A. F. LITTLEFIELD.

SOLE.

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1,417,535. Patented May 30, 1922.

Fig. 1

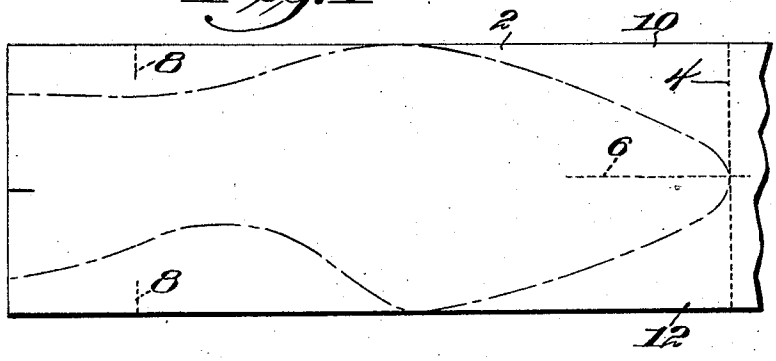


Fig. 2

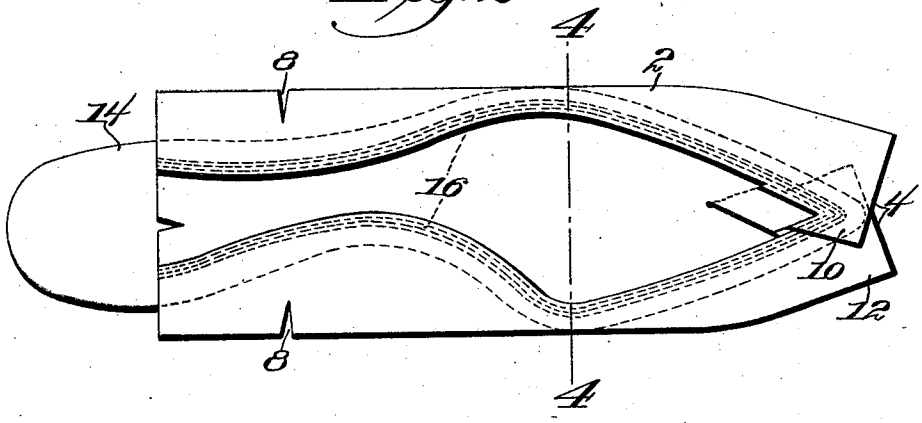


Fig. 3

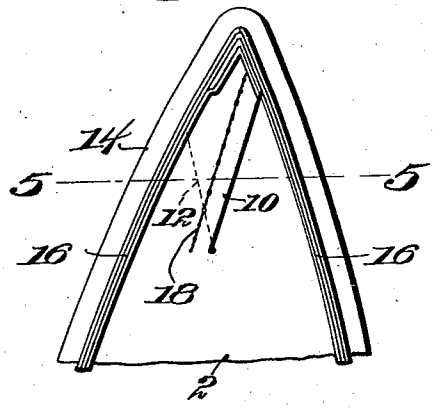


Fig. 4

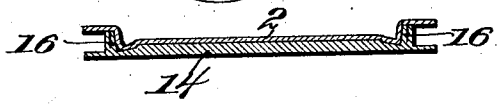
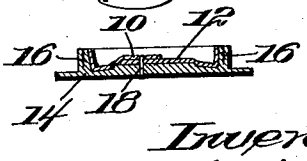


Fig. 5



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SOLE.

1,417,535. Specification of Letters Patent. **Patented May 30, 1922.**

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To all whom it may concern:

Be it known that I, AUGUSTINE F. LITTLEFIELD, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Soles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the manufacture of soles for boots and shoes and more particularly to an improved sole of the peaked or pointed toe type and the method of making it.

The prevailing style of last provided with a pointed toe requires a special fitting for the sole, either an insole or turn sole, to permit the channel flap to be raised preparatory to an application of reinforcing material within the upturned flap. In insoles for welt shoes the lip is also specially prepared. This fitting comprises a slit through the channel flap, or both flap and lip, which may be made by a machine such as shown in Letters Patent of the United States to John B. Hadaway, No. 1,087,572, dated February 17, 1914. When the flap is upturned to a position permitting a ready application of the reinforcing material the abutting ends of the flap adjacent the slit will spread apart leaving an open space at the extreme tip of the sewing rib at the toe. This space is covered by the reinforcing material applied inside the flap, but since heretofore it has been the general practice to apply but a single layer of reinforce there has been a weakness in the inseam at this particular point.

The object of the present invention is to provide a reinforced sole, fitted for a pointed toe last, that will have sufficient strength throughout the sewing-rib to hold the inseam stitches securely.

In carrying out this object it is proposed to so prepare and manipulate the reinforcing material as to provide a double layer at the toe across the open space in the sewing-rib formed by the flap slitting operation. While it has been proposed heretofore to reinforce the toe end of an insole by means of two separate layers of reinforcing material, a feature of the present invention comprises the preparation and application of a single sheet of reinforce in such a way that while the body of the sole is provided with one layer as usual, the toe end is provided with the desired double layer.

To the accomplishment of this object the invention comprises a sole, having the characteristics hereinafter defined in detail; and the method of making it, the particular steps employed being set forth in their preferred sequence in the following description.

The preferred form of the invention, as embodied in an insole for welt shoes, is illustrated in the accompanying drawings in which—

Figure 1 is a plan view of one end of a strip of reinforcing material such as canvas or duck, the dotted lines indicating the manner in which it is cut in preparing a length for application to a sole; Fig. 2 shows the rough or preliminary application of the reinforce to the inner side of the sewing-rib and face of an Economy insole; Fig. 3 shows the toe end of an Economy insole with the reinforce completely applied thereto; Fig. 4 is a cross-section on the line 4—4 of Fig. 2 showing the single reinforcement on the body portion of the insole, which is the same as heretofore; and Fig. 5 is a cross-section on line 5—5 of Fig. 3 showing the double reinforcement at the toe. It will be understood that the Economy type insole is used merely for purposes of illustration.

The preferred commercial method of reinforcing soles employs strips of reinforcing material of indefinite length from which lengths are successively cut for application to individual soles. After preliminarily forming the reinforce into the angle inside the sewing-rib the application thereof is completed by a machine process, and usually the reinforce is simultaneously trimmed either to the top of the sewing-rib or on the feather according to the type of sole being manufactured. This general process is followed in making the sole of the present invention, but the process is improved upon as will appear from the following description.

In the embodiment of the invention illustrated in the drawings, a strip of canvas or duck of indefinite length is indicated by Fig. 1 and the portion 2, to the left of the dotted line 4, is the length to be cut for a single sole. Heretofore it has been the practice to make only the transverse cut on the line 4 in severing the desired length of

material but in following the present method two severing knives are used, one of which makes a central longitudinal slit 6 prior to the operation of the other which makes the cut 4. The cut 4 is preferably made across the slit 6 to effect a clean severance, see Fig. 1. This manner of producing the sheet 2 for application to a sole provides a central slit, preferably about two inches in length extending through the edge at one end of the sheet. The slit 6 produces two separate ends 10 and 12, as indicated in Fig. 1. Transverse side slits 8 are found desirable to permit the reinforce to be fitted without wrinkling into the convexly curved sewing-rib at the shank. These slits may be made at any convenient time.

When the reinforcing strip or sheet 2 is applied to the ribbed face of the body blank 14, it is preliminarily formed inside the rib 16 throughout the shank and major portion of the forepart, as shown in Fig. 4. At the toe, however, the two ends 10 and 12 are overlapped, see Fig. 2, first the end 12 being pulled over sideways and formed in and the end 10 then being laid upon it, thus providing a smooth double thickness of the reinforce at this portion of the sole. After the machine operations used in finally applying and trimming the reinforce, the sole, if of the Economy type, appears as shown in Fig. 3. While not essential, it is deemed desirable to secure the overlapped ends 10 and 12 to the body blank by an inserted fastening device, preferably by a dry-thread stitched seam 18. This will effectually prevent any disturbance of the overlapped relation should the cement, with which the reinforce is coated, fail to hold.

In some shoe factories the reinforcing material is dinked into sole shaped pieces of the required size, instead of using strips from which pieces of the desired length are severed as hereinbefore described. In such factories only the slitting knife for producing a central slit through the toe edge of the dinked pieces need be employed; or the dies for dinking the pieces may be so formed as to slit the reinforce in the required manner during the dinking operation. Such a dinked piece of reinforce is indicated by the dot and dash lines on the strip 2 in Fig. 1.

The advantage accruing from the double reinforce at the toe will be apparent to those skilled in the art and a special feature only need be pointed out. The illustration shows a sole for a right shoe and it will be observed that the end 10 is lapped upon the end 12 so that the inner edge of the end 12 lies beneath, and is therefore covered by, the reinforce. Remembering that the inseaming operation starts at the outside of a right sole, this mode of overlapping the ends 10 and 12 provides for a substantially smooth surface inside the sewing-rib (see Fig. 5) for the channel guide to ride upon as it approaches the toe. After the shoe has been swung at the toe the channel guide readily rides off of the shoulder formed by the inner edge of the end 10. When reinforcing a sole for a left shoe by this method the same mode of overlapping of the end 10 upon the end 12 is employed because in inseaming a left shoe the channel guide is initially positioned at the end of the sewing-rib on the inside of the sole. In both cases, therefore, the overlapping operation takes place from left to right when viewing the sole from the heel toward the toe as illustrated in Fig. 5. If the overlapping were in the opposite direction the inner edge of the end 12 would form a shoulder in the path of the channel guide which would be liable to interfere with the operation of the inseaming machine.

Those skilled in the art will recognize that the invention described includes within its scope an improved sheet of reinforce and the method of making it as well as the improved sole and method of making it, the new type of reinforcing sheet being an essential feature of the sole.

Having thus described the novel features of the present invention and the preferred method by which they may be practiced, what is claimed as new, is:—

1. A reinforced sole comprising a body blank and a sheet of reinforcing material having two portions at opposite sides of its longitudinal median line at the toe overlapped for a short distance only rearward from the tip of the toe to provide a double thickness of reinforce at the toe end of the sole.

2. A reinforced sole comprising a body blank and a sheet of reinforcing material having one end portion slit longitudinally and the two ends thus produced overlapped to form a double thickness of reinforce at the toe end of the sole.

3. A reinforced sole comprising a body blank and a sheet of reinforcing material having one end portion slit longitudinally and the two ends thus produced overlapped to form a double thickness of reinforce at the toe end of the sole, said overlapped ends being secured by stitching in overlapped position on the body blank.

4. A reinforced sole comprising a body blank having a marginal sewing-rib, and a sheet of reinforcing material secured within said rib having its toe end slit longitudinally and the two ends thus produced overlapped from left to right in the manner described.

5. The method of making reinforced soles which includes the steps of preparing a sheet of reinforcing material with a longitudinal slit extending through the edge at one end, preliminarily applying said sheet to a body

blank with the slit at the toe end, and lapping the two edges of the slit before the final application to provide a double thickness of reinforce at the toe.

6. The method of making reinforced soles which includes the steps of preparing a sheet of reinforcing material with a longitudinal slit extending through the edge at one end, overlapping the two ends thus produced to provide a double thickness and applying said sheet to a body blank with the double thickness at the toe end, and securing the overlapped ends in position by a fastening inserted through the sheet and body blank.

7. The method of preparing a sheet of reinforcing material for soles which includes the steps of simultaneously severing a length of reinforce from a strip of material of indefinite length and cutting a longitudinal slit through the end of said length adjacent the line of severance, and then over-lapping the two ends produced by the longitudinal slit, to provide a double thickness of reinforce at one end of the sheet.

8. A reinforced sole having a single layer of reinforce throughout the shank and major portion of the forepart and a double layer at the toe consisting of laterally overlapped portions of said reinforce, all of which layers are integral parts of a single sheet of reinforcing material.

9. A sheet of reinforce for soles having a longitudinal slit at its toe end and transverse slits at its sides all of which extend through the edge of the sheet and provide for manipulation of the material to ensure a smooth application to the rib when the sheet is applied to a sole.

10. A sheet of reinforce for soles having a central longitudinal slit extending inward from one end edge of such length as to permit the two ends thus produced to be overlapped.

AUGUSTINE FRANK LITTLEFIELD.