(No Model.)

C. HAMMELMANN.

HORSESHOE.

No. 473,923. Patented May 3, 1892.

Fig. 1.

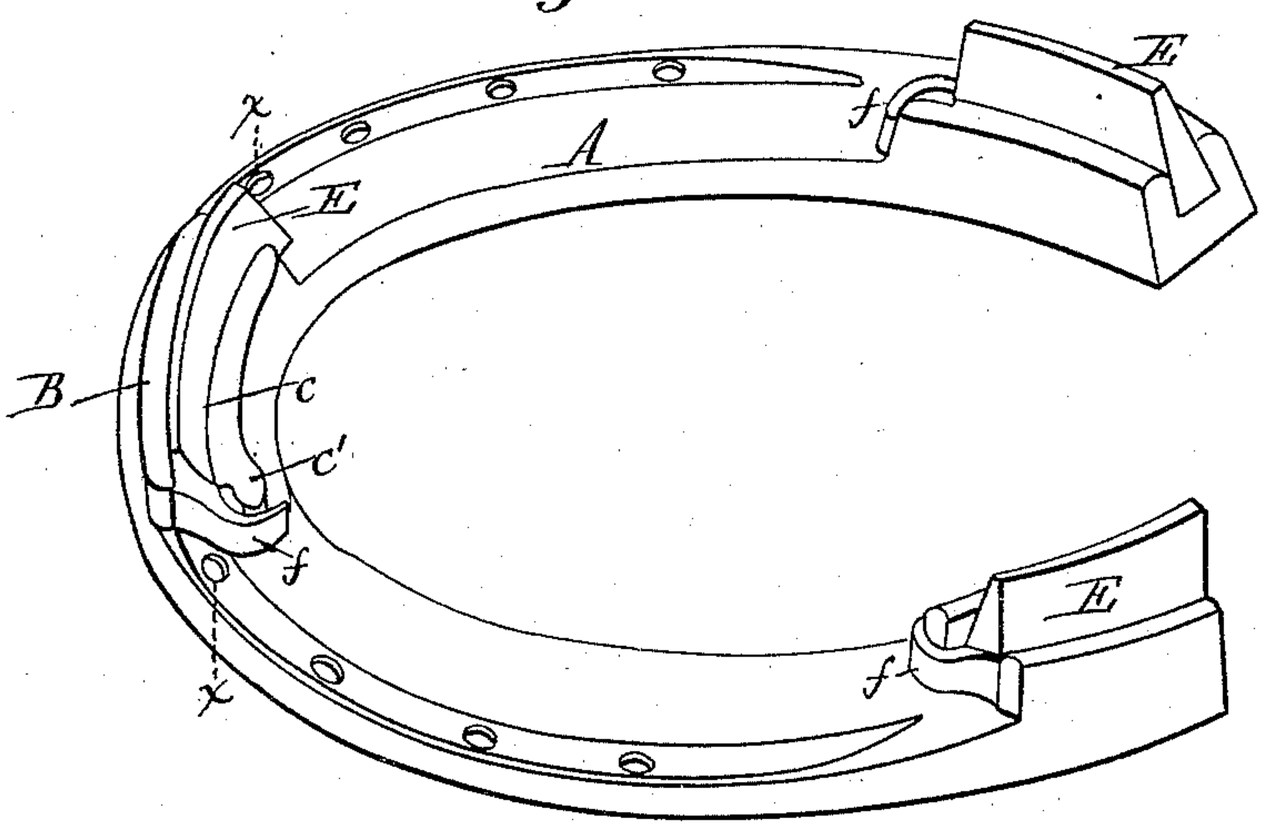


Fig. 2.

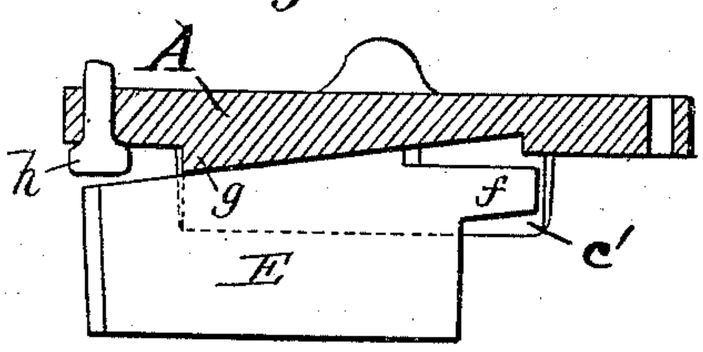


Fig. 3.

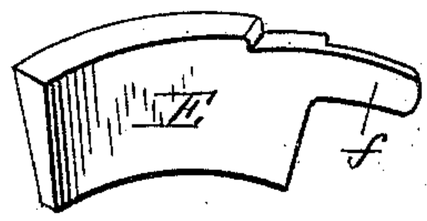


Fig. 4.

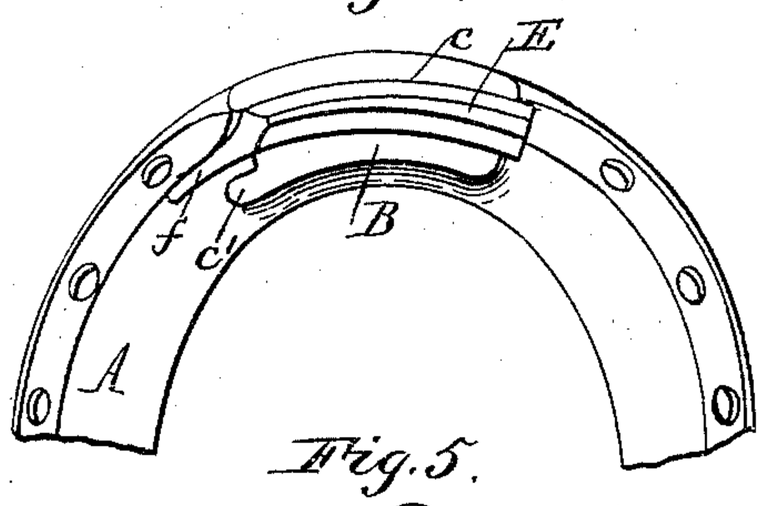
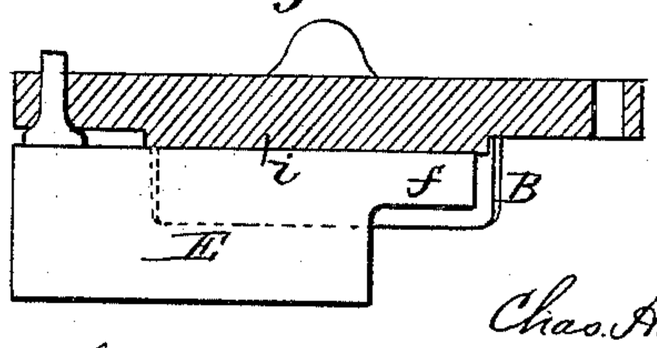


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES HAMMELMANN, OF BUFFALO, NEW YORK.

HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 473,923, dated May 3, 1892

Application filed December 23, 1891. Serial No. 415,969. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HAMMELMANN, a citizen of the United States, residing at the city of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Horseshoes, of which the following is a specification.

This invention relates to that class of horseshoes in which the calks are removable, so that they can be renewed when worn out.

The object of my invention is to provide a simple and secure fastening which permits the calk to be readily detached from the shoe when necessary.

In the accompanying drawings, Figure 1 is an inverted perspective view of a horseshoe embodying my improvements. Fig. 2 is a cross-section through the front of the shoe at *x x*, Fig. 1, the section being taken immediately in front of the toe-calk. Fig. 3 is a detached perspective view of the calk. Fig. 4 is a fragmentary bottom plan view of the front portion of the shoe. Fig. 5 is a view similar to Fig. 2, showing a modification of my invention.

Like letters of reference refer to like parts in the several figures.

A represents the body of the horseshoe, which is provided with the usual nail-holes.

B is a transverse lug, arranged at the toe of the shoe on the under side thereof, and *c* is a groove or socket formed lengthwise therein, and which is preferably tapered from its front toward its rear end, as shown in Figs. 1 and 4.

E is the removable toe-calk, seated in the socket *c* of the shoe and tapered lengthwise to correspond to the taper of the socket. The calk is provided at its front or inner end with a fastening lip or spur *f*, which is bent inwardly around the rear end of the lug or socket, so as to securely retain the calk in its socket. The fastening-lip is formed integrally with the calk, and is bent around the end of the lug by a cold shut, the calk being constructed of cast-steel or other metal, which is sufficiently malleable to permit the lip to be bent without breaking it. The lip is preferably not hooked around the end of the lug, but is simply bent at an angle thereto and made of sufficient length to project inward slightly beyond the inner face of the lug when bent, so that the lip can be readily straightened by a hammer or other suitable tool when it is desired to remove the calk from the shoe and insert a new calk. The wall or jaw of the calk-socket, around which the lip of the calk is bent, preferably extends rearwardly a short distance beyond the junction of the lip of the calk, as shown at *c'*, so as to facilitate the bending of the lip and afford access to the outer side for bending it. As the lip is malleable, it can be bent closely against the end of the socket, so as to form a tight fastening, which avoids rattling of the calk in its socket, and in case the calk becomes loose in its socket it is readily tightened by giving the lip a blow with a hammer. The lip permits the calk to be conveniently locked in its socket and released therefrom, and it forms a very cheap fastening, as it is readily cast in one piece with the calk. In order to more securely hold the calk in its socket, the latter and the calk are curved lengthwise, the concave side of the calk being preferably toward the rear of the shoe. By this construction the calk, in order to be removed from its socket, must be moved in the arc of a circle concentric with the curved walls of the socket. This tends to retard the lengthwise movement of the calk in its socket and thus renders the calk less liable to become loose than would be the case if the calk and its socket were straight. The curved form of the calk and its socket permits a longer socket to be employed, if desired, than by the use of the straight form, the length of the straight socket and calk being limited, while the curved socket may follow the curve of the shoe without projecting laterally beyond the same, thus permitting the use of a longer socket, affording a larger bearing-surface for the calk and producing a more secure fastening. This curved form also stiffens the lug in which the socket is formed and enables it to more effectually resist the strains to which it is subjected. The curved form of the calk furnishes not only a longer but also a broader base for the calk to rest on, because the effective width of its base extends to a line drawn through the two inner corners of the calk.

The calk and its socket are constructed of dovetail cross-section to hold the calk against downward movement in its socket. The bot-

tom of the socket *c* is preferably inclined forwardly in the direction in which it tapers, and the top or upper surface of the calk is correspondingly inclined, as shown in Fig. 2. By thus inclining the contiguous faces of the shoe and the calk the blow or pressure of the calk against the pavement drives the same farther into the socket, forcing it firmly against the converging sides of the socket and wedging it more tightly into the same the greater the impact of the shoe against the pavement. The head of the incline forming the bottom of the socket *c* is arranged below the under side of the horseshoe-body, as shown at *g* in Fig. 2, so as to allow the calk to clear the head of the adjacent horseshoe-nail *h* and permit it to be introduced into and removed from its socket without requiring the removal of such nail.

In the modified construction of the invention represented in Fig. 5 the bottom of the socket, instead of being sloped, is straight or horizontal. The straight bottom does not extend to the under surface of the horseshoe, but is below the same, as shown at *i*, so as to allow the calk to clear the adjacent horseshoe nail, as in the first-described construction in which the socket has a sloping bottom.

The top of the calk and the bottom of its socket are preferably inclined; but this feature may be omitted, if desired. The heel-calks are constructed in all respects like the toe-calks.

I claim as my invention—

1. The combination, with the body of the horseshoe having a tapering groove or socket, of a tapering calk seated removably in said socket and provided at its narrow end with a lip or spur which is bent against the wall of the socket, substantially as set forth.

2. The combination, with a removable calk having a fastening-lip, of the body of the horseshoe provided with a groove or socket for the calk having one of its walls extending lengthwise beyond the opposite wall, whereby the bending of the calk-lip against the projecting wall of the socket is facilitated, substantially as set forth.

3. The combination, with the body of the horseshoe provided with a longitudinally-tapered groove or socket having curved side walls and open ends, of a tapered calk curved lengthwise and removably seated in said socket, substantially as set forth.

4. The combination, with the body of the horseshoe provided with a longitudinally-tapered groove or socket having curved side walls and open ends, of a correspondingly-shaped calk arranged in said socket and provided at its narrow end with a lip or spur which is bent against the wall of the socket, substantially as set forth.

5. The combination, with the removable calk, of the body of the horseshoe provided with a calk groove or socket having its bottom arranged below the under side of the shoe, whereby the calk is permitted to clear the heads of adjacent nails in inserting and removing the calk, substantially as set forth.

Witness my hand this 17th day of December, 1891.

CHARLES HAMMELMANN.

Witnesses:
CARL F. GEYER,
JNO. J. BONNER.