(No Model.)

J. E. & E. W. BINGHAM.

HORSESHOE.

No. 372,112. Patented Oct. 25, 1887.

Fig. 1.

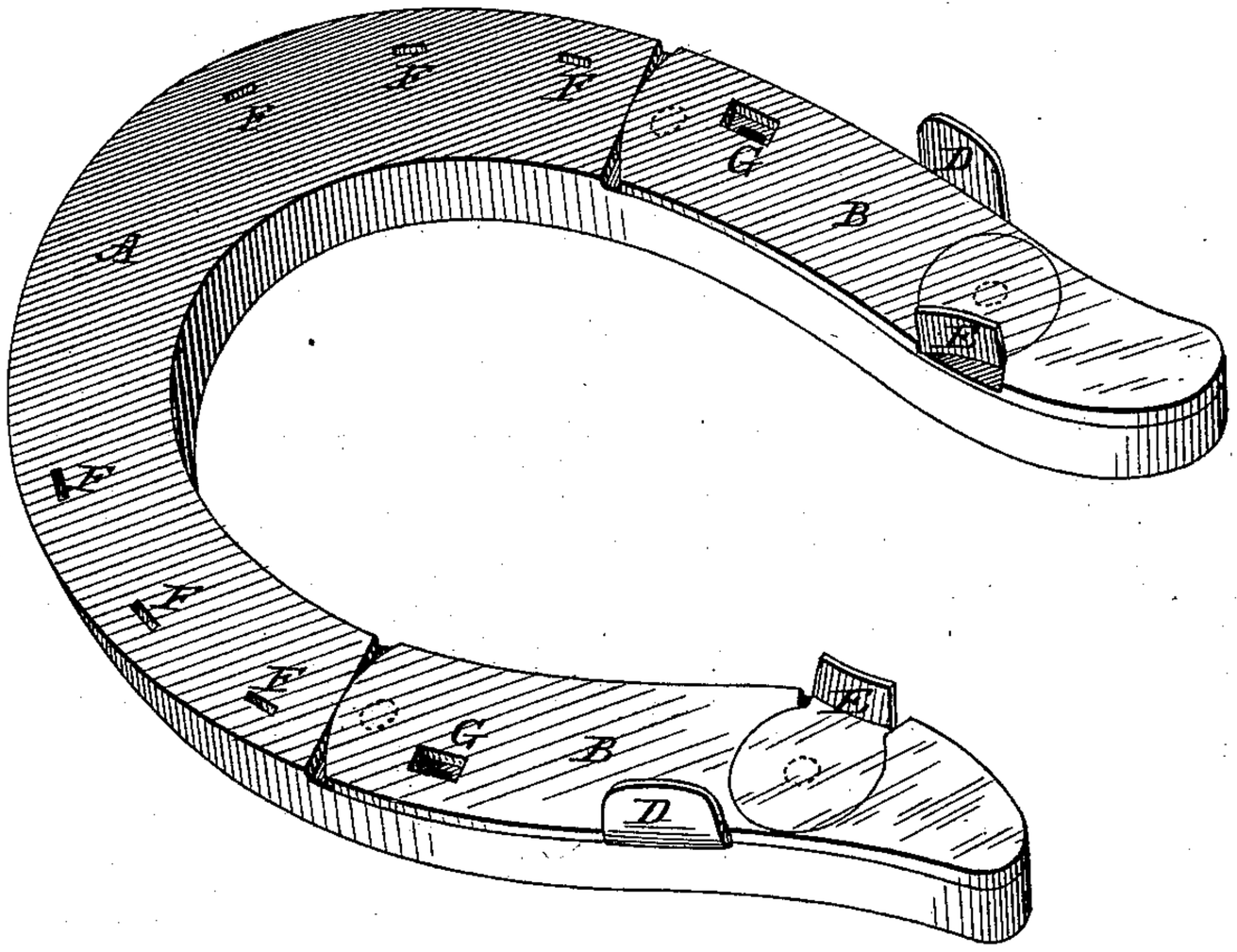


Fig. 2.

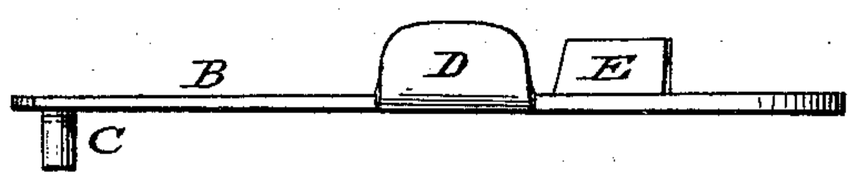
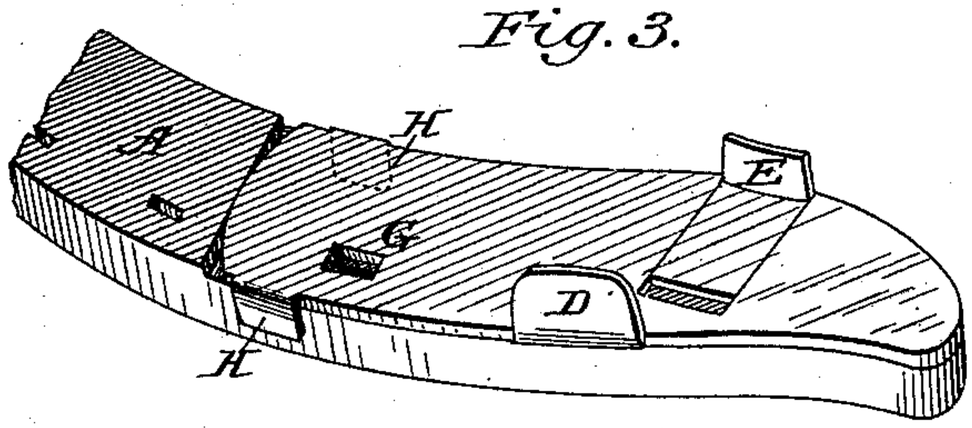


Fig. 3.



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UNITED STATES PATENT OFFICE.

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HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 372,112, dated October 25, 1887.

Application filed July 25, 1887. Serial No. 245,164. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. BINGHAM, of Walla Walla, Washington Territory, and EDWARD W. BINGHAM, of Portland, Oregon, both citizens of the United States and of said Territory and State, have invented certain new and useful Improvements in Horseshoes; and we 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, in which—

Figure 1 is a view in perspective of a horseshoe fitted with our improved heel-plates. Fig. 2 is a side elevation of one of the heel-plates detached, and Fig. 3 illustrates a modification in the plate.

It is a well-known fact that a horse's foot expands at each step back of the nails which confine it to the shoe. Consequently, by reason of the inflexibility of the shoe, the bottom of the hoof at the heel rubs over the heel-pieces of the shoe, producing a rubbing or chafing of the hoof upon the surface of the shoe, which, in connection with interposed sand and grit, cuts and wears away the hoof at the heel as fast as it grows, so that while the front part of the hoof, which is made fast to the shoe, lengthens by its natural growth, the rear part, by reason of its abrasion, does not increase correspondingly in length. The consequence is that the heel or rear part of the foot is soon left without any support upon the shoe and an unequal bearing is produced for the foot, the whole weight being thrown upon the fore part, whereas at least forty per cent. should be supported by the heel. As another evil consequence of this rubbing of the hoof at the heel upon the rigid surface of the shoe, an irritation is produced in the foot, which is the principal cause of what is known as a "corn" in the foot; and, in fact, this faulty point in the common forms of horseshoes contributes largely to, if it does not cause directly, the various diseases of the foot known as "contraction," "corns," "dropped sole," and "tender heels."

The object of our invention is to remedy this defect and protect the heel against being ground and worn away by friction with the shoe; and it consists in the combination, with the heel parts of the shoe, of a loose plate interposed between said parts and the hoof, the plate being so confined and secured to the hoof, in manner as hereinafter set forth, as to move therewith over the surface of the shoe while it is retained in place by the shoe. The hoof is thus protected from frictional contact with the shoe as it naturally expands and contracts at each step of the horse, the friction being made to take place between the plate and shoe, so that the plate shall be worn instead of the hoof.

In the accompanying drawings, A represents an ordinary horseshoe, which may be of any of the well-known forms and may be constructed with or without calks or other appendages. Upon the hoof-side of the heel-sections of the shoe we fit a flat friction-plate, B, having substantially the same marginal configuration as the upper or hoof side of the shoe to be covered thereby. The forward end of each friction-plate B is preferably formed with a lug or pin, C, on its under side, to fit into a counterpart recess or aperture in the shoe, whereby the friction-plate is kept from moving longitudinally, and also confined laterally at said forward end, although left free to swing laterally at its outer end over the surface of the shoe. An outside lug or clip, D, is also formed upon the outer edge of the upper or outer side of the friction-plate to overlap and engage the outer edge and face of the hoof at this point when the shoe is secured in place, and thereby prevent an inward movement of the plate upon the hoof, while an outward movement thereof is prevented by means of a bar-lug, E, which may be fitted and secured to the under side of the plate to project from its inner edge and engage the bar of the foot, in manner as described in E. W. Bingham's pending applications for Letters Patent, Serial Nos. 227,413 and 243,929, or in other suitable manner. By having a series of these bar-lugs of different sizes, all interchangeable in their connection with the plate, a selection may be readily made, in fitting a shoe, of a lug which shall exactly meet the requirements as to the width of the bar of the hoof, so that the bar may be closely clasped between the clips and lugs.

The nail-holes F F F, by means of which the shoe A is secured to the hoof, are formed, as usual, in that part of the shoe in front of the friction-plates; but an extra nail-hole may be made on each side back of the forward end of each friction-plate B, and an enlarged aperture, G, be formed in the plate to register with said nail-hole, so that the nail shall not interfere with the necessary movement of the plate, although passing through it.

It is evident that the means for confining the friction-plate between the shoe and the hoof, so that it shall be free to move with the hoof over and upon the shoe, and the rubbing and chafing at this point shall be thereby confined to the opposed surface of the plate and shoe, may be greatly varied without departing from our invention.

In Fig. 3 a modification is shown in which the friction-plate is formed with two thin lateral ears, H H, at its forward end to project from its outer edges and embrace the shoe between them, as an equivalent for the pivotal pin C, or as an auxiliary thereto.

The friction-plates may be made in malleable cast-iron or drop-forged, preferably the latter in steel, and tempered pretty hard.

The bar-lugs are made with short rivets, and when adjusted are made fast to the plate by upsetting the rivet in the usual manner.

The plates are preferably to be made in a series of sizes of about four different curves and with about four different lengths for each curve, so that a selection may be made to fit different feet without the necessity of heating or bending the plates to obtain a fit.

In the use of our invention the shoe operates to keep each friction-plate up tightly against the hoof, and the bar-lug, being fitted tightly over the bar of the foot close to the heel and the outside clip against the outer rim of the hoof, the plate moves with the hoof as part thereof and slips laterally to and fro on top of the shoe as the hoof expands and contracts. Thus the foot is protected from chafing or wearing, the heel parts remain as when the foot was dressed and shod, and their proper relation to the rest of the foot is preserved, so that they receive and bear the proper amount of pressure and afford the natural proportion of support.

We are aware that detached plates have heretofore been secured to the hoof independently of the shoe to serve as auxiliary means for confining the shoe. Our invention, however, does not assist in securing the shoe, but the plate is left free to move over the face of the shoe, as hereinbefore fully set forth.

In some cases our invention may be advantageously applied to one side only of a horseshoe, and we contemplate the use of the friction-plate with one or both sides of the shoe in manner as set forth.

We claim as our invention—

1. The combination, with the heel part of a horseshoe, of a friction-plate interposed between said heel part and the hoof to which the shoe is attached, and confined to the hoof to move with it over the shoe, substantially in the manner and for the purpose herein set forth.

2. The combination of the horseshoe A, friction-plate attached at its forward end to the shoe upon its upper or hoof surface and left free to swing and slide thereon at its rear end, and the clamping-lugs D and E, adapted to clasp each side of the hoof close to the heel, and thereby confine the rear end of the plate to the hoof, to move with it, substantially in the manner and for the purpose herein set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN E. BINGHAM.
EDWARD W. BINGHAM.

Witnesses:
S. H. HUBBARD,
F. W. SMITH, Jr.