Dec. 17, 1940. J. J. WHITE ET AL 2,225,192

RIBBED INSOLE

Filed Aug. 18, 1939 2 Sheets-Sheet 1

Fig - 1

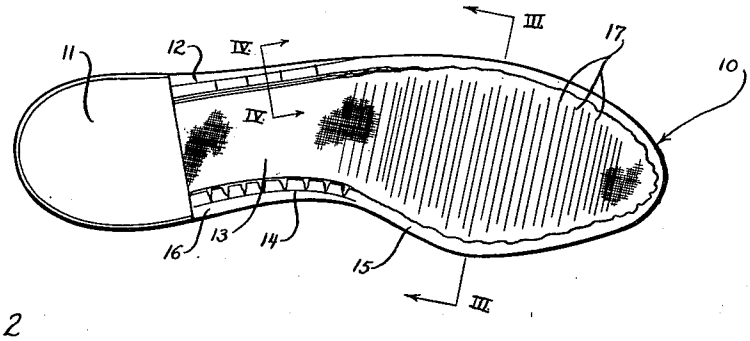



Fig - 2

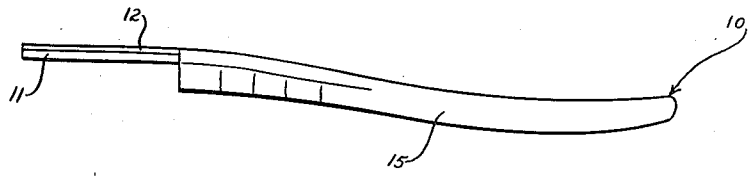



Fig - 5

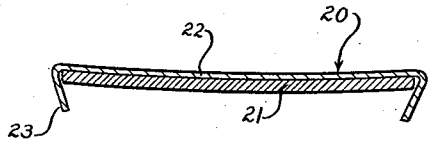



Fig - 3

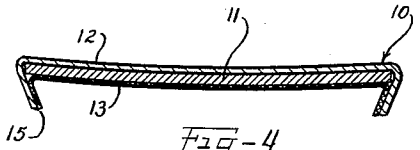



Fig - 4

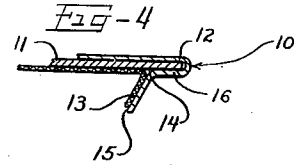
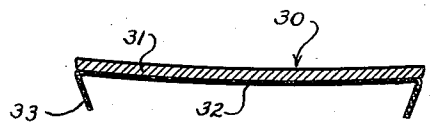



Fig - 6




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Fig - 7

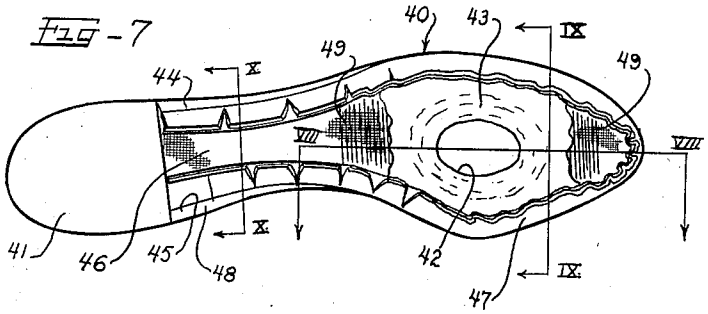



Fig - 8

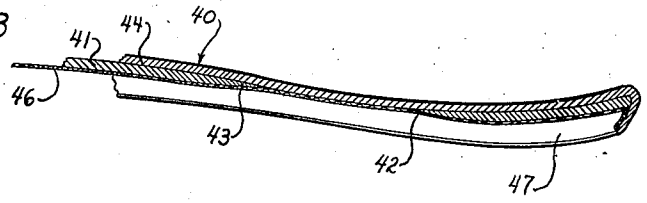



Fig - 9

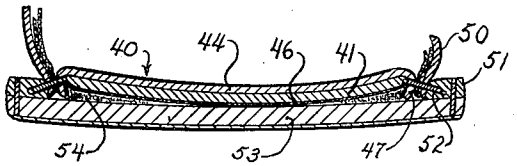



Fig - 11

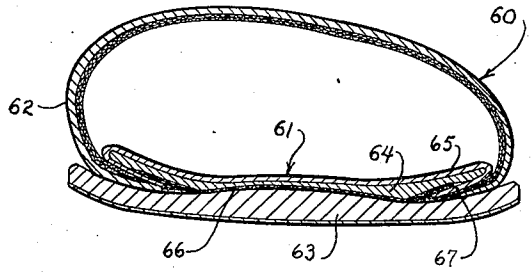
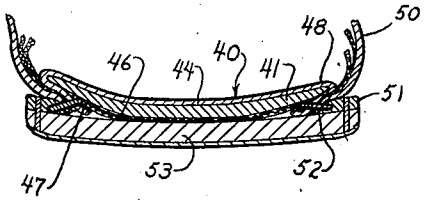



Fig - 10




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Patented Dec. 17, 1940 2,225,192

# UNITED STATES PATENT OFFICE

2,225,192

## RIBBED INSOLE

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Application August 18, 1939, Serial No. 290,750

1 Claim. (Cl. 36—22)

The present invention relates to means and methods for attaching soles in the manufacture of shoes. More particularly the invention pertains to a novel type of insole for shoes and to improved methods of shoe construction utilizing the novel structural features of such insoles to fabricate shoes distinguished by a simplified assembled relationship between insole, upper and outsole.

In making welted shoes it has heretofore been customary to prepare flat insoles having margins specially adapted for attachment to uppers by sewing. Such insoles may be fashioned with inner channels extending below their edge faces, or the bottom faces of the insoles may be flanged to form therewith integral ridges. The provision of such structural features requires that the insoles be fairly thick and consequently of but limited flexibility. This rigidity necessitates a moulding of the insoles to the last over which the shoes are made, to adapt the initially flat insoles to the shape of the foot.

The present invention eliminates the need for specially fitting the edge faces of insoles for stitching to uppers by providing an insole having a depending marginal lip formed by a sheet-like member covering a broad face of the insole proper. To this lip an upper can be attached by stitching, cementing or other means. Thus lipped insoles may be made quite thin and consequently very flexible. Insoles according to this invention may also be moulded into resiliently retained curvature by the action of a roller. Shoes can therefore be assembled with insoles which initially conform to the shape of the foot.

It is therefore an important object of the present invention to provide insoles adapted for attachment to uppers without special structural modification of their edge or bottom faces for this purpose.

Another object of this invention is to provide thin flexible insoles capable of attachment to uppers by stitching.

Yet another object of this invention is to provide insoles which prior to their attachment to uppers conform to the curvature of the foot.

A further object of the invention is to provide a method of constructing shoes which does not involve the step of stitching uppers to the margins of insoles.

An additional object of the invention is to provide a method of assembling shoes which does not involve the step of moulding the insoles to the last over which the shoes are made.

A more specific object of the invention is to provide insoles having depending marginal lips formed by sheet-like members covering broad faces thereof.

Another specific object of this invention is to provide thin flexible lipped insoles conforming resiliently to the shape of the foot.

Yet another specific object of this invention is to provide a method for attaching insoles to uppers by means of depending marginal lips formed by members covering broad faces thereof.

A further specific object of this invention is to provide a method for assembling shoes with insoles which initially conform to the shape of the foot.

Other and further objects of the present invention will become apparent to those skilled in the art from the following description and appended drawings.

As disclosed hereinabove, insoles according to the present invention comprise an insole proper and a sheet-like member covering a broad face thereof. A marginal portion of the covering member depends from the insole proper to form the hereinabove mentioned lip. The covering member will hereinbelow be designated with the term "cover" if positioned over the top face of the insole proper, with the term "backing" if disposed over the bottom face of said insole.

The cover extending over preferably the whole top face of the insole proper is wide enough to have marginal portions overhanging the edge face of the insole proper. The lip thus formed extends from the tip of the insole for part or all the distance to the heel portion of the insole. If one or more parts of the periphery of the insole are to be provided with a feather edge, part or all of the overhanging portion of the cover is folded around the edge of the insole proper and caused to depend from the bottom face of the insole at points spaced from the edges thereof.

The backing extending over the bottom face of the insole proper (preferably with the exception of the heel portion) may similarly to the cover extend across the insole, with marginal portions depending from all or part of the edge of the thus covered bottom face. Or, if the insole is to be provided with a feather edge extending along a greater or smaller part of the edge, part or all of the backing may extend transversely only intermediate points spaced from said edges with marginal portions depending from said points.

Insoles according to this invention may be provided with mutually fitted covers and back-

ings whose depending marginal portions contact to jointly form composite lips.

The insole proper is suitably made of leather with the grain side turned down to give more flexibility, although, if desired, the grain side may be up. A split from an outsole may conveniently be used. If desired, the insole proper may comprise a plurality of superimposed layers. Whether partially, completely or not at all multiply, the insole proper may vary in thickness from point to point. To increase flexibility, the insole may be thinner or even apertured at the ball of the foot. Such apertures may extend across the insole proper or may form longitudinally extending ovals (Sbicca type insole).

Covers and backings may be made from any suitable sheet material, for instance, leather, textile fabrics such as canvas, and the like. As a rule, covers are made of leather and backings of fabric. Covers and backings may be secured to the insole proper and, in case an insole is provided with both a cover and a backing, to the depending marginal portions of each other, by a cement such as glue, by stitching, or by any other suitable means.

To increase the flexibility of the assembled insole, the backing may be slashed transversely at the ball of the foot. Such slashes may penetrate into or even through the insole proper.

The assembled insole may be subjected to the action of a roller to shape the same to conform to a greater degree to the shape of the foot than the outsoles. Thus roughly foot-shaped insoles are permanently elastic and resume their curvature if straightened out. Hence they will not become flattened and wrinkled.

Lipped insoles according to the present invention may be attached to uppers by stitching or cementing. In the former case uppers are pulled around the edges of the insoles into contact with the depending lips, welt strips are positioned along the outside margins of the uppers, and the assembled parts are secured together by stitching. The lips and marginal portions of the uppers may then be trimmed and folded under the insoles, and outsoles are attached to the welt strips by vertical seams.

During this assemblage filling material may be disposed intermediate the insoles and the outsoles, between the edges of the folded lips.

Welted shoes comprising lipped insoles according to the present invention are thus built around and held together not by thick rigid insoles, in the manner of conventional welted shoes, but by per se non-rigid members having depending marginal portions to which the uppers and welt strips are secured. Said thin non-rigid members are reinforced by members heretofore designated as "insoles proper" whose sole function is to rigidify said non-rigid members to the slight extent necessary and desirable, which falls far short of the minimum of rigidity which the rigid integral insoles of prior art welted shoes necessarily possess.

With reference to their function and assembled relationship to other parts of welted shoes, the insoles of the present invention may therefore be defined as comprising one or more thin non-rigid members presenting elongated broad faces and therefrom depending marginal lips adapted for attachment to uppers by stitching, together with a relatively thicker and more rigid similarly extending member reinforcing said non-rigid members to render the same resiliently flexible.

As disclosed hereinabove, insoles according to the present invention may also be cemented onto uppers. In this process the depending lips are folded in under the insoles, after which the uppers are pulled over the edges of the insoles into contact with the folded lips and cemented thereto. Resiliently flexible roughly foot-shaped insoles may thus be used in the construction of cemented shoes.

Part only of an insole according to the present invention, for instance, the forepart, may be attached to an upper by stitching, while another part, such as the shank or arch, may be secured by cementing.

Illustrative examples of specific embodiments of the hereinabove disclosed principles are described in detail hereinbelow with reference to the appended drawings, in which:

Figure 1 is a bottom plan view of an insole provided with a cover and a backing according to this invention.

Figure 2 is a side elevational view of the insole of Figure 1.

Figure 3 is an enlarged transverse cross-sectional view taken along the line III—III of Figure 1.

Figure 4 is an enlarged fragmentary transverse sectional view taken along the line IV—IV of Figure 1.

Figure 5 is an enlarged transverse sectional view through the ball portion of an insole with a cover according to this invention.

Figure 6 is an enlarged transverse sectional view through the ball portion of an insole with a backing according to this invention.

Figure 7 is a bottom plan view, with parts broken away, of a Sbicca type insole provided with a cover and backing according to this invention.

Figure 8 is an enlarged fragmentary longitudinal cross-sectional view taken along the line VIII—VIII of Figure 7.

Figure 9 is an enlarged fragmentary cross-sectional view of a welted shoe comprising the insole of Figure 7 taken along the line IX—IX of Fig. 7 and showing the parts broken away from the insole in Figure 7.

Figure 10 is an enlarged fragmentary cross-sectional view through the shoe of Figure 9 taken along the line X—X of Figure 7.

Figure 11 is an enlarged cross-sectional view of a cemented shoe comprising an insole provided with a cover and a backing according to this invention.

As shown in the drawings:

In Figures 1, 2, 3 and 4 the reference numeral 10 indicates generally an insole embodying the principles of this invention. The insole 10 comprises an insole proper 11 made of leather, a leather cover 12 completely covering the upper face of the insole proper, and a fabric backing 13 covering all but the heel portion of the insole proper.

Marginal portions of the cover 12 overhang the forepart edges of the insole proper. Other notched marginal portions of the cover are folded around the edges of the shank portion of the insole proper, depending from the bottom face of the latter at points defining a line 14 spaced from the edges of said shank portion. Marginal portions of the backing 13 similarly depend from the forepart edges of the insole proper and along the line 14 from the bottom face of the shank portion of the insole proper to form, jointly with the marginal portions of the cover 12, a lip 15 extending around all but the heel portion of the

insole proper. The marginal portions of the shank of the insole form a feather edge 16.

The insole proper 11, the cover 12 and the backing 13 are assembled as shown in the drawings and cemented together. The backing 13 may then be slashed transversely as indicated by the reference numeral 17, and the assembled cemented insole may be subjected to the action of a roller to confer on the same the resiliently retained concave curvature intermediate shank and tip shown in Figure 2.

Figure 5 shows a section similar to that in Figure 3 through a cemented insole, designated generally by the reference numeral 20 and comprising an insole proper 21 together with a leather cover 22 extending over the top face of the insole proper and overhanging the edges of the latter to form a lip 23.

Figure 6 shows a section similar to that in Figure 3 through a cemented insole, designated generally by the reference numeral 30 and comprising an insole proper 31 together with a fabric backing 32 extending over the bottom face of the insole proper and depending from the edges of the latter to form a lip 33.

In Figures 7 and 8 the reference numeral 40 indicates generally a leather Sbicca type insole embodying the principles of this invention. The insole 40 comprises an insole proper 41 made of leather and pierced in the region of the ball of the foot by a longitudinally elongated oval aperture 42. The marginal portions 43 of the insole around the aperture 42 taper toward the latter.

A leather cover 44 extends over the whole upper face of the insole proper 41. Marginal portions of the cover 44 overhang the edges of the forepart of the insole proper. Other notched marginal portions of the cover are folded around the shank portion of the insole proper, depending from the latter at points defining a line 45 spaced from the edges of said shank portion.

A fabric backing 46 covers all but the heel portion of the bottom face of the insole proper 41. Marginal portions of the backing 46 depend from the front edges of the insole proper and along the line 45 from the bottom face of the shank portion of the insole proper, to form, jointly with the marginal portions of the cover 44, a lip 47 extending around all but the heel portion of the insole proper. The marginal portions of the shank of the insole form a feather edge 48.

The insole proper 41, the cover 44 and the backing 46 are assembled as shown in the drawings and cemented together. The backing 46 may then be slashed transversely as indicated by the reference numeral 49, except below the aperture 42, and the assembled cemented insole may be subjected to the action of a roller to confer on the same the resiliently retained roughly foot-shaped curvature shown in Fig. 8.

Figures 9 and 10 illustrate the assembled relationship in a welted shoe between the insole 40 and a doubly lined upper 50. As shown, the marginal portions of the upper are interposed between the lip 47 and a welt strip 51, which three members are then stitched together by a thread 52. The welt strip 51 is thereafter stitched onto an outsole 53 in the conventional manner after filling material 54 has been interposed between the insole 40 and the outsole 53. In the finished shoe the lip is either trimmed as shown in Figure 9 or else folded against the bottom face of the insole as shown in Figure 10.

Figure 11 shows the assembled relationship in a cemented shoe, designated generally by the reference numeral 60, between an insole 61 according to the present invention, a doubly lined upper 62 and an outsole 63. The insole 61 comprises an insole proper 64 whose forepart comprises thinner central and marginal portions together with intermediate thicker portions, a cover 65 and a backing 66. The marginal portions of the cover 65 overhang the edge of the insole proper, while the marginal portions of the backing 66 depend from the edge of the insole proper, to form, jointly with the overhanging marginal portion of the cover 65, a lip 67. The lip 67 is folded in under the insole 61 and is overlapped by the marginal portions of the upper 62. The outsole 63 has a relatively thick central portion and thinner marginal portions.

The insole 61, which may have been slashed and subjected to a roller to confer on the same a resiliently retained curvature, is assembled with the upper 62 and outsole 63 as shown, and said members are thereafter cemented together to form a light flexible shoe having an insole conforming to the shape of the foot.

A shoe may also be constructed whose forepart only is welted, in the manner illustrated in Figure 9, and whose shank portion is cemented as shown in Figure 11.

An important feature of this invention resides in the fact that the means and methods which we have invented obviate the necessity of channelling the insole, a step which is costly and requires expensive machinery. Thus, this invention improves distinctly upon the method which has been in general use for many years—that of channelling an insole from a firm piece of sole leather.

Since, as mentioned hereinabove, various details of construction may be varied through a wide range without departing from the principles of this invention, it is not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claim.

We claim as our invention:

An insole comprising an insole proper, a cover having marginal vertically depending portions at the edge of the forepart of said insole and other marginal portions folded around the edge of the shank portion of said insole and depending from points spaced from the edges thereof, and a backing having marginal portions depending from the edges of the forepart of said insole and other marginal portions depending from said shank portion, all said depending marginal portions of said cover and said backing jointly forming a depending rib for said insole extending around the forepart and shank portions of said insole and defining a feather confined to said shank portion.

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