

Feb. 2, 1943.

W. M. SCHLEAR

2,309,673

INNERSOLE FOR SHOES

Original Filed June 28, 1938

2 Sheets-Sheet 1

Fig. 1.

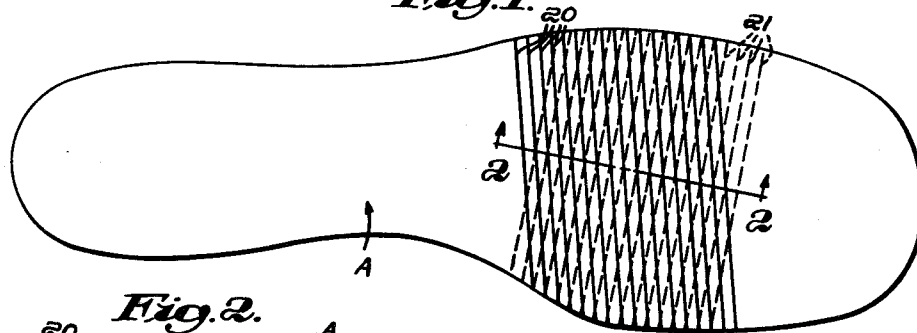


Fig. 2.

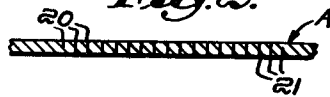


Fig. 3.

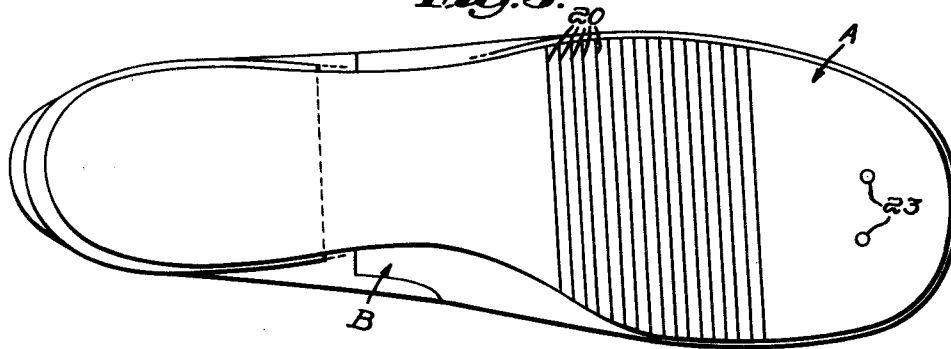


Fig. 4.

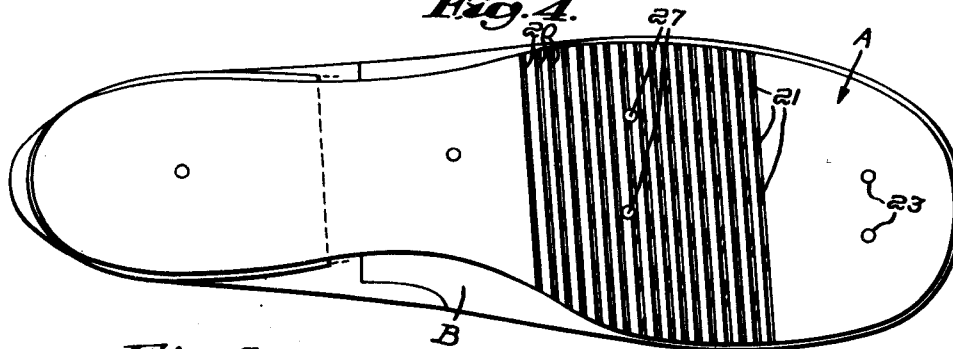
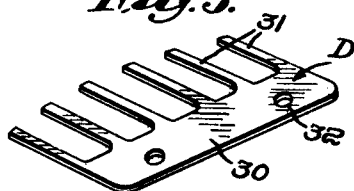


Fig. 5.



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Fig. 6.

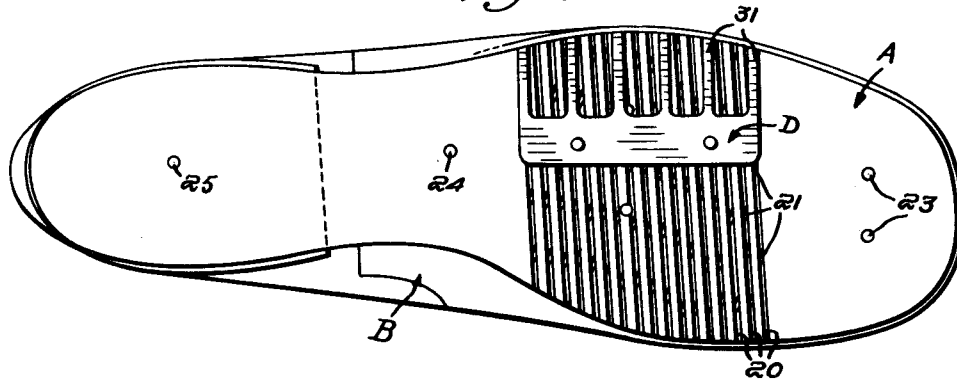


Fig. 2.

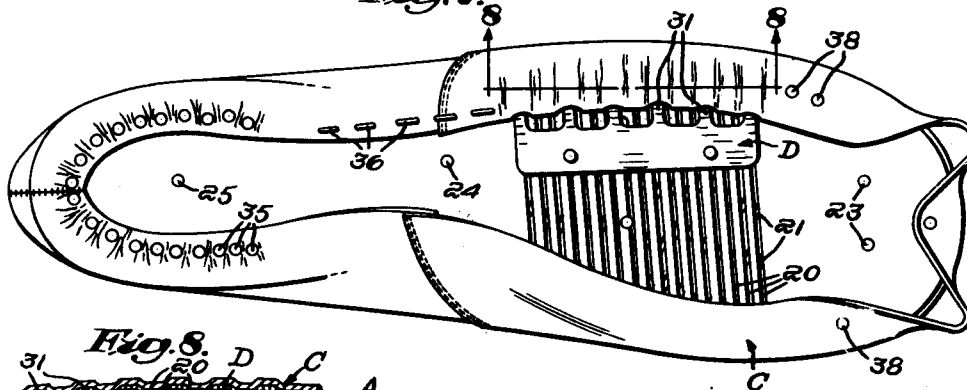


Fig. 8.

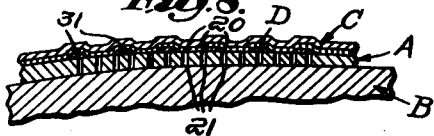


Fig. 9.

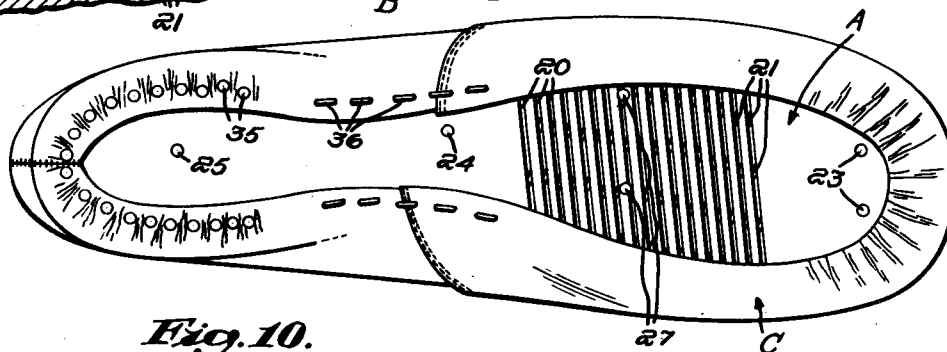
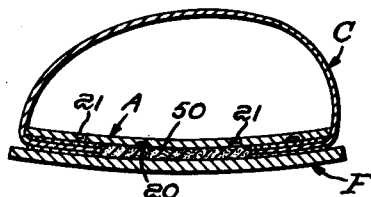


Fig. 10.



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UNITED STATES PATENT OFFICE

2,309,673

INNERSOLE FOR SHOES

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mesne assignments, to Henry G. Lombard, Au-
burn, Maine

Original application June 28, 1938; Serial No.
216,327, now Patent No. 2,249,092, dated July 15,
1941. Divided and this application May 10,
1941, Serial No. 392,893

7 Claims. (Cl. 36—43)

This invention relates to improvements in shoes and the manufacture thereof. This application is a division of my copending application Ser. No. 216,327, filed June 28, 1938, and issued July 15, 1941, as Letters Patent No. 2,249,092.

The primary object of this invention is the provision of an improved inner sole for shoes which is relatively flexible throughout the ball portion as compared to the heel seat and in some cases the toe portions.

A further object of this invention is the provision of an improved inner sole which is transversely grooved or cut in its opposite surfaces, with the cuts disposed in intersecting relation to give the ball portion of the inner sole a grid like appearance, when the sole is stretched; thereby giving added flexibility.

A further object of this invention is the provision of an improved shoe having a flexible inner sole which will permit the shoe to flex very easily at the ball portion.

Other objects and advantages of the invention will be apparent during the course of the following detailed description.

In the accompanying drawings, forming a part of this specification, and wherein similar reference characters designate corresponding parts throughout the several views,

Fig. 1 is a bottom plan view of an improved insole showing the intersecting relation of the incisions or grooves provided on opposite surfaces of the ball portion of the sole,

Fig. 2 is a cross sectional view taken substantially on the line 2—2 of Fig. 1,

Fig. 3 shows the inner sole in its initial step of attachment to a last,

Fig. 4 suggests a further step in the manufacture of the shoe, showing the inner sole longitudinally stretched and applied to the bottom of the last,

Fig. 5 is a perspective view of a guard device which is used during the process of manufacturing the shoe to prevent curling or "edging over" of the inner sole during the lasting of the upper thereto,

Fig. 6 is a bottom plan view of the last showing the guard device of Fig. 5 attached on the inner sole,

Fig. 7 is a bottom plan view of the last in a further step in the manufacture of the shoe showing the attachment of the upper in a preliminary step to the inner sole and last,

Fig. 8 is a cross sectional view taken substantially on the line 8—8 of Fig. 7,

Fig. 9 is a bottom plan view of the lasted shoe

showing the upper in its finished attachment to the inner sole,

Fig. 10 is a cross sectional view taken through the improved shoe at the ball portions thereof.

In the drawings, wherein for the purpose of illustration is shown only a preferred embodiment of the invention and the preferred steps of manufacturing the shoe, the letter A may generally designate the improved inner sole which is adapted for attachment to a last B in an improved manner. The upper C may be of any suitable material, and as a preliminary to attachment thereof an improved inner sole guard device D may be used. The improved shoe in association with the above details may include any other conventional parts, such as an outsole F, etc.

The inner sole A may be of leather or any other material. The process is especially adapted for the manufacture of shoes of high quality, and in practically every instance the inner sole A will be of leather. Due to the transverse slitting thereof one inner sole may be stretched varying degrees and so adapted for use with lasts of several different lengths. As the principal improved feature of the present invention the inner sole A on the bottom thereof is provided with a plurality of transverse cuts, slashes, grooves, or incisions 20, which preferably extend more than half-way through the thickness of the inner sole, at the ball portions thereof, and in the zone or area which takes the major flexing in wear. The upper surface of the inner sole is likewise provided with a plurality of cuts, slashes, grooves, or incisions 21 which are disposed parallel to each other and equally spaced but extend at an acute angle with respect to the slashes 20. The slashes 21 are also cut more than half-way through the thickness of the inner sole at the ball portion thereof and due to the acute angled intersection of the slashes 20 and 21 the inner sole at the ball portion will present a grid-like effect when the inner sole is stretched prior to the lasting step as shown in Fig. 4. I prefer to dispose the slashes 20 and 21 in oblique relation to the longitudinal axis of the sole, but it is possible to dispose the slashes on one surface of the inner sole perpendicular to the longitudinal axis of the inner sole and obliquely dispose the slashes on the other side. Since the slashes on one side of the inner sole intersect the slashes on the opposite side of the inner sole, the grid portion will have perforations or openings where the slashes intersect and only

at such points. This is clearly visible when the sole is stretched.

The inner sole A is attached to the last B at the toe by securing means, such as tacks 23. Due to the improved grid slashing of the ball portion of the inner sole it is possible to conform the inner sole exactly to the length of the last. As is well known to those skilled in the art lasts vary in size as much as "quarter size," as an incident of variation in temperature and humidity, often requiring that the insoles be trimmed. With the present insole that is obviated inasmuch as after tacking the insole A to the last B at the toe, the insole can be stretched from the position shown in Fig. 3 to the position shown in Fig. 4 and tacked at 24 and 25. If desired the grid portion of the insole may also be secured to the last by tacks 27. It is to be particularly noted that slashes on the ball portion of the insole are opened as a result of stretching the sole and present a grid-like effect after application of the insole to the last. This gives greater flexibility because there will be no restriction upon expansion or compression of the leather due to bending of the sole. The sole perforations also give better ventilation in the sole.

In the next step of manufacturing the shoe, cement is applied to the outer edge or margin of the insole, as is usual, and cement is also applied to the upper. Prior to adherence of the edge of the upper to the insole the guard piece D is secured to the insole, in the position shown in Fig. 6, so as to guard the edge of the insole at the slashed portion against curling or "edging over" during the lasting of the upper to the insole. This guard piece D is of comb-like appearance and preferably of extremely thin strong steel. It includes a body portion 30 having parallel teeth 31 extending therefrom and spaced apart for distances which will permit the upper to be cemented to the edge of the insole at the interstices. The teeth 31 are of varying length so that their outer edges present a curve to conform to the curved edge of the insole, as shown in Fig. 6. The guard piece D may be apertured at 32 so that it can be tacked in position. If desired it can be manually held or otherwise secured in position, and it may be dipped in some material, such as paraffin to prevent of the adherence of the cement thereto. It flexes only under force.

In the next step, shown in Fig. 7, the upper C is attached by tacks 35 at the heel portion; by staples or other means 36 at the shank, and then by cement to the edge of the inner sole at the location of the guard member D. The upper may have been previously tacked at 38 to the fore part of the inner sole and the last. During this cementing operation the upper is pounded by a rubber hammer onto the insole at the location of the guard D. The comb or guard device D is then withdrawn and the edge of the upper additionally pounded onto the insole. The rest of the edge of the upper is cemented to the insole in the conventional manner, and if desired the guard member D may be used at both sides of the insole to guard the slitted flexible portion of the insole from curling or "edging over" during the lasting of the upper.

The shoe is then completed in conventional

manner; an outsole F is cemented or otherwise secured to the upper and insole, and, if desired, filling material 50 or the like may be disposed between the insole and outsole at the location between the edges where the upper is lasted over the insole, as shown in Fig. 10.

Various changes in the arrangement of parts of the shoe and departure from the steps of manufacturing the shoe may be made to the invention without departing from the spirit thereof or the scope of the claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. A flexible inner sole transversely slashed in both surfaces thereof at the ball portion with the slashes in the upper surface of the sole arranged to intersect the slashes in the lower surface, the slashes in the lower surface extending at an angle to the direction of the slashes in the upper surface.

2. A flexible inner sole slashed transversely through the material thereof in both surfaces with the slashes in the upper surface intersecting the slashes in the lower surface within the body of the sole, the slashes in the lower surface extending at an angle to the direction of the slashes in the upper surface.

3. A flexible leather inner sole transversely cut on opposite surfaces at the ball portion thereof in equally spaced slashes arranged in intersecting relation, the entire thickness of the leather being cut through where the slashes in the upper surface intersect the slashes in the lower surface, the slashes in the lower surface extending at an angle to the direction of the slashes in the upper surface.

4. A flexible sole having a plurality of substantially parallel slashes in its upper surface and a plurality of substantially parallel slashes in its lower surface, the slashes in the opposite surfaces intersecting within the body of the sole at acute angles.

5. An inner sole transversely cut at the ball portion of its upper surface in a plurality of substantially parallel slits extending through more than one half of the thickness of the inner sole and also transversely cut through its lower surface in similar fashion, but with the cuts arranged in intersecting relation with respect to the cuts in the upper surface.

6. An innersole comprising a blank of inner sole material provided in both upper and lower surfaces with a plurality of slashes, the slashes in the upper surface intersecting the slashes of the lower surface at acute angles, whereby the entire thickness of the sole is pierced at the intersections.

7. An inner sole comprising a blank of inner sole material having a plurality of slashes cut in its upper surface and extending more than halfway through the thickness of the blank and having a plurality of slashes cut in its lower surface and extending deeply enough to intersect the slashes in the upper surface, the slashes in the upper surface being disposed at an angle with respect to the slashes in the lower surface.

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