

No. 610,476.

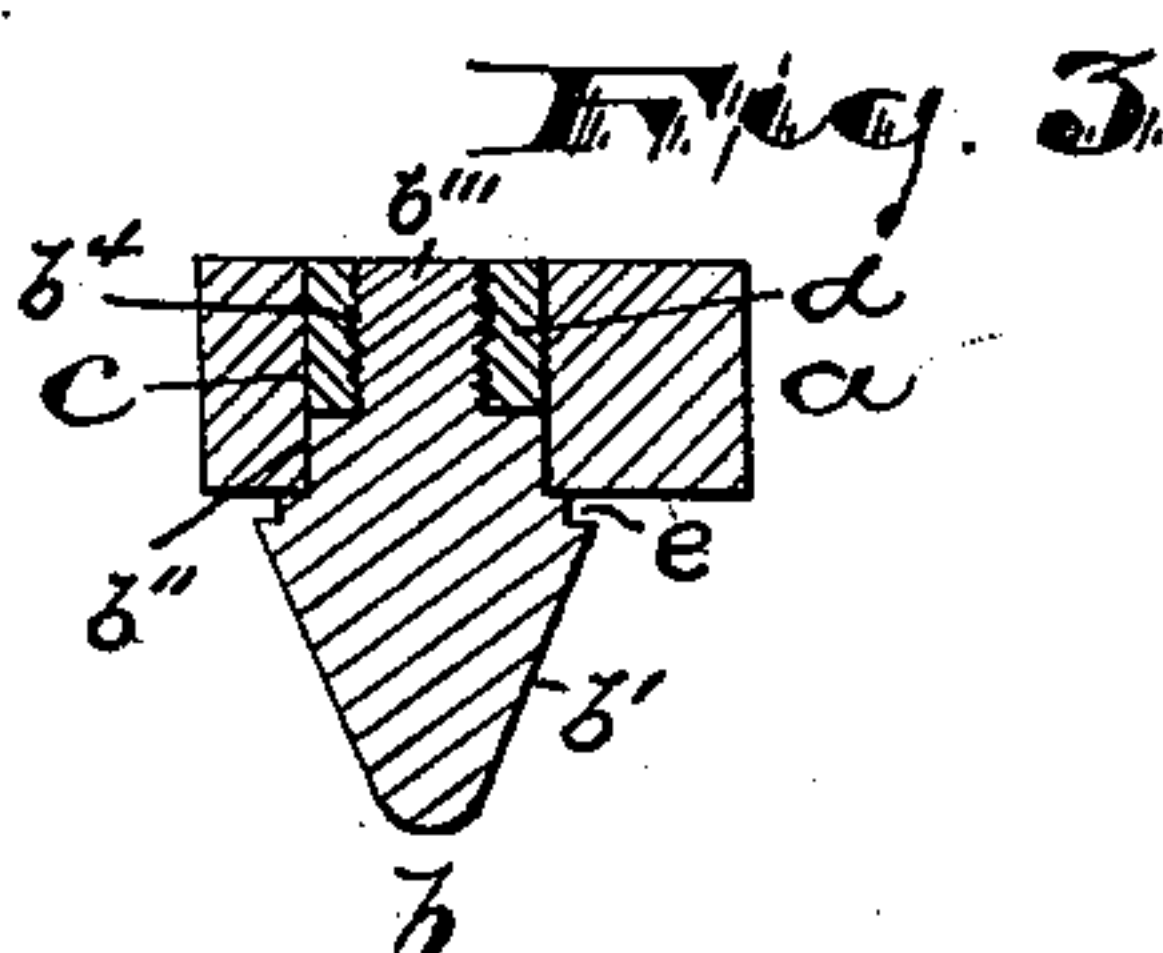
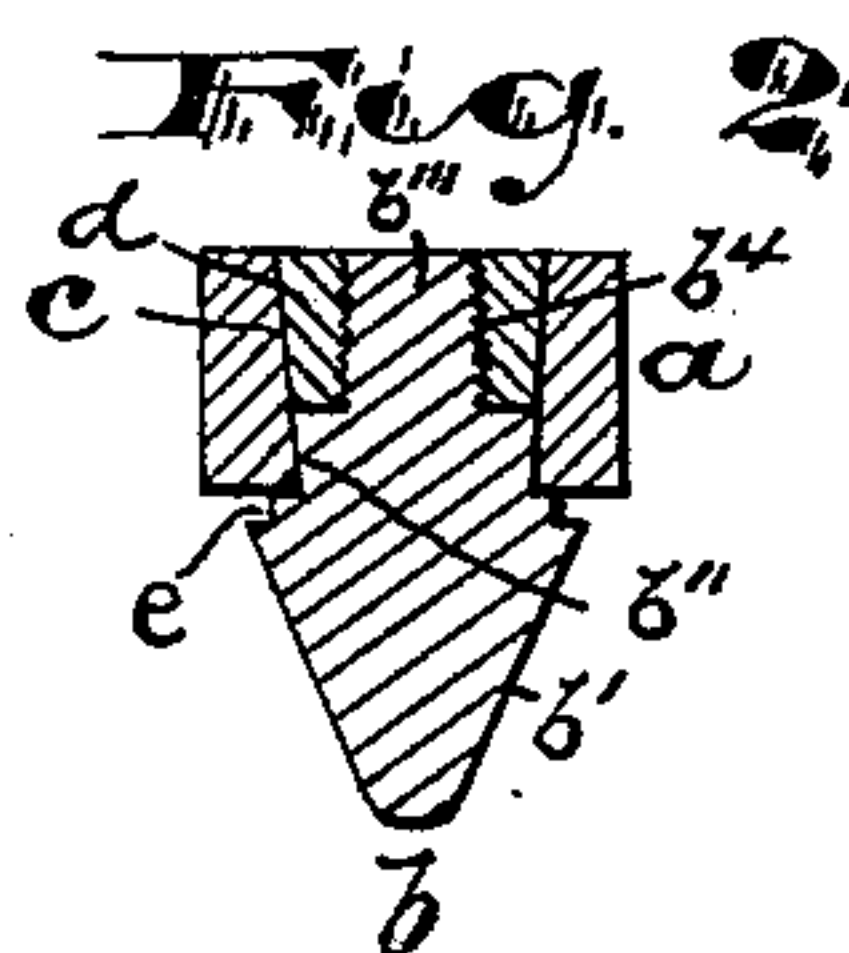
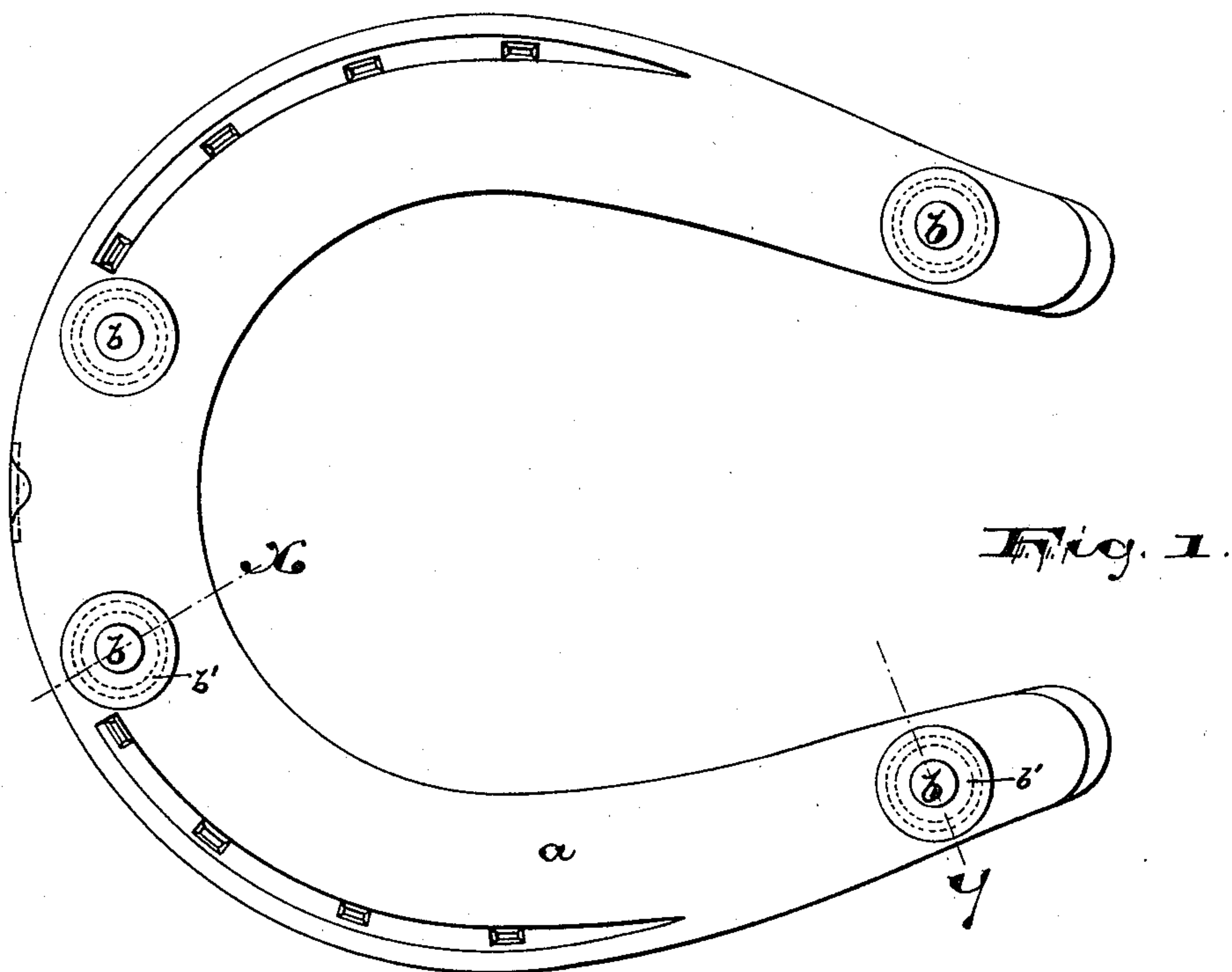
Patented Sept. 6, 1898.

G. W. DAVENPORT.

HORSESHOE.

(Application filed Feb. 18, 1898.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

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HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 610,476, dated September 6, 1898.

Application filed February 18, 1898. Serial No. 670,763. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DAVENPORT, a citizen of the United States, residing at Verona, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Horseshoe-Calks; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of horseshoes in which the calks are made in pieces separable from the body of the shoe, the said calks being removable to permit a quick and ready exchange of a worn or dulled calk for a new or sharp one, the object of the invention being to obtain a more secure adjustment of said removable calk upon the shoe; to provide one that can be easily and quickly removed and replaced at will; to reduce the cost of construction, and to secure 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 horseshoe 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 ground plan of the shoe. Fig. 2 is a section of the same, taken on line *x*. Fig. 3 is a section on line *y*, and Fig. 4 is a detail perspective view of a certain fastening washer or collar for securing the calk to the heel or toe of the shoe.

In said drawings, *a* indicates the body of the horseshoe, of any suitable construction. *b b* are the calks thereof, arranged at the heel and toe portions of said shoe or at either of such portions. The said shoe-body, where said calks are attached, is provided with perforations *c*, as indicated in Figs. 2 and 3, of a circular cross-section. The inner walls of said perforations may be formed at right an-

gles to the plane of the shoe, as in Fig. 3, or may be slightly tapering to form a slight reduction in width of the opening or perforation at the lower side of a shoe, as in Fig. 2. The perforations of uniform diameter in practice have secured very satisfactory results. The calks *b* consist of the sharpened projecting portion *b'*, adapted to engage the ground, said portion being preferably of a conical shape in general outline. Above said conical part is formed a short shank *b''*, of a diameter equal to the diameter of the perforation and adapted to fit closely therein. This shank *b''* is of a length equal to about one-third of the thickness of the shoe, more or less. Above said short shank is a smaller extension *b'''*, which is threaded, as at *b⁴*, the parts *b''* and *b'''* together being of a length equal to or approximately equal to the thickness of the shoe, as will be seen upon examination of Figs. 2 and 3.

Upon the threaded shank *b'''* is screwed a collar or washer *d* of such a diameter as to fit very tightly in the upper part of the perforation, where it is to lie in the finished shoe. This is preferably of indurated fiber, although it may be of any suitable frictional substance having a limited amount of elasticity. The indurated fiber possesses a certain amount of porosity to permit dampness to enter there-through, which, being brought into contact with the metal walls, causes an oxidation of said walls, so that the parts are held securely in very rigid and permanent locking engagement by frictional contact. The said washer is first inserted in place in the perforation and then the calk screwed into position, or in those constructions in which the perforation is of uniform bore the washer may be screwed onto the calk and the calk then driven or forced into place in the shoe. I find in practice that the calk with its collar tightly forced into place, as shown, is held therein even though the calk is subjected to great jarring strain, due to the animal's traveling over the pavement, the non-metallic washer serving to permit a slight action of the calks within the collar, the latter cushioning the action by its elasticity in such a manner as to prevent detachment or working loose. The cushion-like collar, however, permits a with-

drawal of the calk when drawn by a lever-like tool catching said calk in the recess *e*, and thus the renewal of calks can be easily and quickly effected without removing the shoe from the animal's foot. Moreover, the calk is more firmly and securely held than if the non-metallic washer extended through the entire thickness of the shoe or to a point flush with the lower surface of the shoe, a construction which I do not claim. The short shank *b''* fits into the lower part of the perforation and gives the calk a solid metallic seat in the shoe and one which permits no lateral movement. The threaded part of the shank lies in the upper part of the perforation and is surrounded by the non-metallic material. This length of non-metallic material is sufficient to hold the calk against withdrawal, and by having it thus shortened at the lower end the metallic seat is secured. The washer is hard enough to hold the shank in a central position with firmness, while at the same time sufficiently elastic to yield imperceptibly to jars and shocks.

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

1. The combination with the perforated body of the horseshoe, of a calk *b*, having a shank *b''* lying in said perforation, and a reduced threaded extension *b'''*, and a non-metallic washer arranged on said threaded extension, the said non-metallic washer being arranged between the inner walls of the said

perforation and the threaded shank, substantially as set forth.

2. The combination with the perforated body of a horseshoe, of a removable calk having a shank inserted in said perforation, a portion of the length of said shank being directly in contact with the inner walls of the perforation and the other portion having a non-metallic collar lying between, substantially as set forth.

3. The combination with the perforated body of the horseshoe, of a calk having a shank fitting into the lower part of the perforation and a reduced extension extending into the upper part, and a collar of indurated fiber arranged upon said extension and being pressed between said extension and the walls of the perforation, substantially as set forth.

4. The combination with the perforated body of a horseshoe, of a calk having a shank lying in said perforation, the lower part of said shank fitting closely therein and the upper part being inclosed by a non-metallic washer which at its outer periphery is in contact with the walls of the perforation, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of February, 1898.

GEORGE W. DAVENPORT.

Witnesses:

CHARLES H. PELL,
C. B. PITNEY.