Downie & Harris,

Horse-Shoe.

No. 99,072. Patented Jan. 25. 1870.

Fig. 1.

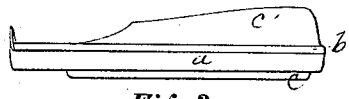


Fig. 2.

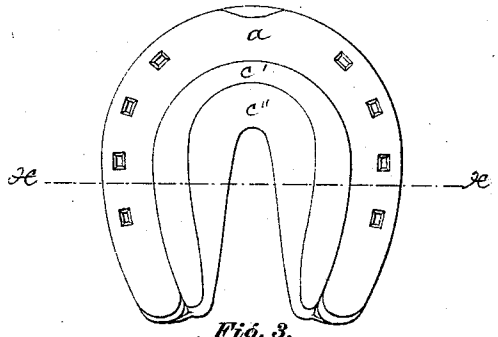


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 7.

Fig. 8.

Fig. 6.

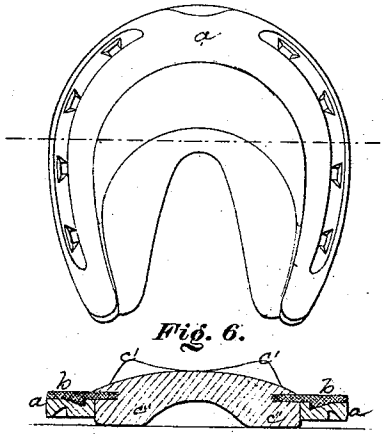
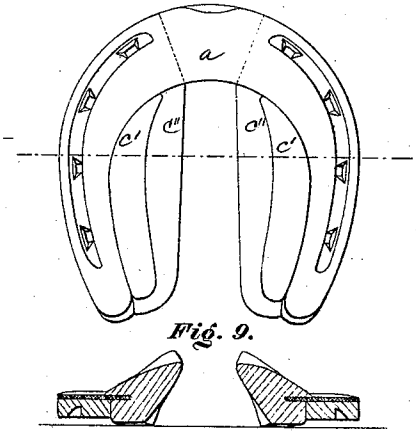


Fig. 9.



Witnesses.

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A. Hoermann.

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HAY DOWNIE, OF CORSTOPHINE, AND ISAAC BLUE HARRIS, OF EDINBURGH, SCOTLAND.

Letters Patent No. 99,072, *dated January* 25, 1870.

IMPROVEMENT IN SHOES FOR HORSES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, HAY DOWNIE, of Corstophine, and ISAAC BLUE HARRIS, of Edinburgh, both in the Kingdom of Scotland, have invented certain new and useful Improvements in Shoes for Horses; and we do hereby declare that the following statement or specification, and the accompanying sheet of illustrative drawings, contain a full, clear, and exact description thereof, whereby others will be enabled beneficially to carry our improvements into effect; that is to say,

Our invention relates to a certain novel construction, combination, and arrangement of parts of metal and India rubber, or other elastic or suitable flexible material, in the manufacture of shoes for horses.

We make the metal portions of each shoe in one piece, and so fit the India rubber or other elastic or flexible material (hereafter, for brevity, called rubber,) thereto, or therewith, that it, the said rubber, projects beyond or below the ground surface of the metal, immediately adjacent thereto.

The main advantages sought to be secured by our improvements, are to provide strong, practicable, and durable shoes, which shall efficiently and rightly perform the important functions of relieving the legs and frames of horses from shocks and jars, and tend to prevent slipping on ice and slippery pavements, while in every other respect suitable for general use, both on draught and saddle-horses. Our shoe may be adapted to be attached to the hoof by nails, or in any other convenient manner.

Our improvements consist in constructing the metal portion of a shoe, of any ordinary or desired form, and combining rubber, or analogous elastic material, therewith, in such manner that a thick anti-concussion pad or ridge thereof extends along close to the metal, and projects downward beyond the face, in the manner herein shown.

A portion of the said rubber, or, preferably, a strong cloth, saturated with rubber, embedded therein, and firmly attached thereto, is also extended between the metal and the hoof, to serve the double function of a bedding for these parts, and a strong attachment for the main pad. We also use a notched sole-shield in connection, as will be described.

We will proceed to describe what we consider the best means of carrying out our invention, and will afterward designate the points we consider new therein.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation,

Figure 2, a view of the treading-surface, and

Figure 3, a transverse section, at $x\ x$ in fig. 2.

a is the metal portion, with countersunk spaces for the nail-heads.

b is the bedding-flange.

c' is the anti-concussion pad, and

c'' is the sole-shield. This latter may be dispensed with, without entirely defeating the object of our invention.

The drawings represent the construction in every detail, and the letters correspond to the parts in the first-described and most perfect form of our invention.

Each modification is shown in a face view, with an elevation and sections.

Figure 5, and accompanying drawing show the pad much broader at the toe.

In Figure 8, and accompanying drawing, it entirely disappears at the toe.

But it will be observed, that in all the figures, the pad c' extends beyond the depth of the metal part a only to a slight extent, and that this extent is uniform, or nearly so, all around the shoe. We have had much experience in this matter, and esteem this condition important to the fullest success. But we allow the pad to vary with the weight of the horse, and make it vary in width. We have in fig. 2 shown it narrowest at the toe, but with a different animal it may be necessary to broaden the bearing at the toe, and contract it, or allow it to disappear altogether at the heel.

We propose to make and sell a variety, and select, or allow each consumer to select, such as shall be found to suit each animal.

We can form the rubber in the shapes required by moulding in the ordinary approved manner.

The strong cloth b can be first saturated with rubber, with the proper proportion of sulphur, and afterward placed in the mould, in the proper position to allow the main mass of rubber to be strongly joined thereto.

We do not confine ourselves to making the parts which, for brevity, we have called rubber, of rubber only, as various compounds of rubber, gutta-percha, and other elastic or flexible gum, or elastic or flexible substances, such as felt, closely-compacted woven fabrics, and other substances, could be used, and with good effect, especially when saturated with rubber, and vulcanized.

We, however, prefer, for most work, ordinary vulcanized India rubber for the anti-concussion pads and sole-shields, and prefer, for the bedding flanges, closely-woven fabrics, compacted with India rubber, the latter sufficiently close to prevent working and loosening of the shoe.

We claim, as follows:

1. The anti-concussion pad c', formed and arranged as represented, relatively to the metal part a, so that it shall be immediately adjacent to and intimately combined therewith, and shall project a little beyond the

ground face of the metallic part, and take the first bearing on striking the pavement, all substantially as and for the purposes herein set forth.

2. In combination with an anti-concussion pad, c', projecting beyond the ground surface of the metallic part a, as specified, the within-described strengthened holding-flange b, applying between the metallic part a and the foot, as and for the purposes herein specified.

3. In combination, the deeply-notched sole-shield c'', holding-flange b, and anti-concussion pad c', when the latter projects beyond the ground face of the metallic part a, and the whole are arranged and adapted to serve relatively to each other, as and for the purposes herein set forth.

In testimony whereof, we have hereunto set our names, in presence of two subscribing witnesses.

HAY DOWNIE.
ISAAC BLUE HARRIS.

Witnesses:
GEO. STEAD,
W. FIRTH,
W. STEELE.