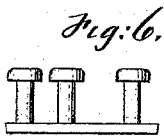
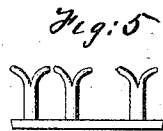
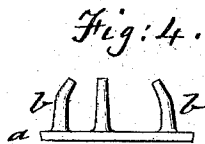
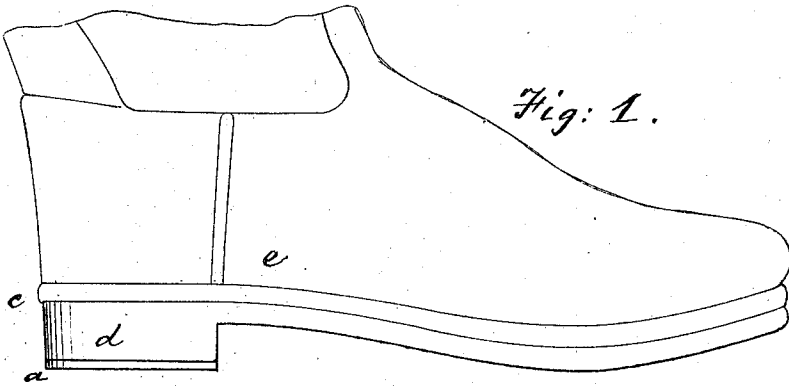


F. M. Shepard,

Rubber Shoe Sole.

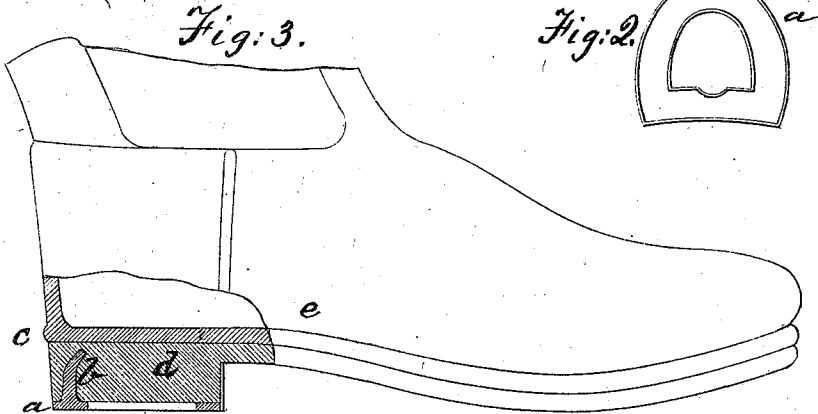
No. 100,677.

Patented Mar. 8, 1870.



Witnesses
Wm. H. Bishop
A. J. DeLany

Fredrick M. Shepard



United States Patent Office.

FREDERICK M. SHEPARD, OF NEW YORK, N. Y.

Letters Patent No. 100,677, dated March 8, 1870.

IMPROVEMENT IN HEELS OF RUBBER BOOTS AND 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, FREDERICK M. SHEPARD, of the city, county, and State of New York, have invented a new and useful Improvement in the Heels of India-Rubber Boots and Shoes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is an elevation of the heel-part of a boot on my improved plan;

Figure 2, a face view;

Figure 3, a vertical section; and

Figure 4, a separate view in elevation of the heel-plate.

The same letters indicate like parts in all the figures.

The heels of vulcanized India-rubber boots, particularly the rear part, wear off more rapidly than the sole, and soon wear down to about the same thickness as the sole, and as the heels, like the rest of the boot, are formed while the compound of India rubber and sulphur is in the green or plastic state, and then vulcanized, it has been found difficult to apply to such heels material that will better stand the wear.

The object of my invention is to remedy this defect, and to this end I make a suitable heel-plate, *a*, of the form of the lower part of the heel of the boot, from the inner surface of which plate projects a series of stems, *b*, and this plate is combined with the intended heel *c* while the compound of India rubber and sulphur is in the green or plastic state.

For the convenience of casting, these stems are cast to project at right angles to the plane of the plate, and after being softened by the well-known process for rendering cast-iron malleable, the stems are all bent inward, as represented.

The plate so prepared is put into a mold such as used for molding the heels for India-rubber boots, and

the vulcanizable compound of India rubber in the plastic state forced into the mold among and around the stems and into the apertures of the plate if there be any. After the heel is so formed by combining the block of rubber compound *d* with the metal plate *a* and stems *b*, it is applied and caused to adhere to the boot or shoe *e* in the usual manner and then vulcanized.

I prefer to make the metal plate with its stems of what is known of malleable cast-iron, so that the stems can be easily bent, but other metals may be used, and the ends may be split and clinched by bending or otherwise, as shown in fig. 5, and imbedded into the surface of the rubber, or the stems may be formed with heads at their extremities, as shown in fig. 6, or the stems may be made shorter than the thickness of the intended heel, hollow at their outer ends, and tapped to receive screws with heads, as shown at fig. 7, but I do not wish to be understood as limiting my claim of invention to the use of such metal, nor to the making of the stems with split ends, as described, as these may be varied within the compass of my said invention.

I do not claim, broadly, plating the heels of India-rubber boots or shoes with metal, by applying the metal to the India-rubber heel while in the plastic state and then vulcanizing the India rubber; but

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

The combination of the India-rubber heels of boots and shoes with a metallic heel-plate formed with stems projecting from the inner surface, which are bent before the India rubber is applied and vulcanized, substantially as specified.

FREDERICK M. SHEPARD.

Witnesses:

WM. H. BISHOP,
A. J. DE LACEY.