

(No Model.)

C. K. MARSHALL.
HORSE COLLAR.

No. 428,218.

Patented May 20, 1890.

Fig 1.

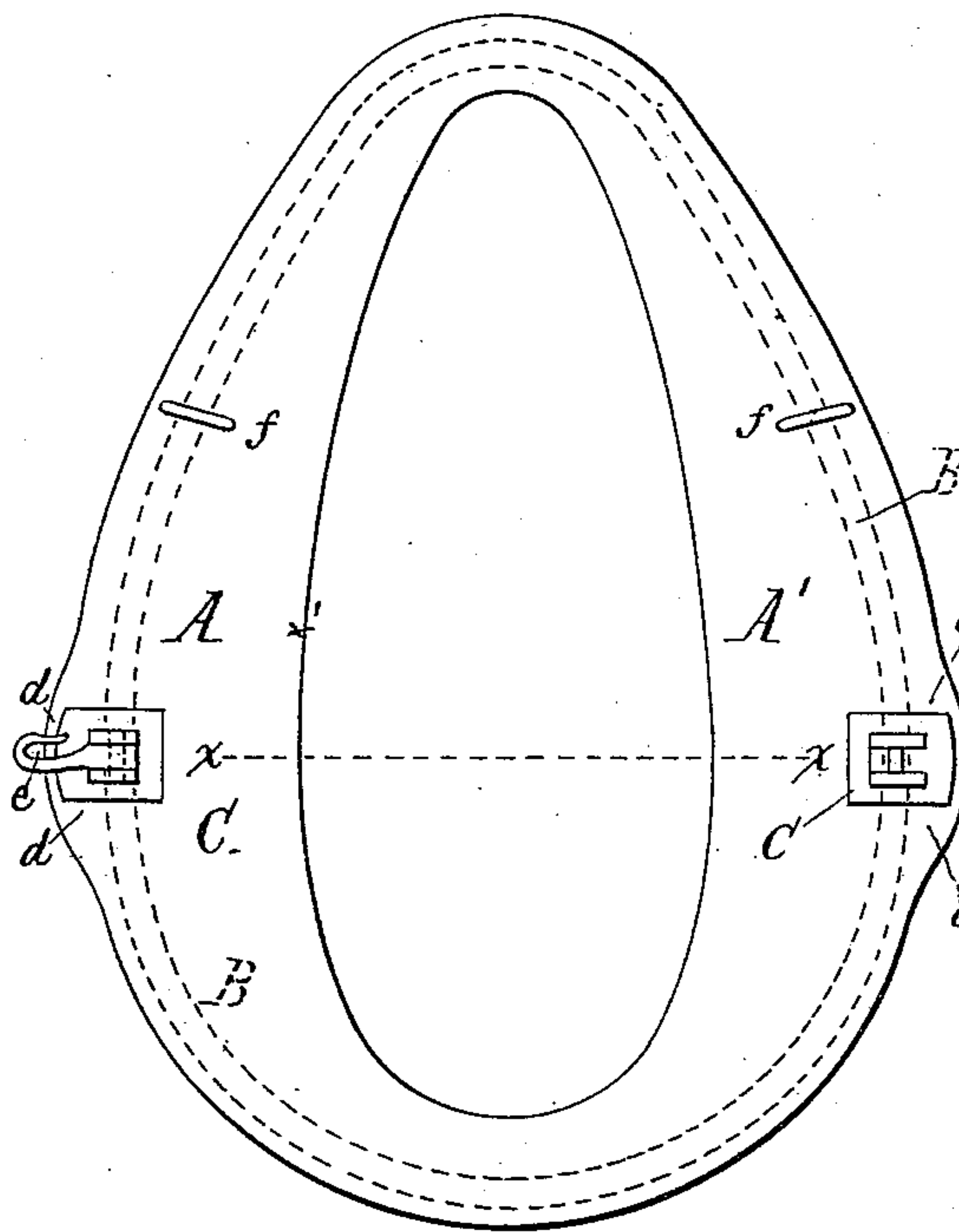


Fig 2.

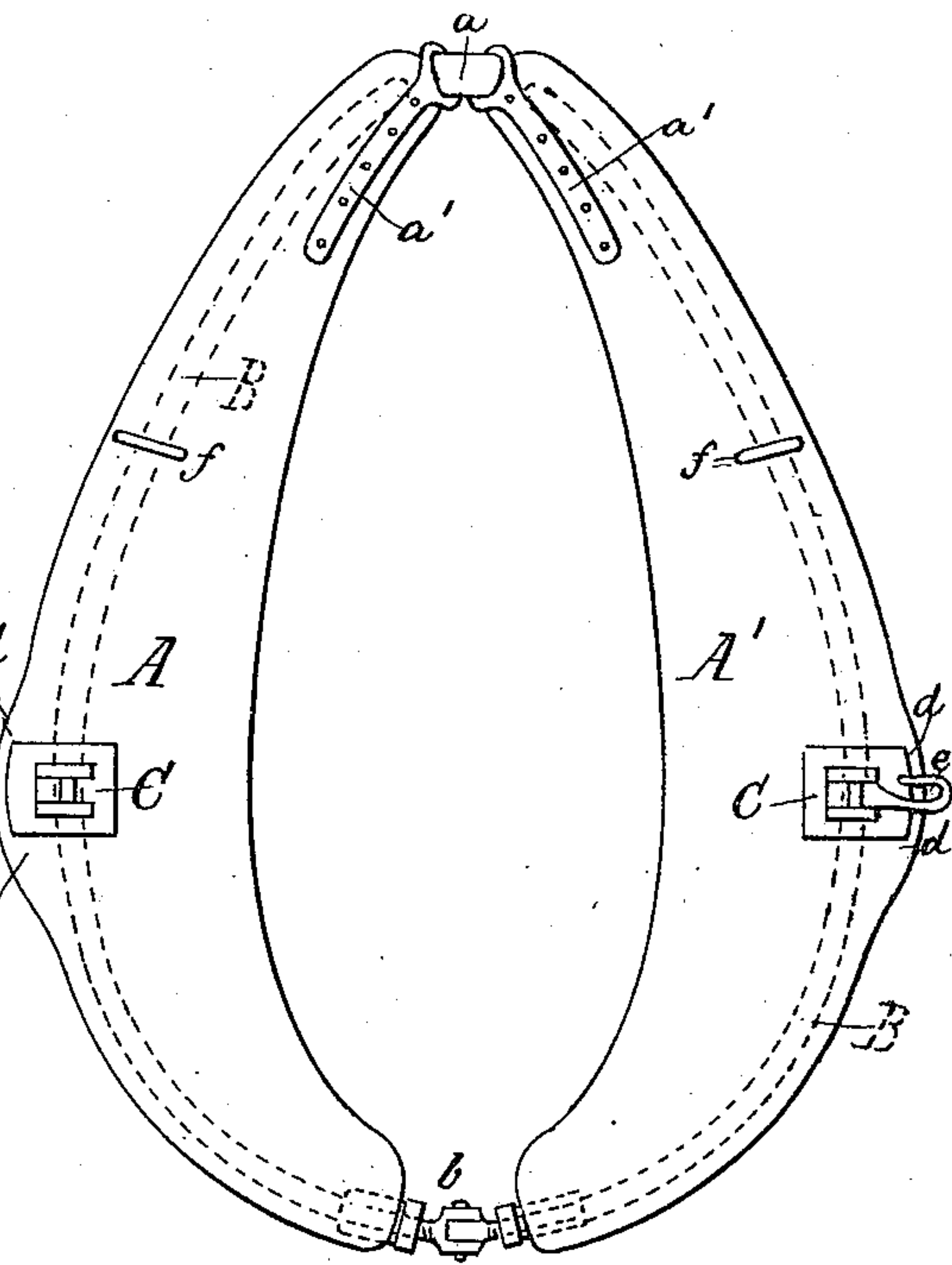


Fig 3.

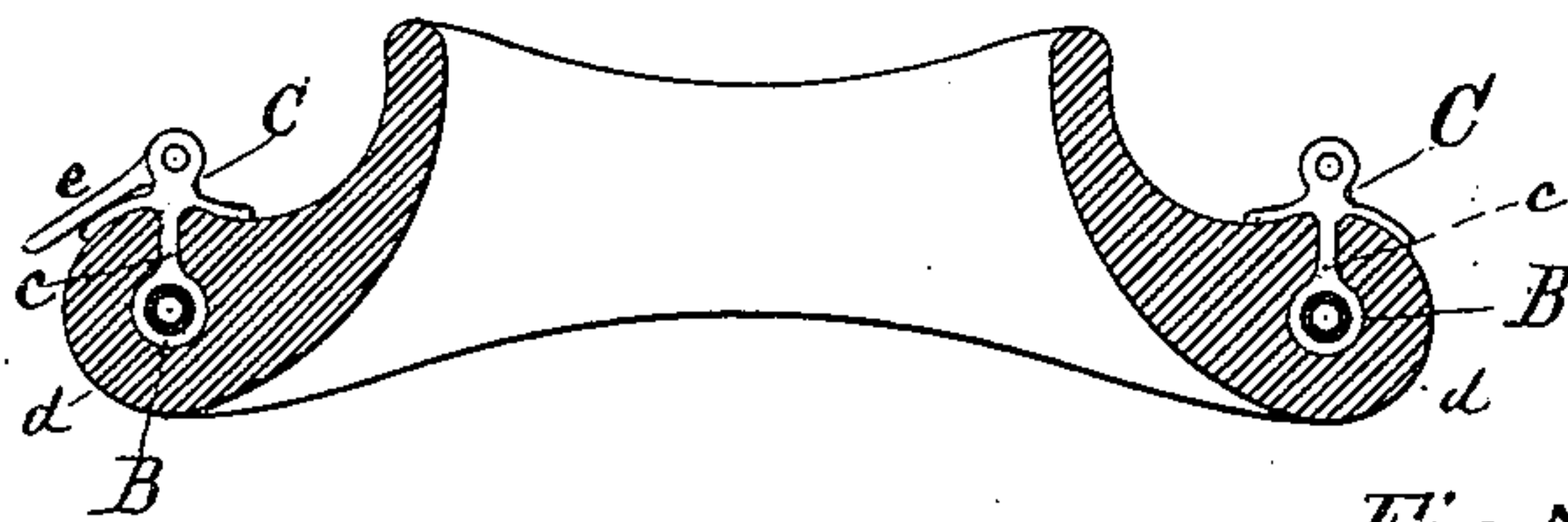


Fig 4.

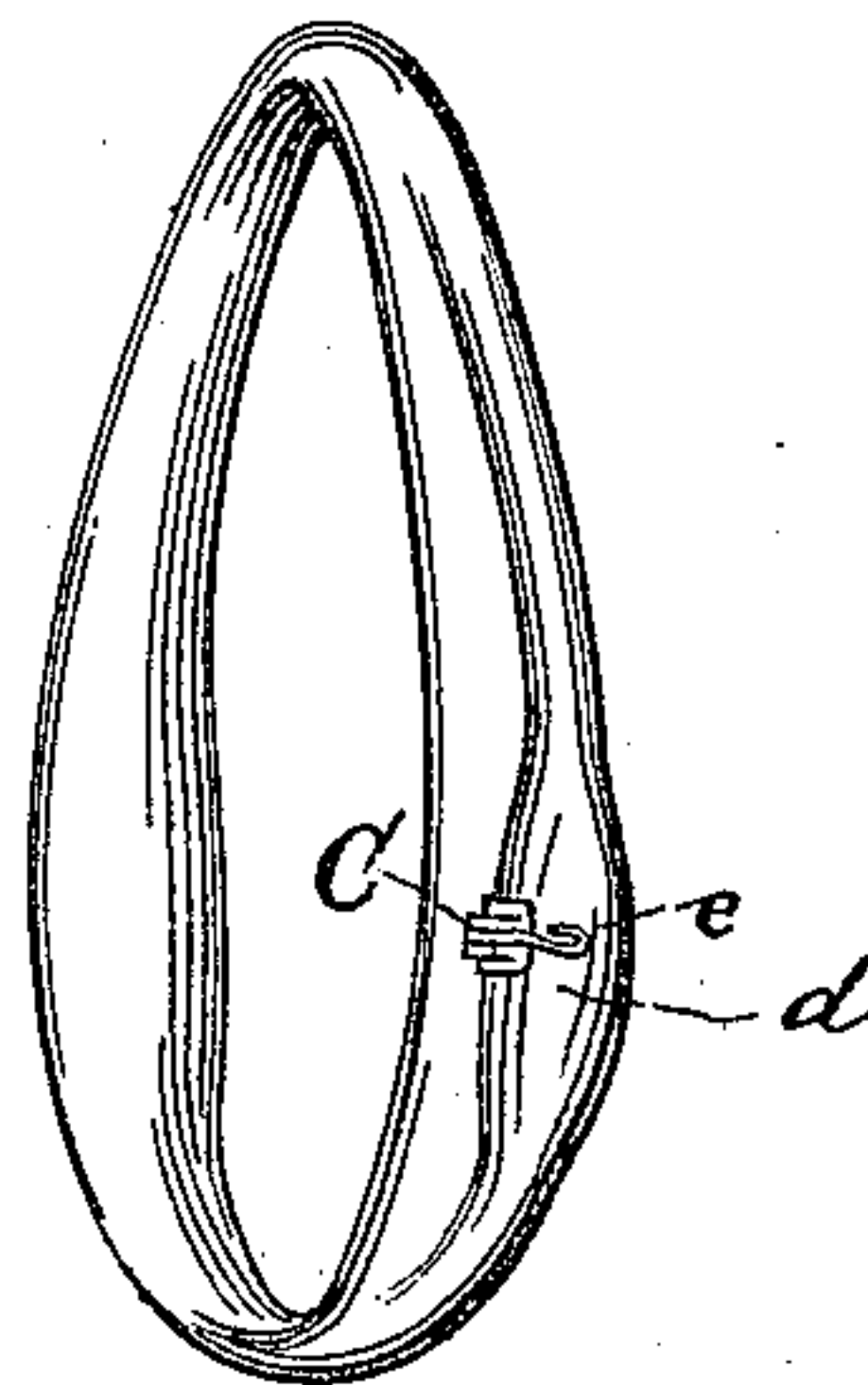
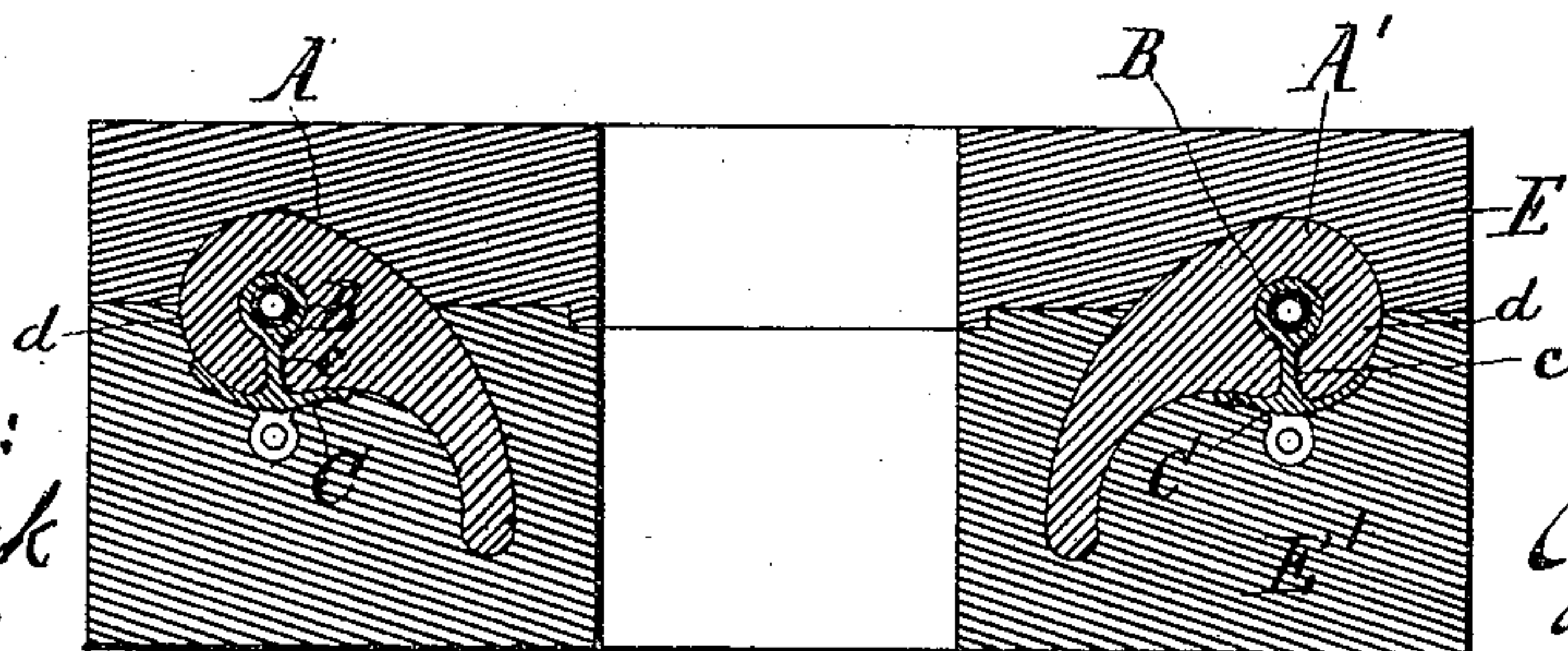


Fig 5.



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HORSE-COLLAR.

SPECIFICATION forming part of Letters Patent No. 428,218, dated May 20, 1890.

Application filed July 9, 1889. Serial No. 316,960. (No model.)

To all whom it may concern:

Be it known that I, CHARLES K. MARSHALL, a citizen of the United States, residing at Vicksburg, in the county of Warren and State of Mississippi, have invented certain new and useful Improvements in Horse-Collars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is the production of a horse-collar as an improved manufacture which shall possess the merits of cheapness, durability, lightness, and ease of wear upon the neck of a horse; which shall be unaffected by change of temperature and constantly retain a smooth non-absorbing surface and not heat the flesh of the animal at the points of impact when in use, thereby avoiding wind-galls and sores due to surface-chafing; which shall possess rigidity enough to resist the torsional action of the draft of the horse and so preserve its proper normal form; which cannot be destroyed by vermin; which does not require to be oiled to preserve it, and which can be thoroughly washed without injury.

My invention consists in a novel construction of a horse-collar, the same combining metal stay portions and wood-fiber pulp, indurated, waterproofed, and solidified throughout the body of the collar, and baked so as not to be liable to soften or change its form under the influences of solar heat or moisture.

It consists, secondly, in a novel construction of a horse-collar, the same combining metal staying and hinging portions, draft hooks and plates, and wood-fiber pulp, indurated, waterproofed, solidified throughout the body of the collar, and baked.

It consists, thirdly, in a novel construction of a horse-collar, the same combining upward-bulging swelled portions, draft hooks and plates, staying portions, and wood-fiber pulp, indurated, waterproofed, and solidified throughout the body of the collar, and baked.

In consists in certain other combinations and constructions of parts, as will be hereinafter described and specifically claimed.

In the drawings, Figures 1 and 2 are plan views of my improved horse-collar. Fig. 3 is

a section in the line xx of Fig. 1. Fig. 4 is a perspective view, in reduced size, of said collar, as shown in plan view in Fig. 1; and Fig. 5 indicates in sectional view one form of a mold which may be employed in the construction of the collar.

In Fig. 1 of the drawings I have shown my new manufacture of a horse-collar as having its two limbs or sections A and A' united at top and bottom, and is of the same indurated fibrous material throughout, while in Fig. 2 said limbs are at top united by a proper tie-band (indicated at a) passed through the loops of metal loop-irons $a' a'$, which may be either secured to said limbs or riveted thereto, as shown. These limbs A A' at their lower ends, as shown in Fig. 2, are united by a metal hinge, as indicated at b , this hinge being the termination of a metal pipe B, which, as shown, extends longitudinally nearly throughout the entire length of both A and A'. The metal pipe or rod B may for cheapness be proper lengths of gas-pipe, and serve to strengthen the limbs or sections A A' of the collar, while at the same time they serve as a hold for the perforated shank of a draft-hook plate C, applied, as represented in the figures, to the "swelled" portion d of said limbs.

In Fig. 1 the gas-pipe or rod B may pass entirely around the collar, as represented, the pipe in Fig. 1 being, as in Fig. 2, passed through the perforated shank c of the draft or hook plate C. I have the limbs A A' bulged or made with a swell, as at d , in order to afford a full bearing for the metal draft or hook plate C, so that when the draft falls upon the trace-hook e the lap of the hook may rest upon the swell d and resist a tendency of the draft to torsionally draw the outer edge of the limbs or sections A A' unduly against the animal wearing the collar.

I would here state that the trace-hooks e (only one being shown in each of the Figs. 1, 2, and 3) are applied to the plates C after the limbs or sections A A' are molded, and that the hinge-connection shown, as at b in Fig. 2, may be made on the plan of a butt-hinge, which will allow of a manipulation of the sections toward each other in a direction in front of the collar, but will act to resist the draft upon the collar when in use. The shanks of these hinge-sections are formed, respectively,

with a socket, and said sockets receive the screw-threaded ends of the metal tubes or rods B. The inner edge of the collar may be of the shape shown, or it may be hollowed out on each side between the points $x' x'$, so as to pass more readily over the heads of different-sized mules or horses.

In Fig. 5, E E' represent the two sections of a mold, the matrix or cavity of which is shaped to impart the form to the limbs A A' of the collar when cast therein, such mold being provided with a proper sprue-hole, through which to pour or insert the prepared pulp of which the sections A A' are composed. Vent-holes are also properly provided in the mold to be used, though neither the sprue-holes nor the vent-holes are shown in the figures.

The compound which I employ may consist of the following ingredients: Wood-fiber pulp, india-rubber gum, bichromate of potash, glue, shellac, chloride of zinc, and coloring-matter, and the above substances being brought to a condition for uniting with one another are in proper proportions thoroughly mixed together. The coloring-matter for a brownish horse-collar may consist of aniline-brown, and for a black collar a composition of copperas and log-wood may be used. The india-rubber, which is used for preventing brittleness, imparting toughness, and strengthening and binding the fibers compactly together, and rendering the same water-proof, may be the india-rubber gum of commerce, as may be also the glue and shellac, which are used for giving adhesiveness, aiding in solidifying and water-proofing the compound. The glue and shellac united are less liable to be affected by moisture. The bichromate of potash is used to fix the colors and maintain them uniform as long as the collar lasts. The chloride of zinc is used to harden the compound, it almost petrifying the whole mass while helping to give a smooth surface. I am now ready to adjust the gas-pipe or rod B in said molds in the position shown in section in Fig. 5, and having done this I now pour the prepared pulp into the mold while the pulp is only in just such a fluid state as will enable the pulp to surround the pipe B and the shank c of the plate C, as indicated in said Fig. 5; and in the event that the pouring of the pulp should seem too sluggish its proper seating within the mold may be facilitated by a proper movement of the mold itself while the filling of the mold is being effected. After thus molding the collar I bake the same with a heat ranging, say, from 200° to 300° , or to such a degree that it is not liable to become softened under the influence of solar rays and moisture. Having thus formed the limbs or sections A A' of the collar and re-

moved the same from the mold, I now apply the draft-hooks e to their proper places, and if the limbs or collar-sections A A' are to be united at top and bottom, as indicated in Fig. 2, I also apply the proper connections, as at a, a' , and b in said figure. Rings or terrets, as at f , may also be supplied for the reins to pass through when the collar is used. This done the collar is complete, save polishing and appropriate ornamentation, and possesses all the essential advantages of being strengthened by metal tubes or rods and of being formed of wood-fibre pulp, which is throughout the entire body of the collar water-proof, hard, and solid, and of a nature to be free from liability to soften or change its form under strains and the influences of solar heat and moisture, which advantages have not heretofore been attainable, owing to the fact that the unperfected art of treating pulp was such as was inadequate for the purpose set forth.

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

1. The improved article of manufacture, consisting of a molded, formed, and vulcanized wood-fiber-pulp collar in one continuous piece and having a continuous metal support embedded in it, the fibrous portion of said collar being water-proof, hard, and solid throughout the body of the collar and of a nature which renders it free from liability to change its form under strains or the influences of solar heat or moisture, substantially as described.

2. As an improved manufacture, a horse-collar which is molded and formed of wood-fiber pulp mixed with indurating and water-proofing materials and solidified and baked, and provided with metal pipes or rods B, which pass through the perforated shank e of draft or hook plates C, substantially as and for the purpose described.

3. As an improved manufacture, a horse-collar molded and formed of wood-fiber pulp mixed with indurating and water proofing materials solidified and baked, and provided with bulging or swelled portions d for the draft or hook plates C, substantially as described.

4. The draft-hook plates having their shanks embedded into the molded collar, and provided with eyes, in combination with metal tubes or rods which pass through said eyes, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

CHARLES K. MARSHALL.

Witnesses:

J. P. THEODORE LANG,
E. T. FENWICK.