G. L. FORMAN.

HAME AND TRACE CONNECTOR.

APPLICATION FILED NOV. 23, 1914.

**1,167,162.** Patented Jan. 4, 1916.

Fig. 1.

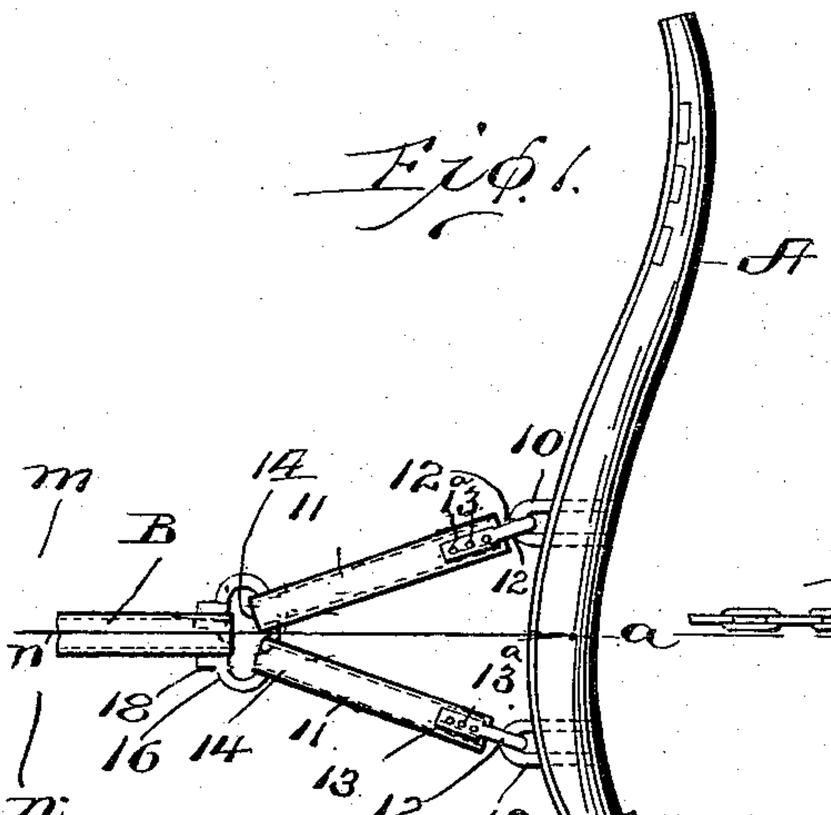



Fig. 2.

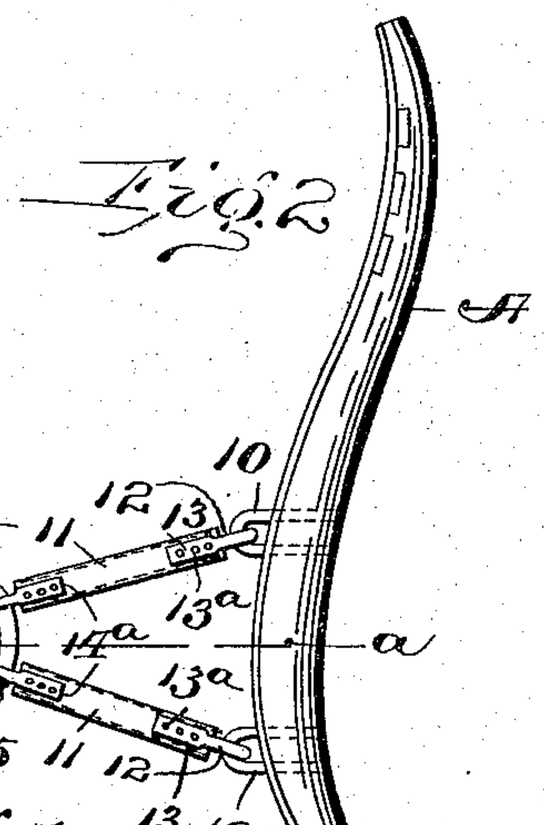



Fig. 4.

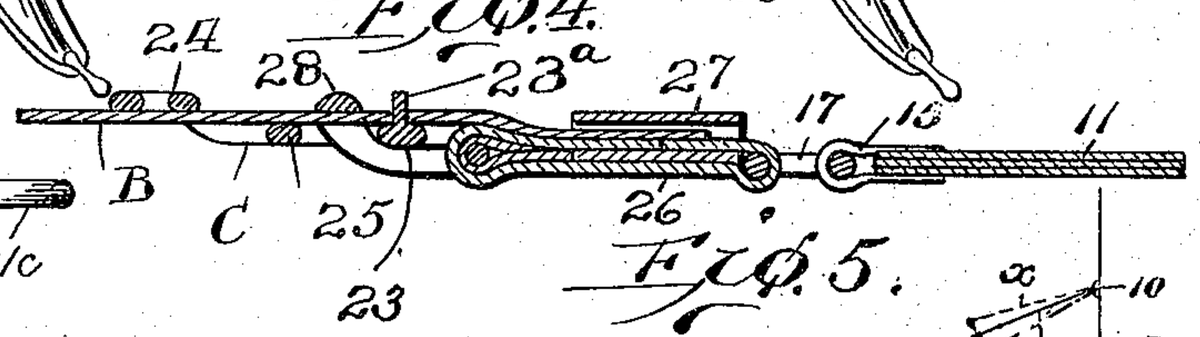



Fig. 6.

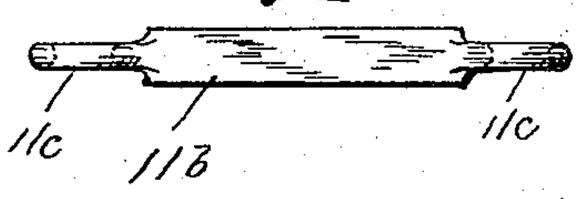



Fig. 5.

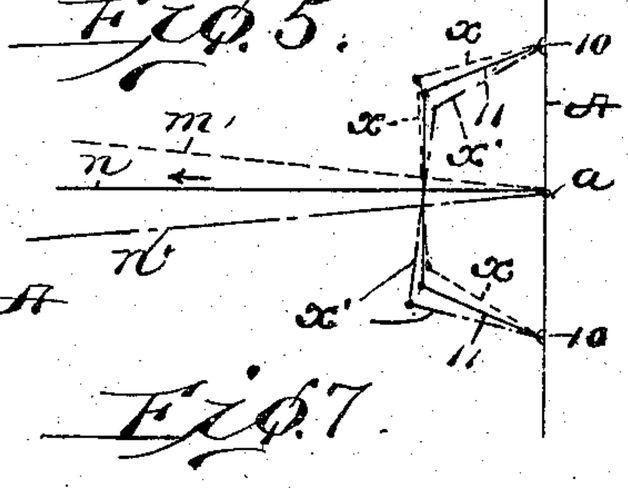



Fig. 3.

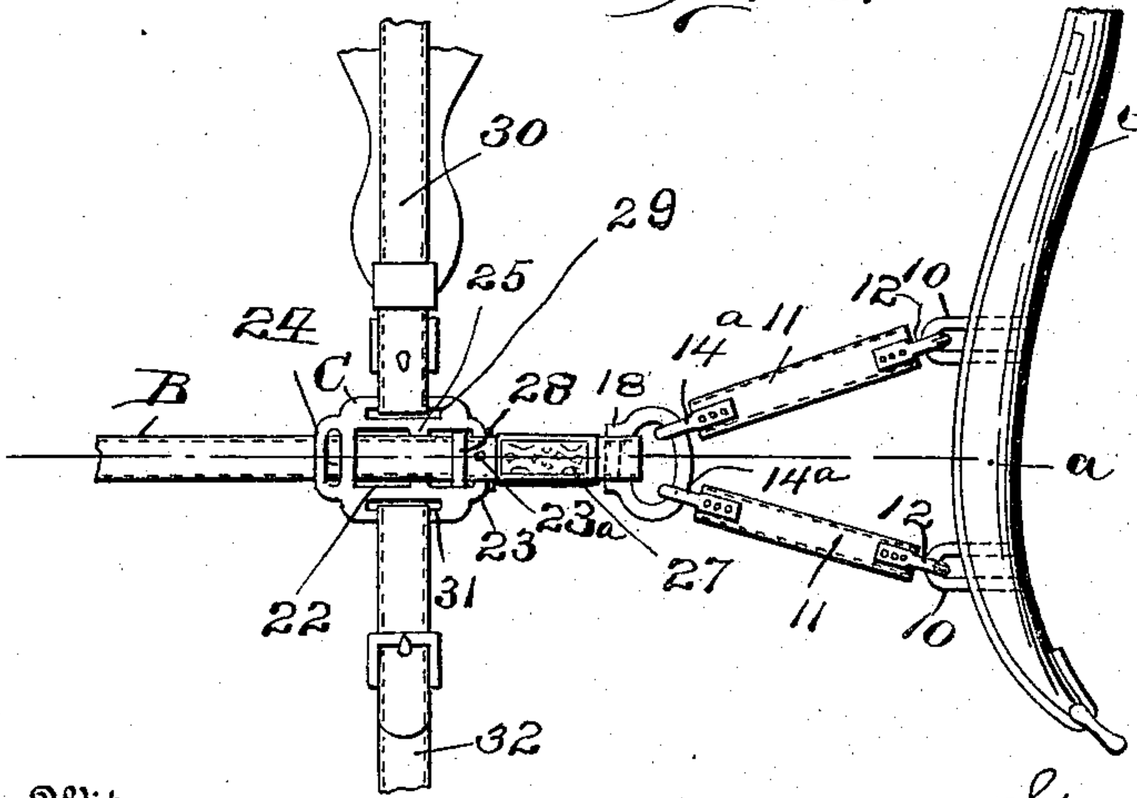
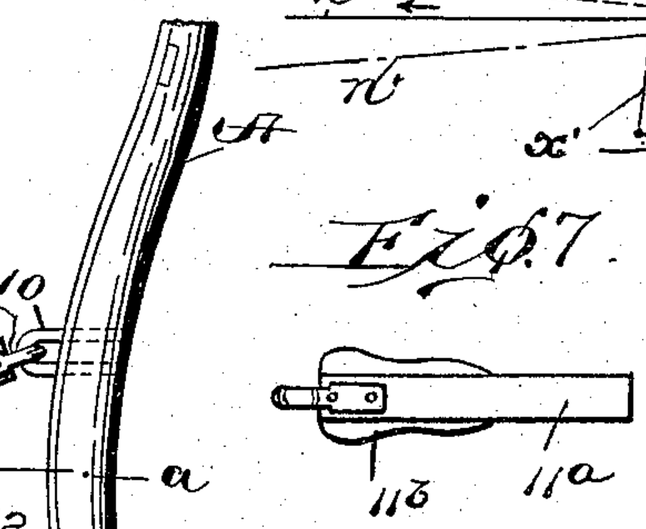



Fig. 7.




Witnesses

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# UNITED STATES PATENT OFFICE.

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## HAME AND TRACE CONNECTOR.

1,167,162. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed November 23, 1914. Serial No. 873,511.

*To all whom it may concern:*

Be it known that I, GEORGE L. FORMAN, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented new and useful Improvements in Hame and Trace Connectors, of which the following is a specification.

This application embraces matter which is shown, described and claimed generically in my application for Letters Patent filed April 1, 1914, Serial No. 828,772, for improvements in hame and trace connectors; particularly relating to that form or forms of the generic invention embodied in my application No. 828,772, aforesaid, in which (*a*) flexible straps are used as the hame elements of the connector and (*b*) the trace element of the structure is arranged to slide freely in the forward ends of the hame elements. These several features constituting the present invention are fully set forth in the following description and particularly defined in the subjoined claims.

In the accompanying drawings, wherein like characters of reference denote like parts in the several views, I have shown several different typical embodiments of the invention, but it should be understood that these are merely exemplary and that the invention may be otherwise and variously embodied without departing from its spirit or the scope of the subjoined claims.

In the drawings: Figure 1 is a side elevation of a hame body showing part of a trace connected thereto by a connection made in accordance with my invention, the trace being shown as a strap; Fig. 2 is a view similar to Fig. 1 showing the construction preferred when a chain trace is to be employed; Fig. 3 is a view similar to Fig. 1 showing a means which is preferably employed when it is desired to buckle the traces to the respective D's or loops; Fig. 4 is a longitudinal section through the buckle and D shown in Fig. 3; Fig. 5 is a diagrammatic representation illustrative of the operation of the device; Fig. 6 is a detail view showing a metallic and rigid hame element adapted for use in place of any one of those shown in the previous figures; and Fig. 7 is a detail of the preferred form of one of the hame elements of the connection.

In all the figures of the drawing, A designates the hame-body, which may be of the usual or any suitable construction. In Figs. 1 and 3 there is shown a trace, B, of the strap type, lether being preferably employed in the construction of such trace. In Fig. 2, the illustrated trace (marked B′) is of the chain type. It is to be understood that any suitable trace may be employed.

The hame-body A is provided with suitable elements—as the staples 10, 10, for example—to which the forward ends of the members 11, 11 are connected. The staples 10—or the elements used in lieu thereof—are arranged on opposite sides of a point, indicated at *a*, at which it is desired to maintain the draft. In the forms shown in Figs. 1 to 4, the members 11, hereinafter termed "hame members," are flexible straps and each preferably is connected to its staple 10 by a link 12 preferably provided with spaced flattened ends 13 engaging opposite surfaces of the member 11 and secured to said member by rivets 13ª or other suitable means. It will be noted that the connection of each hame member 11 with the hame body is a loose or pivotal one. In the form shown in Fig. 1 the remaining ends of the hame members 11 are provided with sewed loops 14, while in the forms shown in Figs. 2 and 3 these remaining ends are provided with metallic eye-straps 14ª similar to the links 12. The sewed loops 14 or the eye-straps 14ª, as the case may be, engage a suitable member 15, hereinafter called "trace member," in a way which permits the latter to slide freely in the loops 14 or eye-straps 14ª in a direction lengthwise of the hame-body when the line of draft is changed. The trace member referred to is preferably of the style known in the art as a D but it may be of any suitable construction. The D consists of a link which has one substantially straight side and an opposite curved side. In Figs. 1 and 3, this D has a portion to which the trace B is directly connected, said portion having shoulders 18 between which the trace is arranged. In Fig. 2, the trace B′ is indirectly connected to the D, the latter being provided with a portion on which a hook 20 is revolubly mounted, the shank of the hook being mounted between shoulders marked 18ª on said portion. The hook 20 serves for the attachment of the trace B′ and hence forms a part of the trace member. The trace B′ in the one form and the hook 20 in

the other form should be held against sliding movement on the D, the shoulders 18 and 18ª serving such purpose effectively.

If desired the traces may be buckled to the respective D's. In Fig. 3 there is shown a desirable arrangement of this character, including a particular form of buckle (C) which is preferably, though not necessarily, employed. This buckle has a longitudinal opening 22, a front cross member 23, a rear cross member 24 and an intermediate cross member 25. The front cross member has an upwardly projecting pin 23ª. The trace B extends under the member 24, over the member 25 and also over the member 23 and the upwardly projecting pin 23ª engages an aperture in said trace as shown. The D is provided with a rearwardly extending folded strap 26 having a box loop 27 which receives the front end of the trace B and the said strap carries at its rear end a metal loop 28 which extends into the buckle C, between the members 23 and 25 and over the trace B. It will be noted that the cross piece 24 and the loop 28 on one side of the trace and the cross pieces 25 and 23 on the other side of the trace coöperate in holding the trace in place, and it will also be noted that the arrangement described is one which is particularly advantageous as a means for connecting a trace to a D or other loop forming an element of a hame and trace connection of the type herein exemplified. The upper side of the buckle C is preferably provided with a slot 29 through which extends strap 30 which connects the buckle to the saddle (not shown) and the lower side of the buckle is preferably provided with a slot 31 through which extends the belly-band 32. It will be understood that the form of connector shown in Fig. 1 may be provided with a buckle to which the trace is attached equally as well as the form shown in Fig. 3.

In Fig. 7 there is disclosed a form of strap end which may be used in lieu of any of the hame-members shown in Figs. 1, 2 and 3. This strap, marked 11ª, is provided with a broad projecting pad 11ᵇ which conduces to the comfort of the animal and gives an ornamental finish to this part of the harness.

The action of the device is indicated in Fig. 5, upon reference to which it will be noted that the unbroken lines show the positions of the parts corresponding to those shown in the remaining figures, this being assumed to be the normal position of the parts. Suppose the line of stress to be on line *n* in the direction of the arrow and suppose the line to be shifted, to *m'*, for example, the consequence will be that the elements 11 will revolve about their respective pivot points 10, 10 and the D at the same time will slip up until the parts assume for example the position indicated by the broken lines *x*. It is probable also that the flexibility and slight elasticity of the elements 11 will cause the upper one to lengthen slightly and the lower one similarly to contract to a certain extent. If the line of stress shifts to a place below the normal line *n*, as indicated at *n'*, the elements 11 will revolve about their respective pivot points at 10 and the parts will assume the relative positions indicated by the dot-and-dash lines *x'* for example. It will be noted that in these several positions the line of stress will pass through the same point, as *a*, on the hame body and hence it will be seen that the connection automatically so adjusts itself to the line of draft that the latter will always fall upon a point which is substantially centrally between the places at which the elements 11, 11 are connected to the hame body. The latter places of connection are so arranged with respect to each other that the strain will be distributed over a comparatively considerable area of the hame body so that the strain of draft is not localized on a single point on the hame-body. Hence, the danger of irritation and galling of the shoulder of the animal is overcome.

It is to be noted that the normal line of draft, in all cases, and in the diagram, is indicated as horizontal. It will be understood, however, that normally the trace will be inclined downwardly toward the rear. It also will be understood that, depending on the particular shape of the hame-body A, the upper and lower hame members 11 may vary in length relative to each other.

Having thus described the invention what I believe to be new and desire to secure by Letters Patent, is:—

1. The combination of a hame-body and a draft connection arranged constantly to maintain the line of draft through a predetermined point on the hame-body, the said draft connection comprising elements whose forward ends are loosely connected to the hame body at spaced points and an element arranged to be connected with a trace and slidably engaged with the rear ends of the first named elements.

2. The combination of a hame body and a draft connection arranged constantly to maintain the line of draft through a predetermined point on the hame-body, the said draft connection comprising elements whose forward ends are loosely connected to the hame body at spaced points and an element arranged to be connected with a trace and having a curved forward part loosely engaged with the rear ends of the first named elements and slidable with relation thereto.

3. The combination of a hame body and a draft connection arranged to cause the line of pull to pass constantly through a given point on the hame body, said draft

connection including a trace element and hame elements, the hame elements being flexible and having their forward ends loosely connected to the hame body at spaced points on the latter, and the trace element having connection with the rear ends of the hame elements and being arranged to slide relatively thereto in the direction of the length of the hame body.

4. The combination of a hame body and a draft connection arranged to cause the line of pull to pass constantly through a given point on the hame body, said draft connection including a trace element and hame elements, the hame elements being flexible and having their forward ends loosely connected to the hame body at spaced points on the latter, and the trace element directly engaging the rear ends of the hame elements and being arranged to slide relatively thereto in the direction of the length of the hame body.

5. The combination of a hame-body and a draft connection, the draft connection comprising flexible elements and a D, the flexible elements having their forward ends loosely connected to the hame body at spaced points along the length of the latter and the D being slidably mounted in the rear ends of said flexible elements.

6. A hame body, a D arranged to have connection with a trace, and flexible elements loosely connected to the ends of the D and diverging forwardly therefrom, said flexible elements having their forward ends loosely connected at spaced points to the hame body, the connection between the flexible elements and hame body being loose said D being arranged to maintain the line of draft along the trace through a predetermined point on the hame body.

7. The combination of a hame body, a trace, a draft connection between the hame body and trace, the said draft connection comprising elements whose forward ends are connected to the hame body at spaced places along the length of the latter, a trace element mounted to have slidable movement with relation to the rear ends of the first named elements in the direction of the length of the hame body and a buckle for connecting the trace element to the trace.

8. The combination of a hame body, a trace, a draft connection between the hame body and trace, the said draft connection comprising elements whose forward ends are connected to the hame body at spaced places along the length of the latter, a trace element mounted to have slidable movement with relation to the rear ends of the first named elements in the direction of the length of the hame body and a buckle for connecting the trace element to the trace, said buckle having parts arranged to be connected to the saddle strap and belly-band of the harness respectively.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE L. FORMAN.

Witnesses:
RAY M. MCGRATH,
LOUISE KOENIG KIEFER.