

(No Model.)

F. EPHRAIM.
SOLE.

No. 473,304.

Patented Apr. 19, 1892.

Fig. 1.

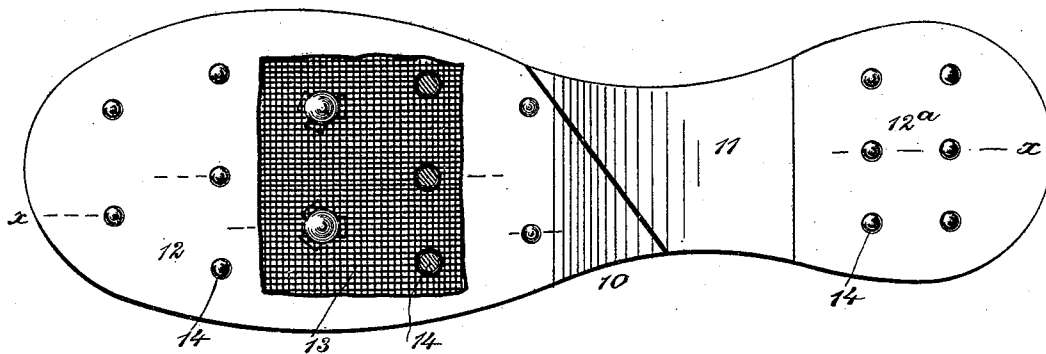


Fig. 2.

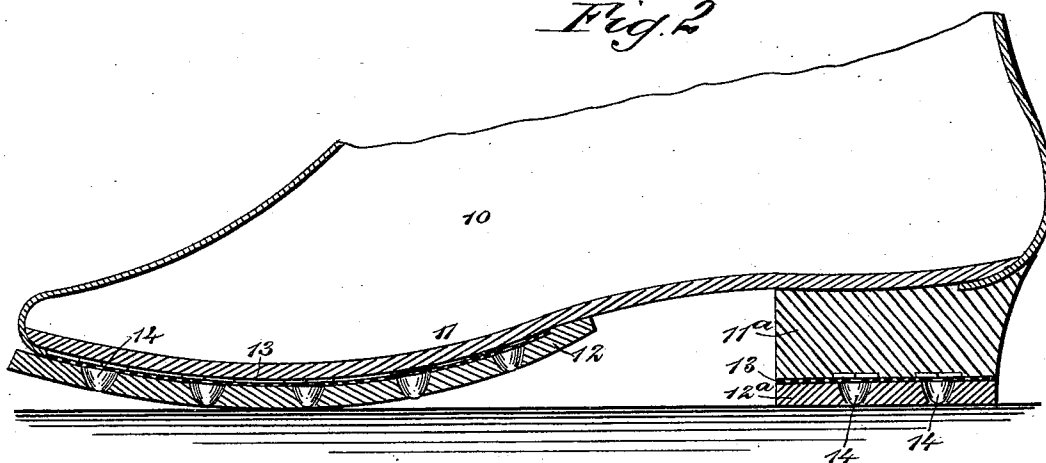
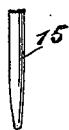


Fig. 3.



Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FERDINAND EPHRAIM, OF SAN FRANCISCO, CALIFORNIA.

SOLE.

SPECIFICATION forming part of Letters Patent No. 473,304, dated April 19, 1892.

Application filed October 30, 1891. Serial No. 410,311. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND EPHRAIM, of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Sole, of which the following is a full, clear, and exact description.

My invention relates to improvements in soles for boots or shoes, and more especially to that variety of soles known as "iron-clad" or "hob-nailed."

The object of my invention is to produce a simple and inexpensive sole of the character described which may be easily secured to a boot or shoe and which may be attached in such a manner that none of the parts will be unduly strained, so that the sole will consequently wear well.

To this end my invention consists in a sole constructed substantially as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken inverted plan of a shoe provided with my improved sole. Fig. 2 is a vertical longitudinal section of the same on the line *x x* in Fig. 1. Fig. 3 shows details of the different kinds of headed rivets or nails which may be secured to the sole, and Fig. 4 is a broken detail view of a punch used in attaching the rivets.

The shoe 10 is provided with the usual inner sole 11 and outer sole 12, which may be secured together in any of the ordinary ways, and between the two soles is a layer of wire-cloth 13, which is adapted to support the rivets or hob-nails 14, 14^a, and 14^b. These nails may be made in any desired form so long as they have the enlarged rounded head common to hob-nails, and, as shown, the nail 14 is in the form of a rivet, having a straight shank. The nail 14^a is provided with a pointed shank, and the nail 14^b is provided with a double

shank, which acts as a staple, and the members of which may be doubled upon the wire when the nail is inserted.

In attaching either form of nail a punch 15 is used, which punch is inserted between the members of the wire-cloth and serves to make a hole large enough to receive the shank of a nail without breaking a thread of the cloth, and to this end the point of the punch is made small enough, so that it will readily enter a mesh of the wire-cloth. The nails are secured to the sole by thrusting their shanks through holes produced by the punch 15, and the shanks of the nails are then headed, so as to hold them in place. The heads of the nails protrude through holes in the outer soles, and when the sole is new the heads will protrude but slightly, as shown in Fig. 2, and as the sole wears away the heads will protrude a little more and will protect the sole, so that it will be very durable.

It will be noticed that a top lift 12^a may be applied to the heel 11^a of the shoe in the same manner as the outer sole is applied to the inner sole, the wire-cloth 13 being inserted between the top lift and heel and the hob-nails being attached in the manner already described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with the boot or shoe, of the wire-gauze plate 13, carrying a series of nails clinched to it and having tapering heads, and the outer sole or tap having a series of tapering apertures corresponding in position to and receiving the nail-heads, the ends of the heads of the nails being exposed through said apertures to take the wear, substantially as set forth.

FERDINAND EPHRAIM.

Witnesses:

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MARK KLINE.