

UNITED STATES PATENT OFFICE.

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SHORT HARNESS-TRACE.

SPECIFICATION forming part of Letters Patent No. 787,265, dated April 11, 1905.

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To all whom it may concern:

Be it known that I, DANIEL K. BELLIS, a citizen of the United States, and a resident of Manton, in the county of Wexford and State of Michigan, have invented a new and Improved Short Harness-Trace, of which the following is a full, clear, and exact description.

My invention relates to improvements in harness-traces; and one object that I have in view is the provision of a simple, strong, and durable short metallic trace in which the metallic parts are protected on one side to prevent chafing the animal and to overcome wrinkling or displacement of the protective layer with relation to such metallic parts.

A further object of the invention is to provide means which are effective in adjustably coupling a suitable trace to the short metallic trace, so as to allow the parts to be lengthened and shortened, such coupling being securely held against accidental separation and being operable by hand easily and quickly, so as to be insertible or removable without bending the long trace or throwing it out of position.

A further object is the provision of means for attaching the short trace to a hame in a way to secure a strong and durable coupling and allow the easy separation of the trace from the hame when desired.

A further object is the provision of simple and effective means for adjustably fastening a billet to the short trace, said billet affording means for the attachment of a back-band and a belly-band to the trace.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the actual scope thereof will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a short metallic harness-trace constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view taken centrally through the trace. Figs. 3 and 4 are vertical cross-sections on the lines 3-3 and 4-4, respectively, of

Fig. 1; and Fig. 5 is a view of a coupling-lever looking at one side thereof.

The short trace of my invention consists of a comparatively heavy metallic plate 5, a protective layer of leather or other equivalent material 6, and a reinforcement thin sheet-metal plate 7 for said protective layer 6. The metallic plate 5 is quite thick as compared with the reinforcement-sheet 7, and this plate 5 is of a predetermined length, width, and thickness to stand the strain and make the short trace suitable for use in connection with a hame and an ordinary trace, the latter being either a leather trace or a chain trace, as desired.

The plate 5 is provided at intervals with a plurality of oblong holes 8, which are preferably elliptical, as shown by Fig. 1, and the side edges of this plate are slitted or cut at intervals, as at 9, so that certain portions of the side edges of said plate may be bent downwardly to produce a plurality of flanges 10 at intervals along each side of said plate. As shown by Figs. 3 and 4 of the drawings, these flanges 10 are bent to lie at one side of the plane of the plate 5, and the flanges are also bent to form the horizontal shoulders 11, which range lengthwise of the plate and parallel to the body portion thereof.

In the manufacture of the short trace a length of leather and of sheet metal are laid one upon the other, so as to produce a jacket, and the longitudinal edges of the two layers 6-7 are bent or doubled upon themselves, so as to produce the seam-joints, (indicated at 12.) One end of the leather layer 6 is preferably extended beyond the corresponding end of the sheet-metal layer 7, and after the two layers shall have been united by flanging their side edges the jacket produced by the two layers is connected with the flanges 10 of the body-plate 5. This is accomplished by bringing the offset side of the body-plate 5 and the metallic layer 7 of the jacket into opposing parallel relation, and the doubled edges of the layers 6-7 are then folded compactly around the shoulders 11, so as to have abutting engagement with the flanges 10 of the body-plate 5. The jacket and the body-plate are

united substantially so as to prevent the accidental separation of the composite jacket from the body-plate, and the leather layer 6 of this jacket is on the outside of the short trace, so that it will be always exposed to view and occupy a position wherein it will engage with an animal in order to prevent chafing when the trace is in use. The employment of the metallic layer 7 reinforces the leather layer 6 to such an extent that a thin layer of leather can be used in the manufacture of the short trace. This metallic layer is, furthermore, advantageous, because it prevents wrinkling, buckling, or other displacement of the layer 6 with respect to the body-plate 5.

The body-plate 5 is provided at one end with eyes or perforated lugs 13, which are separated by an intervening slot 14^a and are disposed within the side edges of the trace, thereby producing recesses 15^a. This end of the body-plate forming an integral part of the short trace is provided with means for attachment to a suitable fixture on a hame, and in the drawings this attaching means is represented in the form of a hame-clip which is provided with two side arms 14 and an intermediate hook 15. The hame-clip is cast in a single piece to produce the arms and the hook, having the construction shown more particularly by Figs. 1 and 2, the said hook being deflected to one side of the arms 14 and producing an eye which is adapted to loosely receive the hame-fixture. The clip is adjusted for the free ends of its arms to fit in the notches 15^a at the respective sides of the lugs or eyes 13 on the body-plate 5, whereas the free end of the hook 15 fits in the slot 14^a, said arms and the hook of the clip being perforated and adjusted to register with the eyes 13 of the body-plate, thus providing a construction adapted to receive a pivotal bolt 16, which operates to loosely connect the hame-clip to an end portion of the body-plate 5.

The end portion of the body-plate 5 opposite to the lugs 13 is depressed somewhat, as at 17 in Figs. 2 and 4, and this depressed portion is provided at the sides of the trace with keepers 18. The end portion of the body-plate 5 beyond the depressed section 17 is constructed to produce laterally-extending short arms 19, in which is supported a bolt 20, adapted to maintain an antifriction-roller 21 in a position at one side of the plane of the body-plate, as shown by Figs. 1 and 2. The depressed section 17 of the body-plate 5 is equipped with a stud 22, which may be fastened in any suitable way to said depressed section 17—as, for example, by riveting the stud in place or by screwing it into the section 17, as shown by Fig. 4. I would have it understood, however, that I do not confine myself to any special means for the attachment of the stud 22. The stud 22 and the keepers 18 provide means for the attachment of a billet 23 to an end portion of the body-

plate 5, said billet extending transversely across the trace, so as to lie substantially at right angles thereto. The billet passes through the keepers 18 and it is provided with openings 24, into any one of which fits the stud 22, thus fastening the billet to the trace. One end of the billet is doubled upon itself to produce a loop 25, which receives a D connection at 26, to which may be attached the back-band of the harness, while the free end of the billet 23 is adapted to be thrust into a buckle on an end portion of the belly-band of the harness, whereby the billet 23 serves to connect the back-band and the belly-band with the short trace.

In Figs. 1, 2, and 4 of the drawings I have shown an ordinary leather trace 27, attached to the body-plate 5 of the short trace by a novel form of coupling which permits the trace 27 to be adjusted lengthwise with respect to the body-plate 5 of the short trace, said coupling also affording means for the adjustment of the two traces without bending or deflecting the long trace 27 laterally with respect to the body-plate 5 of the short trace. I would have it understood, however, that I may use a metallic trace or chain in lieu of the leather trace 27. One member of the described coupling consists of a lever 28, which is provided on one side with a coupling-stud 29, said stud being circular in shape and provided with an oblong head 30, as indicated in Figs. 2, 3, and 5. The diameter of the stud 29 is equal to the width of the oblong slot 8 in the body-plate 5; but the head 30 of said stud is of greater width than the slot 8, although the length of the stud is equal to that of the slot. By turning the lever 28 to a position at right angles to the short trace the head 30 of the stud can pass easily through the slot 8 of the body-plate 5, and this lever can thereafter be turned to a position ranging lengthwise of the plate, as in Figs. 1 and 2, the stud 29 turning freely in the slot 8, while the head 30 of said stud extends transversely across said slot in a way to prevent the accidental separation of the coupling-lever and the stud from the body-plate 5 of the short trace. This coupling-lever is provided on its other side with a locking-pin 31, which is adapted to pass through an opening 32 in the trace 27. The connection between the trace 27 and the coupling-lever is obtained by the provision of another stud, 33, on the lever and by the employment of a trace-plate 34 and a loop 35. This trace-plate 34 is inserted between the layers of leather forming the trace 27, and said plate is fastened to the trace by a suitable number of rivets, as at 36. The trace-plate is provided at its free protruding end with an eye 37, in which is loosely fitted a screw attached to the loop 35. The coupling-stud 33 is made in one piece with the coupling-lever 28 and the headed stud 29, said coupling-stud 33 be-

ing disposed at the same end of the coupling-lever as the stud 29; but said coupling-stud 33 extends from the opposite side of the lever with respect to the stud 29. This coupling-stud 33 is provided in one side with a recess or groove 38 to snugly receive the loop 35 on the end of the trace 27.

The trace 27 lies alongside of the body-plate 5, forming an element of the short trace, and it passes loosely through the keeper which is formed by the arms 19 and the roller 21. The loop 35 at the free end of the trace 27 fits snugly over the coupling-stud 33 of the lever 28, and the trace and the coupling-lever are held in their normal positions by the pin 31 fitting an opening in said trace, said lever 28 being disposed between the trace 27 and the body-plate 5 of the short trace. The attachment of the trace 27 to the short trace can be accomplished easily and quickly; but when it is desired to detach the trace 27 the operator pulls it slightly away from the pin 31 in order to free the lever 28. This can be accomplished without disengaging the loop 35 from the coupling-stud 33, and the lever 28 can now be turned to a position at right angles to the short trace, thus allowing the headed stud 29 to be withdrawn from the opening 8 in said short trace. The trace 27, with the lever, can be shifted along the body-plate 5 to bring the headed stud 29 of said lever opposite to either of the slots 8 in said body-plate, and by pressing the stud 29 through a selected slot and by turning the lever 28 back to a position lengthwise of the plate 5 the trace 27 can be securely and easily connected to the body-plate 5, the pin 31 of the lever 28 being thrust back into the opening 32 of the trace 27.

The end portion of the metallic layer 7, forming a part of the protective jacket, is bent or doubled, as at 39, around the depressed end portion 17 of the body-plate 5, so as to have overlapping engagement therewith, and the leather layer 6 of said jacket is provided with a tongue 40, which laps over the bent end 39 of the metallic layer 7 and is adjusted into engagement with the stud 22, that is attached to the depressed portion 17 at a point between the side keepers 18, as clearly shown by Fig. 2 of the drawings.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a slotted short trace, an ordinary trace, and a coupling-lever, the latter being interlocked at one point with the short trace, and at two points with the ordinary trace, said lever being shiftable to a position at an angle to both of the traces, and providing means for adjustably attaching the ordinary trace to the short trace. 55 60

2. The combination of a short trace having a body-plate provided with elongated slots, a coupling-lever having a stud provided with an elongated head adapted to have interlocking engagement with the slotted plate, an ordinary trace, and means for connecting said ordinary trace to said stud. 65

3. The combination of a short trace having a body-plate provided with slots, a lever having a stud which has interlocking engagement with said slotted plate, an ordinary trace, and a loop connected to said ordinary trace and having detachable engagement with the stud of said lever. 70

4. The combination of a short trace having a slotted body-plate, a lever provided with a stud and with a locking-pin, said lever having interlocking engagement with said body-plate, and a trace having a loop adapted to fit the stud of said lever, the pin of the lever having engagement with said ordinary trace. 75 80

5. A short trace consisting of a body-plate having flanges at its side edges, and a jacket composed of a metallic layer and a protective layer, said layers of the jacket being interlocked with the flanges of the body-plate. 85

6. A short trace consisting of a body-plate having flanges at its side edges, and a composite jacket formed by a metallic layer and a protective layer, the edges of the two layers being doubled upon themselves, and the edges of the jacket being doubled into interlocking engagement with the flanges of the body-plate. 90

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 95

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Witnesses:

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H. T. BERNHARD.