(No Model.)

W. F. DOWNEY.

HORSESHOE.

No. 521,645. Patented June 19, 1894.

Fig. 1.

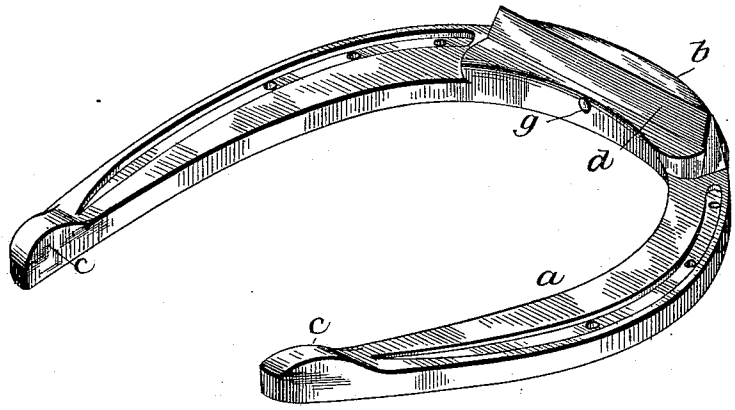


Fig. 2

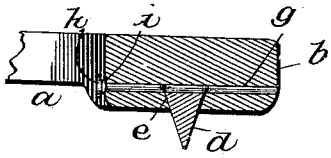


Fig. 3.

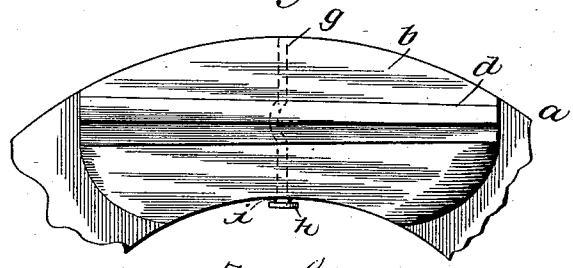


Fig. 2a

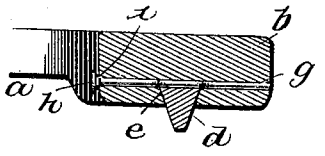


Fig. 4.

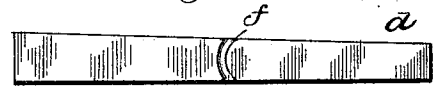


Fig. 2b

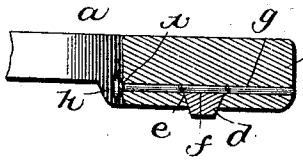


Fig. 5.

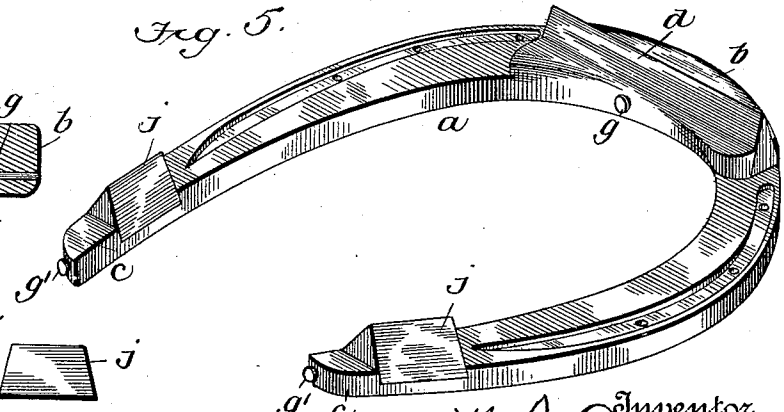
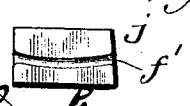


Fig. 6.



Witnesses

Inventor

W. F. Downey

by O. E. Duff

Attorney

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM F. DOWNEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 521,645, dated June 19, 1894.

Application filed October 19, 1893. Serial No. 488,603. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. DOWNEY, of Washington, District of Columbia, have invented certain new and useful Improvements in Horseshoes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in horse shoes.

The object of the invention is to provide an improved horse shoe calk and a mode of fastening the same whereby the calk can be easily and quickly removed and a new one inserted whenever desired and whereby it will be impossible for this calk to become accidentally detached.

The invention consists in certain novel features of construction and in combination of parts more fully pointed out hereinafter and particularly described.

Referring to the accompanying drawings Figure 1 shows in perspective a shoe provided with my improvement. Fig. 2 is a cross sectional view through the toe thereof. Fig. 2^a is a cross sectional view through the toe thereof showing a differently shaped calk. Fig. 2^b is a similar view showing a still differently shaped calk. Fig. 3 is a detail enlarged bottom plan of the toe of the shoe. Fig. 4 is a detail bottom plan of the toe calk. Fig. 5 is a perspective view of a shoe provided with heel and toe calks constructed after my invention. Fig. 6 shows a side elevation and a bottom plan view of the heel calk.

In the drawings the reference letter *a*, indicates any ordinary horse shoe provided with the undercut way upon the under side of the toe. This undercut way *e*, is preferably open at both ends and is preferably slightly tapered from one toward the other end as shown. However, I do not wish to limit myself to having the way open at the small end.

d, indicates the toe calk preferably formed of a single piece of exceedingly hard metal and longitudinally tapered from one end to the other to conform to the taper of the way *e*. This calk is, preferably, about the same length as the said way and is formed usually to extend completely across the toe of the shoe as shown in the drawings. In cross section the calk is preferably in the shape of an equilateral triangle with the outwardly inclined sides and the large flat base, and the angle of the sides is such as to conform to the angle of the inner sides of the way as shown. However, I do not wish to limit myself to the shape of this calk as it can be of various sizes and shapes as shown in Figs. 2^a and 2^b. Between its ends preferably at or near the center of its under side said calk is provided with a transverse groove *f*, at its ends adapted to register with the pin holes extending through the shoe from the front to the inner side thereof. This groove *f*, is deflected laterally between its ends toward one end of the calk and the ends of the groove are, preferably, enlarged or slightly flared so as to easily receive the point of the nail *g*, when said nail or pin is inserted through said opening and is driven so as to pass through said groove. A wire or wrought metal pin *g*, is preferably employed so that it will bend without breaking. This groove *f*, is so formed in connection with the pin hole through the shoe that when the point of the pin enters one end of the groove the pin as it is forced will be bent so as to pass through the groove and fit snugly in the same and when passing through the groove will move the calk longitudinally slightly toward the inner narrow end of the way and will thereby force the calk tightly home while the end of the pin extends beyond the groove into the opposite portions of the pin hole. This fastening is exceedingly cheap, simple and durable and most firmly locks the calk against loosening. The pin can be easily withdrawn by means of a pair of nippers or the like and a new calk and pin inserted. If desired the front end of the toe of the shoe can be reinforced as shown.

If desired the heel of the shoe can be provided with calks *j*, tapered from one side to the other (see the upper view of Fig. 6), to fit the undercut and tapered ways transversely of the heel of the shoe. These calks have the curved grooves *f'*, and the pins *g'*, to lock the same, the same as the toe calk.

By practical experience and experiment-

ing, I have found that many disadvantages attend the use of the heel calks and that they are not necessary; therefore I prefer to use but one calk located at the toe so that all wrenches of the ankle will be avoided, but if preferred the heel of the shoe may be swelled as shown to in a measure level the shoe. I also find that it is not advantageous to have calks very long but that less injury to the animal ensues when the calks are as short as possible to merely accomplish the purpose desired to prevent slipping.

The nail *g*, is provided with a small or supplemental shoulder *i*, arranged to engage the edge of the shoe. By means of this arrangement even when the nail is driven securely home with the shoulder *i*, engaging the edge of the shoe the head of the nail will still project sufficiently to permit its ready grasp by pinchers for the purpose of withdrawing the nail when the calk is to be removed.

It is evident that various changes might be made in the forms, arrangements and constructions of parts described without departing from the spirit and scope of my invention, hence I do not wish to limit myself to the exact construction shown but consider myself entitled to all such changes as fall within the spirit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The horse shoe having the way, in combination with the calk having the transverse passage curved or deflected toward one end of the calk, and the pin arranged to pass through said shoe and through said passage so as to bend the pin and prevent loosening thereof, substantially as described.

2. The herein described calk having the inclined sides and the transverse pin way curved or deflected between its ends toward one end of the calk to receive a pin passed through the shoe so that the pin is bent in the groove and so that the calk is forced longitudinally when the pin is forced in.

3. The shoe having an undercut way and the pin holes opening into said way, in combination with the calk having the curved groove in its under side to register with said pin way, and the pin arranged to pass through said groove so that the pin is bent in the groove when the pin is forced through said holes and groove.

4. The combination with a shoe having a way, the calk in the way, and the pin arranged to pass through the shoe and enter the calk, with the head of the pin at the inner edge of the shoe said pin having a head and an auxiliary shoulder to prevent the head engaging the shoe so that the head can be readily grasped by pliers or the like.

5. A horse shoe calk, arranged to slide into an undercut tapered way, tapered toward one end and in its inner edge or face provided with a transverse groove extending thereacross, and between its ends deflected laterally toward the large end of the calk, as and for the purpose set forth.

6. A horseshoe having the undercut way and provided with a transverse pin hole from the inner edge of the shoe opening into said way and continued into the shoe at the opposite side of said way, the calk arranged to slide into said way and having a transverse pin way arranged to register at its ends with said pin holes in the shoe, said pin way being deflected toward one end of the calk, and a pin of pliable or a bendable metal so that when driven through said pin hole it will enter said pin way of the calk, will move the calk slightly longitudinally, will be bent laterally by said deflection, and will enter the opposite pin hole, thereby securing the pin.

7. A horse shoe having the undercut way in the under face tapering toward one end, the pin hole from the inner side of the shoe into the way near or at the upper wall thereof and continued into the shoe from the opposite side of the way, the calk arranged to fit said way and tapered toward one end and having the transverse groove in its large upper face arranged to register with said holes, and the pin arranged to pass across the top of the way and fit in said groove.

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

WILLIAM F. DOWNEY.

Witnesses:

HUBERT E. PECK,

C. M. WERLE.