3 Sheets—Sheet 1.

W. B. GUERNSEY.

Horse-Collar and Hames.

No. 208,308. **Patented Sept. 24, 1878.**

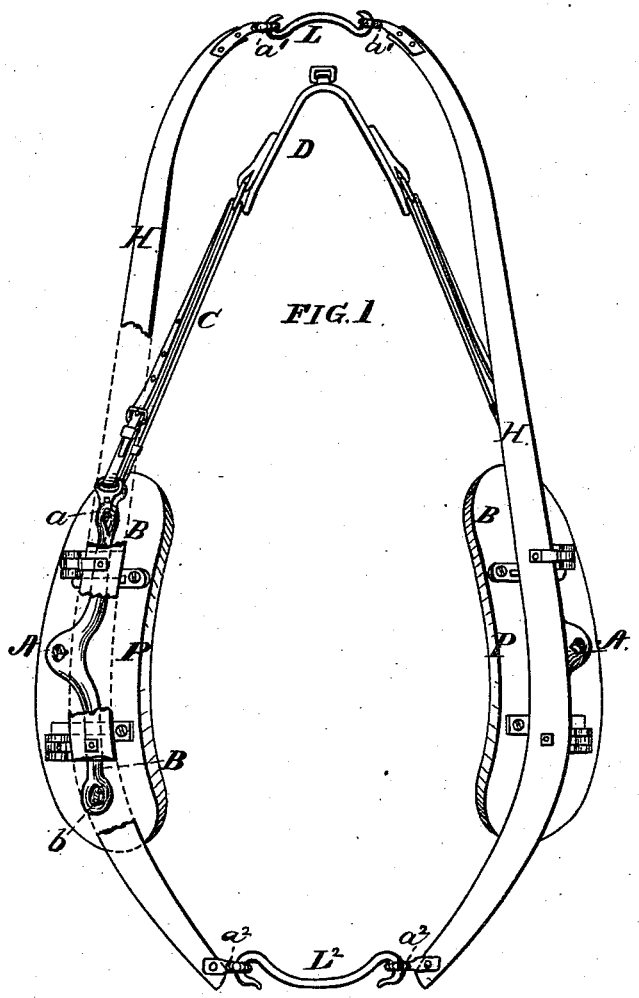

FIG. 1.

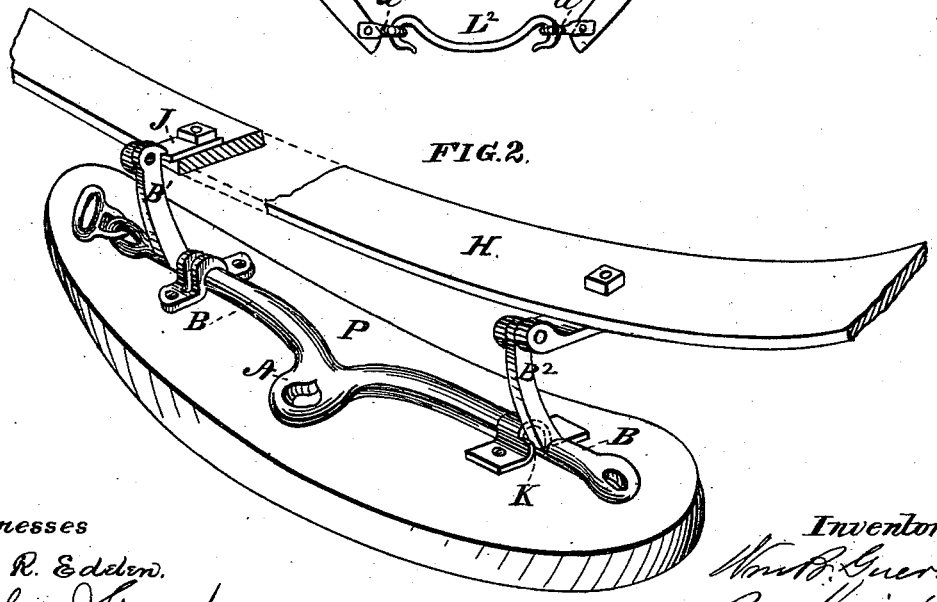

FIG. 2.

Witnesses
W. R. Edelen.
Chas. J. Gooch

Inventor
Wm. B. Guernsey
By Knight Bros.
Attys

3 Sheets—Sheet 2.

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FIG. 3.

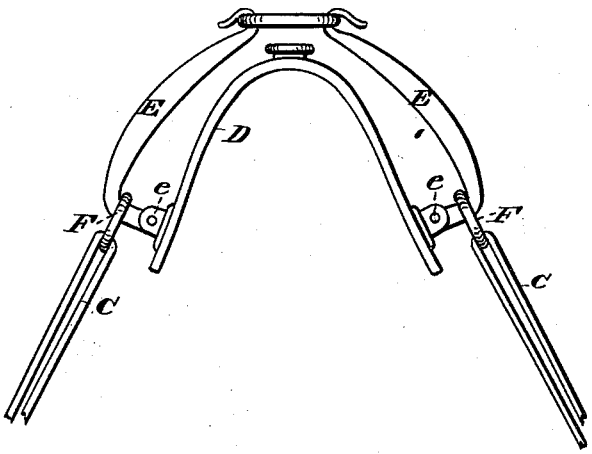
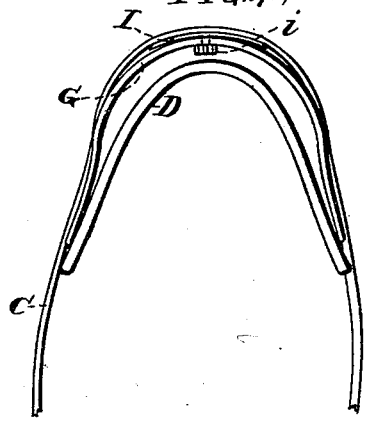


FIG. 4.



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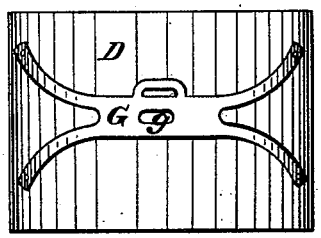
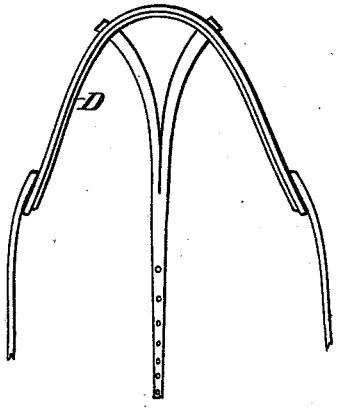


FIG. 6.



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Inventor
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Attys

W. B. GUERNSEY.

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FIG. 7.

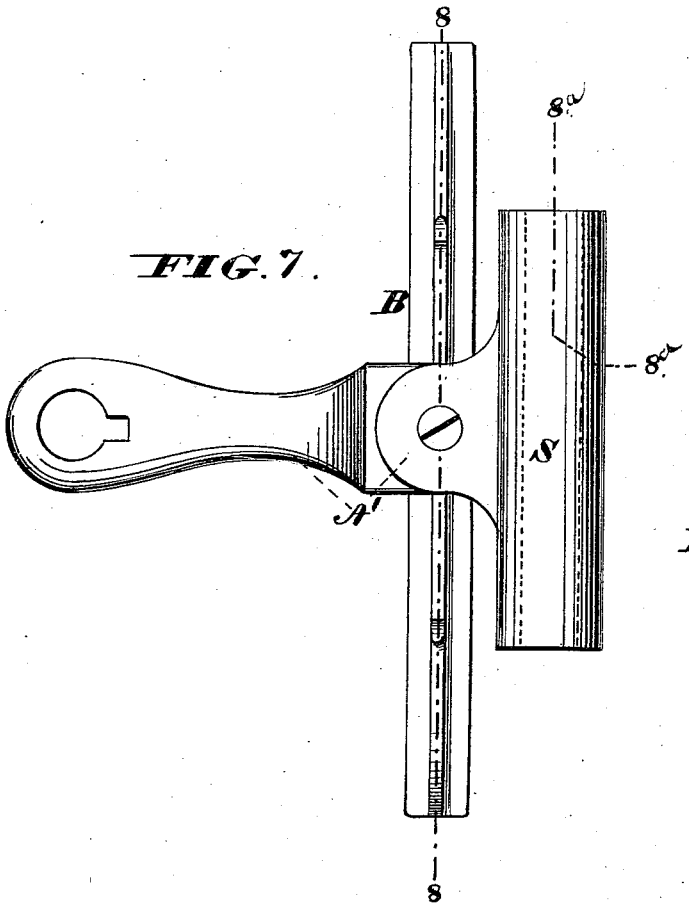


FIG. 8.

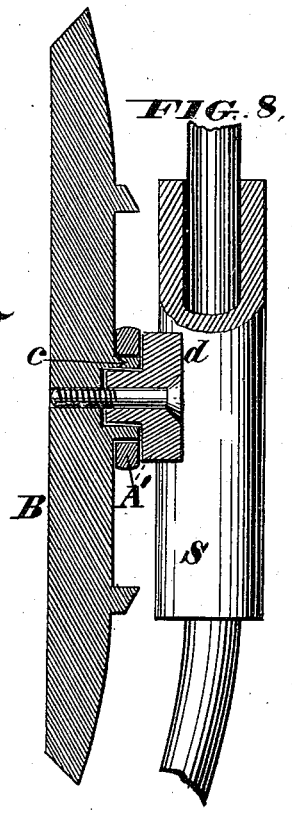
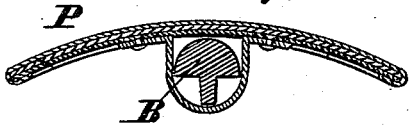


FIG. 9.



WITNESSES

Chas. J. Gooch

Alex. H. Galt

INVENTOR

William B. Guernsey

By Knight Bros Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM B. GUERNSEY, OF NORWICH, NEW YORK, ASSIGNOR TO JANE M. GUERNSEY, OF SAME PLACE.

IMPROVEMENT IN HORSE COLLAR AND HAMES.

Specification forming part of Letters Patent No. **208,308**, dated September 24, 1878; application filed November 2, 1877.

To all whom it may concern:

Be it known that I, WILLIAM B. GUERNSEY, of Norwich, in the county of Chenango and State of New York, have invented a new and useful Improvement in Horse-Hames, of which the following is a specification:

The nature and object of the invention may be stated as follows:

This invention consists in the peculiar construction of an improved combination of hames and collar for horse-harness, as hereinafter set forth.

The entire structure is adapted to be made of metal in the most light and cool form. Comfortable and durable pads possessing the requisite combination of firmness and elasticity, are provided, and these are made self-adjusting to the varying angles of the shoulders of different animals and movable therewith. Arms or bars are provided for the attachment of the traces at the requisite distance from the shoulders, and they serve also to support the pads, being applied so as to have a limited rotation on the hames, which are thus relieved from all torsional strain, and adapted to be fastened at both ends by simple loose joint-links. The trace-tug arms are also pivoted so as to render them adjustable as to their angle to suit horses of different heights.

The hames are supported from the neck by a flexible connection, permitting them to rise and fall with the motion of the horse, and the link attachments between their extremities permit the opposite forward and backward motion of their respective ends, which occurs at every step.

In the accompanying drawings, Figure 1 is a front view of a pair of hames with pads and attachments, a part of one of the hames being broken away to expose the pad-connection. Fig. 2 is a perspective view of a portion of one hame and its connected pad on a larger scale. Fig. 3 is a front view of a neck-saddle adapted for heavy work. Fig. 4 is a front view of a neck-saddle of modified form. Fig. 5 is a top view of the same, omitting the hame-straps. Fig. 6 is a front view of a neck-saddle illustrating another modification. Fig. 7 is an elevation of a trace-tug arm and its appurtenances, illustrating a double swivel-joint. Fig. 8 is a vertical section of the same on the lines 8 8, 8^a 8^a, Fig. 7, showing a portion of a hame in elevation. Fig. 9 is a transverse or horizontal section of one of the shoulder-pads in the plane of one of the fastenings of its pressure or connecting bar.

A pair of wrought-iron hames, H H, are united in the form of a collar by loose-joint metallic links L L^2. Trace or tug-arms B B are attached to the respective hames by swivel or hinge joints so as not to twist the hames, and self-adjusting shoulder-pads P P are attached to these arms. The links L L^2 engage with hooks or eyes a^1 a^2 on the respective ends of the hames. The design is to have links of proper length, selected and applied to each pair of hames in fitting them to the horse, after which the hames and links may be permanently interlocked by clinching or closing the hooks; but the hooks may be left open at one or both ends; or ordinary straps or other fastenings may be employed, if preferred.

The hames H are, by preference, made of flat bars, as shown in Figs. 1 and 2; but they may be round in cross-section, as represented in Fig. 8, and the swivel-joints between the same and the rotary or swinging arms A′ B may be fastened by the simple addition of collars *c*, or equivalent sleeves or enlargements, at the proper points. Loose sleeves S embrace the hames between the collars, and are constructed with lugs *d*, perforated at right angles to the axes of the sleeves for the attachment of the arms A, in such a manner that they may be adjusted or set at different angles to suit horses of different heights.

In the preferred form of the invention illustrated in Figs. 1 and 2, I employ a pad which is to be rigid enough on the back to transmit the pressure of the bars B to the shoulder of the horse. The bars B are hinged to the hames H, and are provided with a loop, A, for attachment of the trace or tug. The bars B B have rigid right-angled arms B^1 B^2, provided at their extreme ends with hinge-joints, which support the hames. These arms in extreme positions rest on stops J K, attached to the hames and pad, to limit the motion and keep the pads from opening too far toward the tugs, and to keep the whole bars from opening from the hame beyond a fixed point; otherwise when the traces are slack the pads are

liable to get in such position as will render the whole thing useless. The hames are to be united at top and bottom by links L L^2, either with or without hame-straps, adjustable as to length, and giving freedom of motion to the ends of the hames. I prefer to use a hame-strap and buckle with a link-connection, so as to obtain perfect flexibility, while the strap affords adjustability. Every step of the horse throws forward the upper end of one of the hames and retracts the other, the lower ends being, of course, reversed. Without the links this motion would twist and weaken the strap, while the strap without the link would tend to restrain the motion.

The bars B also carry loops *b* for the pole-straps to be attached to; also loops *a* for the supporting-straps C, attached to a neck-saddle, D, of suitable construction.

The importance of the flexible connection of neck-saddle to the combination is as follows: Every step of the horse tends to twist the collar and to rotate it across the neck. This is the cause of horses' necks frequently becoming chafed and sore. In my collar the pads may lift alternately with the motion of the horse; but the neck-saddle remains all the time stationary, so that the horse is not chafed, as he would otherwise be.

For heavy two-horse work it is preferred to use one of the styles shown in Figs. 3, 4, 5 and 6. The latter of these is simply a rigid or metallic saddle, D, which is less liable to render across the horse's neck than a pliable one.

Fig. 3 shows a pair of levers, E E, set up or hinged at *e e* to either a pliable or rigid saddle, D, and the straps C C attached to the said levers by links F F at either side. These levers are in constant motion while the horse is working, turning with the step of the horse; but the saddle does not move upon the skin.

Figs. 4 and 5 show a bridge, G, mounted on the saddle D, and provided with a transverse slot, *g*, to receive a lug, *i*, on a plate, I, which connects the straps C C.

I claim as new and desire to secure by Letters Patent—

1. The combination of a connecting-bar, pad, and hame, hinged substantially as shown, so as to permit said hame, connecting-bar, and pad to turn on each other on vertical axes, as set forth.

2. The combination of a connecting-bar constructed with trace or tug loop, and a pad and hame, hinged substantially as shown, and for the purpose specified.

3. A bar for connecting a pad and hame, constructed with trace or tug loop, pole-strap loop, and neck-saddle loop, as set forth.

4. A pad and connecting-bar, hinged together, and provided with a stop or stops to limit their relative motion, substantially as set forth.

5. The combination, with the bar and a hame, of the hinges and a stop or stops to limit the opening of said hinges, as and for the purposes set forth.

6. The combination, with a connecting-bar, of the neck, saddle, and straps, as and for the purpose set forth.

7. The combination of pads, connecting-bars, and hames, secured together, the pads having universal movement, substantially as shown and described.

8. The combination of pads, connecting-bars, hames, and neck-saddle, the pads and hames being hinged to the bars, so as to have but a limited motion thereon, the neck-saddle being connected thereto by flexible connections, the line of support of pole and of effort through the trace passing through the bars, and the hames being flexibly connected at top and bottom, substantially as shown and described, and for the purposes set forth.

9. A rigid neck-saddle coupled to the connecting-bar by flexible straps, as and for the purpose shown and described.

10. A neck-saddle constructed with a metallic arch and supporting-web, substantially as set forth.

11. The compound joints between the trace-tug arms A′, their pivotal sleeves S, and the pressure-bars B, having axes at right angles to those of the sleeves, and constructed and arranged substantially as described, the same serving to render the trace-tug arms and shoulder-pads independently adjustable as to their angle with reference to the hames.

W. B. GUERNSEY.

Witnesses:
I. W. BROWNE,
C. L. FERRY.