

No. 644,388.

Patented Feb. 27, 1900.

N. M. WIG.
HORSESHOE.

(Application filed Feb. 9, 1899.)

(No Model.)

Fig. 1.

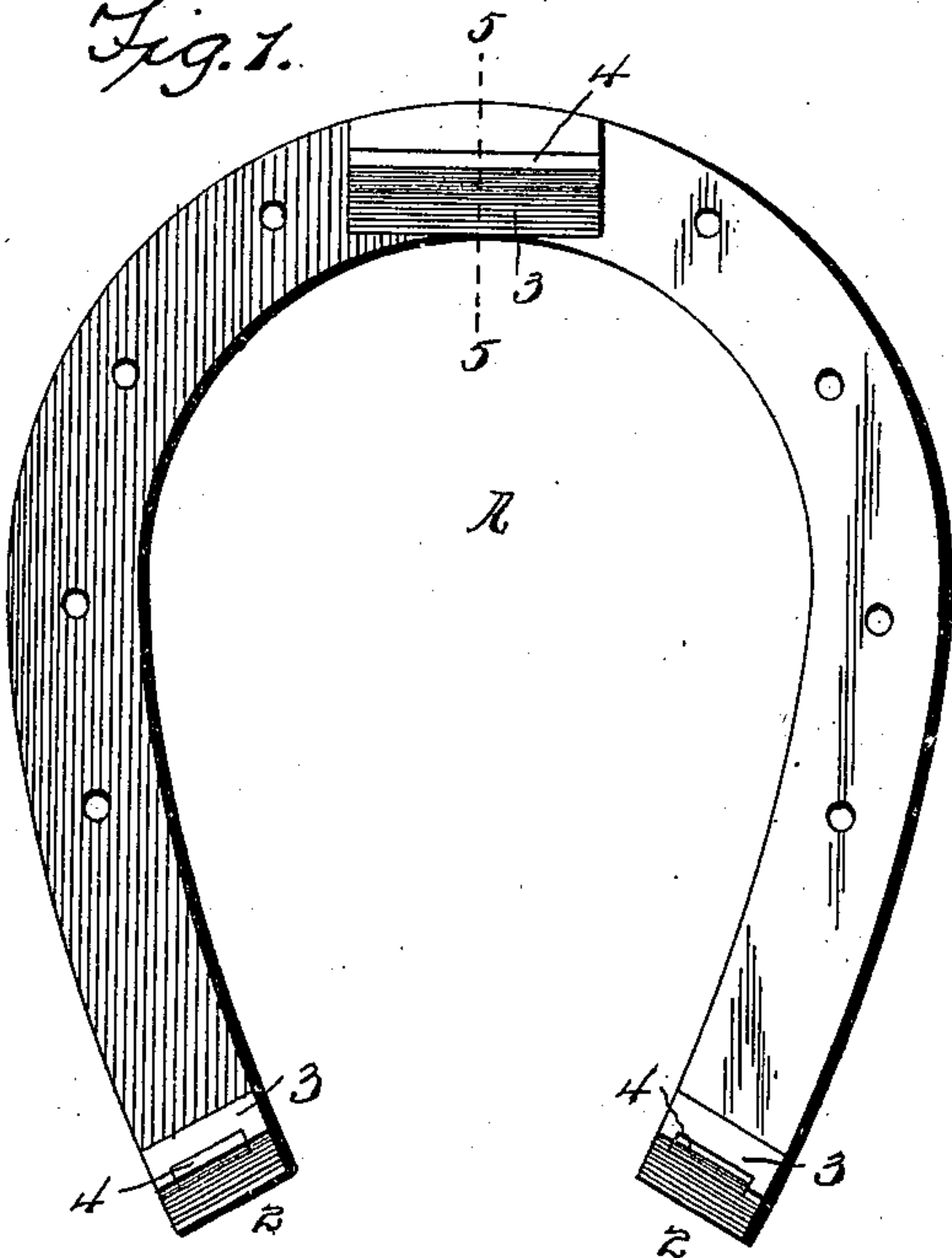


Fig. 3.

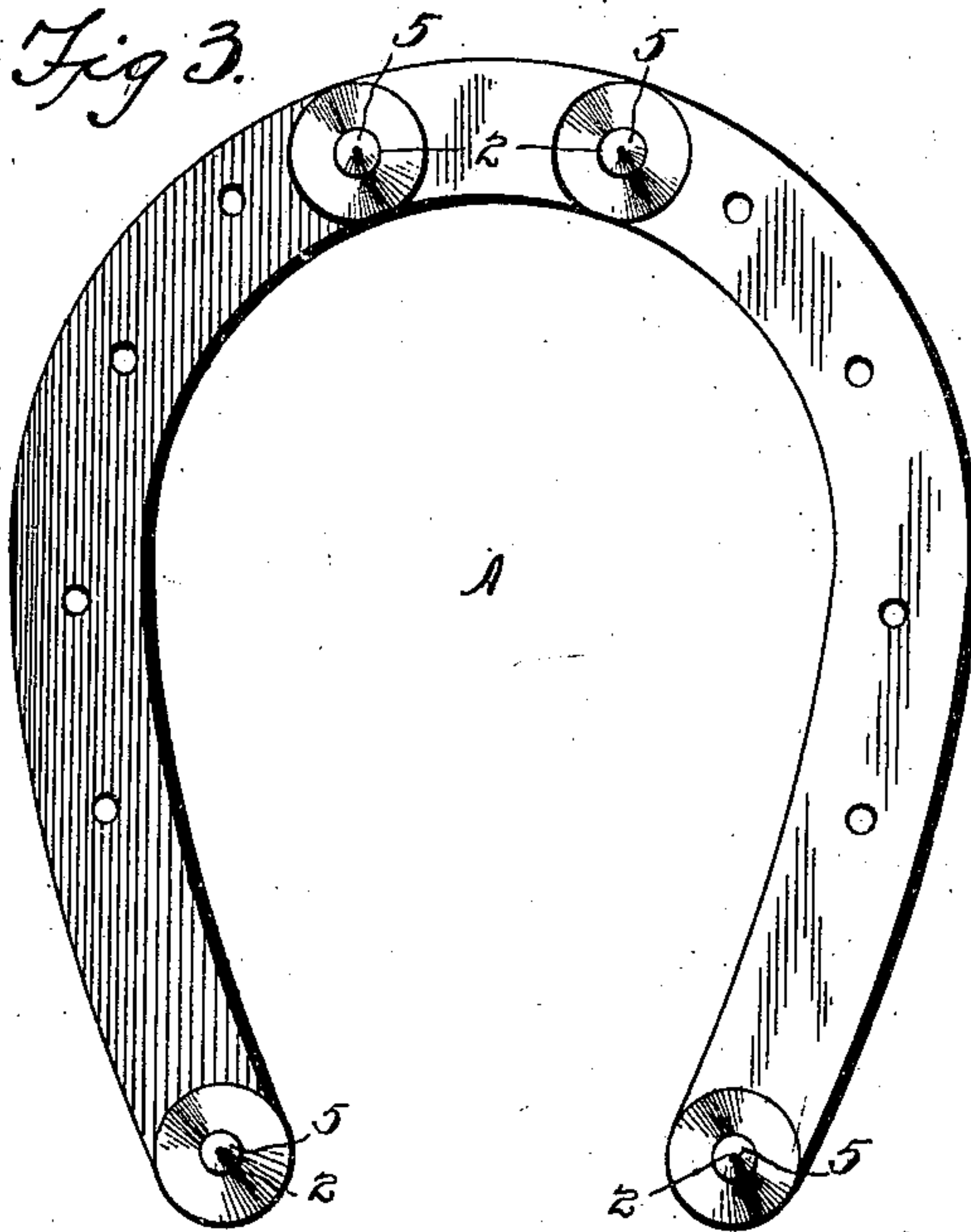


Fig. 5.

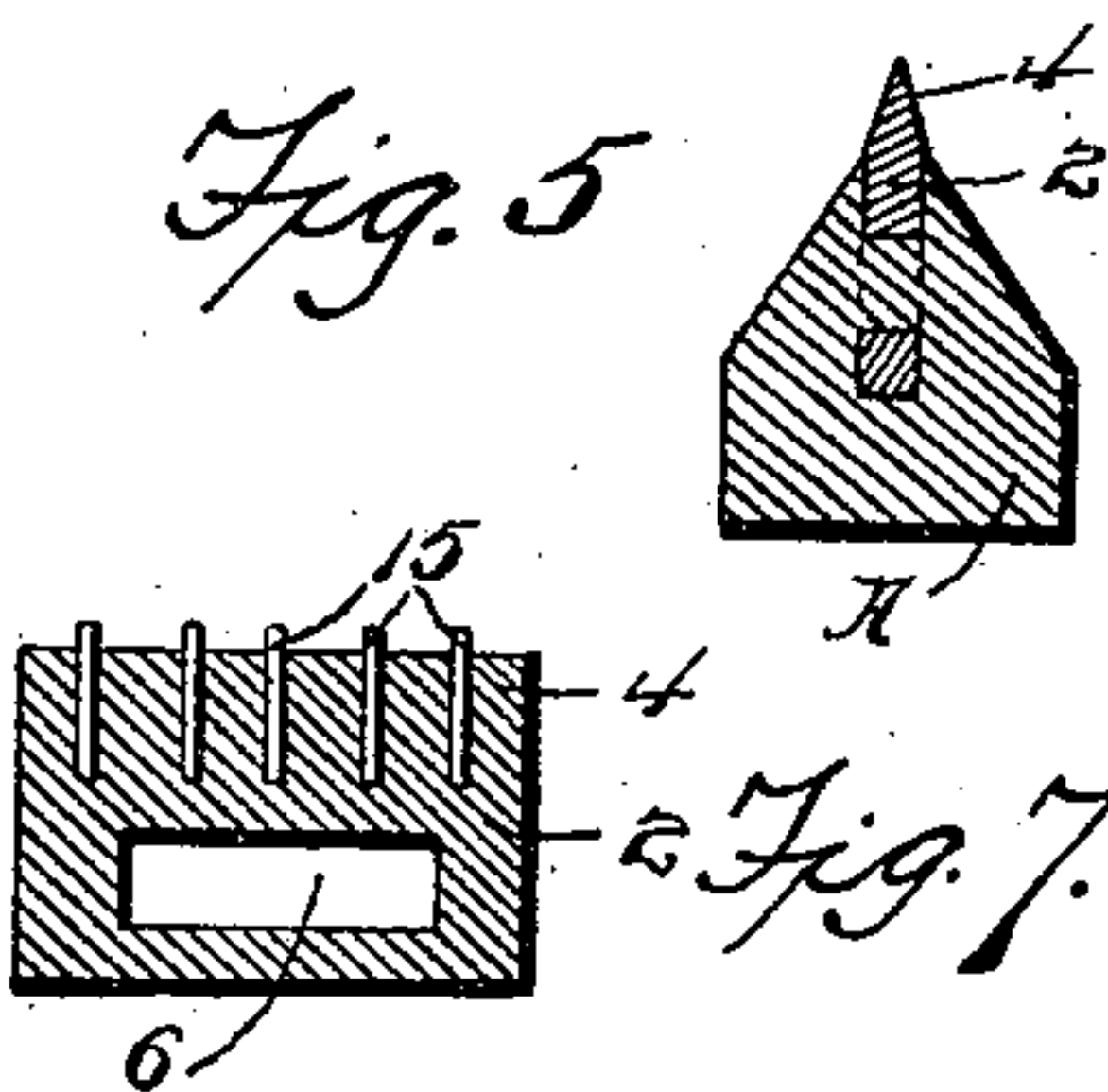


Fig. 2.

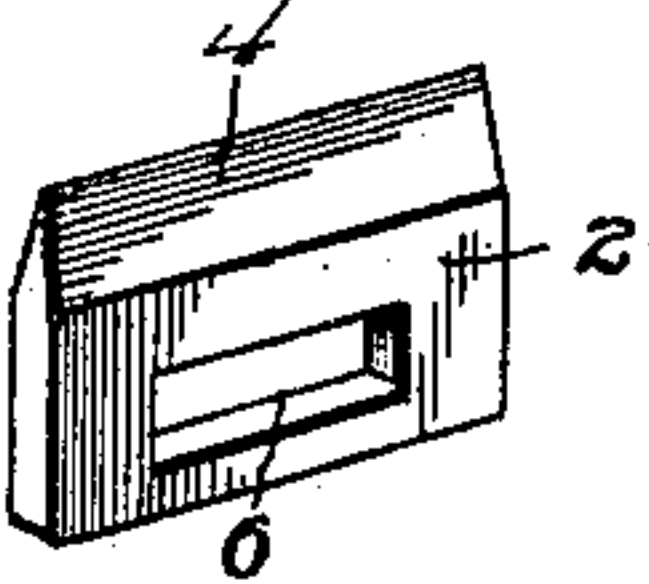


Fig. 7.

Fig. 6.

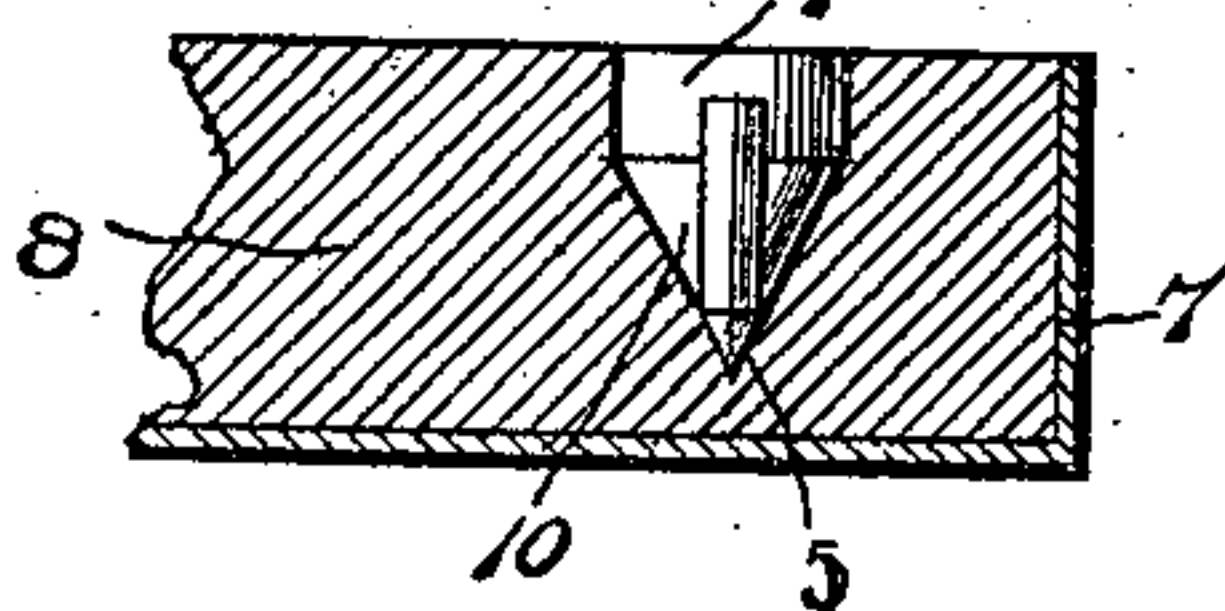
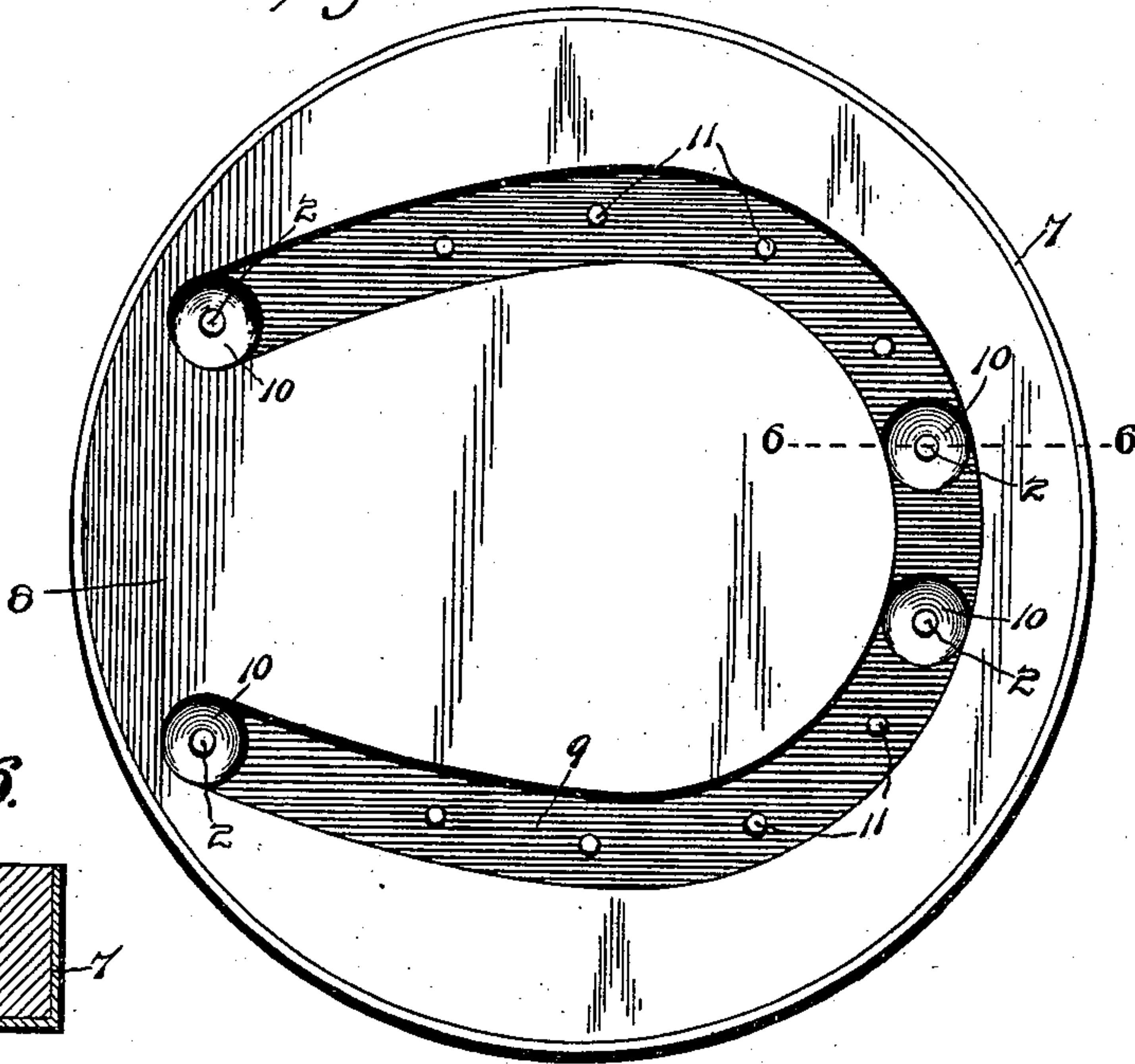


Fig. 4.



Witnesses

Ralph A. Shepard

Heath Litchland

By his Attorneys,

C. A. Snow & Co.

N. M. WIG, Inventor

UNITED STATES PATENT OFFICE.

NILS M. WIG, OF ALEXANDRIA, MINNESOTA.

HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 644,388, dated February 27, 1900.

Application filed February 9, 1899. Serial No. 705,074. (No model.)

To all whom it may concern:

Be it known that I, NILS M. WIG, a citizen of the United States, residing at Alexandria, in the county of Douglas and State of Minnesota, have invented a new and useful Horseshoe, of which the following is a specification.

This invention relates to horseshoes; and the object of said invention is to provide an inexpensive, durable, and strong shoe having calks which are materially harder than the shoe proper, as they are subjected to greater wear, and said improved shoe has such hardened calks embedded therein during the process of casting. Said shoe, which may be of either cast-iron or cast-steel, is provided, preferably, with a series of calks located, respectively, at the toe and heel, and these calks are essentially of rectilinear and slotted construction, said calks being sunk or pressed into the body of the mold and through the channel formed by the pattern therein, so that when the molten metal is poured into the mold the channel will be filled and the fluid metal will surround the calks and fill the slots therein, so as to produce a series of tongues which are integral with the shoe and have interlocking connection with the calks within the exposed surfaces of said shoe, so that when the metal is cold the shoe, with the embedded calks, can be removed and the calks will be held in place as strongly and rigidly as though the parts were integral, which is of importance, as in that class of shoes where the calks are inserted in openings or seats in the shoe after the latter is cold or cast they materially weaken the shoe, and consequently decrease the life or wearing quality thereof.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a horseshoe constructed in accordance with my invention and showing the same provided with flat calks. Fig. 2 is a detail of one of the calks removed.

Fig. 3 is a plan view of a shoe furnished with plug-calks at the heel and toe, and Fig. 4 is a plan view of the mold. Fig. 5 is a detail sectional view on the line 5 5 of Fig. 1. Fig. 6 is a detail view in section on the line 6 6 of Fig. 4. Fig. 7 is a longitudinal central section of a modified form of calk.

Like characters denote like and corresponding parts in each of the several figures of the drawings.

In the drawings, A represents the shoe, which may be formed of cast-iron or cast-steel, as desired, and which has a series of calks, as 2, embedded in the middle of the shoe during the process of casting, the calks being surrounded by the shoulders or reinforced portions 3, and in Fig. 1 the calks are shown as being of the flat type, although the edges thereof are somewhat beveled, as shown at 4, while in Fig. 3 the calks are of the plug type, their outer ends being somewhat tapered, as at 5. The shoes will be formed of the cast metal before set forth, while the calks will be usually made of hard steel and will preferably be tempered after the shoes have been removed from the mold. The flat calks, as shown in Fig. 2, are generally provided with openings or apertures, as 6, adapted to receive the molten or fluid metal when this is poured into the mold, thereby securing the same more firmly in place. A portion of the mold is shown in Fig. 4, the box or frame thereof being designated by 7, and said box is adapted to contain the mold proper, which may be of any suitable substance, into which the pattern (not shown) is pressed to form the groove 9. When the groove is formed, a series of transverse apertures or recesses 10 will be formed in the mold-body 8 below and communicating with the channel 9, and into these apertures the metal will run to produce the reinforcing-shoulders 3 upon the under side of the shoe and around the calks. To produce a shoe constructed in accordance with my invention, the calks will be thrust into the body of the mold through the apertures 10, as shown in Fig. 4, after which the molten metal will be poured into the channel and will enter the transverse apertures 10 and fill said groove 9, so as to form the shoe represented. When the shoe is cold, it can be removed from the

mold and dressed off, after which the calks can be hardened. I also prefer to sink in the body of the mold 8 a series of pins or studs, as 11, substantially centrally of the groove and extending to the top thereof, the object of these pins being to form openings in the shoe for the reception of the usual securing-nails.

The type of calk which I prefer to employ is of the rectilinear flat construction shown by Fig. 2, and this calk is provided within its body portion with a longitudinal slot. The slotted portion of the hard metal and tempered calk is embedded in the cast-metal body of the shoe in the process of casting the latter, and said calk has its slot filled by the fluid metal, which forms a tongue that is integral with the shoe and has interlocking connection with the calk, whereby the latter is firmly retained in place within the cast-metal body of the shoe, so as to prevent or overcome any possibility of the calk working loose and becoming displaced. The tongue forming an integral part of the shoe-body is clearly shown by Fig. 5 of the drawings, and it is disposed within the wearing-surface of the shoe and the other surface to be applied against the hoof, said tongue thus lying wholly within the surfaces of the shoe and having interlocking connection with the hardened calk, so as not to be visible from the outside of the shoe.

In the construction of shoe shown by Fig. 1 and in cross-section by Fig. 5 the wearing-surfaces of the shoe and of the calk are beveled or tapered, and the tongue, which has interlocking connection with the calk, is disposed within the transverse plane of the beveled portion of the shoe. As the calk and shoe wear away by the frictional impact of the shoe upon the surface of the ground the depth of the calk is gradually decreased until in the continued service of the shoe the latter and the calk will be worn down until the integral tongue is reached. As this tongue is integral with the body and interlocked with the slotted portion of the calk, the tongue will also wear away until the shoe reaches a stage where it is unfit for further service; but under all conditions the calk remains partly embedded in the shoe and held firmly therein by the integral tongue.

The hardened flat calk shown by Fig. 7 may under some conditions be provided with the insertible pins. These pins may be inserted in the calk to project beyond the beveled wearing-surface thereof when the ground or pavement is covered with sleet and ice, said pins affording a multiple-pointed wearing-surface which readily penetrates the ice and overcomes any liability of the horse slipping thereon.

It is evident that these shoes can be made of malleable iron by the usual method, if desired, and that they can be readily applied

by farmers and horse-owners by simply nailing them on.

In some cases the flat steel calk may have inserted therein a series of points 15, as illustrated in Fig. 7, five of these being shown, and they may be made of steel wire and introduced into the calk by being driven into either straight or screw-threaded openings therein, but the calks will not ordinarily be made in this way.

Having thus described the invention, what I claim is—

1. As a new article of manufacture, a horse-shoe comprising a cast-metal body, and slotted hardened calks each having the slotted portion thereof embedded in and united permanently to the cast-metal body by the fluid metal filling the slot of the calk during the casting of the shoe, each calk protruding from the shoe-body and also presenting exposed wearing-surfaces adapted to be worn away uniformly with the body of the shoe, as set forth.

2. As a new article of manufacture, a horse-shoe comprising a cast-metal body, and hardened calks each having a slotted base portion embedded in the body and united permanently thereto by a tongue of the body formed by the fluid metal filling the calk-slot during the process of casting the shoe, the embedded part of the calk and the tongue therefor adapted to wear uniformly with the cast body, said tongue serving during wear of the shoe and the calk to hold the latter permanently to the shoe, as set forth.

3. As a new article of manufacture, a horse-shoe comprising a cast-metal body, hardened calks embedded in said body and each having a protruding wearing-surface which is beveled transversely in opposite directions, and the row of hardened pins embedded in each calk and projecting beyond the crest formed by the beveled surfaces thereof, substantially as described.

4. As a new article of manufacture, a horse-shoe comprising a cast-metal body, the hardened calks each having a slotted end embedded in the body for union permanently therewith by an integral tongue formed by the fluid metal filling the slot during the process of casting the body and each calk furthermore provided with a crested wearing-face which protrudes beyond the body, and a row of hardened pins embedded in each calk and projecting beyond the crest thereof, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

NILS M. WIG.

Witnesses:

C. J. GUNDERSON,
W. H. THOMPSON.