

J. WHITEFORD.
Horseshoe.

No. 216,248.

Patented June 3, 1879.

FIG. 1.

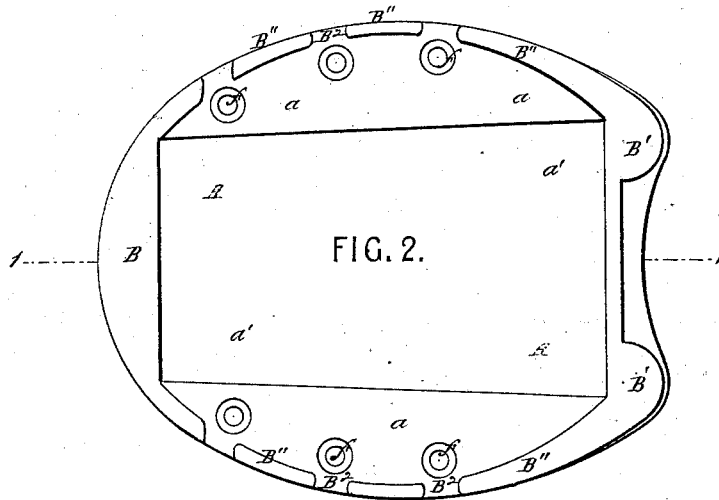
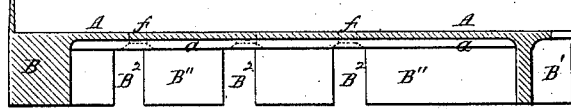
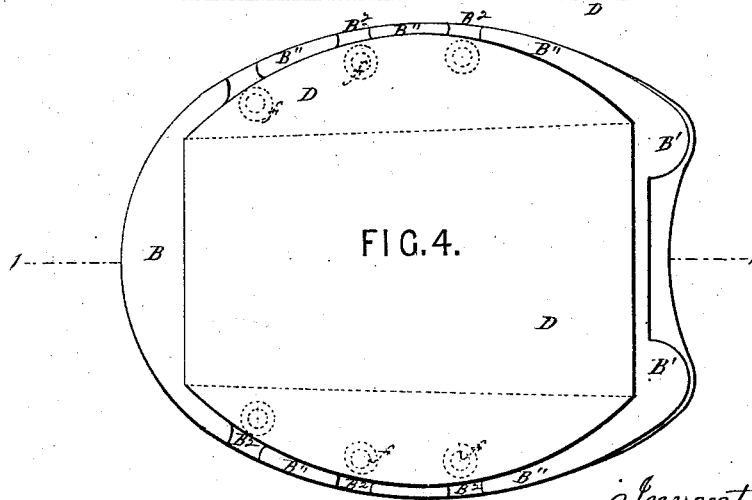
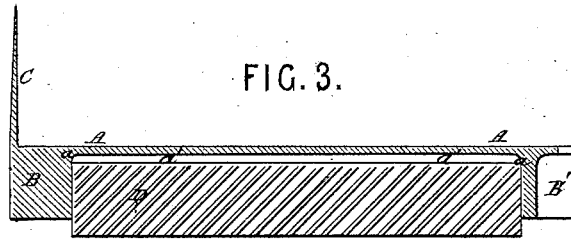


FIG. 3.



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FIG. 5.

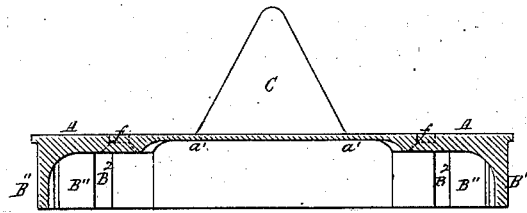


FIG. 6.

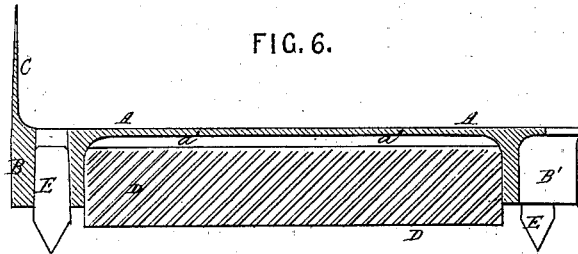
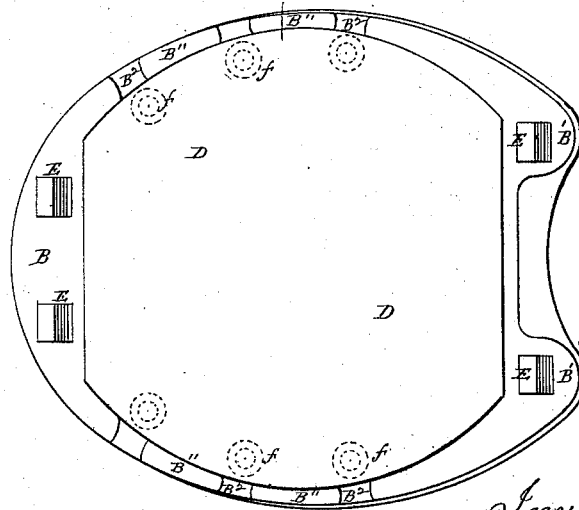


FIG. 7.



Thomas Russell, Witness
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UNITED STATES PATENT OFFICE

JAMES WHITEFORD, OF GREENOCK, COUNTY OF RENFREW, GREAT BRITAIN.

IMPROVEMENT IN HORSESHOES.

Specification forming part of Letters Patent No. **216,248**, dated June 3, 1879; application filed July 8, 1878; patented in England, April 16, 1878.

To all whom it may concern:

Be it known that I, JAMES WHITEFORD, of Greenock, in the county of Renfrew, Great Britain, have invented a new and useful Improvement in Horseshoes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Figures 1 and 2 on Sheet 1 are a section and a plan of the metal part of the shoe, which may be formed of malleable cast-iron, of malleable iron, or of soft steel.

It consists of a thin plate, A, perfectly flat on its upper surface, corresponding in size and form to the outline of the plantar surface of the hoof, which it entirely covers when in position, having a clip, C, turned up from it at the toe, (or at one or more points, if required,) as in most of ordinary horseshoes. Upon this flat surface of metal the bearing parts of the plantar surface of the hoof rest when the shoe is in position. From the under surface of this plate A there projects vertically across the front part or toe a cross-bar, tip, or toe-piece, B, in depth corresponding to the required thickness of the shoe—say five-eighths of an inch in a shoe for an ordinary harness-horse. Similarly across the back or heel part a heel-bar with enlargement at either heel B' B', and along either lateral margin a narrow segmental edge, B'' B'', interrupted in two, three, or four places by slots B² in its continuity from toe to heel bars. These correspond in depth to that of the bar. The said interruptions B² B² in the continuity of the edges B'' B'' are made in order to prevent absolute rigidity, and to allow sufficient flexibility between the toe and heel, and, among other advantages, to enable the shoe to be more easily and securely fastened to the hoof.

In order to prevent the risk of breakage to the plate A at these interruptions, it is strengthened on the under surface at either side by increasing the thickness of metal over the lateral horizontal segmental spaces *a a* to a sufficient degree compatible with retaining enough flexibility, the central part, *a' a'*, alone being very thin. Of course this strengthening of the sides of the plate is preferred to a uniform increase of the thickness of the plate A all over,

in order to save weight, and but for this reason the whole plate might be equally thickened.

The pieces forming the interrupted edges are filleted or broadened out at the point of junction with the horizontal plate A *a'*, so as to prevent them being easily chipped off, as shown in Fig. 5, Sheet 2, which is a cross-section of the shoe.

The width of these interruptions B² should be very small—say about a quarter of an inch; and it is most convenient to form the nail-holes *f* in the plate A opposite to them, because these can thus be placed nearer to or farther from the edge, according to circumstances.

The nails most suitable for fastening the shoe are flat-headed, with tapering or countersunk necks, and the nail-holes being slightly countersunk also, the head of the nail, when in position, is flush with the plate, as seen at *f*, Fig. 1. However, an ordinary shoulder-headed nail may be used with the head flattened laterally, so as to overlap the slots B², and thereby be prevented from being turned over when in position, in this case the head of the nail being as long as the depth of the edge.

Figs. 3 and 4 are a section and plan of the shoe, with the soft material, D, placed in position. This soft material for ordinary purposes is to be made preferably of a tough fibrous wood, such as willow, cross-cut—that is, with the direction of the fibers vertical to the plane of the plate A when in position—and well dried or seasoned. The wood D is cut exactly to fit the space inclosed by the toe-bar B, the heel-bar B', and the edges B'' B'', and of a thickness sufficient, when driven in, to project slightly—say about one-eighth of an inch—beyond the level of the lower surface of the iron, as shown in Fig. 3, the natural expansion of the wood which takes place on being damped being the force relied upon to keep it firmly in position.

When wood is used it is driven into position after the shoe is fastened to the hoof, and thus it may be renewed from time to time, if necessary, without removing the shoe.

For roughing during frost, square recesses may be formed in the toe and heel bars, slightly tapering, to which may be fitted steel or case-hardened tapering pyramidal or chisel-

pointed studs E, as shown in Figs. 6 and 7, Sheet 2, such as are used in some ordinary horseshoes, these figures representing, respectively, a longitudinal section and a plan of the shoe.

The shoe thus described provides the following advantages: first, sufficient support and protection for the plantar surface of the hoof by the metal plate A and the underlying soft material; second, security of foot-hold by adopting a soft substance, such as wood (either on its side or on end) or india-rubber or gutta-percha, or similar soft elastic substance, or leather or canvas, as part of the ground bearing-surface of the shoe; third, by the relative arrangement of the iron part to this soft substance, defenses against the too rapid wear of such soft substance which would otherwise

take place; and, fourth, sufficient flexibility without impairing its safety, and thereby adding to the ease and security of the fastening of the shoe.

I claim as my invention—

A horseshoe made to cover the entire tread of the hoof, composed of the plate A, having the vertical flanges or projections B B' B'' from its under side, with intermediate spaces, B², the same forming a recess or central cavity, in combination with a filling of wood, D, fitting therein, the parts being constructed substantially as shown and described.

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Witnesses:

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