G. W. Lewis,

Horseshoe.

No. 70,231. Patented Oct. 29, 1867.

Fig. 1.

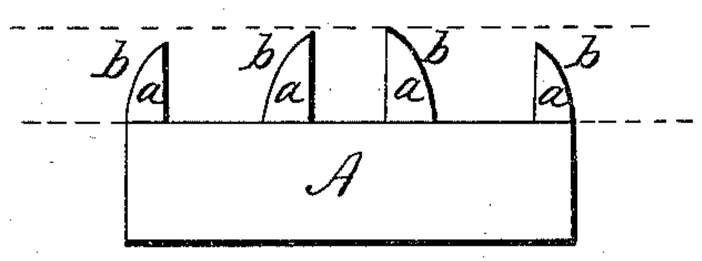

Fig. 2.

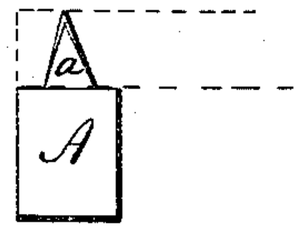

Fig. 3.

Witnesses;

W. B. Vincent

W. W. Rickard.

Inventor;

Geo. W. Lewis

United States Patent Office.

GEORGE W. LEWIS, OF PROVIDENCE, RHODE ISLAND.

Letters Patent No. 70,231, *dated October* 29, 1867.

IMPROVEMENT IN HORSE-SHOES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE W. LEWIS, of the city and county of Providence, in the State of Rhode Island, have invented a new and useful Improvement in Toe-Calkins for Horse-Shoes; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a side view.

Figure 2 is an end view.

Figure 3 is a top view.

In the Letters Patent granted to Charles H. Perkins, of Providence, Rhode Island, on the 9th day of April, A. D. 1861, an improved toe-calkin is described which is provided with one or more tapering steel spurs placed midway between the extremities, or nearly so. The description of said invention states that these tapering points will, from the effect of the blows of the hammer in setting it upon the shoe, as well as from the effect of the unequal contraction of the metal, become crooked like the roots of a tooth, and the calkin thereby be mechanically held upon the shoe in aid of the welded joint. In fact, however, I am well aware from knowledge derived as the agent of the Union Horse-Shoe Company of Providence, to which company said Letters Patent have been assigned, and by whom these articles have been largely manufactured, that the steel spurs, as shaped by the said Perkins, and as represented in the drawings accompanying his patent, do not bend toward each other, and hold the calkin to the shoe, as it is claimed that they do in his said patent.

I have found that by altering the shape of the spurs from the pyramidal form shown in the drawings of the patent referred to, by giving to one of the faces of each spur a curved surface, they will, when the toe-calkin is driven down upon the shoe, bend themselves in the direction opposite to the side which is so curved. The reason why this difference in result should attend this change of form is obvious, when it is considered that in the one case, so long as the faces of the spur are made up of triangular planes, there will be no more tendency of the metal to "cripple" itself than is experienced in the driving into a board of hard wood of a cut nail, one side of which, from the manner in which the plate is cut, is frequently more inclined with reference to the axis of the nail, and consequently longer than the other side. While on the other hand, if one of the faces of the spur be curved outward from the point toward the base, the natural direction of the point, as the spur is driven into the shoe, will be in continuation of the line of curvature, for the reason that on the curved side there is necessarily a greater displacement of the metal of the shoe than upon the side where it is straight, and consequently there will be a greater resistance to the entrance of that side of the spur, as compared with the resistance to the entrance of the other side, and the resultant of the force of the blow to set the calkin and the opposing excess of resistance will be in the general direction of the curve of the side. This change in the form of the spur constitutes my improvement, and enables that result to be accomplished which, with any other form of spur, if not impracticable, is much less likely to be effected.

In the accompanying drawings, A represents the toe-calkin, and *a* the several spurs. Each of these spurs has, as will be seen, one of its faces *b* curved, but otherwise the article is the same as is described in Letters Patent granted to Charles H. Perkins before mentioned.

What I claim as my invention, and desire to secure by Letters Patent, is—

The improvement in toe-calkins described, which consists in making one of the faces *b* of each of the holding spurs *a*, curved from the top outward toward the base, as and for the purposes specified.

GEO. W. LEWIS.

Witnesses:

W. B. VINCENT,

W. W. RICKARD.