

(No Model.)

E. L. BRUNDAGE.
HORSE COLLAR.

No. 461,419.

Patented Oct. 20, 1891.

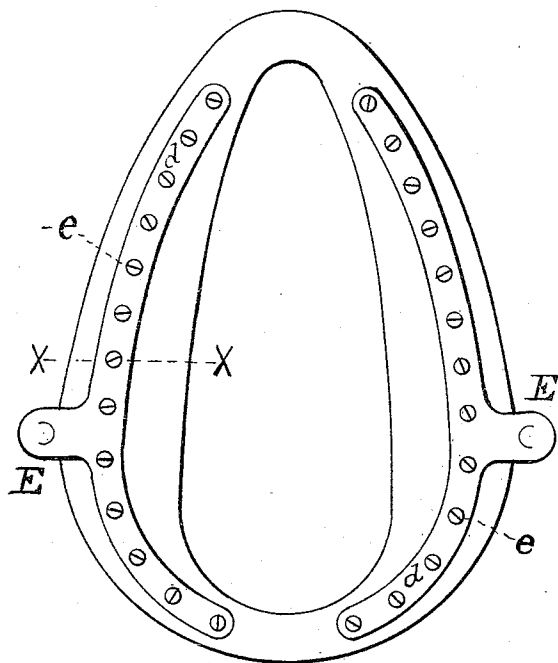


Fig. 1.

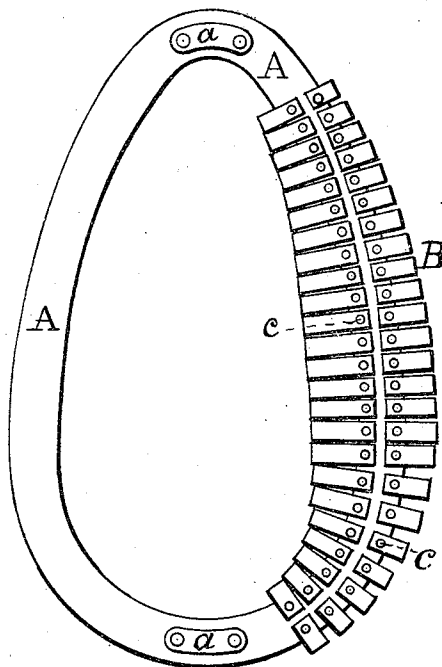


Fig. 2.

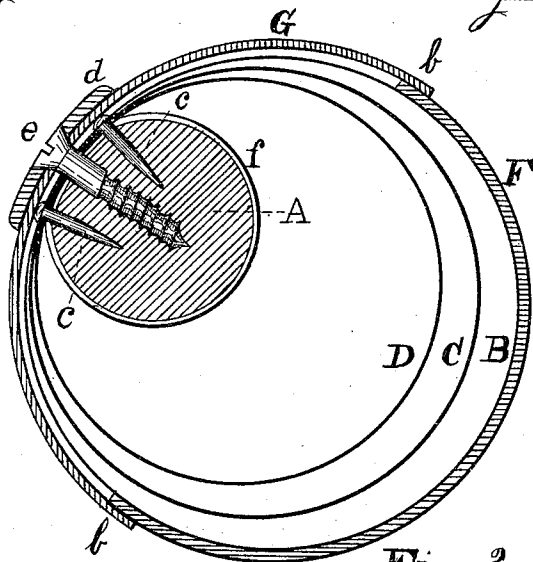


Fig. 3.

WITNESSES:

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HORSE-COLLAR.

SPECIFICATION forming part of Letters Patent No. 461,419, dated October 20, 1891.

Application filed July 14, 1890. Serial No. 358,769. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. BRUNDAGE, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in the Construction of Horse-Collars, of which the following is a specification.

The object of my invention is to provide a horse-collar with cushions which shall furnish a full, complete, and uniform bearing upon the shoulders of the animal, and at the same time be perfectly flexible and conform to the various shapes and contours of the shoulders, whether for light or heavy draft service, in one and the same collar.

The invention consists in the improved horse-collar with spring-cushions and the combination and arrangement of parts thereof, as hereinafter described, and finally embodied in the clauses of the claims.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a front view of a horse-collar embodying my invention. Fig. 2 is a view of the frame to which the springs are attached, one side of the springs as removed and the other side showing the springs as attached thereto with the outside or spring covering removed; and Fig. 3 is an enlarged cross-section through the line *xx*, Fig. 1, showing the construction and arrangement of the frame, springs, and covering.

In said drawings, A represents the collar-frame, made of bent wood and shaped for the attachment of springs B, the whole to form a horse-collar shaped and covered as desired and the whole to constitute an elastic cushion horse-collar. The frame A is made in two parts, either of wood or metal, and bound together at top and bottom with metal break-joints *a a*, front and back, riveted or screwed to the frame, and binds the two sections together as one; or otherwise they may be hinged together at top and fitted with a catch or lock at bottom, so as to open for placing over the animal's neck. Various devices for locking open collars are well known and therefore need not be described.

The springs B are made preferably of thin band-steel of any desired width—say from

one-half inch to one inch wide—and are formed as hoops or rings of varying sizes to conform to the varying shape and design of the collar, and are made fast at their respective ends to the frame by nails or screws *c c*. The back, or that portion which bears upon the animal, is covered, preferably, with an india-rubber sheet-packing F—cloth, leather, canvas, or other material, as may be preferred, and forming cushions, as will be understood by reference to the drawings—which in the draft upon the collar will, owing to the flexibility of the springs, conform to the shoulders of the animal and be perfectly easy and comfortable and free from undue friction by reason of their rolling action and free movement with the motion of the shoulder rather than rubbing, as in ordinary collars.

The front of the collar is preferably covered with leather G and united to the rubber at *b b* by sewing or cement.

In the construction and arrangement of the springs it is essential that an easy or pliable and free action of the cushion should be had in all degrees of draft—as, for example, in the draft of an empty wagon or a medium or full load the springs of the cushion will have an equally elastic, easy, and free action. This essential feature I obtain by a system of multiple spring-hoops, one within another, as shown in section, Fig. 3, and in line *xx*, Fig. 1. The hoop-springs are varying diameters and arranged upon the inside of the collar, or that part constituting the bearing upon the animal, as that the several springs are so divided as to leave a space of one-fourth of an inch, more or less, as may be desired, between them, so that in the draft upon them a light load acts only upon the outside hoop B to depress the same, and for a medium load yields and bears upon C, and for a full and heavy load B further yields with C, and the latter bears upon D. Thus a light load is borne upon the series of outside springs B, and a heavy load borne upon the series B, C, and D with equally free action, and a most flexible spring-cushion in all degrees of draft is secured without liability of breaking by reason of its lightness and flexibility and not to crush or set by reason of its multiple arrangement. Only in most extraordinary heavy draft these multiple spring-hoops need

be increased to more than three in a series or capacity, one within another, as shown in Fig. 3, and as a rule in the lower portion only, where the greatest strain is exerted upon the collar, to about one-third of the length of the whole, and thence in a series of two hoops extending to or about one-half or three-fifths of the length of the whole. The strain upon the remaining or upper portion of the springs is so reduced as to require only continuous single spring-hoops regularly reduced in diameter as to give desired shape to the collar, and all made fast to the frame A, as described.

The draft-eyes E—a substitute for the hames in ordinary collars for the attachment of traces—are connected as one with a thin plate *d*, extending therefrom up and down upon the collar, as will be seen, and secured by screws *e* to the frame A.

In the employment of bent wood for the frame A, I wind the same with thin band-iron *f*, to strengthen the same against splitting from the entering nails or screws, as described.

Instead of the wood frame thus bound, metal pipe may be substituted or other metal frame so formed as to have requisite strength and lightness, as may be found preferable.

By this construction of frame, to which are secured the springs, greater simplicity, strength, lightness, and cheapness are attained than in a shell-frame containing springs.

A similar frame for securing the springs thereto may be constructed, to be outside of the springs instead of inside, as described, and will be understood.

In certain light-work service the springs may be made wholly single, as described, in the upper portion of the collar.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A horse-collar comprising the body portion and the yielding spring-cushion, and the said cushion comprising hoop-springs secured to the body portion thereof and having a suitable covering, substantially as and for the purpose described.

2. A horse-collar comprising hoop-springs split and their meeting ends secured to the frame or body part at the front and having a suitable covering, substantially as and for the purpose described.

3. A horse-collar comprising the body portion and the yielding spring-cushion, the said cushion comprising hoop-springs secured to the body portion thereof and having a suitable covering combined therewith, the draft-eyes E, and extension *d d*, the same constituting hames, substantially as and for the purpose described.

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