July 4, 1944. A. L. JALBERT ET AL 2,352,715

INSOLE

Filed Oct. 16, 1942

Fig. 1

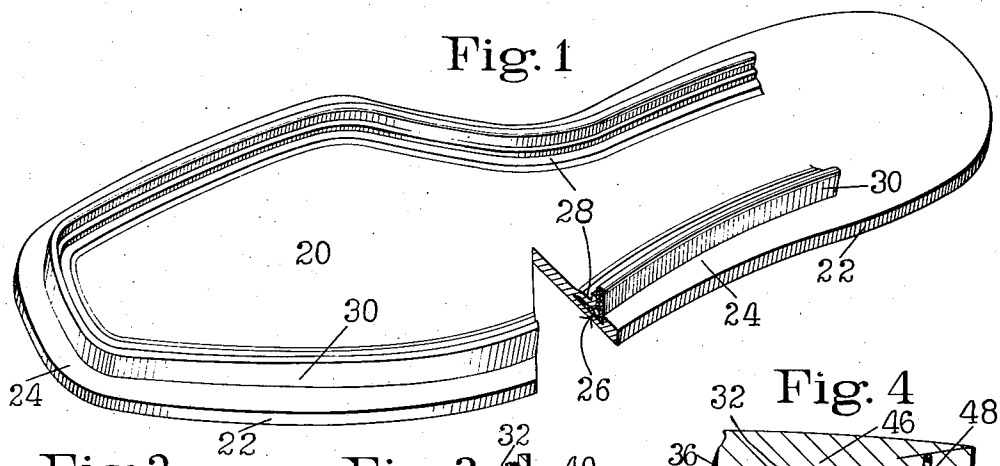


Fig. 2

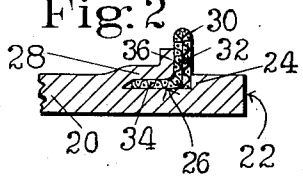


Fig. 3

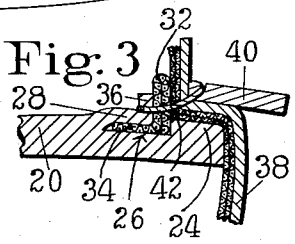


Fig. 4

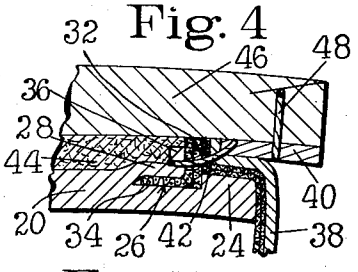


Fig. 5

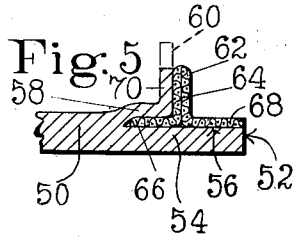


Fig. 6

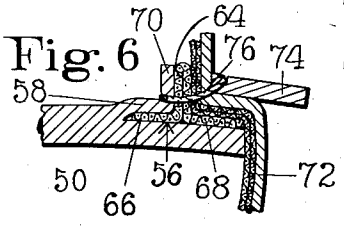


Fig. 7

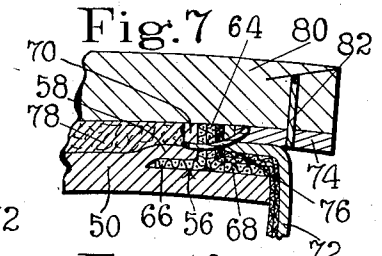


Fig. 8

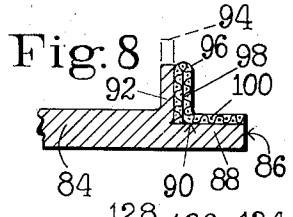


Fig. 9

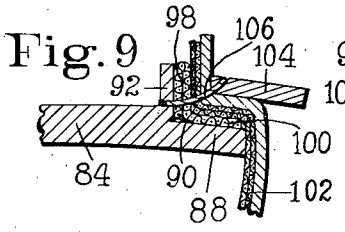


Fig. 10

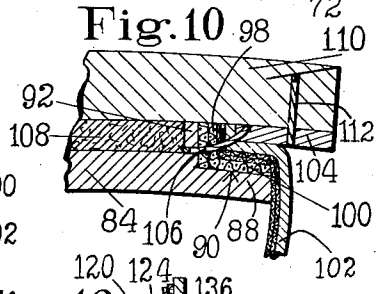


Fig. 11

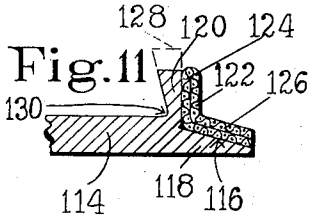


Fig. 12

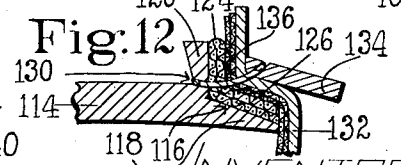
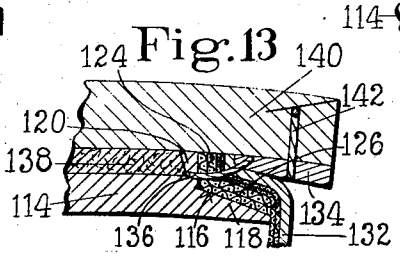


Fig. 13



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UNITED STATES PATENT OFFICE

2,352,715

INSOLE

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Application October 16, 1942, Serial No. 462,280

5 Claims. (Cl. 36—22)

This invention relates to insoles for shoes and more particularly to insoles provided with lasting ribs for use in the manufacture of welt shoes.

In the manufacture of shoes in which the upper is secured to a rib on the insole to hold the upper in overlasted position, as for example, in welt shoes, it is essential that the lasting or sewing rib on the insole be strong and rigid enough to hold the upper firmly in overlasted position and yet not be so stiff or unyielding that it will materially reduce the flexibility of the finished shoe. The rib should be formed so that it will assume an upstanding position on the insole and will tend to remain in that position during, and after, the lasting and inseam stitching operations. Such a rib should not only hold the upper tight on the last, but it should provide a guide for the lasting and stitching operations. Moreover, the rib should locate the materials at the inseam in an upstanding position and thus facilitate the inseam trimming operation.

In addition to its other characteristics the lasting rib should be such that it is penetrable by fastenings and fastening inserting means without being torn, split or otherwise damaged by the fastenings or the inserting means, and it should be attached to the insole in a manner that will eliminate any danger of its pulling off or peeling away from the body portion thereof during the operations referred to or during the wearing of the shoe. If, for example, the rib, or a portion thereof, is integral with the insole, this portion should not be formed so that it is liable to peel away from the insole under tension or strain from the overlasted upper. If, on the other hand, the rib or a part of it is composed of separate material, such as a strip, the separate portion or strip should likewise be so firmly attached to the insole that all danger of its pulling or peeling off will be eliminated. Finally, whatever its construction, the rib should obviously be economical to make or apply to the insole so that it will not render the cost of manufacture excessive and, accordingly, the rib should be as simple as possible to make so that it will not involve too many operations or require too much time to construct.

An object of the present invention is to provide an improved insole for use in making shoes such, for example, as welt shoes, the insole having a lasting rib thereon which embodies the features and satisfies the requirements pointed out above and will be relatively simple and economical to make and apply to the insole.

To the accomplishment of this object, the invention provides, in accordance with one feature, an improved insole for use in the manufacture of welt shoes comprising an insole blank or body portion having a lasting rib thereon which consists of an integral outside channel flap and a two-ply reinforcement secured by cement alone to the outer face of the flap. As herein illustrated, the integral flap is formed by an outside channel extending inwardly of the margin of the insole and the reinforcing member comprises a separate strip of material, preferably fabric, folded over upon itself with pressure responsive cement on the folded portion to form a two-ply layer or reinforcement, this two-ply reinforcing portion or layer being secured to the outer face of the channel flap by cement alone to complete the formation of the rib. After it has been folded over, the strip also has a portion or layer extending beyond the two-ply layer which is turned at right angles to the two-ply layer to form a lateral flange at the base of said layer.

In accordance with one form of the invention, as herein illustrated, the outside channel is spaced inwardly from the edge face of the insole a distance approximately equal to the width of the feather portion thereof and the separate strip is secured to the insole outwardly of the flap with the two-ply reinforcing layer projecting upwardly from the outer edge of the channel and the flange extending inwardly and lying flat in the channel. The channel flap extends outwardly above the flange and is arranged to overlap the flange throughout its width, the flap being secured to the flange by cement and the outer portion of the flap extending upwardly against the two-ply layer for at least a portion of the height of that layer to complete the rib.

In accordance with another form of the invention, the integral flap may be formed by an outside channel cut inwardly from the edge face of the insole for a distance considerably greater than the normal feather portion thereof, and the separate strip of material may be folded over upon itself on its longitudinal median line with cement on the folded portions to form a two-ply layer at the middle of the strip with a pair of lateral flanges extending in opposite directions from its base. The folded strip is secured to the insole outwardly of the channel flap with the two-ply layer projecting upwardly and the flanges lying flat in the channel. The outside channel flap overlaps the inner flange throughout its width and the outer or free portion of the flap extends upwardly against the two-ply reinforce-

ment and is secured thereto by cement alone, the flap being secured in overlapping relation to the flange by cement.

Another form of ribbed insole contemplated by the present invention comprises a rib formed by an outside channel flap provided by a channel cut inwardly from the edge face of the insole for a distance approximately equal to the feather portion thereof, and a separate strip folded over upon itself to provide a two-ply layer with a single-ply layer or flange at its base. In this form of the invention, the two-ply layer is secured by cement alone to the outer face of the channel flap and the flange lies flat in the channel and extends outwardly to the edge face of the insole.

In accordance with still another construction provided by the invention, as herein illustrated, the insole may be channeled by an outside channel extending inwardly from the edge face of the insole but located at an angle to the plane of the insole to produce a tapered or wedge-shaped flap the outer portion of which forms the thicker end of the wedge, thereby leaving a tapered feather portion on the insole which inclines downwardly and outwardly to a relatively thin edge at the periphery of the insole. The separate strip in this construction is folded over upon itself with cement on its folded surface to form a two-ply layer throughout, the lower or base portion of this layer, as applied to the insole, being bent to form a lateral flange at the base of the reinforcing portion of the strip. The two-ply layer or reinforcement is applied to the insole with the two-ply layer extending upwardly and secured by cement alone to the outer face of the wedge-shaped flap to complete the rib, the two-ply flange being located flat in the channel and being secured thereto by cement.

With the above and other objects and features in view, the invention will now be described in detail in connection with the accompanying drawing and will thereafter be pointed out in the claims.

In the drawing,

Fig. 1 is a perspective view of an insole embodying one form of the invention with a portion of the insole broken away to show the construction of the rib;

Fig. 2 is a transverse section on an enlarged scale of one side of the insole of Fig. 1;

Fig. 3 is a view similar to Fig. 2 showing an upper and welt secured in lasted relation to the insole;

Fig. 4 is a similar view showing an outsole attached to the welt;

Fig. 5 is a transverse section similar to Fig. 2 illustrating a different form of ribbed insole;

Figs. 6 and 7, respectively, show an upper and welt secured to the insole of Fig. 5, and an outsole attached to the welt;

Fig. 8 illustrates a still different form of ribbed insole;

Figs. 9 and 10, respectively, show an upper and welt secured to the insole of Fig. 8, and an outsole attached to the welt;

Fig. 11 illustrates still another form of ribbed insole; and

Figs. 12 and 13, respectively, show an upper and welt secured to the insole of Fig. 11, and an outsole attached to the welt.

The insole illustrated in Figs. 1 to 4, inclusive, which comprises one form or embodiment of the invention, consists of an insole blank or body portion **20** of leather or other suitable material having an edge face **22** and a margin or feather portion **24**. The insole is channeled around its marginal portion from the heel breast line around the shank and forepart to the breast line by an L-shaped cut forming an outside channel **26** and a channel flap **28**. As shown in the drawing, the channel **26** is spaced inwardly from the edge face of the insole a distance approximately equal to the width of the feather portion of the insole, thereby permitting the feather portion to remain at its full thickness. The channel flap **28** is loose or free at its outer edge and is connected to, or integral with, the insole at its inner edge.

After the insole has been channeled as described above, a separate strip of material **30**, preferably fabric such as canvas or Gem duck, is coated with a pressure responsive cement such, for example, as neoprene, latex or similar cement, and the strip is folded over upon itself, as shown in Fig. 2, to form a two-ply portion or layer **32** having a single-ply layer extending beyond one edge thereof, this single-ply layer being bent substantially at right angles to the two-ply layer to form a lateral flange **34** at the base of said layer.

Pressure responsive cement is applied to the channel **26**, to the inner surface of the channel flap **28**, and to the upper or outer side of the flange **34**, and the strip **30** is positioned on the insole margin, outwardly of the flap **28**, as shown in Fig. 2, with the two-ply layer **32** located at the outer edge of the channel and projecting upwardly at right angles to the plane of the insole and with the flange **34** extending inwardly and lying flat in the channel, the flange becoming firmly secured in the channel by the cement on the channel and flange.

The channel flap **28** is next positioned over the flange **34**, as illustrated in Fig. 2, and the outer or free margin of the flap is turned upwardly against the upstanding two-ply layer **32**, the two-ply layer becoming firmly secured to the outer face of the flap by reason of the pressure responsive cement of this layer and on the flap. In other words, the strip, including the flange **34**, is secured in the channel by cement alone, and the two-ply reinforcing layer **32** is secured to the outer face of the channel flap **28** by cement alone to complete the formation of the lasting rib. As illustrated in Fig. 2, the channel flap extends upwardly on the inner surface of the two-ply reinforcing layer for about half the height of that layer above the surface of the insole.

The lasting rib formed as described particularly adapts the present insole for use in making welt shoes because the rib is strong and rigid enough to hold the shoe upper firmly in overlasted position, and yet it is not so stiff or inflexible that it will reduce the flexibility of the finished shoe to any great extent. Moreover, the channel flap **28**, being integral with the insole at the inner edge of the flap, strengthens the resistance of the rib to bending under the outward tension or strain of the overlasted upper. Since the flap is an "outside" channel flap and is free at its outer edge, outward tension of the upper will not tend to tear or peel the flap away from the body of the insole.

In addition to the advantages already pointed out, the present insole provides further benefits and advantages which increase its utility and usefulness over other constructions for making welt shoes. For example, the upstanding marginal portion **36** of the flap **28** is prevented from bend-

ing downwardly under the tension of the upper by the substantial reinforcement it receives from the upstanding, two-ply layer **32** of the fabric strip **30**. This result is also assisted by the fact that the rib, has herein formed, includes two parallel layers or coats of cement in its upstanding body portion which contribute further to the strength or rigidity of the rib, or to its tendency to remain in, or return to, its upstanding vertical position if the rib should be bent outwardly during or after the lasting and inseam stitching operations.

The reinforcement provided by the two-ply layer **32** is applied to the outer face of the flap so that, besides assisting in maintaining the flap in its upstanding position, the reinforcement also provides a better material than thin flexible leather for receiving fastenings, such as staples, tacks or stitches. Consequently, the relatively thick fabric reinforcement of the rib obviates any danger of the leather flap being torn, cut or otherwise injured by the fastenings when the upper is lasted or by the inseam stitches when they are inserted. Furthermore, the attachment of the separate strip **30** to the insole is stronger and firmer in the present construction than in similar constructions because the strip is not only secured to the surface of the channel **26** by the pressure responsive cement between the flange **34** and the channel, but the flange is additionally secured in the channel by the overlapping flap **28** which covers the flange throughout its entire width and is cemented thereto. This overlapping arrangement of the flap also eliminates any hollow or depression adjacent to the inner side of the rib, as is common in many ribbed insole constructions, and it thus assists in rendering the surface of the insole more nearly flat or smooth for receiving an outsole, thereby reducing the amount of filler material needed in the shoe bottom and increasing the flexibility of the shoe a corresponding amount.

Finally, as illustrated in Figs. 1 to 4, inclusive, the feather portion **24** of the present insole is not weakened by reducing its thickness in order to form the rib, as is often the case with insoles having integral lasting ribs. Consequently, the shape or outline of the insole will be imparted to, or preserved in, the finished shoe, thereby providing a stronger and better shaped shoe. The elimination of a hollow or depression inwardly of the rib, besides rendering the surface of the insole smoother for receiving an outsole, also makes the insole stronger at this point and thus tends to prevent the feather portion of the insole from bending or curling upwardly in the shoe during its wear, which frequently occurs in shoes in which the insole has been weakened inwardly of the rib by an inside channel to provide an inner flap for the rib, the inside channel sometimes rendering the insole so thin and weak at this location that the feather portion subsequently bends or curls upwardly in the shoe about this point as a pivot, thereby causing the shoe to lose its shape and causing discomfort to the wearer.

Fig. 3 shows the insole **20** after an upper **38**, comprising an outer layer and lining, has been secured in overlasted relation to the rib and after the upper and a welt **40** have been attached to the rib by inseam stitches **42**. The rib remains in its upstanding position after the lasting and inseaming operations have been performed because of the strength and rigidity of the rib which are caused by the relatively short portion **36** of the flap being reinforced on its outer face by the two-ply reinforcement **32**. Inward bending of the rib, for example, is resisted primarily by this short, upturned portion **36** while outward bending is resisted by the overlapping portion of the integral flap **28** which, when the inseam stitches are located as close as they should be to the base of the rib, opposes or resists a large part of the outward pull or tension of the overlasted upper. Since the flap is an outside channel flap with its inner end integral with the insole, the outward tension of the upper has no tendency to tear or peel the flap outwardly away from the body portion of the insole. In addition, the two parallel layers of cement in the rib also assist in maintaining it in an upstanding position. As illustrated in Fig. 3, the excess material of the rib, upper and welt are located in an upstanding position which will facilitate the inseam trimming operation. Fig. 4 illustrates the completed shoe after the inseam has been trimmed, filler material **44** applied, and an outsole **46** attached by sole-attaching stitches **48**.

Figs. 5, 6 and 7 illustrate another form of ribbed insole for use in welt shoes having features and advantages similar to those described in connection with the first type of insole. As shown in Fig. 5, the insole blank **50** having an edge face **52** and feather portion **54** is channeled around its margin by an outside channel **56** which is cut inwardly from the edge face **52** a distance considerably greater than the width of the feather **54**, thereby providing an outwardly extending channel flap **58** the outer, free portion **60** of which may be removed when the channel is cut, after the rib is formed or, if desired, may be removed by the inseam trimming operation.

A strip **62** of separate material, such as canvas or Gem duck, is coated with pressure responsive cement and the strip is folded over upon itself at its central or median portion to form a two-ply layer **64** having separate layers at its base which form a pair of single-ply flanges **66** and **68** extending laterally from said base in opposite directions. Pressure responsive cement is applied to the channel and flap and to the surfaces of the strip opposing the channel and flap, as described above, and the folded strip is secured to the insole, outwardly of the flap, as shown in Fig. 5, with the two-ply layer **64** projecting upwardly and the flanges **66**, **68** lying flat in the channel, the parts adhering firmly together by reason of the cement thereon. The channel flap **58** is pressed into overlapping relation to the inner flange **66** and the outer portion **70** of the flap is turned up against the two-ply reinforcement **64** and stuck thereto to complete the rib.

Fig. 6 illustrates the insole **50** after an upper **72** has been lasted and the upper and a welt **74** have been secured to the rib by inseam stitches **76**. In Fig. 7, the excess materials at the inseam have been trimmed, filler material **78** has been applied to the shoe bottom, and an outsole **80** has been secured to the shoe by stitches **82**. The insole construction illustrated in Figs. 5 to 7, inclusive, like the first type of insole, is particularly adapted for use in making welt shoes because the lasting rib is strong and rigid without being so stiff as materially to reduce the flexibility of the shoe. The rib will remain in an upstanding position due to its rigidity, the manner of its construction and reinforcement, and also to the two layers or coats of cement in the body of the rib. Moreover, the rib will not pull off or peel away from the insole because of its

strong attachment, including the overlapping feature of the flap, and it will not be readily cut or damaged by fastenings or fastening inserting instrumentalities. The feather of the insole is not reduced in thickness and weakened because the flange 68 returns this portion to substantially its original thickness, and there is no hollow or depression at the inner base of the rib to weaken the insole at this point and tend to cause its margin to turn up or curl in the finished shoe.

Figs. 8, 9 and 10 illustrate a still different form of insole construction embodying many of the features and advantages of the two previous constructions. As shown in Fig. 8, an insole 84, having an edge face 86 and a feather portion 88, is channeled inwardly from its edge face by an outside channel 90 a distance substantially equal to the feather portion to produce a channel flap 92 having an outer margin 94 which may be removed either when the insole is channeled, when the rib is formed, or in the inseam trimming operation. A separate strip 96 of canvas or Gem duck is coated with pressure responsive cement and is folded over upon itself to form a two-ply layer 98 and a lateral flange 100. The strip is applied to the insole outwardly of the flap 92, as shown in Fig. 8, with the two-ply layer 98 in contact with the upstanding flap 92 and the flange lying flat in the channel, the parts becoming firmly secured together in this position because of the cement on the strip, the channel and the channel flap.

The insole 84 thus has a strong, rigid upstanding rib which will retain the upper firmly in overlasted position and yet is not too inflexible. Fig. 9 shows the insole 84 with an upper 102 and welt 104 secured to the rib by stitches 106, and Fig. 10 illustrates the shoe after it has been trimmed, filler material 108 applied, and an outsole 110 attached by sole-attaching stitches 112. The two layers of cement in the rib, as mentioned above, help maintain the rib in its upstanding position.

Figs. 11, 12 and 13 disclose still another form of ribbed insole for use in welt shoes in which an insole 114 is channeled inwardly from its edge face by an outside channel 116 to provide a reduced feather portion 118 and a channel flap 120, the channel being positioned at an angle to the plane of the insole, as shown in Fig. 11, so that the feather portion slants downwardly and outwardly to a relatively thin edge and the flap 120 is tapered or wedge-shaped with the thick end of the wedge at its outer or top portion.

A separate strip 122 of fabric material is coated with pressure responsive cement and is folded over upon itself, as described above, to produce a two-ply strip or layer throughout its width, the upper or rib portion of the layer, as viewed in Fig. 11, being indicated by the numeral 124, and the lower or flange portion by the numeral 126. The channel, the flap, and the surfaces of the strip which are to engage them, are coated with pressure responsive cement and the strip is positioned on the insole as shown in Fig. 11 with the two-ply layer 124 extending upwardly against the outer face of the flap, and with the flange 126 lying flat in the inclined channel and extending to the edge face of the insole so that it substantially fills the channel and restores the tapered feather 118 to substantially its original thickness while retaining its outward inclination. The parts are firmly attached together by the pressure responsive cement thereon to complete the formation of the rib, the excess material 128 of the flap being trimmed off, as stated, either during the channeling, the rib forming, or the inseam trimming operation.

The wedge-shaped rig 120, 126 of Fig. 11 is likewise well adapted for use in making welt shoes because it is sufficiently strong and rigid to hold the upper in overlasted position without being too inflexible. Its manner of construction and reinforcement gives it the advantages enumerated above with respect to remaining in an upstanding position, receiving fastenings without damage, and so forth. In addition, the wedge-shaped rib provides a definite angle or recess 130 at the inner side of its base which will serve as a guide during the lasting and inseam stitching operations and will tend to cause the fastenings and stitches to be inserted close to the base of the rib to insure tight lasting and inseaming stitching operations. The construction of Fig. 11 is economical since it can be made quickly and by relatively few operations.

Fig. 12 shows the insole after an upper 132 and a welt 134 have been attached to the rib by inseam stitches 136, and Fig. 13 illustrates the completed welt shoe after the inseam has been trimmed, filler material 138 applied to the shoe bottom, an an outsole 140 attached by sole-attaching stitches 142.

Having described our invention, what we claim as new and desire to secure by Letters Patent of the United States is:

1. An insole provided with a lasting rib consisting of an integral channel flap formed by a channel cut in the margin of the insole inwardly of the edge face thereof and extending inwardly of said margin, and a two-ply reinforcing layer having cement between the plies and having a single-ply flange extending laterally from the base thereof, said layer being secured by cement alone to the outer face of said flap with its flange lying flat in said channel, and said flap overlapping the flange and being secured thereto throughout the width of said flange, the margin of the insole remaining at its original thickness.

2. An insole provided with a lasting rib consisting of an integral channel flap formed by an outside channel cut in the margin of the insole and extending inwardly from an outer portion thereof, and a strip of separate material folded over upon itself with cement therebetween to form a two-ply reinforcing layer having a single-ply flange extending laterally from the base thereof, said strip being positioned on the insole outwardly of said flap with its two-ply layer projecting upwardly and secured by cement to the outer face of said flap and with its flange lying flat in said channel, said flap overlapping the flange throughout the entire width of said flange and being secured thereto by cement, the margin of said insole being unreduced in thickness.

3. An insole for welt shoes provided with a lasting rib consisting of an integral channel flap formed by an outside channel cut in the margin of the insole at a feather distance from its edge face and extending inwardly from the feather portion thereof, and a separate strip of reinforcing material folded over upon itself with cement therebetween to form a two-ply layer having a single-ply flange extending laterally from the base thereof, said strip being secured to the insole outwardly of the flap with the two-ply layer projecting upwardly at right angles to the plane of the insole and with the flange extending inwardly and lying flat in said channel, said flap overlapping said

flange throughout the width of the flange and being secured thereto by cement, and the outer portion of said flap extending upwardly in contact with the inner surface of the upstanding two-ply layer and being secured thereto by cement to complete the rib, said two-ply layer reinforcing the outer face of the flap and said flap reinforcing the attachment of the strip to the insole, the feather portion of the insole being unreinforced.

4. An insole for welt shoes provided with a lasting rib consisting of an integral channel flap formed by a channel cut in the margin of the insole approximately a feather distance inwardly from its edge face and extending inwardly from the feather portion of the insole, and a separate strip of material folded over upon itself with cement between the layers to form a two-ply layer having a flange extending laterally from the base thereof, said strip being secured to the insole outwardly of the flap with the two-ply layer projecting upwardly from the outer edge of said channel and the flange extending inwardly and lying flat in said channel, said flap overlapping said flange throughout the width thereof and the outer portion of said flap extending upwardly against the inner surface of said two-ply layer for a portion of its height to complete the rib, the margin of the insole being unreinforced and remaining at its original thickness.

5. An insole for welt shoes provided with a lasting rib consisting of an integral channel flap formed by an outside channel cut in the margin of the insole but spaced inwardly from the edge face thereof a distance approximately equal to the width of the feather portion of the insole, and a separate strip of material folded over upon itself and secured in that position by cement to form a two-ply layer having one single-ply flange extending laterally from its base, said two-ply layer being located at the outer edge of the channel and being secured by cement alone to the outer face of said flap with said flange extending inwardly and lying flat in said channel, said flange being secured in said channel by cement, and said flap overlapping said flange throughout the width of the flange and being secured thereto by cement, the entire feather portion of the insole being unreinforced and remaining at its original thickness.

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