

O. L. SMITH.  
 METHOD OF PREPARING SOLE BLANKS.  
 APPLICATION FILED APR. 10, 1913.

1,168,434.

Patented Jan. 18, 1916.

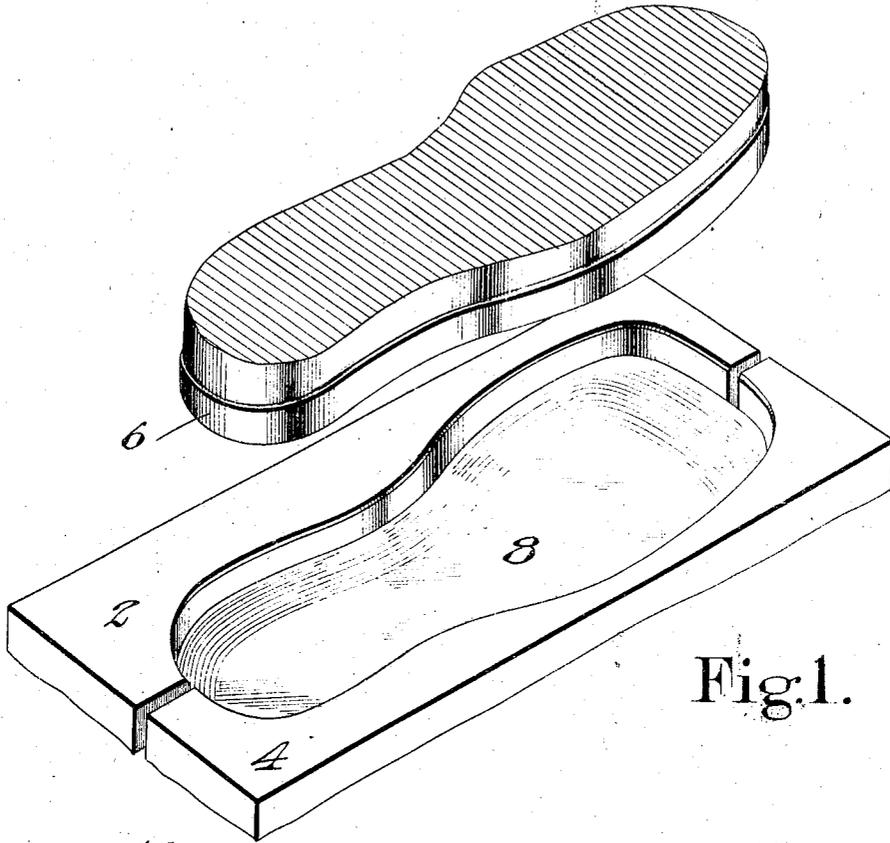


Fig. 1.

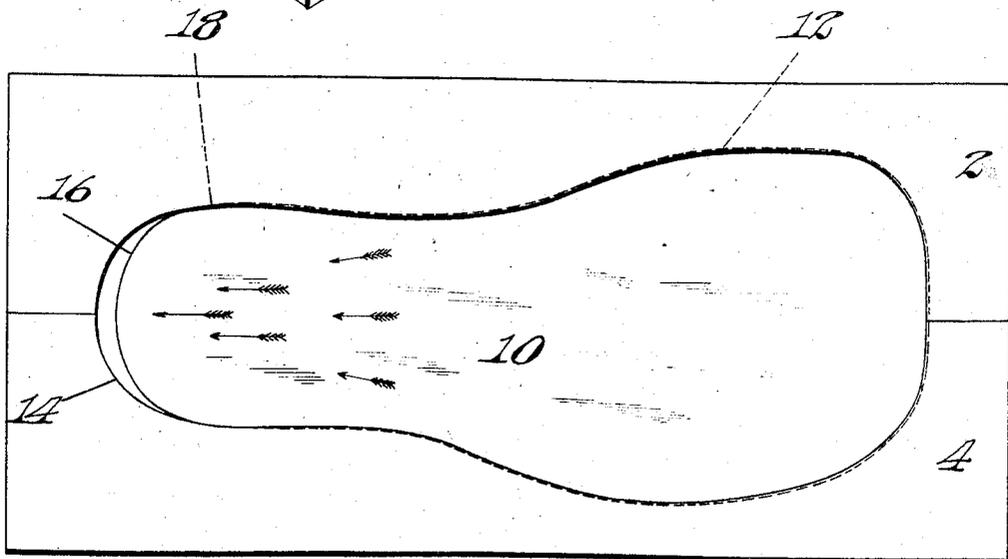


Fig. 2.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## METHOD OF PREPARING SOLE-BLANKS.

1,168,434.

Specification of Letters Patent.

Patented Jan. 18, 1916.

Application filed April 10, 1913. Serial No. 760,277.

*To all whom it may concern:*

Be it known that I, ORIN L. SMITH, a citizen of the United States, residing at Swampscott, in the county of Essex and State of Massachusetts, have invented certain Improvements in Methods of Preparing Sole-Blanks, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

In preparing sole blanks for boots and shoes it has been found that a great improvement in the quality and appearance of the stock is secured by subjecting the blanks to compression or condensation. The practice heretofore has been to apply pressure to the edges of the blank by using a mold comprising two edge dies movable transversely of the sole and fitting the periphery of the sole all the way around, and face dies by which pressure was applied to the faces of the sole. The sole blanks have been cut slightly larger than the molds and the prepared sole in order to secure the desired thickness of the edges and density, and this excess size increases somewhat the cost of the stock. I have discovered a method of preparing soles by compression which is an improvement over the methods heretofore practised in that it compensates somewhat for this loss of stock and obviates certain mechanical difficulties attendant upon the practice of the former methods.

In the application of Chester C. Small Serial No. 747,951, filed Feb. 12, 1913, is disclosed a method of preparing sole blanks which improves them greatly. The present invention is in the nature of a modification of, and an improvement upon, that method.

In the following specification and the accompanying drawings I describe and illustrate one specific form of mold comprising dies which may be used in carrying out my improved method, but it should be understood that this is only to aid in describing the invention clearly, and that the method may be practised with the aid of other instrumentalities than those shown and described.

In the drawings:—Figure 1 is a perspective view of a mold, comprising dies which may be employed in carrying out the method. The dies are shown in initial open position; and Fig. 2 is a plan view of the

lower part of the mold shown in Fig. 1, the edge dies being closed upon a sole blank the original outline of which is indicated in dotted lines.

In the practice of my method it is desirable to put the sole blanks somewhat in temper before compressing them, and this is usually done by sprinkling them with water and then piling them up and allowing them to stand for some hours.

The mold illustrated in the drawings is one which I have used successfully in carrying out my method. In Fig. 1 the mold is shown open. The mold comprises edge dies 2, 4, and upper and lower face dies 6 and 8, respectively. The forepart and shank portions of the mold when closed are preferably the exact size and shape desired in the finished sole, but the edge dies are cut away at the heel end of the mold, as shown at 14, sufficiently to leave the rear edge of the blank free. In order to secure the desired amount of pressure the dies are preferably used in a powerful compressing machine having provision for effecting relative approaching movement of the edge dies 2, 4 and of the face dies 6, 8.

In using the mold illustrated in carrying out my method in the preferred manner, the tempered sole is placed in the mold and the edge dies 2, 4 are closed upon it as shown in Fig. 2, where the numeral 10 indicates the sole.

The sole blank is preferably cut slightly larger than the mold around the forepart, as indicated by the dotted line 12, so that when the edge dies are closed upon the blank the edges of the forepart will be forced inwardly and upset. The excess of size in the blank is preferably reduced along the shank until it vanishes at or near the wide part of the heel seat as indicated at 18. The exact location of this vanishing point is not material. The most important requirement is that the rear edge 16 of the sole shall not engage the mold and, therefore, shall not be confined against rearward expansion. This method also has the added advantage that it does not require the introduction of blanks into a mold of a length the same as or less than that of the blank.

The edge dies being held together so that the blank is confined against lateral expansion, relative approaching movement between the mold with the sole therein and the

upper face die 6 is effected. Heavy face pressure is thus exerted upon the sole blank, compressing and consolidating its forepart. Since the edge of the blank is free at its rear end, the face pressure causes some of the stock in the rear part of the blank to flow rearwardly, the shank and heel portions of the blank being stretched or elongated. By exerting face pressure upon the shank and heel portions of the blank, as well as upon the forepart, most of the stretching can be done in the shank and heel seat where thickness in the compressed sole is not essential, as indicated by arrows in Fig. 2, and reduction in the thickness of the forepart is avoided as far as possible. The machine in which I have used these dies is capable of exerting a pressure of 500 tons upon a sole, but the amount of pressure required varies, depending upon the quality and condition of the stock and the effect which it is desired to produce. The machine is provided with means for adjusting the pressure, and an operative quickly learns to judge from the appearance and "feel" of the sole when the proper pressure is being used.

I am thus able to improve a sole blank by compression while keeping up the thickness of the edges of the forepart, where alone thickness is important, and at the same time to avoid shortening, and in some cases even to lengthen, the blank without sacrificing any of the advantages of the compressed sole produced by former methods. My invention also contributes materially to the practical success of methods of condensing soles or thickening their edges, in that when methods as heretofore practised are modified in accordance with my invention, the carrying out of the methods by means of automatic machinery, which is of course the manner in which such methods must be practised to make them commercially practicable, is greatly facilitated.

So far as my method may be practised advantageously in improving what is variously termed a "tap", "slip sole", or "half sole", the terms "sole" and "sole blank" as used in the specification and claims should be construed to cover such forms of soles.

Having explained the nature of my invention and set forth fully how it may be practised, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. The method of preparing sole blanks for boots or shoes which comprises confining the edges of the forepart of a blank, applying pressure to the faces of the forepart of the blank while the edges of the forepart are confined, and simultaneously elongating

the rear part of the blank by exerting pressure on the faces of the shank and heel seat portions of the blank.

2. The method of producing sole blanks for boots or shoes which comprises applying pressure to the faces of the blank and to the edges of its forepart in such manner as to reduce the dimensions of the forepart and elongate the shank and heel seat portions of the blank.

3. The method of preparing sole blanks for boots or shoes which comprises confining the edges of the forepart of a blank, applying pressure to the faces of the forepart of the blank while the edges of the forepart are confined, and exerting pressure on the faces of the rear part of the blank while its rear end is unconfined.

4. The method of preparing sole blanks for boots or shoes which comprises applying pressure to the faces of the forepart of a blank, confining the edges of the blank from a point located at substantially the widest part of the heel seat around the shank and forepart to a point similarly located on the opposite side of the blank, and simultaneously exerting pressure on the faces of the rear part of the blank while its rear end is unconfined.

5. The method of preparing sole blanks for boots or shoes which comprises confining the side edges of the forepart of a blank to prevent lateral expansion and, while the side edges are held confined, elongating the blank by pressure exerted upon its faces.

6. The method of preparing sole blanks for boots or shoes which comprises upsetting the edges of the forepart of a blank, exerting pressure upon the faces of said forepart, and exerting pressure upon the heel seat of the blank while the edge of its rear end is left free.

7. The method of preparing sole blanks for boots or shoes which comprises confining the edges of the forepart of a blank, exerting pressure upon the faces of the forepart of the blank while its edges are held confined, and exerting pressure upon the faces of the heel seat of the blank while the edges of the heel seat in front of its widest part are held confined against expansion transversely of the blank and the edge of its curved rear end is left free.

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

ORIN L. SMITH.

Witnesses:

JAMES O. WRIGHT,  
FREDERICK L. EDMONDS.