1}{2}$ in. long, and like the center, are sewed into D's in hip ornaments. There are four rows of stitching throughout except in inside carrier. The outside carrier is all patent leather, bent around. The hip is made 4 ft. 8 in. long over all.

Fig. 18 illustrates the martingale, which is 1 in. wide. Body is made 32 in. from bend to heel of billet buckle. The frog has a D in lower end into which the body is sewed; the billet is made long enough to go around the collar, or about 18 in.

Fig. 19 shows one of the reins, which are 1 in. wide, made up full English lengths.

The mountings are the side swedge pattern of buckle with oval terrets and bugle hook.

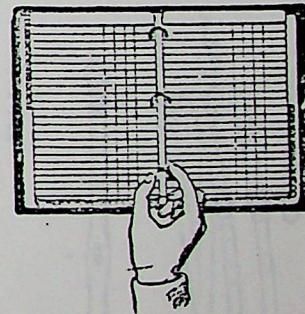
Cutting Lengths.

Crown, $1\frac{1}{2}$ in. by 23 in.
 Crown layer, $3\frac{1}{2}$ in. by 8 in.—by pattern.
 Crown chaps, $\frac{3}{4}$ in. by 4 in.
 Cheeks, $\frac{3}{4}$ in. by 30 in.
 Face drop lining, $2\frac{1}{2}$ in. by 11 in.
 Throat, $\frac{3}{4}$ in. by 27 in.
 Gag lining, $1\frac{3}{4}$ in. by 7 in.
 Nose band, $1\frac{3}{8}$ in. by 30 in.
 Nose band lining, $1\frac{3}{8}$ in. by 32 in.
 Check rounds, $\frac{7}{8}$ in. by 23 in.
 Check center, $\frac{3}{4}$ in. by 72 in.
 Check billets for crown, $\frac{5}{8}$ in. by 8 in.
 Check round filling, $\frac{7}{8}$ in. by 17 in.
 Cheek (French) $\frac{3}{4}$ in. by 20 in.
 Hame tug top, $3\frac{1}{2}$ in. by 21 in.
 Hame tug lining, $3\frac{1}{2}$ in. by 21 in.
 Hame tug buckle piece, $2\frac{1}{2}$ in. by 26 in.
 Hame tug chapes, $1\frac{1}{2}$ in. by 8 in.
 Market tugs, 1 in. by 11 in.

Trace girth points, 1 in. by 25 in.
 Hame strap, $\frac{7}{8}$ in. by 26 in.
 Outside girth, 1 in. by 55 in.
 Trace tops, $1\frac{1}{2}$ in. by 90 in.
 Trace lining, $1\frac{1}{2}$ in. by 82 in.
 Trace flies, $1\frac{1}{2}$ in. by 8 in.
 Pad top lining, $3\frac{3}{4}$ in. by 17 in.
 Pad socket, $4\frac{7}{8}$ in. by 48 in.
 Pad side linings, 4 in. by $21\frac{1}{2}$ in.
 Market points, $1\frac{1}{4}$ in. by 20 in.
 Girth billet, $1\frac{3}{8}$ in. by 16 in.
 Girth billet lining, $1\frac{3}{8}$ in. by 15 in.
 Back strap return, 1 in. by 42 in.
 Back strap return lining, 1 in. by 55 in.
 Back strap body, $1\frac{3}{8}$ in. by 23 in.
 Back strap body lining, $1\frac{3}{8}$ in. by 23 in.
 Crupper, $5\frac{1}{2}$ in. by 19 in.
 Hip strap points, 1 in. by 20 in.
 Hip strap center, 1 in. by 30 in.
 Hip strap ornament lining, $2\frac{3}{8}$ in. by 11 in.
 Inside trace carrier, 1 in. by 19 in.
 Outside trace carrier lining, $2\frac{3}{4}$ in. by 21 in.
 Martingale body, 1 in. by 36 in.
 Martingale billet, and frog lining, $2\frac{3}{4}$ in. by 22 in.
 Rein front, 1 in. by 79 in.
 Rein hand parts, 1 in. by 84 in.
 Rein crosses, 1 in. by 85 in.
 Rein cross splice, 1 in. by 24 in.
 Rein cross billets, 1 in. by 18 in.
 Main rein billet, 1 in. by 14 in.

NEW PRICE BOOK NOW READY.

The Western Harness Dealers' and Manufacturers' Association has just completed the first addition to its handsome loose-leaf price book, which is given as a premium to new members to the association. This is made in loose-leaf form so it can be changed or added to at any time. All members of the association will be entitled to all the benefits of this price book from time to time. The association very strongly advises the use of this book,



TO CLOSE: PRESS ONE OF THE ARCHES BETWEEN THUMB AND FINGER.

as it gives something as a basis to figure on, and assures any member, if he will figure according to same, that at the end of the year his profits will be larger.

All harness men are invited to contribute special illustrations, descriptions and costs of any style of strap work or harness that they have, so each will be mutually benefited.

Applications should be made at once, as it means larger profits. Without association and the price book, it means keeping in the same old rut. Membership, including price book, which is a loose-leaf, morocco-bound book $6\frac{1}{2}$ in. by 9 in., and will wear a lifetime, is \$5.00. No one but members of a local or the National Association is entitled to the price book. The book alone to associate members is \$3.00. When ordering books, advise what local you belong to. For further information, write to Charles P. Shipley, secretary, 1527 Genesee St., Kansas City, Mo.

Harness

7 AD Top
18 1/2

INSIDE
40"
OUTSIDE
39"
BILLET
18"

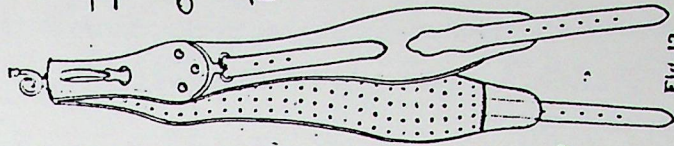


FIG. 13

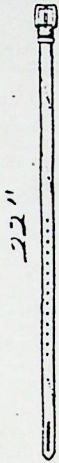


FIG. 10

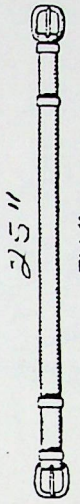


FIG. 11

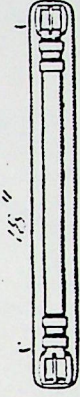


FIG. 14

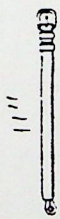


FIG. 8

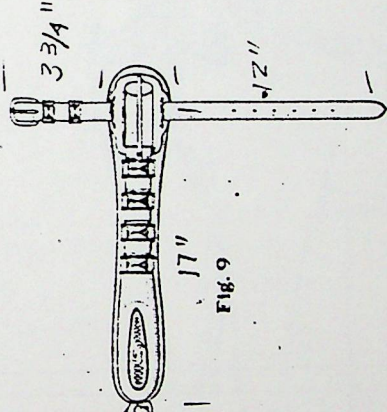


FIG. 9

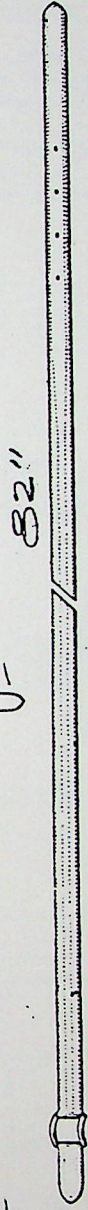


FIG. 12

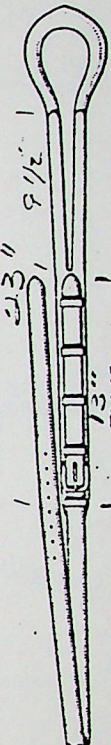


FIG. 15



FIG. 5

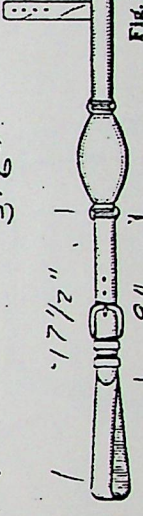


FIG. 17

Complé
4'4"



FIG. 16

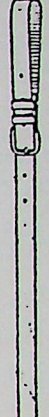
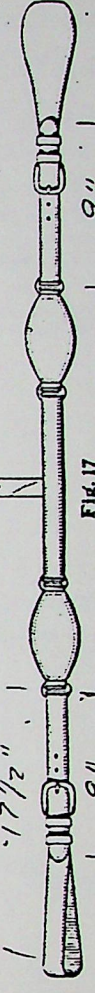


FIG. 19

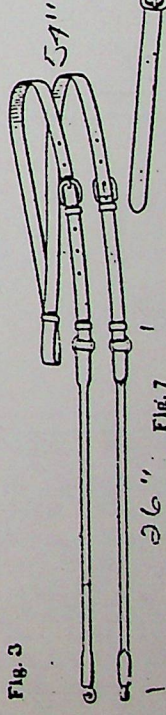


FIG. 7

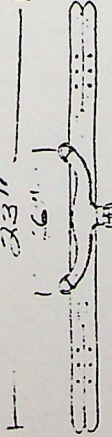


FIG. 1

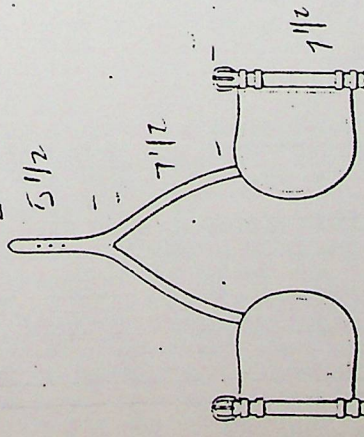


FIG. 2

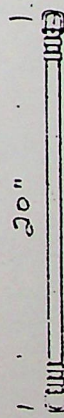


FIG. 4



FIG. 6

Plate XXIV.—Patterns for Long-Tug Coach Harness, French Style.
Specifications on opposite page.

Specifications for Long Tug Coach Harness

English Style

The harness is made of leather and specifications for making it should refer to the book which is up to date in every detail. Complete dimensions for every part of the harness are given in the following figures.

Fig. 1 shows the whole harness, which is made of 1 1/2 inch leather and has a width of 1 1/2 inches between the front and back. The harness is 1 1/2 inches wide and has two long, pulling straps.

Fig. 2 shows the collar which is made of 1 1/2 inch leather and is 1 1/2 inches wide. It is made of two pieces of leather, one for each side, which are joined together at the top and bottom.

Fig. 3 is a drawing of the collar which is made of 1 1/2 inch leather and is 1 1/2 inches wide. It is made of two pieces of leather, one for each side, which are joined together at the top and bottom.



LONG TUG COACH HARNESS

Full harness

The harness is made of leather and specifications for making it should refer to the book which is up to date in every detail. Complete dimensions for every part of the harness are given in the following figures.

Fig. 1, the full harness, is made of 1 1/2 inch leather and has a width of 1 1/2 inches between the front and back. The harness is 1 1/2 inches wide and has two long, pulling straps.

Engl. Long-Tug
Coach Harness

Specifications for Long Tug Coach Harness

Patterns on opposite page.

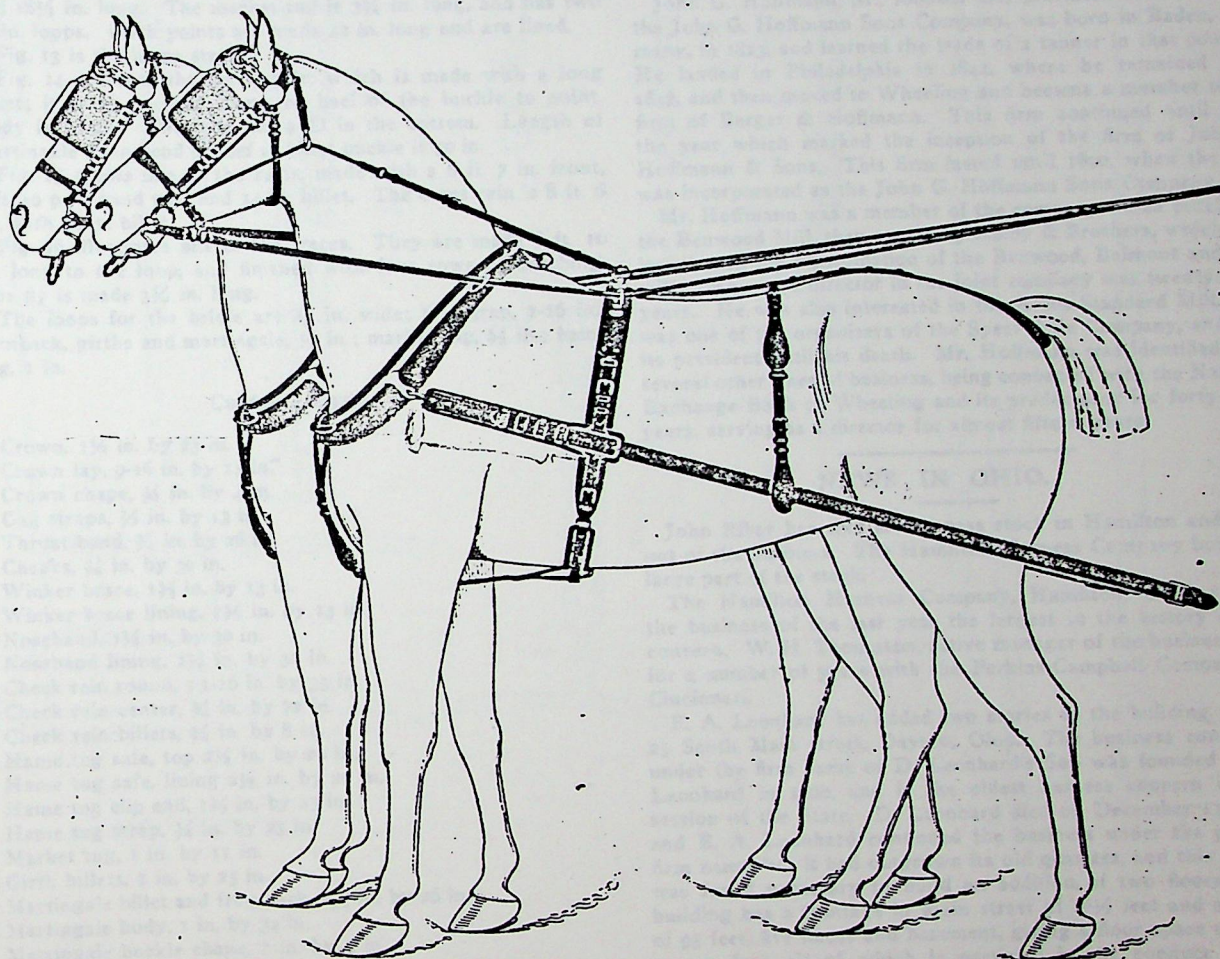
ENGLISH STYLE

This month we present patterns and specifications for making an English style long tug coach harness which is up to date in every detail. Complete dimensions for cutting follow the usual reference to each figure.

Fig. 1 shows the bridle crown, which is split $\frac{3}{4}$ in. wide $6\frac{1}{2}$ in. from ends and has a 9-16 in. lay. Distance between rings is 7 in. The chape is $\frac{3}{4}$ in. wide, and has two loops. Pulley check

Fig. 5 illustrates pulley check rein, which is made 26 in. long from ring to heel of buckle. The round is filled with a heavy cord, with a $1\frac{3}{4}$ in. lap at ring and at the buckle. The center is made to reef up at both sides, with a slide loop in the center.

Fig. 6 is the noseband, which is made 30 in. long over all and 13 in. between the cheek loops. It is lined and double stitched all round, with four rows of stitching between cheeks.



LONG TUG COACH HARNESS.

Parts Assembled.

rein billet—shown on one side in dotted lines—is $\frac{5}{8}$ in. wide, $7\frac{1}{2}$ in. long, and is sewn on under side of crown above splits.

Fig. 2 is the throat band, which is made up 20 in. long, and has two loops on each end.

Fig. 3 represents the gag straps, made $10\frac{1}{2}$ in. long, with two loops at buckle end, one of which is on top and one on back. There is also one slide loop on billet end.

Fig. 4 presents the cheeks, winkers and winker brace. Cheeks are made $7\frac{1}{2}$ in. between the buckles, with two loops at top end and three on bottom, and are stitched. The billet is 11 in. long; there is no lap below buckle. Winkers are $6\frac{1}{2}$ in. deep by 5 in. wide, with round corners. Winker braces are $\frac{5}{8}$ in. wide; point is $\frac{3}{4}$ in. wide and is 13 in. long over all.

Fig. 7, the face drop, is 2 in. wide, tapered to $\frac{3}{4}$ in. at point, and is $10\frac{1}{2}$ in. long, with buckle hole in extreme end.

Fig. 8 shows the pad, which is made with a $2\frac{1}{4}$ in. top, and is 18 in. long. There are four rows of stitching and scroll at pad hook in inner or false stitched row. The bottom or pad is made 23 in. long, and is stuffed with hair or flock and tufted throughout. The outside piece is $15\frac{1}{2}$ in. long, with four rows of stitching. Billet is $1\frac{1}{4}$ in. wide and 18 in. long, lined and stitched two rows. Inside or pad girth is 40 in. long, with a 10 in. chape on the end, having three loops. The market points are 1 in. wide and $8\frac{1}{2}$ in. long, with four rows of stitching.

Fig. 9 illustrates the turnback, which is made with a return strap. Length, 3 ft. 6 in. to end of body, finished with four

rows of stitching. The body is 23 in. long; splits $\frac{3}{4}$ in. wide and 9 in. long. There are five loops in the body layer. Dock is sewed on, and is 15 in. long from lap to lap.

Fig. 10 shows the hip strap, which is called a three-frog hip. The inside strap is made to reef at bottom, and forms the trace loop. It is made up 14 in. long from D to bend of loop. Center of hip is 15 in. long, is lined and stitched four rows; outside point is 9 in. long. The hip is 4 ft. 4 in. long from end to end.

Fig. 11 is the outside girth, which is made 24 in. long, with two loops at each end.

Fig. 12 represents the hame tug, made with full safe and lined throughout. Clip end is plain $1\frac{1}{8}$ in. finished with four rows of stitching and four 1 in. loops, with one inch space between. Loops are creased English diamond pattern. The tug is made 17 in. from clip to center of market tug, which is the American length—the English and French make them 18 in. and $18\frac{1}{2}$ in. long. The market tug is $3\frac{3}{4}$ in. long, and has two $\frac{5}{8}$ in. loops. Girth points are made 12 in. long and are lined.

Fig. 13 is the hame strap.

Fig. 14 presents the martingale; which is made with a long billet; it is 15 in. long from the heel of the buckle to point. Body is single. The frog has a D in the bottom. Length of martingale from bend of reef to billet buckle is 30 in.

Fig. 15 shows one of the reins, made with a 6 ft. 7 in. front, 8 ft. to 9 ft. hand part and 14 in. billet. The cross rein is 8 ft. 6 in., with 18 in. billet.

Fig. 16 illustrates one of the traces. They are made 6 ft. 10 in. long to the loop, and finished with four rows of stitching. The fly is made $3\frac{1}{2}$ in. long.

The loops for the bridle are $\frac{3}{8}$ in. wide; hip strap, 7-16 in.; turnback, girths and martingale, $\frac{1}{2}$ in.; market tug, $\frac{5}{8}$ in.; hame tug, 1 in.

Cutting Lengths.

Crown, $1\frac{1}{2}$ in. by 23 in.
 Crown lay, 9-16 in. by 11 in.
 Crown chape, $\frac{3}{4}$ in. by 4 in.
 Gag straps, $\frac{1}{2}$ in. by 13 in.
 Throat band, $\frac{3}{4}$ in. by 26 in.
 Cheeks, $\frac{3}{4}$ in. by 30 in.
 Winker brace, $1\frac{3}{8}$ in. by 13 in.
 Winker brace lining, $1\frac{3}{8}$ in. by 13 in.
 Noseband, $1\frac{1}{4}$ in. by 30 in.
 Noseband lining, $1\frac{1}{4}$ in. by 32 in.
 Check rein round, 1-16 in. by 35 in.
 Check rein center, $\frac{3}{4}$ in. by 72 in.
 Check rein billets, $\frac{5}{8}$ in. by 8 in.
 Hame tug safe, top $2\frac{3}{8}$ in. by 20 in.
 Hame tug safe, lining $2\frac{3}{8}$ in. by 20 in.
 Hame tug clip end, $1\frac{3}{8}$ in. by 25 in.
 Hame tug strap, $\frac{3}{4}$ in. by 25 in.
 Market tug, 1 in. by 11 in.
 Girth billets, 1 in. by 25 in.
 Martingale billet and frog back, $2\frac{3}{4}$ in. by 26 in.
 Martingale body, 1 in. by 34 in.
 Martingale buckle chape, 1 in. by 5 in.
 Outside girth, 1 in. by 52 in.
 Inside girth, $2\frac{1}{4}$ in. by 40 in.
 Inside girth chape, $1\frac{1}{8}$ in. by 13 in.
 Pad top, lining $2\frac{3}{8}$ in. by $18\frac{1}{2}$ in.
 Pad socket, $3\frac{3}{8}$ in. by 24 in.
 Pad side lining, $2\frac{3}{8}$ in. by 16 in.
 Market points, $1\frac{1}{8}$ in. by 20 in.
 Girth billet, $1\frac{3}{8}$ in. by 18 in.
 Girth billet, lining $1\frac{1}{8}$ in. by 17 in.
 Turnback return, 1 in. by 43 in.
 Turnback return, lining, 1 in. by 55 in.
 Turnback body, $1\frac{5}{8}$ in. by 23 in.
 Crupper dock, $4\frac{3}{4}$ in. by 19 in.
 Trace top, $1\frac{3}{8}$ in. by 89 in.
 Trace back, $1\frac{3}{8}$ in. by 82 in.

Trace fly, $1\frac{3}{8}$ in. by $7\frac{1}{2}$ in.
 Rein. front 1 in. by 6 ft. 7 in.
 Rein. billet 1 in. by 14 in.
 Rein. hand part 1 in. by 7 ft.
 Rein. cross 1 in. by 7 ft. 1 in.
 Rein. cross splice 1 in. by 24 in.
 Rein. cross billet 1 in. by 18 in.

DEATH OF JOHN G. HOFFMANN, SR.

John G. Hoffman, Sr., head of the well known tanning firm of the John G. Hoffmann Sons Company, Wheeling, W. Va., died at his home in that city October 13, aged eighty-three years. His death was caused by a stroke of paralysis. Mr. Hoffmann is survived by seven children, Mrs. Hoffmann having died on October 23 of last year.

John G. Hoffmann, Sr., founder and president of the firm of the John G. Hoffmann Sons Company, was born in Baden, Germany, in 1823, and learned the trade of a tanner in that country. He landed in Philadelphia in 1844, where he remained until 1847, and then moved to Wheeling and became a member of the firm of Berger & Hoffmann. This firm continued until 1876, the year which marked the inception of the firm of John G. Hoffmann & Sons. This firm lasted until 1890, when the firm was incorporated as the John G. Hoffmann Sons Company.

Mr. Hoffmann was a member of the company which purchased the Benwood Mill, then owned by Kelby & Brothers, which firm lasted until the consolidation of the Benwood, Belmont and Top mills. He was a director in the joint company was twenty-eight years. He was also interested in the Aetna-Standard Mill. He was one of the organizers of the Spear Axle Company, and was its president until his death. Mr. Hoffmann was identified with several other lines of business, being connected with the National Exchange Bank of Wheeling and its predecessor for forty-eight years, serving as a director for almost fifteen years.

NEWS IN OHIO.

John Ribar has sold his harness stock in Hamilton and gone out of the business. The Hamilton Harness Company bought a large part of the stock.

The Hamilton Harness Company, Hamilton, Ohio, reports the business of the last year the largest in the history of the concern. W. H. Thompson, active manager of the business, was for a number of years with the Perkins-Campbell Company, of Cincinnati.

E. A. Leonhard has added two stories to the building at No. 25 South Main street, Dayton, Ohio. The business conducted under the firm name of D. Leonhard's Son was founded by D. Leonhard in 1862, and is the oldest harness concern in this section of the State. D. Leonhard died on December 13, 1903, and E. A. Leonhard continued the business under the present firm name, but it had outgrown its old quarters, and this year it was found necessary to build an addition, of two floors. The building has a frontage in Main street of $16\frac{1}{2}$ feet and a depth of 95 feet, five floors and basement, giving a floor space of 9,402 square feet, all of which is occupied in the conduct of the business.

Miller Bros., Troy, Ohio, one of the most prosperous harness concerns in the State, reports business this year the largest in the history of the establishment.

J. P. Thompson, representing the Barnes Company, Buffalo, N. Y., manufacturers of sozo-nux, called upon the harness dealers in Western and Southern Ohio this month in the interest of the great hoof specific.

Traveling representatives of the Holliday & Wyon Company, Indianapolis, Ind., now covering Ohio report the sale of Acme Gall Cure far in excess of their expectations.

When a man shows up the evil of our ways he is a kicker, but when he gets after some other fellow he is a reformer.

Harness

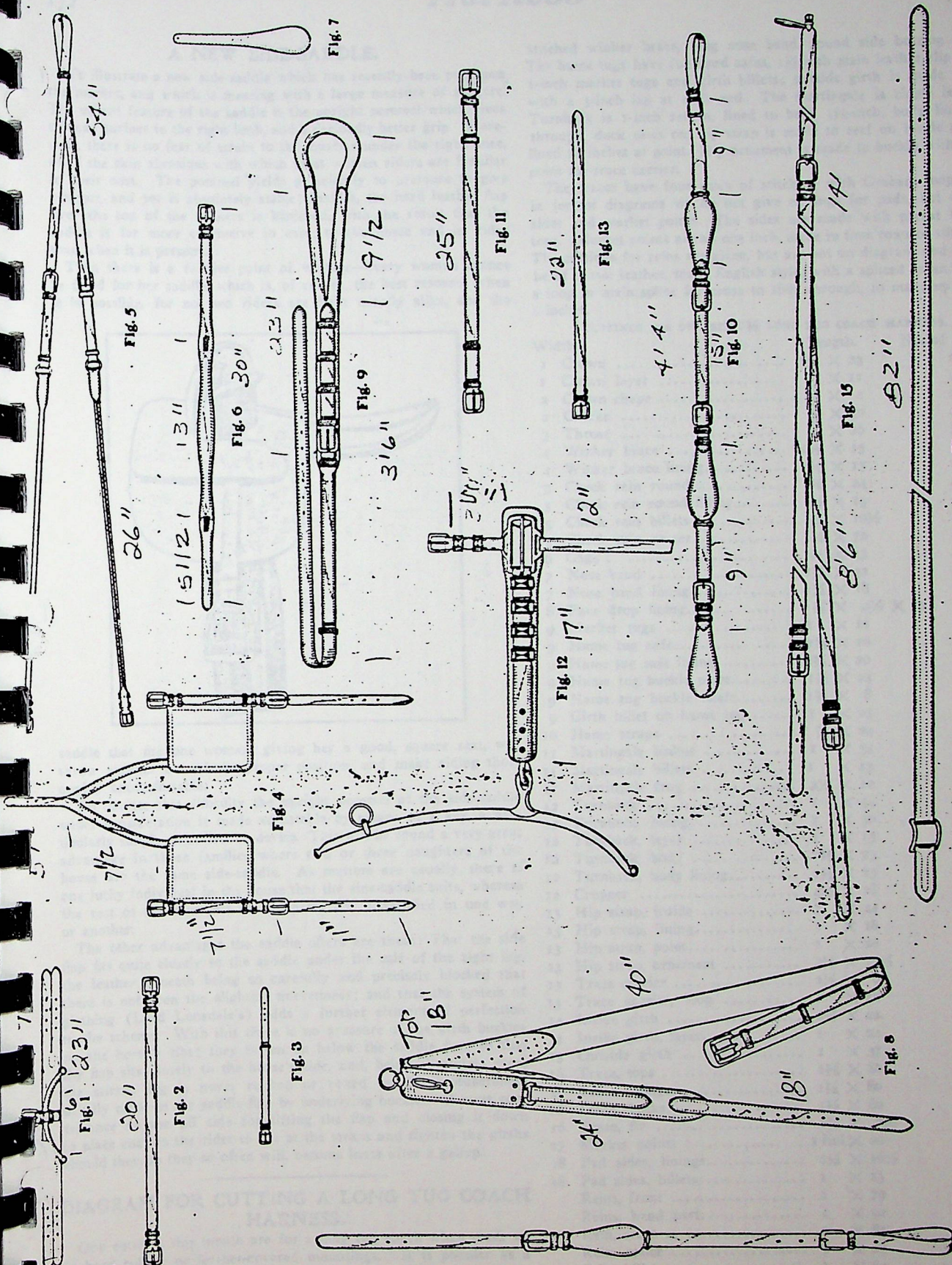
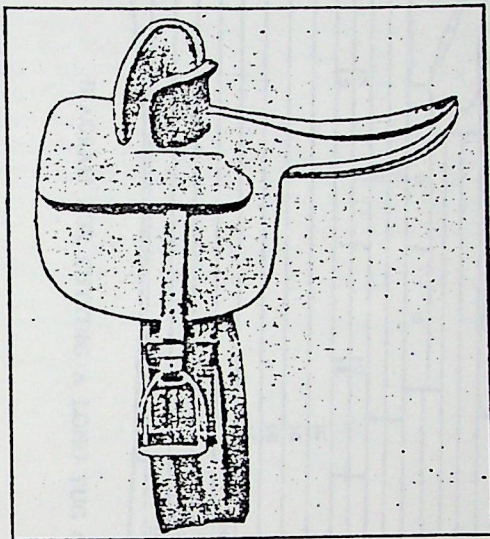


Plate IX. Long Tug Coach Harness.
Specifications on opposite page.

A NEW SIDE-SADDLE.

We illustrate a new side-saddle which has recently been put upon the market, and which is meeting with a large measure of support. The salient feature of the saddle is the upright pommel which gives a broad surface to the right limb, and a decidedly better grip. Moreover, there is no fear of strain to the muscles under the right knee, or of the skin abrasions with which most women riders are familiar to their cost. The pommel yields sufficiently to pressure to give comfort, and yet is absolutely stable; besides, the hard leather flap over the top of the withers is banished, with the result that the saddle is far more conducive to ease, to the horse and its rider than when it is present.

Then there is a further point of vantage—every woman cannot be fitted for her saddle, which is, of course, the best resource when it is possible, for no two riders are built exactly alike, and the



saddle that fits one woman, giving her a good, square seat, will throw another out of the proper position, and make riding thoroughly uncomfortable.

To obviate this difficulty the upright pommel of the side-saddle under consideration is made adjustable by means of a key, a particularly simple and effective device. This will be found a very great advantage in those families where two or three daughters of the house use the same side-saddle. As matters are usually, there is one lucky individual in the house that the side-saddle suits, whereas the rest of the members of the party are dissatisfied in one way or another.

The other advantages the saddle offers are these: That the side flap fits quite closely to the saddle under the calf of the right leg, the leather beneath being so carefully and precisely blocked that there is not even the slightest unevenness; and that the system of girthing (Lord Lonsdale's) adds a further element of perfection to the scheme. With this there is no pressure of the girth buckles on the horse's ribs; they fasten on below the saddle flap, so that the flap sits closely to the horse's side, and, being absolutely even, the stirrup leg is never rubbed or vexed by the protuberances usually made in the saddle-flap by underlying buckles. A neat contrivance on the off side for lifting the flap and closing it down in place enables the rider to get at the straps and tighten the girths should they, as they so often will, become loose after a gallop.

DIAGRAM FOR CUTTING A LONG TUG COACH HARNESS.

Our cuttings this month are for a long tug coach when made up in hard rubber or leather-covered mountings. It is popular as a rainy-day harness. Some prefer a $\frac{3}{4}$ inch bridle; we give the cuttings for a $\frac{3}{4}$ -inch bridle, with $\frac{3}{8}$ crown layer and gags, flat lined and

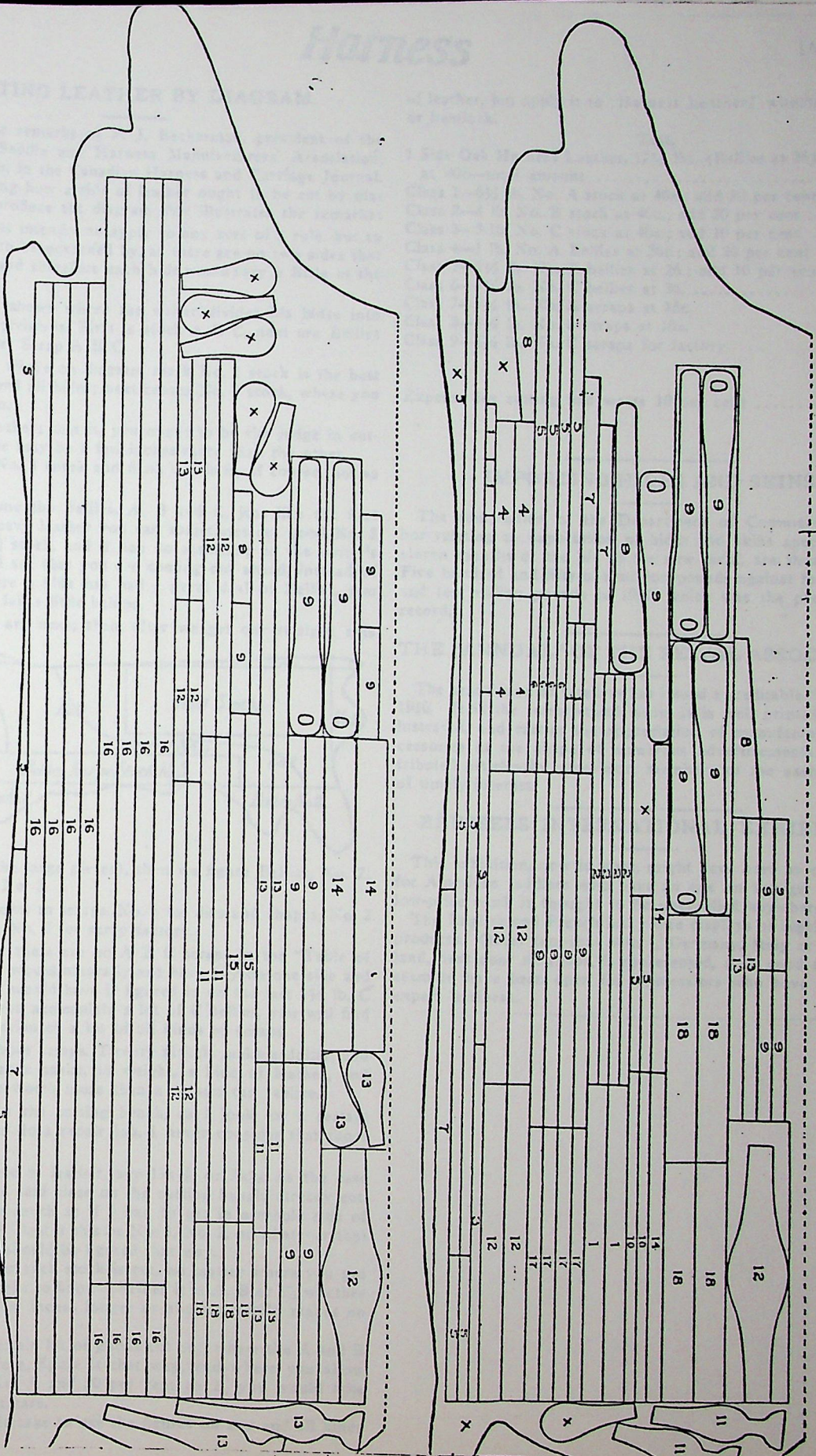
stitched winker brace, long nose band, round side bearing reins. The hame tugs have full-lined safes, $1\frac{1}{2}$ -inch plain leather clip ends, 1-inch market tugs and girth billets; outside girth is made single with a 5-inch lap at each end. The martingale is single leather. Turnback is 1-inch return, lined to bend $1\frac{1}{2}$ -inch, body lined all through, dock sews on, hip strap is made to reef on inside and is lined 18 inches at point. Hip ornament is made to buckle with lined point for trace carrier.

The traces have four rows of stitching with Graham loops. As in former diagrams we do not give cuttings for pads, but do for sides and market points. The sides are made with patent leather tops. Market points are all one inch, made in four rows of stitching. The cuttings for reins are given, but are not on diagram and should be of russet leather, made English style, with a spliced cross having a loop in main splice for cross to slide through, to make up 8 feet 6 inches.

CUTTINGS FOR ONE SET $1\frac{3}{8}$ LONG TUG COACH HARNESS.

Width.	Length.	No. of Pieces.
1 Crown	$1\frac{1}{2} \times 23$	2
1 Crown layer	$\frac{3}{8} \times 11$	2
2 Crown chape	$\frac{3}{4} \times 4$	2
2 Checks	$\frac{3}{4} \times 30$	4
3 Throat	$\frac{3}{4} \times 26$	2
4 Winker brace	$1\frac{3}{8} \times 13$	2
4 Winker brace lining.....	$1\frac{3}{8} \times 13$	2
5 Check rein round.....	$\frac{3}{8} \times 24$	4
5 Check rein round filling.....	$\frac{3}{8} \times 13$	4
5 Check rein billets	$\frac{3}{4} \times 10\frac{1}{2}$	4
5 Check rein center.....	$\frac{3}{4} \times 72$	2
6 Gags	$\frac{5}{8} \times 13$	4
7 Nose band	$1\frac{1}{4} \times 32$	2
7 Nose band lining.....	$1\frac{1}{4} \times 18$	2
8 Face drop lining.....	$\frac{3}{4} \times 2\frac{1}{2} \times 12$	2
9 Market tugs	1×11	4
9 Hame tug safe.....	$2\frac{3}{8} \times 20$	4
9 Hame tug safe lining.....	$2\frac{3}{8} \times 20$	4
9 Hame tug buckle piece.....	$1\frac{3}{8} \times 24$	4
9 Hame tug buckle chafe.....	$1\frac{3}{8} \times 8$	4
9 Girth billet on hame tug.....	1×25	4
10 Hame straps	$\frac{3}{4} \times 24$	2
11 Martingale bodies	1×34	2
11 Martingale billets	1×13	2
11 Martingale frog	$2\frac{1}{2} \times 10$	2
12 Turnback	1×44	2
12 Turnback, lining	1×30	2
12 Turnback, layer	1×13	2
12 Turnback, body	$1\frac{3}{8} \times 23$	2
12 Turnback, body lining.....	$1\frac{3}{8} \times 23$	2
12 Crupper	$4\frac{1}{2} \times 18$	2
13 Hip strap, inside	1×44	2
13 Hip strap, lining.....	1×18	2
13 Hip strap, point.....	1×20	2
13 Hip strap, ornament	$2\frac{1}{2} \times 13\frac{1}{2}$	2
13 Trace carrier	$2\frac{1}{2} \times 6$	2
13 Trace carrier, loop	1×12	2
14 Inside girth	$2\frac{1}{4} \times 22$	2
14 Inside girth, layer.....	1×24	2
15 Outside girth	1×37	2
16 Trace, tops	$1\frac{3}{8} \times 80$	4
16 Trace linings	$1\frac{3}{8} \times 80$	4
16 Trace, backs	$1\frac{3}{8} \times 80$	4
16 Trace, fly	$1\frac{3}{8} \times 7\frac{1}{2}$	4
17 Market points	1 full $\times 20$	4
18 Pad sides, linings.....	$2\frac{1}{4} \times 16\frac{1}{2}$	4
18 Pad sides, billets.....	1×13	2
Reins, front	1×79	2
Reins, hand part.....	1×90	2
Rein, cross	1×85	2
Rein, splice	1×24	2
Rein, billets	1×14	2
Cross rein, billets.....	1×18	2

DIAGRAM FOR CUTTING A LONG TUG COACH HARNESS.



CUTTING LEATHER BY DIAGRAM.

We copy the remarks of F. J. Beckerman, president of the S. W. Retail Saddle and Harness Manufacturers' Association, as we find them in the Canadian Harness and Carriage Journal. He is illustrating how a side of leather ought to be cut by diagram. We reproduce the diagram that illustrates the remarks:

The cut is not intended to apply to any sort of a rule, but to use as a guide to be governed by, as there are no two sides that cut just alike, and therefore each hide would vary a little in the figures.

The drawing shows where the writer divides his hides into three different divisions. First is stock A B C, next are Bellies A B C, and next Scrap A B C.

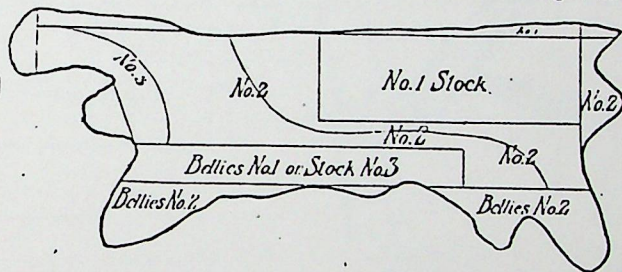
We all know where on diagram mark No. 1 stock is the best leather in any and all hides; next comes No. 2 stock, where you see a line drawn.

How many inches; that is, you ought to be the judge in cutting, as one hide may be a few inches more than the other.

Next comes No. 3 (neck and flank.) This is, of course, not as good as No. 2.

After this come the Bellies, A, B and C, just like the first division. On heavy leather you can sometimes cut good No. 3 (or even No. 2) stock, and if you do according to the writer's figures, you will see that you are coming out ahead, instead of losing; but where a hide has had a great deal of Bellies, you would naturally fall a little behind.

Bellies No. 2 are next; then, after we get our straight cuts



from the hide (the large pieces), then we figure Bellies. No. 2; next cut Bellies No. 3.

Then we get down to scraps. No. 1 for dies and chapes, No. 2 for small chapes, No. 3 for scrap factory.

You will notice there are no A B C scraps in the "Table of Figures," but you would naturally not have any on one side and what amount you would have is figured in on the last 1 1/2 lb. C Bellies, so after you accumulate a lot of C Bellies, you will find yourself in possession of a lot of all kinds of scraps.

A few words about scraps. Twenty nickels make a dollar, and a lot of scraps soon make, in weight, a hide of leather, and properly used are worth more than a person can realize.

In looking upon the cutting bench, as I look for a certain piece of leather to do a repair job, I never consider that those pieces are scraps.

If I need a piece of leather, say 15x7/8, or 7x7/8, as the case may be, and I find said piece on the cutting bench, already cut, is it not worth as much as if I had to get in a whole side of leather and cut it? And if this be No. 1, No. 2, or whatever that piece be worth, it should be figured that way.

I figure that after such stock is cut, no matter where you put it in a job, you ought to know whether it is A, B or C, whether the scraps are a few inches longer or shorter, surely makes no difference.

If you have a certain lot of goods cut out, where the A and B stock is in one piece, figure it that way, and where you allow 30 per cent. on No. A and 20 per cent on B, you would take 25 per cent in that case.

Now do not undertake to use the figures on any and all kinds

of leather, but apply it to "Harness Leather," whether it be Oak or hemlock.

Test.

1 Side Oak Harness Leather, 17 1/2 lbs. (Bellies at 26) at 40c—total amount	\$7.00
Class 1—6 1/2 lb. No. A stock at 40c.; add 30 per cent	3.38
Class 2—4 lb. No. B stock at 40c.; add 20 per cent	1.93
Class 3—3 lb. No. C stock at 40c.; add 10 per cent	1.32
Class 4—1 lb. No. A Bellies at 26c.; add 20 per cent31
Class 5—1 1/2 lb. No. B bellies at 26.; add 10 per cent44
Class 6—1 1/2 lb. No. C bellies at 26.39
Class 7—1 1/2 lb. No. A scraps at 15c.	
Class 8—1 1/2 lb. No. 8 scraps at 10c.	
Class 9—1 1/2 lb. No. C scraps for factory.	

Expense for cutting and waste 10 per cent	\$7.77
	<hr/> 77
	<hr/> \$7.00

IMPORTING HIDES AND SKINS.

The compilation of the Department of Commerce and Labor relating to importation of hides and skins specifically, for eleven months of the life of the new tariff, are thus tabulated: Five hundred and fifty-one million pounds against four hundred and ten million pounds in 1909, which was the previous high record.

THE "ANNUAL" OF THE RETAIL ASSOCIATION.

The association of retailers has issued a creditable "annual" for 1910. It is the twenty-third issue. It is well printed, nicely illustrated, and carries the appreciation of manufacturers of accessories in the shape of numerous advertisements. Its contributed articles by prominent members of the association are of timely interest.

BRUSSELS INTERNATIONAL EXHIBITION.

This exhibition, now in blast, might have been an opportunity for American saddlers who have an eye on foreign trade. Our low-price work is thought to be unexcelled anywhere.

The English and French make nice displays of highly wrought products. Queer too, that neither Germany, Italy or even Holland, next door neighbor, is represented, so a good field would seem to have been open for wholesalers who have an eye on export business.

Harness

Specifications of Wheel Harness for Road Coach

Refer to separate page.

The wheel harness of a road coach is made of heavy leather and is the following when the harness of the last year will be made.

The harness is the harness which is made of heavy leather and is made of the following when the harness of the last year will be made.

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WHEEL HARNESS FOR ROAD COACH
Drawing parts omitted.

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The harness is the harness which is made of heavy leather and is made of the following when the harness of the last year will be made.

Wheel Harness
Road Coach

Specifications of Wheel Harness for Road Coach

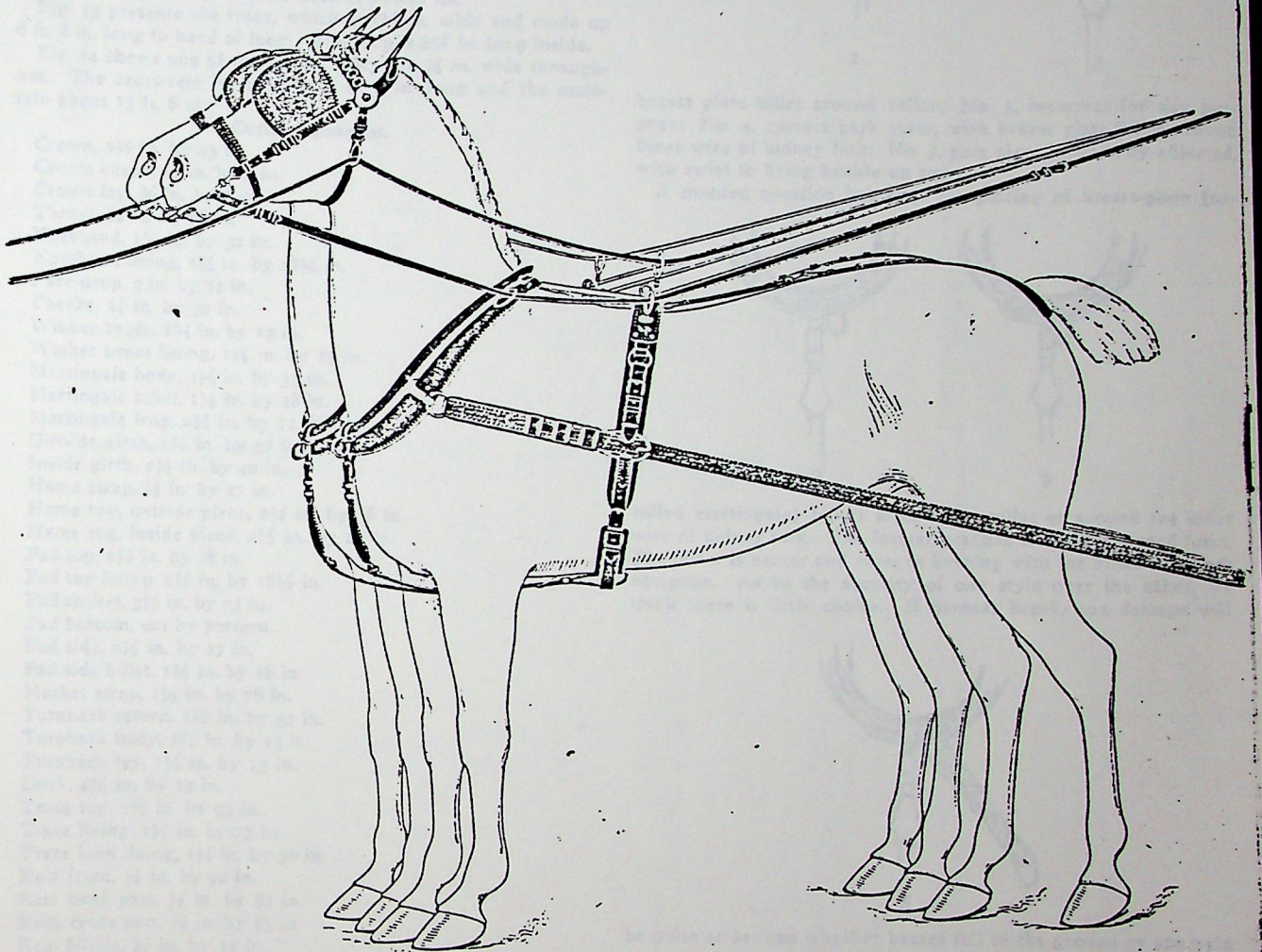
Patterns on opposite page.

The wheel harness of a road four-in-hand is herewith illustrated; in the following issue the harness of the leaders will be illustrated.

Fig. 1 represents the crown, which is made 23 in. long with $\frac{3}{4}$ in. splits $6\frac{1}{2}$ in. in length; the layer is $\frac{7}{8}$ in. wide and $6\frac{1}{2}$ in. long; the chape is $\frac{3}{4}$ in. and made with one loop.

Fig. 2 are the cheeks, which are $\frac{3}{4}$ in. wide and made up $7\frac{1}{2}$

Fig. 6 represents the martingale, which is $1\frac{1}{8}$ in. wide and made 30 in. long from the bend of reef to heel of buckle at billet end. The billet is made up 16 in. from heel of buckle. The frog is made with a ring in the lower end into which the body is stitched; it is $2\frac{3}{8}$ in. wide at swell part, tapered down to $1\frac{1}{2}$ in. at upper end and about 7 in. long from ring to buckle. The billet is spliced on the back of frog; lap is 2 in.



WHEEL HARNESS FOR ROAD COACH.

Showing parts assembled.

in. long between the buckles, with five 7-16 in. loops. The billet is 12 in. long. The winkers illustrated are the round pattern, corresponding with the form of the buckles. The winker brace has a $\frac{3}{4}$ in. point $5\frac{1}{2}$ in. long, with $7\frac{1}{2}$ in. split parts. It is lined and stitched.

Fig. 3 is the throat, $\frac{3}{4}$ in. wide, made up 20 in. long and has large ring gags in laps for lead reins.

Fig. 4 shows the noseband, which is made with a $6\frac{1}{2}$ in. point, $\frac{3}{4}$ in. cheek loops 13 in. apart, and 9 in. buckle end, or 30 in. over all. It is lined 18 in. and has four rows of stitching.

Fig. 5 shows the face drop, which is 2 in. wide and 11 in. long. It is stitched double around swell part and single at point.

Fig. 7 illustrates the outside girth, which is $1\frac{1}{8}$ wide and made up 24 in. between the buckles, with $5\frac{1}{2}$ in. laps at each end. There are two $\frac{1}{2}$ in. loops in each lap placed $2\frac{1}{2}$ in. apart.

Fig. 8 shows the hame strap. This strap is $\frac{7}{8}$ in. wide and made up 24 in. long. The back loop is against the heel of buckle and the top loop directly back of it, allowing ample space between the buckle and loop to get hold of.

Fig. 9 presents the hame tug, which is sewed into the ring; this method is the strongest and wears the best. The hame tug is made up $15\frac{1}{2}$ in. from ring to buckle; the safe is $2\frac{3}{8}$ in. wide, cut down to a $1\frac{1}{2}$ in. layer and buckle piece. There are three $1\frac{1}{4}$ in. loops back of the buckle and no safe under buckle.

The latter has no side loops. The girth billet, which is $1\frac{1}{8}$ in. wide and 12 in. long, is stitched on the side of buckle.

Fig. 10 represents the pad. This is made $2\frac{1}{2}$ in. wide, with 18 in. top and 16 in. side. The top is patent leather; the side is of single leather instead of a pad end loop. There is a ring on the side for market strap. The terret is regular style but the check hook has an extra ring on top for lead reins. The inside forms the pad girth; it is $2\frac{1}{2}$ in. wide and made up 40 in. long; the buckle chape on end is $1\frac{1}{8}$ in. wide and 10 in. long with three $\frac{1}{2}$ in. loops placed about 3 in. apart.

Fig. 11, the market strap, is $1\frac{1}{8}$ in. wide and made up 26 in. long; it is made like a hame strap but has two loops in the top side and should have a slide loop on billet end.

Fig. 12 illustrates the turnback, which has a $1\frac{1}{8}$ in. return strap and $1\frac{3}{4}$ in. body, and is made up 37 in. long from the bend of return strap to the points of dock laps. There are five $\frac{1}{2}$ in. loops in the body layer. The dock is sewed on.

Fig. 13 presents the trace, which is $1\frac{1}{2}$ in. wide and made up 6 ft. 8 in. long to bend of loop. The loop is $8\frac{1}{2}$ in. long inside.

Fig. 14 shows one of the reins. They are $\frac{7}{8}$ in. wide throughout. The cross-rein is made up 6 ft. 8 in. long and the main-rein about 13 ft. 6 in.

Cutting Lengths.

Crown, $1\frac{1}{2}$ in. by 23 in.
 Crown chape, $\frac{3}{4}$ in. by 4 in.
 Crown lay, $\frac{3}{8}$ in. by 7 in.
 Throat, $\frac{3}{4}$ in. by 26 in.
 Noseband, $1\frac{1}{4}$ in. by 32 in.
 Noseband lining, $1\frac{1}{4}$ in. by $18\frac{1}{2}$ in.
 Face drop, 2 in. by 11 in.
 Cheeks, $\frac{3}{4}$ in. by 30 in.
 Winker brace, $1\frac{5}{8}$ in. by 13 in.
 Winker brace lining, $1\frac{5}{8}$ in. by 13 in.
 Martingale body, $1\frac{1}{4}$ in. by 35 in.
 Martingale billet, $1\frac{1}{8}$ in. by 18 in.
 Martingale frog, $2\frac{1}{2}$ in. by 12 in.
 Outside girth, $1\frac{1}{8}$ in. by 37 in.
 Inside girth, $2\frac{1}{2}$ in. by 40 in.
 Hame strap, $\frac{7}{8}$ in. by 27 in.
 Hame tug, outside piece, $2\frac{1}{4}$ in. by 36 in.
 Hame tug, inside piece, $2\frac{1}{2}$ in. by 22 in.
 Pad top, $2\frac{1}{2}$ in. by 18 in.
 Pad top lining, $2\frac{1}{2}$ in. by $18\frac{1}{2}$ in.
 Pad socket, $3\frac{1}{2}$ in. by 23 in.
 Pad bottom, cut by pattern.
 Pad side, $2\frac{1}{4}$ in. by 17 in.
 Pad side billet, $1\frac{1}{8}$ in. by 18 in.
 Market strap, $1\frac{1}{8}$ in. by 28 in.
 Turnback return, $1\frac{1}{8}$ in. by 44 in.
 Turnback body, $1\frac{3}{4}$ in. by 23 in.
 Turnback lay, $1\frac{1}{8}$ in. by 13 in.
 Dock, $4\frac{3}{4}$ in. by 19 in.
 Trace top, $1\frac{1}{2}$ in. by 93 in.
 Trace lining, $1\frac{1}{2}$ in. by 73 in.
 Trace loop lining, $1\frac{1}{2}$ in. by 30 in.
 Rein front, $\frac{7}{8}$ in. by 90 in.
 Rein hand part, $\frac{7}{8}$ in. by 84 in.
 Rein, cross part, $\frac{7}{8}$ in. by 85 in.
 Rein billets, $\frac{7}{8}$ in. by 14 in.

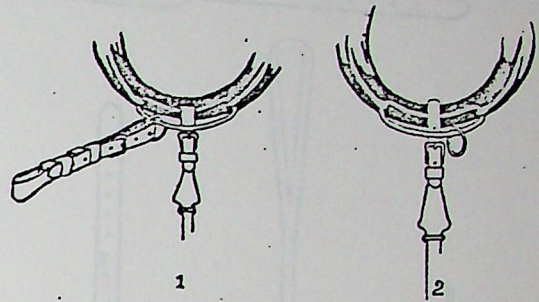
DEATH OF ROBERT SCHOLZ.

Robert Scholz, one of the leading business men in the city of Chattanooga, Tenn., was killed in a runaway near that city, on April 7th. Mr. Scholz was the principal owner and active manager of the Robert Scholz Tannery and the Southern Saddlery Company, as well as several other business enterprises in Chattanooga. He was born in Saxony in 1843, being sixty-three years of age his last birthday. Mr. Scholz leaves a wife and five children to mourn his loss.

POLE PIECES, KIDNEY LINKS AND BILLETS

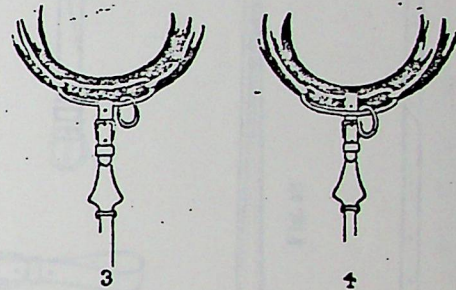
Some details are here illustrated, from Rider and Driver, as to the proper adjustment of pole pieces, kidney links and breast-plate billets for pair-horse harness:

No. 1, pole piece correctly adjusted; No. 2, road form, with

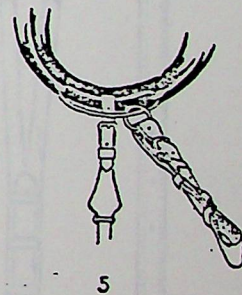


breast plate billet around collar; No. 3, incorrect for any purpose; No. 4, correct park form, with breast plate billet around inner wire of kidney link; No. 5, pole piece incorrectly adjusted, with twist to bring buckle on top.

A mooted question has been the placing of breast-plate (so-



called martingale) billets around the collar or around the inner wire of kidney link. The former practice is decidedly road form. The latter is neater and more in keeping with the finish of a park equipage. As to the security of one style over the other, we think there is little choice. If harness breaks the damage will



be quite as serious whether hames fall to the ground or are held up to bang against a horse's legs by the billet that passes around the collar. It is not so much a question of safety in passing around the collar as it is one of convenience and expedition. Open kidney links should not be used in park harness.

Some poor workmanship may be smoothed over with good paint, but if half we hear is true, there is some good wood, and good work, too, being abused with poor paint and varnish. Analyses of some widely advertised paints have brought such startling revelations that there is already talk of poor-paint laws in some States, requiring manufacturers of mixed paints to brand the ingredients on the package.

Harness

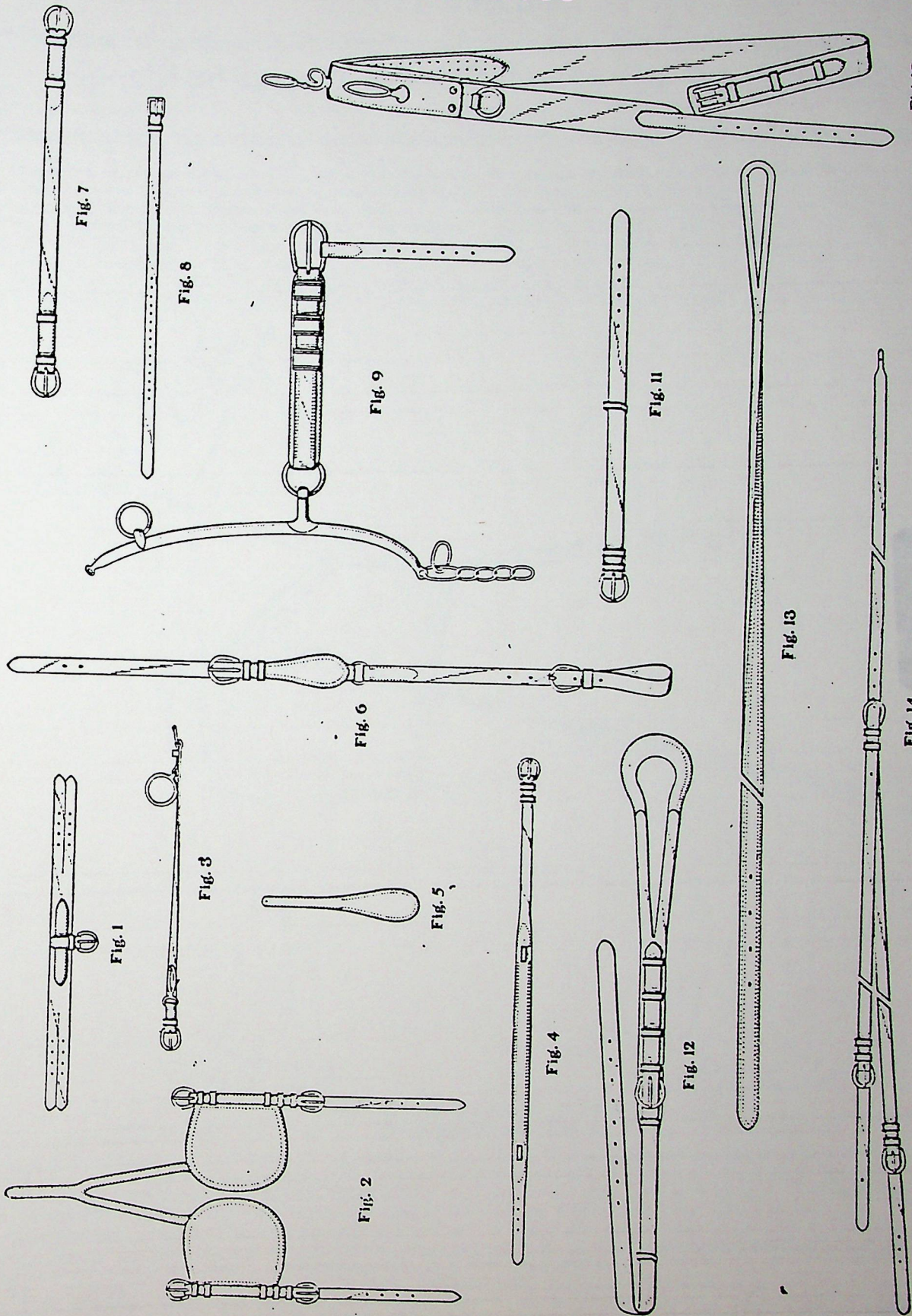


Fig. 10

Fig. 7

Fig. 8

Fig. 9

Fig. 11

Fig. 6

Fig. 13

Fig. 1

Fig. 3

Fig. 5

Fig. 4

Fig. 12

Fig. 14

Plate XV. Patterns for Wheel Harness for Road Coach.
Specifications on opposite page.

Harness

Specifications of Lead Harness for Road Coach

The purpose of this report is to present the design and construction specifications of the lead harness of a road coach. In the design, the following items were illustrated and described:

Fig. 1 illustrates the harness, which is made up of 1/2" long and 1/2" wide, and is split into two parts. The harness is made of 1/2" wide and 1/2" long, and is split into two parts. The harness is made of 1/2" wide and 1/2" long, and is split into two parts.

any change in the design of the harness, which is made up of 1/2" long and 1/2" wide, and is split into two parts. The harness is made of 1/2" wide and 1/2" long, and is split into two parts.



LEAD HARNESS FOR ROAD COACH
FIGURE 1

Lead Harness
Road Coach

Specifications of Lead Harness for Road Coach

Patterns on opposite page.

This month we present the patterns and accompanying specifications of the lead harness of a four-in-hand team. In the April issue the wheel harness was illustrated and described.

Fig. 1 represents the crown, which is made up 23 in. long and 1½ in. wide, and is split 6½ in. Has a ¾ in. chape with one loop and a ¾ in. straight lay 6½ in. long.

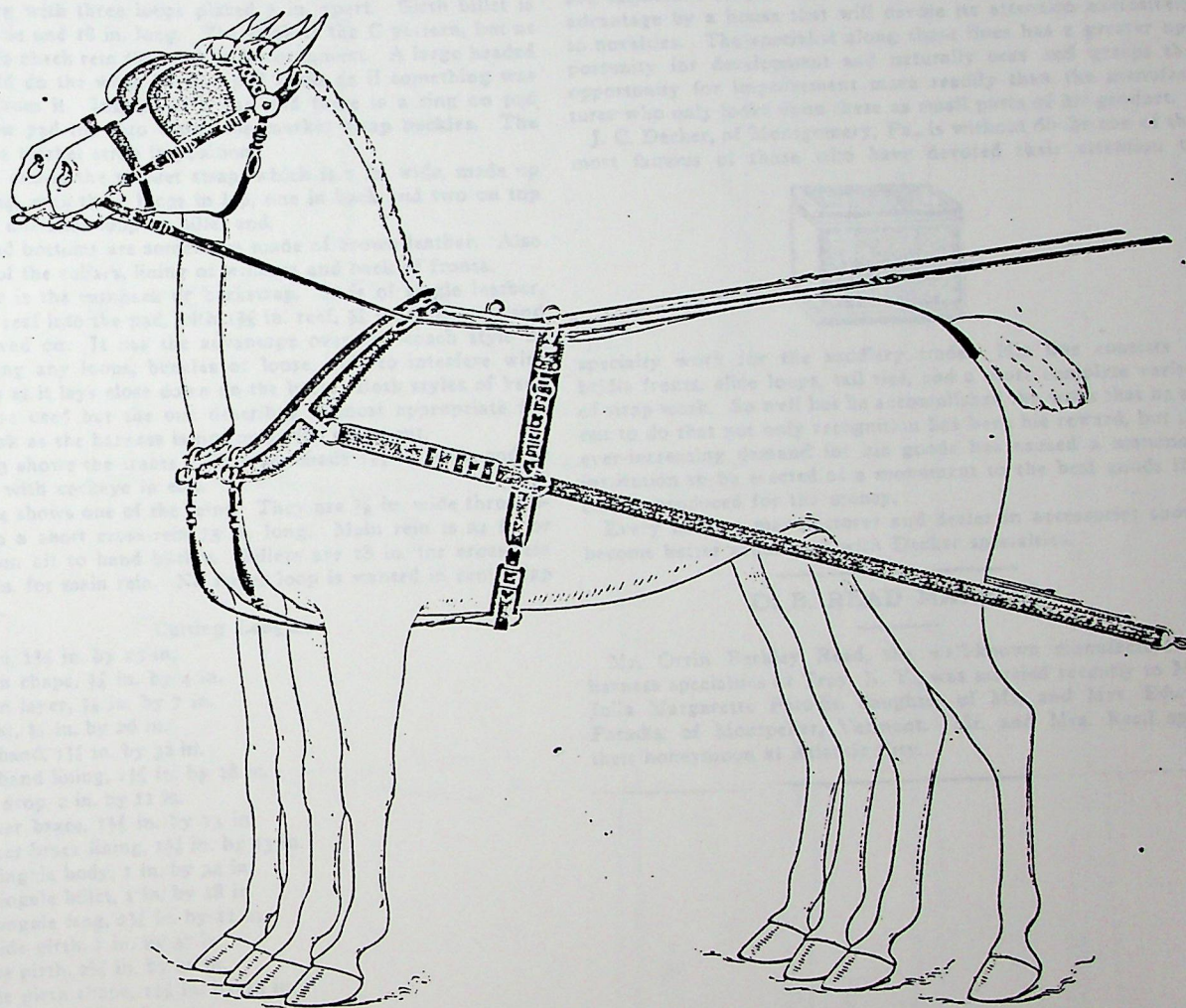
Fig. 2 shows cheeks and winker brace. The cheeks are ¾ in. wide, made up 7½ in. between the buckles, with five loops

sary change of harness the bridle would not have to be changed.

Fig. 4 shows the noseband, which is the same as in the wheel harness. It is made 30 in. long over all; 6½ in. point, ¾ in. cheek loop, spaced 13 in. apart, and 9 in. buckle end. It is lined 18 in., with four rows of stitching between cheeks.

Fig. 5 shows the face drop, which is patent leather, 2 in. wide by 11 in. long, cut by pattern.

Fig. 6, the martingale for the leaders, is made up 1 in. wide and



LEAD HARNESS FOR ROAD COACH.
Showing parts assembled.

7-16 in. wide. The billet is 11 in. long. In the pattern of the wheel harness last month we gave the pattern of a round winker and to show another style we present the spade pattern this month, either of which will match the buckle, but must be the same pattern on both teams. (Note the drawings of assembled parts.) The winker brace has a ¾ in. point 5½ in. long with split parts 7½ in. long. It is lined and stitched throughout.

Fig. 3, the throat, is ¾ in. wide, made up 20 in. long with two loops in lap. It has large ring gags in laps like the wheel throat. They are not necessary for the lead work, but in case of a neces-

30 in. long from bend of reef to billet buckle. Billet is 18 in. long and spliced on back of frog 2 in. Frog is same pattern as for wheel harness, but is ¾ in. smaller; is made with a ring in bottom end into which the body is stitched.

Fig. 7 shows the outside girth which is 1 in. wide, made up 24 in. between the buckles with 5½ in. laps at each end, with two loops 2½ in. apart.

Fig. 8 illustrates the hame strap. It is ¾ in. wide, made up 24 in. long with back loop against heel of buckle and top placed next to it, giving a space between buckle bar and loop.

Fig. 9 presents the pattern of a hame tug attached to hame by a clip and rivets. We show this pattern to illustrate the different styles. This style is more showy than the pattern given in illustration of wheel harness but is not so strong. Either style is correct when used together. (Note drawing of parts assembled.) This tug is made up much like a regular coach hame tug but without a safe under the buckle. The lining of safe forms the buckle and clip piece is cut down to $1\frac{3}{8}$ in. Top of safe turns up around buckle. Tug is made 15 in. from ring to center of market tug. The safe is $2\frac{3}{8}$ in. wide, running full length of tug. There are three loops, $1\frac{1}{4}$ in. wide, for trace points. Girth point is 1 in. wide, made up 12 in. long.

Fig. 10 represents the pad, which is made up $2\frac{1}{4}$ in. wide with 18 in. patent leather top and 16 in. plain leather, single, on outer side. The inner side forms the pad girth, which is 40 in. long and $2\frac{1}{4}$ in. wide, with a $1\frac{1}{2}$ in. buckle chape on the end, made 10 in. long with three loops placed 3 in. apart. Girth billet is $1\frac{1}{2}$ in. wide and 18 in. long. The hook is the C pattern, but as there is no check rein the hook is for ornament. A large headed bolt would do the work but the pad looks as if something was missing from it. Instead of a pad end there is a ring on pad, side below pad top into which the market strap buckles. The cut shows market strap in position.

Fig. 11 shows the market strap, which is 1 in. wide, made up 26 in. long, with three loops in lap, one in back and two on top side, and one slide loop on billet end.

The pad bottoms are sometimes made of brown leather. Also the roll of the collars, lining of winkers and back of fronts.

Fig. 12 is the turnback or backstrap. It is of single leather, made to reef into the pad, with $1\frac{3}{8}$ in. reef, $\frac{3}{4}$ in. split part, and dock sewed on. It has the advantage over the coach style of not having any loops, buckles or loose ends to interfere with the reins as it lays close down on the back. Both styles of back straps are used but the one described is most appropriate for road work as the harness is not made for ornament.

Fig. 13 shows the traces. They are made $1\frac{3}{8}$ in. wide and 72 in. long with cockeye in end.

Fig. 14 shows one of the reins. They are $\frac{7}{8}$ in. wide throughout with a short cross-rein 75 in. long. Main rein is 24 ft. or over from bit to hand buckle. Billets are 18 in. for cross-rein and 14 in. for main rein. No finger loop is wanted in center lap of reins.

Cutting Lengths.

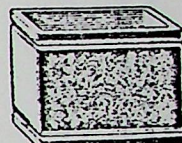
Crown, $1\frac{1}{2}$ in. by 23 in.
 Crown chape, $\frac{3}{4}$ in. by 4 in.
 Crown layer, $\frac{7}{8}$ in. by 7 in.
 Throat, $\frac{3}{4}$ in. by 26 in.
 Noseband, $1\frac{1}{4}$ in. by 32 in.
 Noseband lining, $1\frac{1}{4}$ in. by 18 in.
 Face drop, 2 in. by 11 in.
 Winker brace, $1\frac{5}{8}$ in. by 13 in.
 Winker brace lining, $1\frac{5}{8}$ in. by 13 in.
 Martingale body, 1 in. by 34 in.
 Martingale billet, 1 in. by 18 in.
 Martingale frog, $2\frac{1}{4}$ in. by 11 in.
 Outside girth, 1 in. by 37 in.
 Inside girth, $2\frac{1}{4}$ in. by 40 in.
 Inside girth chape, $1\frac{1}{4}$ in. by 13 in.
 Hame strap, $\frac{7}{8}$ in. by 2 in.
 Hame tug safe, $2\frac{3}{8}$ in. by 20 in.
 Hame tug safe and buckle piece, $2\frac{3}{8}$ in. by 31 in.
 Hame tug, inside piece, $1\frac{5}{8}$ in. by 8 in.
 Girth billets, 1 in. by 16 in.
 Pad top, patent leather, $2\frac{1}{4}$ in. by 18 in.
 Pad top lining, $2\frac{3}{8}$ in. by $18\frac{1}{2}$ in.
 Pad socket, $3\frac{1}{4}$ in. by 23 in.
 Pad bottom, cut by pattern.
 Pad binding, 1 in. by 25 in.
 Pad billet, $1\frac{1}{4}$ in. by 18 in.
 Market strap, 1 in. by 29 in.
 Back strap, $1\frac{3}{4}$ in. by 46 in.

Dock, $4\frac{1}{2}$ in. by 19 in.
 Trace top, $1\frac{3}{8}$ in. by 80 in.
 Trace lining, $1\frac{3}{8}$ in. by 72 in.
 Trace filling, $1\frac{3}{8}$ in. by 70 in.
 Rein, front, $\frac{7}{8}$ in. by 84 in.
 Rein, first splice, $\frac{7}{8}$ in. by 75 in.
 Rein, second splice, $\frac{7}{8}$ in. by 63 in.
 Rein, hand part, $\frac{7}{8}$ in. by 90 in.
 Rein billets, $\frac{7}{8}$ in. by 14 in.
 Cross reins, $\frac{7}{8}$ in. by 75 in.
 Cross rein billets, $\frac{7}{8}$ in. by 18 in.

DECKER SPECIALTIES.

In many industries can be found a lot of small accessories that are important to the trade and yet can be worked to better advantage by a house that will devote its attention exclusively to novelties. The specialist along these lines has a greater opportunity for development and naturally sees and grasps the opportunity for improvement more readily than the manufacturer who only looks upon these as small parts of his product.

J. C. Decker, of Montgomery, Pa., is without doubt one of the most famous of those who have devoted their attention to



specialty work for the saddlery trade. His line consists of bridle fronts, slide loops, tail ties, and a most complete variety of strap work. So well has he accomplished the work that he set out to do that not only recognition has been his reward, but the ever-increasing demand for his goods has caused a mammoth institution to be erected as a monument to the best goods that can be produced for the money.

Every harness manufacturer and dealer in accessories should become better acquainted with Decker specialties.

O. B. READ MARRIES.

Mr. Orrin Berkley Read, the well-known manufacturer of harness specialties at Troy, N. Y., was married recently to Miss Julia Margarette Paradis, daughter of Mr. and Mrs. Edward Paradis, of Montpelier, Vermont. Mr. and Mrs. Read spent their honeymoon at Atlantic City.

Harness

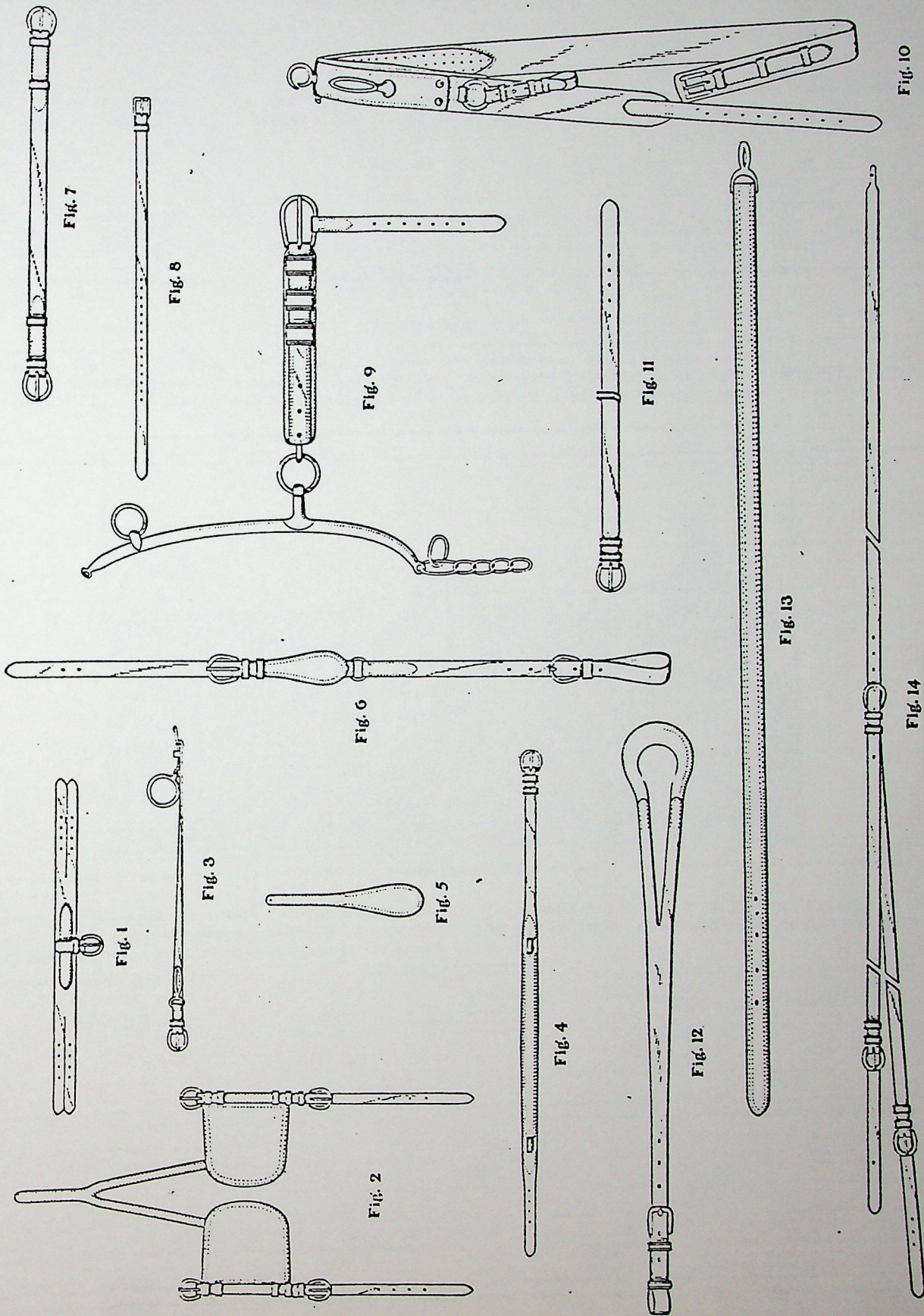


Plate XVI. Patterns for Lead Harness for Road Coach.
Specifications on opposite page.

Harness

TANDEM CART.



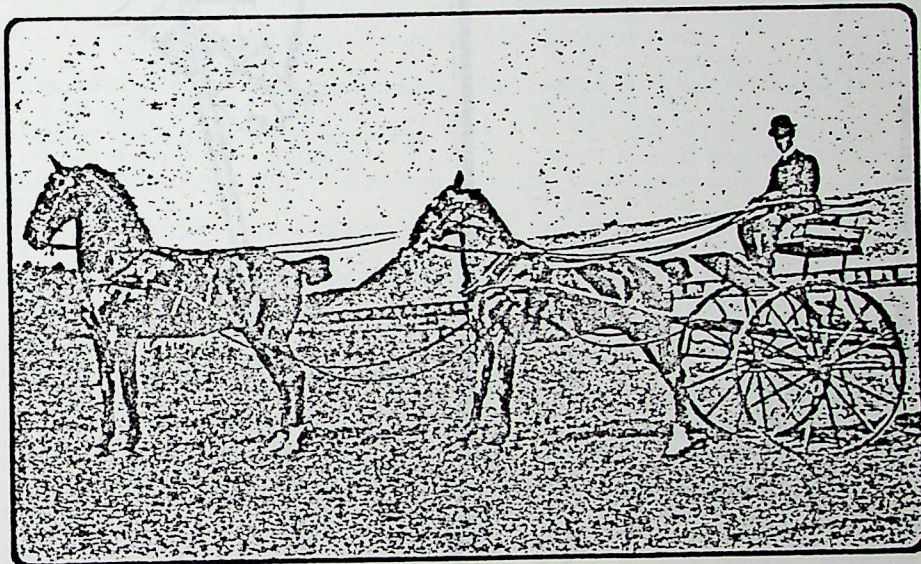
Tandem Cart

Harness

93

TANDEM CART.

Tandem driving is qualified to suit the most fastidious in the art of handling horses. The tandem is specially designed to satisfy those particularly fond of driving and is not in smaller cities receive inquiries regarding them. The seat of this job rests on iron supports and is made to slide backward or forward to adjust in balancing cart.



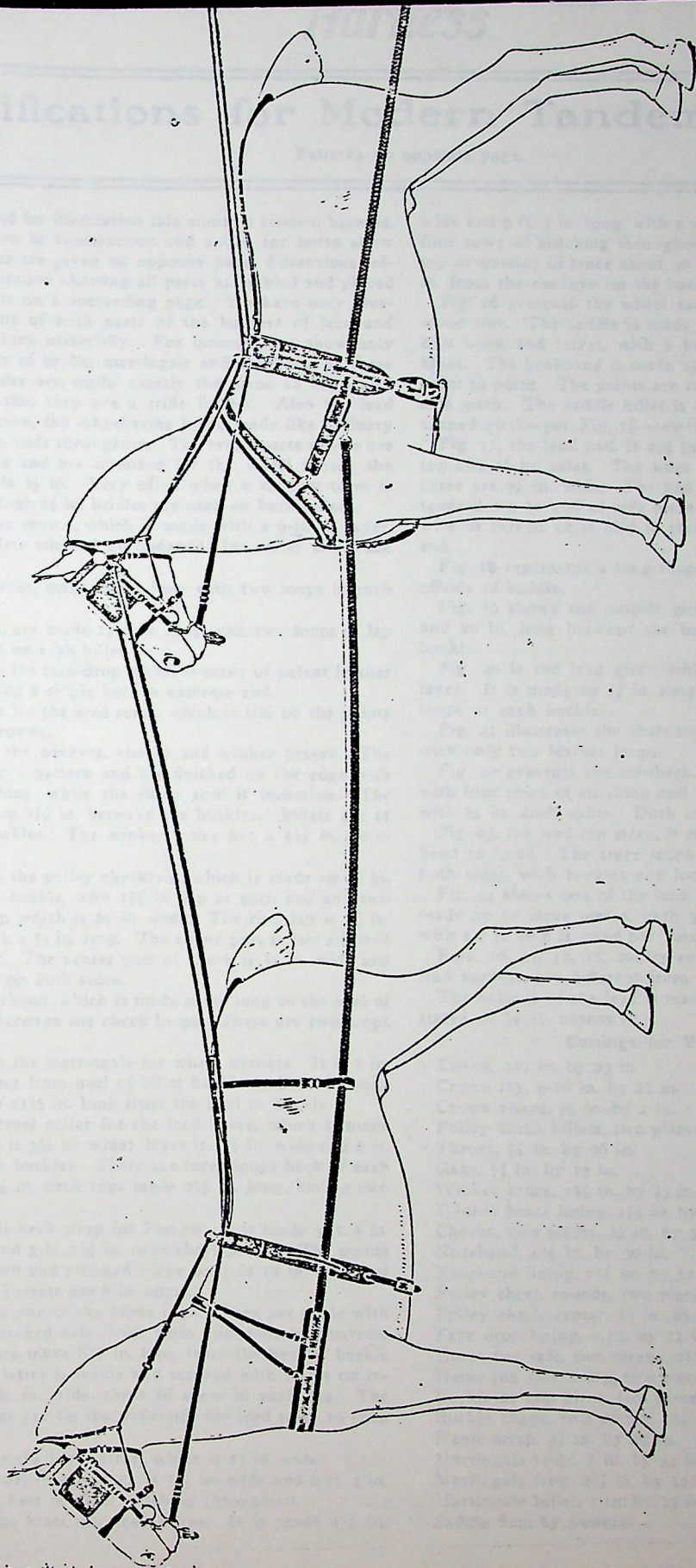
TANDEM CART.

like the break, what might be termed a social vehicle. Vehicles of the tandem and break class are only found on the floor of high class builders in large cities, but very often the dealers

The harness is a typical style, although sometimes a round collar is used instead of a Swiss collar, as shown in this illustration.

Specifications

And Harness



Modern Tandem Harness.
Patterns and Specifications on preceding pages.

Specifications for Modern Tandem Harness

Patterns on opposite page.

We have selected for illustration this month a tandem harness, one that is modern in construction and suited for horse show use. The patterns are given on opposite page, dimensions following. An illustration showing all parts assembled and placed in position appears on a succeeding page. We have only illustrated the patterns of such parts of the harness of lead and wheel horses as vary materially. For instance, we show only one size and style of bridle, martingale and turnback, as these parts for the leader are made exactly the same as for wheel horse, excepting that they are a trifle lighter. Also the lead reins are only shown, the wheel reins being made like ordinary surrey reins, $\frac{7}{8}$ in. wide throughout. The bridle parts shown are for a $\frac{3}{4}$ in. bridle and are intended for the wheel horse; the bridle for leader is $\frac{5}{8}$ in. Very often when a tandem team is under 15.2 hands high $\frac{5}{8}$ in. bridles are used on both horses.

Fig. 1 shows the crown, which is made with a 9-16 in. layer, $\frac{3}{4}$ in. chape. Billets stitched on underside for pulley check are $\frac{5}{8}$ in.

Fig. 2 is the throat, made 20 in. long with two loops in each lap.

Fig. 3. the gags, are made 11 $\frac{1}{2}$ in. long with two loops in lap and one slide loop on each billet.

Fig. 4 illustrates the face-drop which is made of patent leather 10 $\frac{1}{2}$ in. long, having a single hole in extreme end.

Fig. 5 is a guide for the lead reins, which is slid on the points of wheel bridle crowns.

Fig. 6 presents the winkers, cheeks and winker braces. The winkers are cut to a pattern and are finished on the edge with one row of stitching, while the inner row is imitation. The cheeks are made up 7 $\frac{1}{2}$ in. between the buckles. Billets are 11 in. long below buckles. The winker brace has a 5 $\frac{1}{2}$ in. point with 7 $\frac{1}{2}$ in. split.

Fig. 7 illustrates the pulley checkrein, which is made up 26 in. long from ring to buckle, with 1 $\frac{3}{4}$ in. lap at each end and two loops in buckle lap which is $\frac{5}{8}$ in. wide. The ring lap is $\frac{3}{4}$ in. wide, provided with a $\frac{3}{4}$ in. ring. The round part is fair stitched with a cord center. The center part of check is $\frac{3}{4}$ in. wide and is made to reef in on both sides.

Fig. 8 is the noseband, which is made 30 in. long to the heel of buckle and 13 in. between the cheek loops. There are two loops in the buckle lap.

Fig. 9 represents the martingale for wheel harness. It is 1 in. wide and 30 in. long from heel of billet buckle to bend of body reef. The billet is 11 $\frac{1}{2}$ in. long from the heel of buckle.

Fig. 10 is the breast collar for the lead horse, which is made up Swiss style. It is 3 $\frac{1}{4}$ in. wide; layer is 1 $\frac{1}{4}$ in. wide and 2 ft. 10 in. long between buckles. There are three loops back of each buckle, and four $\frac{5}{8}$ in. neck tugs made 2 $\frac{3}{8}$ in. long, having two loops each.

Fig. 11 shows the neck strap for Fig. 10. It is made 3 ft. 5 in. over long points and 3 ft. 2 $\frac{1}{2}$ in. over short points. The points are $\frac{5}{8}$ in. wide, lined and stitched. The body is 12 in. long and made very thick. Terrets are 8 in. apart.

Fig. 12 illustrates one of the hame tugs. They are made with a full lined and stitched safe, with plain clip ends and narrow loops. The tugs are made 8 $\frac{1}{2}$ in. long from the heel of buckle to hame clip; the latter is inside and secured with rivets on inside. Loops are $\frac{3}{4}$ in. wide, three of them in each tug. The buckle has a loop or eye on the underside for lead trace to snap into.

Fig. 13 represents the hame strap, which is $\frac{3}{4}$ in. wide.

Fig. 14 is the wheel trace, which is 1 $\frac{3}{8}$ in. wide and 6 ft. 4 in. long, finished with four rows of stitching throughout.

Fig. 15 shows the trace for lead horse. It is made 1 $\frac{1}{4}$ in.

wide and 9 ft. 4 in. long, with a snap cockeye in end. There are four rows of stitching throughout. The stock is spliced in the top or outside of trace about 30 in. from cockeyes and about 40 in. from the cockeye on the back.

Fig. 16 presents the wheel saddle, which is made on a 5 in. wood tree. The saddle is made entirely of patent leather, with bolt hook and terret, with a bar in the center to keep reins apart. The backband is made 1 $\frac{3}{8}$ in. wide, 6 ft. 3 in. long from point to point. The points are reduced to 1 $\frac{1}{4}$ in. to receive outside girth. The saddle billet is on nigh side, only with a long-shaped girth—per Fig. 18—sewed on offside.

Fig. 17, the lead pad, is 2 $\frac{3}{8}$ in. wide and made with an 18 in. top and 16 in. sides. The sides have trace loops on each side; these are $\frac{5}{8}$ in. wide. The pad bottom is hair stuffed and extends down to end of side piece. It is laced to side piece with wire or thread, or is held in place by a steel hook in the lower end.

Fig. 18 represents a long-shaped girth which is sewed on the offside of saddle.

Fig. 19 shows the outside girth, which is made 1 $\frac{1}{4}$ in. wide and 20 in. long between the buckles, with two loops at each buckle.

Fig. 20 is the lead girth, which has a hard body and 1 in. layer. It is made up 17 in. long between the buckles, with two loops at each buckle.

Fig. 21 illustrates the shaft tug, which is made up Irish style with only two leather loops.

Fig. 22 presents the turnback. It has a 1 in. return finish with four rows of stitching and a 1 $\frac{5}{8}$ in. body lined through with $\frac{3}{4}$ in. dock splits. Dock is sewed on.

Fig. 23, the lead hip strap, is made $\frac{7}{8}$ in. wide, 4 ft. long from bend to bend. The trace loops are 6 in. long and reef up on both sides, with buckles and loops sewed in.

Fig. 24 shows one of the lead reins, which are $\frac{7}{8}$ in. wide and made up of three pieces, each 5 ft. 9 in. long from lap to lap, with a 7 ft. to 8 ft. hand part, making a rein 24 ft. or more, long.

Figs. 10, 11, 15, 17, 20, 23 and 24, which show the parts of lead harness, are different from the wheel.

The balance of the lead is made like the wheel, but as already stated, is $\frac{1}{8}$ in. narrower.

Cuttings for Wheel Harness.

- Crown, 1 $\frac{1}{2}$ in. by 23 in.
- Crown lay, 9-16 in. by 11 in.
- Crown chape, $\frac{3}{4}$ in. by 4 in.
- Pulley check billets, two pieces, $\frac{5}{8}$ in. by 7 $\frac{1}{2}$ in.
- Throat, $\frac{3}{4}$ in. by 26 in.
- Gags, $\frac{1}{2}$ in. by 13 in.
- Winker brace, 1 $\frac{5}{8}$ in. by 13 in.
- Winker brace lining, 1 $\frac{5}{8}$ in. by 13 in.
- Cheeks, two pieces, $\frac{3}{4}$ in. by 30 in.
- Noseband, 1 $\frac{1}{4}$ in. by 30 in.
- Noseband lining, 1 $\frac{1}{4}$ in. by 32 in.
- Pulley check rounds, two pieces, 1 1-16 in. by 36 in.
- Pulley check center, $\frac{3}{4}$ in. by 69 in.
- Face drop lining, 2 in. by 11 in.
- Hame tug safe, two pieces, 2 $\frac{3}{4}$ in. by 12 in.
- Hame tug safe lining, two pieces, 2 $\frac{3}{4}$ in. by 12 in.
- Buckle or clip piece, two pieces, 1 $\frac{3}{8}$ in. by 17 $\frac{1}{2}$ in.
- Buckle chape, two pieces, 1 $\frac{3}{8}$ in. by 5 in.
- Hame strap, $\frac{3}{4}$ in. by 25 in.
- Martingale body, 1 in. by 34 in.
- Martingale frog, 2 $\frac{1}{2}$ in. by 11 in.
- Martingale billet, 1 in. by 13 in.
- Saddle flap, by pattern.

Backband, two pieces, 1 $\frac{1}{2}$ in. by 39 in.
 Backband lining, 1 $\frac{1}{2}$ in. by 75 in.
 Saddle billet, 1 $\frac{1}{4}$ in. by 18 in.
 Saddle billet lining, 1 $\frac{1}{4}$ in. by 17 in.
 Inside girth, by pattern.
 Inside girth lay, 1 $\frac{1}{4}$ in. by 28 in.
 Inside girth loop, $\frac{3}{4}$ in. by 7 $\frac{1}{2}$ in.
 Outside girth, 1 $\frac{1}{4}$ in. by 45 in.
 Shaft tug, two pieces, 1 $\frac{3}{8}$ in. by 25 in.
 Shaft tug lining, two pieces, 1 $\frac{1}{2}$ in. by 11 in.
 Turnback return, 1 in. by 43 in.
 Turnback return lining, 1 in. by 55 in.
 Turnback body, 1 $\frac{3}{8}$ in. by 22 in.
 Turnback body lining, 1 $\frac{3}{8}$ in. by 22 in.
 Dock, 4 $\frac{3}{4}$ in. by 19 in.
 Trace top, two pieces, 1 $\frac{3}{8}$ in. by 76 in.
 Trace lining, 1 $\frac{3}{8}$ in. by 76 in.
 Rein fronts, two pieces, $\frac{7}{8}$ in. by 84 in.
 Rein billets, two pieces, $\frac{7}{8}$ in. by 14 in.
 Rein hand parts, two pieces, $\frac{7}{8}$ in. by 84 in.

Cuttings for Lead Harness.

Breast collar body, 6 $\frac{3}{8}$ in. by 3 ft. 5 in.
 Breast collar lay, 1 $\frac{1}{4}$ in. by 44 in.
 Breast collar tugs, four pieces, $\frac{5}{8}$ in. by 10 in.
 Neck strap, 1 $\frac{3}{8}$ in. by 41 in.
 Neck strap point linings, two pieces, 1 $\frac{3}{8}$ in. by 17 in.
 Neck strap body, 4 in. by 12 in.
 Trace top, two pieces, 1 $\frac{1}{4}$ in. by 82 in.
 Trace heel piece, two pieces, 1 $\frac{1}{4}$ in. by 76 in.
 Trace lining, two pieces, 1 $\frac{1}{4}$ in. by 75 in.
 Pad top, 2 $\frac{3}{8}$ in. by 18 in.
 Pad sides, 2 $\frac{3}{8}$ in. by 17 in.
 Pad top lining, two pieces, 2 $\frac{1}{2}$ in. by 16 in.
 Pad sides, lining, two pieces, 2 $\frac{1}{4}$ in. by 17 in.
 Pad socket piece, 3 $\frac{3}{8}$ in. by 40 in.
 Pad billets, two pieces, 1 in. by 13 in.
 Pad billets, lining, two pieces, 1 in. by 11 in.
 Girth body, 2 $\frac{1}{4}$ in. by 21 in.
 Girth layer, 1 in. by 23 in.
 Hip strap top, $\frac{7}{8}$ in. by 66 in.
 Hip strap lining, $\frac{7}{8}$ in. by 62 in.
 Rein fronts, six pieces, $\frac{7}{8}$ in. by 72 in.
 Rein billets, two pieces, $\frac{7}{8}$ in. by 14 in.
 Rein hand parts, two pieces, $\frac{7}{8}$ in. by 84 in.
 Lead bridle, martingale and turnback are cut $\frac{1}{8}$ in. narrower than that of wheel harness.

"JETILENE."

The trend of all modern invention is to not only save time but facilitate the production of manufactured articles and as a consequence reduce the cost of manufacture to a minimum. Any article of merit that the harness maker can employ that will save time for him must necessarily be of interest.

The modern leather ink, "Jetilene," was prepared by the R. M. Hollingshead Co., of Camden, N. J., as a time saver and they guarantee it to be the best article of its kind in the world. It is for sale at all jobbing houses.

They offer to send a sample package, sufficient to make five pounds of very strong ink, for one dollar, express prepaid, to any part of the United States. Here is your opportunity—write to-day.

PHENOMENAL BUSINESS.

The Rex Shield and Mfg. Co., Connersville, Ind., of which O. A. Charles is secretary and general manager, report that their sales of storm fronts, horse covers, etc., were away beyond their fondest expectations and the outlook for spring business double what they had anticipated. Here is an evidence of what hustle and advertising will do with a good article.

Although the decision in the United States Circuit Court in Utica, N. Y., went against the defendants, it cannot but be looked upon by members of the Wholesale Saddlery Association as a victory for their organization. On the basis of the position taken by the presiding justice in charging the jury, the Association appealed the case which will be carried to a higher court. Most interesting to the trade is Judge Ray's interpretation of all questions affecting the Wholesale Saddlery Association, which are reviewed verbatim herewith:

First. There is nothing in the constitution or by-laws of the Wholesale Saddlery Association of the United States in contravention of the Sherman Act.

Second. It was not unlawful for these defendants and all other jobbers of saddlery hardware and saddlery leather in the United States to organize and belong to an association, the purpose and policy of which was to promote trade and commerce in the saddlery line in the time-honored and regular channels, namely, through sales of goods by the manufacturers to the jobber, by the jobber to the retailer, and by the retailer to the consumer.

Third. No manufacturer, acting individually, is under any duty or obligation to sell his product to any person or persons, and if he refuses to sell because of their poor business standing, or arbitrarily or capriciously, or because requested to do so by the person or persons so refused.

Fourth. In ascertaining what the practice of manufacturers was, the secretary-commissioner had a legal right to ask manufacturers whether or not they were selling goods to certain persons, firms or corporations.

Fifth. The Wholesale Saddlery Association of the United States had a legal right to publish a list of jobbers and send a copy of such list to every manufacturer and request him and endeavor to persuade him to confine his sales to the jobbers whose names are contained in that list.

Sixth. Each of the defendants, Olmsted, Windheim, and Childs & Co., acting individually, had a legal right to purchase all their goods from manufacturers who sold only to jobbers, and to purchase no goods from manufacturers who sold to retailers.

Seventh. That if the defendant Frazer, Jones & Co. refused to sell the plaintiffs goods, not because their names were not on the jobbers' list of the Wholesale Saddlery Association of the United States, but because of unsatisfactory previous dealings with them, or either of them, or because of their poor business standing, or because requested so to do by its customers, or because it did not consider them wholesalers, or because their orders were small in amount, it cannot be held liable in this action for such refusal.

It is not surprising that the members of the W. S. A. should feel jubilant over the above interpretation of the objects and purposes of their organization. This case will stimulate the organization to a broader field of usefulness and will undoubtedly be of material benefit to its future development and growth.

A CATALOGUE YOU SHOULD HAVE.

The Chicago Art Metal Works are sending out a neat catalogue illustrating the principal articles they manufacture, with prices. Each page and cut is numbered, thus enabling the trade to order intelligently and without delay of correspondence.

They manufacture anything that comes under the heading of harness ornaments, stock filled letters in brass, nickel or silver, harness monograms, monograms for quarter blankets, robes, etc., trade marks, crests and coats-of-arms; stock ornaments, brass, nickel or silver filled, trace ornaments, nose band ornaments, rosettes, etc. If you care for the catalogue the Chicago Art Metal Works, 67-69 Lake Street, Chicago, will mail it to you upon request if you mention Harness.

LANDIS AND FLEMING IN CHICAGO.

Mr. W. S. Watkins, of St. Louis, installed a Landis harness machine and a Fleming shoe machine in Chicago the first week of January. The Fleming shoe machine is proving a great success and Colonel Fleming is as happy as a boy with a new pair of skates.

Harness

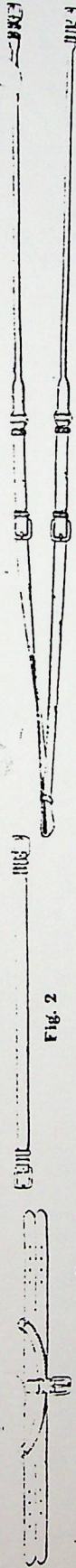


FIG. 1

FIG. 2

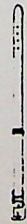


FIG. 3

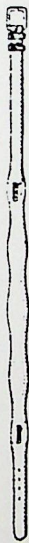


FIG. 8

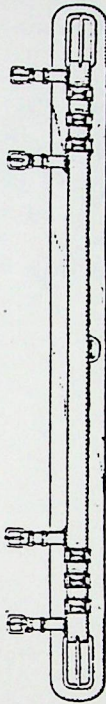


FIG. 10 Lead



FIG. 4

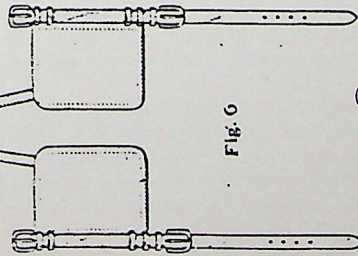


FIG. 6



FIG. 5

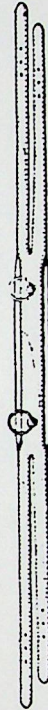


FIG. 11 Lead

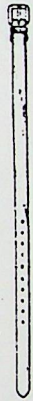


FIG. 13

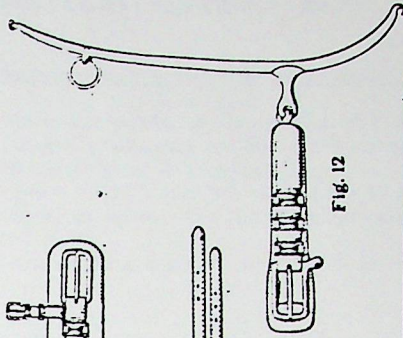


FIG. 12

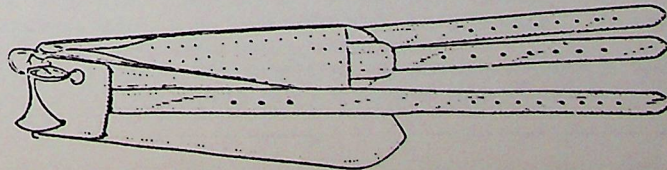


FIG. 10



FIG. 14



FIG. 15 Lead

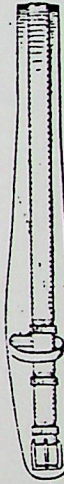


FIG. 18

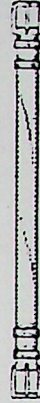


FIG. 19

FIG. 9

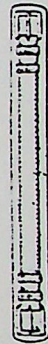


FIG. 20 Lead

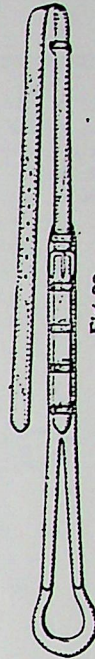


FIG. 22



FIG. 21

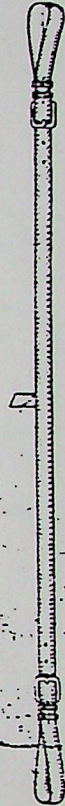


FIG. 23 Lead



FIG. 24 Lead

FIG. 17 Lead

Plate XII. Patterns for a Modern Tandem Harness.
Specifications on opposite page.

Specifications for Double Surrey Harness

Parting on opposite side.

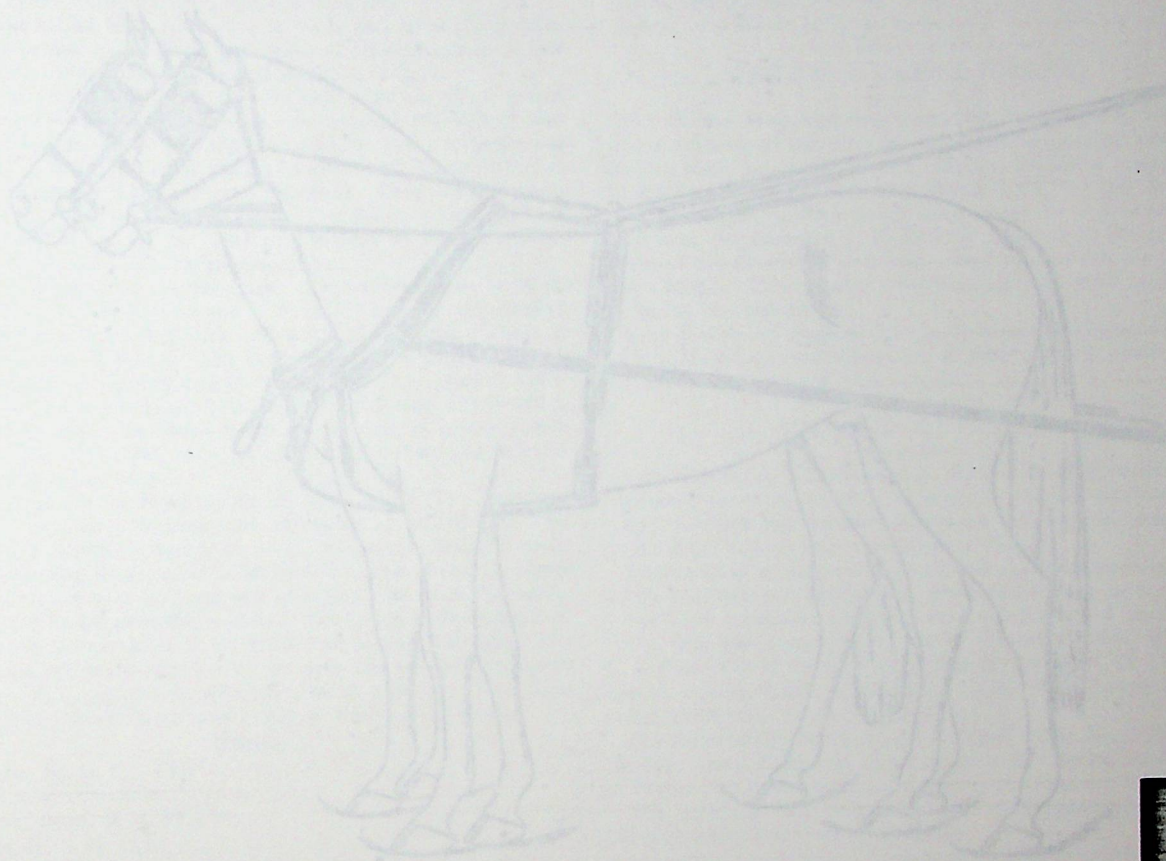
Plate VIII presents patterns for the making of a shorting double surrey harness. Following are descriptions of each part and length and width of all materials.

Fig. 1 is the crown, which is split 2-1/2 in. and has 1/2 in. shape in center and two 1/4 in. loops. The top is 2-1/2 in. wide, neck, 2 in. long between rings.

Fig. 2 shows one of the gag straps, which is 1/2 in. wide and

Fig. 3 shows the check ring, which is 1/2 in. wide and has two pieces which are made up 1/2 in. long from top to bottom. The center is 1/2 in. to 1/4 in. long and made to rest on both the neck with a 1/2 in. loop in center.

Fig. 4 is the neckband, made with a 1/2 in. point at each end and divided in center. The point is 1/2 in. long, check, and distance between checks is 1/2 in., with 1/2 in.



DOUBLE SURREY HARNESS

Showing parts assembled.

made up 1/2 in. long to the head of buckle, with two loops in top and one side loop on billet.

Fig. 5 represents the breast band, which is 1/2 in. wide and 1/2 in. long, made up between the buckles. There are two 1/2 in. loops in each end.

Fig. 6 illustrates the face drop, which is of patent leather. There is one left end of attaching to the body and one top on right. It is made in a long, with buckle hole in center and

Fig. 7 presents the cheeks and winter leathers. Cheeks are 1/2 in. wide and made up 1/2 in. between the buckles. There are two 1/2 in. loops at the top buckle, and three at same width at the lower one. The billet is 1/2 in. long and made with a 1/2 in. loop at each end. Winter leathers are 1/2 in. deep and 1/2 in. wide, with a buckle eye one attached with one face loop of attaching with the winter brace 1/2 in. long, with a 1/2 in. loop. Length over all is 1/2 in. from top, bottom and 1/2 in. across and is bound and covered throughout.

and, or a length over all of 1/2 in. It is bound and two ends of stitching between the check leathers.

Fig. 8 represents the horse tags, which are 1/2 in. wide and made under buckle only. The top end is made of plain leather, finished with two ends of stitching, and 1/2 in. wide, with 1/2 in. loop at bottom. The top end is 1/2 in. from head of buckle, making 1/2 in. from head of horse's head. The clip end is 1/2 in., making the horse's long from head of buckle to same clip. Leathers are attached under side of tag, and show the English decorated pattern of loop figure.

Fig. 9, one of the horse straps, is made 1/2 in. wide at top and bottom and is provided with two loops. The horse tags show 1/2 in. from point and should be 1/2 in. wide and made up about twice in each strap.

Fig. 10 presents the martingale, which is 1/2 in. wide, with 1/2 in. billet and 1/2 in. loop. From head of buckle to 1/2 in.

Double Surrey
Harness

Specifications for Double Surrey Harness

Patterns on opposite page.

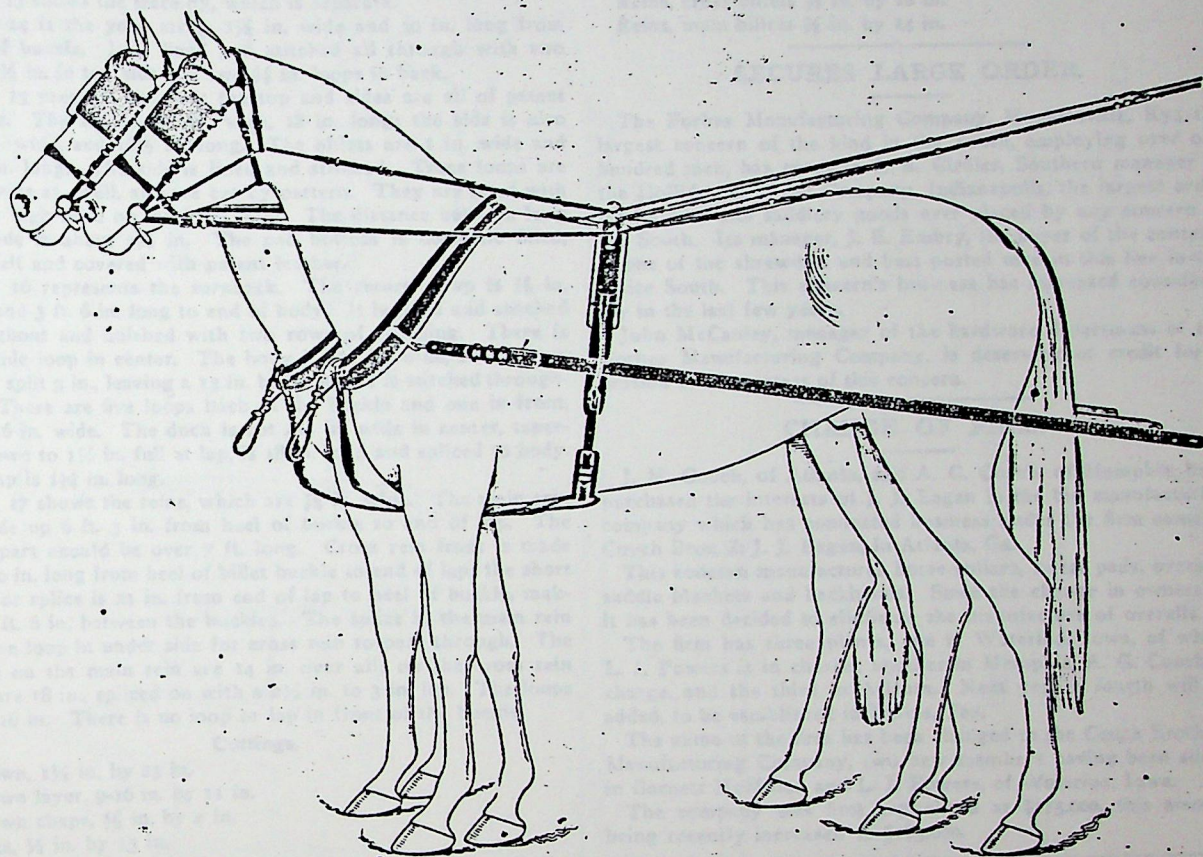
Plate VIII. presents patterns for the making of a short-tug double surrey harness. Following we give description of each figure and length and width of all cuttings:

Fig. 1 is the crown, which is split $6\frac{1}{2}$ in., and has $\frac{3}{8}$ in. chape in center and two $\frac{3}{8}$ in. loops. The lay is 9-16 in. wide, made, 7 in. long between rings.

Fig. 2 shows one of the gag straps, which is $\frac{1}{2}$ in. wide and

Fig. 6 shows the check rein, which is $\frac{5}{8}$ in. wide, with round side pieces which are made up 19 in. long from bit to ring. The center is cut 5 ft. 10 in. long and made to reef on both sides of the neck with a slide loop in center.

Fig. 7 is the noseband, made with a $\frac{5}{8}$ in. point and buckle piece and swelled in center. The point is $6\frac{1}{2}$ in. to center of check, and distance between cheeks is 13 in., with 10 in. buckle



DOUBLE SURREY HARNESS.
Showing parts assembled.

made up $11\frac{1}{2}$ in. long to the heel of buckle, with two loops in lap and one slide loop on billet.

Fig. 3 represents the throat band, which is $\frac{5}{8}$ in. wide and 20 in. long, made up, between the buckles. There are two $\frac{3}{8}$ in. loops in each lap.

Fig. 4 illustrates the face drop, which is of patent leather. There is one false row of stitching in the body and one row on edge. It is made 10 in. long, with buckle hole in extreme end.

Fig. 5 presents the cheeks and winker brace. Cheeks are $\frac{5}{8}$ in. wide and made up $7\frac{1}{2}$ in. between the buckles. There are two $\frac{3}{8}$ in. loops at the top buckle, and three of same width at the lower one. The billet is 11 in. long and made without a lap below buckle. Winkers are $5\frac{3}{4}$ in. deep and $5\frac{1}{2}$ in. wide, clear of cheeks; they are stitched with one false row of stitching only. The winker brace is $\frac{5}{8}$ in. point, with 9-16 in. split. Length over all is 13 in.— $5\frac{1}{2}$ in. point and $7\frac{1}{2}$ in. split—and is lined and stitched throughout.

end, or a length over all of 30 in. It is lined and stitched with two rows of stitching between the cheek loops.

Fig. 8 represents the hame tugs, which are $1\frac{1}{4}$ in. wide, with lined safe under buckle only. The clip end is straight, and made of plain leather, finished with two rows of stitching. Loops are $\frac{3}{4}$ in. wide, with $\frac{1}{4}$ in. space between. The first is placed $\frac{1}{2}$ in. from heel of buckle, making $4\frac{1}{4}$ in. from heel of buckle to last loop. The clip end is $3\frac{3}{4}$ in., making the hame tug 8 in. long from heel of buckle to hame clip. Loops are stitched from under side of tug, and show the English diamond pattern of loop figure.

Fig. 9, one of the hame straps, is made $\frac{5}{8}$ in. wide, $22\frac{1}{2}$ in. long, and is provided with two loops. The holes begin about 4 in. from point, and should be only $\frac{5}{8}$ in. apart and number about twelve in each strap.

Fig. 10 presents the martingale, which is $\frac{7}{8}$ in. wide, made with 10 in. billets and 7 in. frog. From heel of buckle to D the

Harness

body is made 23 in. to bend, or 30 in. from bend to heel of buckle. The frog is patent leather, with only one row of false stitching. There are two 7-16 in. loops in the billet lap and only one ½ in. loop in reef lap.

Fig. 11 represents the girth, which is of hard single leather, with a lap through center. The body is 2¼ in. wide, 21 in. long. The layer is 1 in. wide, made up 17 in. long between the buckles. There are two ½ in. loops in the laps. The lay is stitched from the top, but the loops should be stitched from the under side with a heavy thread.

Fig. 12 illustrates one of the traces, which are 1¼ in. wide and 7 ft. long. They are finished with four rows of stitching throughout. There is a dart hole in butt end for whiffletree.

Fig. 13 shows the trace fly, which is separate.

Fig. 14 is the yoke strap, 1¼ in. wide and 30 in. long from heel of buckle. It is lined and stitched all through with two loops ½ in. in top side and two ¾ in. loops in back.

Fig. 15 presents the pad; the top and sides are all of patent leather. The top is 1⅞ in. wide, 18 in. long; the side is also 1⅞ in. wide, and 16½ in. long. The billets are 1 in. wide and 13½ in. long. The side is lined and stitched. Trace loops are 1 in. wide at swell, and are cut by pattern. They are lined with a very high raise on inside of loop. The distance between loop and side is about 2½ in. The pad bottom is domestic filled, with felt and covered with patent leather.

Fig. 16 represents the turnback. The return strap is ¾ in. wide and 3 ft. 6 in. long to end of body. It is lined and stitched throughout and finished with two rows of stitching. There is one slide loop in center. The body is 1½ in. wide, 22 in. long, and is split 9 in., leaving a 13 in. body, which is stitched throughout. There are five loops back of the buckle and one in front, all 7-16 in. wide. The dock is cut 4½ in. wide in center, tapering down to 1½ in. full at lap, is 18 in. long and spliced to body. The lap is 1¼ in. long.

Fig. 17 shows the reins, which are ¾ in. wide. The main rein is made up 6 ft. 3 in. from heel of buckle to end of lap. The hand part should be over 7 ft. long. Cross rein front is made 6 ft. 10 in. long from heel of billet buckle to end of lap; the short piece or splice is 21 in. from end of lap to heel of buckle, making 8 ft. 6 in. between the buckles. The splice in the main rein has one loop in under side for cross rein to pass through. The billets on the main rein are 14 in. over all; on the cross rein they are 18 in., spliced on with a 2½ in. to 3 in. lap. The loops are 7-16 in. There is no loop or lap in front of the buckle.

Cuttings.

Crown, 1¼ in. by 23 in.
 Crown layer, 9-16 in. by 11 in.
 Crown chape, ¾ in. by 4 in.
 Gags, ½ in. by 13 in.
 Throat, ¾ in. by 26 in.
 Face drop, 2 in. by 10 in.
 Winker brace, 1¾ in. by 13 in.
 Winker brace lining, 1¾ in. by 13 in.
 Cheeks, ¾ in. by 30 in.
 Noseband, 1½ in. by 32 in.
 Noseband lining, 1½ in. by 18 in.
 Check rein rounds, ¾ in. by 24 in.
 Check rein billets, ¾ in. by 10 in.
 Check rein center, ¾ in. by 68 in.
 Check rein filling, ¾ in. by 13 in.
 Hame tug safe, 2½ in. by 4½ in.
 Hame tug back, 2½ in. by 11½ in.
 Hame tug buckle piece, 1¼ in. by 17½ in.
 Hame strap, ¾ in. by 24 in.
 Martingale body, ¾ in. by 34 in.
 Martingale billet, ¾ in. by 13 in.
 Martingale frog back, 2½ in. by 11 in.
 Girth body, 2¼ in. by 21 in.
 Girth layer, 1 in. by 24 in.
 Trace top, 1¼ in. by 84 in.
 Trace back, 1¼ in. by 84 in.

Trace fly, 1¼ in. by 7½ in.
 Yoke strap, 1¼ in. by 41½ in.
 Pad top, 1⅞ in. by 18 in.
 Pad top lining, 2 in. by 15½ in.
 Pad side, 1⅞ in. by 16½ in.
 Pad side lining, 1⅞ in. by 16½ in.
 Trace loop, 1 in. by 17 in.
 Trace loop lining, 1¼ in. by 13 in.
 Billets, 1 in. by 13½ in.
 Reins, front ¾ in. by 6 ft. 7 in.
 Reins, hand part ¾ in. by 8 ft.
 Reins, cross ¾ in. by 85 in.
 Reins, cross splice ¾ in. by 24 in.
 Reins, cross billets ¾ in. by 18 in.
 Reins, main billets ¾ in. by 14 in.

SECURES LARGE ORDER.

The Forbes Manufacturing Company, Hopkinsville, Ky., the largest concern of the kind in the South, employing over one hundred men, has given to S. B. Girdler, Southern manager of the Holliday & Wyon Company, Indianapolis, the largest order for harness and saddlery goods ever placed by any concern in the South. Its manager, J. E. Embry, the buyer of the concern, is one of the shrewdest and best posted men in this line in the entire South. This concern's business has increased considerably in the last few years.

John McCauley, manager of the hardware department of the Forbes Manufacturing Company, is deserving of credit for a portion of the success of this concern.

CHANGE OF FIRM.

J. M. Couch, of Atlanta, and A. G. Couch, of Memphis, have purchased the interests of J. J. Eagan in the big manufacturing company which has conducted business under the firm name of Couch Bros. & J. J. Eagan, in Atlanta, Ga.

This concern manufactures horse collars, sweat pads, overalls, saddle blankets and backbands. Since the change in ownership it has been decided to eliminate the manufacture of overalls.

The firm has three plants, one in Waterloo, Iowa, of which L. I. Powers is in charge; another in Memphis, A. G. Couch in charge, and the third in Atlanta. Next year a fourth will be added, to be established in Dallas, Tex.

The name of the firm has been changed to the Couch Brothers Manufacturing Company, two new members having been added in Garnett McMillan and L. I. Powers, of Waterloo, Iowa.

The company was first capitalized at \$175,000, this amount being recently increased to \$185,000.

Harness

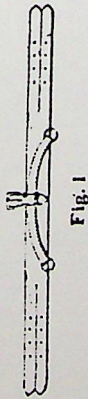


Fig. 1

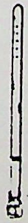


Fig. 2



Fig. 3

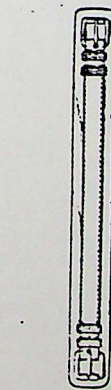


Fig. 4



Fig. 5

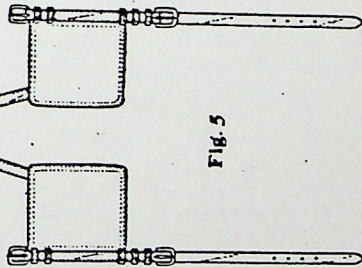


Fig. 6

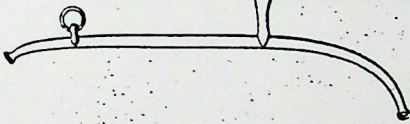


Fig. 7



Fig. 8



Fig. 9

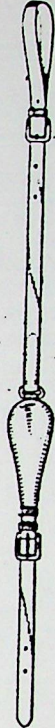


Fig. 10



Fig. 11

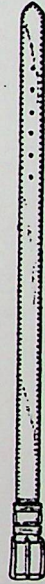


Fig. 12



Fig. 13

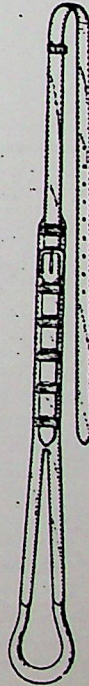


Fig. 14

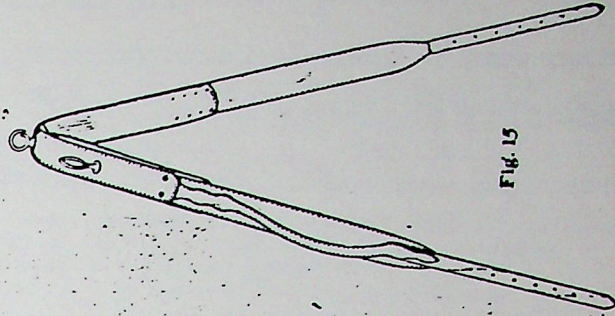


Fig. 15

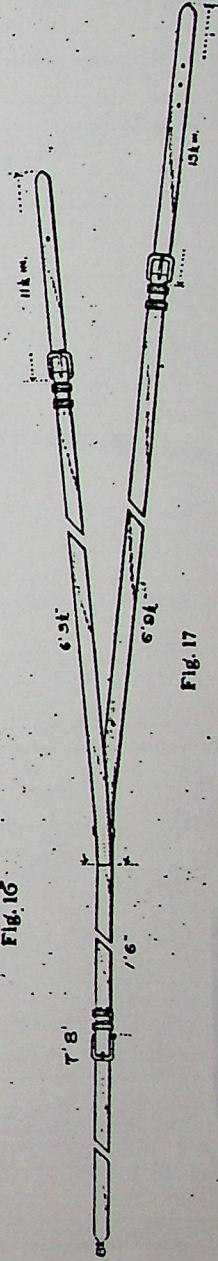


Fig. 16

Plate VIII. Short Tug Double Surrey Harness.
Specifications on opposite page.

Specifications for Special Road Harness

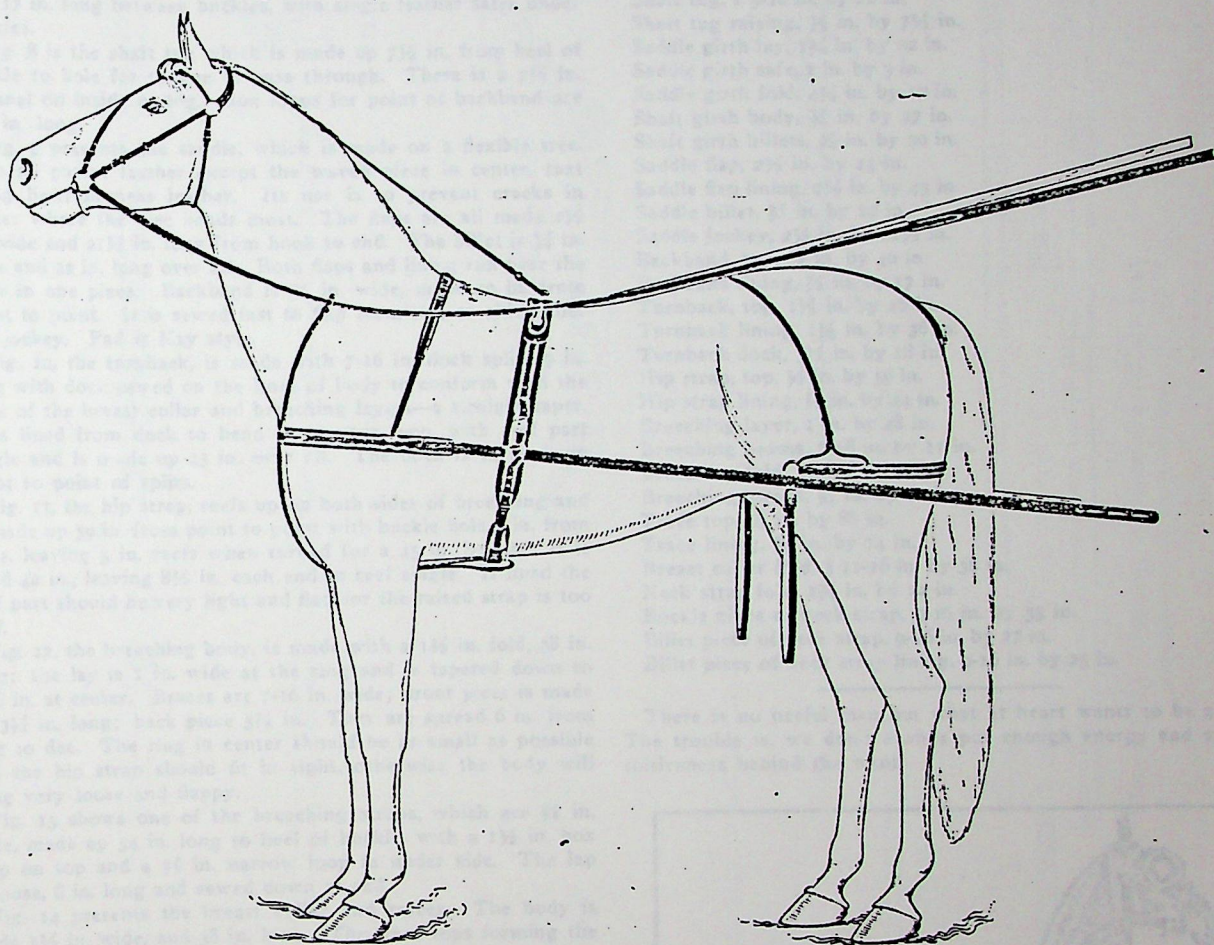
Patterns on opposite page.

By request, we illustrate this month a special style of road harness, having a number of features that attract the attention of the buyer. The bridle shown is one of many styles of open bridles in the market. Our selection of this was to show one of the variety. Regular blind bridles that would match this har-

The front shown is rounded, but a flat one will match the bridle as well. It is made 12 in. between the cheeks.

Fig. 2, the throat, is made up 20 in. between the buckles, with 1 in. laps at buckles and a rounded center.

Fig. 3 shows the back part of overhead bearing rein, which is



SPECIAL ROAD HARNESS
Showing Parts Assembled.

ness have been illustrated before. The description and specifications for making a harness of this character are as follows:

Fig. 1, the crown and cheeks, are of one piece, with a fold under the crown 11 in. long and 1 in. wide in center tapering down to the size of layer at each end. The loop for bearing rein can be either leather or metal and is placed in crown $\frac{3}{4}$ in. from the center of crown to first hole for loop. The cheeks are made 9 $\frac{1}{2}$ in. from crown to heel of billet buckle. They are lined and stitched. For very fine work the billet is cut long enough to make the lining of cheeks. There is one loop at buckle and one slide loop on cheek to take the extra point should the bridle be put on a short head. The billet is made 11 $\frac{1}{2}$ in. long allowing 3 in. for taking up, thus making a bridle 40 in. long from bit ring to bit ring.

The throat billets are single leather 5 in. long and $\frac{3}{8}$ in. wide.

split 5 in. and has a buckle lap of 1 $\frac{3}{4}$ in. turned back. The reef part is cut down to 9-16 in. and is made 38 in. over all. 8 in. is allowed for reef. The jockey is made with a large loop to go over T or drop hook.

Fig. 4 illustrates the front part of overhead bearing rein. It is made with a billet 4 $\frac{1}{2}$ in. long from heel of buckle. There is one loop front and one loop back of the buckle. The front split is 9 in. with a 2 in. flat part and 15 in. back split, or 26 in. over all.

Fig. 5 represents the martingale, which is made with flat ring parts, lined and stitched. They are 7-16 in. wide, 18 in. long. The same piece of stock forms the ring piece, layers and billet. In cheaper grades the billet may be spliced under point of layer. The layer is 12 in. long; billet is $\frac{1}{2}$ in. wide and 16 $\frac{1}{2}$ in. long. Fold is made scant 1 $\frac{1}{4}$ in. wide, and 30 in. long. The loose end

Harness

of fold under billet has one seam in center. There is no layer except for very fine work.

Fig. 6 shows one of the reins, which are the beaded style, and like the bridle, are shown for variety. They are made with $\frac{5}{8}$ in. front parts and $1\frac{1}{2}$ in. hand parts.

Fig. 7. The girth shown is a special one with a wide layer, having the outside girth sliding through the raised part in center. This is a good girth when the martingale is used as it is impossible for the martingale to stop the sliding motion of the outside girth. The buckles on both girths are $\frac{3}{4}$ in. wide; the outside is made 24 in. between buckles with billets 30 in. long to wrap around shafts. The inside or saddle girth is made 2 in. wide and 17 in. long between buckles, with single leather safes under buckles.

Fig. 8 is the shaft tug which is made up $7\frac{1}{2}$ in. from heel of buckle to hole for tongue to pass through. There is a $7\frac{1}{2}$ in. channel on inside of tug. Box loops for point of backband are $1\frac{1}{2}$ in. long.

Fig. 9 presents the saddle, which is made on a flexible tree. It is all patent leather except the waved piece in center, that being light harness leather. Its use is to prevent cracks in center where the tree bends most. The flaps are all made $2\frac{1}{2}$ in. wide and $21\frac{1}{2}$ in. long from hook to end. The billet is $\frac{3}{4}$ in. wide and 12 in. long over all. Both flaps and lining run over the back in one piece. Backband is $\frac{7}{8}$ in. wide, made 40 in. from point to point. It is sewed fast to flap from side to side under the jockey. Pad is Kay style.

Fig. 10, the turnback, is made with 7-16 in. dock splits 9 in. long with dock sewed on the lines of body to conform with the lines of the breast collar and breeching layers—a straight taper. It is lined from dock to bend at crupper loop, with reef part single and is made up 45 in. over all. The dock is 14 in. from point to point of splits.

Fig. 11, the hip strap, reefs up on both sides of breeching and is made up 59 in. from point to point with buckle hole 2 in. from ends, leaving 5 in. reefs when turned for a 45 in. length. It is lined 42 in., leaving $8\frac{1}{2}$ in. each end to reef single. If lined the reef part should be very light and flat, for the raised strap is too stiff.

Fig. 12, the breeching body, is made with a $1\frac{3}{8}$ in. fold, 38 in. long; the lay is 1 in. wide at the ring and is tapered down to 9-16 in. at center. Braces are 7-16 in. wide; front piece is made up $3\frac{3}{4}$ in. long; back piece $3\frac{7}{8}$ in. They are spread 6 in. from ring to dee. The ring in center should be as small as possible and the hip strap should fit in tight, otherwise the body will hang very loose and flappy.

Fig. 13 shows one of the breeching straps, which are $\frac{3}{4}$ in. wide, made up 54 in. long to heel of buckle, with a $1\frac{1}{2}$ in. box loop on top and a $\frac{5}{8}$ in. narrow loop in under side. The lap is loose, 8 in. long and sewed down at end.

Fig. 14 presents the breast collar and traces. The body is made $1\frac{1}{2}$ in. wide, and 38 in. long. The trace tops forming the layer are spliced in center of body. Like the breeching lay, they taper down to $\frac{5}{8}$ in. centers. The neck strap dees are set in layer 13 in. from center. Traces are made 71 in. long from end of body or 90 in. from center of body. They are made with a raised top and thin edges, with three holes in heel end.

Fig. 15, the neck strap, is made to buckle on the nigh side of neck. The strap is 9-16 in. wide. Buckle end is made $16\frac{1}{2}$ in. from dee to heel of buckle with one loop at buckle. The billet end is made 25 in. from dee to point, making 40 in. over all when buckled. These lengths bring the buckle $3\frac{1}{2}$ in. down on the nigh side of neck. If buckled on top it makes a hard part which is liable to chafe the horse. The fold is made $1\frac{1}{8}$ in. wide and 22 in. long, tapering from center to $\frac{5}{8}$ in. at ends under loop. There are two loops on each end of body to hold strap in place. The one on nigh side below the buckle should be made large enough to take the extra point of strap if the neck is buckled up.

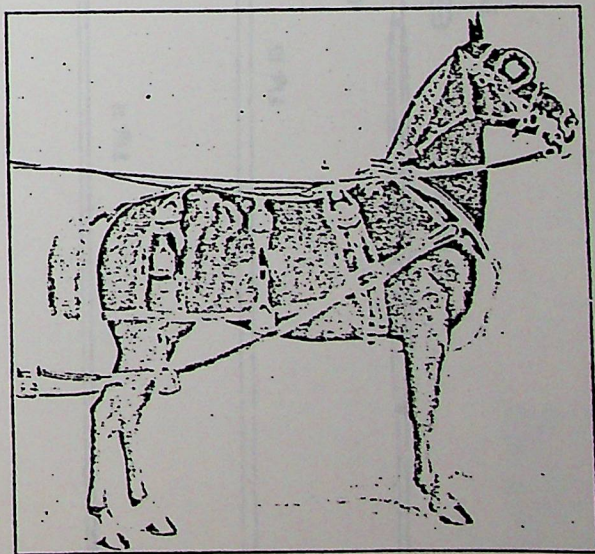
Cuttings.

Crown and checks, 1 in. by 35 in.

Check billet and lining, 7-16 in. by 22 in.

Cheek fold, $2\frac{1}{4}$ in. by 11 in.
 Throat band, 9-16 in. by 28 in.
 Front of head check, $\frac{7}{8}$ in. by 26 in.
 Back of head check, $\frac{7}{8}$ in. by 40 in.
 Billets, head check, 7-16 in. by $6\frac{1}{2}$ in.
 Jockey, 7-16 in. by 7 in.
 Martingale split and lay, 1 in. by $49\frac{1}{2}$ in.
 Martingale split lining, 1 in. by $19\frac{1}{2}$ in.
 Martingale fold, $2\frac{3}{8}$ in. by 30 in.
 Rein front, 9-16 in. by 84 in.
 Rein front lining, 9-16 in. by 84 in.
 Rein hand parts, $1\frac{1}{8}$ in. by 84 in.
 Shaft tug, 1 5-16 in. by 20 in.
 Shaft tug raising, $\frac{3}{8}$ in. by $7\frac{1}{2}$ in.
 Saddle girth lay, $1\frac{3}{4}$ in. by 22 in.
 Saddle girth safe, 2 in. by 3 in.
 Saddle girth fold, $4\frac{3}{8}$ in. by 17 in.
 Shaft girth body, $\frac{3}{4}$ in. by 27 in.
 Shaft girth billets, $\frac{3}{4}$ in. by 30 in.
 Saddle flap, $2\frac{1}{2}$ in. by 43 in.
 Saddle flap lining, $2\frac{1}{2}$ in. by 43 in.
 Saddle billet, $\frac{3}{4}$ in. by 12 in.
 Saddle jockey, $2\frac{1}{2}$ in. by $11\frac{1}{2}$ in.
 Backband, top, $\frac{7}{8}$ in. by 40 in.
 Backband lining, $\frac{7}{8}$ in. by 17 in.
 Turnback, top, $1\frac{1}{8}$ in. by 46 in.
 Turnback lining, $1\frac{1}{8}$ in. by 36 in.
 Turnback dock, $3\frac{3}{4}$ in. by 18 in.
 Hip strap, top, $\frac{1}{2}$ in. by 59 in.
 Hip strap lining, $\frac{1}{2}$ in. by 44 in.
 Breeching layer, 1 in. by 48 in.
 Breeching beams, 7-16 in. by 11 in.
 Breeching fold, $3\frac{3}{4}$ in. by 38 in.
 Breeching straps, $\frac{3}{4}$ in. by 62 in.
 Trace top, $\frac{7}{8}$ in. by 86 in.
 Trace lining, $\frac{7}{8}$ in. by 74 in.
 Breast collar fold, 3 11-16 in. by 38 in.
 Neck strap fold, $2\frac{3}{8}$ in. by 22 in.
 Buckle piece of neck strap, 9-16 in. by 35 in.
 Billet piece of neck strap, 9-16 in. by 27 in.
 Billet piece of neck strap lining, 9-16 in. by 25 in.

There is no useful man but what at heart wants to be good. The trouble is, we don't always put enough energy and stick-toitiveness behind the want.



Harness Made for the Sultan of Turkey.

Harness

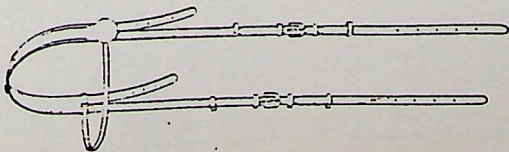


Fig. 1



Fig. 2



Fig. 4

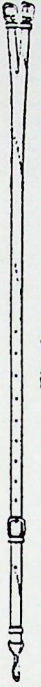


Fig. 3

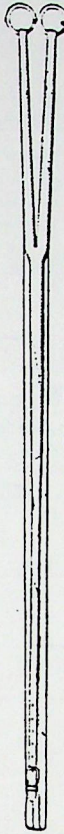


Fig. 5



Fig. 6



Fig. 8

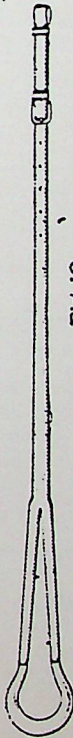


Fig. 10

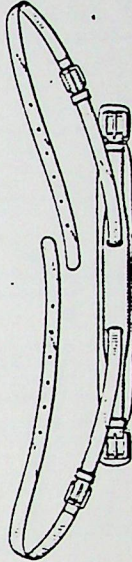


Fig. 7

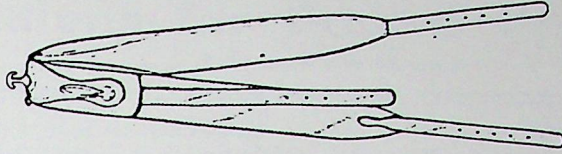


Fig. 9



Fig. 11

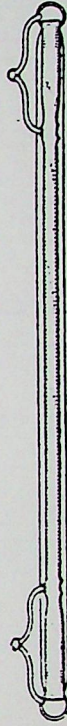


Fig. 12

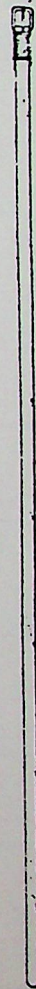


Fig. 13

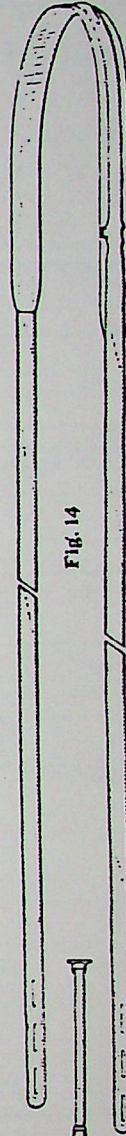


Fig. 14

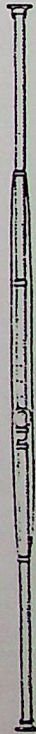


Fig. 15

Plate XVIII. Patterns for Special Road Harness.
Specifications on opposite page.

Specifications for Round Road Harness

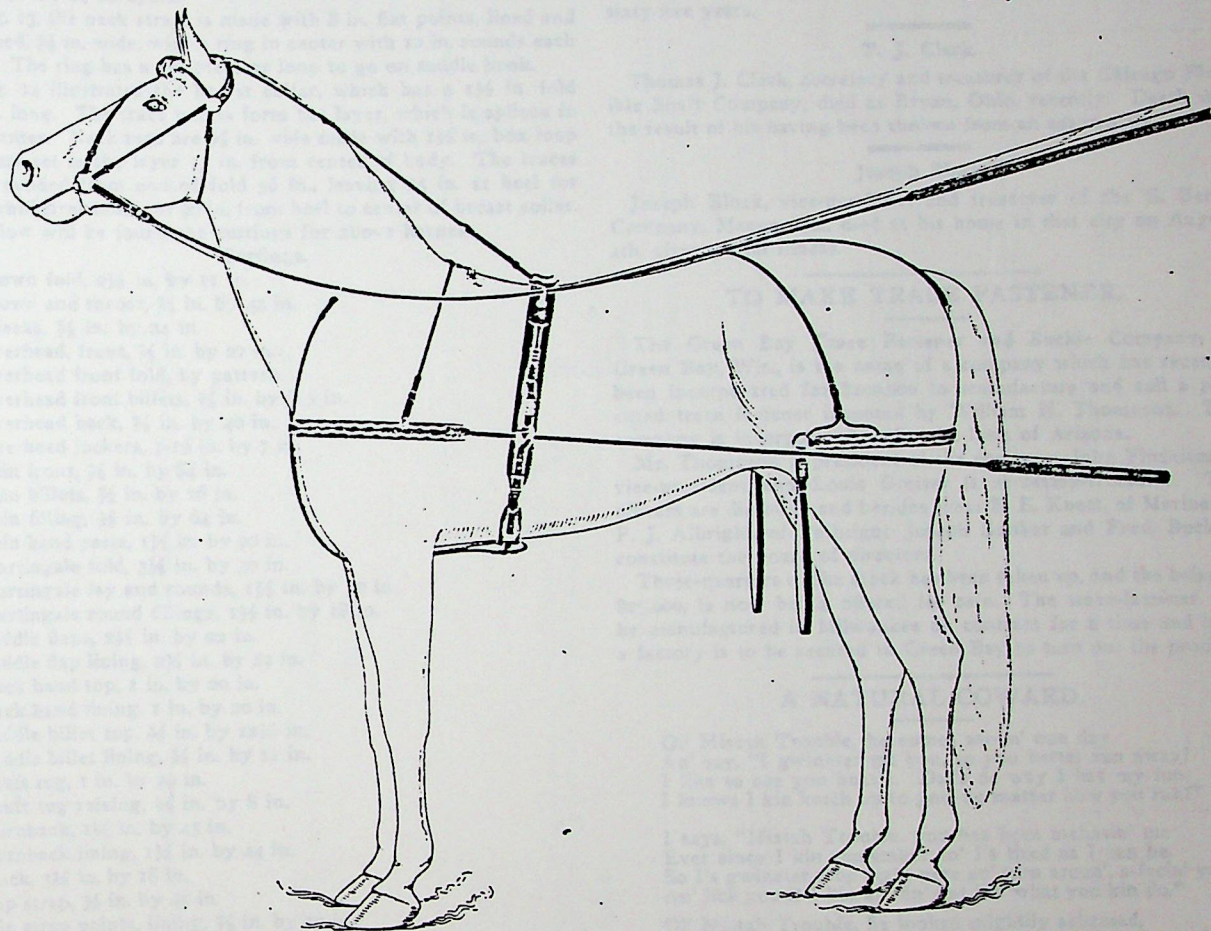
Patterns on opposite page.

Again by request we illustrate a set of rounded road harness, the special features of which are the neck strap and open bridle. A winker bridle is regular with this harness, but we show, for variation, a round open style.

Fig. 1 shows the rounded open bridle with the throat and crown one piece and the cheeks to loop into the bit and buckle

by 30 in. long. Round parts are 16 in. long with 2 in. laps at rings. Waved part of lay is 12 in. with a 16 in. billet at lower end. There is no layer on bottom of fold. It is made with one seam in center with a short buckle chape in lower end.

Fig. 6 shows the saddle, which is made on a 2¾ in. tree with covered seat, wire terrets and drop hook. The flaps are swell



ROUND ROAD HARNESS.
Showing Parts Assembled.

on to crown. The crown has a fold 1 in. wide and 11 in. long. The throat is made 22 in. from fold to buckle, with a 7 in. billet on high side. There are loops on the layer for the overhead bearing rein to run through. The front is rounded, made 12 in. between the cheeks, with a 2 in. flat waved part in the center.

Fig. 2 illustrates the front part of overhead bearing rein. It is shown with a folded noseband, and is split 9 in. at bit end and 16 in. at back, leaving 2 in. flat on the face. Billets are made 4½ in. from heel of buckle.

Fig. 3 shows back part of check rein, which is made with 3 in. splits ¾ in. wide with one loop in buckle laps. The reef part is 5½ in. wide, made to buckle about 30 in. with a stitched jockey.

Fig. 4, the driving rein, has a rounded front with hook billet at bit end and 1½ in. hand part. It is made up 13½ ft. or more over all, from bit to hand part buckle.

Fig. 5 shows a martingale with folded body made 1¼ in. wide

pattern with a Kay pad. Backband is rounded at loop and above to end of jockey. Below the loop the backband is 15-16 in. wide, tapering down to a 7⁄8 in. point for shaft tug. Girth billet is ¾ in. wide, made lined and stitched.

Fig. 7, the shaft tug, is made with a high raise in inside and flat outside. It is made up 7½ in. from heel of buckle to tongue head with a 1¾ in. box loop for point of backband.

Fig. 8 illustrates the turnback, which is made with a 5⁄8 in. reef part and a waved body with 7 in. rounded split and 2 in. flat laps for dock, which is sewed on. Body is lined to bend of reef at saddle loop, and is made up about 39 in. from bend of dock to saddle.

Fig. 9 is the hip strap. It is made with 8 in. flat points, lined, and 1¼ in. flat spot in center, leaving 14½ in. of round parts each side or 45 in. over all.

Fig. 10 shows the breeching body. The fold is made 1¾

in. wide and 38 in. long with a 1 in. waved layer and rounded braces made up $3\frac{1}{8}$ in. and $3\frac{1}{4}$ in. long. Tugs for hip strap are 9-16 in. with a $1\frac{1}{4}$ in. box loop.

Fig. 11 illustrates the breeching strap. It is $\frac{3}{4}$ in. wide, made up 54 in. long, and is lined and stitched, with a $1\frac{1}{2}$ in. box loop at buckle.

Fig. 12 illustrates the girth, and the one shown is the Rose Medium style with a $2\frac{1}{2}$ in. folded body 28 in. long. Buckles for saddle points are set 17 in. apart with holes in body for billets to pass through. Safe is cut as wide as the body at holes and tapers down to form a $\frac{3}{4}$ in. buckle chape for the outside girth points, which are made up 30 in. from end of fold to outside girth. Buckles are 24 in. apart.

Fig. 13, the neck strap, is made with 8 in. flat points, lined and stitched, $\frac{5}{8}$ in. wide, with a ring in center with 12 in. rounds each side. The ring has a flat piece or loop to go on saddle hook.

Fig. 14 illustrates the breast collar, which has a $1\frac{1}{2}$ in. fold 38 in. long. The trace points form the layer, which is spliced in the center. Neck tugs are $\frac{5}{8}$ in. wide made with $1\frac{1}{2}$ in. box loop and are set in the layer 13 in. from center of body. The traces are rounded from end of fold 56 in., leaving 15 in. at heel for the whiffletree holes, or 90 in. from heel to center of breast collar.

Below will be found the cuttings for above harness.

Cuttings.

Crown fold, $2\frac{1}{8}$ in. by 11 in.
 Crown and throat, $\frac{7}{8}$ in. by 42 in.
 Cheeks, $\frac{5}{8}$ in. by 24 in.
 Overhead, front, $\frac{7}{8}$ in. by 27 in.
 Overhead front fold, by pattern.
 Overhead front billets, $\frac{3}{8}$ in. by $6\frac{1}{2}$ in.
 Overhead back, $\frac{7}{8}$ in. by 40 in.
 Overhead jockers, 7-16 in. by 7 in.
 Rein front, $\frac{7}{8}$ in. by 84 in.
 Rein billets, $\frac{7}{8}$ in. by 16 in.
 Rein filling, $\frac{3}{8}$ in. by 64 in.
 Rein hand parts, $1\frac{1}{8}$ in. by 90 in.
 Martingale fold, $3\frac{1}{8}$ in. by 30 in.
 Martingale lay and rounds, $1\frac{3}{8}$ in. by 50 in.
 Martingale round fillings, $1\frac{3}{8}$ in. by 18 in.
 Saddle flaps, $2\frac{3}{4}$ in. by 22 in.
 Saddle flap lining, $2\frac{3}{4}$ in. by 22 in.
 Back band top, 1 in. by 20 in.
 Back band lining, 1 in. by 20 in.
 Saddle billet top, $\frac{3}{4}$ in. by $12\frac{1}{2}$ in.
 Saddle billet lining, $\frac{3}{4}$ in. by 11 in.
 Shaft tug, 1 in. by 20 in.
 Shaft tug raising, $\frac{3}{8}$ in. by 8 in.
 Turnback, $1\frac{1}{4}$ in. by 45 in.
 Turnback lining, $1\frac{1}{4}$ in. by 44 in.
 Dock, $3\frac{3}{4}$ in. by 18 in.
 Hip strap, $\frac{7}{8}$ in. by 45 in.
 Hip strap points, lining, $\frac{7}{8}$ in. by 10 in.
 Hip strap center lining, $\frac{7}{8}$ in. by 27 in.
 Breeching fold, 3 in. by 38 in.
 Breeching layer, $\frac{7}{8}$ in. by 48 in.
 Breeching braces, $\frac{7}{8}$ in. by 11 in.
 Breeching tugs, 9-16 in. by 7 in.
 Breeching straps, $\frac{3}{4}$ in. by 57 in.
 Breeching strap lining, $\frac{3}{4}$ in. by 54 in.
 Girth body, $5\frac{3}{8}$ in. by 28 in.
 Girth layer, $\frac{3}{4}$ in. by 21 in.
 Girth safe, $2\frac{3}{8}$ in. by 7 in.
 Girth billets, $\frac{3}{4}$ in. by 33 in.
 Girth filling, $2\frac{1}{4}$ in. by 27 in.
 Neck strap, $\frac{7}{8}$ in. by 24 in.
 Neck strap lining, $\frac{7}{8}$ in. by 10 in.
 Breast collar fold, $3\frac{3}{4}$ in. by 38 in.
 Breast collar tugs, $\frac{5}{8}$ in. by 7 in.
 Trace tops, 1 in. by 91 in.
 Trace filling, 1 in. by 56 in.
 Trace lining, 1 in. by 18 in.

OBITUARY

William Power.

William Power, who for nearly fifty years conducted a harness business in Boston, Mass., died at his home in that city on July 17th.

G. H. Prescott.

George H. Prescott, a member of the United States Whip Company, died at his home in Westfield, Mass., July 20th, aged sixty-five years.

T. J. Clark.

Thomas J. Clark, secretary and treasurer of the Chicago Flexible Shaft Company, died at Bryan, Ohio, recently. Death was the result of his having been thrown from an automobile.

Joseph Block.

Joseph Block, vice-president and treasurer of the G. Bernd Company, Macon, Ga., died at his home in that city on August 4th, after a brief illness.

TO MAKE TRACE FASTENER.

The Green Bay Trace Fastener and Buckle Company, of Green Bay, Wis., is the name of a company which has recently been incorporated for \$100,000 to manufacture and sell a patented trace fastener invented by William H. Thompson. The company is incorporated under the laws of Arizona.

Mr. Thompson is president of the company, John Findeisen is vice-president and Louis Greiser is secretary-treasurer. The officers are directors and besides them E. E. Knott, of Marinette; F. J. Albright, of Peshtigo; Joseph Bunker and Fred. Buckley constitute the board of directors.

Three-quarters of the stock has been taken up, and the balance, \$25,000, is now being offered for sale. The trace-fastener will be manufactured in Milwaukee on contract for a time and later a factory is to be secured in Green Bay to turn out the product.

A NATURAL COWARD.

Ol' Mistah Trouble, he comes aroun' one day
 An' say, "I gwineter git you, so you better run away!
 I like to see you hustle. Dat's de way I has my fun.
 I knows I kin ketch up to you, no matter how you run!"

I says, "Mistah Trouble, you has been a-chasin' me
 Ever since I kin remember an' I's tired as I can be.
 So I's gwineter stop right yere an' turn aroun', a-facin' you
 An' lick you if I kin an' fin' out jes' what you kin do."

Ol' Mistah Trouble, he looked mightily ashamed,
 He acted like a buckin' hoss dat's suddenly been tamed,
 An' den he turned an' traveled off, a-hollerin', "Good-day;
 I ain't got time to fool aroun' wif folks dat acts dat way."
 —Washington Star.

YES, THIS IS TRUE.

When you get your trade paper, do not cast it aside; it is worthy of better treatment. Treat it considerately. Treat it as though it was worthy of your respect whether it has it or not. If readers but knew of the expense, work, time and effort that it costs to produce the smallest trade paper in existence, they would marvel. If they knew of the sacrifice and the trials that the publishers have in serving their interests they would look at the whole question from a different angle. If they realized what trade papers have done for them there would not be a single delinquent subscriber on the books of any trade paper in the country, and there would not be a single man in any line who did not subscribe for every paper printed that catered to the interests of the lines in which he is engaged.—5-A Magazine.

Harness

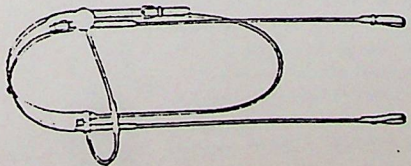


Fig. 1

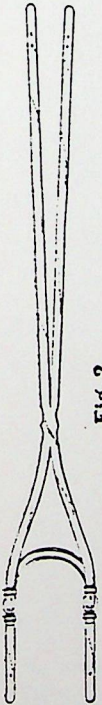


Fig. 2

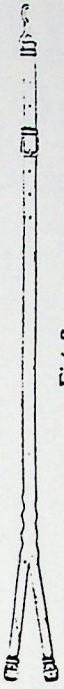


Fig. 3



Fig. 4

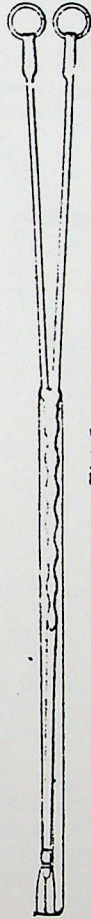


Fig. 5

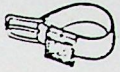


Fig. 7



Fig. 9

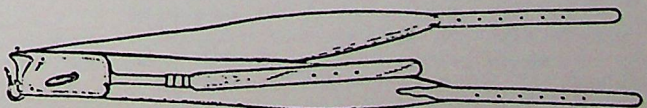


Fig. 6

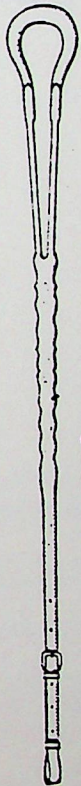


Fig. 8

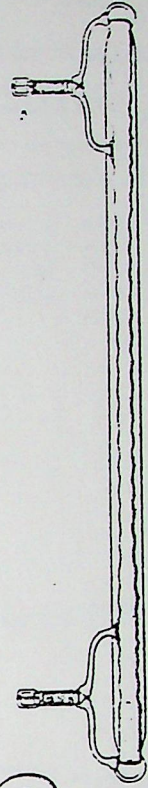


Fig. 10

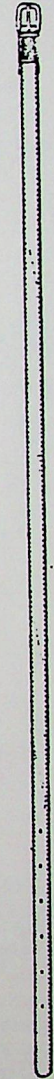


Fig. 11

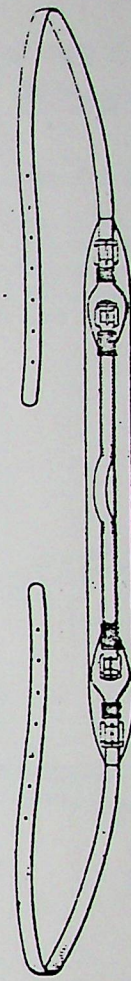


Fig. 12

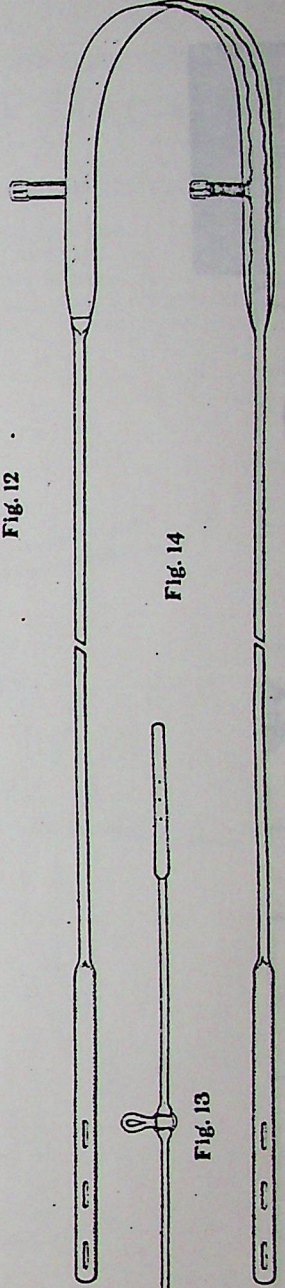


Fig. 14



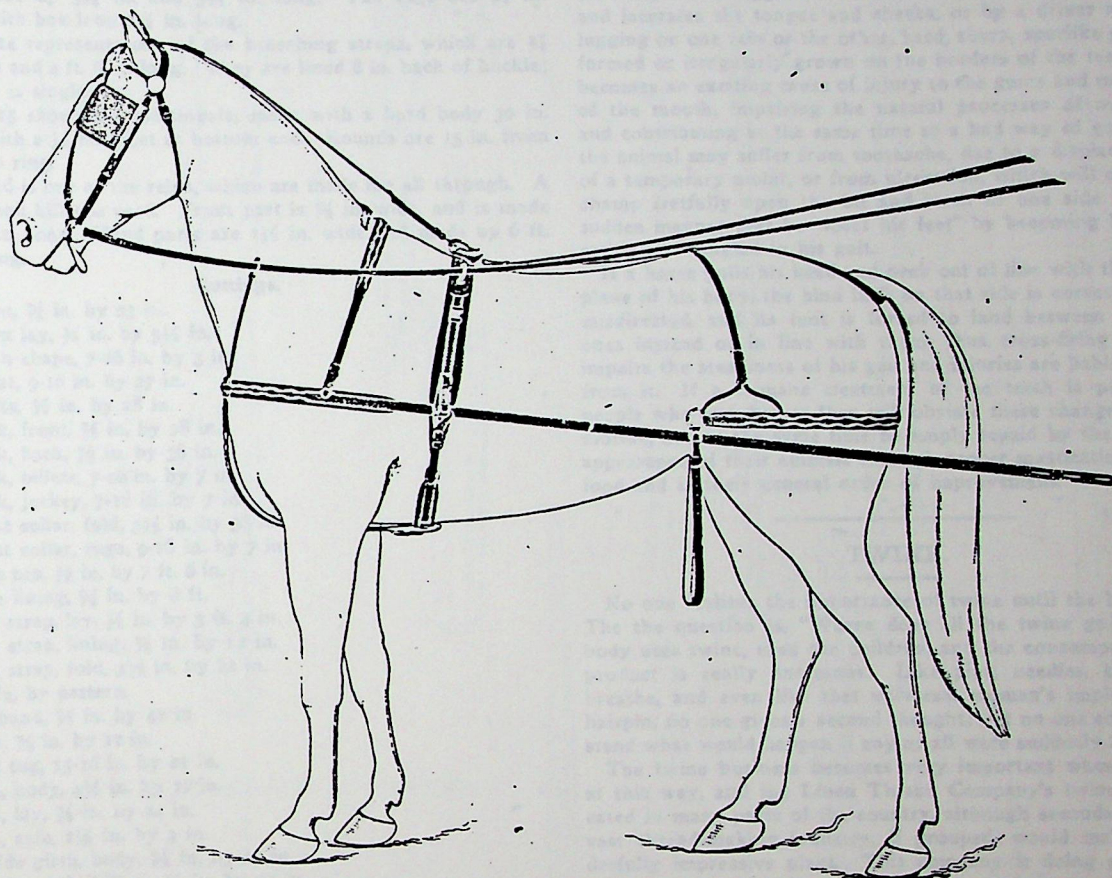
Fig. 13

Specifications for Making a Road Harness

Patterns on opposite page.

Our subject this month for harness patterns and specifications is a medium priced road harness, with traces attached to breast collar. The illustration on this page shows the various parts in their respective places. Widths and lengths of the many straps, etc., follow the special references to each figure.

which is waved. The splice is in middle of body, one end terminating in center; the other end is 1 in. longer and passes beneath the other and finished with a row of stitching. The trace is made 5 ft. 10 in. long from the end of fold; it is lined and double stitched and made with top raised. There are three holes in



ROAD HARNESS.
Showing parts assembled.

Fig. 1 is the bridle crown, made 23 in. long, split $6\frac{1}{2}$ in. A waved lay is placed at center, which is stitched to allow the checkrein to run under. The chape is 7-16 in.

Fig. 2 shows the throat piece, with $\frac{7}{8}$ in. laps at buckles and 18 in. round. Length over all, 20 in.

Fig. 3 illustrates the cheeks and winker braces; the former are made with 7 in. box loops, $10\frac{1}{2}$ in. billet. Winkers are track style. Winker brace has $7\frac{1}{2}$ in. rounds, 5 in. single point, which is 7-16 in. wide.

Fig. 4 represents the front end of checkrein, with 9 in. split at front, 2 in. center and 17 in. split at back, all 7-16 in. wide.

Fig. 5 is the back part of checkrein, which is split 5 in., with balance cut down to a width of $\frac{5}{8}$ in. and made to reef at back. The jockey is made with a $\frac{5}{8}$ in. loop at one end, a round loop at the other, large enough to pass over drop of hook in saddle.

Fig. 6 presents the breast collar and traces. The fold is made $15\frac{1}{8}$ in. wide and 38 in. long. The top of trace forms the layer,

butt, each $3\frac{1}{2}$ in. long. Traces have four rows of stitching in back and extending just beyond holes; rest has single row. Neck tugs are 9-16 in.

Fig. 7 illustrates the neck strap. It is made with a fold $1\frac{3}{8}$ in. wide and 22 in. long. Points are 9-16 in. and center is waved. Length over all, 3 ft. 4 in.; points are lined.

Fig. 8, the saddle, is made on a $2\frac{1}{2}$ in. half track length iron tree. The flap is 21 in. long from hook to billet. Backband is $\frac{7}{8}$ in. wide, 41 in. long from point to point, and made to run over the tree. Billets are $\frac{7}{8}$ in. wide, 12 in. long, of single leather, lapped $2\frac{1}{2}$ in. on saddle. Pad is of Kay style, felt filled and has no tufts.

Fig. 9 represents one of the shaft tugs, which are made $\frac{7}{8}$ in. wide, with a raised inside, made up $7\frac{3}{4}$ in.

Fig. 10 is inside and outside girths. The inside girth is 17 in. long and folded 2 in. wide, with a single leather safe in each end. Layer is $\frac{7}{8}$ wide, channeled on top and sewed from the fold

side about six stitches to the inch. There is one loop $\frac{3}{4}$ in. wide at each buckle, and two in center of fold, for outside girth to slide through.

The outside girth has a $\frac{7}{8}$ in. single body 27 in. long over all, or $24\frac{1}{2}$ in. between buckles. Billets are $\frac{3}{4}$ in. wide and 28 in. long from buckles.

Fig. 11 shows turnback, which is made with $\frac{5}{8}$ in. reef and a waved body, which is lined a distance of 24 in. Dock splits are scant $\frac{1}{2}$ in. wide, single, and sewed on.

Fig. 12 illustrates hip strap, which is $\frac{1}{2}$ in. wide, lined, stitched and raised on top. It is made up 4 ft. long.

Fig. 13 presents the breeching, the folds of which are $1\frac{1}{2}$ in. wide. It is made up 38 in. long, with a waved layer which is 1 in. wide at rings. Braces are $\frac{3}{8}$ in. wide, lined and stitched, and made up $3\frac{3}{8}$ in. and $3\frac{3}{4}$ in. long. The tugs are $\frac{1}{2}$ in. wide, with box loop $1\frac{3}{4}$ in. long.

Fig. 14 represents one of the breeching straps, which are $\frac{3}{4}$ in. wide and 4 ft. 6 in. long. They are lined 8 in. back of buckle; balance is single.

Fig. 15 shows the martingale, made with a hard body 30 in. long, with a $\frac{1}{2}$ in. billet at bottom end. Rounds are 15 in. from body to ring.

Fig. 16 is one of the reins, which are made flat all through. A steel hook billet is used. Front part is $\frac{7}{8}$ in. wide, and is made 6 ft. 9 in. long. Hand parts are $1\frac{1}{2}$ in. wide and made up 6 ft. 9 in. long.

Cuttings.

Crown, $\frac{7}{8}$ in. by 23 in.
 Crown lay, $\frac{3}{4}$ in. by $5\frac{1}{2}$ in.
 Crown chape, 7-16 in. by 3 in.
 Throat, 9-16 in. by 27 in.
 Cheeks, $\frac{1}{2}$ in. by 28 in.
 Check, front, $\frac{7}{8}$ in. by 28 in.
 Check, back, $\frac{7}{8}$ in. by 38 in.
 Check, billets, 7-16 in. by 7 in.
 Check, jockey, 7-16 in. by 7 in.
 Breast collar, fold, $3\frac{3}{8}$ in. by 38 in.
 Breast collar, tugs, 9-16 in. by 7 in.
 Trace top, $\frac{7}{8}$ in. by 7 ft. 6 in.
 Trace lining, $\frac{7}{8}$ in. by 6 ft.
 Neck strap, lay, $\frac{7}{8}$ in. by 3 ft. 4 in.
 Neck strap, lining, $\frac{7}{8}$ in. by 12 in.
 Neck strap, fold, $3\frac{3}{8}$ in. by 22 in.
 Saddle, by pattern.
 Backband, $\frac{7}{8}$ in. by 42 in.
 Billet, $\frac{7}{8}$ in. by 12 in.
 Shaft tug, 15-16 in. by 21 in.
 Girth, body, $4\frac{1}{2}$ in. by 17 in.
 Girth, lay, $\frac{7}{8}$ in. by 24 in.
 Girth, safe, $2\frac{1}{4}$ in. by 3 in.
 Outside girth, body, $\frac{7}{8}$ in. by 27 in.
 Outside girth, billets, $\frac{3}{4}$ in. by 30 in.
 Turnback, $1\frac{1}{4}$ in. by 3 ft. 9 in.
 Turnback, lining, $1\frac{1}{4}$ in. by 24 in.
 Dock, 4 in. by 18 in.
 Hip strap, $\frac{1}{2}$ in. by 4 ft.
 Hip strap lining, $\frac{1}{2}$ in. by 4 ft.
 Breeching, body, $3\frac{3}{8}$ in. by 38 in.
 Breeching, lay, 1 in. by 4 ft.
 Breeching, braces, $\frac{3}{8}$ in. by 11 in.
 Breeching, tugs, $\frac{1}{2}$ in. by 7 in.
 Breeching straps, $\frac{3}{4}$ in. by 5 ft. 2 in.
 Martingale, $1\frac{3}{8}$ in. by 33 in.
 Martingale rounds, $1\frac{3}{8}$ in. by 24 in.
 Martingale billet, $\frac{1}{2}$ in. by 16 in.
 Rein, front, $\frac{7}{8}$ in. by 7 ft.
 Rein, billet, $\frac{7}{8}$ in. by 12 in.
 Rein, hand part, $1\frac{1}{2}$ in. by 7 ft.

Many are rich in material wealth and poor and miserable in their real life.

CARE OF THE HORSE'S MOUTH.

Illustrations in point of probable or remote causes assisting to disturb the action and break the gait of horses—which shoeing will avail nothing whatever toward remedying—may be found in the horse's mouth. This is one of the most sensitive organs of the equine anatomy. All young horses coming three or four years old should have their mouths and teeth carefully examined when any symptoms of tenderness or irritation are shown, as it is at this age that some of the deciduous molars are replaced by permanent teeth. In some cases this gives rise to much pain and annoyance to horses, affecting their temper and sensibility. Again, in some horses the structure of the teeth is of a comparatively soft nature, and wears upon the grinding substances in a ragged and uneven manner, which severely cuts and lacerates the tongue and cheeks, or by a driver repeatedly lugging on one rein or the other, hard, sharp, spurlike points are formed or irregularly grown on the borders of the teeth, which becomes an exciting cause of injury to the gums and membranes of the mouth, impairing the natural processes of mastication and contributing at the same time to a bad way of going; also, the animal may suffer from toothache, due to a displaced crown of a temporary molar, or from ulceration, which will cause it to champ fretfully upon the bit and lurch to one side in such a sudden manner that he "loses his feet" by becoming bad in his action and tangled in his gait.

If a horse pulls his head and neck out of line with the median plane of his body, the hind limb on that side is correspondingly misdirected, and its foot is forced to land between the front ones instead of in line with them; thus cross-firing naturally impairs the steadiness of his gait and injuries are liable to occur from it. If a humane treatment of the teeth is pursued by people who own horses they will obviate these changes of locomotion, and at the same time be amply repaid by the improved appearance of their animals through proper mastication of their food and in their general order of improvement.

TWINE.

No one realizes the importance of twine until the bill is paid. The question is, "Where does all the twine go?" Everybody uses twine, even the children, and the consumption of the product is really enormous. Like pins, needles, the air we breathe, and even like that universal woman's implement, the hairpin, no one gives a second thought; yet no one could understand what would happen if any or all were suddenly lost to use.

The twine business becomes very important when you look at this way, and the Linen Thread Company's twine mills, located in many parts of the country, although secondary to their vast thread-making industry, if grouped, would make a wonderfully impressive plant. This company is doing great work in the making of twine, and the mere cataloguing of the many varieties would beat the man hollow who brags of his "fifty-seven varieties." The purposes for which the twine is made just about cover every field of activity. As in other matters, quality talks in twine. There is a difference. Skill, capital and knowledge, joined to experience, make the label mean a good deal. We do not believe our readers need to have the application of this spelled out to them.

MILWAUKEE NEWS NOTES.

William Hedrich opened a harness shop at 572 Third street about two weeks ago. Mr. Hedrich is a practical harness maker and was connected with J. C. Wachs for a long time.

J. Rosenthal, 329 Fourth street, has the distinction of making the finest set of harness for three horses ever produced in the city. One of Milwaukee's celebrated brewery teams is wearing it now, and it cost \$1,000.

N. Davies has opened a harness shop at 572 Third street.

Harness

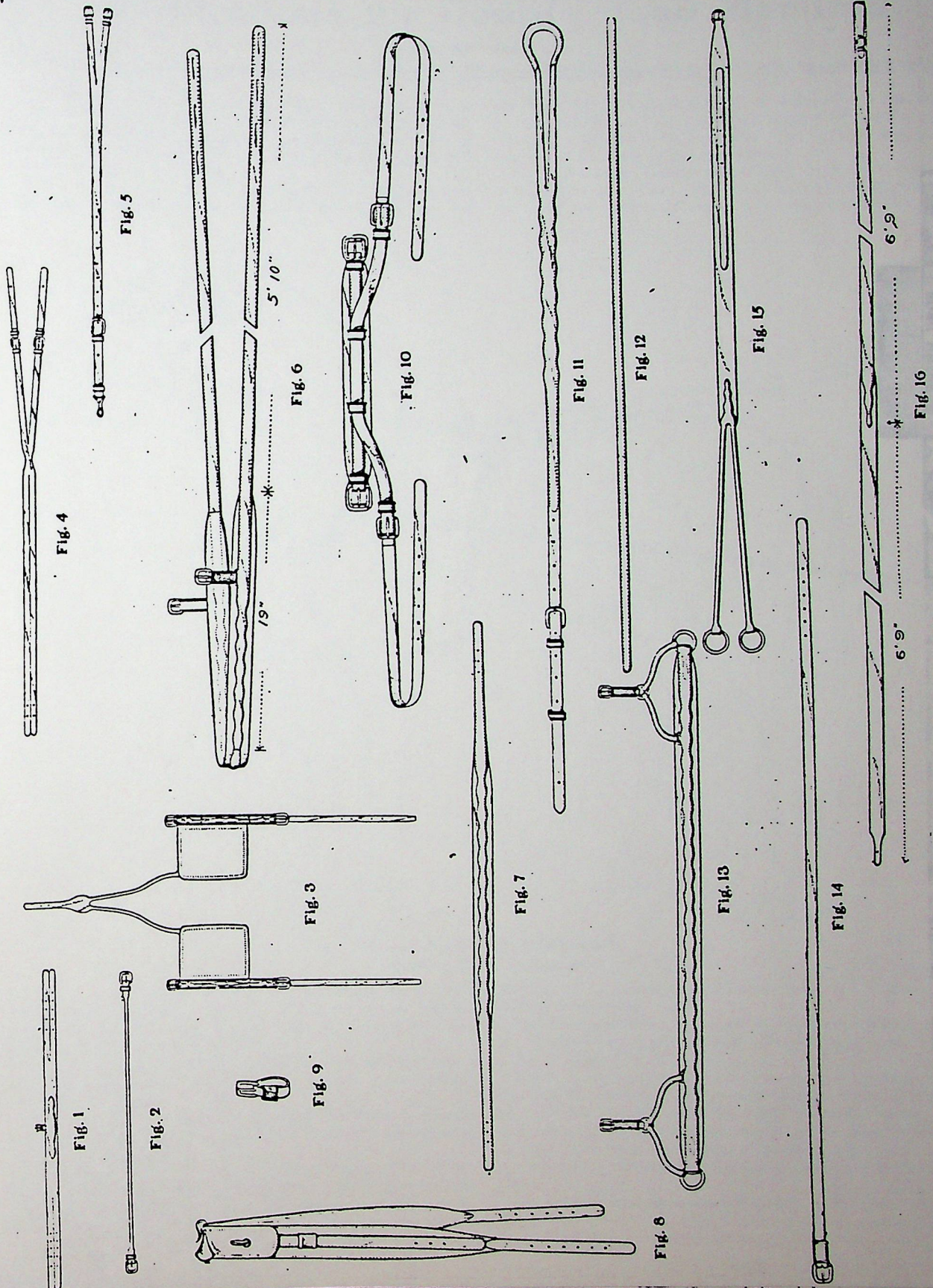
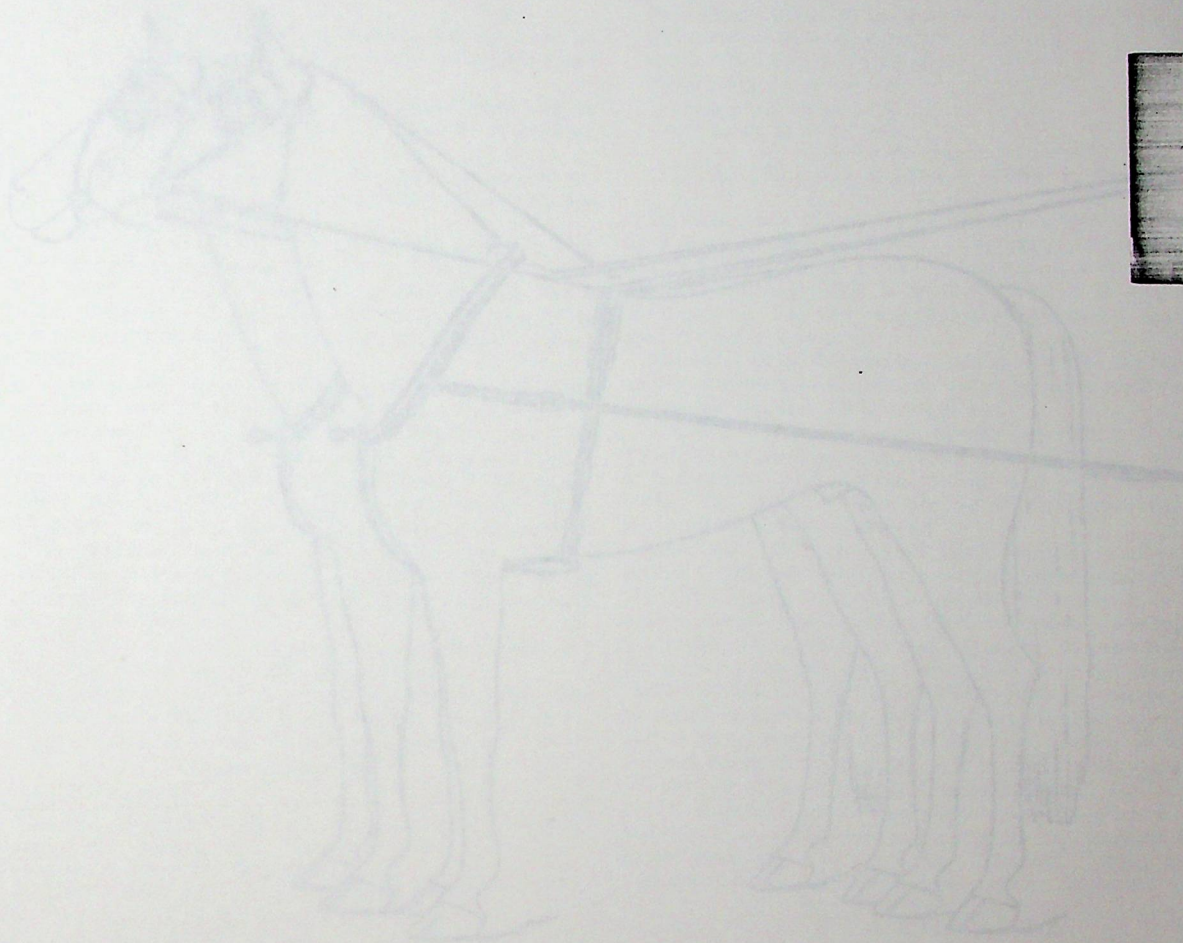


Plate VI. Patterns for Road Harness. Specifications on opposite page.

Plans for Double Road Harness

Showing the complete set

The harness is made of oak and is made with the following dimensions: The collar is 12 in. wide and 14 in. long. The collar is made with a 1/2 in. wide strap and will fit a horse's neck. The collar is made with a 1/2 in. wide strap and will fit a horse's neck. The collar is made with a 1/2 in. wide strap and will fit a horse's neck.



DOUBLE ROAD HARNESS.

Showing from assembled

The harness is made of oak and is made with the following dimensions: The collar is 12 in. wide and 14 in. long. The collar is made with a 1/2 in. wide strap and will fit a horse's neck. The collar is made with a 1/2 in. wide strap and will fit a horse's neck. The collar is made with a 1/2 in. wide strap and will fit a horse's neck.

Double
Road
Harness

Specifications for Double Road Harness

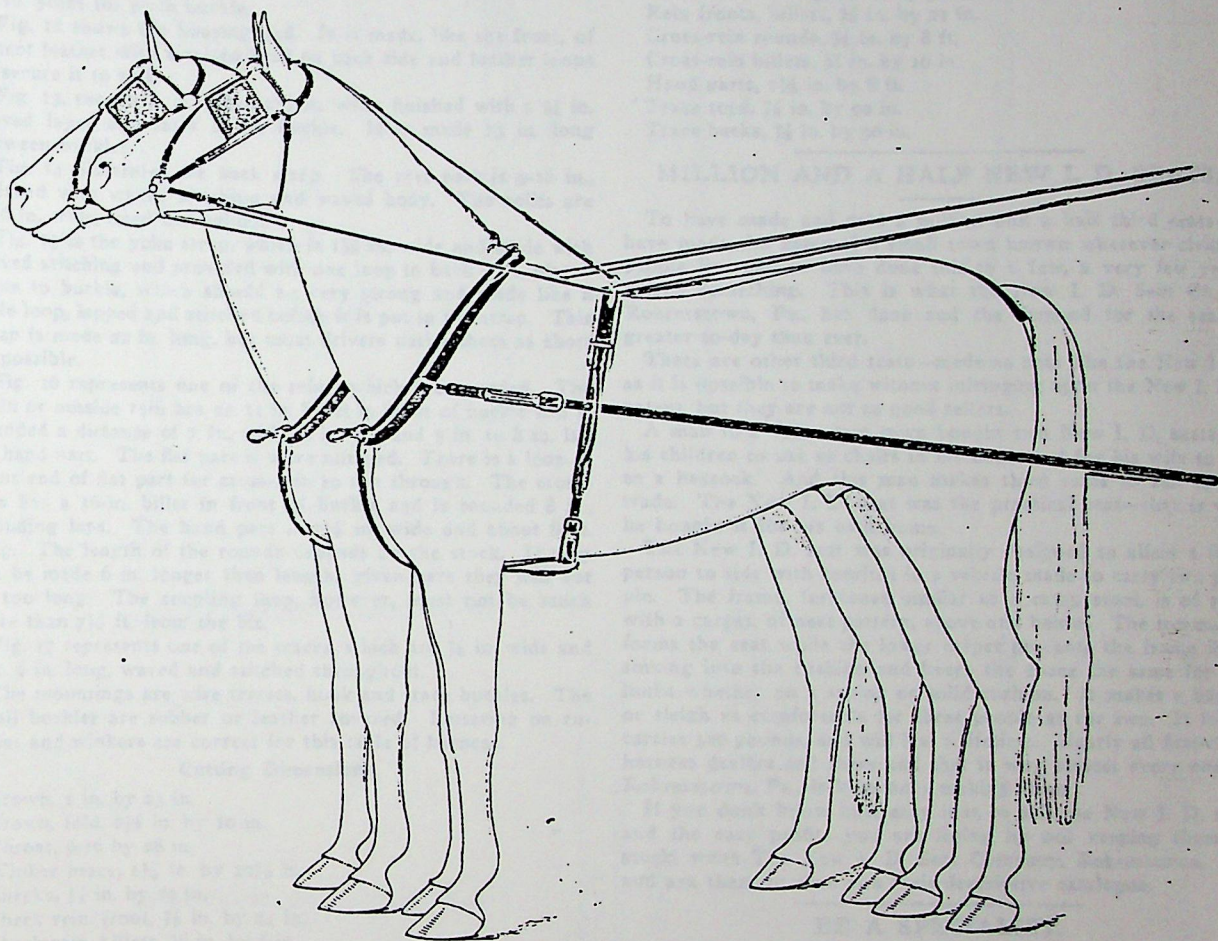
Patterns on opposite page.

This month we publish patterns and specifications of pole harness for road driving. This harness is made with flat strapping and wave stitching throughout. Although not so light in appearance as the rounded harness, it is much better, and will stand greater wear and abuse.

Fig. 1 is the crown, which is made with a fold under center. The layer is not waved, as experience has taught that the

4½ in. square. The check is cut ½ in. wide, but the buckles are ¾ in. The billets and part inside the loop are cut down to ¾ in., leaving a wide back to the loop part. The figure in loop can be changed to suit taste of buyer or maker.

Fig. 5 represents the front part of head check. It is split 9 in. in front, leaving 2 in. flat. The billets are made as short as possible, and the back splits are made to run through the crown



DOUBLE ROAD HARNESS.

Showing Parts Assembled.

straight, wide crown layer will keep its form much better than a waved one. The loops for the check rein are leather and are placed 1¾ in. apart. The buckle chape is ¾ in. wide. The points are ½ in. wide and split 6½ in.

Fig. 2 shows the throat, which is ¾ in. wide and made with box loops in laps and round center. It is made 20 in. long between the buckles.

Fig. 3 represents the front and rosettes. The front is entirely made of patent leather with a raised bead in center. The rosettes are 1¾ in. in diameter.

Fig. 4 illustrates the cheeks and winker braces. The winker brace is made with a ¾ in. point which is 5 in. long to rounds. The rounds are 7½ in. long over all. Cheek loops are 7½ in. long and have a 10 in. billet below the buckle. The winkers are

about 4 in. The reason for the short front part is to keep the buckles from horse's mane.

Fig. 6 represents the back part of overdraw, which is split 4 in. The reef part is 9-16 in. wide. The jockey is made flat with a ring in end.

Fig. 7 is the hame tug which is made with a patent leather clip end; it is finished with three rows of stitching, a box loop back of buckle and a short lined safe under the buckle. The clip end is 4¼ in. long and the loop is 4¼ in. long, making the distance from front end to heel of buckle 8½ in. The hame is covered with patent leather, the terret and finger draft eye are plated.

Fig. 8 shows the hame strap, which is ½ in. wide and 21 in. long.

Harness

Fig. 9 illustrates the dog-link which is hand forged of steel and nickleplated.

Fig. 10 presents the martingale. It has $1\frac{1}{2}$ in. folded body, 30 in. long. The billet is $\frac{3}{4}$ in. wide, made 12 in. long from heel of buckle. The waved lay is 12 in. from buckle and the billet is $\frac{1}{2}$ in. wide and 14 in. long. The bottom layer is $\frac{1}{2}$ in. wide and 16 in. long to heel of buckle.

Fig. 11 represents the pad, which is $1\frac{1}{8}$ in. wide, finished with three rows of stitching, American or domestic bottom. The side is folded patent leather, with a narrow layer under trace loop. The trace loop is of patent leather and made straight as this form wears better than the fancy waved pattern. The filling of side forms the lining of girth billet; the girth billet top is cut at lap to match the waves of trace carrier and is cut down to $\frac{1}{2}$ in. point for girth buckle.

Fig. 12 shows the housing pad. It is made, like the front, of patent leather with a raised bead on each side and leather loops to secure it to pad.

Fig. 13, the girth, is folded $1\frac{1}{2}$ in. wide, finished with a $\frac{3}{4}$ in. waved layer and safes under buckle. It is made 15 in. long between buckles.

Fig. 14 illustrates the back strap. The reef part is 9-16 in., finished with waved stitching and waved body. The splits are 7-16 in. wide, lined throughout.

Fig. 15 is the yoke strap, which is $1\frac{1}{8}$ in. wide and made with waved stitching and provided with one loop in back part, placed close to buckle, which should be very strong and made like a slide loop, lapped and stitched before it is put in the strap. This strap is made 22 in. long, but most drivers desire them as short as possible.

Fig. 16 represents one of the reins, which are rounded. The main or outside rein has an 11 in. billet in front of buckle and is rounded a distance of 7 ft., with 18 in. flat and 5 in. to 8 in. lap on hand part. The flat part is wave stitched. There is a loop at front end of flat part for cross-rein to run through. The cross-rein has a 16-in. billet in front of buckle and is rounded 8 ft., including laps. The hand part is $1\frac{1}{8}$ in. wide and about 8 ft. long. The length of the rounds depends on the stock. If they can be made 6 in. longer than lengths given here they will not be too long. The coupling loop, however, must not be much more than $7\frac{1}{2}$ ft. from the bit.

Fig. 17 represents one of the traces, which are $\frac{7}{8}$ in. wide and 7 ft. 6 in. long, waved and stitched throughout.

The mountings are wire terrets, hook and trace buckles. The small buckles are rubber or leather covered. Lettering on rosettes and winkers are correct for this style of harness.

Cutting Dimensions.

Crown, 1 in. by 23 in.
 Crown, fold, $2\frac{1}{8}$ in. by 10 in.
 Throat, 9-16 by 28 in.
 Winker brace, $1\frac{1}{4}$ in. by $12\frac{1}{2}$ in.
 Checks, $\frac{1}{2}$ in. by 29 in.
 Check rein. front, $\frac{7}{8}$ in. by 24 in.
 Check rein. billets, $\frac{3}{8}$ in. by 6 in.
 Check rein. back, $\frac{7}{8}$ in. by 3 ft.
 Jockey, 1 in. by 6 in.
 Winkers, $4\frac{5}{8}$ in. by 5 in.
 Hame tug. safe, $1\frac{1}{8}$ in. by 3 in.
 Hame tug. back, $1\frac{1}{8}$ in. by 12 in.
 Hame tug. buckle piece, $1\frac{1}{8}$ in. by 14 in.
 Hame tug. clip end, 1 in. by $5\frac{1}{2}$ in.
 Hame tug. loop, $4\frac{1}{4}$ in. by $4\frac{1}{4}$ in.
 Hame strap, $\frac{1}{2}$ in. by 24 in.
 Hame strap, cover, 2 in. by 24 in.
 Martingale, fold, $3\frac{1}{4}$ in. by 30 in.
 Martingale, billet, $\frac{3}{4}$ in. by 12 in.
 Martingale, layer, $\frac{3}{4}$ in. by 28 in.
 Martingale, bottom layer, $\frac{1}{2}$ in. by 21 in.
 Pad top, $1\frac{1}{8}$ in. by 18 in.
 Pad top, lining, $1\frac{1}{4}$ in. by 16 in.
 Pad, socket, $2\frac{1}{8}$ in. by 22 in.

Pad, bottom, $3\frac{1}{2}$ in. by 22 in.
 Pad, side, $2\frac{1}{2}$ in. by 16 in.
 Pad side, filling, 1-16 in. by 26 in.
 Pad billet, top, $\frac{7}{8}$ in. by 13 in.
 Trace carrier, top, $\frac{7}{8}$ in. by 17 in.
 Trace carrier, lining, 1 in. by $13\frac{1}{2}$ in.
 Girth fold, $3\frac{1}{4}$ in. by 15 in.
 Girth layer, $\frac{3}{4}$ in. by 21 in.
 Girth safes, $1\frac{1}{4}$ in. by 3 in.
 Turnback, top, $1\frac{1}{4}$ in. by 45 in.
 Turnback, lining, $1\frac{1}{4}$ in. by 45 in.
 Dock, $3\frac{7}{8}$ in. by 18 in.
 Rein fronts, $\frac{7}{8}$ in. by 8 ft. 6 in.
 Rein fronts, lining, $\frac{3}{4}$ in. by 30 in.
 Rein fronts, billets, $\frac{3}{4}$ in. by 21 in.
 Cross-rein rounds, $\frac{7}{8}$ in. by 8 ft.
 Cross-rein billets, $\frac{3}{4}$ in. by 16 in.
 Hand parts, $1\frac{1}{8}$ in. by 8 ft.
 Trace tops, $\frac{7}{8}$ in. by 90 in.
 Trace backs, $\frac{7}{8}$ in. by 90 in.

MILLION AND A HALF NEW I. D. SEATS.

To have made and sold a million and a half third seats—to have made the name of a small town known wherever civilized people live and to have done this in a few, a very few years, means something. This is what the New I. D. Seat Co., of Rohrerstown, Pa., has done and the demand for the seat is greater to-day than ever.

There are other third seats—made as near like the New I. D. as it is possible to make without infringing upon the New I. D.'s patent, but they are not as good sellers.

A man in a Wisconsin town bought two New I. D. seats for his children to use as chairs in his home and for his wife to use as a hassock. And this man makes third seats to sell to the trade. The New I. D. seat was the practical seat—that is why he bought it for his own home.

The New I. D. seat was originally designed to allow a third person to ride with comfort in a vehicle made to carry two people. The frame, fashioned similar to a camp stool, is of steel with a carpet, of neat pattern, above and below. The top carpet forms the seat while the lower carpet prevents the frame from sinking into the cushion and keeps the space the same for the limbs whether on a spring or solid cushion. It makes a buggy or sleigh as comfortable for three people as for two. It folds, carries 500 pounds, and will last a lifetime. Nearly all first-class harness dealers sell them and that is why almost every one in Rohrerstown, Pa., is kept busy making them.

If you don't know how easy it is to sell the New I. D. seat and the easy profits you are losing by not keeping them in stock, write The New I. D. Seat Company, Rohrerstown, Pa., and ask them to send you their descriptive catalogue.

BE A SPECIALIST.

Know yourself and then be a specialist of an idea.

It is the man who sticks to it who wins. The thinker along one line, the plodder, if you please, who distances the versatile and mayhap brilliant man who scatters.

The man with a purpose is succeeding because he is reliable and competent. He puts thought into his work and the impulse broadens to the world about him.

The man with a purpose coupled to an idea has learned the virtue of patience, the worth of character, the power of kindness—and they become a part of his accomplishment.

The thinker is also an originator, and he who successfully originates has joy beyond and financial reward. He is necessarily a hopeful man. Hope is the salt of the earth. A man who has lost hope is dead already, whether he is aware of it or not.

Therefore have a "purpose," and with hope, enthusiasm and perseverance as your guiding stars, you cannot fail of the goal of honorable success.—Spare Moments.

Harness

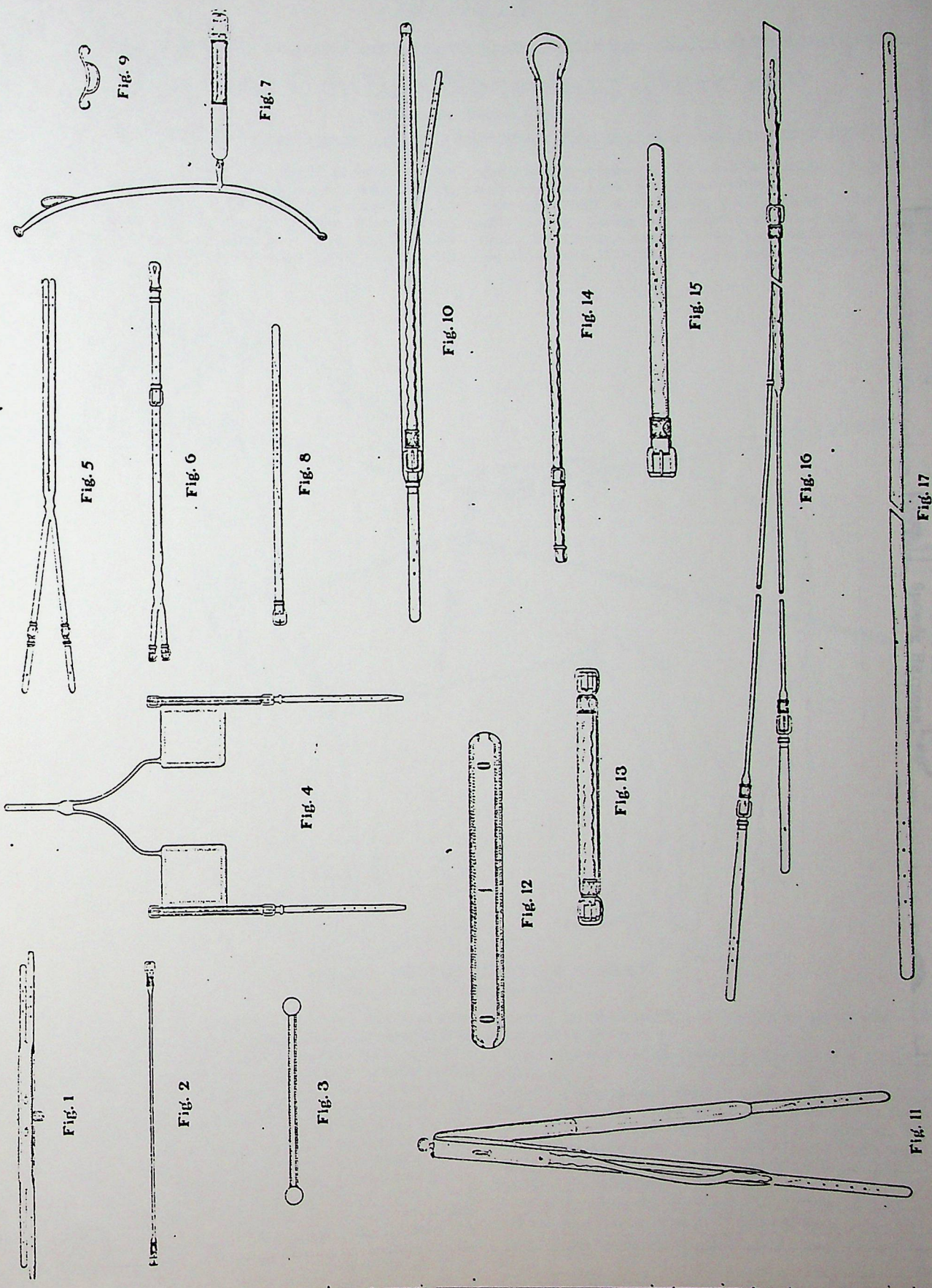


Plate XI. Patterns for Double Road Harness.

Fig. 17

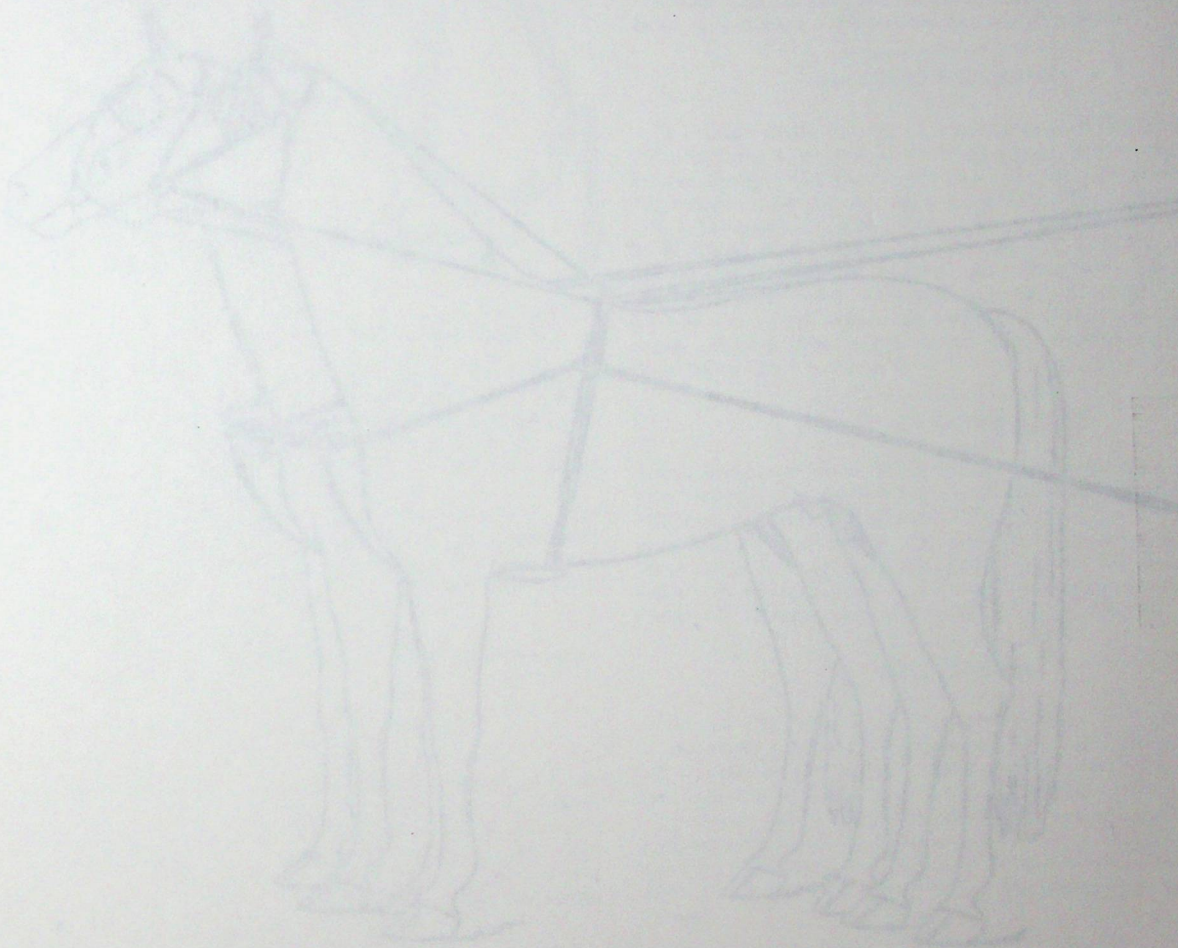
Fig. 11

Special Double Speeding Harness

Patented in 1911

This harness is designed for double pulling horses with a special collar and a break harness. It is made of the best quality leather and is of a simple and sturdy construction. The harness is designed to be used in a double harness system and is of a simple and sturdy construction. The harness is designed to be used in a double harness system and is of a simple and sturdy construction.

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Double
Speeding
Harness

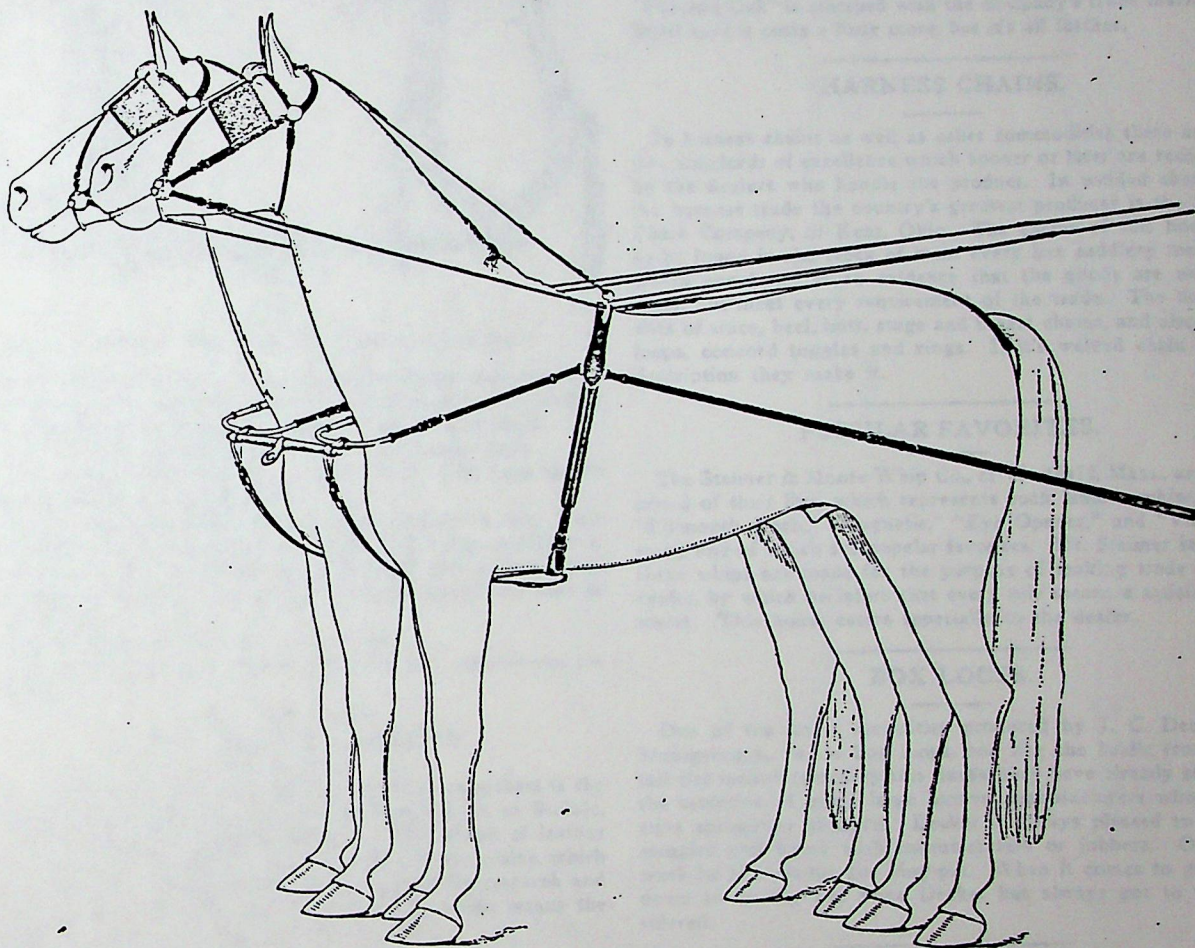
Special Double Speeding Harness

Patterns on opposite page.

This month we present a special double speeding harness which is entirely new in its line. This is not a freak harness, but it has been patented by the firm of J. M. Quinby & Co., of Newark, N. J., well known carriage builders. Their harness department has been in operation for several years and they have produced a number of new styles and specialties, of which this

with a stuffed pad under it. The hold back and trace attachments on pad are one piece of hand-forged steel.

As a great part of the work is done by the girths and martingale, there is, besides the regular girth, an outside or safety girth. The martingale is made very heavy with a 1 in. billet at upper end and a $\frac{3}{4}$ in. billet at lower end. We regret we cannot



SPECIAL DOUBLE SPEEDING HARNESS
Showing Parts Assembled.

harness is one. This harness has been tried and used by several expert track and amateur drivers to both sleigh and speed wagon, and after a thorough and satisfactory test they claim it gives a pair of horses as much freedom of action as if working singly, there being no collar or breast collar to interfere with the action of the fore shoulders, as the yoke is held suspended from the pad by the hold-back straps. The traces running from the pad to whiffletree form a trestle support direct from yoke to whiffletree with pad as center support. The martingale running direct to the yoke binds the pole down, allowing no upward motion.

The special features of the harness are the breast irons and yoke attachments, which hold the yoke almost rigid, and should one of the hold-back straps or traces break from any cause the three others would support the yoke and pole. Another special part is the pad, which is constructed on a special flexible plate

give a technical description of this harness, as the makers have their patents pending.

Figs. 1 to 6 are of the bridle parts, which is a regular road bridle.

Fig. 7 shows the pad, which is made swell pattern, all patent leather. Sides are folded with a layer which forms the billet for outside girth. Pad bottom is stuffed and tufted all through.

Fig. 8 shows the girth. Inside girth is folded with a layer, and the outside is made to slide through a loop in the center. The outside is for safety only.

Fig. 9 illustrates the martingale, which is made with a wide fold and waved layer, with $\frac{3}{4}$ in. billet at lower end.

Fig. 10, the hold-back straps, are made much like a breeching strap.

Fig. 11 shows the traces, which are made like any two-minute traces, except they are of special lengths.

Fig. 12 illustrates the breast irons. They are of hand-forged steel and are leather covered. The yoke attachment is made of one piece of leather running around twice. The loose point is intended to act as a key to keep the yoke in loop while the team is being hooked up and martingale billets are being adjusted. As the martingale billets and also the billet of attachment pass through the loop on end of yoke there is no danger of yoke pull-

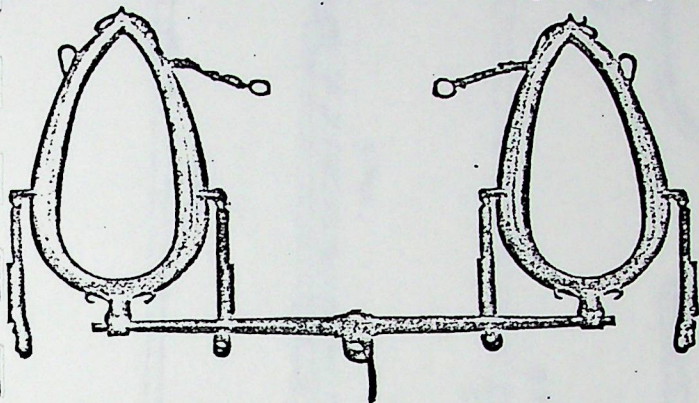


Fig. 17, Showing Yoke and Attachments Assembled.

ing out of attachment. All the necessary change required is to loosen the pole leather in center of yoke and reverse it, leaving the strap loops on end at back of yoke instead of in front.

Fig. 13 shows the back strap. This is all regular style.

Fig. 14 shows the reins which are regular. The ones shown are rounded, with buckle billets.

Fig. 15 shows the hame yoke attachment on a dog link. This is intended for a regular pole harness with collar and hames. The claim is a closer hitch than is possible with a yoke strap. The cut shows the key in position passed through the hole in attachment.

Fig. 16 shows a large size for surrey work.

Fig. 17, on this page, shows the yoke and attachments assembled.

LAUB'S UNION LEATHER.

A leather that enjoys the confidence of harness makers is the superior union tanned stock that Geo. Laub's Sons, of Buffalo, N. Y., produce for the saddlery trade. This brand of leather carries as a trade mark that mighty denizen of the plains, which with this house stands for fifty years of scientific research and development. A union with Laub, or Laub's union means the "Buffalo" brand every time.

EIGHT RED HOT ONES.

For the benefit of all dealers the Standard Whip Co. of Westfield Mass., present a line that they regard as eight positive leaders. These whips range in prices, so as to retail from ten cents to a dollar. Each whip is illustrated and described in their ad. Better have a look, as a more popular variety of goods and styles would be hard to find. This line is standard in both name and style.

HORSE BITS.

As the name would indicate, the Newark Bit Mfg. Co., of Newark, N. J., are bit manufacturers, and bits of the best quality represent their entire output. On another page in this number the line is beautifully displayed. To appreciate the touch of the artist and perfect construction and finish of this line of bridle bits the trade must see and handle the goods.

DON'T CUT LOADED LEATHER.

The Chas. H. Stifel Company, of Allegheny, Pa., tanners of the celebrated "Phoenix Oak" brand of harness leather, are today putting a special label on their stock as a guarantee that "Phoenix Oak" is free from glucose, sugar, barytes, salts or any other material used for loading or making weight only. With a guarantee of this character harness makers cannot help but appreciate the purpose of the Chas. F. Stifel Company to give them a pure leather. "Phoenix Oak" harness leather has always been acknowledged as standard and this guarantee will establish a greater confidence than ever in the goods. Every side of "Phoenix Oak" is stamped with the company's trade mark. Mr. Stifel says it costs a little more, but it's all leather.

HARNESS CHAINS.

In harness chains as well as other commodities there are certain standards of excellence which sooner or later are recognized by the dealers who handle the product. In welded chains for the harness trade the country's greatest producer is the Seneca Chain Company, of Kent, Ohio. The chains of this house are to be found in the stock of most every live saddlery merchant, which popularity is an evidence that the goods are not only right, but meet every requirement of the trade. The line consists of trace, heel, butt, stage and breast chains, and also halter loops, concord toggles and rings. If it's welded chain of any description they make it.

POPULAR FAVORITES.

The Steimer & Moore Whip Co., of Westfield, Mass., are justly proud of their line, which represents such famous whips as the "Plymouth Rock," "Magnetic," "Eye Opener," and "Vibrator," every one of which are popular favorites. Mr. Steimer says that these whips are made for the purpose of making trade for the dealer, by which he infers that every sale means a satisfied customer. This house caters especially to the dealer.

BOX LOOPS.

One of the latest specialties produced by J. C. Decker, of Montgomery, Pa., is box loops, and like the bridle fronts and tail ties manufactured by this house, they have already attracted the attention of many large harness manufacturers who appreciate specialties of merit. Decker is always pleased to submit samples and figure with manufacturers or jobbers. On strap work he is certainly the king-pin. When it comes to get right down to quality and price Decker has always got to be considered.

ON THE HIGH WAVE.

Popular goods are often spoken of as flirting on the crested wave of popularity. From the many favorable reports that are circulated regarding the high-grade union tanned harness leather carrying the trade mark of G. F. Zeller & Sons, of Buffalo, N. Y., the expression in this case is undoubtedly well applied. In speaking of their stock the Zeller's say their leather is not only carefully tanned and closely trimmed, but possesses a fine finish and plump shoulders. Its wearing and economical cutting qualities are recognized by harness makers all over the country. Could more be said of any leather?

One rattletrap machine can make noise enough to fill a whole factory, and it is always a discordant and disagreeable noise, too. Don't have it. You cannot only get along without it, but you can get along better, so there is really no excuse for it.

Harness

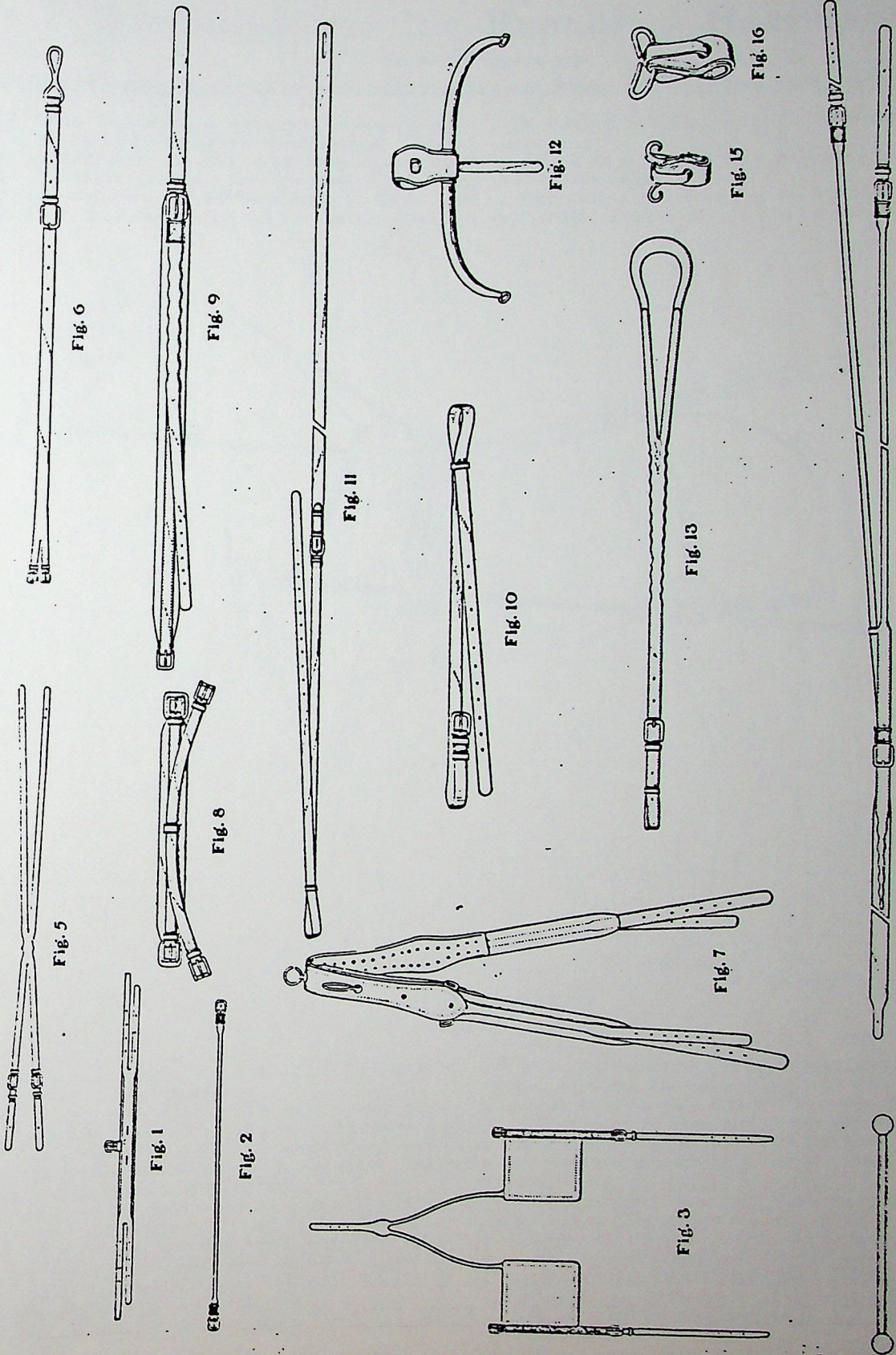


Fig. 14
 Plate XVII. Patterns for Special Double Speeding Harness.
 Description on opposite page.

Specifications for Breaking Harness

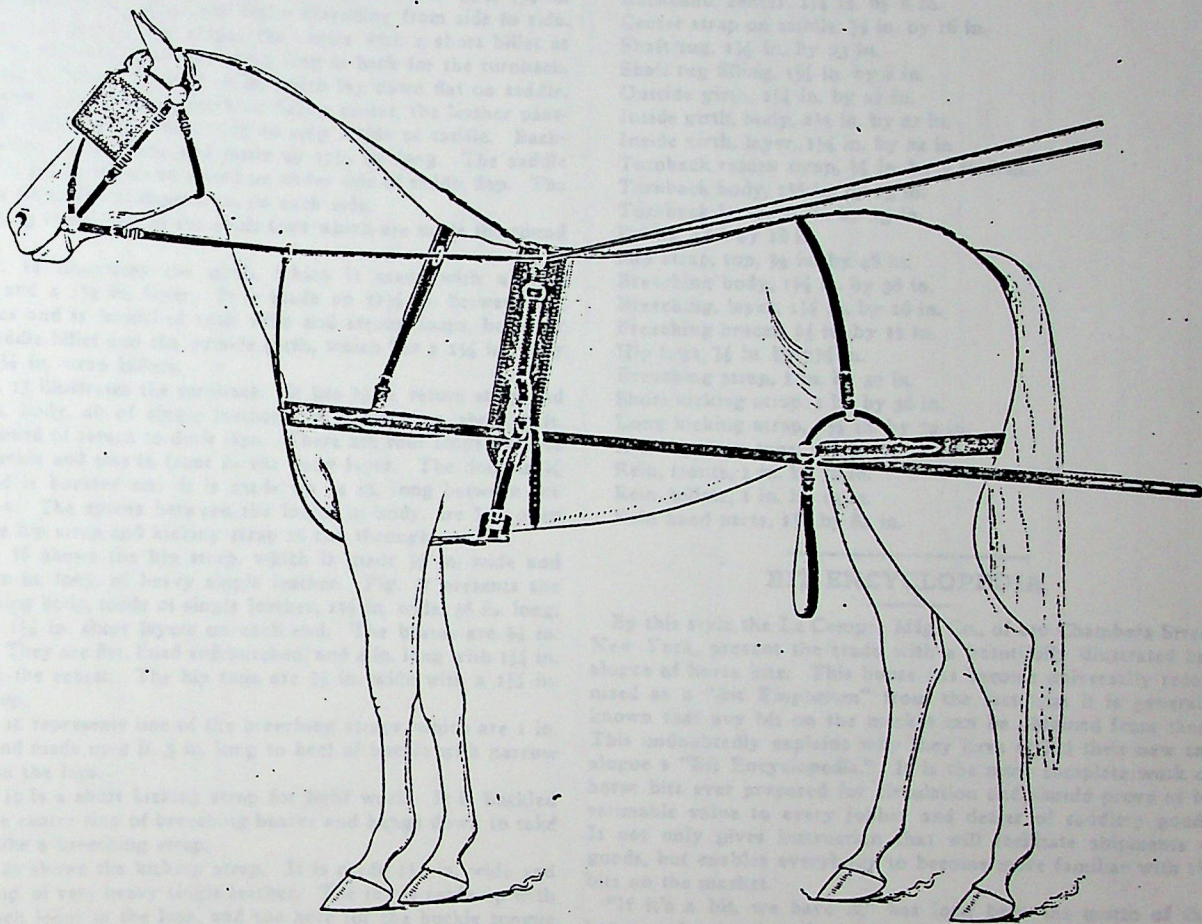
Patterns on opposite page.

This month we illustrate a harness used in breaking green horses and also for exercising horses in large stables. The overhead checkrein and the side check are both illustrated, the choice of which is optional with the driver. It is needless to state that every part of this harness should be selected from the very best material, and the harness maker's sole aim should be to make it

long from bend of buckle to ring. The center reefs up on both sides.

Fig. 4 is the gag strap, which is made like a hame strap with a slide loop and billet end.

Fig. 5 illustrates the throat strap, which is made up 20 in. long and should have a gag loop in the lap for a low-bearing rein.



BREAKING HARNESS.
Parts Assembled.

strong, so as to withstand the strain often required of it. A kicking strap is also illustrated.

Fig. 1 is the crown, which is made up 23 in. long and is split 6½ in. or 7 in. to allow for small horses. The layer is ¾ in. wide and is blocked up to allow the overhead bearing reins to pass under; the rings in end are for the gag straps. The buckle chape is ¾ in. and made with one loop.

Fig. 2 shows the cheeks, which are made only 7 in. long between the buckles and provided with 12 in. billets. There are five narrow loops on each cheek. The winkers are about 6 in. square, with corners rounded. Plain harness leather or stamped pigskin produces the best winker. The winker brace is flat and of single leather, split 7½ in. with point 5½ in. long.

Fig. 3 represents the side check, which is made up about 19 in.

Fig. 6 is the noseband, which is made up 30 in. long, with point 8 in. in length. There should be several holes in the point to provide for small-nosed horses. The noseband is lined 18 in.

Fig. 7 shows the front part of overhead bearing rein, made 28 in. with 5/8 in. splits, those at the back being 17 in. long, and the front 9 in. long with 2 in. flat part. The billets are 5/8 in. wide.

Fig. 8 represents the reef part of overhead bearing rein, which is split 5 in. The reef part is 7/8 in. wide with a ring in the back end instead of a leather jockey, to take strap on center of saddle.

Fig. 9 represents the breast collar and traces. The breast collar is made of very heavy single leather and the traces lap to the ends a distance of about 9 in. The tugs are 26 in. apart, 1 in. wide and made with a box loop 1¼ in. long. Traces are 1¼ in.

Harness

wide, cut out of single leather, but lined at the rear end so far as necessary to give required strength. There are four dart holes in each trace. The length over all should be not less than 7 ft. 6 in. to center of breast collar.

Fig. 10, the neckstrap, is usually made of single leather. We, however, show a folded one in this instance. The fold is made very thin and 22 in. long. The layer tapers from 1¼ in. in the center to 1 in. at the points. Points may be lined and stitched or left single.

Fig. 11 shows the martingale, which is of single leather with 30 in. body and 15 in. rounded splits furnished with rings.

Fig. 12 presents the saddle. This saddle is made without a tree, but a flexible tree of some kind may be used. It is 4½ in. wide, and has no jockey, the skirts extending from side to side. There is a ¾ in. strap across the center with a short billet at front to take the checkrein and a ring at back for the turnback. Terrets are the loose ring style, which lay down flat on saddle. The rings for backband are 6 in. below center, the leather passing through the flap from ring to ring inside of saddle. Backbands are 1¼ in. wide and made up 15½ in. long. The saddle billet is 1½ in. wide and sewed on under side of saddle flap. The pad is made short, about 8 in. on each side.

Fig. 13 shows one of the shaft tugs which are made the round style.

Fig. 14 illustrates the girth, which is made with a wide body and a 1½ in. layer. It is made up 17½ in. between the buckles and is furnished with wide and strong loops, both for the saddle billet and the outside girth, which has a ¼ in. body and 1½ in. wrap billets.

Fig. 15 illustrates the turnback. It has ¾ in. return strap and 1½ in. body, all of single leather. It is made up about 3 ft. from bend of return to dock laps. There are four loops back of the buckle and one in front in the body layer. The dock is ¾ in. and is buckled on; it is made up 14 in. long between the buckles. The spaces between the loops, in body, are left open for the hip strap and kicking strap to run through.

Fig. 16 shows the hip strap, which is made ¾ in. wide and 3 ft. 10 in. long, of heavy single leather. Fig. 17 presents the breeching body, made of single leather, 15½ in. wide, 38 in. long. It has 1½ in. short layers on each end. The beams are ¾ in. wide. They are flat, lined and stitched, and 4 in. long with 1¼ in. ring in the center. The hip tugs are ¾ in. wide with a 1½ in. box loop.

Fig. 18 represents one of the breeching straps, which are 1 in. wide and made up 4 ft. 3 in. long to heel of buckle with narrow loops in the laps.

Fig. 19 is a short kicking strap for light work. It is buckled into the center ring of breeching bearer and hangs down to take shaft, like a breeching strap.

Fig. 20 shows the kicking strap. It is made 1½ in. wide and 6 ft. long, of very heavy single leather. The tug is made up with very high loops in the laps, and the hole for the buckle tongue in the front of strap should be at extreme ends.

Fig. 21 illustrates one of the reins. They are made with ¾ in. front parts with buckle billets and 1½ in. hand parts and must be made strong. The stitching of this harness should be about nine to the inch and done with very heavy thread.

Cutting Lengths.

Crown, 1¼ in. by 23 in.

Crown layer, 5½ in. by 11 in.

Crown chape, 5½ in. by 4 in.

Throat, 5½ in. by 26 in.

Cheeks, 5½ in. by 30 in.

Check rounds, 7½ in. by 24 in.

Check billets, 5½ in. by 10 in.

Check center, 5½ in. by 69 in.

Overhead rein, front, 1½ in. by 28 in.

Overhead rein, billets, 5½ in. by 8 in.

Overhead rein, back, 1½ in. by 39 in.

Noseband, 1¼ in. by 32 in.

Noseband lining, 1½ in. by 18 in.

Gag strap, 5½ in. by 13 in.

Breast collar, 1¾ in. by 38 in.

Breast collar tugs, 7½ in. by 8 in.

Traces, 1¼ in. by 74 in.

Trace lining, 1¼ in. by 30 in.

Neck strap, body, 3¼ in. by 22 in.

Neck strap, layer, 1¼ in. by 42 in.

Neck strap, point lining, 1½ in. by 12 in.

Martingale, 1¾ in. by 52 in.

Martingale billets, ½ in. by 21 in.

Saddle flap, 4½ in. by 44 in.

Backband, 1¼ in. by 34 in.

Backband, center, 1¼ in. by 6 in.

Center strap on saddle, 7½ in. by 16 in.

Shaft tug, 1¼ in. by 23 in.

Shaft tug filling, 1¼ in. by 8 in.

Outside girth, 1¼ in. by 27 in.

Inside girth, body, 2¾ in. by 22 in.

Inside girth, layer, 1½ in. by 24 in.

Turnback return strap, 7½ in. by 3 ft. 8 in.

Turnback body, 1½ in. by 23 in.

Turnback layer, 7½ in. by 13 in.

Docks, 4 in. by 18 in.

Hip strap, top, 7½ in. by 46 in.

Breeching body, 15½ in. by 38 in.

Breeching, layer, 1¼ in. by 16 in.

Breeching braces, 5½ in. by 11 in.

Hip tugs, 7½ in. by 7½ in.

Breeching strap, 1 in. by 59 in.

Short kicking strap, 1 in. by 36 in.

Long kicking strap, 1½ in. by 72 in.

Kicking strap tugs, 1½ in. by 18 in.

Rein, fronts, 1 in. by 78 in.

Rein, billets, 1 in. by 13 in.

Rein hand parts, 1½ in. by 84 in.

BIT ENCYCLOPEDIA.

By this style the Le Compte Mfg. Co., of 110 Chambers Street, New York, present the trade with a beautifully illustrated catalogue of horse bits. This house has become universally recognized as a "Bit Emporium" from the fact that it is generally known that any bit on the market can be obtained from them. This undoubtedly explains why they have styled their new catalogue a "Bit Encyclopedia." It is the most complete work on horse bits ever prepared for circulation and should prove of inestimable value to every jobber and dealer of saddlery goods. It not only gives instruction that will facilitate shipments of goods, but enables everybody to become more familiar with the bits on the market.

"If it's a bit, we have it," has long been the motto of this house and now that they have a complete catalogue of horse bits, all should reverse the motto and say, "If it's a catalogue, we want it." Well, it's a crackerjack and you want to get in an early request for a copy.

Have you seen the Le Compte rule for inside and outside measurements? You can have one of these by mentioning Harness when you write.

NEW YORK POLICE EQUIPMENT.

Information has reached us to the effect that the Mehlbach Saddle Co. of New York, have again been awarded the contract from the New York Police Department for the equipment of the mounted squad. The Mehlbach Saddle Co. are the successors of the Whitman Saddle Co., and are known all over the world as specialists in riding equipment, from "saddle to spur." They are the makers of the celebrated and only Whitman saddles, and the line will interest any dealer who desires correct equestrian equipment. Have you one of their catalogues? You ought to have a copy.

Harness



Fig. 1

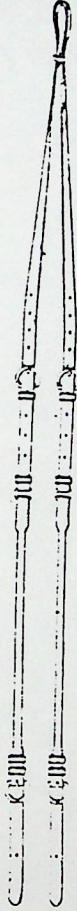


Fig. 3

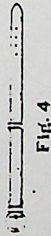


Fig. 4

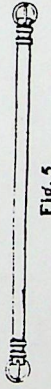


Fig. 5

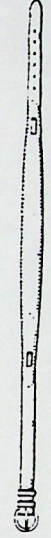


Fig. 6

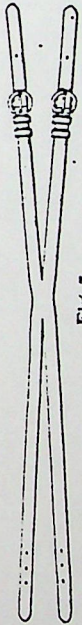


Fig. 7

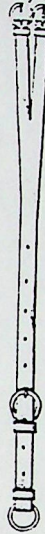


Fig. 8

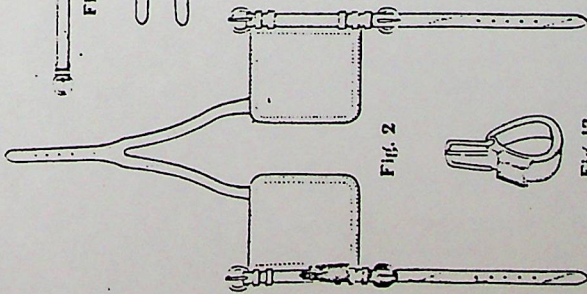


Fig. 2

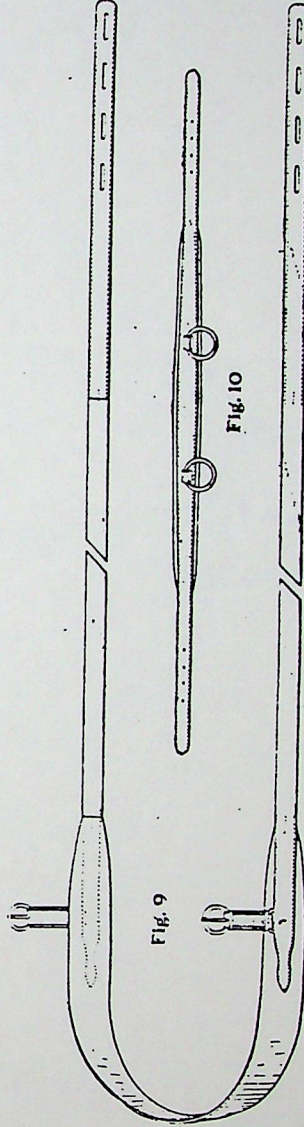


Fig. 9



Fig. 13



Fig. 10



Fig. 11

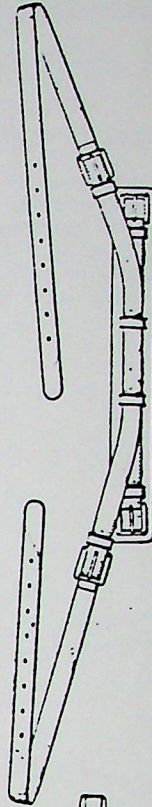


Fig. 14



Fig. 15



Fig. 16

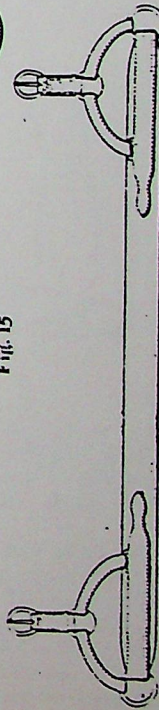


Fig. 17

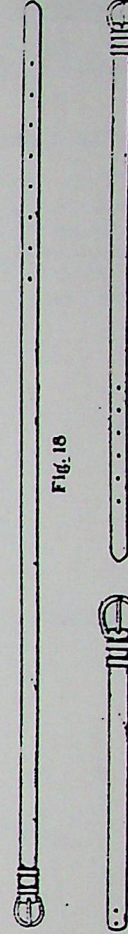


Fig. 18



Fig. 20

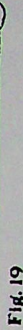


Fig. 19



Fig. 21

How to Make a Racing Harness

The harness is made of leather and is used to pull a horse or dog. It is made of a collar, a saddle, and a harness. The collar is made of leather and is used to hold the harness in place. The saddle is made of leather and is used to hold the harness in place. The harness is made of leather and is used to pull a horse or dog.

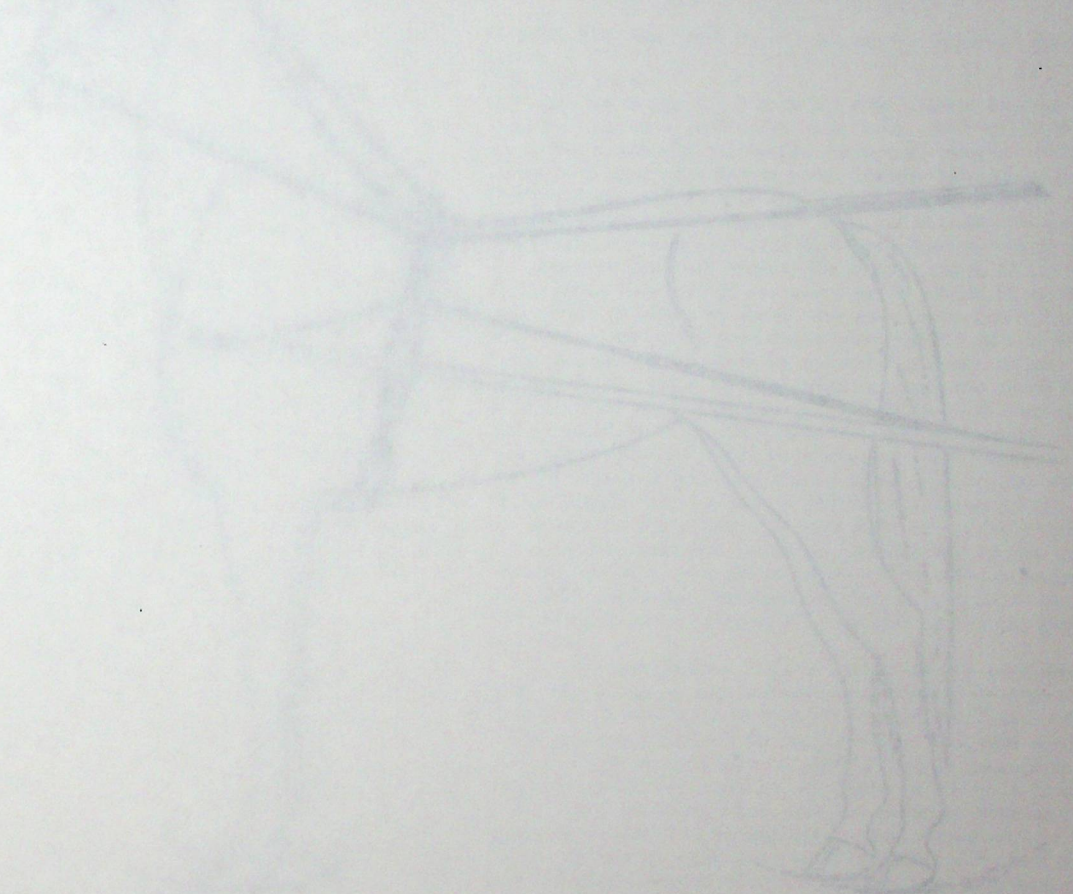


Fig. 1. Head and neck of horse.

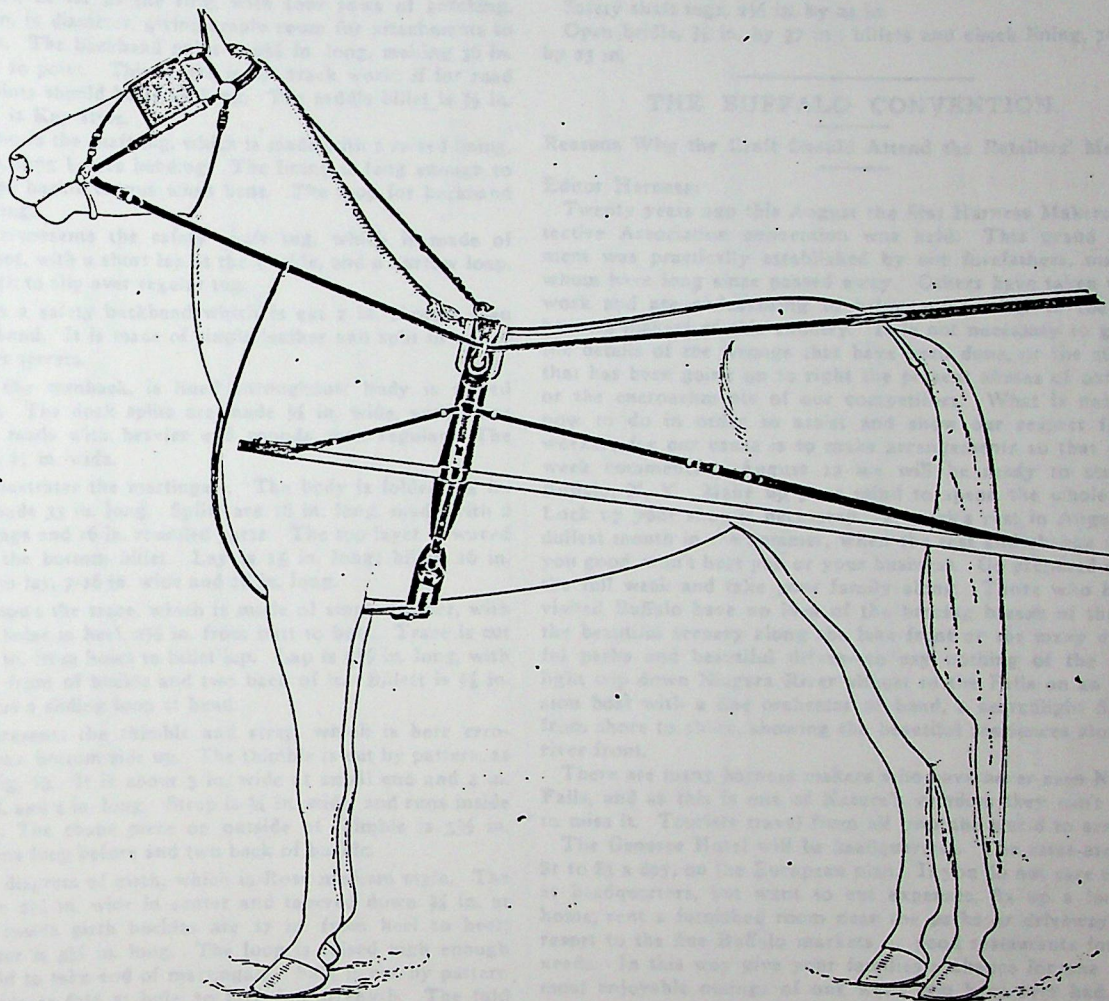
The harness is made of leather and is used to pull a horse or dog. It is made of a collar, a saddle, and a harness. The collar is made of leather and is used to hold the harness in place. The saddle is made of leather and is used to hold the harness in place. The harness is made of leather and is used to pull a horse or dog.

Specifications for Making a Racing Harness

Patterns on opposite page.

We illustrate on opposite page parts for making a racing harness. Among the patterns are shown two styles of bridles, one having winkers and an open variety, as shown in Figs. 3 and 4. Full and accurate widths and lengths are given below, which, in conjunction with the patterns, will enable any harness maker to construct a harness of this character. Of course, it is under-

Fig. 4 presents an open style of bridle which is sometimes used in preference to the winker bridle. As will be noticed, the cheeks and crown are combined. The center and fold is made the same as shown in Fig. 1, excepting that a shield is added. This shield is made of thin but firm patent leather and lined with enameled leather. The check loops are also of leather.



RACING HARNESS.
Showing parts assembled.

stood that the best material and workmanship must enter into the manufacture of so light a harness.

Fig. 1 represents the bridle crown, which is made with a fold in center and leather loops for overhead check. The splits or billets are 7-16 in. wide; cheek billets are 6 in. long, and throat billet $4\frac{1}{2}$ in. long. Fold is made scant 1 in. wide and 11 in. long. The loops are $\frac{7}{8}$ in. from center.

Fig. 2, the throat strap, is made 20 in. long, with 1 in. laps at each buckle and 18 in. round in center.

Fig. 3 shows the winkers with braces and cheeks. The winker brace is split and rounded $7\frac{1}{2}$ in., and has a 5 in. point which is 7-16 in. wide at buckle hole.

The V-shaped space in shield is to allow ventilation. For stock goods this bridle should be made about 39 in. long from bend of billet to bend of billet, with one or two holes to take up and let out. The throat billets are single; cheeks are lined and stitched.

Fig. 5 illustrates the front part of overhead check, which is made entirely of single leather. It is split 9 in. at bit end, with 4 in. billet below the buckle. The center is waved 2 in. between the splits. The back splits are 15 in. long.

Fig. 6 shows back part of check, is split 4 in. and waved 3 in. The reef part is cut down to $\frac{5}{8}$ in. The docker is lined and stitched and provided with a ring for strap to reef into.

Fig. 7 is the front, which is made 7-16 in. wide and 12½ in. long between the loops. The loops are 1½ in. long.

Fig. 8 represents the rein, the length of front of which is 4 ft. 6 in. to bend of hook. The hook steel should be forged and made up bent. Hand parts are 1½ in. wide and 7 ft. long, and made with a billet point in each side and a double buckle piece for the center.

Fig. 9 illustrates the sliding hand holder, which is 1½ in. wide and made with a loop on upper side to hold it to rein. They are made all lengths from 8 in. to 18 in. to suit the whim of the drivers, some of whom desire them large enough to take elbow.

Fig. 10 presents the saddle, which is made on a flexible tree. The patent leather and lining both extend over the top, making breaking at that point improbable. The backband is sewed down on the skirt, as far as the ring, with four rows of stitching. Ring is 8 in. in diameter, giving ample room for attachments to buckle into. The backband point is 9½ in. long, making 36 in. from point to point. This length is for track work; if for road use, the points should be 11 in. long. The saddle billet is ¾ in. wide. Pad is Kay style.

Fig. 11 shows the shaft tug, which is made with a raised lining. It is 7½ in. long before bending. The lining is long enough to run over the buckle tongue when bent. The loop for backband is 1½ in. long.

Fig. 12 represents the safety shaft tug, which is made of single leather, with a short lap at the buckle, and a narrow loop, large enough to slip over regular tug.

Fig. 13 is a safety backband which is cut 2 in. shorter than other backband. It is made of single leather and split in center to pass over terrets.

Fig. 14, the turnback, is lined throughout; body is waved throughout. The dock splits are made ½ in. wide, with extra long dock, made with heavier end rounds than regular. The reef part is ¾ in. wide.

Fig. 15 illustrates the martingale. The body is folded 1¼ in. wide and made 33 in. long. Splits are 18 in. long, made with 2 in. lap at rings and 16 in. rounded parts. The top layer is waved and forms the bottom billet. Lay is 15 in. long; billet, 16 in. long; bottom lay, 7-16 in. wide and 18 in. long.

Fig. 16 shows the trace, which is made of single leather, with three hook holes in heel, 2½ in. from butt to butt. Trace is cut down to ¾ in. from holes to billet lap. Lap is 5½ in. long, with one loop in front of buckle and two back of it. Billet is 5½ in. wide, and has a sliding loop at bend.

Fig. 17 presents the thimble and strap, which is here erroneously shown bottom side up. The thimble is cut by pattern, as shown in Fig. 19. It is about 3 in. wide at small end and 4 in. at large end, and 4 in. long. Strap is ¾ in. wide, and runs inside of thimble. The chape piece on outside of thimble is 5½ in. long, with one loop before and two back of buckle.

Fig. 18 is diagram of girth, which is Rose medium style. The fold is made 2¾ in. wide in center and tapered down ¾ in. at each end. Inside girth buckles are 17 in. from heel to heel; loop in center is 3½ in. long. The loop is raised high enough from the fold to take end of martingale. Safe is cut by pattern and is as wide as fold at hole, to give full strength. The fold can be filled with cloth between buckles, but should have a piece of leather at the hole, as the girth must be made strong at that point. Billets are ¾ in. wide and 30 in. long, or long enough to wrap twice around the shaft.

Cuttings for this racing harness are as follows:

Crown, ¾ in. by 23 in.; chape, 7-16 in. by 3 in.; fold, 2 in. by 11 in.

Throat, 9-16 in. by 28 in.

Cheeks, ½ in. by 29 in.

Winker brace, 1¼ in. by 12½ in.; fillers, ¾ in. by 14 in.

Cheek rein, front 7½ in. by 26 in., back 7½ in. by 39 in., billets 7-16 in. by 5½ in., dock, 1½ in. by 6 in.

Driving rein, front 7½ in. by 4 ft. 6 in., billet 7½ in. by 12 in., hand part 1½ in. by 7 ft. 6 in., hand holder 1½ in. by 33 in.

Martingale body, 3¾ in. by 33 in.; rounds and lay, 1¼ in. by 52 in.; bottom lay, 7-16 in. by 21 in.

Turnback, 1¼ in. by 3 ft. 7 in.; lining, 1¼ in. by 3 ft. 3 in.; dock, 3¾ in. by 19 in.

Saddle, patent leather, cut 2¾ in. wide, 41 in. long, lining the same.

Backband points, ¾ in. by 18 in.; centers, ¾ in. by 8 in.

Girth fold, 5¼ in. by 30 in.; lay, ¾ in. by 23 in.; billets, ¾ in. by 33 in.; safe, 2½ in. by 7½ in.

Traces, back part 7½ in. by 3 ft. 7 in., billets 5½ in. by 4 ft.

Thimble pocket, 4 in. by 3 in. by 4 in. at seam; strap, ¾ in. by 3 ft. 3 in.; chape, ¾ in. by 5 in.

Shaft tugs, 1 in. by 21 in.

Safety strap, ¾ in. by 34 in.

Safety shaft tugs, 2½ in. by 24 in.

Open bridle, ¾ in. by 37 in.; billets and cheek lining, 7-16 in. by 23 in.

THE BUFFALO CONVENTION.

Reasons Why the Craft Should Attend the Retailers' Meeting.

Editor Harness:

Twenty years ago this August the first Harness Makers' Protective Association convention was held. This grand movement was practically established by our forefathers, many of whom have long since passed away. Others have taken up the work and are endeavoring to bring some relief to the retail harness makers of this country. It is not necessary to go into the details of the wrongs that have been done, or the struggle that has been going on to right the present abuses of our trade or the encroachments of our competitors. What is necessary now to do in order to assist and show our respect for the workers for our cause is to make arrangements so that on the week commencing August 12 we will be ready to start for Buffalo, N. Y. Make up your mind to spend the whole week. Lock up your shop if necessary. A week's rest in August, the dullest month in the summer, when the rest and change will do you good, won't hurt you or your business. Go prepared to stay the full week and take your family along. Those who haven't visited Buffalo have no idea of the bracing breeze of the lake, the beautiful scenery along the lake front or the many delightful parks and beautiful drives—to say nothing of the moonlight trip down Niagara River almost to the Falls on an excursion boat with a fine orchestra or band, a searchlight flashing from shore to shore, showing the beautiful residences along the river front.

There are many harness makers who have never seen Niagara Falls, and as this is one of Nature's wonders they can't afford to miss it. Tourists travel from all over the world to see it.

The Genesee Hotel will be headquarters. The rates are from \$1 to \$3 a day, on the European plan. If you do not care to stop at headquarters, but want to cut expenses, fix up a lunch at home, rent a furnished room near the parks or driveways, and resort to the fine Buffalo markets or good restaurants for your needs. In this way give your families a chance for one of the most enjoyable outings of one week you have ever had, managing to get back by the 18th, and making eight days of the best fun and pleasure of your whole life.

The saving will be in the many good things learned from your brother harness makers during the three days of the convention, learning all about the ins and outs, hard knocks, etc., from some of the most prominent and finest mechanics in the world. But what is still more important is, all should become members, so that we can work together for the benefit of the trade at large.

Each one should make it a point to see that both he and his competitors become members at once, and that they all go to this convention. The time spent will be one of profit and enjoyment.

RETAILER.

Many content themselves with promising, believing it exempts them from performing.

Harness

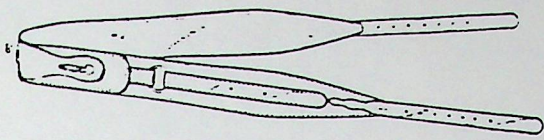


Fig. 10

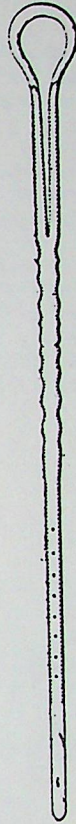


Fig. 14

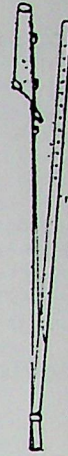


Fig. 17



Fig. 19

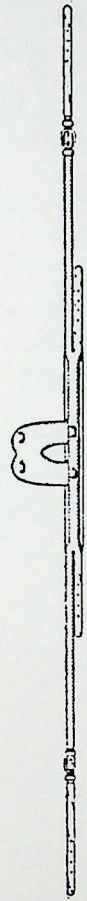


Fig. 4



Fig. 11



Fig. 12

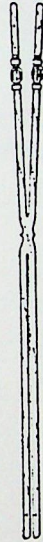


Fig. 5

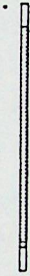


Fig. 7



Fig. 6

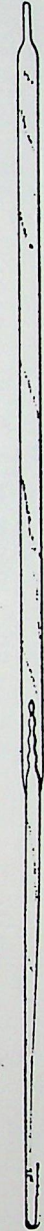


Fig. 8



Fig. 9



Fig. 13

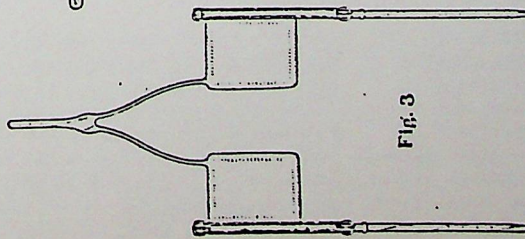


Fig. 3

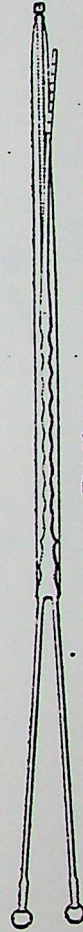


Fig. 15



Fig. 16

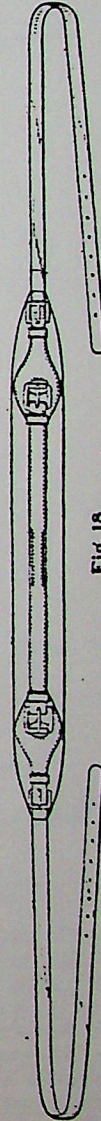
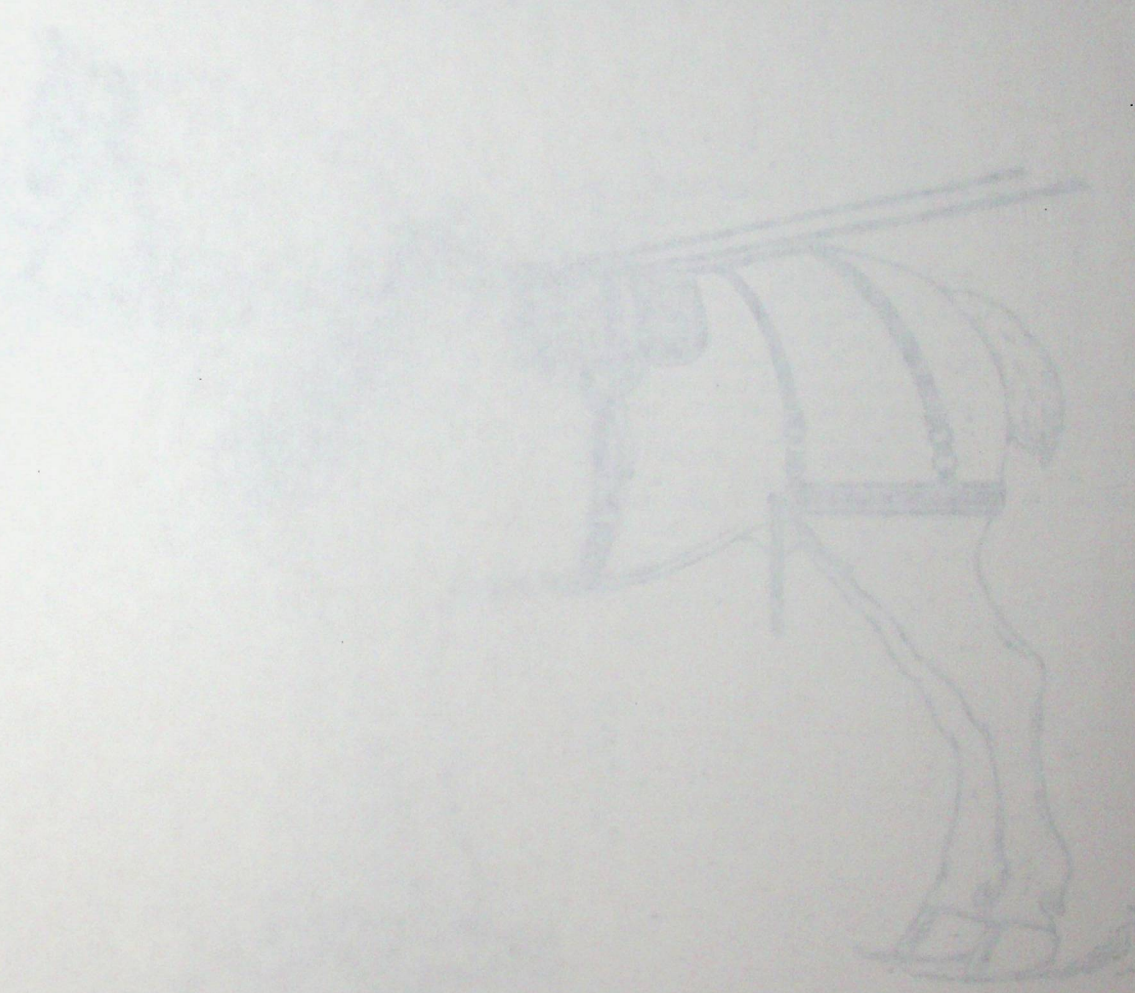


Fig. 18

Plate V. Patterns for Racing Harness.
Specifications on opposite page.



HOW TO MAKE A HARNESS

The harness is made of leather and is used to pull a load. It consists of a collar, a saddle, and a trace. The collar is made of two pieces of leather, one for the neck and one for the chest. The saddle is made of one piece of leather and is used to hold the harness in place. The trace is made of two pieces of leather and is used to pull the load. The harness is made by cutting the leather into the correct shapes and then stitching them together. The harness is used to pull a load and is a very important piece of equipment for a horse.

SPECIFICATIONS FOR TIP-CART HARNESS

Patterns on opposite page

This is a type of tip-cart harness distinctly by itself, and, aside from the bridle and reins, no part can be substituted from any other harness.

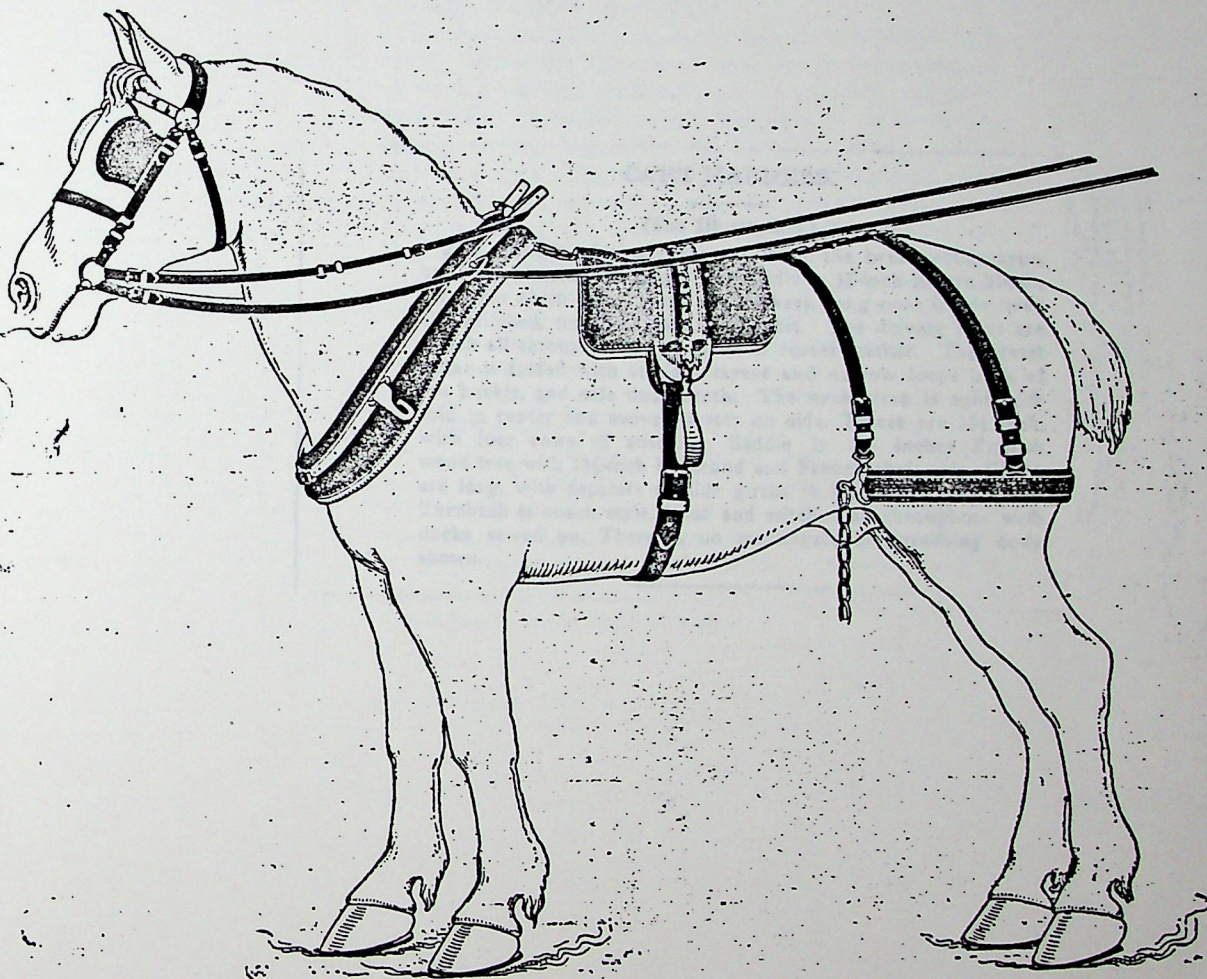
It is also of interest to the writer, as it carries him back 30 years when, as a boy of 16, just starting to learn the harness making trade, his first work was on four sets of tip-cart harness, very similar to that here illustrated. They made three very lasting impressions on that apprentice. The first was the way in which they were made. The style and lengths have never been forgotten, although the writer has only made a few sets since that time. Secondly, when stitching them with six cord of No. 10 thread the latter made impressions on the

and 24 in. long. It is split $6\frac{1}{2}$ in. at each end, having 11 in. center and there is no layer. The $\frac{3}{4}$ in. buckle chape for winker brace point is sewed across the center of crown.

Fig. 2 illustrates the checks, winkers, winker brace and nose band. The checks are $\frac{3}{4}$ in. wide, made $7\frac{1}{2}$ in. between the ring and buckle, with two loops at upper end to take the crown point. We show the Boyd pattern of winker, which has become very popular in some sections for all work harness. The winker brace shown is the rounded split style, with $\frac{3}{4}$ in. point to buckle into crown. Another style of winker brace which is used extensively is a rounded brace running from winker to winker with a billet sewed on center which runs to crown.

Fig. 3 is the throat, which is made $\frac{3}{4}$ in. wide and 20 in. long, with one loop in each lap.

Fig. 4 shows a flat check rein, made with a short piece on



TIP-CART HARNESS, SHOWING PARTS ASSEMBLED

Patterns and specifications accompanying

finger from which the blood ran, and when the awl accidentally pierced the finger instead of the leather, he was told that he would soon learn the trade as that was an entrance hole in it. Well, perhaps it was, but it was poisonous one, which necessitated a visit to the old family doctor who endeavored to squeeze the trade out again and it was more painful coming out than going in—that was the third impression. However, the harness here shown is made for business purposes and not for beauty, and the patterns and specifications are but a slight variation from the harness that was made 30 years ago.

Fig. 1 shows the crown of bridle which is made $1\frac{1}{2}$ in. wide

on high side, 18 in. long, with a ring in the back end. The off side is one piece and is made to reef into the ring on high side. It is $\frac{3}{4}$ in. wide and about 80 in. from billet to billet. When in use it runs over the hame tops, there being no hook on saddle.

Fig. 5 represents a hook hame, wood body, with an iron back having a loop at lower end for hame strap. The top hame strap passes through notches in the wood near top of hame. The draft hook is made to prevent the traces from easily unhooking.

Fig. 6, the hame straps, are $1\frac{1}{4}$ in. wide, made up 24 in. for the lower one and 30 in. for the upper one.

Fig. 7 presents the saddle which is made on a wooden tree

DUMP WAGON HARNESS

The process of making dump wagon harness has given very rapidly within the last year or two. An immense amount of work is done with special machinery and with machinery for repair and maintenance of harness.

CART HARNESS.

(See Illustration.)

The example of single harness is of the breast-collar type, and very pleasing in design. The bridle is $\frac{3}{4}$ -inch square blinds, three bar chain front, crests on winkers, long nose bands lined and stitched, no check rein, elbow bit. The driving reins are 1-inch all throughout, and made of russet leather. The breast collar is folded with straight layers and narrow loops back of the buckle, and safe underneath. The neck strap is split with fold in center and swivel terrets on side. Traces are $1\frac{3}{8}$ inch, with four rows of stitching. Saddle is $5\frac{1}{2}$ inches English wood tree with $1\frac{3}{8}$ -inch backband and French shaft tugs. Girths are long, with separate outside girths to buckle on both sides. Turnback is coach style, lined and stitched all throughout with docks sewed on. There is no martingale or breeching body shown.

DUMP WAGON HARNESS.

The business of making dump wagons has grown very rapidly within the last year or two. An immense amount of work connected with railroad construction and with excavation for constructional purposes of all kinds has sprung up and stimulated the building of this special type of wagon. The wagons are very substantial, made of thick lumber or plank, many of them; their gear is of the heavy sort, the wheels low and strong, and every part of these wagons is designed to meet an excessive strain and carry heavy loads. It has come under our observation recently that some enterprising harness makers have been giving special attention to the manufacture of harness particularly suitable to this type of wagon. The prices realized for this harness are certainly remunerative, as it comes under the head of a specialty. No doubt the growing demand for wagons of this sort will stimulate this branch of the harness industry as it should. The ordinary harness which has been used has been found to be too weak and to wear out or break, and it is for these reasons that special attention has been given to the production of a class and type of harness that corresponds to the type of wagon.

MAKING OF VAN SADDLES.

The products of this section of the saddler's trade are always in use, and in view of the fascination of electric and motor-car riding, they are sure to be more in demand than the original coach and cab saddles. Van saddles similar to other parts are now undertaken by the wholesale firms, and turned out on a uniform plan with an acceptable cheapness and presentable appearance. But specifically, for this class of saddle the article made on the premises, according to orders and local style, may after all be better for a retailer's customers. As

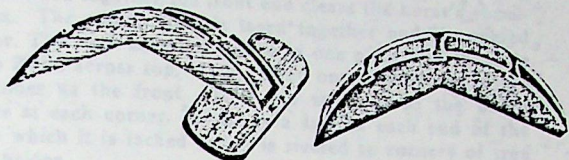


FIG. 1.

FIG. 2.

stated in previous explanations anent saddles, the warehouses cater first-class in lines where splendid appearance is indispensable, but an article for every-day wear at ordinary portage work does not require that special attention to fine execution as is given to a best-lined harness saddle; and consequently it should be within the capacity of any retailer, his journeyman, or apprentice, to commence and finish a saddle of this description on the premises.

Therefore, with a view of giving some hints to those in need, I hereunder supply particulars for the purpose. Let us contemplate making a van or box-top saddle for a 15-hands horse. This wants a 10 in. tree. The net circumference of the animal is, say, about 60 in., to accommodate which, for bucking, an extra 6 in. or 8 in. is required. Calculating for the parts, savers, girth and strap, and allowance being made for thickness of panel, the correct length or amount of leather to be cut may be ascertained. When receiving an order for a box-top saddle it is advisable to measure the one in use, and in cutting out adapt your stock to the purpose economically. Doubtless, counties vary as to the make of tree, but estimating from large quantities shown at the warehouses, the type in general use is as shown in Fig. 1. But it may not be usual for the seat board to be placed as in the above diagram. It is usual for these boards to end level with the lower edge of the trough. In this illustration the board is lowered about $\frac{1}{2}$ in. for the purpose of making the saddle more durable, though this is not

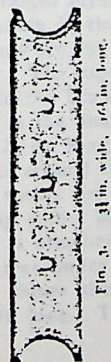


FIG. 3. 3 1/2 in. wide, 16 in. long.

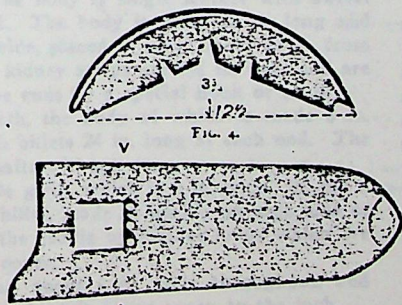


FIG. 5. 21 in. long, 7 1/2 in. wide.

always advisable in a retailer's business. In this case the idea is to enable the saver to be secured by two or three fine screws or nails, as indicated. Van Saddle savers, fixed in the current method of cutting a square (Fig. 5), and bending the middle down, often causes a break at the points marked V. To obviate this the board is lowered by the saddler, or ordered thus, and the saver having the square cut in a 10 in. tree, say 3 in. by 3 1/2 in., it is protected by the under support. Another method is the avoidance of cutting a square (Fig. 5) by taking the boards off. When made and joined, attach them (the savers)

centrally under the tree, then fix the boards either in their old places or below, as previously explained. A drawback to this latter plan is that when finished the box gives a heavy appearance. Coming back to the length required for an average size horse, the annexed patterns and figures are a reasonable approximation. Savers each 21 in., girth 26 in., strap 17 in., 18 in. For the round of the animal, 60 in., and some extra for looping is needed. The above figures give savers 42 in.; girth, less fixing, 22 in.; strap, less point, 6 in.; total, 70 in.; then allowing about 4 in. panel thickness to shorten, you have 66 in. as the net working length of your made-up materials.

In making a saddle of this class be careful to see that when the parts are joined they are central, downward from the trough to termination of saver. If untrue, it may prevent the nailing together having an equal bearing, also the appearance is impaired. Commencing with the tree, if there is an unevenness on the edges of the trough or top, and the order is a good one make it smooth by cutting or filing. To reduce the thickness of trough sides, cut out a bed for the sockets, as marked in Fig. 2, but if expedition is studied this plan is not followed. A rather noticeable fault in box saddle making is that the sockets are too close together, and there is a very long aperture each side between the edge of the top cover (Fig. 3), and the base of the tree. For a backband not over $\frac{3}{8}$ in. thick, a $\frac{7}{8}$ in. space is sufficient for its easy passage. Therefore, surveying the class and size of saddle wanted, and using a 10 in. tree (other figures in proportion), calculate the position of sockets, space between, and a good remainder of leather each side below the

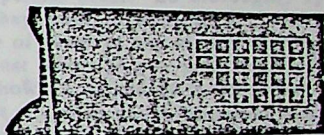


FIG. 6. 4 in. less than Saver.

terret. Then for a 10 in. tree the top cover must be 16 in. long and 3 1/2 in. wide. Turn the top flesh side up, and mark it similar to (Fig. 3) a center line, socket holes 3 1/2 in. apart, the dotted half-circle about 1 1/4 in. deep, allowing a piece 2 3/4 in. to be cut out each side. But there is another factor in this problem. All trees and furniture in our trade are not identical, so in taking measurements for a box saddle top take note of the side-plates, if used (Fig. 9), because as these are put on last, provision should be made for the upper screw to be inserted. But I may mention that two screws, when put in close, are enough to secure these plates, and when so fixed fill the third hole with a small piece of copper. Note that this top cover must be cut from a stout piece of gear back, and the sockets let into the tree; no cross-packing. An outside strengthener may be wanted, i. e., a thin, firm brass plate (Fig. 8). These are kept in stock in all warehouses. When this is not used the semi-circle ends of top may remain single, or a lining (Fig. 10) shaved down at ends to correspond with sockets and fitted underneath may be used. The fitting of terrets and sockets on this make of saddle is a part of the job that demands more thought than at first sight might appear urgent. Generally with van saddles, the result of un-crewing and replacing when it has been in use a few months is that an additional half-turn of the screw is visible. This necessitates the placing of a washer under the terret, and soon gives the top a second-hand appearance. The best plan I have seen for obviating this difficulty is to notice the cast of these sockets—they incline at the topped collar—and when the outer cover settles downward a slight division is seen between the brass and the leather. Cut three pieces of soft scrap, say 1 1/2 in. square, or to shape of Fig. 7, shave them down on all the edges, punch size of hole in center, wet, and press one over each socket before the top is placed in position. The insertion of this thickness raises the top a little higher than the socket; when the terret is screwed in the leather is a resistance, and it may take a few years for

consisting of three parts, viz., a heavy bridge across the back which carries the back chain in a groove on the top side and boards which form the support of the pad under the bridge. The boards, forming the tree, have a leather cover made of one to three thicknesses of leather, equal to about $\frac{3}{8}$ in. thickness, the top layer of which extends $\frac{3}{8}$ in. over the outer ones at bridge ends and is turned up and tacked on side of bridge. The front parts are cut in two pieces about $7\frac{1}{2}$ in. wide, 9 to 10 in. at bridge end and 1 in. longer at front end when sewed together the front end clears the horse's shoulder bones. The center seam is laced together and is covered by a layer. The back cover of tree is in one piece, $7\frac{1}{2}$ in. wide and 18 to 20 in. across top. It is tacked onto the bridge in the same manner as the front. They are attached to the board screws at each corner. There is a safe at each end of the bridge to which it is tacked and it is riveted to corners of tree cover at bridge.

Fig. 8 is the pad, which is made with a stiff leather back and heavy grade of ticking or kersey cloth which is first whipstitched to edge of back and then bound with a thin leather binding. The pad is made about 2 in. shorter than the pad top about $6\frac{1}{2}$ in. wide. It is about $2\frac{1}{2}$ in. thick and the corners are sewed up, forming a square pad, which is stuffed with hair through the hole in back, indicated by A. It is attached to the front end of board through the slot B, cut in back, which forms a pocket between the stuffing and the back leather at back end. The three ears, marked D, which are screwed or riveted to top, are drawn up over the board and nailed down to it. Some makers put these ears on both ends of the pad; others use the pocket at front and cut out a triangular piece at back end, as indicated by dotted line C, which is drawn up over, like the

Fig. 9 illustrates the back strap and hip straps. The back strap is $1\frac{1}{4}$ in. wide, made with a rump pad and ring for hip return billet which buckles into the rump pad. It is made about 24 in. long when buckled and is attached to the saddle by a leather loop which is nailed on under side of the girth. The hip strap is $1\frac{1}{4}$ in. wide, made 30 in. long of single leather.

Fig. 10 shows the kidney strap, which is $1\frac{1}{4}$ in. wide and 48 in. long from point to point, made of single leather, and passes through the back strap and buckles on both sides of the seat.

Fig. 11, the breeching body, is made 3 to $3\frac{1}{2}$ in. wide, with a 2 in. straight layer. The body is single leather with swivel and chain in the end. The body is 56 to 60 in. long and hip tugs are $1\frac{1}{2}$ in. wide, placed in layer about 11 in. from the center. The tugs for kidney straps are $1\frac{1}{8}$ in. wide and are attached to the D's on the ends by a special hook or snap.

Fig. 12 is the shaft girth, the body of which is made 3 in. wide and 30 in. long, with billets 24 in. long at each end. The billets pass around the shafts without wrap.

Fig. 13 shows the saddle girth, which is 2 in. wide. It has a 1 in. body with a 20 in. billet, made to buckle on right side of the seat. It is attached to the saddle by leather loops which are nailed to tree under the cover.

Fig. 14 shows the reins, about 1 in. wide throughout, and about 12 ft. long. The stitching is about seven to the inch.

The Cuttings

- Crown, $1\frac{1}{2}$ by 24 in.
- Crown chape, $\frac{3}{4}$ by $4\frac{1}{2}$ in.
- Necks, $\frac{3}{4}$ by 18 in.
- Traps, $\frac{3}{4}$ by 10 in.
- Maker brace, $1\frac{1}{4}$ by 13 in.
- Leather band, $1\frac{1}{8}$ by 18 in.
- Back rein, short, $\frac{3}{4}$ by 20 in.
- Back rein, long, $\frac{3}{4}$ by 68 in.
- Back rein billets, $\frac{3}{4}$ by 9 in.
- Seat, $\frac{3}{4}$ by 26 in.
- Same strap, long, $1\frac{1}{8}$ by 33 in.
- Same strap, short, $1\frac{1}{8}$ by 27 in.
- Saddle, front piece, $8\frac{1}{8}$ by 11 in.—two pieces by pattern.

- Saddle, lay, $1\frac{1}{4}$ by 8 in.—one piece by pattern.
- Saddle, back piece, $8\frac{1}{4}$ by 20 in.—two pieces by pattern.
- Saddle, safes, 4 by 5 in.—two pieces by pattern.
- Saddle girth, 2 by 52 in.
- Saddle girth billets, 2 by 20 in.
- Saddle girth loops, $1\frac{1}{4}$ by 12 in.
- Back strap, return, $1\frac{1}{4}$ by 52 in.
- Back strap, pad, 3 by 6 in.—by pattern.
- Hip straps, $1\frac{1}{4}$ by 33 in.
- Kidney strap, $1\frac{1}{8}$ by 48 in.
- Breeching, body, 3 by 66-70 in.
- Breeching, lay, 2 by 66-70 in.
- Hip tugs, $1\frac{1}{4}$ by 11 in.
- Kidney tugs, $1\frac{1}{4}$ by 10 in.
- Shaft girth billet, 3 by 27 in.
- Shaft girth body, 3 by 38 in.
- Pad back, $6\frac{1}{2}$ by 16 in.
- Pad binding, $1\frac{1}{4}$ by 24 in.—four pieces.

THE STORE IN ORDER

Recently an old implement traveler when discussing the characteristics of the local dealer said: "A large majority of implement dealers are shamefully neglectful of their store and the stock they carry. When it comes to system, order and cleanliness, a few of my customers have their stock of goods well classified and in perfect order. So thoroughly systematic are they that when they want to refer to an invoice, bill of lading, note or a piece of paper of any kind pertaining to their business, they know just where to put their hand on it. And when they want to show an article of merchandise, however small, they know right where to get it. Another class, constituting about 60 per cent. of the dealers on whom I call, keep their stores in fairly good order and care for their goods moderately well. While they are not entitled to be complimented for system in the arrangement of their stores or for cleanliness in the care of their goods, still they cannot be criticised. I now come to the class who are shamefully neglectful of their goods and extremely careless as to the arrangement of them. On repairs and shelf goods these dealers will often exhaust their stock without knowing it simply because there is no system used in keeping track of the supply. On the other hand, they will order goods that they already have in stock, but are unable to locate."

In the writer's opinion, every implement dealer looking to the satisfaction of his customers, as well as to his own business interest, should require his clerks, when not engaged with customers, to keep themselves busy classifying and dusting up the goods. Then they will know just where each and every article the store contains is and when a customer comes in for anything they can go right to it and not keep the customer waiting for them to hunt for it.

The Scripture tells that order is Heaven's first law. Surely a rule that is of such vital importance in the hereafter can also be used to good advantage here.—Farquhar Bulletin.

INITIATIVE

Big institutions never start big—they grow slowly and surely. A little idea may be expanded—the biggest ideas usually are pruned down or else fall short of the mark. In the little things of life we find the key to big things—a chance acquaintance, a chance action.

The engineer leaves without his little box of oiled rags and 20 miles out on the prairies a big mogule engine gets a hot box and the train is stopped. Big men are on that train, big plans are disarranged. Little men with little minds upset the world—a slow general fails to bring prompt relief and a continent is changed. To do the right thing at the right time without being directed to do it is the test of worth. The big prizes of this world go to the men of initiative.—F. L. Brittain in The Grand Rapids Furniture Record.

Harness

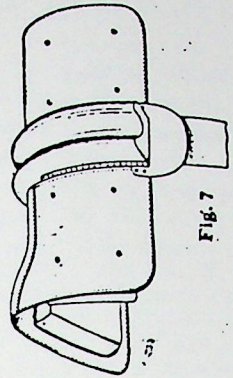


Fig. 7

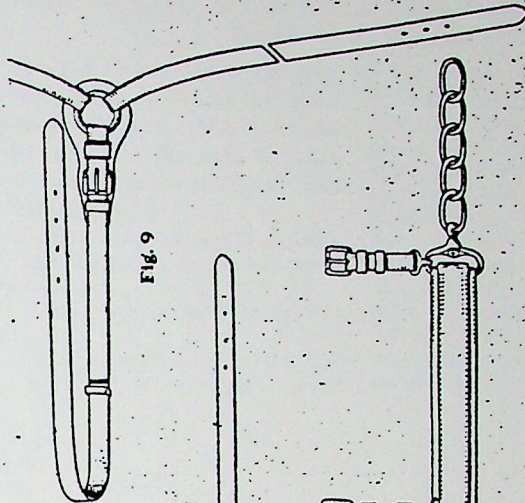


Fig. 9

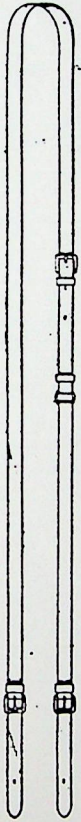


Fig. 4

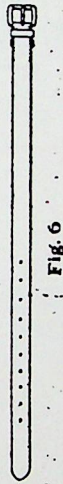


Fig. 6

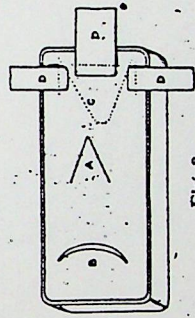


Fig. 8

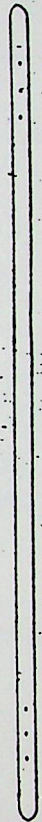


Fig. 10

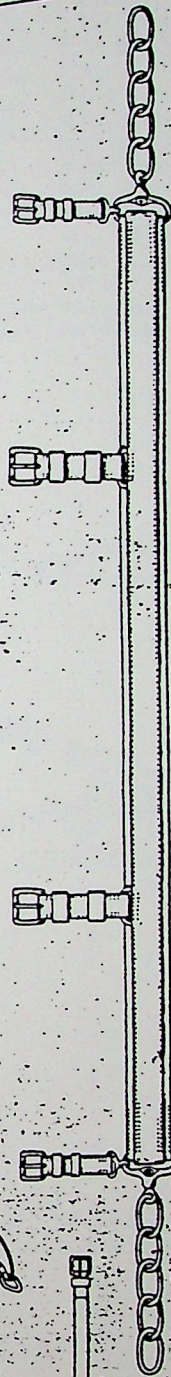


Fig. 11



Fig. 12

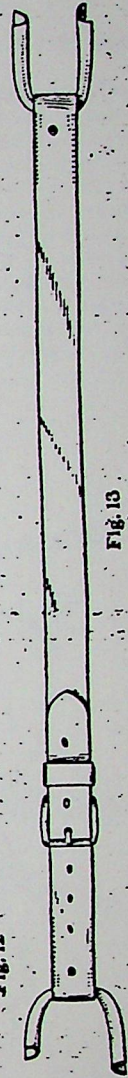


Fig. 13

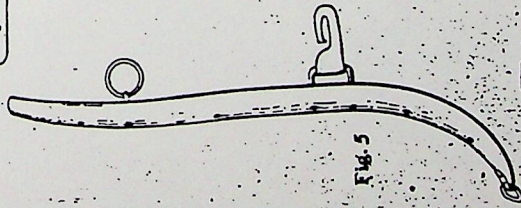


Fig. 5

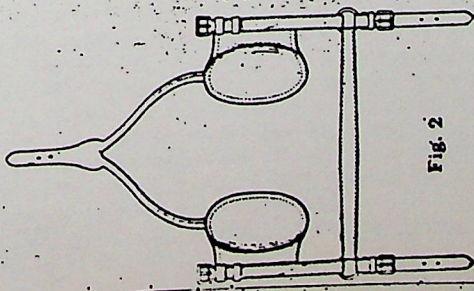


Fig. 2



Fig. 1

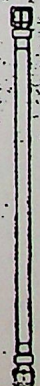


Fig. 3

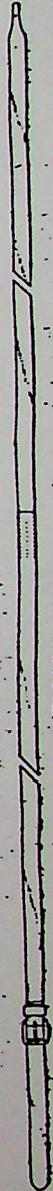


Fig. 14

PATTERNS FOR TIP-CART HARNESS
 Specifications on opposite page

SPECIFICATIONS FOR HEAVY DOUBLE WORK HARNESS

Patterns on opposite page.

The patterns, reduced in size, and shown on opposite page, represent the parts of a heavy double work harness, and is the fourth of the series now running in *Harness*. This harness is used for the heaviest trucking, and is usually made to order, embodying the ideas and requirements of the truckman. The dimensions of all straps and parts follow:

Fig. 1 is the crown, which is $1\frac{1}{2}$ in. wide and 24 in. long, with a layer in centre for $\frac{3}{4}$ in. chape and buckle for winker brace. Crown piece is split $6\frac{1}{2}$ in. at each end.

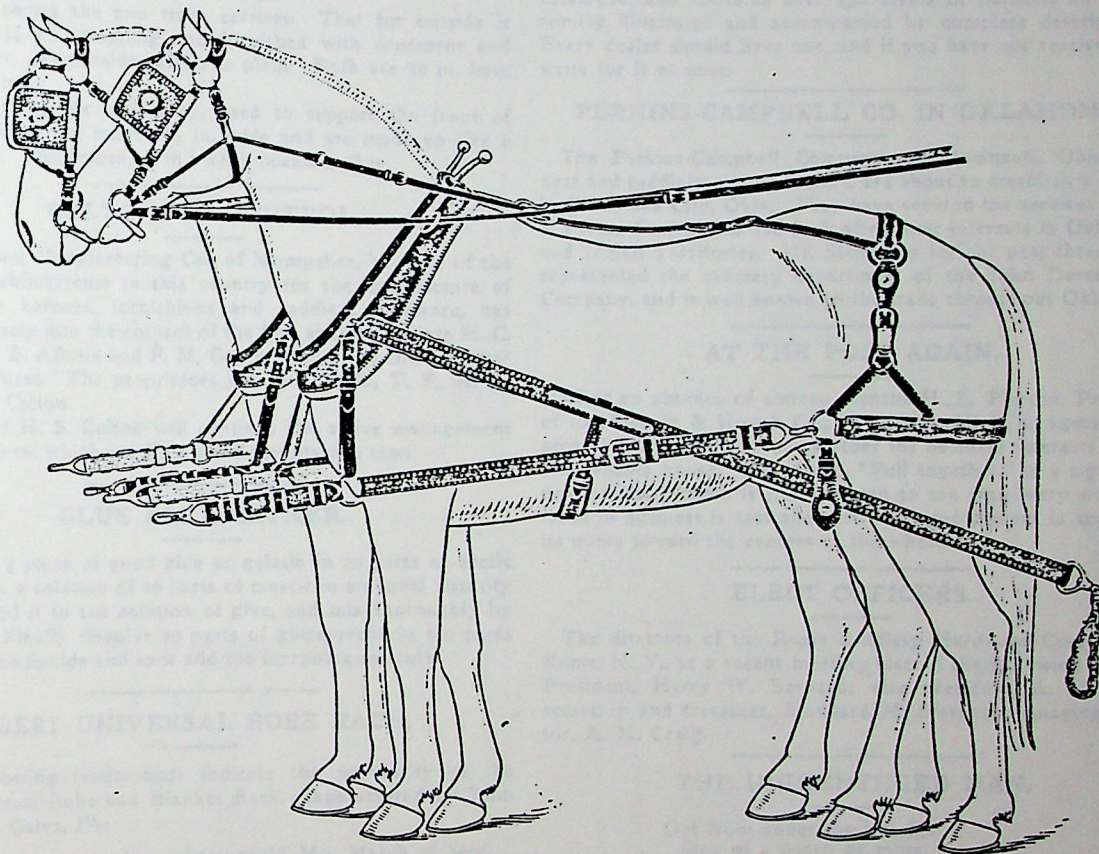
Fig. 2 is throat piece, $\frac{3}{4}$ in. by 28 in., made up to a length of 20 in., with metal gags in laps.

Fig. 3 shows the cheeks, face piece and winker brace. The latter is cut $1\frac{3}{4}$ in. by 15 in., and made up with a $5\frac{1}{2}$ in. point

Fig. 6 is the checkrein. It is made regular, with center sewed in on inner side of horse.

Fig. 7 presents the hame and trace. The hame is tubular, iron plated on top and finished at end with a ball. Trace is $2\frac{1}{4}$ in. wide, made 6 ft. long. Heel chain is 24 in. long, made of the best iron, and is hand forged. The clip has three plated rivets. Trace has waved piece at the hame end, and finished with four rows of stitching throughout. The loops for girth billets are 10 in. long and riveted 20 in. from hame to first rivet. The girth billet is $1\frac{1}{2}$ in. wide and lapped around the trace. Its length from lower edge of trace is 12 in.

Fig. 8 is the hame strap, which is $1\frac{1}{8}$ in. wide and 30 in. long when made up. There is also a spread strap for inside hame, $\frac{7}{8}$ in. wide and 20 in. long, which is made up like a hame strap.



Double Heavy Work Harness.
Showing parts assembled.

$\frac{3}{4}$ in. wide. The splits are cut $9\frac{1}{2}$ in. long, made up to 7 in. and rounded, connecting with winker by means of a D loop. Winkers are square, with round ornament, having initial letter in center. Cheeks are made $7\frac{1}{2}$ in. long between the buckle and the ring. A box loop full length is used. The bit strap is cut 13 in. long and made up $10\frac{1}{2}$ in. long, with a loop on top and bottom, and a slide loop on billet. Face piece is cut rounded and made 7 in. long from ring in cheek to ring in face, which is $1\frac{3}{8}$ in., white. The round above ring is 7 in., with a 5 in. flat point.

Fig. 4 represents a rounded bridle. Cheeks are made $7\frac{1}{2}$ in. from ring to buckle, with $5\frac{1}{2}$ in., $1\frac{1}{2}$ in. lap having two loops. The face piece and bit strap are same as Fig. 3.

Fig. 5 is front piece and rosettes having initial letter. Rosettes are $2\frac{1}{2}$ in. in diameter.

Fig. 9 illustrates the girth. It is made with $2\frac{1}{2}$ in. folded body, is 18 in. long and has $1\frac{1}{2}$ in. straight layer. There are no safes under the buckle.

Fig. 10 shows reins, which are 1 in. The main rein is cut in three pieces, in lengths as follows: Front or bit piece, 5 ft. 6 in.; center, 3 ft., and hand part, 7 ft. The cross rein is 6 ft. 6 in. long when made up; it is cut 6 in. longer. Billets are 12 in. long. The three-foot center piece of reins should be the piece of leather, because of it coming in contact with buckle of cross rein.

Fig. 11, the back strap, is $1\frac{1}{2}$ in. wide, of single leather, made to loop on hame strap and buckle in triangle. It is made up 3 ft. 2 in. long from end of loop to point. Loop is 6 in. long. There is a sliding hook on loop end for check rein

Fig. 12 presents the triangle and hip straps. The buckle piece for back strap is $1\frac{1}{2}$ in. wide, with safe under buckle and ring. Front braces are $1\frac{1}{8}$ in. wide, made 14 in. long from ring to ring, and are lined and stitched. Back piece of triangle has $1\frac{1}{2}$ in. waved layer, is 17 in. long from ring to ring, and has $2\frac{3}{8}$ in. roid and single leather safes under buckles. The hip straps are cut with a swell for ornaments. They are made 14 in. long and $1\frac{1}{2}$ in. wide, and are lined and stitched.

Fig. 13 illustrates the breeching body, which is made 3 ft. 10 in. long, with $2\frac{1}{4}$ in. fold. The layer, which is waved, is 2 in. wide. Braces are 1 in. wide and 5 in. long from ring to ring, made flat throughout. Buckle piece is $1\frac{1}{2}$ in. wide, made with a box loop and safe under ring and buckle.

Fig. 14, the backer or breeching strap, is made 2 in. wide, 5 ft. long over all, and finished with four rows of stitching. It is made to reef in snap at back end. There is a large ring in front. Length over all, when buckled up, is about 3 ft. 8 in. The front strap is cut out of heavy leather 2 in. wide, is 32 in. long to heel of buckle, and doubled, but not stitched.

Fig. 15 shows the two trace carriers. That for outside is made of $1\frac{1}{4}$ in. strapping and furnished with ornament and initial letter. The inside carrier is plain. Both are 12 in. long when buckled.

Fig. 16 gives the lazy strap, used to support the front of backers. They are made $1\frac{1}{2}$ in. wide and are made up like a hame strap. Full length, 40 in.; when buckled, 18 in.

COLTONS IN CONTROL.

The Colton Manufacturing Co., of Montpelier, Vt., one of the largest establishments in this country for the manufacture of high grade harness, furnishings and saddlery hardware, has passed entirely into the control of the four sons of the late H. C. Colton, W. E. Adams and F. M. Corry having sold their interest in the business. The proprietors now are W. C., T. F., H. S., and E. A. Colton.

T. F. and H. S. Colton will continue the active management of the concern, which employs about seventy-five men.

GLUE FOR LEATHER.

Dissolve 5 parts of good glue or gelatin in 20 parts of acetic acid. Make a solution of 20 parts of mastic in an equal quantity of ether, add it to the solution of glue, and mix thoroughly by agitation. Finally dissolve 20 parts of guttapercha in 100 parts of carbon disulphide and to it add the foregoing mixture.

BEST UNIVERSAL ROBE RACK.

The following testimonials indicate the popularity of the Best Universal Robe and Blanket Rack, manufactured by John H. Best, at Galva, Ill.:

Springfield, Mo., March 28, 1906.

John H. Best, Galva, Ill.

Dear Sir: We consider your Best Universal Robe and Blanket Rack the best on the market for robes and blankets, nets and dusters. Yours truly,

OZARK SADDLERY CO.

Nelson, Neb., March 29, 1906.

John H. Best, Galva, Ill.

Dear Sir: I have used your Best Portable Revolving Whip Rack and Display Stand for about one year, and I would not sell it for twice what it cost if I could not get another like it. Yours truly,

FRANK HUTCHINSON.

Manhattan, Montana, March 31, 1906.

John H. Best, Galva, Ill.

Dear Sir: I have used your Best Portable Revolving Whip Rack and Display Stand for some time and could not get along without it. Yours truly,

J. F. OGLE.

A. M. OF S. A. CONVENTION.

The second annual convention of the Associated Manufacturers of Saddlery Accessories will be held at the Auditorium Hotel, Chicago, Ill., the third week of June, commencing Tuesday, the 19th.

Headquarters will be at the Auditorium Hotel, and the rates will be approximately as given last year.

At the meeting of the Executive Board held at New York City, January 31, Mr. Charles G. Fleckenstein was elected chairman of the convention committee, with full power to appoint his associates.

BUCKEYE HARNESS.

One of the most complete harness catalogues that has ever come to our notice is that issued recently by the Buckeye Saddlery Company, of Columbus, O. This is particularly a harness catalogue, and contains over 150 styles of harness, all handsomely illustrated and accompanied by complete descriptions. Every dealer should have one, and if you have not received one write for it at once.

PERKINS-CAMPBELL CO. IN OKLAHOMA.

The Perkins-Campbell Company, of Cincinnati, Ohio, harness and saddlery manufacturers, are about to establish a branch in Oklahoma City, Okla. They have secured the services of Mr. J. Preton Stelle, who will look after their interests in Oklahoma and Indian Territories. Mr. Stelle has for the past three years represented the saddlery department of the John Deere Plow Company, and is well known to the trade throughout Oklahoma.

AT THE POST AGAIN.

After an absence of sixteen months H. L. Pierson, President of the Pierson & Hough Co., of Detroit, Mich., is again at the post of honor, to direct and further the business interests of this old, reliable house. The motto, "Pull together," is a significant one, as Mr. Pierson is just the man to see that every wire that leads to business is taut and that every department is supplying its quota toward the success of the whole.

ELECT OFFICERS.

The directors of the Rome Saddlery Hardware Company, of Rome, N. Y., at a recent meeting elected the following officers: President, Harry W. Barnard; vice president, A. M. Craig, secretary and treasurer, Stoddard M. Stevens; managing director, A. M. Craig.

THE UNIDENTIFIED MAN.

Out from under the wreck,
One of a dozen or more,
They dragged the lifeless form of a man
Whom no one had seen before.
His hands were hardened with toil,
His clothing was worn and old,
And lines of trouble furrowed the face
That lay there, ashen and cold.
"Nothing to show who he was,"
The newspaper story ran,
And the potter's field next day received
An "unidentified man."
It was nothing new. One life
Had run its allotted span,
And all its hopes were laid in the grave
Of an "unidentified man."
But somewhere—O, believe it!
There are weary eyes that scan
In vain each face that passes the gate;
There are aching hearts that wait and wait
For that "unidentified man."

Chicago Tribune.

Harness

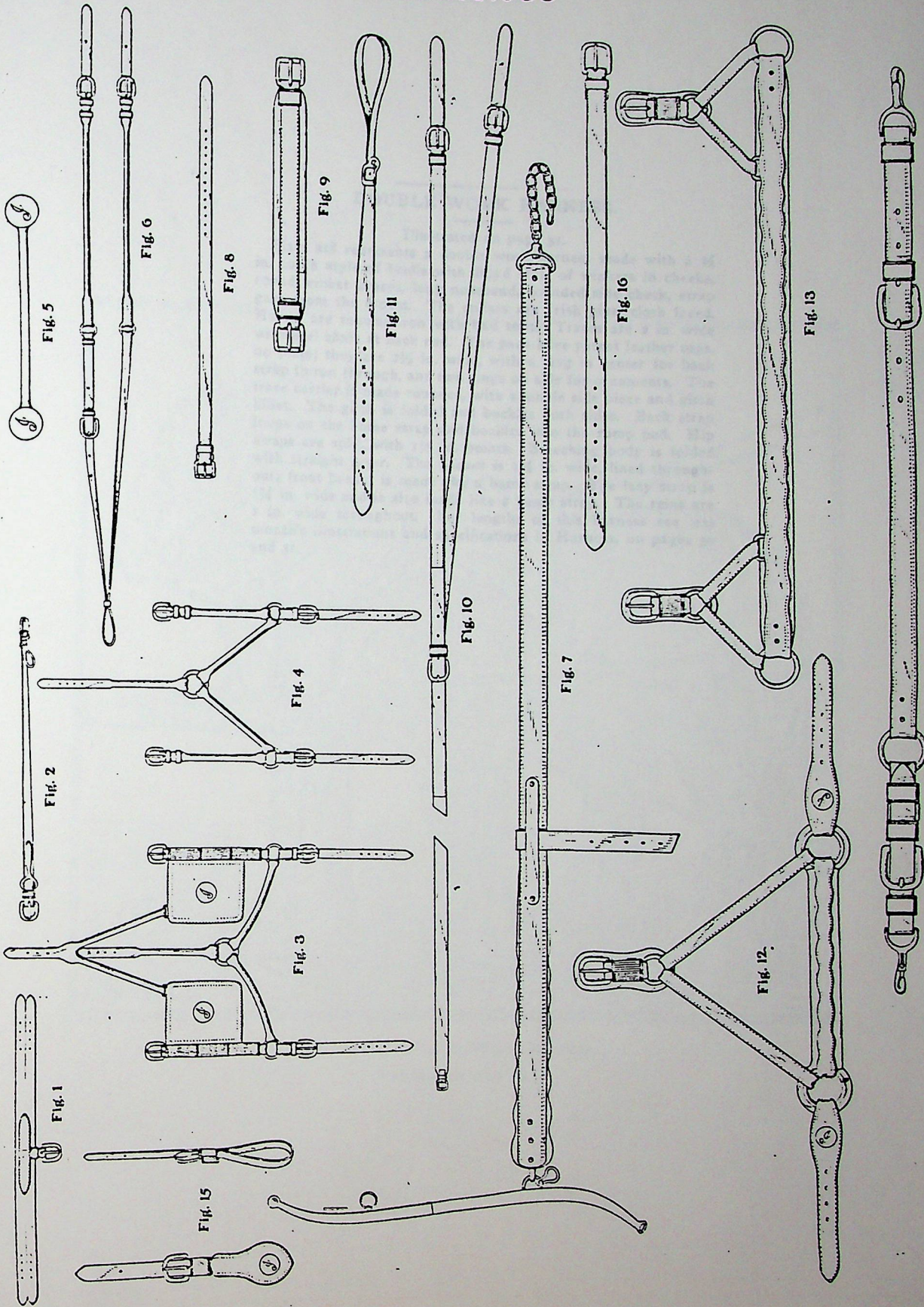


Plate IV. Patterns for **H** Double Work Harness.
 Specifications opposite page.

DOUBLE WORK HARNESS.

Illustrated on page 51.

Plate 218 represents a double work harness made with a $\frac{3}{4}$ in. coach style of bridle with Boyd style of winkers in cheeks, round winker braces, long noseband, rounded side check, strap gags from the crown. The collars are Irish pipe, cloth faced. Hames are tubular iron with ball tops. Traces are 2 in. wide with heel chain at back end. The pads have patent leather tops, no plate; they are $2\frac{1}{2}$ in. wide, with a ring in center for back strap to run through, and two rings on side for ornaments. The trace carrier is made rounded, with a single side piece and girth billet. The girth is folded and buckles both sides. Back strap loops on the hame strap and buckles into the rump pad. Hip straps are split, with $1\frac{1}{8}$ in. points. Breeching body is folded with straight layer. The backer is $1\frac{3}{4}$ in. wide, lined throughout; front backer is made like a hame strap. The lazy strap is $1\frac{1}{4}$ in. wide and is also made like a hame strap. The reins are 1 in. wide throughout. For lengths of this harness see last month's illustrations and specifications in Harness, on pages 30 and 31.

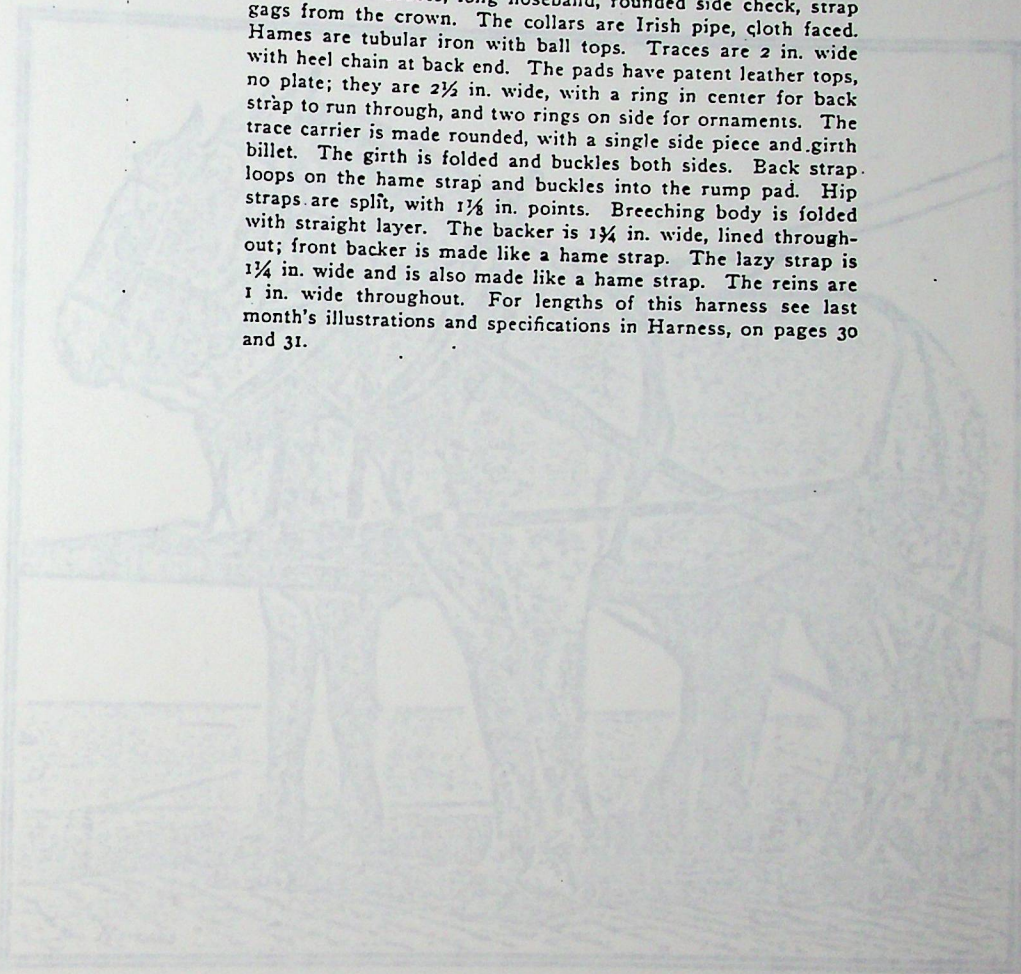


Plate 218. Double Work Harness.

Illustrated on page 51.

NEW AND POPULAR STYLES

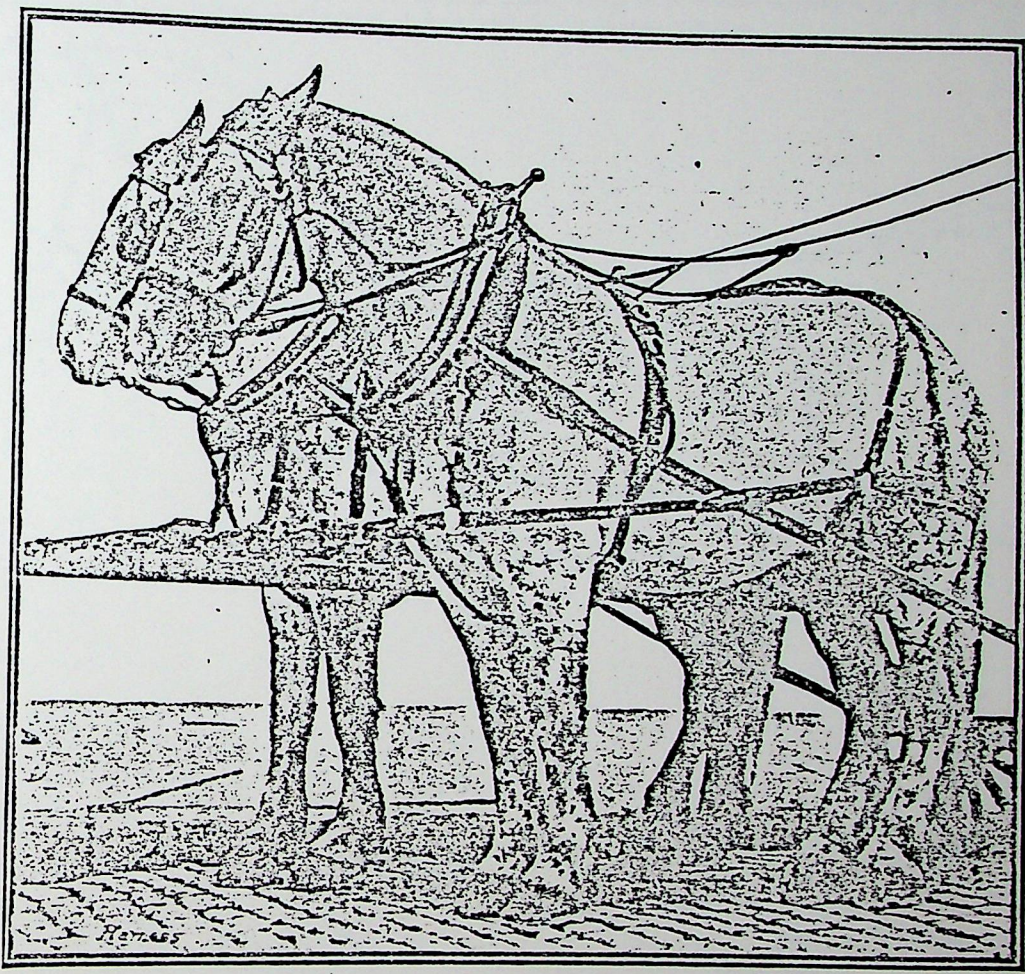


Plate 218. Double Work Harness.

Described on page 48.

Specifications for Fire Chief's Harness

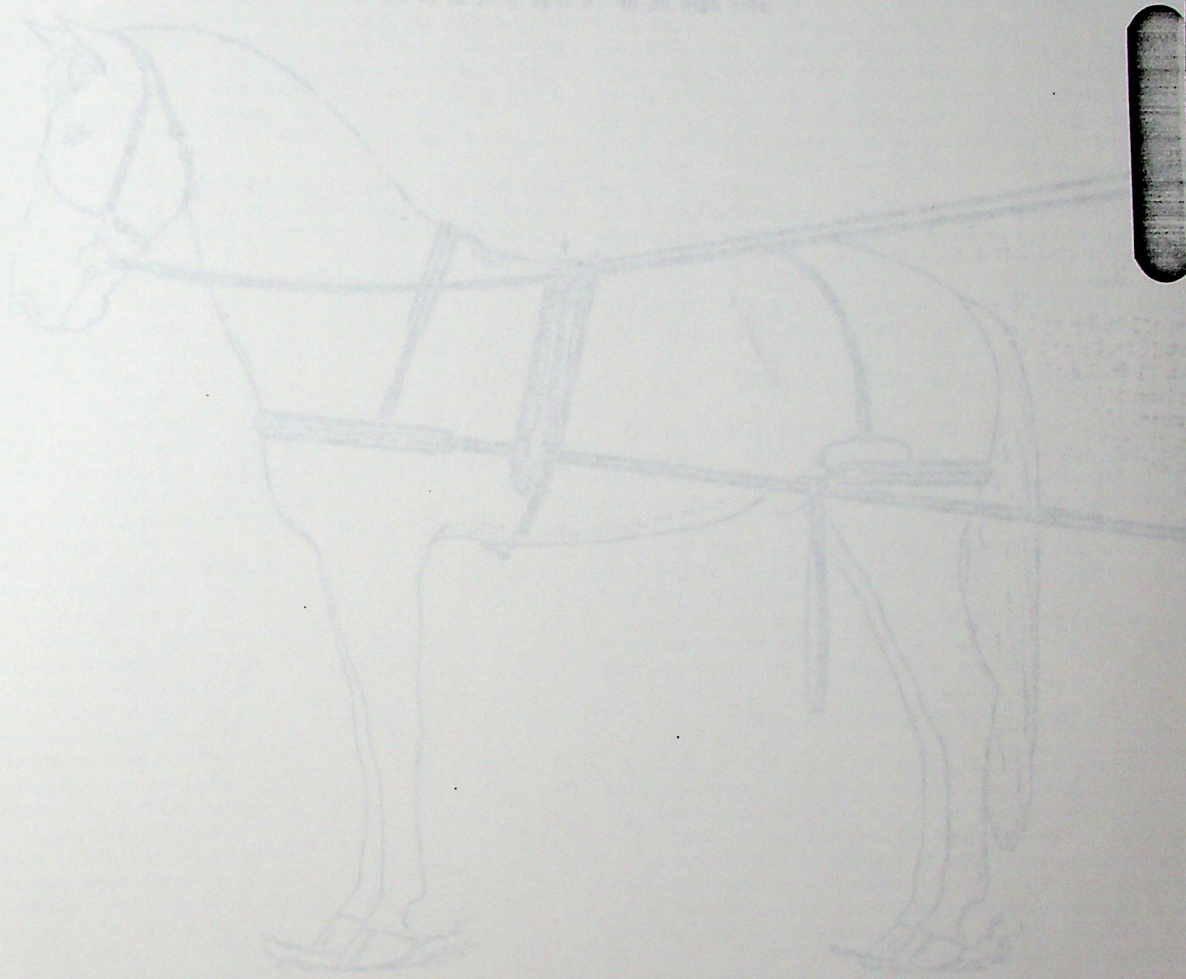
Illustrated on opposite page.

The board we publish the patterns and specifications of a light-weight harness for the chief's harness which we have chosen as the best of a number of fire department harness that we examined. It is known as "Harness". The harness is made with a heavy rubber canvas of a round collar and it is two sections, held together in center when in use by a special snap.

Fig. 1 is of the whole harness, all assembled. It is 32 in. long and 12 in. deep, with a regular bridle piece 22 in. long and 5

regular sets and buckles, made ring in front back and round any variety. Flaps on skirts are made 24 in. long with a 1/2 in. off side and. The right side has a short strap which is fast on end of flap. There is a corresponding slot on which is fast on to flap in the left leg.

The back band of long (standing) part 22 in. long and 12 in. wide. It is made with a buckle on off end and a 1/2 in. on right side.



WHOLE VIEW OF FIRE CHIEF'S HARNESS

Showing Parts Assembled.

in. in each end with round holes in center and a 1/2 in. strap. The chest collar, which are 24 in. wide, are regular on all the way on ring in right side and which the strap on the chest collar.

The collar has regular buckle on all side with a snap on each side. There is no head band.

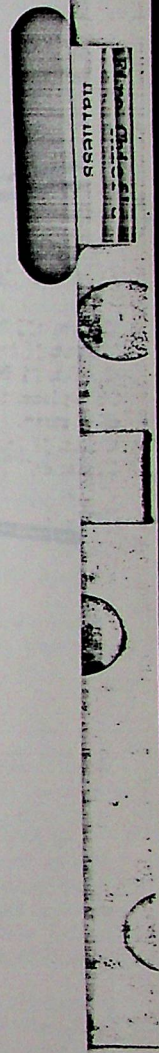
Chocks are 12 in. wide, made from a round collar 12 in. long with a hole at the end and a ring in ring at lower end. The face parts are stamped with the in. from ring to split with a 1/2 in. for the strap. The front collar is made 24 in. long and 12 in. wide. The straps of the collar are made 24 in. long when buckled. The collar has round fronted in rings which snap into the collar in buckle straps with all ring teeth fitted in.

Fig. 2 illustrates the collar, which is made on 1/4 in. the with

The back band, when passing over the round part of the Fig. 3, passes down through the slots on points of back, the lower end buckles into the buckle at corner of back legs, and the one on right side under the strap on right end of back. Buckle on all leg of regular buckles into the buckle on all end of gear. Fig. 4. These buckles and rollers make the collar and the

Fig. 5. The breast collar is made from a 1/2 in. wide strap, 24 in. long by 24 in. wide. All are held together by a round make of strap which is stretched on the collar. The lower in center and is bound by the two parts of strap. Each leg is 12 in. wide and has a hole 12 in. from center of collar.

Fig. 6 shows the collar strap.



Specifications for Fire Chief's Harness

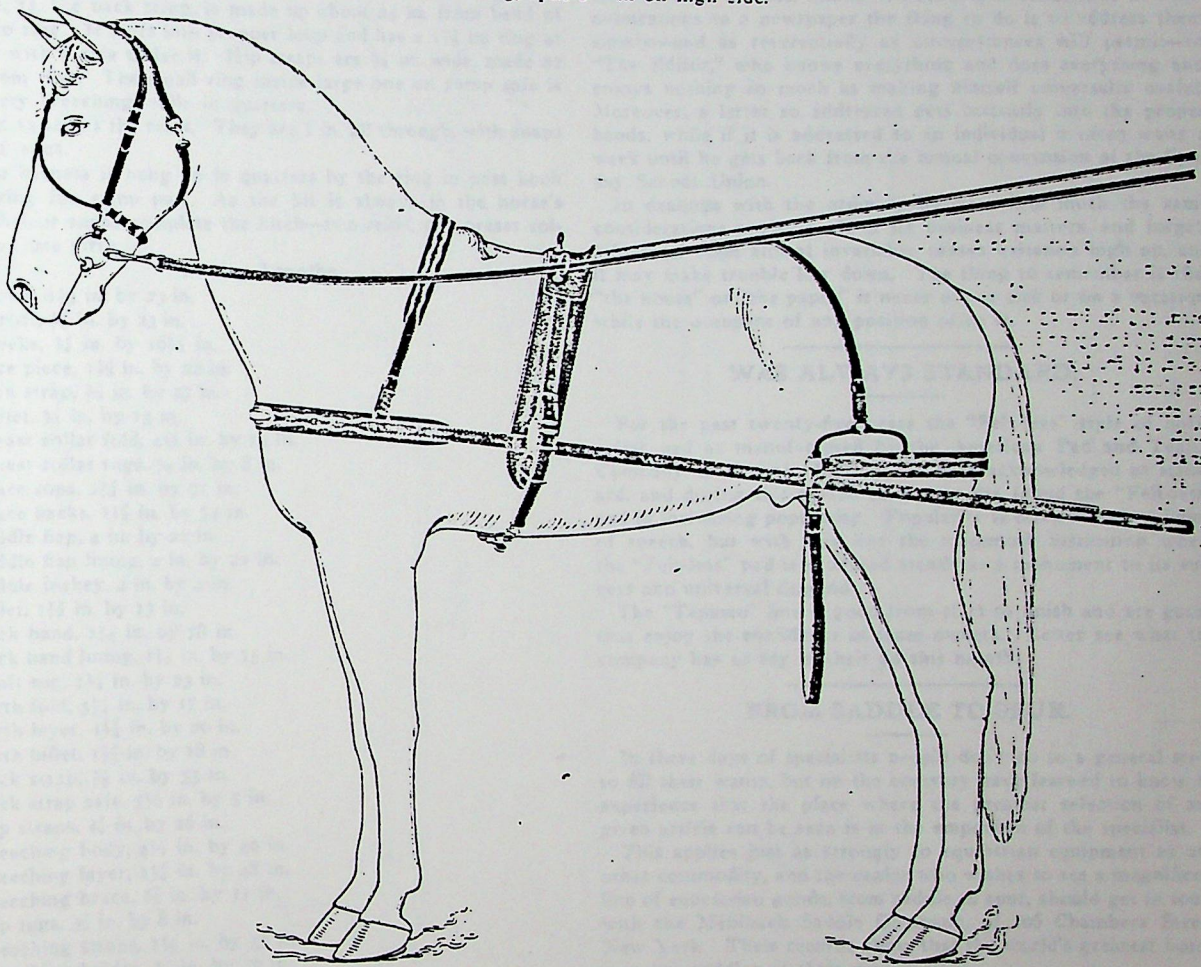
Patterns on opposite page.

This month we publish the patterns and specifications of a light, quick-hitch or fire chief's harness, which we have chosen as the first of a series of fire department harness that we contemplate illustrating in "Harness." This harness is made with a breast collar instead of a round collar, and is in two sections, held together in center when in use by a special snap.

Fig. 1 is of the halter bridle, all assembled. It is $\frac{3}{4}$ in. and $\frac{5}{8}$ in. strapping, with a regular bridle crown 23 in. long, split 6

regular seat and jockeys, loose ring in post hook and loose ring terrets. Flaps on skirts are made 24 in. long with a billet on off side only. The nigh side has a short chape which holds a dee on end of flap. There is a corresponding dee on off side which is sewed on to flap in the billet lap.

The back band is long (running) cart style, 75 in. long and $1\frac{1}{4}$ in. wide. It is made with a billet on off end and a dee sewed in on nigh side.



QUICK-HITCH OR FIRE CHIEF'S HARNESS.

Showing Parts Assembled.

in. in each end with waved layer in center and a $\frac{3}{4}$ in. chape. The throat billets, which are $\frac{5}{8}$ in. wide, are regular on off side with a ring in nigh side into which the snap on the throat hooks.

The throat has regular buckle on off side with a snap on nigh side. There is no front used.

Cheeks are $\frac{3}{4}$ in. wide, made lined and stitched $7\frac{1}{2}$ in. long, with buckle at top end and a $1\frac{1}{8}$ in. ring at lower end. The face piece has rounded splits $8\frac{1}{2}$ in. from ring to split with a 12 in. flat face apart. The gullet piece is made $5\frac{1}{2}$ in. long and $\frac{3}{4}$ in. wide. Chin strap is $\frac{5}{8}$ in., made 12 in. long when buckled. The bit has snaps riveted in rings which snap into the rings in bridle cheeks, with all snap hooks turned in.

Fig. 2 illustrates the saddle, which is made on a 4 in. tree with

The back band, after passing over the round cart shaft tug, Fig. 3, passes down through the dees on points of flaps, and the billet end buckles into the buckle in center of girth layer, Fig. 4, and the dee on nigh side takes the snap on nigh end of girth. Billet on off flap of saddle buckles into the buckle on off end of girth, Fig. 4. These buckles and billets make the only take-up on saddle and girth.

Fig. 5, the breast collar, is made folded; is in two parts, each 19 in. long by $2\frac{1}{4}$ in. wide, and are held together by a special make of snap which is riveted on the fold. The layer is waved and is formed by the top part of trace. Neck tugs are $\frac{7}{8}$ in. wide and set in layer 13 in. from center of collar.

Fig. 6 shows the snap open.

Fig. 7, the trace butt, is 1½ in. wide, made up 72 in. from end of fold or 90 in. from center of collar, with four dart holes in heel end.

Fig. 8 shows the neck strap, which is made with a folded body 22 in. long, a waved layer and 7⁄8 in. lined and stitched points. It is made 40 in. long.

Fig. 9 shows the breeching body, which is made 2½ in. wide and 40 in. long, with a 1¼ in. waved layer, rounded braces and ¾ in. tugs for hip straps.

Fig. 10, the breeching straps, are 1½ in. wide, made 51 in. to turn of buckle.

Fig. 11 shows the breeching holders, which are ¾ in. wide, made up to buckle 11 in. double. They are made like a hame strap with a slide loop on point. They buckle around the shaft and into the breeching ring and are intended to keep the breeching spread out while in quarters.

Fig. 12, the back strap, is made up about 24 in. from bend of reef to ring. It reefs into crupper loop and has a 17⁄8 in. ring at rump with a safe under it. Hip straps are ¾ in. wide, made 22 in. from ring. The small ring inside large one on rump safe is to carry breeching while in quarters.

Fig. 13 shows the reins. They are 1 in. all through, with snaps at bit ends.

The harness is hung up in quarters by the ring in post hook and ring for rump pad. As the bit is always in the horse's mouth four snaps complete the hitch—two reins, one breast collar and one girth.

Cutting Lengths.

Crown, 1¾ in. by 23 in.
 Throat, 5⁄8 in. by 23 in.
 Cheeks, ¾ in. by 16½ in.
 Face piece, 1¾ in. by 22 in.
 Chin strap, 5⁄8 in. by 27 in.
 Gullet, ¾ in. by 13 in.
 Breast collar fold, 4¾ in. by 19 in.
 Breast collar tugs, 7⁄8 in. by 8 in.
 Trace tops, 1¼ in. by 91 in.
 Trace backs, 1¼ in. by 74 in.
 Saddle flap, 4 in. by 22 in.
 Saddle flap lining, 4 in. by 22 in.
 Saddle jockey, 4 in. by 4 in.
 Billet, 1¼ in. by 13 in.
 Back band, 1¼ in. by 78 in.
 Back band lining, 1¼ in. by 75 in.
 Shaft tug, 1¼ in. by 23 in.
 Girth fold, 5¼ in. by 17 in.
 Girth layer, 1¼ in. by 20 in.
 Girth billet, 1¼ in. by 18 in.
 Back strap, 7⁄8 in. by 35 in.
 Back strap safe, 3½ in. by 5 in.
 Hip straps, ¾ in. by 26 in.
 Breeching body, 4½ in. by 40 in.
 Breeching layer, 1¼ in. by 48 in.
 Breeching brace, 7⁄8 in. by 11 in.
 Hip tugs, ¾ in. by 8 in.
 Breeching straps, 1½ in. by 59 in.
 Breeching holder, ¾ in. by 29 in.
 Rein fronts, 1 in. by 84 in.
 Rein hand parts, 1 in. by 84 in.

RUSTLESS CHAINS.

The dealer, above all others, can appreciate the advantages to be enjoyed in having in stock a line of halter and tie chains that stay bright. Not only do bright goods add to the general appearance of the dealer's stock, but a rustless chain will please the customer and add greatly to the sale of this class of goods. That every dealer may become better acquainted with the product of the Bridgeport Chain Company, attention is directed to their advertisement. Then ask your jobber for "Triumph" rustless halter and tie chains.

ADDRESSING INDIVIDUALS ON COMPANY BUSINESS.

Why will people who have something to say or to send to a business firm or to a newspaper, insist on saying or sending it to some person whom they know as connected with or employed by that firm or newspaper, says the New York Times. We grievously suspect that, in the case of a newspaper, at least, they do it because they think that thus they will bring to bear a personal influence and so assist the chances that whatever they wish to see in print arrives at that happy immortality—with incidental compensation at usual or unusual rates.

And it's such a pity that they think so, because they waste a lot of their own time and a lot of the time of their friend, who, nine cases out of ten, has nothing whatever to do with the matter they have on their minds. In sending contributions or communications to a newspaper the thing to do is to address them simply—and as reverentially as circumstances will permit—to "The Editor," who knows everything and does everything and enjoys nothing so much as making himself universally useful. Moreover, a letter so addressed gets instantly into the proper hands, while if it is addressed to an individual it often waits a week until he gets back from the annual convention of the Sunday School Union.

In dealings with the ordinary business firm much the same considerations apply in all of its business matters, and forgetfulness of them almost invariably causes irritation high up, and it may make trouble low down. The thing to remember is that "the house" or "the paper" is never out or sick or on a vacation, while the occupant of any position often is.

WAS ALWAYS STANDARD.

For the past twenty-five years the "Felt-less" style of horse collar pad as manufactured by the American Pad and Textile Company, of Greenfield, Ohio, has been acknowledged as standard, and during this period each year has found the "Felt-less" pad in increasing popularity. Popularity is often merely a figure of speech, but with this line the mammoth institution where the "Felt-less" pad is produced stands as a monument to its success and universal demand.

The "Tapatco" line is good from start to finish and are goods that enjoy the confidence of team owners. Better see what the company has to say in their ad this month.

FROM SADDLE TO SPUR.

In these days of specialists people don't go to a general store to fill their wants, but on the contrary have learned to know by experience that the place where the greatest selection of any given article can be seen is at the emporium of the specialist.

This applies just as strongly to equestrian equipment as any other commodity, and the dealer who wishes to see a magnificent line of equestrian goods, from saddle to spur, should get in touch with the Mehlbach Saddle Company, of 106 Chambers Street, New York. Their records show that the world's greatest horsemen use saddles of their manufacture.

The Mehlbach Saddle Company build saddles from the tree to the finish and their line runs from medium to the highest art of saddle making. Every dealer should become familiar with this line. You can have a catalogue for the asking.

SOUVENIR FREE.

The Globe Oil Company, of Cleveland, Ohio, in their advertisement in this issue of Harness offer to send to every harness maker, free of charge, a handsome and useful souvenir. All that is necessary to obtain this souvenir is to mail to their address a postal card asking for same, mentioning that you saw their ad. in this paper.

Harness

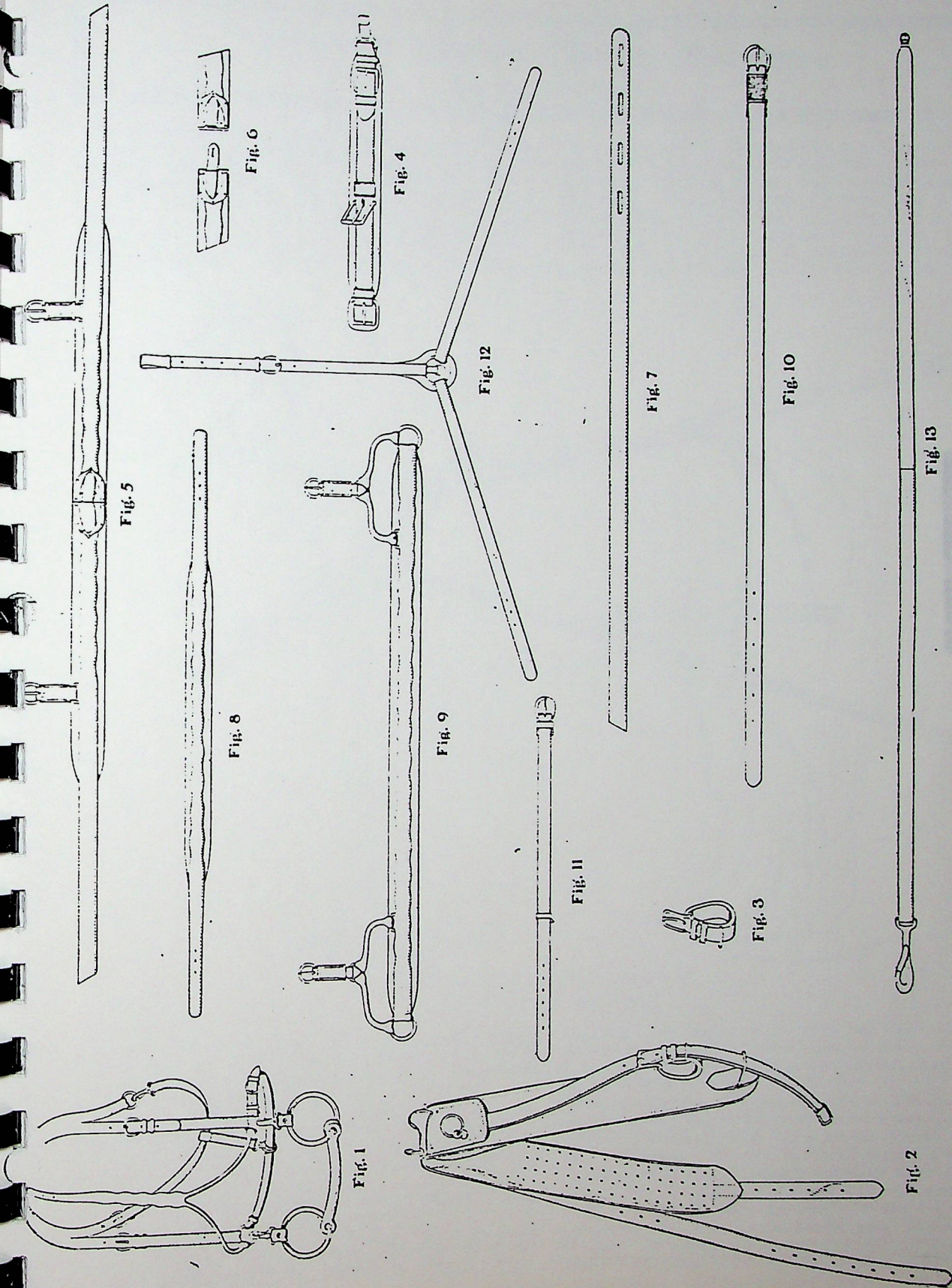


Plate XX. Patterns for Fire Chief's Harness.
 Specifications on opposite page.

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H t e ch Harness

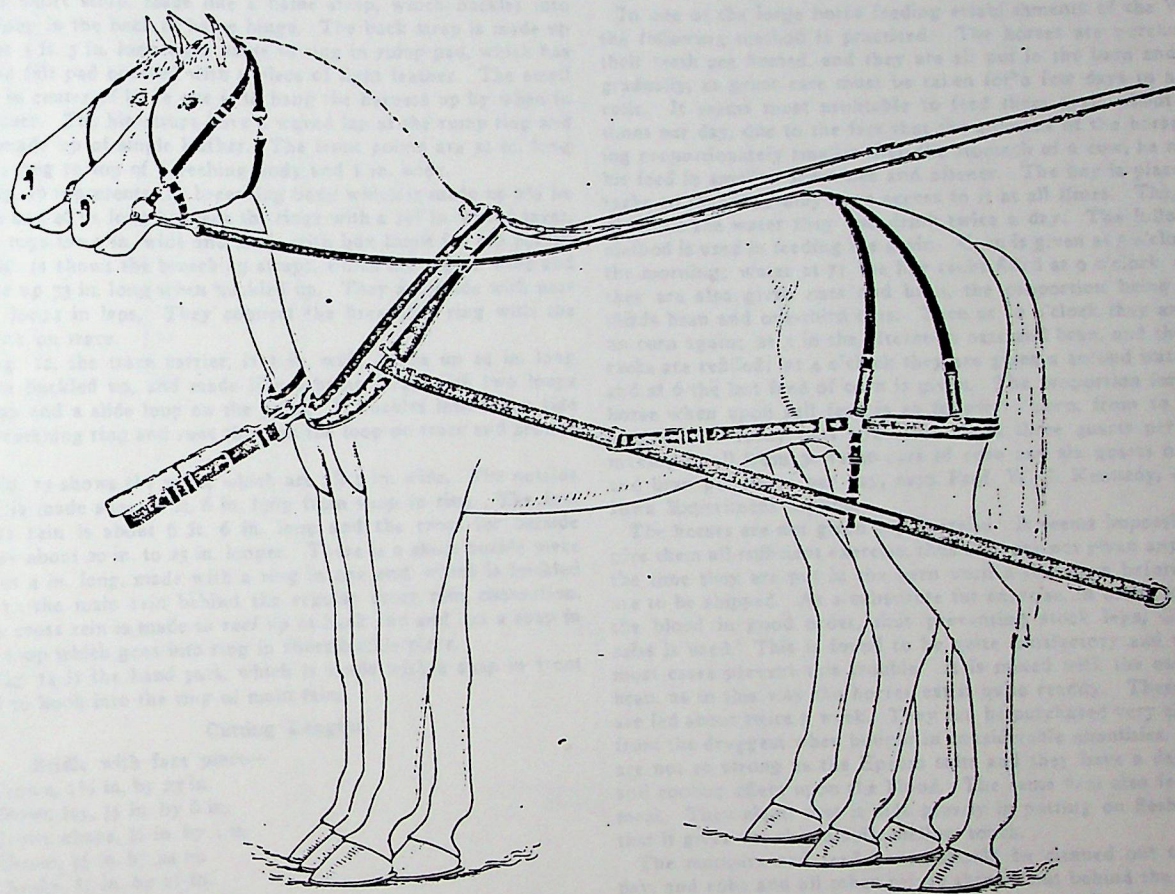
Double Quick-Hitch Harness

Patterns on opposite page.

For the third number of our fire harness series we illustrate the parts of a quick-hitch double harness suitable for heavy ambulance or supply wagon. This same harness may be used for a third-horse hitch as the parts are the same with the exception of the reins. The patterns shown are only for one horse, which is sufficient. Two styles of halter bridles are given, the one with face piece being the most popular for fire harness.

Fig. 1 represents the cheeks and face piece, the former being

and snaps in nigh side. The cheeks are made to buckle on both sides to billets sewed into crown rings. These billets are 7 in. long and the cheeks are the same length from buckle to square. They are both lined and stitched. The noseband is $\frac{3}{4}$ in. wide, made up single, $15\frac{1}{4}$ in. over all. The chin piece is $\frac{3}{4}$ in. wide, made in two parts, with a square link in the center. The parts are 6 in. long or $13\frac{1}{2}$ in. over all, including link. The gullet is $\frac{3}{4}$ in. wide, made 6 in. long over all. There is no front shown,



DOUBLE QUICK-HITCH HARNESS.

Showing Parts Assembled.

$\frac{3}{4}$ in. wide, made up $7\frac{1}{2}$ in. long, are lined and stitched and have rings in the bottom. The face piece is made with a 12 in. waved point, $\frac{3}{4}$ in. wide at end, having $8\frac{1}{2}$ in. rounds which are sewed into the rings in bottom of cheeks.

Fig. 2 is the throat, which is $\frac{3}{4}$ in. wide and made up 19 in. long with a buckle in the off end and a snap in the nigh end.

Fig. 3, the crown, is made $1\frac{1}{2}$ in. wide and 23 in. long with $\frac{3}{4}$ in. points $6\frac{1}{2}$ in. long; the throat point on nigh side has a ring sewed into it for snap in throat lap.

Fig. 4 is the chin strap, which is made like a hame strap with two loops in the lap and a slide loop on the point.

Fig. 5 shows a different style of halter bridle, having the crown sewed into a ring on both sides with a throat billet on off side and a ring on billet of nigh side. The throat buckles on off side

but a front 1 in. wide, made of white buff leather 14 in. long, made up with a button or catch on each end to button around the crown, will answer for special parade purposes when a front is wanted to make a show.

Fig. 6 presents the collar, hames and trace. The collar is made of neats leather and should be stuffed with long straw. It is open at the throat and made thin at the top to allow it to swing open with hames. We show in this illustration, for variation, the Hale style of hame, which differs from the Berry style shown in last issue. These are made of angle iron with extension tops which are adjustable and hinge together at top of collar, under which there is a heavily padded collar pad. The draft is the bolt style. The ring for pole strap or breast chain is bolted on bend of collar below the draft. The throat of collar is closed by

Harness

a snap lock, the bolt of which catches in a slot in socket of other hame. The traces are $1\frac{3}{4}$ in. wide, made up 78 in. long from hame to D in heel. The D link for breeching straps is located in trace 23 in. from hame and the loop for trace carrier is riveted on 24 in. from D or 47 in. from hame. The loop is $\frac{7}{8}$ in. wide and 8 in. long. Instead of a chain in the heel a spiral spring is used in most heavy work.

Fig. 7 is the heel end of trace with D link in butt end.

Fig. 8 illustrates the pole strap, which is made double, $1\frac{3}{4}$ in. wide and about 20 in. long when buckled up. There is a long special snap hook 7 in. to 8 in. long which snaps into the ring in hame.

Fig. 9 is the back strap, $1\frac{1}{4}$ in. wide and made to reef up at front end into a snap or ring. If a snap is used it hooks into a loop on the hame at hinge. In the rings when used there is another short strap, made like a hame strap, which buckles into the loop in the back of hame hinge. The back strap is made up about 3 ft. 3 in. long from hame to ring in rump pad, which has a thin felt pad covered with a piece of light leather. The small ring in center of large one is to hang the harness up by when in quarters. The hip straps have a waved lap at the rump ring and are made up of single leather. The front points are 31 in. long from ring to top of breeching body and 1 in. wide.

Fig. 10 represents the breeching body which is made up $2\frac{1}{2}$ in. wide and 46 in. long between the rings with a $1\frac{1}{2}$ in. waved layer. The tugs are 1 in. wide and made with box loops for hip points.

Fig. 11 shows the breeching straps, which are $1\frac{1}{4}$ in. wide and made up 33 in. long when buckled up. They are made with narrow loops in laps. They connect the breeching ring with the D link on trace.

Fig. 12, the trace carrier, is 1 in. wide, made up 14 in. long when buckled up, and made like a hame strap with two loops in lap and a slide loop on the point. It buckles into lower side of breeching ring and runs through the loop on trace and around it.

Fig. 13 shows the reins, which are all 1 in. wide. The outside rein is made about 8 ft. 6 in. long from snap to ring. The first cross rein is about 6 ft. 6 in. long and the cross for outside horse about 20 in. to 25 in. longer. There is a short buckle piece about 4 in. long, made with a ring in one end, which is buckled on to the main rein behind the regular cross rein connection. The cross rein is made to reef up at back end and has a snap in the loop which goes into ring in short buckle piece.

Fig. 14 is the hand part, which is made with a snap in front end to hook into the ring of main rein.

Cutting Lengths.

Bridle with face piece—

Crown, $1\frac{1}{2}$ in. by 23 in.
Crown lay, $\frac{7}{8}$ in. by 6 in.
Crown chape, $\frac{3}{4}$ in. by 4 in.
Throat, $\frac{3}{4}$ in. by 24 in.
Cheeks, $\frac{3}{4}$ in. by 17 in.
Face piece, $1\frac{1}{4}$ in. by 25 in.
Chin strap, $\frac{3}{4}$ in. by 26 in.

Bridle with nose band—

Crown, $\frac{3}{4}$ in. by 20 in.
Throat billets, $\frac{3}{4}$ in. by 11 in.
Throat, $\frac{3}{4}$ in. by 24 in.
Cheek billets, $\frac{3}{4}$ in. by 15 in.
Cheeks, $\frac{3}{4}$ in. by 17 in.
Nose band, $\frac{3}{4}$ in. by 22 in.
Gullet piece, $\frac{3}{4}$ in. by 15 in.
Chin strap, $\frac{3}{4}$ in. by 26 in.

Other parts—

Trace top, hame end, $1\frac{3}{4}$ in. by 34 in.
Trace top, heel end, $1\frac{3}{4}$ in. by 65 in.
Trace lining, $1\frac{3}{4}$ in. by 87 in.
Pole strap, top, $1\frac{3}{4}$ in. by 54 in.
Pole strap, lining, $1\frac{3}{4}$ in. by 58 in.
Turnback strap, $1\frac{1}{4}$ in. by 54 in.

Turnback pad, 4 in. by 8 in.

Hip straps, $2\frac{3}{8}$ in. by 36 in.

Breeching body, $5\frac{3}{8}$ in. by 46 in.

Breeching lay, $1\frac{1}{2}$ in. by 56 in.

Breeching tugs, 1 in. by 11 in.

Breeching strap, $1\frac{1}{4}$ in. by 70 in.

Trace carrier, 1 in. by 36 in.

Main rein, bit end, 1 in. by 69 in.

Main rein splice, 1 in. by 42 in.

Cross rein, 1 in. by 84 in.

Third horse cross rein, bit end, 1 in. by 66 in.

Third horse cross rein splice, 1 in. by 43 in.

FATTENING HORSES.

In one of the large horse feeding establishments of the West the following method is practiced: The horses are purchased, their teeth are floated, and they are all put in the barn and fed gradually, as great care must be taken for a few days to avoid colic. It seems most profitable to feed them grain about five times per day, due to the fact that the stomach of the horse being proportionately smaller than the stomach of a cow, he needs his feed in smaller quantities and oftener. The hay is placed in racks so that they may have access to it at all times. They are given all the water they will drink twice a day. The following method is used in feeding the grain: Corn is given at 5 o'clock in the morning; water at 7; the hay racks filled at 9 o'clock, when they are also given oats and bran, the proportion being two-thirds bran and one-third oats. Then at 12 o'clock they are fed on corn again; at 3 in the afternoon oats and bran, and the hay racks are refilled; at 4 o'clock they are given a second watering, and at 6 the last feed of corn is given. The proportion for each horse when upon full feed is as follows: Corn, from 10 to 14 ears at each feed; oats and bran, about three quarts per feed, making in all from 30 to 40 ears of corn and six quarts of oats and bran per horse per day, says Prof. W. J. Kennedy, of the Iowa Experiment Station.

The horses are not given any exercise. It seems impossible to give them all sufficient exercise, thus they are not given any from the time they are put in the barn until a few days before they are to be shipped. As a substitute for exercise, in order to keep the blood in good order, thus preventing stock legs, Glauber salts is used. This is found to be quite satisfactory and will in most cases prevent this trouble. It is mixed with the oats and bran, as in this way the horses eat it quite readily. These salts are fed about twice a week. They can be purchased very cheaply from the druggist when bought in considerable quantities. They are not so strong as the Epsom salts and they have a desirable and cooling effect upon the blood. The same firm also feeds oil meal. They claim that it aids greatly in putting on flesh; also that it gives the skin a soft, mellow touch.

The mangers and feed boxes should be cleaned out twice a day, and cobs and all other refuse thrown out behind the horses and taken out with the manure. The horses should be given sufficient time to rest their stomachs, and this can be done by giving the first feed at 5 o'clock in the morning and the last between 6 and 7 at night. Horses fed as described above usually make good gains. In some instances horses fed in this manner have made a gain of five and one-half pounds per day for a period of 50 to 100 days. One horse gained 550 pounds in 100 days. In many instances from one dozen to twenty horses have made an average daily gain of three and one-third pounds per day for a period of 90 days.

The man afraid he will do too much work generally winds up by not doing enough.

It is better to earn more than you get than to get more than you earn; but then, it is rather difficult to find a man who will admit he gets more than he earns.

Harness

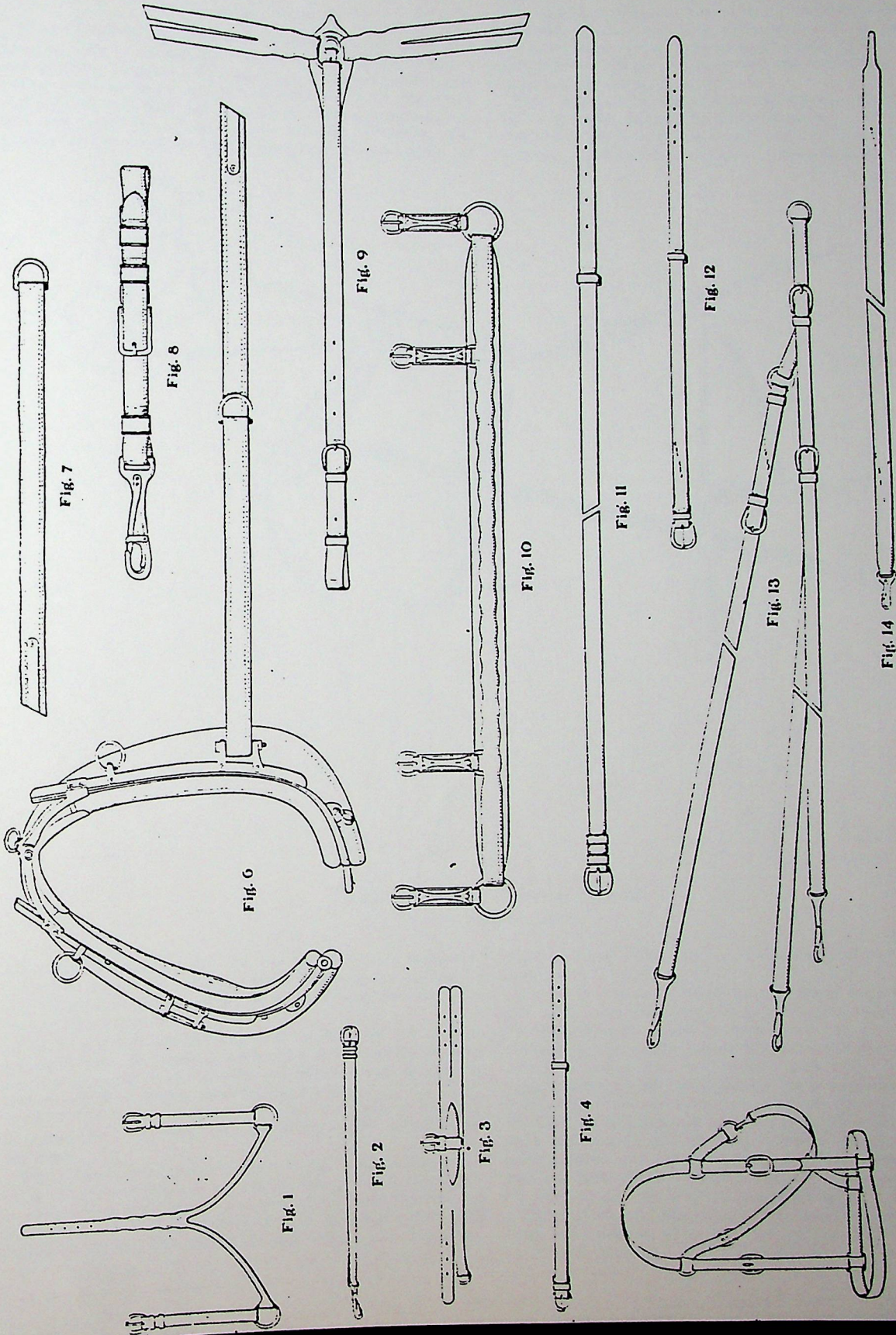


Plate XXII. Patterns for Double Quick-Hitch Harness.
 Specifications on opposite page.

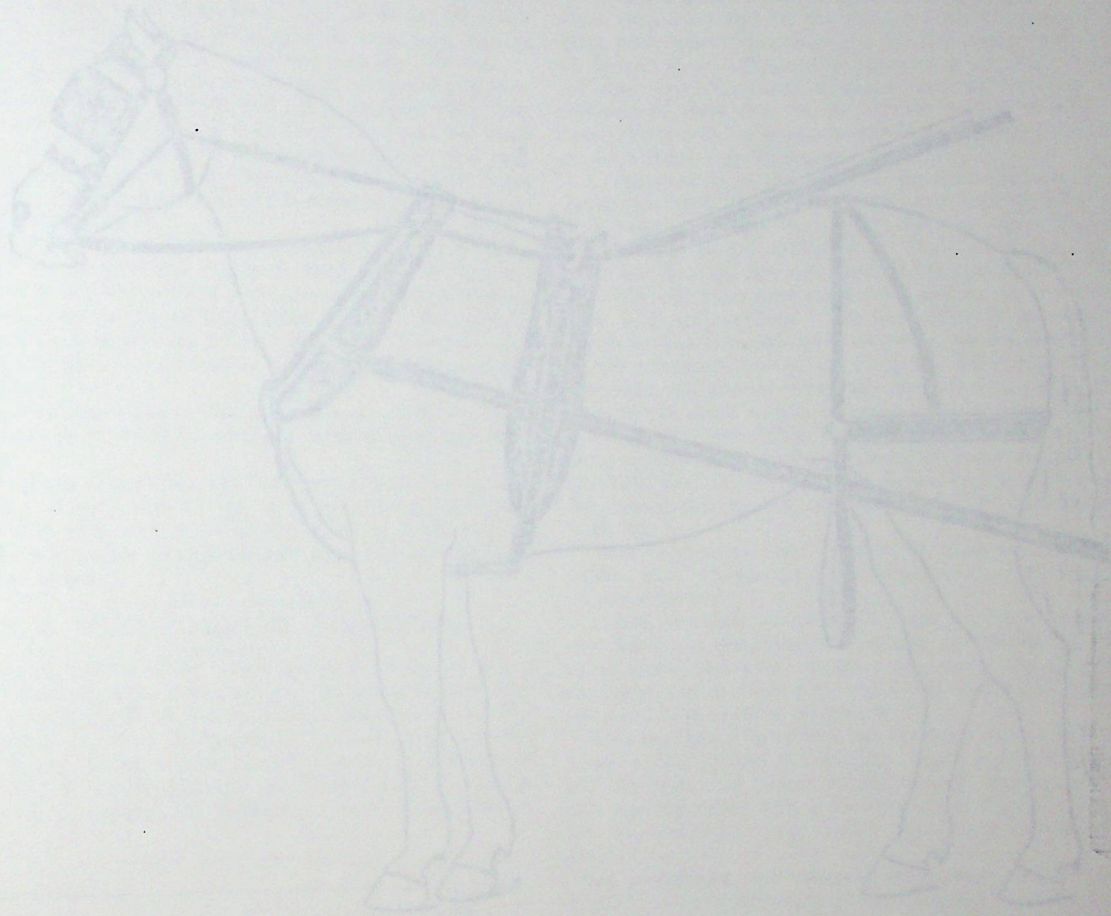
SPECIFICATIONS AND PATTERNS FOR SINGLE EXPRESS OR DELIVERY HARNESS

Pattern for the collar

The collar between the first specifications and pattern of a collar of light and heavy harness is to be used for both pleasure and business purposes. The pattern is shown by the drawing, which, although reduced, presents distinctly the shape and size of each part, the location of buckles, girths, etc., and may readily be enlarged to the full size, if desired. The specifications are furnished by a competent harness maker and

they are to be used in the long form, back to neck, a rounded collar 2 1/2 in. deep, 1 1/2 in. high. The collar is 12 1/2 in. wide and 12 in. long, and is made up to a length of 12 1/2 in. It is made like a collar, with a chain ring on each end, and is to be long. The collar between checks is 12 in. There are five pieces between checks and material which acts as a brace and support to the collar.

Fig. 2 is the collar case. The rounded portion is 12 1/2 in. wide and 12 in. long. The rounded portion is 12 1/2 in. long, with 1 1/2 in. lap at right and left, and width of 12 in. at the bottom. The collar is 12 1/2 in. long and



Single Express or Delivery Harness.

Leaving parts unnumbered.

Single Express
Harness

manufacturers should carefully study the following notes for future reference. We begin the series with a single collar or delivery harness because it is the most popular harness made and greatest in demand.

Fig. 1 represents the collar, which is cut 12 1/2 in. wide and 12 in. long. It is split at each end a distance of 1 1/2 in., and has a straight layer of 1/2 in. wide and 1/2 in. long, attached to center with 1/2 in. buckle piece for easier work.

The 2 in. throat piece is cut 12 in. wide and 12 in. long. It is made up to 12 1/2 in. long, with material lap on each side below the collar.

Fig. 3 shows the winter neck, which is cut 12 in. wide and 12 in. long. The winter neck is cut 12 in. wide and 12 in. long, and is made up to 12 1/2 in. long, with 1 1/2 in. lap at right and left. The winter neck is 12 in. long and 12 in. wide, with a lap of 1 1/2 in. on each side.

made up to 12 1/2 in. long, with 1 1/2 in. lap at right and left.

Fig. 4 illustrates the collar case, which is cut 12 1/2 in. wide and 12 in. long, with 1 1/2 in. lap at right and left. The collar case is made up to 12 1/2 in. long, with 1 1/2 in. lap at right and left.

Fig. 5 is the saddle, which is made up to 12 1/2 in. long. The seat and girths are covered with patent leather. The girths are made of 1/2 in. material, cut of various widths.

The collar is heavy faced, is quilted and lined with wool. The tips. The harness is cut 12 in. wide and 12 in. long, and is made up to 12 1/2 in. long, with 1 1/2 in. lap at right and left.

The collar is 12 1/2 in. long and 12 in. wide, with a lap of 1 1/2 in. on each side.

Fig. 7 shows the collar case, which is cut 12 1/2 in. wide and 12 in. long, with 1 1/2 in. lap at right and left.

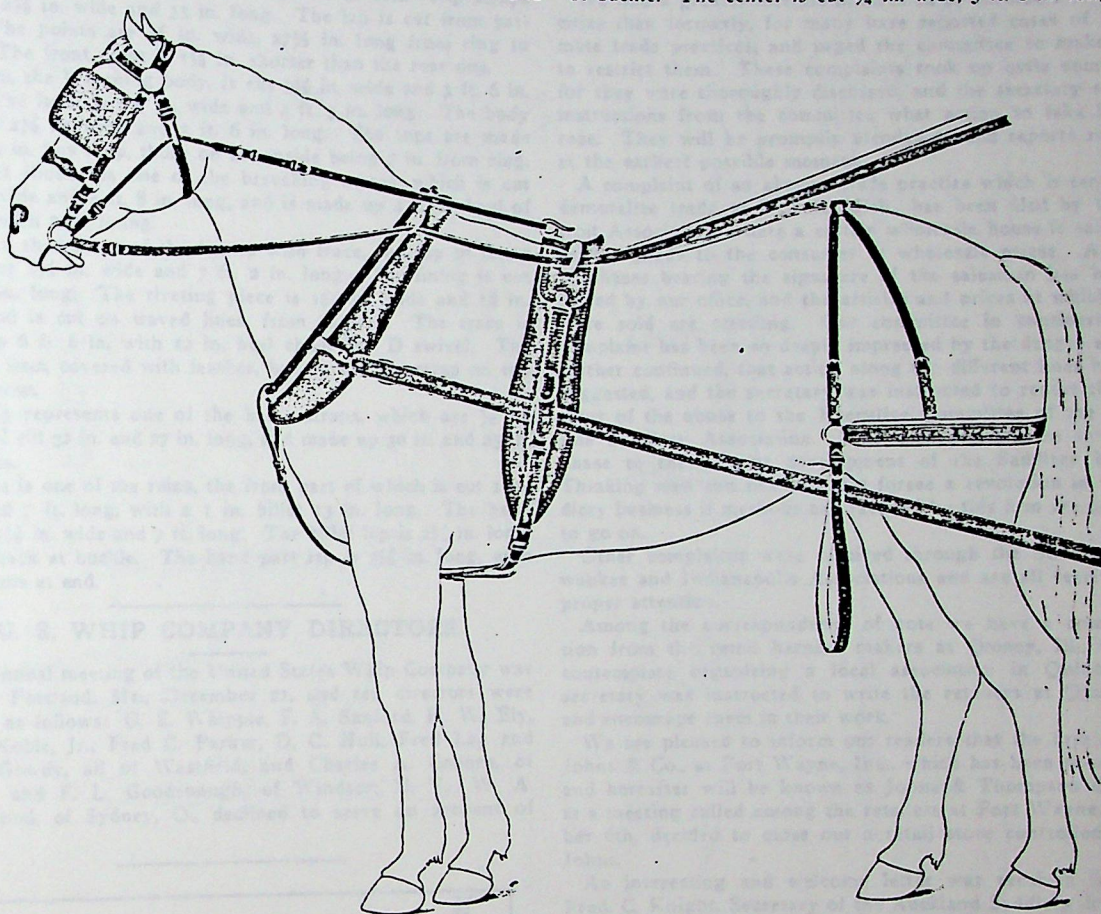
SPECIFICATIONS AND PATTERNS FOR SINGLE EXPRESS OR DELIVERY HARNESS.

Patterns on opposite page.

We publish herewith the first specifications and patterns of a series of light and heavy harness, to be used for both pleasure and business purposes. The patterns as shown on the preceding page, although reduced, present distinctly the shape and style of each part, the location of buckles, stitching, etc., and may readily be enlarged to the full size, if desired. The specifications are furnished by a competent harness maker and

they are $\frac{3}{4}$ in. wide and 7 in. long from buckle to ring, and provided with a 5 in. figured box loop. The bit strap is cut $\frac{3}{4}$ in. wide and 13 in. long, and is made up to a length of 11 in. It is made like a hame strap, with a slide loop on point. The noseband, which is cut from a waved pattern, is $1\frac{1}{4}$ in. wide and 19 in. long. Distance between cheeks is 13 in. There is a piece between cheeks and noseband which acts as a brace and support to the latter.

Fig. 4 is the check rein. The rounded parts are cut full $\frac{7}{8}$ in. wide and 24 in. long. The rounded section is $12\frac{1}{2}$ in. long, with $1\frac{3}{4}$ in. lap at buckle and ring, and a $6\frac{1}{2}$ in. billet in front of buckle. The center is cut $\frac{3}{4}$ in. wide, 5 ft. 6 in. long, and is



Single Express or Delivery Harness.

Showing parts assembled.

subscribers should carefully file this and following issues for future reference. We begin the series with a single express or delivery harness, because it is the most popular harness made and greatest in demand.

Fig. 1 represents the bridle crown, which is cut $1\frac{1}{4}$ in. wide and 24 in. long. It is split at each end a distance of $6\frac{1}{2}$ in., and has a straight layer $\frac{7}{8}$ in. wide and $6\frac{1}{2}$ in. long, stitched to center, with $\frac{3}{4}$ in. buckle piece for winker brace.

Fig. 2, the throat piece, is cut $\frac{3}{4}$ in. wide and 28 in. long. It is made up 20 in. long, with metal gag swivels in lap below the loops.

Fig. 3 shows the winker brace, cheeks, winkers and noseband. The winker brace is cut $1\frac{3}{4}$ in. wide and 13 in. long, and is made with a point $\frac{3}{4}$ in. wide and $5\frac{1}{2}$ in. long, and rounded splits $7\frac{1}{2}$ in. long. The winkers are 6 in. deep and $5\frac{1}{4}$ in. long outside of cheeks. The cheeks are made with a ring in bottom;

made up to sew into off side of rein and reef on right side of neck.

Fig. 5 illustrates the martingale, which is cut 1 in. wide and 3 ft. 4 in. long, with an 18 in. billet to pass around the collar. The body is made to reef at the bottom.

Fig. 6 is the saddle, which is made on a $5\frac{1}{2}$ in. iron tree. The seat and jockeys are covered with patent leather. The flaps, which are made swell pattern, are of harness leather. The pad, which is kersey lined, is quilted and laced or wired into the flaps. The backbands are cut $1\frac{1}{2}$ in. wide, 34 in. long, and are made up $16\frac{1}{2}$ in. from loop to point. Backband loops are metal secured with one pad screw. Terrets are swedge pattern, and the check hook is express pattern. The billets are $1\frac{1}{4}$ in. wide, cut $13\frac{1}{2}$ in. long and sewed on flaps.

Fig. 7 shows the shaft tug, which is $1\frac{1}{2}$ in. wide, cut 27 in. long, and made up to a length of $10\frac{3}{4}$ in., with D in bottom

for billet. The buckle is swedge centerbar with one short box loop. The billet is made up 12 in. long to the D.

Fig. 8 represents the girths. The inside, which is folded, is $5\frac{3}{8}$ in. wide and 18 in. long. The layer is cut $1\frac{1}{4}$ in. wide and 25 in. long. The outside girth is cut $1\frac{1}{4}$ in. wide, 28 in. long, and is made up 21 in. in length. The fold is made $2\frac{1}{2}$ in. wide, 18 in. long, with loops for outside girth to slide through.

Fig. 9. The turnback is cut $1\frac{3}{8}$ in. wide, 3 ft. 10 in. long, and is made up to a length of 21 in. from bend of saddle to ring in rump pad, or 42 in. in the straight. The rump pad is cut by pattern and is lined and stuffed with hair or felt. Hip straps are cut $2\frac{3}{8}$ in. wide and 33 in. long. The lap is cut from pattern. The points are $\frac{7}{8}$ in. wide, $27\frac{1}{2}$ in. long from ring to point. The front point is $1\frac{1}{4}$ in. shorter than the rear one.

Fig. 10, the breeching body, is cut $5\frac{3}{8}$ in. wide and 3 ft. 6 in. long. The layer is $1\frac{3}{8}$ in. wide and 4 ft. 3 in. long. The body is made $2\frac{1}{2}$ in. wide and 3 ft. 6 in. long. The tugs are made with a 4 in. box loop, those on the inside being 7 in. from ring.

Fig. 11 illustrates one of the breeching straps, which is cut $1\frac{1}{2}$ in. wide and 4 ft. 8 in. long, and is made up 4 ft. to heel of buckle, with 7 in. lining.

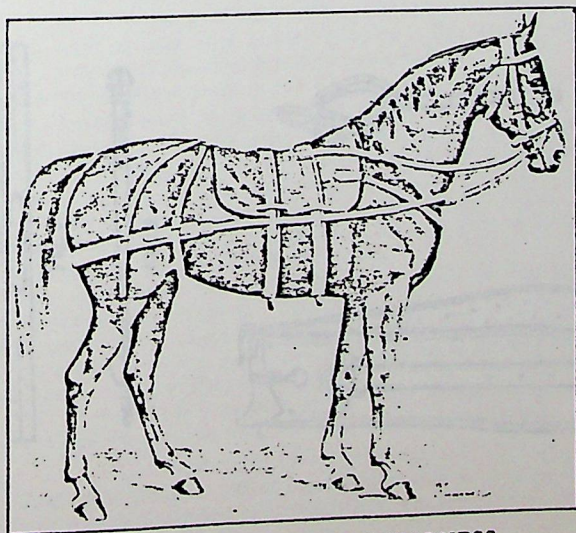
Fig. 12 shows one of the hames with trace, the top of latter being cut $1\frac{1}{2}$ in. wide and 7 ft. 2 in. long. The lining is cut 6 ft. 9 in. long. The riveting piece is $1\frac{3}{8}$ in. wide and 18 in. long, and is cut on wavy lines, from pattern. The trace is made up 6 ft. 6 in., with 12 in. heel chain and D swivel. The hame is iron, covered with leather, having eye for strap on top and bottom.

Fig. 13 represents one of the hame straps, which are $\frac{7}{8}$ in. wide and cut 32 in. and 27 in. long, and made up 30 in. and 25 in. in length.

Fig. 14 is one of the reins, the front part of which is cut 1 in. wide and 7 ft. long, with a 1 in. billet 13 in. long. The hand part is $1\frac{1}{8}$ in. wide and 7 ft. long. The billet lap is $2\frac{1}{2}$ in. long, turned back at buckle. The hand part lap is $3\frac{1}{2}$ in. long, with thin seams at end.

U. S. WHIP COMPANY DIRECTORS.

The annual meeting of the United States Whip Company was held in Portland, Me., December 21, and ten directors were elected, as follows: G. E. Whipple, F. A. Sanford, H. W. Eiy, James Noble, Jr., Fred C. Parker, D. C. Hull, Fred Lay and Harry Gowdy, all of Westfield, and Charles A. Coburn, of Boston, and F. L. Goodenough, of Windsor, N. Y. W. A. Underwood, of Sydney, O., declined to serve on account of illness.



AUTOMATIC BREAKING HARNESS.

SECRETARY SCHERZ'S MONTHLY REPORT.

The regular monthly meeting of the Executive Committee of the National Harness Manufacturers' & Dealers' Protective Association was held at the office of Vice-President J. D. Lauder, Cincinnati, Friday evening, Dec. 29, 1905. All resident members responded to roll call.

The usual heavy correspondence was reported by the secretary, the bulk of which had his attention, while the more important was held for the committee to pass upon.

We find a greater interest manifested by members in smaller cities than formerly, for many have reported cases of illegitimate trade practices, and urged the committee to make effort to restrict them. These complaints took up quite some time, for they were thoroughly discussed, and the secretary received instructions from the committee what action to take in each case. They will be promptly attended to and reports rendered at the earliest possible moment.

A complaint of an abusive trade practice which is tending to demoralize trade at Detroit, Mich., has been filed by the Detroit Association, where a certain wholesale house is said to be selling goods to the consumer at wholesale prices. A bill of purchases bearing the signature of the salesman has been received by our office, and the articles and prices at which goods were sold are startling. Our committee in considering this complaint has been so deeply impressed by the danger ahead, if further continued, that action along the different lines has been suggested, and the secretary was instructed to report the character of the abuse to the Executive Committee of the Wholesale Saddlery Association. This case presents an interesting phase to the present development of the Saddlery business. Thinking men can not help but foresee a revolution in the saddlery business if methods as practiced by this firm are permitted to go on.

Other complaints were received through the St. Louis, Milwaukee and Indianapolis Associations and are all receiving the proper attention.

Among the correspondence of note we have a communication from the retail harness makers at Quincy, Ill., who are contemplate organizing a local association in Quincy. The secretary was instructed to write the retailers at Quincy, Ill., and encourage them in their work.

We are pleased to inform our readers that the firm of A. L. Johns & Co., at Fort Wayne, Ind., which has been re-organized and hereafter will be known as Johns & Thompson Co., have at a meeting called among the retailers at Fort Wayne, December 6th, decided to close out a retail store controlled by Mr. Johns.

An interesting and welcome letter was received from Mr. Fred. C. Knight, Secretary of the Auckland Saddlery & Harness Manufacturers' Association of New Zealand. This communication was greatly appreciated by our Executive Committee. The letter sets forth that they are working along similar lines as our Association and by special request of the committee I am pleased to publish the letter in this report, attesting to our appreciation of our waxies' efforts in far away New Zealand. Mr. G. M. Scherz, Secretary.

N. H. M. & D. P. A., Cincinnati, O.

Dear Sir—Some time back I wrote you stating that we have a Retailers' Association here engaged in similar work as the one you have the honor to be secretary of.

Am pleased to state we are still in existence and doing nicely, but wish it would make greater progress. I can not understand how it is that any man engaged in our line of business does not join an association that has for its object the betterment of the trade as a whole, but it seems to be the same in all parts of this colony, as well as in all the Australian colonies.

We have some important matters now coming up which will affect our trade. I enclose some papers which you will find interesting.

I duly received your kind and welcome letter of September

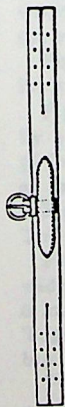


Fig. 1

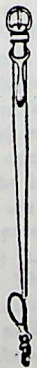


Fig. 2

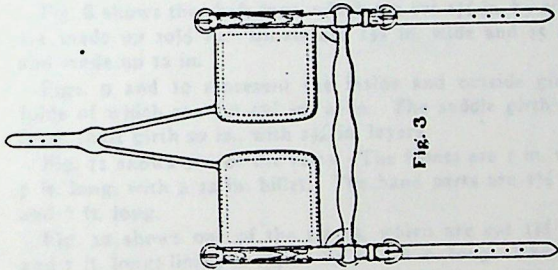


Fig. 3

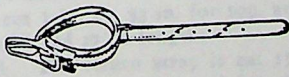


Fig. 7

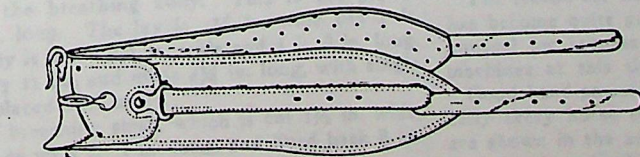


Fig. 6

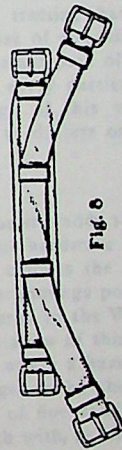


Fig. 8

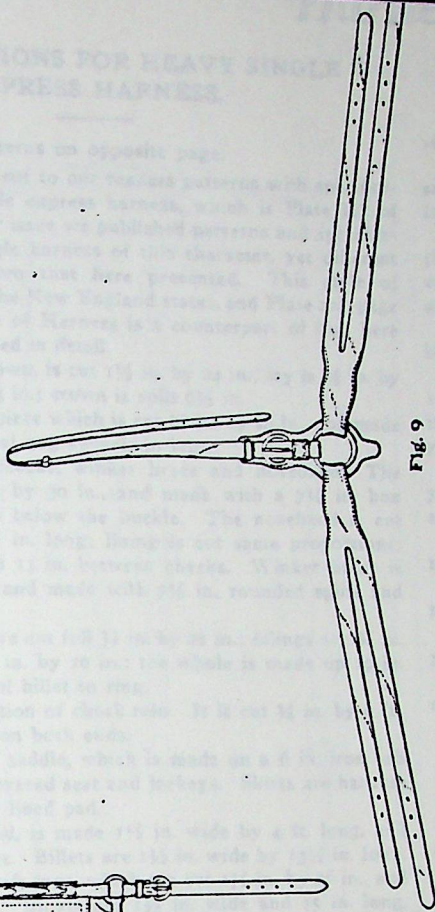


Fig. 9



Fig. 4

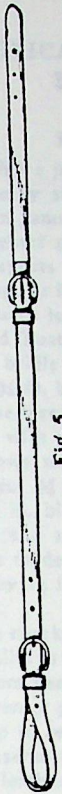


Fig. 5

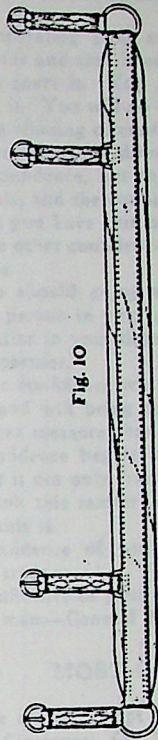


Fig. 10

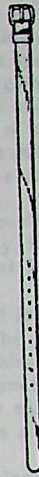


Fig. 13

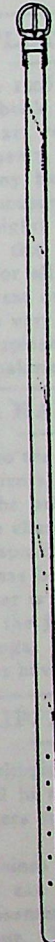


Fig. 11

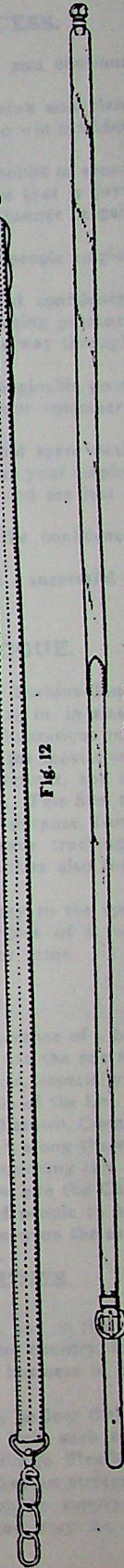
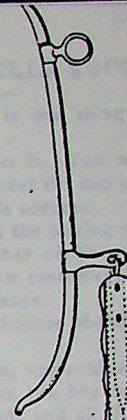


Fig. 12

Fig. 14

Patterns for Single Express or Delivery Harness—One-tenth full size.
Specifications given on opposite page.

SPECIFICATIONS FOR HEAVY SINGLE EXPRESS HARNESS.

Patterns on opposite page.

This month we present to our readers patterns with specifications of a heavy single express harness, which is Plate 111 of the series. In January issue we published patterns and specifications of a lighter single harness of this character, yet different in many respects from that here presented. This style of harness is popular in the New England states, and Plate 207, page 268, in February issue of *Harness* is a counterpart of that here described and illustrated in detail.

Fig. 1, the bridle crown, is cut $1\frac{1}{2}$ in. by 24 in.; lay is $\frac{7}{8}$ in. by 6 in.; chape $\frac{3}{4}$ in. by 4 in.; crown is split $6\frac{1}{2}$ in.

Fig. 2 is the throat piece which is cut $\frac{3}{4}$ in. by 28 in., and made up to 20 in., with metal gag swivels in laps.

Fig. 3 shows the cheeks, winker brace and noseband. The cheeks are cut $\frac{3}{4}$ in. by 30 in., and made with a $7\frac{1}{2}$ in. box loop and 12 in. billet below the buckle. The noseband is cut $1\frac{1}{2}$ in. wide and $14\frac{1}{2}$ in. long; lining is cut same proportions; the whole is made up 13 in. between cheeks. Winker brace is cut $1\frac{3}{4}$ in. by 13 in., and made with $7\frac{1}{2}$ in. rounded splits and $5\frac{1}{2}$ in. billet.

Fig. 4 side checks are cut full $\frac{7}{8}$ in. by 22 in.; fillings are $\frac{3}{8}$ in. by 14 in.; billet is $\frac{3}{4}$ in. by 10 in.; the whole is made up 19 in. in length from head of billet to ring.

Fig. 5 is center portion of check rein. It is cut $\frac{3}{4}$ in. by 6 ft., and made up to reef on both ends.

Fig. 6 presents the saddle, which is made on a 6 in. iron cab tree, patent leather covered seat and jockeys. Skirts are harness leather with a kersey lined pad.

Fig. 7, the backband, is made $1\frac{1}{2}$ in. wide by 4 ft. long, and slides through the tree. Billets are $1\frac{1}{2}$ in. wide by $13\frac{1}{2}$ in. long.

Fig. 8 shows the shaft tugs, which are cut $1\frac{1}{2}$ in. by 26 in., and are made up $10\frac{1}{2}$ in. Billets are $1\frac{1}{2}$ in. wide and 15 in. long, and made up 12 in.

Figs. 9 and 10 represent the inside and outside girths, the folds of which are cut $5\frac{1}{4}$ in. wide. The saddle girth is 18 in. long, shaft girth 22 in., with $1\frac{3}{4}$ in. layers.

Fig. 11 shows one of the reins. The fronts are 1 in. wide and 7 ft. long, with a 12 in. billet. The hand parts are $1\frac{1}{8}$ in. wide and 7 ft. long.

Fig. 12 shows one of the traces, which are cut $1\frac{3}{4}$ in. wide and 7 ft. long; lining is $1\frac{3}{4}$ in. by 6 ft. 6 in. long. The fender is about 10 in. deep and 20 in. long, and is cut by pattern. Traces are fastened to the hames with a bolt and iron tubing as shown by Fig. 13. The iron tube, through which the bolt passes, prevents the wearing of the leather at that point. Hames are wood, with an iron back riveted to them. The section above the rein terret is plated with a detachable ball top.

Fig. 14 the hame strap is cut 1 in. by 33 in. for top, and 30 in. for bottom, made up in 30 in. and 27 in. lengths.

Fig. 15 shows the turnback. The return strap is cut $1\frac{1}{8}$ in. by 4 ft. 8 in., body $1\frac{3}{4}$ in. by 23 in., deck $4\frac{3}{4}$ in. by 18 in., chapes $\frac{3}{4}$ in. by $4\frac{1}{2}$ in. The turnback is made up 3 ft. 1 in. from bend at saddle to points of dock laps. The body is split $9\frac{1}{2}$ in.

Fig. 16 the hip strap is cut $2\frac{1}{4}$ in. wide and 4 ft. 10 in. long. The points are 1 in. wide and 20 in. long.

Fig. 17 presents the breeching body. This is cut $5\frac{1}{4}$ in. wide and 3 ft. 8 in. long. The lay is $1\frac{1}{2}$ in. wide and 4 ft. 6 in. long. The body is made $2\frac{1}{2}$ in. wide and 3 ft. 8 in. long. Tugs are cut 1 in. by 11 in., and made $4\frac{1}{4}$ in. long, with single box loops, and are placed 8 in. apart.

Fig. 18 shows the breeching strap, which is cut $1\frac{1}{2}$ in. wide, 4 ft. 11 in. long, made up 4 ft. 3 in. long, and lined back 8 in.

Every new idea, no matter how harebrained it appears under the light of investigation, may contain a few germs of progress; but the germs do not always thrive.

CONFIDENCE SPELLS SUCCESS.

In operating your store there is one thing you continually strive for and that is confidence.

You court it. You strain to get it. You work and plan to secure it. You will do anything under the sun to win confidence, for the winning of confidence spells success.

Your efforts are directed against the buying public in securing this confidence, but there is another confidence that is just as valuable, and the confidence of your customers cannot be gained unless you have this other confidence.

This other confidence is the confidence of the people employed by you.

You should enjoy the absolute, unquestioned confidence of every person in your employ, from the boy sorting potatoes in the cellar to your department heads and all the way through to your partner.

This confidence will result in the greatest imaginable good to you, and will bring forth the confidence of your customers in a larger measure than anything else.

Confidence begets confidence, and you should spare nothing to get it not only from your customers but from your employes.

Think this matter over in all of its details and see just how true this is.

Confidence of your employes will beget the confidence of your trade.

Confidence of your customers will make you a successful business man.—General Merchant's Review.

MOST COMPLETE CATALOGUE.

We are in receipt of the 1906 catalogue of Perkins-Campbell Co., Cincinnati, O. This book is 12 in. by 14 in. in size, and contains 152 pages which are replete with illustrations of harness, saddles and harness parts. It is one of the most complete catalogues published by any harness manufacturer, and represents an outlay of many thousands of dollars. This firm manufactures harness of all weights and for any purpose, from the light trotting harness to that used for heavy trucking, and saddles of any kind and for all notions. Collars also form an important part of their great output.

In every particular it is very complimentary to the spirit of energy of this very enterprising firm. Copies of it will be sent to dealers on their making a request for same.

FINE HARDWARE.

Nothing adds so much to the general appearance of a harness as fine hardware appointments. Trimmings are the one feature that catches the eye of the prospective buyer, especially when the trimmings possess the character and style of the line manufactured by the W. H. Chapman Co., of Middletown, Conn. The reputation of this house has been established along these lines, and where a harness maker is looking to improving this end of his goods, he should ask the jobber to show him the Chapman line of fine saddlery fittings. They're good people to keep in touch with, as they always have something new on the calendar.

HORSE CLIPPING MACHINES.

The season for horse clipping is now on, and as the practice has become quite general in all parts of the country, it is not unusual for harness dealers to do a good business in clipping machines at this time.

Good hand-power machines are now sold so low that practically every horse owner can afford one. Two such machines are shown in the advertisement of The Chicago Flexible Shaft Co. elsewhere in this issue. This firm makes an attractive line of clipping machines, and is in a position to supply dealers promptly. Their attractive new catalogue may be had on request.

Harness

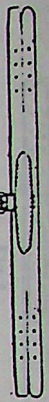


Fig. 1



Fig. 2

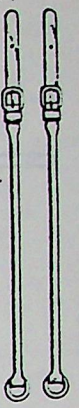


Fig. 4

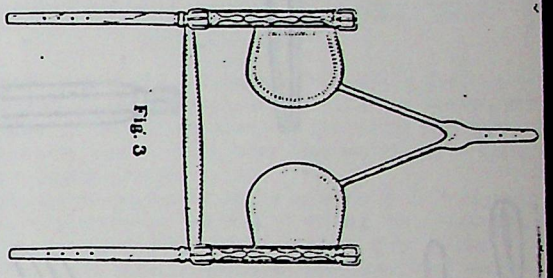


Fig. 3

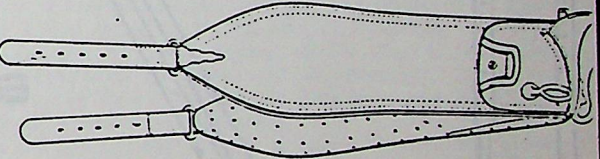


Fig. 6

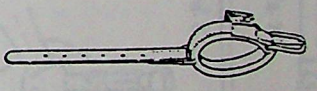


Fig. 8

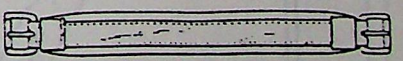


Fig. 9

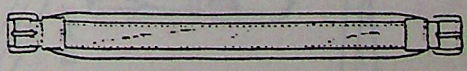


Fig. 10



Fig. 7



Fig. 5



Fig. 11

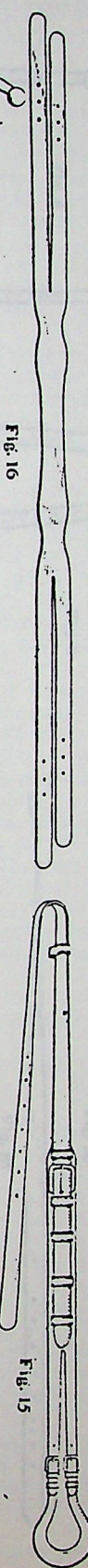


Fig. 15



Fig. 14

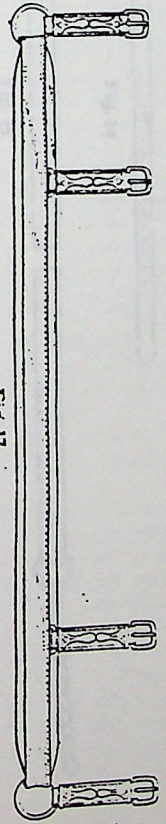


Fig. 17

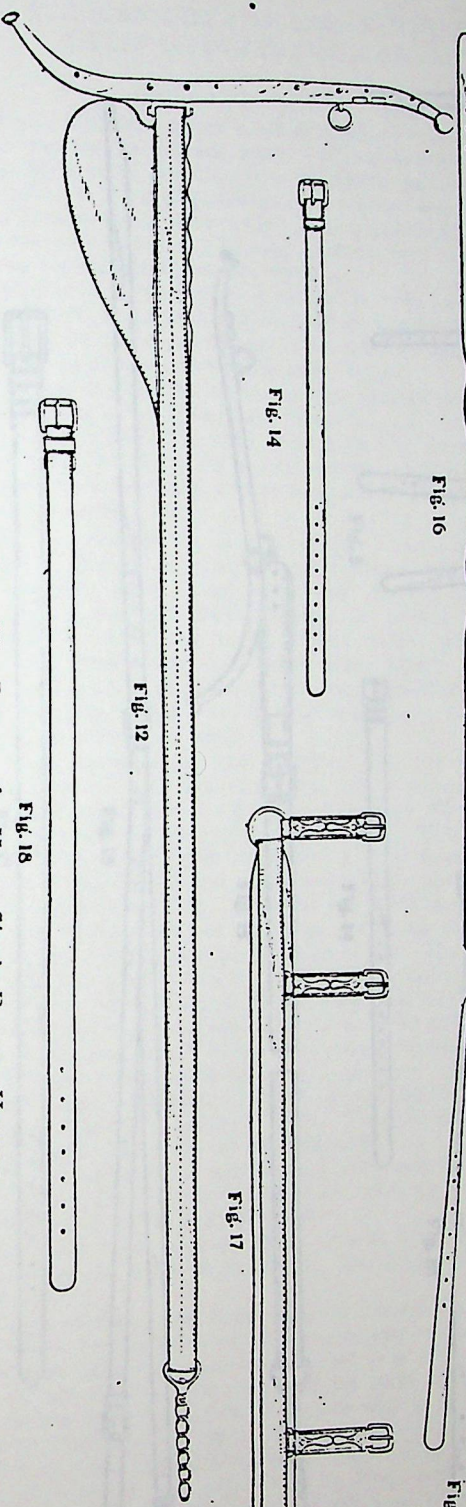


Fig. 12



Fig. 13

Fig. 18

Plate III. Patterns for Heavy Single Express Harness.
Specifications on opposite page.

Harness



FIG. 1

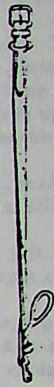


FIG. 2

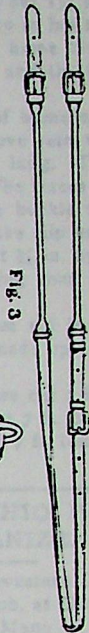


FIG. 3

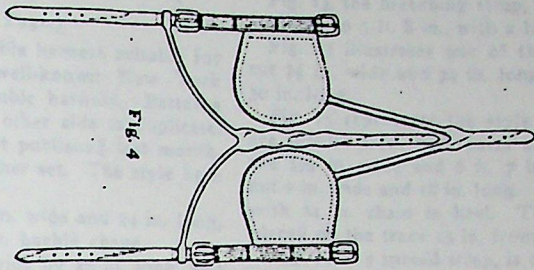


FIG. 4

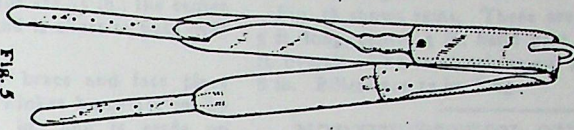


FIG. 5

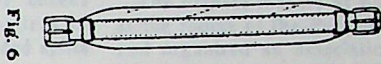


FIG. 6

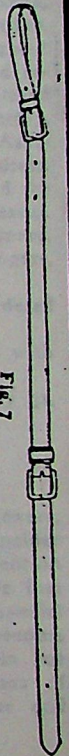


FIG. 7



FIG. 8



FIG. 9

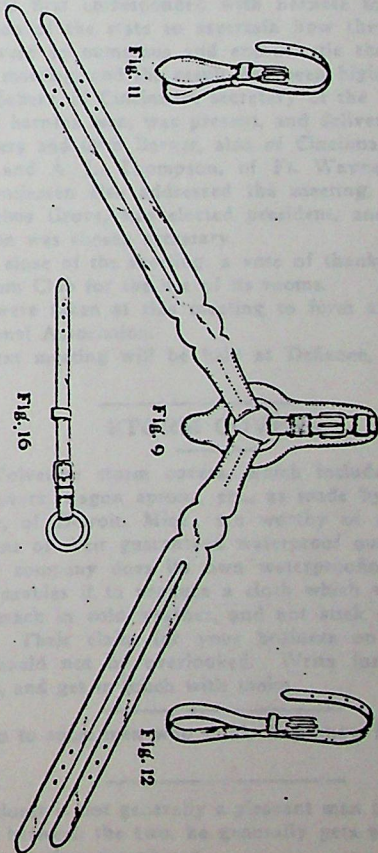


FIG. 10



FIG. 11

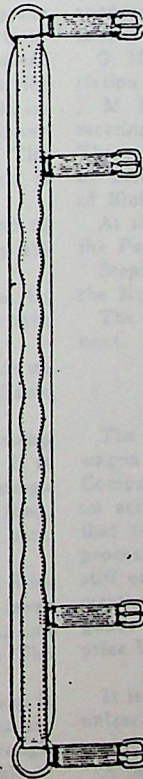


FIG. 12

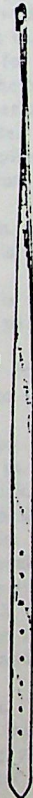


FIG. 13

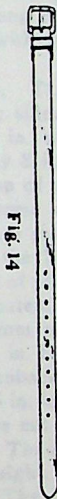


FIG. 14

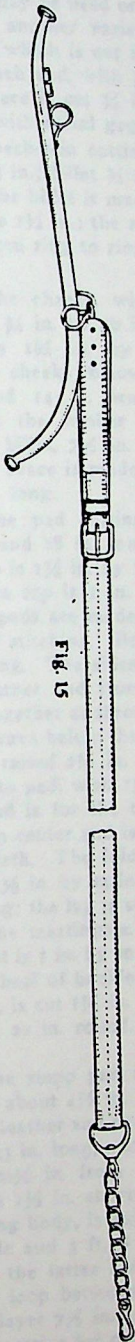


FIG. 15

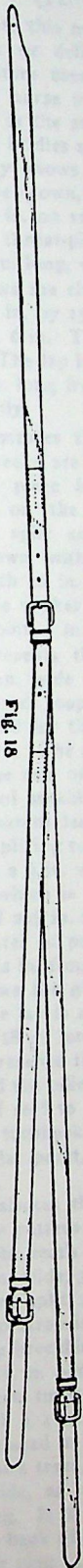


FIG. 16

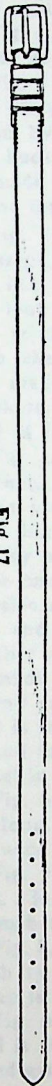


FIG. 17

Specifications for Light Double Express or Delivery Harness.
Described on opposite page.

SPECIFICATIONS FOR LIGHT DOUBLE EXPRESS OR DELIVERY HARNESS.

(Patterns on Opposite Page.)

We illustrate this month a set of double harness suitable for light express or delivery work. A well-known New York department store uses this style of double harness. Patterns for only one horse are shown, as the other side is duplicate. This harness is the same weight as that published last month, and the same bridles may be used on either set. The style here shown merely shows another variety.

Fig. 1 is the crown, which is cut $1\frac{1}{2}$ in. wide and 24 in. long, and split $6\frac{1}{2}$ in. on each end, with $\frac{3}{4}$ in. buckle chape.

Fig. 2, the throat-piece is cut $\frac{3}{4}$ in. wide by 28 in. long, and made up 20 in. long, with metal gags in laps.

Fig. 3 shows the check-rein cuttings. Round is $\frac{7}{8}$ in. by 22 in.; filling $\frac{3}{8}$ in. by 13 in.; billet $\frac{3}{4}$ in. by $10\frac{1}{2}$ in.; center strap $\frac{3}{4}$ in. by 3 ft. 6 in. The billet is made up 6 in. from the heel of the buckle. The lap is $1\frac{1}{2}$ in.; the rounds are 15 in.; the center is made 33 in. long from ring to ring, and is short to pass over hame tops only.

Fig. 4 illustrates the cheeks, winker brace and face piece cuttings. Cheeks are $\frac{3}{4}$ in. by 30 in.; winker brace $1\frac{3}{4}$ in. by 13 in.; face piece is $1\frac{3}{4}$ in. by 25 in., and is made up to loop up on the cheeks below the buckle with a $7\frac{1}{2}$ in. rounded split and 14 in. waved point, which buckles into the crown with the winker brace point. The cheeks are made with 12 in. billet, $7\frac{1}{2}$ in. loop and round pattern of winkers. The winker brace is made with $7\frac{1}{2}$ in. rounded splits and $\frac{3}{4}$ in. point, 5 in. long.

Fig. 5. presents the pad cuttings. The top is of patent leather, $2\frac{3}{8}$ in. wide and 18 in. long; sides are cut $2\frac{3}{8}$ in. by 26 in. long; trace loop is $1\frac{1}{8}$ in. by 17 in., with filling $1\frac{1}{8}$ in. by $13\frac{1}{2}$ in.; round for the top is 1 in. by 8 in. The bottoms are cut by pattern. The pads are made up of 18-in. patent leather, with one false row of stitching. Bottoms are sewed on by the outside row of stitching. The sides are made 15 in. long from the end of patent leather and from the lining for the patent leather top, splicing together at throat of pad. The trace carrier is made with a 3 in. wave below the patent leather and $11\frac{1}{4}$ in. round part, which is raised $2\frac{1}{2}$ in. from pad side. The lower end is lapped $2\frac{1}{2}$ in. to pad, with $1\frac{1}{8}$ in. billet spliced in. The round in center of pad is for the turnback to run through; it is set in pad 2 in. from center and is 6 in. long.

Fig. 6 shows the girth. The fold is cut $5\frac{3}{8}$ in. wide and 18 in. long. The lay is $1\frac{1}{8}$ in. by 24 in. The girth is made up $2\frac{1}{2}$ in. wide and 18 in. long; the lay is straight.

Fig. 7 represents the martingale. The body is cut 1-in. by 3 ft. 4 in., and the billet is 1 in. by 20 in., made up 30 in. in length from bend of reef to heel of buckle.

Fig. 8, the turnback, is cut $1\frac{1}{8}$ in. by 4 ft. 6 in. It is made up with 15 in. flat point, 22 in. round. The loop to go on hame strap is 7 in.

Fig. 9 illustrates the rump pad and hip straps. The rump pad is cut by pattern about $4\frac{1}{2}$ in. wide and 11 in. long. It is lined with light neat's leather and padded $\frac{1}{2}$ in. thick. Hip straps are cut $2\frac{3}{4}$ in. wide, 33 in. long, and are made up $28\frac{1}{2}$ in. long, the points are split $20\frac{1}{2}$ in. from end with 8 in. waved part. The front hip strap is $1\frac{1}{2}$ in. shorter than the back one.

Fig. 10, the breeching body, is cut $5\frac{3}{8}$ in. wide and 3 ft. 8 in. long, made $2\frac{1}{2}$ in. wide and 3 ft. 8 in. long, with $1\frac{1}{2}$ in. layer waved between tugs; the latter are cut 1 in. by $11\frac{1}{2}$ in., and made up with a 4 in. loop between the buckle and ring. The back tug is placed in layer $7\frac{1}{2}$ in. from ring.

Fig. 11 shows trace carrier for outside of horse. The strap is cut $\frac{7}{8}$ in. wide, 24 in. long, and made with a patent leather frog 6 in. long. It is sewed into the back of frog, runs through a loop in the back of buckle lap, and forms a billet to buckle into the breeching ring.

Fig. 12 shows inside trace carrier made without an ornament.

It is $\frac{7}{8}$ in. by 33 in., made up 30 in. long, and is similar to a hame strap.

Fig. 13, the breeching strap, is cut $1\frac{1}{4}$ in. wide, and 4 ft. long, made up to 3 ft. 8 in., with a loop in lap to take breeching ring.

Fig. 14 illustrates one of the hame straps. The top one is cut $\frac{7}{8}$ in. wide and 34 in. long, and the bottom 1 in. wide and 30 in. long.

Fig. 15 represents the style of hame and trace. The hames are tubular iron, with parts above rein terrets plated. Traces are $1\frac{1}{2}$ in. wide and 6 ft. 7 in. long. The riveting pieces are cut 2 in. wide and 18 in. long. The traces are made up 6 ft. long with 24 in. chain in heel. The buckle for breeching strap is placed on the trace 15 in. from the clip end.

Fig. 16, the spread strap, is cut $\frac{3}{4}$ in. by 24 in., made up 22 in. long like a hame strap, excepting that it has a slide loop on point.

Fig. 17, the breast strap, is cut $1\frac{1}{2}$ in. wide, 5 ft. 6 in. long. Lining is $1\frac{1}{2}$ in. by 3 ft. 4 in., made up to a length of 5 ft., and is lined back 3 ft.

Fig. 18 shows reins. These are cut 1 in. wide, front splice is 5 ft. long, center 3 ft., hand part 7 ft. 6 in., and is made up 15 ft. overall. The cross rein is cut 7 ft. long, and made up to 6 ft. 6 in. Billets are 12 in. long.

NORTHWESTERN OHIO HARNESS MEN ORGANIZE.

The harness makers of northwestern Ohio met in convention at the rooms of the Putnam Club, at Ottawa, Ohio, January 31, and organized an association. Many of the towns throughout the northwestern part of Ohio were represented, there being forty-four delegates present.

The organization was formed at the instance of C. F. Martin, of Ottawa, who conceived the idea of calling the convention. Mr. Martin first corresponded with harness men throughout that section of the state to ascertain how they felt, and responses were so numerous and enthusiastic that he ventured calling a meeting, and the result has been highly satisfactory.

G. M. Scherz, of Cincinnati, secretary of the National Association of harness men, was present, and delivered an address. J. M. Eilers and Otto Berger, also of Cincinnati attended the meeting, and A. L. Thompson, of Ft. Wayne, was present. These gentlemen also addressed the meeting. David Jones, of Columbus Grove, was elected president, and Mell Bogart, of Bluffton was chosen secretary.

At the close of the meeting, a vote of thanks was tendered the Putnam Club for the use of its rooms.

Steps were taken at this meeting to form an alliance with the National Association.

The next meeting will be held at Defiance, Ohio, July 31, next.

STORM COVERS.

The Wolverine storm covers, which include horse covers, wagon covers, wagon aprons, etc., as made by the Schneider Company, of Detroit, Mich., are worthy of special mention on account of their guaranteed waterproof quality. The fact that this company does its own waterproofing by a special process, enables it to produce a cloth which will not become stiff or crack in cold weather, and not stick or smell in hot weather. Their claim for your business on their class of goods should not be overlooked. Write for catalogue and price list, and get in touch with them.

It is up to some men who think they know it all to live and unlearn.

A bulldozer is not generally a pleasant man to associate with, but still, between the two, he generally gets and is entitled to more respect than the whiner.

PRACTICAL REPAIRS IN THE HARNESS SHOP

In this our second article on harness repairing we show how to make effectual repairs on bridles and on cart or round shaft tugs.

The first illustration, Fig. 1, represents a bridle crown which has the cheek billet broken on one end and the throat billet on the other. These repairs are very common and are not always on the same crown. Fig. 2 shows the common way of repairing such breaks, which, it is very apparent, is not done right and besides does not produce a neat looking job. The holes not being the same distance from center buckle piece will draw the

stock at an angle is to avoid the short bend at end of lap, which is the chief cause of the crown points breaking off.

Fig. 4 shows a cheek, the billet of which is broken at bit bend. If this is spliced together at the break it will make a stiff bend that will not allow the bit to set properly, consequently it is necessary to splice on a new billet. Fig. 5 shows the billet spliced below the buckle. This is possible, but is not as good a way as that shown in Fig. 6, where the billet is spliced on to the back of cheek. There is a little more work and more skill required to do it the latter way, but if the winkers are worth new

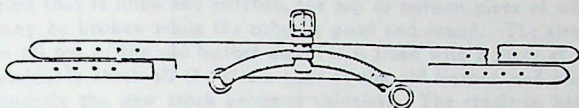


Fig. 1

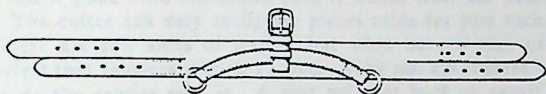


Fig. 2

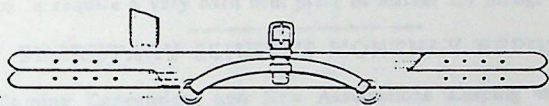


Fig. 3

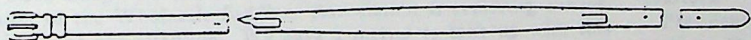


Fig. 7

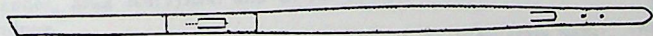


Fig. 8

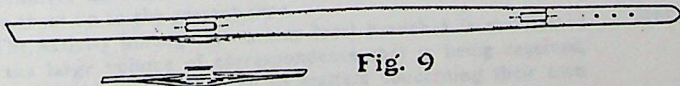


Fig. 10

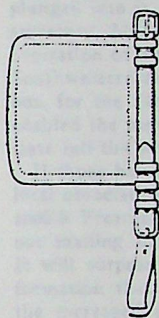


Fig. 4

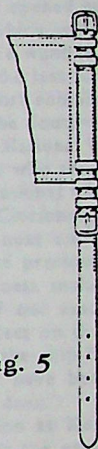


Fig. 5

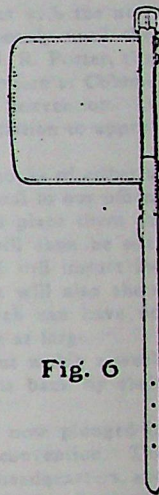


Fig. 6



Fig. 11

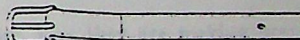


Fig. 12

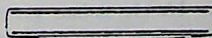


Fig. 13

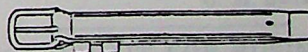


Fig. 14



Fig. 15

buckle to one side and of course affect the fit of the winker brace and winkers.

There is also shown in Fig. 1 the gag strap ring broken out of the crown layer. Fig. 2 illustrates the wrong way of repairing this break, with the new stock on outside or over the old end. Fig. 3 represents the correct manner in which to repair such work, requiring no more labor and very little extra stock. It will be observed that the new stock at the ring is lapped under the old stock, showing the end as close to ring as possible.

In repairing the points the old billets are thrown away and new pieces used, making a short lap close up under the rosettes, with three rows of stitching. The reason for cutting the old

billets they are worth being put on in a workmanlike manner.

Fig. 7 presents a noseband with billet point broken off and break at cheek loop, which is another very common piece of repairing. Fig. 8 shows the common but wrong way to repair this job. A billet spliced that way becomes too short and there is no chance to take up or let out, and the repairs at the cheek, while they may be strong, are not pleasing to the eye. In Fig. 9 is shown the best way to make repairs of this character. A new billet is spliced on at one end, with the exposed end of lap butted against the cheek loop and the piece at the other cheek loop is set inside or underneath with both ends of lap butted against the loop. Fig. 10 shows a sectional edge view of the laps split down

through loop, showing manner in which new piece is spliced on.

Fig. 11 shows a round or cart shaft tug with lining worn away in part. This is usually the first part of the harness that needs repairing and the part that will soon wear out again. Fig. 12 shows the tug prepared for the new lining, after having been in the soaking tub as long as time will permit. The old lining is cut away and as long a tapered lap as possible made at the loops. Fig. 13 shows the new lining ready to be tacked in place, with ends tapered to meet the taper of the old stock. The face shows a channel intended to take the thread. Fig. 14 shows the tug ready to be turned and finished, while in Fig. 15 it is shown in its finished condition.

Last month we referred to the necessity of the employer interesting himself with the work done at the repair bench. Another matter that will need his attention is the selection of stock used in repairing. While inferior stock can be used to advantage in some parts of such work there are other parts where nothing but the best should be used. Take, for example, a trace or any part that is lined and stitched, the top or bottom piece of which may be broken while the other is good and sound. The stretch is all out of the old leather and if it is lined with a piece of soft yieldable stock all the strain goes to the old leather, and consequently the new stock becomes valueless. The result is, before the stretch is out of the new piece the old is broken and the repairer is blamed for "not knowing that the old stock was rotten," while if good hard stock was used it would wear for years.

The cutter can very easily lay pieces aside for just such work. There are few sides of leather but what have a scar or some defect that requires cutting around. Why not cut it large enough to do the repairs with it. A scar will not hurt on repair work. Other parts that require good stock are saddle and rein billets, in fact, nearly all billets. The shaft tug illustrated in Figs. 11 to 14 require a very hard firm piece of leather for lining.

SECRETARY SCHERZ'S MONTHLY REPORT.

Coming Conventions and New Associations Keeping the National Officers Busy.

The past month has been devoted to gathering information relative to complaints against wholesalers who are retailing, the "Barn Shop" evil and other matters. The approaching convention of the Wholesale Saddlery Association is receiving considerable of our attention. We have a matter to take up with this body which, if concerted action can be taken, will mean much for the members of our association and the retail harness trade in general. The committee, which is composed of Jos. D. Lauder, Max Kurzynski and G. M. Scherz, will leave nothing undone.

The relation of our office and the office of the Wholesale Saddlery Association is most friendly and the various matters that are up for the attention by the Wholesale Saddlery Association Committee have had their attention so far as they are able to give them up to the present time.

The activity among the various local branches is manifested by the large volume of correspondence that is being received, indicating the attention given to matters concerning their own members and the demand they make on the National for the use of the influence of the National body to rectify the trade abuses from which they suffer. The interests of our various locals is further manifested in the willingness to co-operate with our office for the further development of the National Association by assisting us in organizing new local associations.

The situation at Washington looks very bright for a new local association, and the Baltimore branch is doing everything in its power to assist us in bringing about the new organization.

Our office has opened correspondence with the retail harness makers at Peoria, Ill., to organize a new local association. We are indebted to the kindness of Mr. W. A. Story for his assistance, and while at this writing we cannot report an organization, from the encouragement received we feel safe in saying we will be able to report a new association in our next report.

The approaching quarterly meeting of the St. Louis Association promises to be largely attended. They are making strong efforts to make this eclipse all former meetings. Secretary Mollman writes that they will shortly submit some suggestions relative to overcoming the growing "Barn Shop" evil. At their meeting Thursday, May 28th, this matter was very strongly discussed, and we feel sure some very practical plan will be the result of their deliberations. The St. Louis aggregation is usually there when it comes to action on any subject. Their approaching quarterly will take place on June 14th in the hall of the Retail Merchants' Association, 20 North Main street, East St. Louis, at 1 P. M. In his announcement Secretary Mollman advises that he will be at his office at Seventh and Missouri avenues the morning of the day of meeting to welcome the visitors.

The convention of the Southwestern Saddle and Harness Manufacturers' Association decided to pursue a more aggressive policy the coming year. The National delegate, John Ward, in his report has given us plenty of work to do, and we have already plunged into it. We have opened correspondence with the new secretary, Mr. Hudson, which will last continuously until the expiration of his term. We want to thank Mr. J. R. Porter, the Southwestern delegate at the last National convention at Columbus, for the excellent report submitted to their convention. It enabled the members of the Southwestern Association to appreciate full the work of the National body.

If those harness makers who are not on the books of either a local association or the National will send a postal to our office, 1006-8 Freeman avenue, Cincinnati, O., we will place them on our mailing list for our next annual, which will soon be out. It will surpass any of the previous issues, and will impart information that every harness maker needs. It will also show the increased prestige of our association, which can have no other than a beneficial effect on the retail trade at large.

The new honorary membership list will be out within a week or two. About fourteen have been holding us back by their laxity in sending in their dues.

The Western Association at Kansas City is now plunged in the work of preparing for the great National convention. The Coates House has been selected for convention headquarters, and Secretary Shipley asks that all delegates notify him at least one week prior to the convention so he can arrange for suitable quarters.

President Ward, of Kansas City, says they are making preparations to care for the largest attendance ever had at a National convention. They will, besides, circularize the entire southwestern territory and bring the trade out to the National convention.

Every retail harness maker should aim to strain a point or two and attend the coming convention, which will be held at Kansas City, August 17, 18 and 19. Many new plans will be adopted for trade regulation, and every retail harness maker is personally interested that the right plans be adopted. Make up your mind now and go to Kansas City.

May, 1908.

G. M. SCHERZ, Secretary.

DON'T WAIT FOR BUSINESS.

The three ways of getting business are waiting for it to come to you, meeting it half-way, and going after it.

The man who waits for business to come to him has his first busy day when the sheriff sells him out.

The man who meets business half way won't meet more than he can handle with one clerk.

The man who goes after business is the fellow who keeps it away from the other two.

The dealer who has a business worth talking about very seldom has anything to say about it.

No man ever walked into a gold mine blindfolded—and no dealer ever walked to success without knowing just where he was every minute. If you can only make good, you won't have to explain how you do it.

PRACTICAL REPAIRS IN THE HARNESS SHOP

It is a common impression maintained by the majority of employers in the harness trade that an inferior workman is good enough for the repair bench, and in looking for help will select the cheapest man to do the repair work. That is one great error of our trade.

We claim that very few employers give the attention to the repair bench that they should. Usually the work is handed to a low-salaried man and the boss goes off to attend to some other matter and does not return until the work is finished. He won-

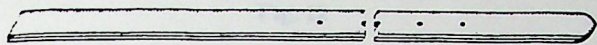


Fig. 1

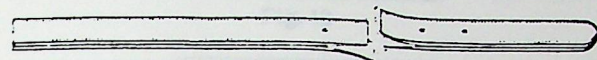


Fig. 2

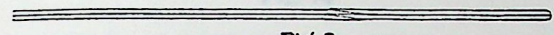


Fig. 3

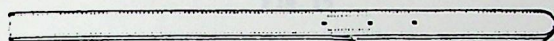


Fig. 4

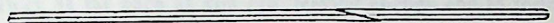


Fig. 5

ders why he has repair work sufficient to keep only one man busy while his competitor in the next street has three or more steadily engaged. The secret is that his competitor either looks after the repairs personally or has a competent man to do so in his stead. A case which proves this statement came to our notice within the past month.

A customer had a very fine road harness of which he was very proud. It was in use several months but not enough to wear off its new appearance. While out driving he met with a slight accident which caused the back strap to break off at the first wave of the body. In order to get home he took it to a local harness maker—no doubt a cheap man—who, instead of splicing the strap so that the waves would match, just skived the ends down from both sides, stuck them together, stitched them with four-cord ten-thread, about eight stitches to the inch, while the original strap was stitched fourteen to the inch. He ruined the strap and the owner became very angry at the manner in which the work was done and he certainly will never go back to that shop or recommend it to others. That is only one of many cases we have observed, and it demonstrates the reason for a scarcity of repair work in some shops.

We begin this month a series of articles, with illustrations, on the repairing of harness and have taken for our first subject the traces. We have endeavored to show how traces may be spliced and repaired in a practical way to guarantee a strong job and at the same time show as little of the repairing as possible.

In Fig. 1 we show a trace which is to be spliced and the owner says it can be made one hole shorter. As we have only this trace we will be compelled to be guided by the holes therein, and the splice can only be the length of the distance between the holes, which usually is $2\frac{1}{2}$ in. Now, if we skive off the ends and lay one against the other and stitch through we have a splice which will receive a direct pull on the stitch, and as the job is only as strong as the number of strands of thread used in the stitching we claim it is a wrong way of splicing a trace.

Fig. 2 shows the different lays opened or ripped apart and

skived down separately. The top lay of point is intended to lap outside towards the heel, and the bottom lay of trace outside towards the point, making a double lap, as more clearly shown in Fig. 3, which is the edge view of trace. This arrangement imparts three times the strength of the thread and the resistance of the splice is increased threefold, making a lap as strong as any other part of the trace.

Fig. 4 illustrates a face view of the finished lap showing two extra rows of stitching and trace one hole shorter than before repair was made. There are now but three holes left.

Fig. 5 shows the edge view of a trace with the lap skived off straight, as referred to above, and one can readily see that there is no strength in such a splice except what is derived from the thread used to sew the laps together. This is the "cheap" man's way of doing harness repairs.

In Fig. 6 we illustrate a trace that is broken at the heel and buckle hole, and the order calls for the same length, when done, as it now is. This trace can be repaired by making a short splice at the buckle hole, as shown in Figs 2, 3 and 4 and putting on enough new leather at butt end to make the required length, but we illustrate in Fig. 7 the best way to make the repair. This method gives less work and shows less repairs. The heel or butt is cut off and a new dart hole made. The additional length is put in new at the buckle holes, showing two laps instead of one as in Fig. 4.

Fig. 8 shows another way of doing the work. The old leather is skived from both sides, making a wedge-shaped lap, and the new stock is laid on or lapped on the outside both ways. If you have sufficient length of stock this way is as good as that shown in Fig. 7. However, the laps must be longer and consequently require more stitching, and care must be taken to have the ends of the laps different lengths or you will have a thick place in the lap, which is hard to avoid.

Fig. 9 illustrates an end of trace for draft harness which has been repaired at the D to show as little repairs as possible. The outside lay laps over the splices and only shows end cut across

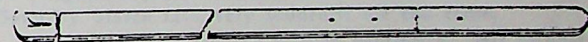


Fig. 6

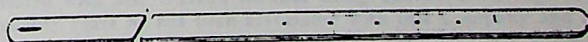


Fig. 7

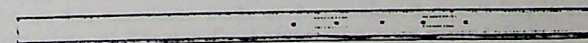


Fig. 8

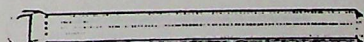


Fig. 9



Fig. 10

at D. No more time is required to make the repair in this manner than is necessary when lap lays on outside. The latter looks bad and is unnecessary when it can be done so easily in a neater manner.

Fig. 10 presents an edge view of the lap as described in connection with Fig. 8, showing manner in which the layers are interwoven to form the lap. One can readily see that much more strength is given to the work than if only the end is turned over and stitched down.

Fig. 11 illustrates a section of a rounded road harness trace to be spliced and to retain length it was before breaking. This appears to be, to make a good job, a very difficult piece of work, but it is not as complex as that work shown in Fig. 8. It requires, of course, more care in making the splices, as they are shorter and there is less stock to work with. The thing to do is to rip open the ends a distance of about five inches and cut off the outside piece with a long taper and skive the edge down from the outside to about 5-16 in. wide. This is done from the outside to remove the stock that is cut through by the old channel cut. If skived from the inside it will cut through at the old channel cut and leave a bad end. Next cut the old filling piece



Fig. 11

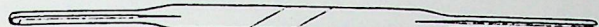


Fig. 12



Fig. 13

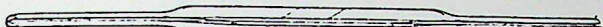


Fig. 14



Fig. 15

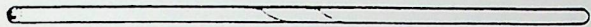


Fig. 16

away as far back as you can, leaving enough end to form a lap to splice the new filling to.

Fig. 12 illustrates what has been referred to. Now insert a piece of new stock similar in thickness to the old piece and stitch laps as shown in Fig. 13. The reverse or outside of round is shown in this diagram.

The next thing to do is to splice in a piece of filling, as shown in Fig. 14, taking care to get the length right and the laps even thickness. If a good job is desired stitch the laps of filling together as shown in Fig. 14.

Fig. 15 shows the round ready for the stitcher, who will have to be careful at each lap. The best way is to take a few fair stitches at each lap as the stock is too thin to stand a channel.

If this is done in a proper manner a job that will not be seen, except on close scrutiny, will result.

Fig. 16 shows a side view of the finished work. Any round may be spliced or pieced out in the same way as here described.

DISINFECTING HARNESS.

Harness which has been worn by a sick horse should be disinfected, especially if the animal has suffered from a highly infectious disease. The harness should be thoroughly soured in boiling water, in which has been dissolved two to three grammes of bi-chloride of mercury to the quart of boiling water. After drying it is then subjected to the fumes of a sulphur candle in a closed box, when it is again washed, after which the discolored metal parts are polished, and the harness oiled and put together.

WILL ENLARGE PLANT.

The Humane Horse Collar Company, of Omaha, Neb., is figuring on enlarging its plant and increasing its force to one hundred men within a few months.

The factory was established in an experimental way only a few months ago by T. E. Stevens. The product, which is a horse collar made on a patent secured by Mr. Whipple, of Tekamah, has found ready sale from Maine to California and the company is now unable to fill all its orders.

ACTIVE DEMAND FOR SADDLES IN MEXICO.

In the following report from Tuxpam, Consul A. J. Lespinasse points out the opening in Mexico for the more extensive sale of American saddlery and harness:

If systematically and periodically canvassed by competent Spanish-speaking salesmen, Mexico undoubtedly offers an excellent field for the sale of saddles of all descriptions and their accessories, such as stirrups, girths, saddlebags, saddle trees, saddle pads, halters, cart collars, saddle blankets, riding quirts, and a variety of other articles in this line.

As the duties on saddles are high and pay according to weight, they should be constructed as light as consistent with strength and durability. The style of saddle mostly in use here among the cheaper grades is the Texas type with hide-covered horn, wooden stirrups, leather fenders, and plain open saddle tree hide-covered; these saddles retail here from \$25 to \$35, Mexican. The Mexican dollar or peso equals about 50 cents, American.

Among the better class the Mosby and McClellan styles are in most demand and retail from \$50 to \$75 Mexican, according to workmanship and fancy trimmings. A finer grade with expensive trappings would meet with a limited sale in the larger and wealthier centers of Mexico.

Duties on saddles if not adorned with precious metals are \$2 Mexican the legal kilo—the kilo equaling 2 1-5 pounds; if adorned with gold, silver, or platinum, \$6 Mexican the legal kilo. Cart and truck harness would meet with a limited sale here. The articles most in demand would be cart saddles, collars, traces, bridles, breeching, hames, bits, etc. The duties on harness are \$2 Mexican the legal kilo.

DEATH OF THOMAS C. WATSON.

The U. S. Hame Company, of Buffalo, N. Y., has sent out the following announcement of the death of Thomas Craig Watson:

"It is with profound sorrow that we announce the death of Thomas Craig Watson, which occurred at his home at Mount Vernon, N. Y.

"Three weeks ago Mr. Watson was obliged to discontinue his work owing to an attack of indigestion which affected the heart and produced some heart valvular trouble. Mr. Watson's friends and his physician entertained hope that this trouble would be of comparatively short duration. However, on the evening of Saturday, March 14th, very suddenly, the end came.

"Mr. Watson was a true Christian gentleman. His standards and ideals were all high. No one could be acquainted or associated with Mr. Watson without being benefited thereby. For twenty years he has been associated with this Company and his predecessors, the Pratt & Letchworth Company. His circle of friends and acquaintances was large, and his departure will be deeply mourned by every one who knew him. The influence of his fine manliness made an impression that will linger after the name of Thomas C. Watson may have passed from mind. We, in common with all who knew him, profoundly mourn his loss."

TANNING FUR SKINS.

Fur skins can be nicely tanned by using a paste made of equal parts of alum and salt dissolved in hot water and then stirring in some common wheat flour. This makes the flesh white. The skins should be given a fresh coat of the paste every day for three or four days until they are tanned. Then as the skins dry they should be pulled and stretched and worked out soft. To avoid having the skins dry out hard and stiff the drying and softening should be carried on together. When the skins get too dry they should be moistened by being packed in a box of damp sawdust, then worked out and given another coat of tan, then dry and soften the skins and they will be soft and white and well tanned.

From SADDLERS, HARNESS MAKERS, AND CARRIAGE BUILDERS' GAZETTE (August 1, 1880)
 This very important document was run into by us during a research in the Print Division of the Metropolitan Museum of Art in New York. It is one which should be of value to all carriage collectors and carriage drivers as it relates to the dimensions of vehicles to the heights of appropriate horses.

A CHART OF THE STANDARD SYSTEM OF ESTIMATING LENGTHS, HEIGHTS, AND WIDTHS OF SHAFTS, DRAFTS, BREECHENS, ETC., FOR CARRIAGES, TO SUIT HORSES OF VARIOUS SIZES.
 BY A. K.

Hands	Height	1. Width of shafts at the back-tug		2. Height from ground, under draft-bar, twice the height of the horse		3. Length from shaft-tip to back-tug		4. Width of shaft at futchells. For back-tug, step-up of one to trace-bolt; carts variable.		5. Length from futchells to trace-bolt		6. Length of shaft from step-bar to back-tug, variable with height of shaft. Add 2 in. to length of No. 7.		7. Total length of shaft from tip of draft to tip of shaft		8. General height of draft-bar from ground, but variable with height of wheel		9. Distance between staple Kwik's St. from trace-draft from back-tug to half the distance from one quarter of draft to tug; take twice forward and forward		10. Distance between Kwik's St. from trace-draft from back-tug to half the distance from one quarter of draft to tug; take twice forward and forward	
		ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
12	5 9	2	0	4	4	1	10	2	10	4	4	4	6	6	4	2	10	2	5	1	1
13	5 0	1	10	4	1	1	8 1/2	2	8	4	1	3	11	5	11 1/2	2	8	2	3 1/2	1	0
14	4 8	1	8	3	10	1	7	2	6	3	10	3	8	5	7	2	6	2	2	0	11
15	4 4	1	6	3	7	1	5 1/2	2	4	3	7	3	5	5	2 1/2	2	4	2	0	0	11
16	4 0	1	4	3	4	1	4	2	2	3	4	3	2	4	10	2	2	1	11	0	10

The numbers at the top of the column refer to the marginal notes.

SUMMARY OF THE ABOVE CHART.

These measures are alike suitable for two or four wheel shafts, in front of bar or trace-bolt.

No. 1. — The usual estimate of the height of a horse in hands, of 4 in., or parts of hands, 1 in., 2 in., or 3 in., is easily reckoned.

No. 2. — If a rule is not to hand to measure with, a fair approximation may be obtained by a man who is, say, 5 ft. 9 in. high, reckoning the height to his mouth as 5 ft., under his arm as 4 ft. 6 in., to his chest as 4 ft., to the pit of his stomach as 3 ft. 6 in.

No. 3. — Estimating the average width of the body of a horse at the saddle-girth line, this is duly proportioned for width of shafts. For slight cobs and ponies the decrease is 2 in. for every hand less height.

No. 4. — The heights of horses are always measured to the highest bone of the withers at the junction of the neck; thus to ascertain the height of the under-side of shafts at the tug, for a horse 16 hands high, 12 inches must be deducted, thus showing the requisite height is 4 ft. 4 in., deducting 1 in. less for every hand less of height of horse, no matter whether the shafts be straight or curved; or, in other words, the distance from the horses back at the girth-line to the under-side of shafts at tugs decreases 3 in. for every hand the horse is lower. This is the chief measure required by a coach maker, and, as will be seen, it determines with accuracy the same proportional ratios for the lengths from back tug to draft or trace-bolt.

No. 5. — The decrease of the length of the shaft-points from the shaft-tip to the back tug is 1 1/2 in. for every hand less height of horse.

For tandem, the defective plan of fixing to shaft-tips should never be adopted, but to the tugs or on to

the shaft horse's traces; then the points of shafts should be 2 in. less length than usual, to avoid prodding the horse in front.

No. 6. — The decrease in width at futchells is 2 in. for every hand less height of horse, but of course variable with dog-carts and gigs.

No. 7. — The decrease in the length from back-tug to trace-bolt is 3 in. for every hand less height, thus always corresponding with the length No. 4.

No. 8. — The length of the back part of shafts behind the draft-bar, without being fixed by rule, may, for ordinary dog-carts, be put down as 2 in. more than the relative lengths from draft-bar to back-tug.

No. 9. — The decrease in the total length of shafts from tip to trace-hook is 3 1/2 in. for every hand less.

No. 10. — This rule at once fixes the requisite rise of curved shafts from the step-bar to the tug. The height of shafts at the bar or futchells is generally the same as the width (rule 6), and decreases 2 in. for every hand less of the height of the horse, but of course variable with height of wheel.

No. 11. — The breechen staples are often wrongly placed, and the breechen rendered imperfect in action. To half the measure, from trace-hook to tug, add 3 in. forward for staple fixing for breechens.

No. 12. — The kicking-strap staples are more often wrongly placed, mostly too forward, by which the kicking-strap rides in front of the horses hip-bone, and becomes useless. Of the measure from trace-bolt to tug, fix the kicking staples one quarter of that measure forward from trace-bolt to tug.

These measures are all in horizontal and vertical lines, whatever rise or curve there may be to the shafts.