

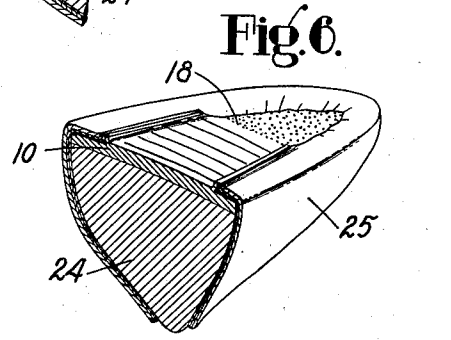
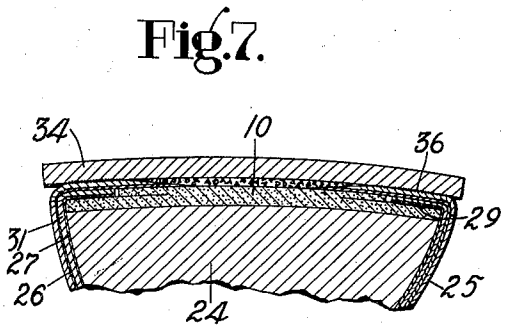
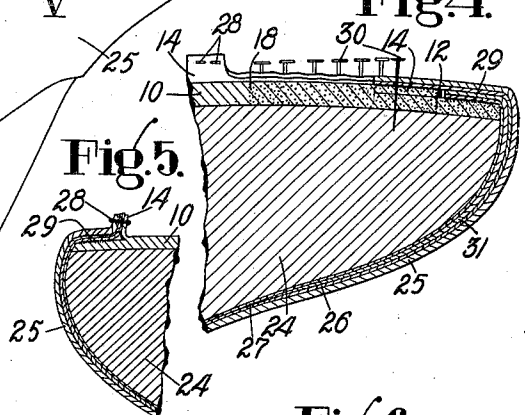
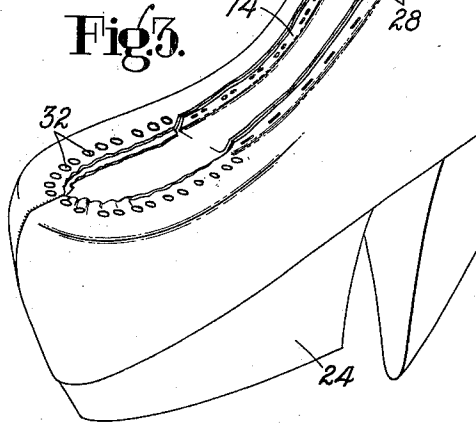
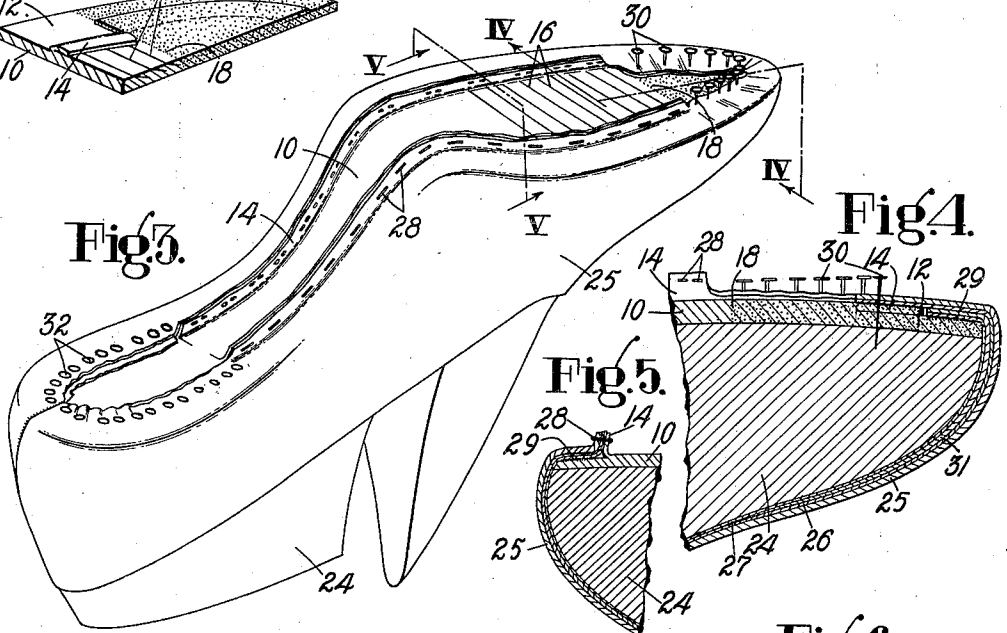
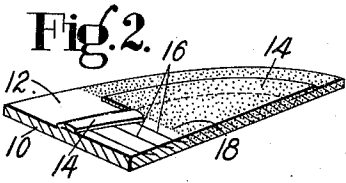
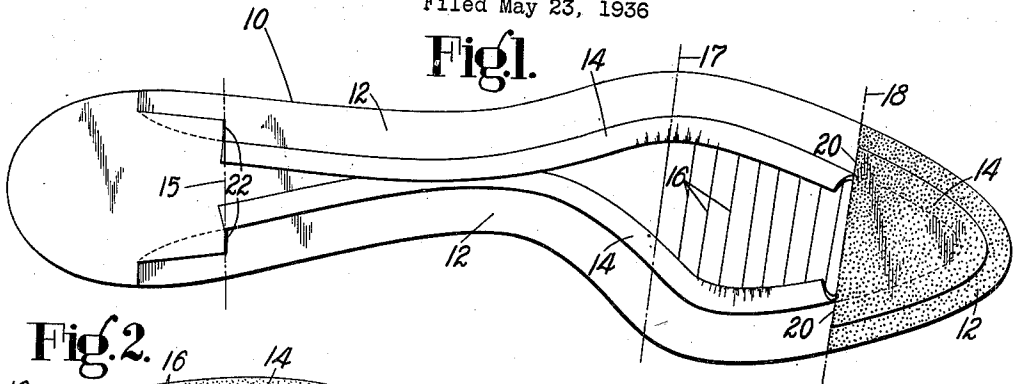
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C. J. MEEK

2,088,090

METHOD OF MAKING SHOES AND INSOLES

Filed May 23, 1936



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UNITED STATES PATENT OFFICE

2,088,090

METHOD OF MAKING SHOES AND INSOLES

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Application May 23, 1936, Serial No. 81,446

19 Claims. (Cl. 12—142)

This invention relates to methods of making shoes and insoles therefor and is illustrated herein with reference to shoes the uppers of which are secured in lasted position by cement.

Objects of the invention are to provide an improved method of making shoes having cement lasted uppers the practice of which will be simple and economical, and to provide improved insoles for shoes and an improved method of making insoles.

In the furtherance of these objects and in accordance with one aspect of the invention, an insole of relatively flexible material such, for example, as leather, is provided at its marginal portion with a channel which extends inwardly from the edge face of the insole thereby forming a reduced feather portion and an integral channel flap. As illustrated the channel extends completely around the toe end of the insole and rearwardly substantially to the heel breast line, the channel flap being reduced to approximately half its original width in the usual manner. The channel flap is next severed transversely at the tip line of the insole thereby separating the flap forwardly of said tip line from the portion extending rearwardly thereof. The portion of the flap which extends rearwardly of the tip line is then turned up to form an integral lasting rib at opposite sides of the insole while the flap at the toe portion of the insole forwardly of the tip line is allowed to remain flat against the marginal portion of the insole and the material of the insole forwardly of said tip line is impregnated with a stiffening solution, thereby rendering this portion considerably stiffer than the portion rearwardly thereof which tends to cause the channel flap to lie flat against the marginal portion of the insole.

In accordance with another aspect of the invention an insole prepared as described is assembled on a last with a multi-ply shoe upper and, after the margins of the insole and upper materials have been treated with cement, preferably rubber cement or latex, the marginal portions of the upper rearwardly of the tip line are worked into lasted position over the feather of the insole and are secured to the integral lasting ribs by fastenings to hold the upper in lasted position while the cement is setting. Forwardly of the tip line inner plies of the upper are trimmed away and the remaining ply or plies are wiped over the reduced margin of the insole and over the flat channel flap and are secured against the flap by temporary fastenings while the cement is setting.

After the cement has set the portions of the upper which are secured to the lasting ribs are trimmed off preferably below the fastenings and substantially flush with the overlapped portions of the upper. At the toe portion of the shoe forwardly of the tip line, the temporary fastenings are removed and the creases or wrinkles in the inner portions of the outer layers of the upper which overlie the flat channel flap are removed, for example, by buffing or grinding, to render this portion of the shoe bottom substantially flat for receiving an outsole. The stiffening solution has rendered this toe portion of the insole considerably stiffer than the portion rearwardly thereof so that it will tend to remain in a substantially flat condition and thus retain its shape even after substantial wear.

In its article aspect the invention provides, for use in shoes having cement lasted uppers, an improved insole which is flexible at its forepart but is relatively inflexible forwardly of its tip line. The insole has reduced feather portions of substantial width at its shank and forepart forwardly to the tip line and integral lasting ribs at the inner edges of said feather portions. Forwardly of the tip line the insole has a reduced margin or feather portion of less width than the feather portion rearwardly thereof and has a relatively flat area inwardly of said feather portion over which an upper may be conveniently lasted.

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

In the drawing,

Fig. 1 is a plan view of an insole embodying features of the present invention;

Fig. 2 is a perspective view illustrating in section the toe portion of the insole;

Fig. 3 is a perspective view of a lasted shoe having the insole of Fig. 1 incorporated therein;

Fig. 4 is a longitudinal sectional view on an enlarged scale of the toe portion of the shoe taken on the line IV—IV of Fig. 3;

Fig. 5 is a transverse section of one side of the shoe taken on the line V—V of Fig. 3;

Fig. 6 is a perspective view of the forepart of the shoe after the excess portions of lasted upper materials and ribs have been removed from the shoe bottom; and

Fig. 7 is an enlarged transverse sectional view taken through the toe portion of the shoe after an outsole has been attached.

The method of the present invention comprises

recessing or channeling a relatively flexible insole 10, preferably of leather, inwardly from its edge face to form a reduced feather portion 12 of substantial width and a channel flap 14, the channel flap being reduced to approximately half the width of the channel usually during the channeling operation. The channeling operation may be conveniently performed with the aid of a channeling machine of the type disclosed in United States Letters Patent No. 984,773, granted February 21, 1911, on an application filed in the name of William C. Meyer. As shown in Fig. 1, the channel extends at its full width completely around the toe end of the insole and rearwardly to the heel breast line 15 at which point the depth of the cut is gradually diminished and the channel knife retracted in the customary manner so that the channel becomes narrower as it merges with the outer surface of the insole. In order to increase the flexibility of the forepart of the insole from the ball line to the tip line, which lines are indicated respectively in Fig. 1 by the broken lines 17 and 18, the outer surface of said portion may be slashed transversely in the usual manner inwardly of the channel flap 14 by cuts 16 which extend into the material of the insole preferably at an acute angle to its outer surface, as shown in Fig. 2.

The reduced channel flap 14 is now severed transversely at the opposite sides of the tip line 18 by transverse cuts 20 which separate the portion of the flap forwardly of said tip line from the portion extending rearwardly thereof to the heel breast line. The channel flap may be severed by hand or with the aid of a toe snipping machine of the type disclosed in Letters Patent of the United States No. 1,078,578, granted February 17, 1914, on an application filed in the name of John B. Hadaway. The channel flap illustrated herein is also cut transversely at opposite sides of the heel breast line, as shown at 22 in Fig. 1, since the diminished portion of the flap rearwardly of the breast line is not utilized in making the shoe.

The portions of the reduced channel flaps 14 extending from the heel breast line 15 to the tip line 18 at opposite sides of the insole are next turned up and pressed back against the outer face of the insole to form lasting ribs. Forwardly of the tip line the channel flap 14 is permitted to remain flat against the marginal portion of the body of the insole. In order to stiffen the toe portion of the insole and also to cause the channel flap at this portion to remain in a substantially flat position against the margin or feather of the insole, the material of the insole forwardly of the tip line 18 is treated with a stiffening solution. The stiffening solution may be applied by hand but it is preferable to immerse the toe portion of the insole up to the tip line in the solution so that the insole and channel flap will become saturated with the stiffening substance throughout their entire thicknesses, thereby rendering this portion of the insole much stiffer than the remaining portion when the solution dries. The stiffening solution has a tendency to cause the reduced channel flap forwardly of the tip line to lie flat against the margin of the insole and to resist being forced out of this flat position.

Various materials may be used for stiffening the toe portion of the insole such, for example, as glue or pyroxylin cement. It has been found in practice that a solution of shellac, alcohol and acetone in the right proportions is also very satisfactory for this purpose and will penetrate the material of the insole in the desired manner.

Fig. 2 illustrates in section how the toe portion of the insole will appear after the stiffening solution has been applied and shows how the channel flap forwardly of the tip line tends to lie flat against the margin or feather portion of the insole. This figure also shows how the stiffening solution, indicated by stippling, penetrates substantially the full thickness of the insole.

The insole 10 is now mounted on a last 24 (Fig. 3) and a multi-ply shoe upper comprising an outer layer 25 of leather, a doubler 26 (Fig. 4) and a lining 27 is assembled thereon, the marginal portions of the insole and the several layers of the upper having first been treated with cement 29 (Fig. 5) such, for example, as rubber cement or latex. Before the upper is pulled over the last a usual box toe 31, preferably of "Celastic", is inserted between the lining and the doubler at the toe portion of the shoe, the box toe being in a softened or "mulled" condition and extending rearwardly substantially to the tip line 18.

The opposite portions of the upper at the sides of the shoe are wiped over the feather portions 12 of the insole and are secured to the ribs 14 to hold the upper in lasted position while the cement at its margins is setting to secure the upper permanently to the margin of the insole. The upper is preferably secured to the ribs 14 by staples 28, as shown in Figs. 3 and 5, and the lasting operation at the sides of the shoe may be conveniently performed with the aid of a staple lasting machine of the type disposed in United States Letters Patent No. 1,796,451, granted March 17, 1931, on an application filed in the name of George Goddu.

At the toe end of the shoe, forwardly of the tip line 18, the upper materials may be lasted in the following manner. The inner portions of the lining 27 and the box toe 31 may be trimmed off, for example, by hand so that the remaining portions of these layers will occupy the space formed at the reduced margin of the insole outside the flat channel flap. The outer layers of the upper, that is, the doubler and leather outer layer which have previously had cement applied to their inner sides, as indicated above, may be wiped in over the reduced feather portion 12 and over the flat channel flap 14 with the aid of the usual bed lasting machine. Temporary tacks 30 may then be driven through the inner overlapped portions of the outer layers of the upper and the flat channel flap and into the body portion of the insole, thereby holding the upper in lasted position while the cement is setting.

The heel portion of the upper may be lasted in the usual manner on the bed lasting machine and the marginal portion of the upper may be permanently secured in lasted position by tacks 32 which are clinched against the metal heel plate on the last bottom. The shoe is permitted to remain in this condition for a time sufficient to permit the cement forwardly of the heel breast line to set thoroughly and thus to hold the upper materials permanently in lasted relation to the insole.

After the cement has set the upstanding portions of the upper and lip at the opposite sides of the shoe from the heel breast line to the tip line are trimmed off as close as practicable to the outer surface of the overlaping portion of the upper, as shown in Fig. 6, thereby removing the excess portions of the lip and upper from the shoe bottom together with the staples 28 which unite these portions. At the shank portion of the shoe, that is, from the break or ball line 17

rearwardly to the heel breast line the trimming may, if desired, be done slightly above the staples so that they will remain permanently in the shank portion of the shoe to increase its strength, the portions of the lip and upper remaining on the shoe bottom after the trimming operation forming a space in which a usual shank stiffener is ordinarily located.

At the toe portion of the shoe, forwardly of the tip line 18, the temporary tacks 30 are withdrawn and the inner portion of the overlapped margin of the upper which overlies the flat channel flap 14 may be buffed off or ground away sufficiently to remove the creases and wrinkles formed in the outer layers of the upper materials when they are gathered in around the toe end of the shoe after which the upper may be further leveled if necessary by a usual pounding operation, thereby producing a substantially flat surface on the shoe bottom forwardly of the tip line for receiving an outsole.

The outsole 34 may now be attached, as shown in Fig. 7, by cement 36 such as pyroxylin or other suitable cement in a sole attaching press of any conventional type or, if desired, the shoe may be delasted after the outsole has been laid and the outsole attached by through-and-through stitches which may be covered inside the shoe by the usual sock lining.

A shoe made in accordance with the method disclosed herein will have the required flexibility at that portion of the shoe where flexibility is most desired, namely, from the tip line to the ball line since the stiffening solution does not extend rearwardly beyond the tip line. Moreover, the shoe will be economical to make since the construction of the insole, as herein disclosed, involves no substantial departure from the usual stock fitting operations now practiced in providing channeled insoles for use in shoes which have their uppers temporarily secured to ribs while the cement which holds the upper permanently in lasted relation to the insole is setting.

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

1. That improvement in methods of making insoles which comprises channeling the marginal portion of an insole rearwardly to the heel breast line to form a channel flap, severing the channel flap at the tip line of the insole, and turning up the flap from the heel breast line to the tip line only to form a lasting rib.

2. That improvement in methods of making insoles which comprises channeling an insole around its marginal portion to form a channel flap, severing the flap at the tip line, of the insole, turning up the flap rearwardly of said tip line to form a lasting rib, and laying the flap forwardly of the tip line flat against the body of the insole.

3. That improvement in methods of making insoles which comprises channeling inwardly from the edge face of an insole to form a channel flap around its marginal portion, severing said flap transversely at the tip line of the insole, turning up the flap rearwardly of said tip line to form a lasting rib, and stiffening the flap forwardly of the tip line to cause it to lie flat against the body of the insole.

4. That improvement in methods of making insoles which comprises channeling inwardly from the edge face of an insole rearwardly to the heel breast line to form a channel flap, severing the opposite portions of the flap transversely at the

tip line of the insole, turning up the flap from the heel breast line to the tip line to form an integral lasting rib, and stiffening the insole forwardly of the tip line with a stiffening substance thereby causing such portion to lie flat.

5. That improvement in methods of making insoles which comprises channeling inwardly from the edge face of an insole to form channel flaps at opposite sides thereof, severing said flaps transversely at the heel breast line and at the tip line to permit them to be bent away from the body of the insole, turning up said flaps to form lasting ribs, and impregnating the material of the insole forwardly of said tip line with a stiffening solution thereby rendering said portion relatively inflexible.

6. That improvement in methods of making insoles which comprises channeling the marginal portion of a relatively flexible insole inwardly from its edge face throughout the shank and forepart thereof to form a channel flap and reducing the width of said flap, cutting the channel flap transversely at opposite sides of the tip line of the insole thereby separating the toe portion of the flap from its rear portion, turning up the rear portion of said flap to form a reduced feather and a lasting rib on the insole, and saturating the toe portion of the insole substantially to the tip line with a stiffening solution thereby stiffening said portion and causing the channel flap thereon to remain flat and lie permanently against the body portion of the insole.

7. An insole comprising a relatively flexible member having a lasting rib integral with its shank and forepart, said rib terminating at the tip line of the insole, the portion of the insole forwardly of the tip line being substantially flat and being stiffer than the remaining portion of the insole.

8. An insole having a channel at its marginal portion the flap of which from the heel breast line to the tip line of the insole forms a lasting rib, said channel flap lying flat against the marginal portion of the insole forwardly of said tip line.

9. An insole comprising a relatively flexible member having an outside channel at its marginal portion, the flap of said channel forming an integral lasting rib extending from the heel breast line of the insole to the tip line, and the channel flap forwardly of said tip line providing a flat surface against which a shoe upper can be secured in lasted position.

10. An insole comprising a relatively flexible member having a reduced feather portion of substantial width extending from its heel breast line to its tip line and having an integral lasting rib at the inner edge of said feather portion, the material of the insole forwardly of said tip line being stiffer than the rest of the insole and having a reduced feather portion which is narrower than said first-named feather portion, the surface of the insole inwardly of said narrow feather portion being substantially flat.

11. An insole comprising a relatively flexible member having a channel around its marginal portion, an integral lasting rib formed by the flap of said channel and extending from the heel breast line to the tip line of the insole, transverse cuts through the channel flap at said tip line separating the flap forwardly of the tip line from the flap rearwardly thereof, and a stiffening solution impregnating the body portion of the insole forwardly of said tip line, thereby causing

the channel flap at such portion to lie flat against the body portion of the insole.

12. That improvement in methods of making shoes which comprises providing an insole having at its marginal portion a channel flap which is severed transversely at opposite sides of the tip line of the insole and turned up rearwardly of said tip line to form a lasting rib, the flap forwardly of the tip line being located flat against the marginal portion of the insole, applying cement for securing a shoe upper in lasted relation to the insole, securing the upper rearwardly of the tip line to the rib to hold the upper in lasted position while the cement is setting, and wiping the upper forwardly of the tip line over the marginal portion of the insole and the flat channel flap and holding it temporarily in lasted position while the cement is setting.

13. That improvement in methods of making shoes which comprises providing an insole having a channel extending inwardly from the edge face thereof and forming channel flaps at opposite sides of the insole, the flaps having transverse cuts at the tip line and heel breast line and extending upwardly between said cuts to provide lasting ribs, applying cement for securing a shoe upper in lasted relation to the insole, working the upper adjacent to said ribs over the margins of the insole and securing it to said ribs to hold it in lasted position while the cement is setting, and working the upper forwardly of the tip line over the marginal portion of the insole and securing it thereto by fastenings to hold it in lasted position while the cement at such portion is setting.

14. That improvement in methods of making shoes which consists in providing a relatively flexible insole having a channel in its edge face forming a reduced feather portion and a channel flap, said channel flap being of less width than the channel and being cut transversely at the tip line of the insole and rearwardly of said tip line extending upwardly to form a lasting rib, the flap forwardly of said tip line having a stiffening solution thereon and lying flat against the body portion of the insole so that the width of said feather portion is reduced, applying cement to the feather portion of the insole and to a multi-ply shoe upper, securing the upper rearwardly of the tip line to the rib to hold it in lasted position while the cement is setting, trimming the inner plies of the upper forwardly of said tip line so that they will overlie only the reduced feather portion of the insole, wiping the upper forwardly of the tip line over the reduced feather portion and wiping the outer plies thereof over the flat channel flap, and securing said outer plies in lasted position against said channel flap while the cement is setting to hold the upper permanently in lasted position.

15. That improvement in methods of making shoes which consists in providing an insole having a recess at the margin of its toe portion forming a reduced feather, assembling the insole and a multi-ply upper upon a last, trimming away portions of inner layers of the upper materials which extend above the insole to a width substantially equal to the width of the feather, providing cement to hold the upper materials in lasted relation to the insole, and working the remaining outer layers of the upper materials into lasted position so that the trimmed layers will engage the feather and the remaining layers will engage the unreduced portion of the insole inside the feather.

16. That improvement in methods of making

shoes which consists in providing an insole having a recess at the margin of its toe portion forming a reduced feather, assembling the insole and a multi-ply upper upon a last, said upper comprising an outer layer, a doubler, a toe box and a lining, trimming away the portion of the lining and box which extends above the insole to a width equal to or less than the width of the feather, providing cement to hold the upper materials in lasted relation to the insole, and working the upper materials into lasted position so that the trimmed layers will engage the feather and the remaining layers will engage the unreduced portion of the insole inside the feather.

17. That improvement in methods of making shoes which consists in providing an insole having a channel at its margin forming a relatively wide feather and a channel flap, its flap being severed transversely at the tip line of the insole and turned back rearwardly thereof to form lasting ribs, and the flap forwardly of the tip line lying flat against the body of the insole thereby reducing the width of said feather, assembling the insole on a last with a shoe upper comprising an outer layer, a doubler, a box toe and a lining, trimming away the toe portion of the lining and the box toe to overlap only the narrow portion of the feather, applying cement to the insole and upper for holding the upper in lasted relation to the insole, securing the side portions of the upper to said ribs to hold them in lasted relation to the insole while the cement is setting, and working the upper materials at the toe portion of the shoe into lasted position, thereby causing the lining and box toe to overlie the narrow portion of the feather and causing the doubler and outer layer to lie flat over the channel flap inwardly of said feather.

18. That improvement in methods of making shoes which consists in providing an insole having a recess at the margin of its toe portion forming a feather portion of reduced thickness, assembling the insole and a multi-ply shoe upper upon a last, trimming away the portions of the inner layers of the upper which extend above the insole to a width equal to or less than the width of the reduced feather, applying cement to hold the upper materials in lasted relation to the insole, working the upper materials into lasted position so that the inner trimmed layers will engage only the feather and the outer layers will engage the unreduced portion of the insole inwardly of the feather, securing said layers in such position while the cement is setting, and grinding away the wrinkles formed where said outer layers are gathered together around the toe end of the shoe.

19. That improvement in methods of making shoes which comprises providing an insole having a channel at its margin forming a reduced feather and a channel flap of about half the width of said feather, said channel flap being severed transversely at opposite sides of the tip line of the insole and projecting upwardly rearwardly of said tip line to provide lasting ribs, the material of the insole forwardly of said tip line being impregnated with a stiffening solution thereby stiffening the toe portion of the insole and causing the channel flap thereon to lie flat against said feather to reduce its width, assembling the insole with a multi-ply shoe upper on a last, applying cement to the marginal portions of the upper and to the feather of the insole, securing the marginal portions of the upper rearwardly of the tip line to the ribs with staples to

hold them in lasted relation to the insole while the cement is setting, trimming the inner plies of the upper forwardly of the tip line so that they will overlie only the reduced feather, there-
5 by filling in the space between said feather and the outer surface of the flat channel flap, work-

ing the upper over said reduced feather and wiping the outer plies over said flat channel flap, and securing said outer plies to said flap with tacks to hold the upper in lasted relation to the insole while the cement is setting.

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