C. H. Johnson,

Horseshoe.

No. 47,360. Patented Apr. 18, 1865.

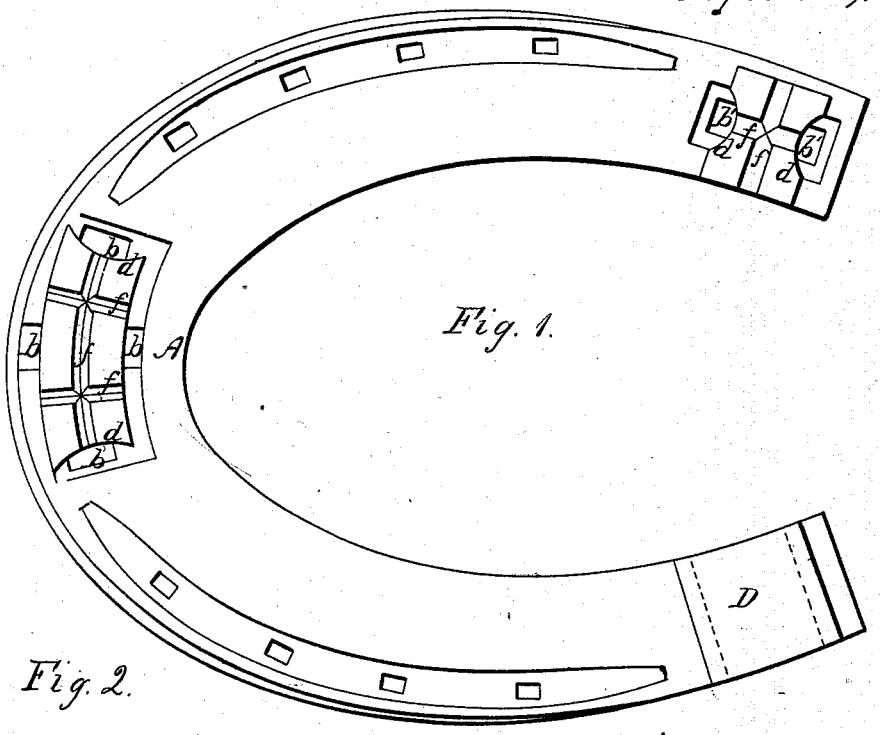


Fig. 1.

Fig. 2.

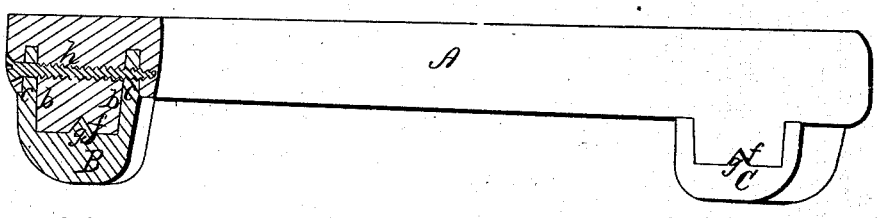


Fig. 3.

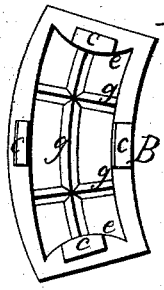


Fig. 4.

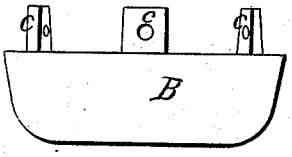


Fig. 5.

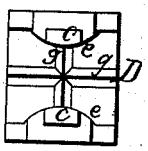


Fig. 6.

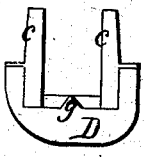
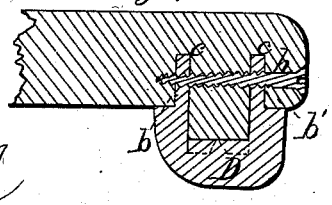


Fig. 7.



Witnesses;
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T. P. Hall Jr

Inventor;
Charles H. Johnson.
by his attorney
R. H. Eddy

UNITED STATES PATENT OFFICE.

CHARLES H. JOHNSON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND CHAS. EUGENE WOODMAN, OF SAME PLACE.

DETACHABLE HORSESHOE-CALK.

Specification forming part of Letters Patent No. **47,360**, dated April 18, 1865.

To all whom it may concern:

Be it known that I, CHARLES H. JOHNSON, of Boston, of the county of Suffolk and State of Massachusetts, have made an invention of new and useful Improvements in Horseshoes and their Calks; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes an under side view of a horseshoe as made for the reception of the heel and toe calks, constructed in accordance with my invention, one of the heel-calks being exhibited as in place. Fig. 2 is a transverse section of the shoe with the heel and toe calks in place on it. Fig. 3 is a top view, and Fig. 4 is a front elevation, of the toe-calk. Fig. 5 is a top view, and Fig. 6 an end elevation, of one of the heel-calks. Fig. 7 is a longitudinal and vertical section of one of the heels and its calk.

In carrying out my invention I provide the shoe A at its toe as well as at each of its heels with a flange or projection to extend from the tread or lower surface of the shoe. On opposite sides of the said flange I make in the shoe two mortises, as shown at *b b* or *b' b'* in Figs. 1 and 7. Each of the calks B C D, I construct with tenons *c c*, to enter the mortises, and also so as to straddle or encompass the flange, as shown in Fig. 2. The toe-calk has four tenons and four mortises. I also recess opposite sides of each of the heel-flanges and opposite ends of the toe-flange, such recess being shown at *d d*, the recesses being for the reception of curved projections *e e*, extending from the calk applied to such flange. Furthermore, I cross-groove each of the flanges on its face, as shown at *f f*, and construct the calk of such flange with a projecting cross, *g*, to enter and fit in the cross-grooves *f f*.

In applying the calks to the shoe the flanges enter their respective calks. The tenons of such calks also enter the mortises made for their reception. After each calk has been so applied to the shoe, one or more screws, *h*, is to be screwed into the shoe and through the two opposite tenons of such calk. I prefer this arrangement of the screw to that of passing it through the calk and flange, because the first arrangement protects to better advantage than the second the screw from injury.

The calks, as represented in the drawings, are designed for draft-horses and for use where there is no snow or ice on the surface of the road. To render them useful as snow or ice calks, they should be longer and sharper.

With my invention, when the calks may have become so injured by use as to require to be removed from the shoe, this may be readily accomplished and others or perfect ones be substituted, it not being necessary to tear or abstract the shoe from the foot of the horse in order to accomplish this.

It is well-known that frequent removal of the shoes from the foot of a horse for the purpose of repairing the calks of such shoe is a matter to be avoided, if possible, as it is liable to injuriously affect the hoof. By having the two tenons and their mortises on opposite sides of the flange and calk, I am enabled to support the calk and fasten it to the shoe to much better advantage than I can with but one tenon and its mortise. The lateral recess in the flange and in the corresponding projections made on the calk also contribute greatly toward keeping the calk in place under the strains and blows to which it may be subjected while in use, and, besides, these recesses and projections protect the tenons from strains liable to break them. The crosses in relievo and incavo also aid in strengthening the position of the calk, and relieve the tenons from strains tending to break them.

What I claim as my invention is as follows:

1. The arrangement and combination of the two tenons *c c* and their mortises *b b* or *b' b'* on opposite parts of the calk and flange with the shoe, the calk, and the flange.

2. The combination of the rilievo and incavo crosses *f g*, or their equivalents, with the calk, the flange, and the tenons and mortises of the calk and shoe.

3. The combination of the lateral recess *d* on the flange and its corresponding projection, *e*, on the tenon with the calk-tenon and flange applied to the shoe, substantially as specified.

4. The arrangement of the fastening-screw *h*—viz., so as to pass through the shoe and through the tenons—as set forth.

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Witnesses:

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