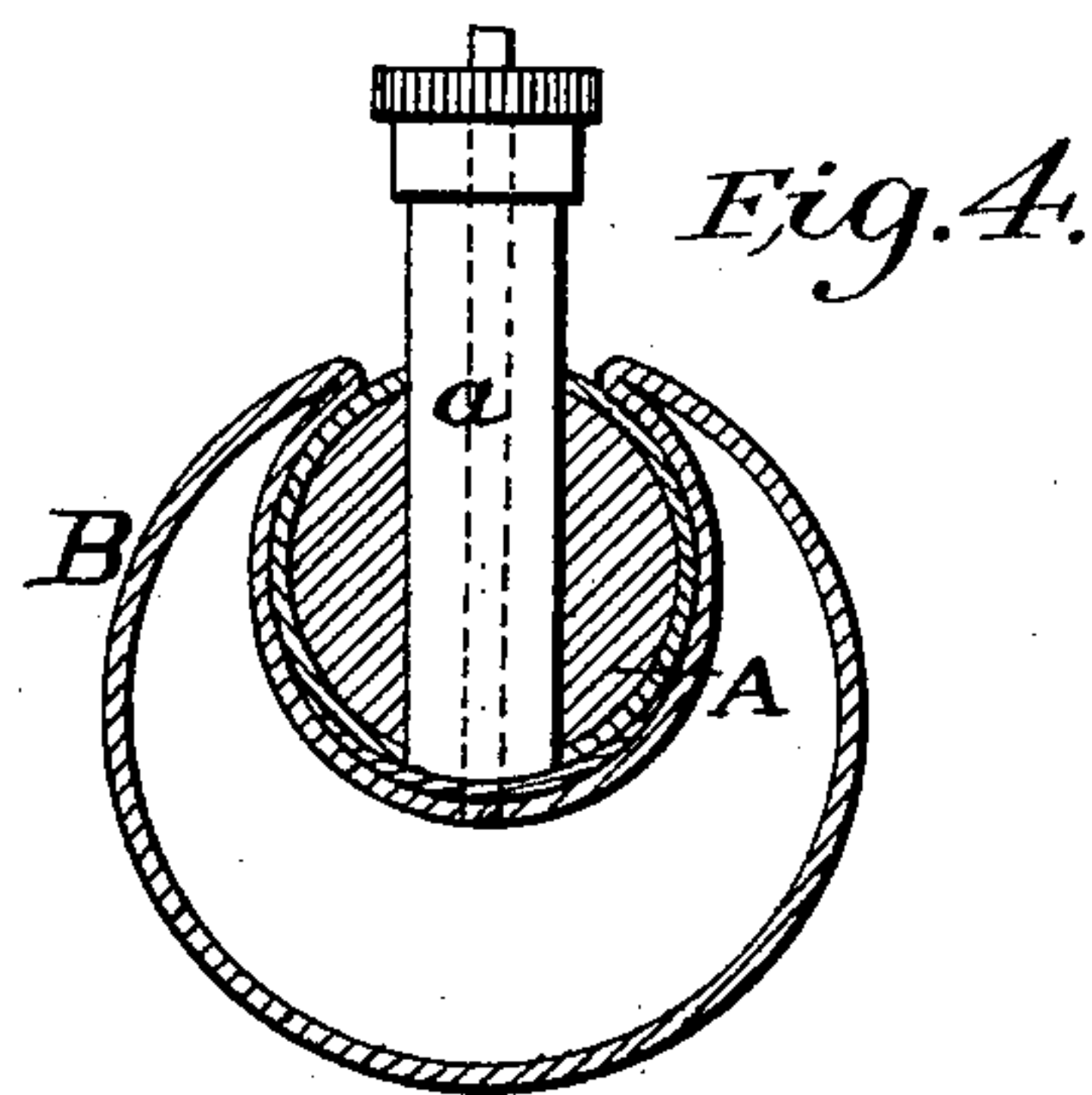
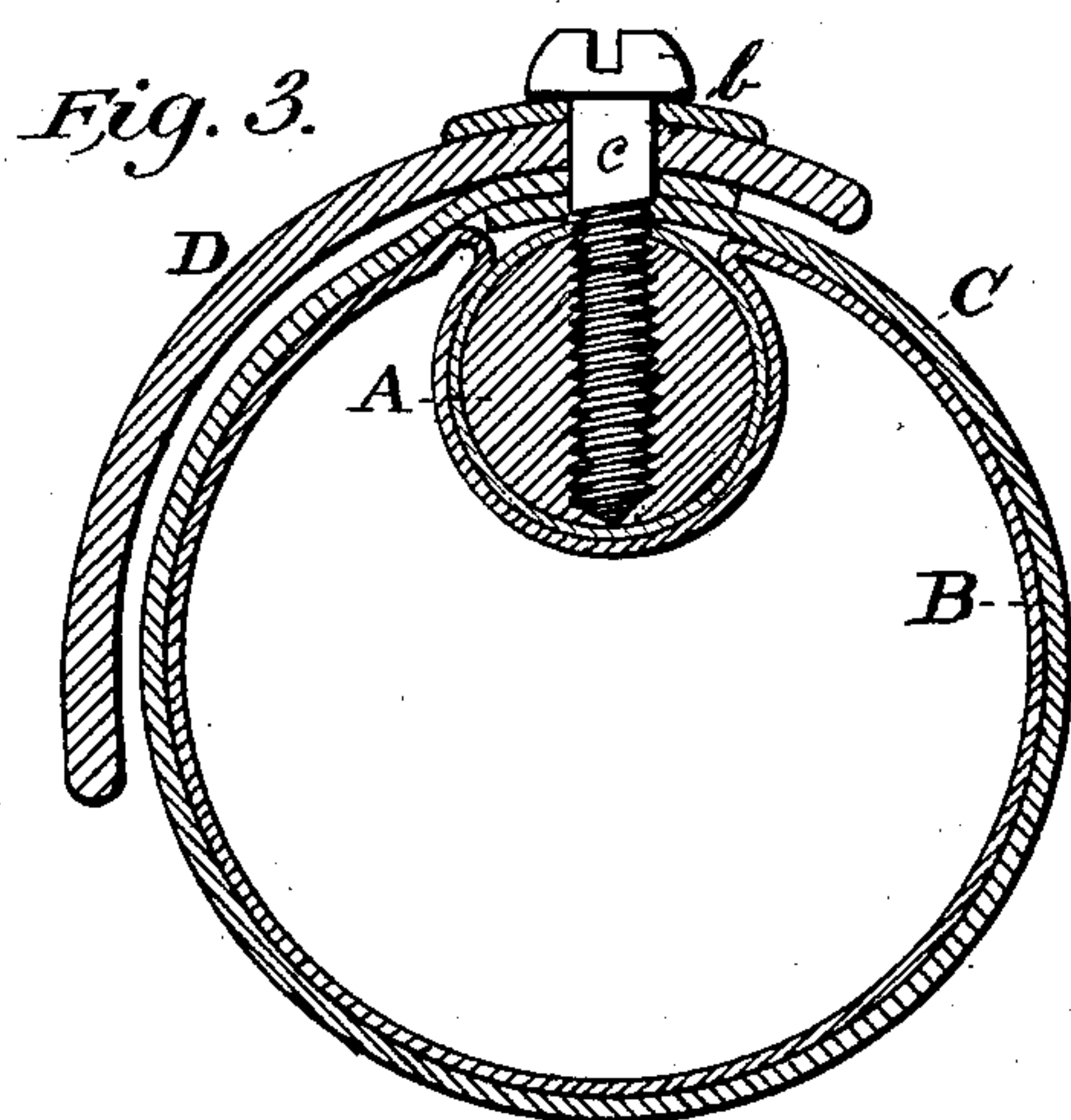
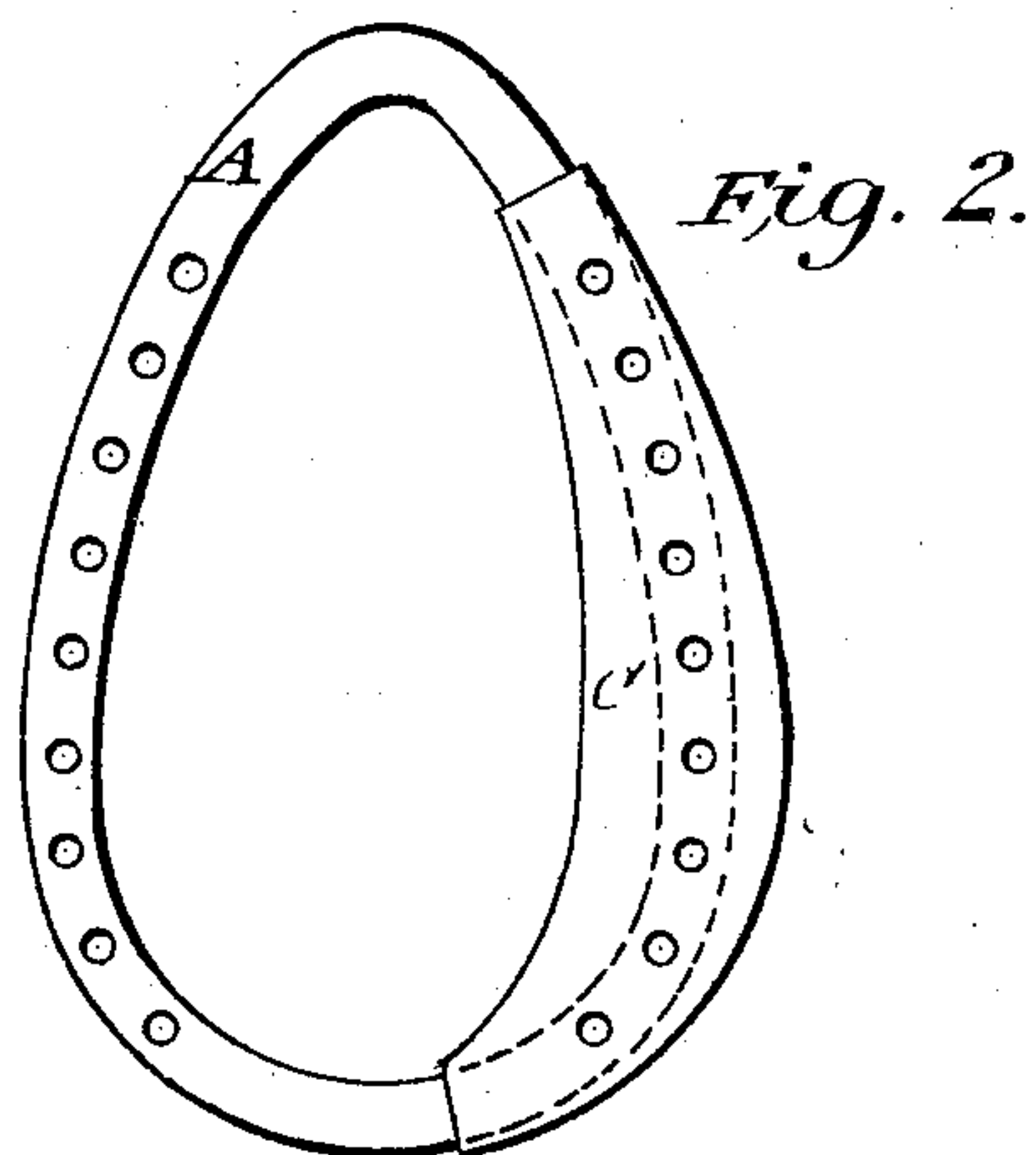
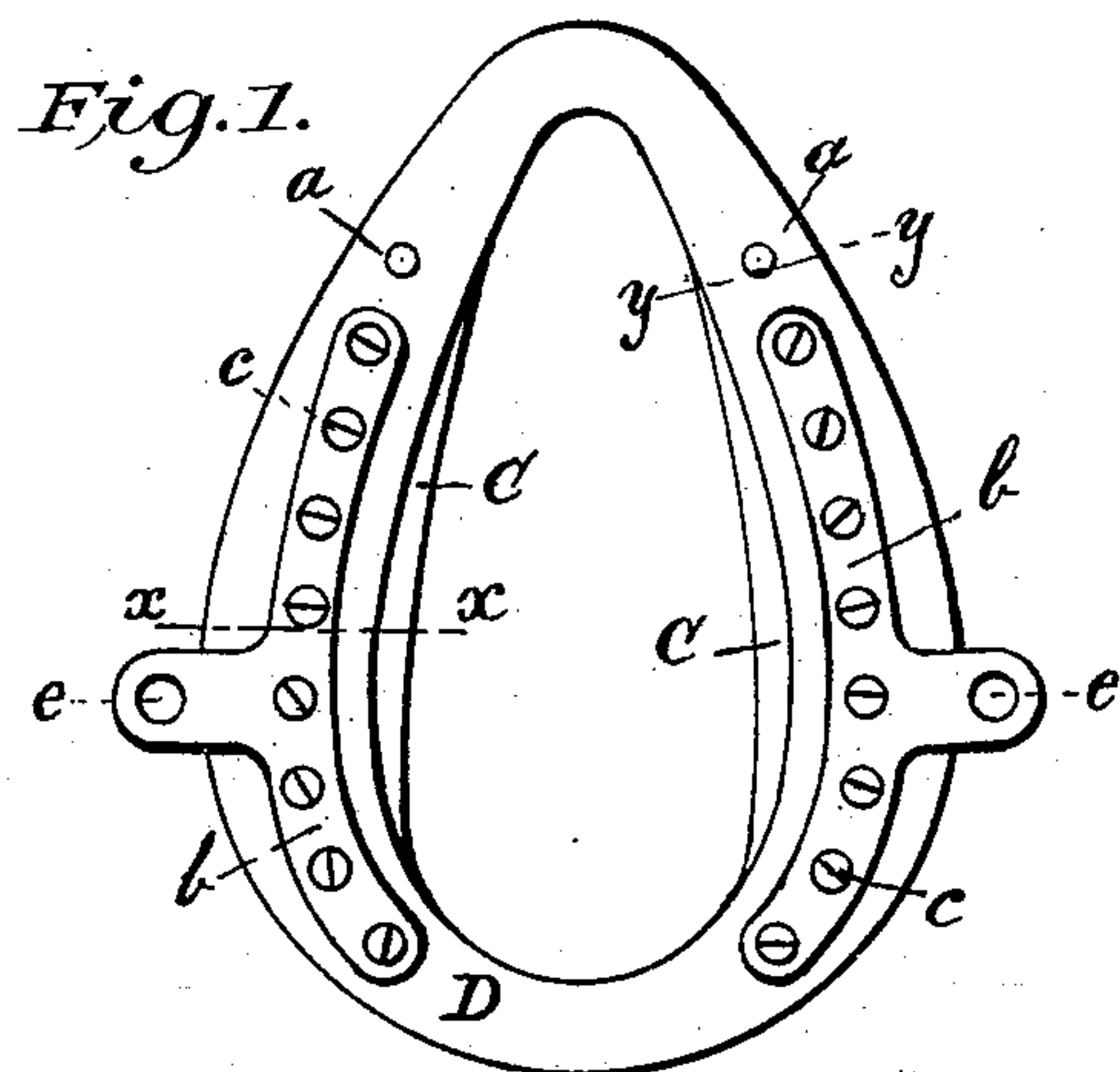


(No Model.)

E. L. BRUNDAGE.
HORSE COLLAR.

No. 599,981.

Patented Mar. 1, 1898.



WITNESSES:

H. C. Manning
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UNITED STATES PATENT OFFICE.

EDWIN L. BRUNDAGE, OF EAST ORANGE, NEW JERSEY.

HORSE-COLLAR.

SPECIFICATION forming part of Letters Patent No. 599,981, dated March 1, 1898.

Application filed September 4, 1896. Serial No. 604,898. (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 clear and exact specification.

The objects of this invention are to more perfectly, completely, and uniformly cushion the bearings of the collar upon the animal's shoulders and cause it to conform readily and with an even pressure to the various curvatures and contours thereof assumed in traveling; to increase the strength and durability of the collar; to secure greater neatness of appearance; to enable the pneumatic parts of the collar to be employed in that class of collars known as "lock-collars," and to obtain other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved pneumatic horse-collar and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a front view of a horse-collar embodying my improvements. Fig. 2 is a detail view of a certain tubular frame to which the pneumatic pads are adapted to be attached, one pad being in place. Fig. 3 is an enlarged cross-section through line *x*, Fig. 1, showing the detail construction more fully and clearly; and Fig. 4 is a section taken on line *y*, showing a valve for inflating one of the pneumatic pads.

In said drawings, A represents the frame. The core of this is made of bent wood in shape to conform to the general contour of the neck or shoulders of the animal. To secure a maximum of stiffness and strength and to prevent the core from splitting, and, furthermore, to secure a firmer hold for certain fastening-screws *c c*, I reinforce the wooden core by inclosing or incasing it in a thin metal sheath, tube, or pipe, the wood and tubular

metal being preferably bent together over a suitably-shaped form. Over and more or less completely around said frame A, at the sides thereof, are secured the pneumatic pads or cushions B B. These are made of rubber sacs, vulcanized and rendered thoroughly impervious to air. Said pads are not perforated by means for holding them in place and thus rendered pervious and liable to a leakage of compressed air therein. Where they engage the frame, the pads are, when inflated, deeply grooved to receive said frame, so that said pad extends around the frame, rather than lying within a concavity within said frame, as in a certain prior construction, my construction conducing to a broader elastic bearing-surface and admitting a greater freedom of the rolling action of the pads on the horse and in correspondence with his movements. The inflated sacs present a smooth even surface to the outer jacket, different from the bearing-surface obtained by a series of separate springs, so that the wear on the jacket outside of said sacs will be uniform and even and not in stripes, as heretofore.

Outside of and around the thin impervious fabric of the pads I arrange leather jackets C C, which serve to reduce the liability of perforation or rupture of the impervious pneumatic pad when pressure is brought to bear thereon. Said jackets also serve in fastening the pads in place. With this latter object in view said jackets or covers extend around both the pads and the frame, as shown in Fig. 3, the edges of said jackets overlapping where the frame lies flush with the longitudinal rib-like extensions of said pads, lying, when the pad is inflated, on opposite sides of the frame-receiving grooves therein. At the exposed flush surface of the frame the screws *c c* pass through said overlapping portions of the jacket, through perforations in the tubular sheath, and into the wooden frame, where the said screws find a firm hold, inasmuch as the wood cannot split because of the sheath. Between the heads of the screws and the said overlapping parts I prefer to insert what I may call "shells" D and outside of said shells draft eye-plates *b*, the latter extending longitudinally along the shells and being of metal, giving increased strength and rigidity to the collar.

The shells D may be of indurated fiber, papier-mâché, or other desirable material. They are concavo-convex in cross-section, so as to extend to some extent around the outer sides of the collar to prevent undue lateral expansion of the pads, especially where said pads are not under high tension or inflation. They are not intended to serve as the frame of the collar, and thus are of the light materials above referred to; but they are adapted to receive a high finish and give the desired ornamental effect to the collar. They also serve to some extent in giving shape to the pads and in directing the pressure upon the animal's shoulders.

Valves *a a* are attached to the pads and are constructed, arranged, and operated in substantially the same manner as the valves applied to the pneumatic tubes of vehicle-tires. The screws permit a quick removal of the jacket to enable a puncture to be mended or for other purposes.

In preparing the collar for use the collapsed inflatable pads are inclosed in the jackets in suitable connections with the valves. Said jackets are then turned over the frame, the overlapping edges lying therein. The shells are then placed in position, and also the draft eye-plates, which cover said overlapping edges and serve in clamping and holding said edges firmly and smoothly to the frame. The screws are then inserted and hold the parts in fixed relation. I then inflate the pneumatic bags forming the impervious pads, and because of the thinness of the rubber and its elasticity the said bags fill the space within the jackets, passing upon opposite sides of the frame to inclose the same, as shown. The collar is then ready for service. The pads being in pairs on the longitudinal parts of the frame, it is obvious that the latter, where exposed at the ends, may be cut, and thus be in sections like those of lock-collars.

In certain collars for light work they may be much reduced in size of diameter and the

shell D be dispensed with and the outside pads C C made of enameled leather or otherwise to make a good and desirable finish.

Having thus described the invention, what I claim as new is—

1. The improved pneumatic collar comprising a frame, a pneumatic sac or pad extending around the sides of said frame, when said sac or pad is inflated, and a jacket inclosing both the frame and sac, the said pad or sac presenting a continuous and even bearing-surface to said jacket, and a pneumatic valve and draft eye-plates, all combined substantially as set forth.

2. The improved horse-collar comprising the frame, the frame-inclosing jacket of leather, the edges of which overlap upon said frame, the pneumatic pad within said jacket, the exterior clamp-plate, and screws extending through said clamp-plate, overlapping edges of the jacket and into said frame, substantially as set forth.

3. The improved horse-collar, comprising the frame corresponding in general shape to the neck or shoulders of the animal, a leather jacket, a draft eye clamp plate clamping the edges of said jacket, and screws, all arranged and operating, substantially as set forth.

4. The improved horse-collar, comprising the inclosed frame, the grooved, inflated pads, the jackets covering both pads and frame, and means for removably fastening said jackets over said pads and frame and draft eye-plates, all arranged and operating, substantially as set forth.

5. The improved horse-collar comprising the inclosed frame and pneumatic pads, a jacket for inclosing said frame and pads, concavo-convex shells, draft eye clamp plates and screws, all combined and operating, substantially as set forth.

E. L. BRUNDAGE.

Witnesses:

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