N. E Hinds,

Horseshoe.

No. 26,036. Patented Nov. 8, 1859.

Fig. 1.

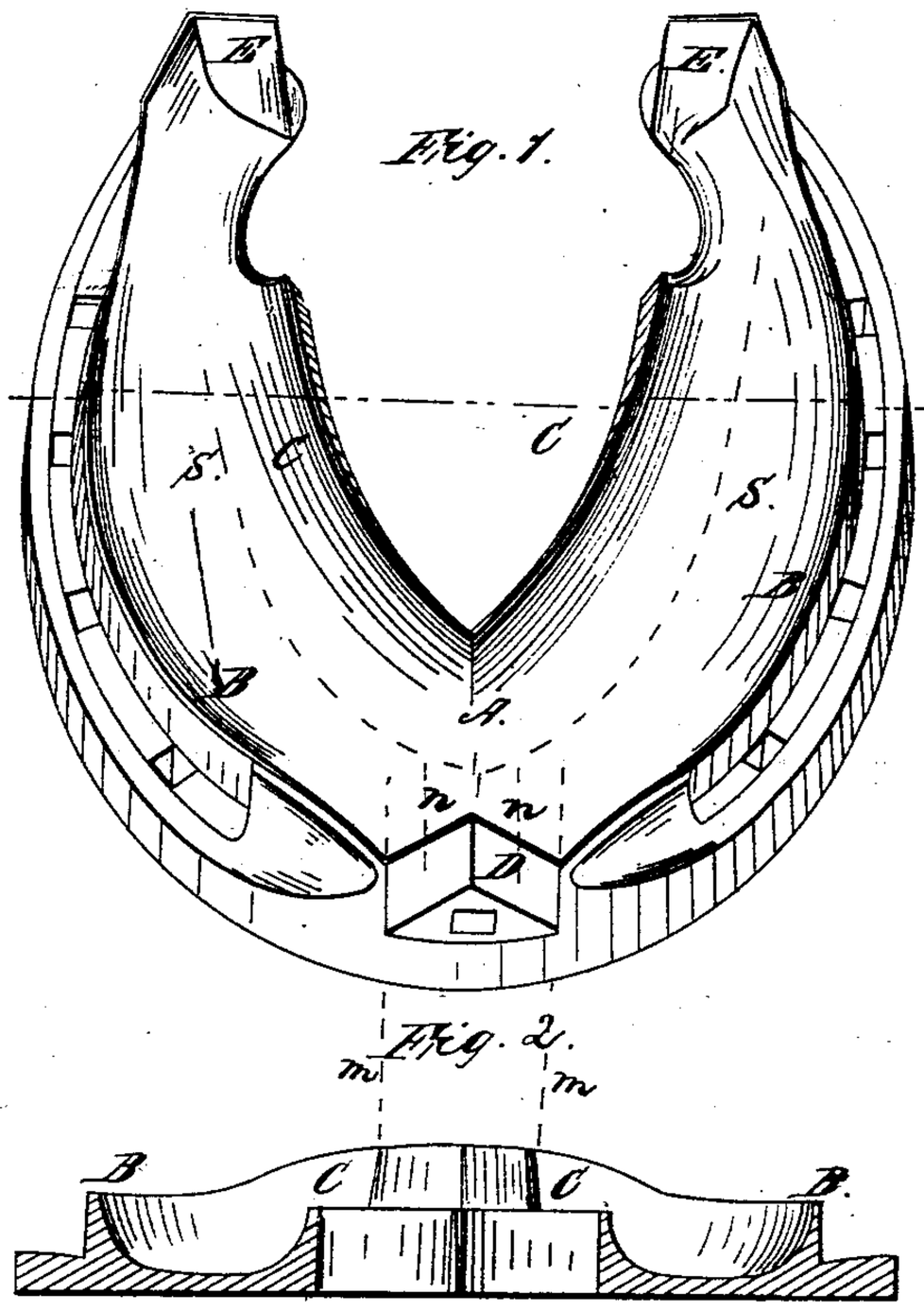

Fig. 2.

Witnesses.

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N. E. HINDS, OF COOPERSTOWN, NEW YORK.

IMPROVED HORSESHOE.

Specification forming part of Letters Patent No. **26,036**, dated November 8, 1859.

To all whom it may concern:

Be it known that I, N. E. HINDS, of Cooperstown, county of Otsego, and State of New York, have invented certain new and useful Improvements in Horse and other Animal Shoes; and I hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon.

The object of making my improvement is to substitute cast-iron in lieu of wrought-iron in the construction and manufacture of animal shoes, in order to cheapen their cost. This attainment has been attempted a few times, but with very little success, for the reason that the shoes were not constructed in suitable and proper forms and proportions to render them safe and free against breaking.

The nature of my invention consists in constructing the shoes with larger and heavier proportions in the parts most liable to break; in constructing the wearing side of the shoe in a trough-like concave form, and in constructing calks in a V or double-V form.

As the different kinds of animal-shoes are very similar, I will describe only the horseshoes in the specification.

Figure 1 is a perspective view of a horseshoe. Fig. 2 is an edge view of the shoe.

Similar letters indicate like parts throughout.

A is the plate or main body of the shoe. In the central part, on dotted line *s s*, the plate is to be of one thickness clear around, as near as practicable, and to be only half the thickness of common wrought-iron shoes. Around the toe part of the shoe it is increased in width over the common wrought shoe, so as to make it from one-half as wide again to twice as wide as the common wrought shoe at the toe, and from thence it tapers or gradually diminishes in width to the heel ends, where it is of common width of wrought shoes. The outside edge of the shoe through which the nail-holes pass is about one-third thicker at the toe part than it is at the heel ends of the shoe. These larger proportions at toe part of the shoe are so made to strengthen that part, which is much more liable to break. The under side of the shoe, between the raised edges B B and C, and in range with the dotted line *s s*, is constructed in a kind of trough-like concave form. In forming this concave the edges B B and C have to be raised to nearly half the height or depth of the calks. These edges, on the opposite sides of the concave, are raised in a vertical position, or at a right angle or nearly right angle to the face of the shoe, or that side of it that comes in contact with the horse's foot. The edges B B come immediately against the nail-holes. The edge C is exactly even with the the inside edge of the shoe. This kind of concave and the raised edges ensuing therefrom are very well shown in Fig. 2, and they serve some very important purposes in the horse and other animal shoes. In the first place the extra width and concave form of the shoe render it very safe against clogging or balling up, as the shoe covers most all the cavity of the foot, leaving but little chance for the snow to be packed in under the shoe so as to become strongly attached, as in the case of the old-fashioned narrow shoe. Again, the frog of the foot, being more fleshy, contains a considerable animal heat, which prevents snow or balls from attaching very strongly to it. Then, again, the horse, almost continually stepping onto uneven surfaces, makes but very few steps before he steps onto something that will press harder on one side of the concave than on the other, and the snow or ball will be forced to the opposite side of the concave and be discharged, and by repeated movements of this kind following in quick succession the balling of horses is most prevented.

Another important use of the raised edges, aside from their use in forming the concave, is that they add depth and thickness to the edges of the shoes, putting them into a kind of corrugated form to increase their strength in a lateral or cross direction. Horse's shoes are scarcely ever broken, except in two ways. One of these ways is by blows or knocks upon the outside edge of the shoe. In this way the fracture must begin on the inside edge of the shoe, and its resistance to break will be exactly in proportion to its width. Then, again, if the inside of the shoe is twice as thick from the addition of the raised edge C, the resistance to fracture will be doubled on this account, making the shoe about four times as strong as it would be in the old-fashioned form; but by far the greatest amount of breaking to horseshoes is in a transverse or

cross direction. This kind of break takes place in consequence of the horse's stepping onto cobble-stone or some high eminence which bears upon the inside edges of the shoe only, under which there is no support, as the horse's foot is so hollowing that there is seldom anything to bear against the inside edge. Even in case of a very flat footed horse, or in case of cutting away the outside of the hoof until the inside edge of the shoe should bear, it would not even then support the shoe against breaking, for the inside of the hoof is so soft that it would yield enough to fracture cast-iron shoes. D is the toe-calk. It is made in a double-V shape on some shoes, as may be seen in the drawings, and in icy, frozen countries this form will be much the best. For such localities the calks will need to be thin and sharp to cut into the ice and frozen ground to prevent slipping. Making the calks thin in this manner will greatly increase their liability to break.

In constructing calks with the same amount of material in each to produce greater strength from the form alone, it may be seen that the lateral or angular lines *n n* of the calks, (see drawings, Fig. 1,) in a calk in a double-V shape, to occupy only the space or width of the single-V calks, must be much more oblique, and that the points *o o* will be more sharp and acute. The locomotion of the horse is directly forward. He scarcely ever moves in any other direction with speed or power sufficient to break calks. It may also be seen that, the horse throwing his feet forward in the direction of the lines *m m*, the points *o o* of the calks must strike any obstruction first, and it may then be seen that the lateral lines *n n* of the calks serve as kind of braces or arches to support the points *o o*. In this way it is apparent that the double-V form of calk gives greater strength to it than if it were composed of the same amount of metal in the single-V form, and that the single-V form will also be stronger than if it were in a straight form; hence the advantage of these kinds of calks.

In countries where there are no stone or rocks to break the calks the single-V form is intended to be used, and for summer use, even in stony countries, the single-V form will be the best for the calks. The shoes for summer use have to be made a great deal heavier to secure a longer durability against the greater wear in summer, which will give them sufficient strength to stand; and a calk made in the single-V form, to occupy the same space on the shoe of the double-V form of calk, will be less oblique on the lines *n n*, and the bulk of the calk can be set nearer to and more in line with the front edge or front line of the shoe, which will guard and protect the shoe better and aid the horse a good deal in his locomotion. The single-V form will be more proper, too, for ox-shoes, which are made to fit to the single halves of their feet, into which they are divided, and consequently can be of but half the width of horseshoes.

E E are heel-calks.

This completes the description of the construction and operation of the shoes and their utility.

Preparatory to making the claims, I will remark that I am aware that Marcus Hosmer made application for improvements in horseshoes February 26, 1855, withdrawn March 22, 1855, which he claimed as a concave shoe. In the description it is described as having a deep, broad rim outside of the nail-holes and on the outside edge of the shoe, which continues entirely around the outside edge of the shoe to form but one continuous calk; that the inside edge of the shoe is thin and bent upward to fit to the horse's hoof and prevent dirt from working in under the shoe; that there is but one rim or edge, as claimed, and the only sense in which it can be said to be concave is the bending the inside up, and this is merely to produce a convex form to fit to the concavity of the horse's foot. It is in no sense a trough-like concave form, as in my shoe. I am also aware that horses' shoes have been constructed "with a cord or bead around the inner part of the shoe." From this description it is not definite that the cord is exactly on the inside edge of the shoe. It may be intermediate, but nearer the inside edge; but in either way it only produces a kind of stiffening-bar to support the shoe, and does not aid in forming the trough-like concave form of my shoe. In neither of these cases, simply or combined, is there anything bearing any similarity to my trough-like concave form. Therefore, in view of these explanations,

What I claim as my invention, and wish to secure by Letters Patent of the United States, is—

1. The wider and thicker enlargement of the toe or fore part of the shoe.

2. The trough-like concave form of the under side of the shoe and the raised edges B B and C that ensue as a consequence of the construction of said concave form.

3. The construction of calks made in a V or double-V form, all of which is constructed and claimed substantially as and for the purposes set forth and specified.

N. E. HINDS.

Witnesses:
G. W. ERNST,
J. W. PIXLEY.