

(No Model.)

F. EPHRAIM.
RUBBER BOOT OR SHOE.

No. 583,528.

Patented June 1, 1897.

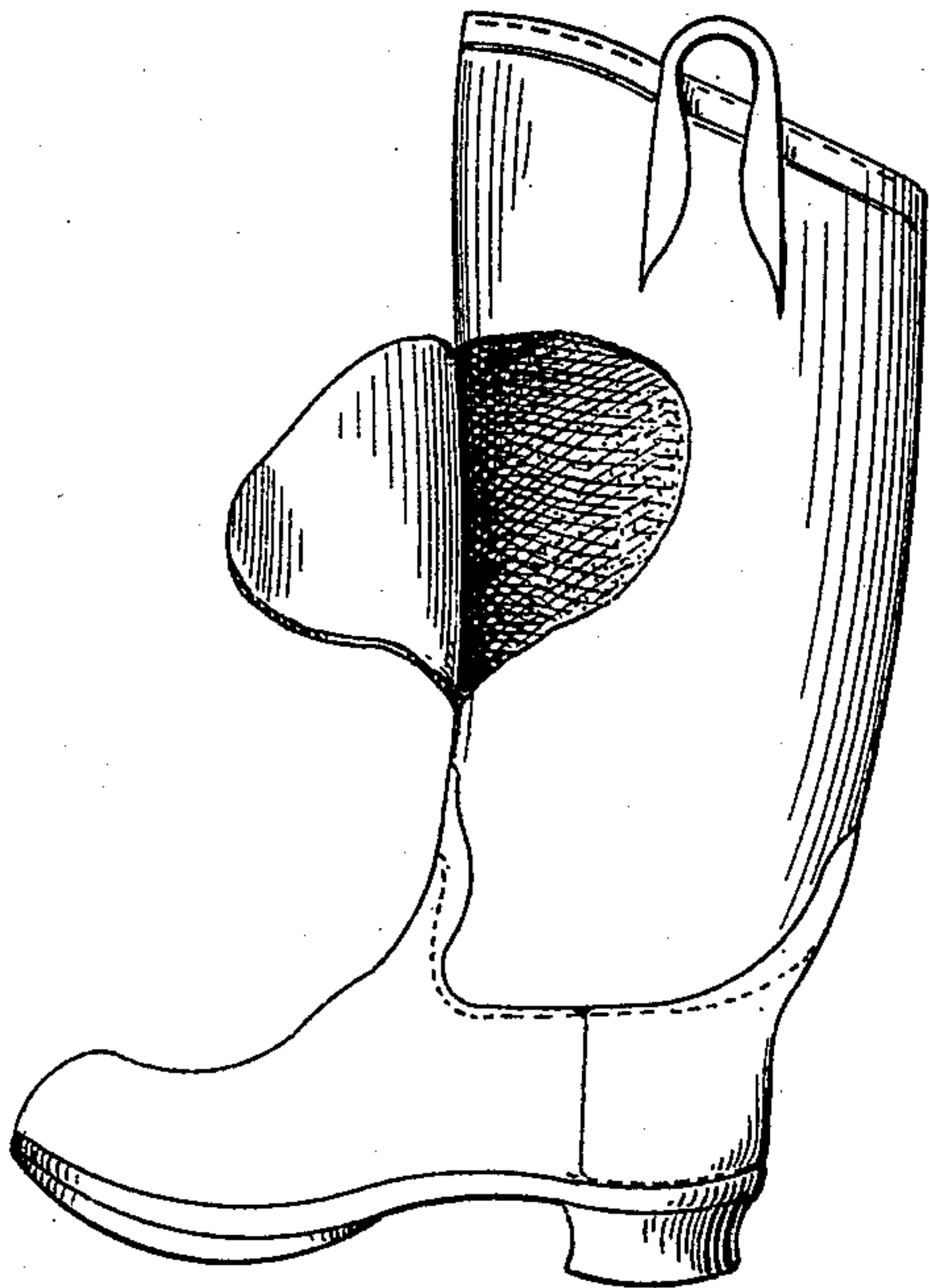


Fig. 1.

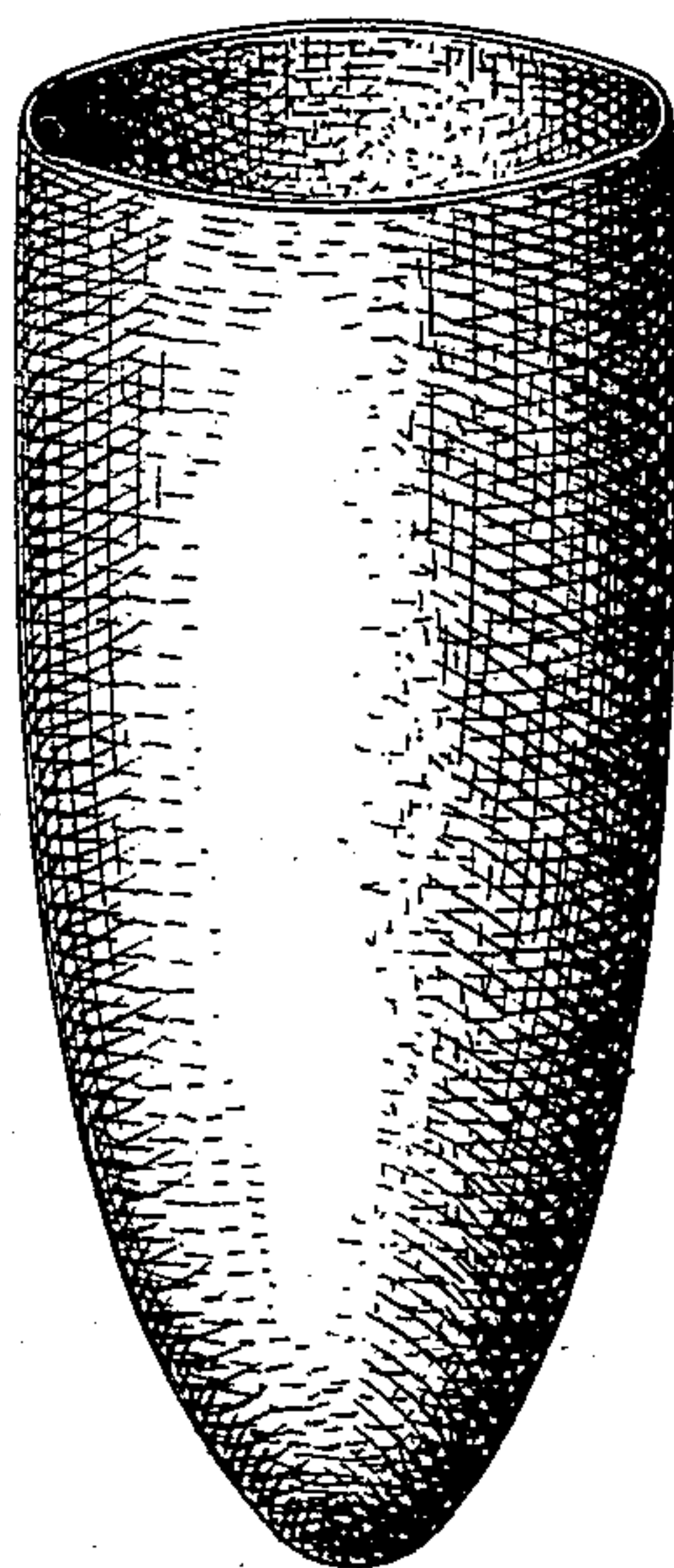


Fig. 2.

Witnesses.

J. Monteverde
W. H. Cobb

Inventor.
Ferdinand Ephraim
by *W. H. Cobb*
att.

UNITED STATES PATENT OFFICE.

FERDINAND EPHRAIM, OF SAN FRANCISCO, CALIFORNIA.

RUBBER BOOT OR SHOE.

SPECIFICATION forming part of Letters Patent No. 583,528, dated June 1, 1897.

Application filed June 25, 1896. Serial No. 596,923. (No model.) Patented in Canada April 29, 1895, No. 48,784.

To all whom it may concern:

Be it known that I, FERDINAND EPHRAIM, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Rubber Boots or Shoes, (for which I have received a patent in Canada, No. 48,784, dated April 29, 1895;) and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to a certain new and useful improvement in rubber boots or shoes, the object of which is to provide a light, durable, and pliable boot or shoe the outer rubber coating or covering of which will be closely united or embedded in the fabric lining, whereby is provided a boot or a shoe having a soft inner lining for the foot and an outer covering so united to said lining as to form a part thereof which cannot be pulled or torn away from the lining.

Heretofore in the manufacture of rubber boots or shoes provided with an inner lining it has been customary first to build the lining upon the tree or last and then to coat or cover the built-up lining with a coating of rubber which is afterward vulcanized. This lining for the boot or shoe is not composed of a single piece of fabric, but of a number of pieces cemented together so that the edge of one piece overlaps that of the other. It is obvious that this overlapping of the edges of the pieces constituting the lining causes the formation of seams or ridges when the rubber surface or outer layer of rubber is applied over the built-up lining, which seams or ridges not only disfigure the appearance of the boot or the shoe, but they cause a weakness at such points of union. The formation of these seams or ridges has been overcome by forming a boot or shoe of felt and coating the felt boot or shoe with rubber, which is afterward vulcanized. This style of boots or shoes is objectionable, first, on account of the heavy weight thereof, which precludes its being used in the making of light hunting-boots, and, secondly, for the reason that the rubber coating may be easily separated or pulled away from the felt boot or shoe.

The object I have in view is the manufacture of molded rubber boots or shoes with an

inner lining. In order to accomplish this, I first provide a lining from one piece of textile fabric, which lining is formed to correspond to the shape of the boot or shoe. This lining is drawn upon the tree or last, and, being of textile fabric, it has sufficient elasticity to give to the shape of the last or tree. After this lining is secured upon the tree or last the rubber composing the outer covering or coating is then applied thereupon. Inasmuch as the seamless lining is composed of textile fabric, the soft rubber will enter and completely fill the interstices of the fabric lining. Consequently the rubber, after vulcanization, may be said to form a part of the lining, as it cannot be removed or separated therefrom without destroying the said lining.

In the drawings, Figure 1 is a perspective view of a boot made in accordance with my invention, the rubber being partly removed; and Fig. 2 is a similar view of the textile lining.

The letter A is used to indicate the lining of the boot or shoe. This lining is made in the form of a sock lining or tube, being without seam. The lining being composed of woven or knitted textile fabric it will possess considerable elasticity and give, so as to conform to the contour of the tree or last when drawn thereover. When drawn upon the last or tree, an even seamless lining is provided. This lining, after being drawn upon the last or tree, has a coating or covering A' of soft rubber, rolled or molded thereupon, which rubber is afterward vulcanized. Inasmuch as the lining is composed of a textile fabric, it is obvious that the soft rubber as rolled or pressed thereover will enter and completely fill the interstices of the lining. Consequently the rubber, after being vulcanized, will, so to speak, form a part of the lining, and the rubber cannot be removed without destroying the lining.

The textile lining being exceedingly elastic, the elasticity of the rubber is not interfered with, which would be completely destroyed in case the lining were made of felt. A boot thus constructed not only possesses elasticity, but is exceedingly light of weight, which is an essential feature in long hunting-boots.

By first producing a seamless inner elastic

lining I am enabled to manufacture and place upon the market molded rubber boots or shoes provided with an inner lining. This has never been accomplished up to the present time, all
5 molded boots or shoes being placed upon the market without a lining. The reason of this is due to the fact that the lining being built or made up of a number of pieces upon a last or tree the rubber cannot be molded there-
10 upon, owing to the ridges or seams formed by the overlapping edges of the lining-pieces. It is practically impossible to build upon the last or tree a lining from a number of pieces so that the ridges or seams caused by the over-
15 lapping edges will correspond exactly in each boot or shoe, and unless these ridges exactly correspond in each boot or shoe lining the same cannot be used in a mold. The lines or seams of the lining must register exactly
20 with those of the mold-sections, as any variation between the lines of the mold-sections and the lining will prevent the sections of the mold from being closed.

As before stated, the lining used is composed
25 of a seamless single piece of woven or knitted fabric which is fashioned so as to conform to the shape of the foot when drawn upon the last or tree.

There being no seams or ridges in the lin-

ing to interfere with the sections of the mold, 30 the tree or last, with the lining drawn there-upon, may be placed within the mold and the sections thereof brought together to press or mold the rubber upon the lining.

Having thus described my invention, what 35 I claim as new, and desire to secure protection in by Letters Patent, is—

1. As a new article of manufacture, a rubber boot or shoe, consisting of an outer molded rubber portion and an elastic seamless sock-
40 lining embedded in the inner face of the rubber and constituting a lining for the entire boot or shoe.

2. A rubber boot or shoe consisting of an outer rubber covering, and an inner elastic
45 sock-lining consisting of woven or knitted fabric of seamless tubular formation stretched to conform to the shape of the last or former, and embedded directly in the inner face of the rubber section. 50

In testimony whereof I affix my signature, in presence of two witnesses this 19th day of June, 1896.

FERDINAND EPHRAIM.

Witnesses:

N. A. ACKER,
SOL. J. LEVY.