No. 635,118. Patented Oct. 17, 1899.

W. B. ARNOLD.

SHOE SOLE.

(Application filed July 31, 1899.)

(No Model.)

Fig. 1.

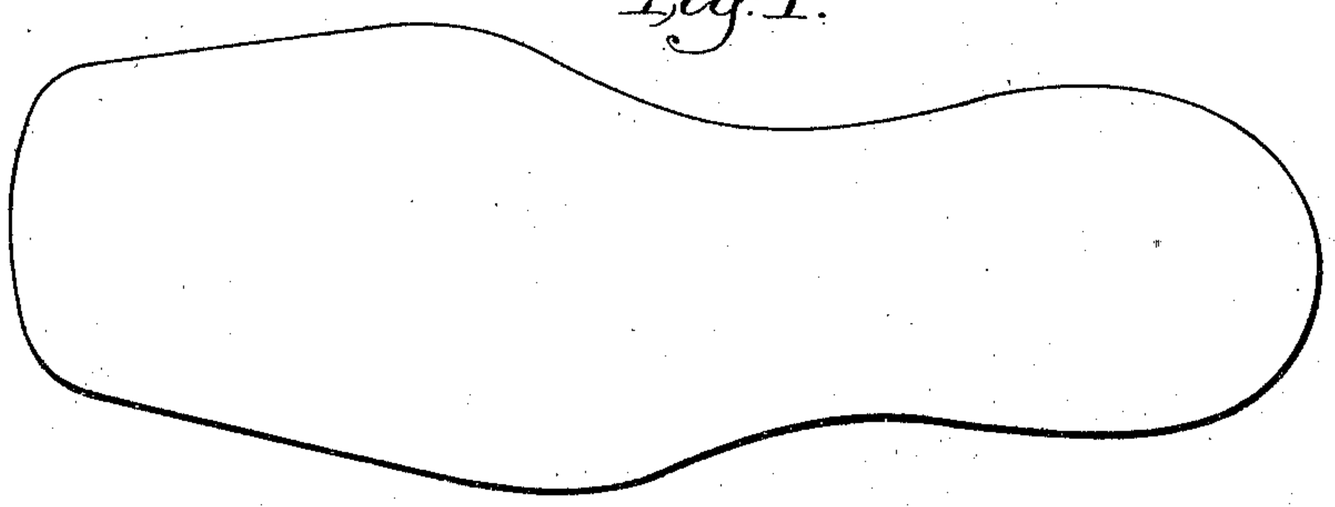


Fig. 2.

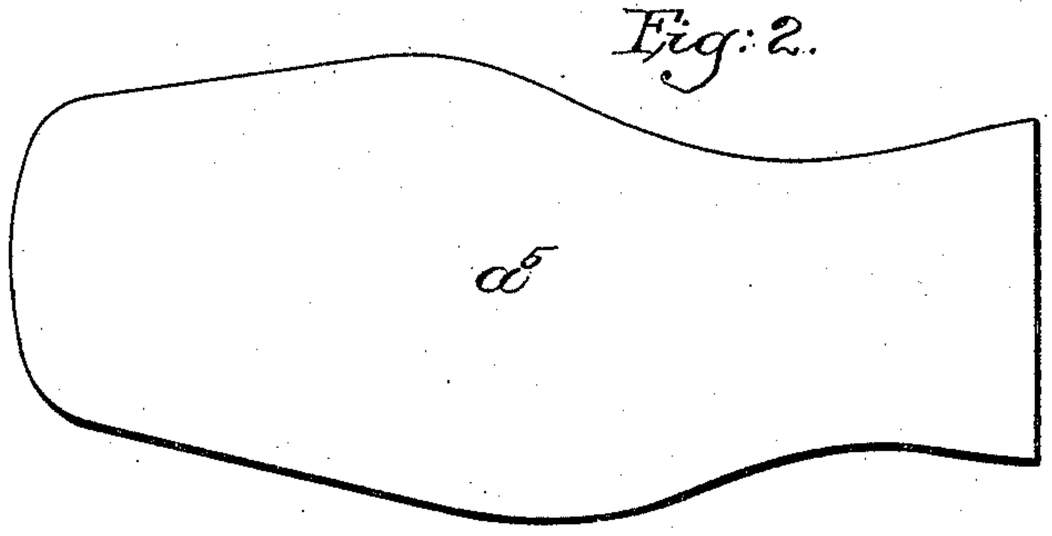


Fig. 3.

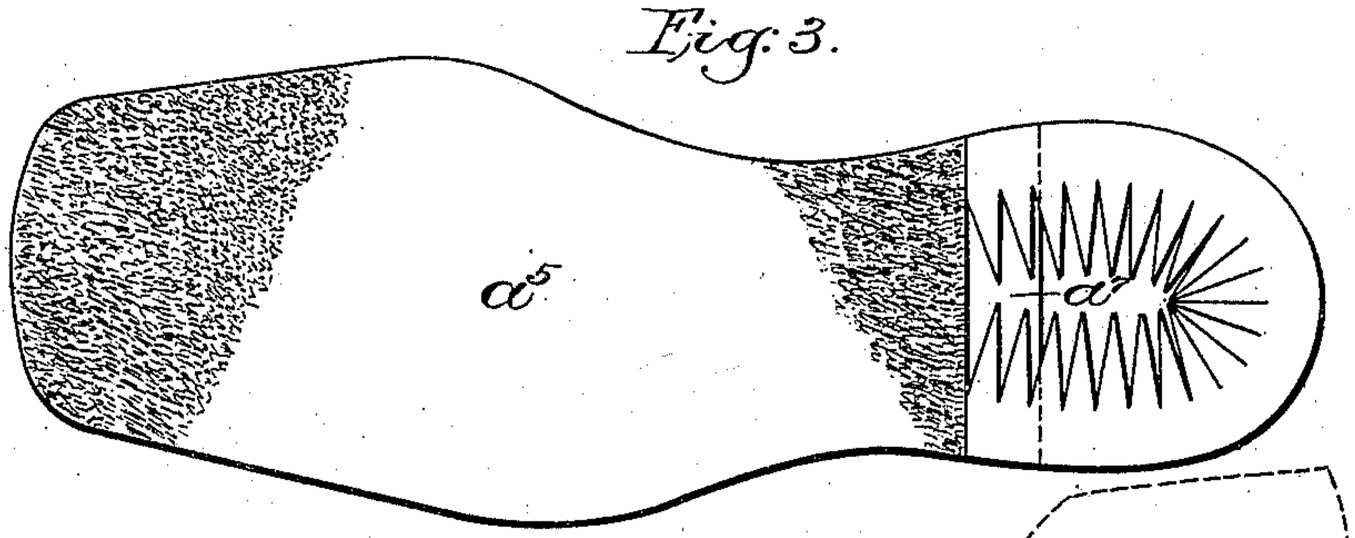


Fig. 4.

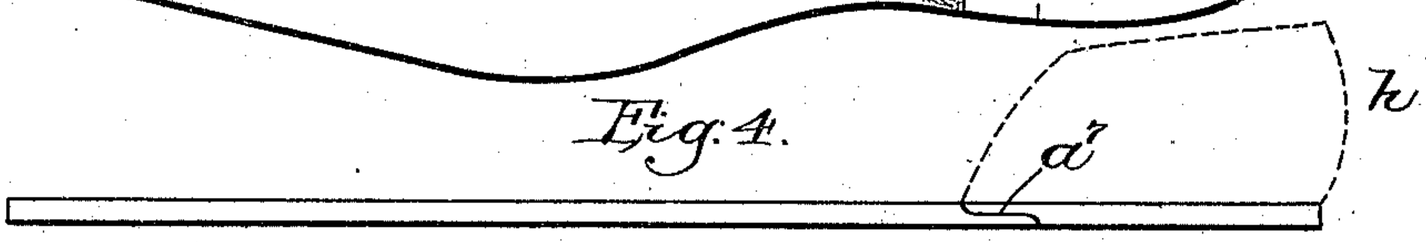


Fig 5

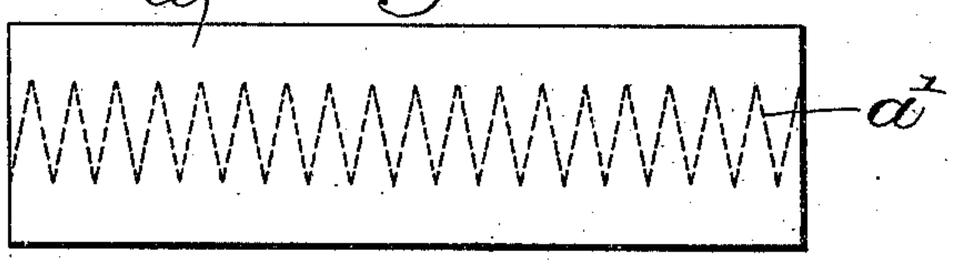
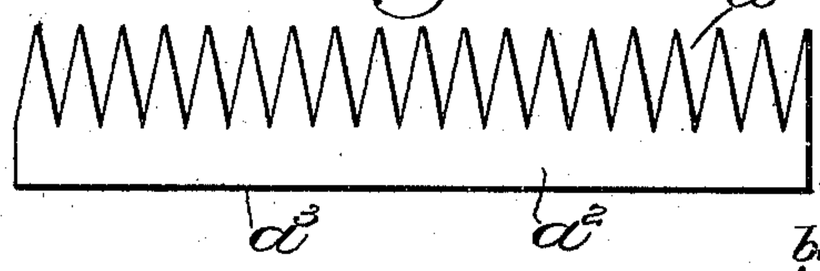


Fig 6



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UNITED STATES PATENT OFFICE.

WILLIAM B. ARNOLD, OF NORTH ABINGTON, MASSACHUSETTS.

SHOE-SOLE.

SPECIFICATION forming part of Letters Patent No. 635,118, dated October 17, 1899.

Application filed July 31, 1899. Serial No. 725,585. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. ARNOLD, of North Abington, county of Plymouth, State of Massachusetts, have invented an Improvement in Shoe-Soles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an improved shoe-sole or combination-sole intended to improve and cheapen the manufacture of boots and shoes.

In the manufacture of boots and shoes the outer sole is made of heavy expensive stock or sole-leather, and my invention aims at economizing the amount of this expensive stock required for a first-class shoe, while at the same time otherwise cheapening the cost of manufacture and improving the shoe, as will be more fully explained later on.

In the drawings, Figure 1 is a top plan view of an ordinary sole cut out ready for use. Fig. 2 shows the fore part of my improved sole. Fig. 3 is a similar top plan view showing my improved compound sole. Fig. 4 is an edge elevation thereof, showing the heel or counter portion of a shoe in dotted lines. Figs. 5 and 6 are plan views showing certain steps in the manufacture of the heel part of the sole.

The following is a detailed description of the best mode in which I contemplate applying my invention, in which I have described my invention in such manner as to distinguish it from all others.

In manufacturing my improved combination-sole I first take a strip of preferably inferior leather—for instance, such as comes out of the skirtings—and cut strips out of this inexpensive stock, such as shown at a, Fig. 5. These strips I then pass under a cutting-die, which severs them along the dotted line a', Fig. 5, and leaves two strips cut, as shown at a^2, Fig. 6, having a straight lower edge a^3 and a toothed edge a^4. This strip is then wet or soaked and bent into the contour of a heel and dried under great pressure until this heel end of the sole is rendered hard and dense and permanent in its curved shape, as shown at Fig. 3. Then I cut a front portion a^5 of the sole, as shown in Figs. 2 and 3, from the first-class and expensive stock, such as is commonly used for outer soles. The piece a^5 is preferably cut, as shown in Fig. 2, of a length to extend from the toe to the front edge of the heel, as shown in Fig. 3. The contiguous edges of the portion a^5 and the portion a^2 of the sole are then scarfed or interlocked, as indicated at a^7, the parts being cut away on their flesh sides.

In practice the parts a^5 and a^2 are taken, and the former is placed with its grain side down and flesh side up and the part a^2 or heel end of the sole is placed with its grain side up and its flesh side down, and they are then secured to the shoe in the usual manner.

By reason of my improved construction a great many advantages are secured. In the first place I am enabled to save in the neighborhood of twenty per cent. of the high-cost stock which would otherwise be required if the sole were cut out in the usual manner, as indicated in Fig. 1. I am aware that others have aimed at securing this same advantage, although, so far as I know, no practically successful result has been obtained. In my invention, however, the inferior stock which is used to make the heel end of the sole is cut in such manner that the rear end thereof has the teeth between the indentations at its inner edge brought together into a practically solid supporting portion to receive the weight of the wearer, and the remaining prongs or teeth of the strip a^2 are so disposed, as clearly shown in Fig. 3, extending approximately to the middle of the heel, as they do, and more or less separated, as to give a cushioning effect and yet afford all the support required at this part of the shoe.

A further very important advantage of my invention is that a clean or smooth rand or edge next to the counter is provided, inasmuch as the grain side of the leather is uppermost, and accordingly a better finish and more perfect result are secured. This feature of my invention enables me to dispense with the workman who has heretofore been required for cleaning out or scraping off the rand.

While I prefer to press the substituted end a^2 of the sole, yet this does not prevent my improved heel end from having considerable flexibility, and in this respect it accomplishes

very much the same object that is attained by the rubber heels or rubber lifts applied to heels commonly used at the present day.

One reason I compress or harden the heel end is to make the bent strip retain its shape, my object being to give a substantial and adequate support to the shoe, and I believe it is new to take a straight piece or strip of leather of considerable width and thickness, (entirely different in character from what are known as "welt-strips,") said strip having cuts along one edge, and bend it so as to bring the cut or toothed edge inside, thus causing the cut edge to compact itself and make a practically solid supporting portion where the sharp bend comes. In Fig. 4 most of the shoe *h* is broken away and omitted for convenience of space, the sole being shown as straight instead of curved for the same reason.

I have here shown and described my invention in the best embodiment now known to me and as I prefer to use it; but my invention is not thereby to be limited to the specific embodiment shown or otherwise than as set forth in the claims.

By taking inexpensive and inferior stock, as explained, and bending it wet and then pressing it, preferably in the presence of heat, I am enabled to make a hard, solid, and rigid heel end, permanent in shape, which may be sold as an article of manufacture to shoe manufacturers to be used in connection with fore parts a^5, which they may themselves die out according to the varying styles and sizes, and by reason of the toothed inner edge of the heel end these ends may be spread or compressed slightly to accommodate them to different sizes of heels within a limited range.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A sole for boots and shoes, comprising a front portion of sole-leather and a heel end, said heel end having a smooth outer edge, and all about the rear portion thereof a toothed inner edge with a solid strip of considerable width between said edges, the teeth of the inner edge extending approximately toward the middle of the heel a sufficient distance to support the shoe, substantially as described.

2. A sole for boots and shoes, comprising a front portion of sole-leather and a heel end, said heel end having a smooth outer edge and an indented inner edge with a solid strip of considerable width between said edges, the teeth formed by said indentations of the inner edge extending approximately toward the middle of the heel a sufficient distance to support the shoe, said front portion having its grain side down and said heel end having its grain side up, substantially as described.

3. A heel end for a boot or shoe sole consisting of a strip having one edge substantially smooth and the other edge toothed substantially throughout its length leaving a considerable width of uncut material adjacent said smooth edge and between it and said teeth, said strip being bent or curved to cause its outer smooth edge to conform approximately to the form of a heel, the inwardly-extending teeth around the sharply-bent portion of said heel end being compacted to form a substantially solid support, the teeth adjacent the ends of the said strip remaining more or less separated, substantially as described.

4. A shoe, having a sole made up of a plurality of parts, including a heel end consisting of a strip provided with cuts or indentations forming teeth along one edge and bent to the contour of the heel with said teeth compacted all about the sharp bend at the rear end of the heel, the teeth of the heel end extending inwardly to approximately the middle part of the heel and affording a substantial support for the weight of the wearer, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM B. ARNOLD.

Witnesses:
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HOMER A. ARNOLD.