April 19, 1949. J. S. KAMBORIAN 2,467,386

FORCE-LASTED SHOE WITH END STIFFENER AND METHOD OF MAKING SAME

Filed June 5, 1945 2 Sheets-Sheet 1

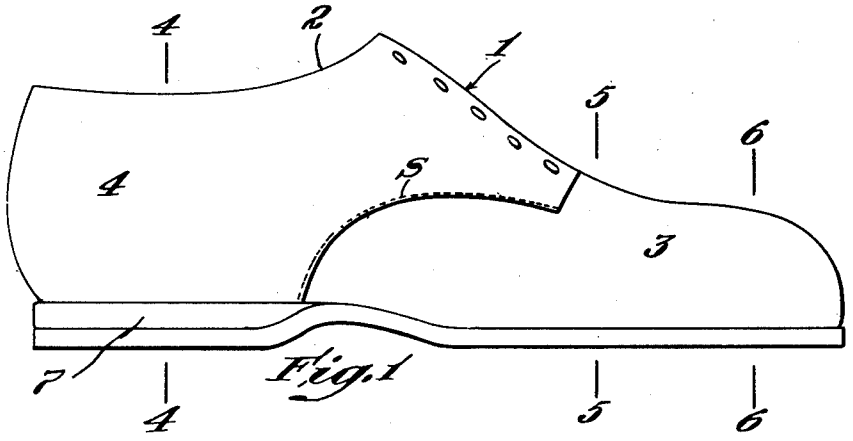

Fig. 1

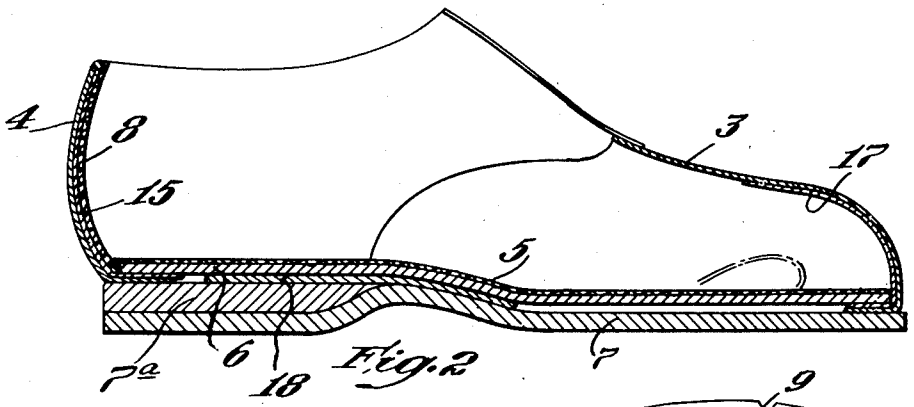

Fig. 2

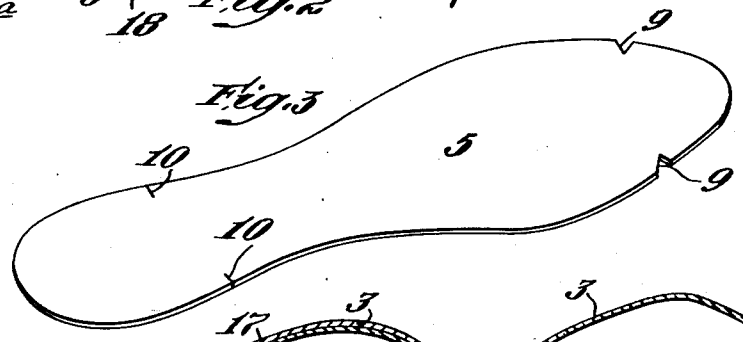

Fig. 3

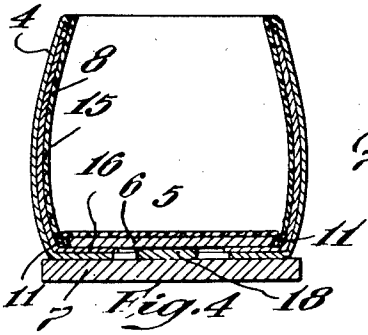

Fig. 4

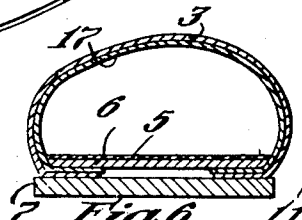

Fig. 6

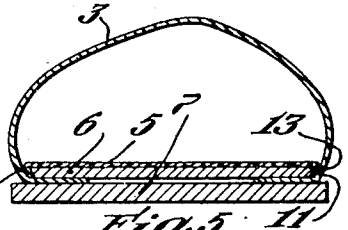

Fig. 5

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April 19, 1949. J. S. KAMBORIAN 2,467,386

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Filed June 5, 1945 2 Sheets-Sheet 2

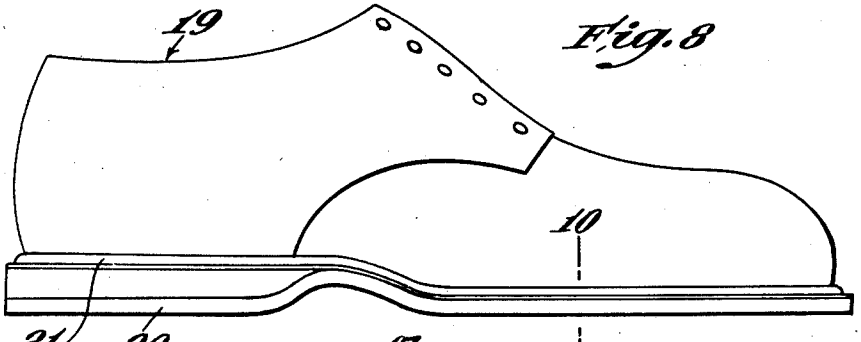

Fig. 8

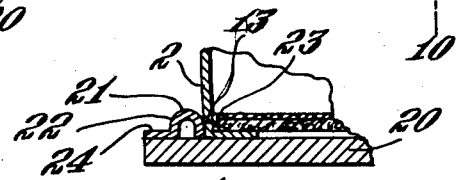

Fig. 10

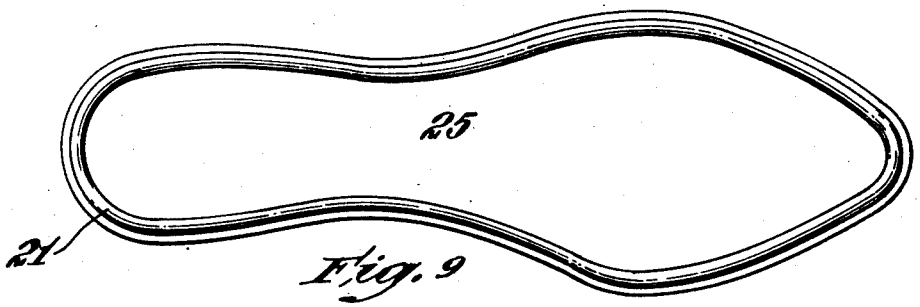

Fig. 9

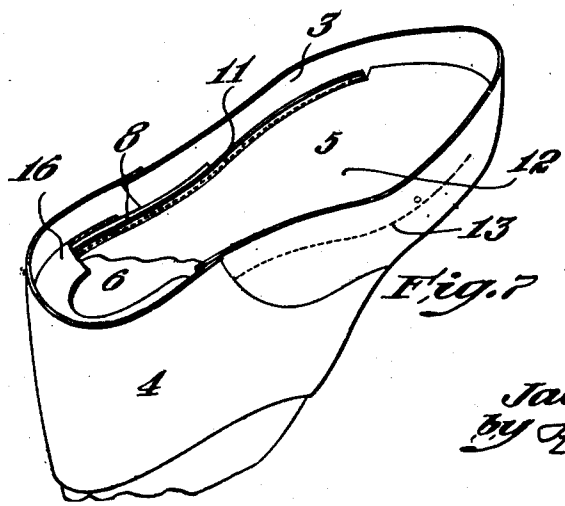

Fig. 7

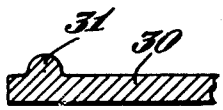

Fig. 11

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UNITED STATES PATENT OFFICE

2,467,386

FORCE-LASTED SHOE WITH END STIFFENER AND METHOD OF MAKING SAME

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Application June 5, 1945, Serial No. 597,606

17 Claims. (Cl. 36—19.5)

1

This invention relates to an improvement in footwear and in the method of making footwear and more particularly to an improvement in shoes and the method of making shoes, which shoes can be made quickly and easily by force-lasting the assembled upper and sock lining, securing a midsole to the sock lining, wiping in and cementing the lasting margin of the upper to the midsole and cementing an outsole to the midsole and to the wiped-in lasting margin. The present invention represents a further development of the invention disclosed in the copending United States application of Kamborian, Serial No. 527,101 filed March 18, 1944, Patent No. 2,450,666 granted October 5, 1948.

One feature of this invention resides in the fact that the sock lining of the shoe is attached at the heel to the lining of the quarter of the upper, is free at the toe from the vamp of the upper but is secured by stitches to the vamp rearwardly of the free toe portion.

Another feature of the shoe resides in the fact that the heel is provided with a counter inserted between the lining and outer ply of the quarter, such counter preferably being provided with a flange in the form of a horseshoe bonded to a midsole over the joinder of the quarter lining and the sock lining, thereby defining a recess in which the heel of the wearer is received.

Still another feature of the shoe resides in the fact that the sock lining, not being attached to the upper at the toe of the shoe, thereby affords easy access to the inner face of the upper to facilitate the application of a toe box or other stiffener after the upper and sock lining have been assembled.

Further features of this invention reside in the fact that the shoe may be provided with a storm welt by which the appearance of the shoe is improved, and in the method of making the shoe.

These and other features will be pointed out in detail in the following description of this invention as embodied in shoes selected as two embodiments of the invention and illustrated in the accompanying drawings in which:

Fig. 1 is a view in elevation of a shoe representing one embodiment of this invention;

Fig. 2 is a longitudinal section of the shoe shown in Fig. 1;

Fig. 3 is a plan view of a sock lining formed for the shoe shown in Fig. 1;

Figs. 4, 5 and 6 are sectional views taken along the section lines 4—4, 5—5 and 6—6 on Fig. 1, the thickness of some of the elements and the spaces between the elements being exaggerated for the purpose of clarity;

2

Fig. 7 is a perspective view of the shoe in the inverted position after the last has been introduced and before the lasting margin of the upper has been lasted, the heel portion only of the midsole being shown;

Fig. 8 is a view, similar to Fig. 1, of a shoe representing a second embodiment of the invention;

Fig. 9 is a plan view of the outsole of such shoe in condition for assembly with the other parts of the shoe;

Fig. 10 is an enlarged cross-sectional view taken along the line 10—10 of Fig. 8; and

Fig. 11 is a fragmentary section illustrating an outsole of further modified type.

The shoe 1 comprises an upper 2 which consists of a vamp 3 and a quarter 4, a sock lining 5, a midsole 6 and an outsole 7. The vamp 3 in the illustrated embodiment is not lined while the quarter 4 is provided with a lining 8. A lining for the vamp also may be provided if desired without departing from the spirit and scope of this invention.

The sock lining 5 is provided at each side with two severings in the margin such severings being shown in the drawings and referred to herein as notches 9 at opposite sides of the forepart and slits 10 adjacent the breast line of the heel. The upper 2 and the sock lining 5 are assembled by the use of stitches, mechanical fasteners or the like which attach the heel portion of the sock lining, between the slits 10, to the lower edge of the lining 8 of the quarter 4, and the portions of the sock lining, between the notch 9 and the slit 10 at each side, to the lower edge of the lining 8 of the quarter and the lower edge of the vamp 3. This assembly follows in general the usual practice followed in the manufacture of that type of shoes known in the trade as "California," "force-lasted" or "slip-lasted," and results in a unit into which a last is forced.

The introduction of the last into the unit i. e. force lasting, places the upper and the area of the sock lining joined thereto under tension.

The upper 2 is "vamped"—i. e. the rear edge of the vamp is secured to the forward edge of the quarter between the lining and outer ply thereof by one or more rows of stitches S—either before the sock lining is attached thereto, or after the sock lining has been attached to the lining of the quarter and before the sock lining is attached to the vamp.

As shown in Fig. 7, the portions of the margin

of the sock lining that are attached to the vamp 3 and the lining 8 extend downwardly and in combination with the lower surface of the vamp and quarter lining form a marginal downwardly directed multi-ply rib 11 which resembles in location and structure the so-called "inseam" of a Goodyear welt shoe, and which herein for convenience in description is referred to as an inseam, but without any implication that the shoe herein disclosed is a Goodyear welt shoe or that the rib 11 necessarily comprises stitches as the means for uniting its constituent plies. This rib or inseam 11 together with the unattached lower edge of the vamp at the toe defines a shallow cavity 12. The lining 8 terminates at the edge of the sock lining but the lower marginal portion of the vamp 3 extends beyond that edge to form a lasting allowance. The stitches 13 attaching the vamp 3 to the sock lining are visible at the sides of the shoe.

After force lasting the upper and insole unit, the midsole 6 is secured to the sock lining within the chamber 12, preferably by bonding it to the under surface of the sock lining by a suitable adhesive. The midsole 6, which is of a soft, resilient material such as cork, felt, or fiber, is of such dimensions that it will substantially fill the chamber 12, with its under surface in the plane of the edge of the inseam or rib 11. While the midsole is preferably cut from sheet material it is contemplated that it may be of other types of material, as for example moldable plastic materials which are placed in the chamber 12 and levelled off to provide a flat bottom in the plane mentioned above.

The vamp 3 and the quarter 4 comprise lasting margins that are wiped in over the inseam or rib 11 against the bottom surface of the midsole 6 and secured thereto preferably by suitable adhesive. The outsole 7 is thereafter laid onto the under surface of the midsole 6 and the outer surface of the wiped-in lasting margins and secured thereto in any desired manner preferably being adhesively bonded thereto.

If the shoe is to be provided with a counter 15, that element is inserted between the quarter 4 and the lining 8 thereof, either before or after the upper and sock lining has been force-lasted. In the embodiments illustrated in the drawings, a counter 15 having an integral flange 16 is inserted after the unit has been force lasted. The counter has been preformed, and when inserted, the flange 16 extends over that portion of the inseam or rib 11 bounded by the slots 10 and is adhesively bonded to the midsole 6. The flange 16 is in the shape of a horseshoe so that the center of the sock lining and midsole at the heel is unsupported and in consequence the weight of the wearer will depress and form a recess which receives the heel of the wearer.

A stiffener at the toe may be provided after the sock lining and upper unit has been made and before the midsole 6 has been applied and the last has been introduced. The free toe of the sock lining is turned back to provide an opening through which access may be had to the inner surface of the toe of the upper, see Fig. 2, and the toe box 17, inserted through the opening thus provided, is adhesively affixed to the inner surface of the toe of the upper. Before the last is inserted, the toe portion of the sock lining is restored to its original position, and after lasting becomes adhesively united to the midsole 6.

If, in accordance with the usual practice, the toe box is of moldable, plastic or thermoplastic material, the last, when introduced into the unit, will mold the toe box into conformity with the toe of the shoe and by the time the shoe has been completed and the last removed the toe box will have set. The toe box material may be activated by the application of heat, for example, by subjecting the shoe to the influence of ultra red rays. This invention thus renders unnecessary the procedure of affixing the toe box to the vamp before assembly as disclosed in the copending application and permits the application of the toe box after the upper and sock lining have been assembled. A heel wedge 7a may be assembled with the midsole before the outsole is applied.

The procedure of providing stiffeners outlined in the copending Kamborian application Serial No. 561,282, filed October 31, 1944, now Patent No. 2,414,104 may be employed if desired. A shank stiffener 18 of any well-known type may be provided between the midsole 6 and the outsole 7.

The shoe 19, shown in Fig. 8 as a second embodiment, differs from that described above solely in that the outside 20 thereof is over-sized and is provided with a storm welt 21. The storm welt 21 is of a textile fabric, leather, plastic or other resilient material and is of the cross sectional contour shown in Fig. 10, having an outer wall 22 and an inner wall 23 normally spaced apart. The outer wall 22 is secured in any suitable manner to the outsole 20 along its edge before the latter is incorporated in the shoe. As shown in this figure the outer wall 22 includes a flange 24 which rests upon the upper surface of the outsole and is bonded thereto as by the use of stitching, mechanical fasteners or adhesive. The strip 21 thus forms a continuous wall, enclosing a central area 25 which receives the under surface of the midsole 6 in the finished shoe.

After the upper, sock lining and midsole have been assembled as described above, the assembly is disposed upon the central area 25 of the upper surface of the outsole and adhesively secured thereto. The strip 21 is so mounted that the edges of the assembly will bear against the inner wall 23 and urge it outwardly a greater or lesser distance toward the outer wall 22. Thus a close contact is insured between the storm welt 21 and the outer surface of the upper 2, (see Fig. 10), and the stitches 13, otherwise visible at the vamp, will be concealed. Preferably the outer surface of the upper which contacts with the strip is roughened, through abrading or otherwise, and provided with adhesive by which the inner wall is secured to the upper. The contact of the upper with the strip 21, as the outsole and assembly are joined, is directed downwardly and outwardly upon the inner wall 23 so that the latter is pressed downwardly against the surface of the outsole as well as outwardly toward the outer wall 23. The strip 21 in the finished shoe is thereby bonded to the upper and any danger of separation therefrom is eliminated. In place of a separate storm welt, a moulded outsole 30 having an integral wall 31 may be provided. (See Fig. 11).

While this invention has been described with respect to the making of children's shoes it will be understood that it is not limited to such shoes but may be employed in the manufacture of shoes of any desired size and of other types without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A shoe of the class described including an upper, comprising a vamp and a lined quarter, a sock lining permanently attached to the lining of the quarter and to the vamp except at the toe of the shoe, the toe portion of the sock lining being unattached to the vamp, the attached margin of the sock lining forming a rib with the lining of the quarter and the vamp, which rib defines, with the remainder of the sock lining and the vamp at the toe of the shoe, a chamber, and a midsole seated in said chamber and secured to the sock lining, the bottom of which midsole is in the plane of the edge of the rib, the quarter and vamp comprising lasting margins which are wiped in over the edge of the rib and bonded to the bottom surface of the midsole.

2. A shoe of the class described including an upper, comprising a vamp and a lined quarter, a sock lining permanently attached to the lining of the quarter and to the vamp except at the toe of the shoe, the toe portion of the sock lining being unattached to the vamp, the attached margin of the sock lining forming a rib with the lining of the quarter and the vamp, which rib defines, with the remainder of the sock lining and the vamp at the toe of the shoe, a chamber, a midsole seated in said chamber and secured to the sock lining, the bottom of which midsole is in the plane of the edge of the rib, the quarter and vamp comprising lasting margins which are wiped in over the edge of the rib and bonded to the bottom surface of the midsole, an outsole laid onto and secured to the bottom surface of the midsole and to the outer surfaces of the wiped-in lasting margins, and a storm welt secured to the outsole in close contact with the quarter and vamp of the upper.

3. A shoe of the class described including an upper comprising a vamp and a lined quarter, and a sock lining permanently attached at its margin to the lining of the quarter and to the vamp except at the toe of the shoe, that portion of the sock lining being unattached to the vamp, the attached margin of the sock lining forming a rib with the lining of the quarter and the vamp, and a midsole secured to the sock lining within said rib, the vamp and quarter comprising lasting margins which are wiped in over the rib and bonded to the bottom surface of the midsole.

4. A shoe of the class described including an upper comprising a vamp and a lined quarter, and a sock lining permanently attached at its margin to the lining of the quarter and to the vamp except at the toe of the shoe, that portion of the sock lining being unattached to the vamp, the attached margin of the sock lining forming a rib with the lining of the quarter and the vamp, a midsole secured to the sock lining within said rib, the vamp and quarter comprising lasting margins which are wiped in over the rib and bonded to the bottom surface of the midsole, and an outsole bonded to the bottom surface of the midsole and to the outer surfaces of said wiped-in lasting margins, said outsole being provided with a storm welt which encloses the upper of the shoe.

5. In a shoe of the class described, a sock lining provided at each side with two spaced severings in the margin thereof, a lined quarter and a vamp, the margin of the sock lining at each side, between said severings, being attached to said vamp by a sewed seam spaced from the lower edge of the vamp, the vamp below said seam constituting a lasting allowance, and the margin of the sock lining around the heel between the rear severings on each side being attached only to the lining of the quarter, the lasting allowance of the vamp underlying the sock lining.

6. In a shoe of the class described, a sock lining provided at each side with two spaced severings in the margin thereof, a lined quarter and a vamp, the margin of the sock lining, at each side, between said severings being attached to said vamp, by a sewed seam spaced from the lower edge of the vamp, the margin of the vamp below said seam constituting a lasting allowance, and the margin of the sock lining around the heel between the rear severings on each side being attached to the lining only of the quarter, said attached margin, vamp and quarter forming a rib, the lasting allowance of the vamp underlying the rib, the toe end of the sock lining between the forward severings being free from the vamp.

7. In a shoe of the class described, a sock lining provided at each side with two spaced severings in the margin thereof, a lined quarter and an unlined vamp, the margin of the sock lining at each side, between said severings, being attached to said vamp by a sewed seam spaced from the lower edge of the vamp, the margin of the vamp below said seam constituting a lasting allowance, and the margin of the sock lining around the heel, between the rear severings on each side, being attached to the lining only of the quarter, said attached margin, vamp and quarter forming a rib, which extend downwardly from the remainder of the sock lining, the lasting allowance of the vamp underlying the sock lining, the sock lining, between the forward severings, being free from the vamp.

8. In a shoe of the class described, a sock lining provided at each side with two spaced severings in the margin thereof, a lined quarter and a vamp, the margin of the sock lining at each side between said severings, being attached to said vamp by a sewed seam spaced from the lower edge of the vamp, the margin of the vamp below said seam constituting a lasting allowance, and the margin of the sock lining around the heel, between the rear severings on each side, being attached to the lining only of the quarter, said attached margin, vamp and quarter forming a rib which extends downwardly from the remainder of the sock lining, the sock lining, between the forward severings, being free from the vamp, and define a chamber, and a midsole seated in said chamber and secured to the sock lining, the lasting allowance of the vamp underlying and being united to said mid-sole.

9. In a shoe of the class described, an upper comprising a vamp and a lined quarter, a sock lining attached at its margin to the vamp and to the lining of the quarter to form therewith a rib, a midsole secured to said sock lining within said rib, the vamp comprising a lasting allowance underlying said rib and united to the under side of the mid-sole, and a counter inserted between the lining and outer ply of the quarter, said counter having an integral flange which extends over the rib and bears against the bottom surface of the midsole, said flange being in the shape of a horseshoe to permit the weight of the wearer to depress the portion of the midsole within the flange and form a heel receiving recess thereby.

10. That method of making a shoe of the class described which comprises the following steps, providing an upper having a vamp and a lined quarter, providing a sock lining, attaching the margin of the sock lining to the vamp, except at the toe thereof, and to the lining of the quarter

thereby forming a downwardly extending rib, introducing a last to tension the upper and sock lining, securing a midsole to the bottom surface of the sock lining within said rib, wiping in the lower margins of the vamp and quarter over said rib onto the bottom surface of the midsole and securing said wiped-in margins thereto, and laying an outsole onto the bottom surface of the midsole and the outer surfaces of said wiped-in margins and securing it thereto.

11. That method of making a shoe of the class described which comprises the following steps, providing an upper having a vamp and a lined quarter, providing a sock lining having aligned notches at opposite sides of the forepart and aligned slits at the opposite sides adjacent the breast line of the heel, stitching the lining of the quarter of the upper to the margin of the sock lining around the heel between the slits, stitching the vamp of the upper to the margin of the sock lining between the notch and slit at each side of the sock lining, said stitching forming a downwardly extending rib, introducing a last to tension the upper and sock lining, bonding a midsole to the under surface of the sock lining within such rib, wiping the lower margins of the vamp and quarter in over the rib against the bottom surface of the midsole and bonding them thereto, and bonding an outsole to the under surface of the midsole and the outer surfaces of said wiped-in margins.

12. That method of making a shoe of the class described which comprises the following steps, providing an upper having a vamp and a lined quarter, providing a sock lining having aligned notches at opposite sides of the forepart and aligned slits at the opposite sides adjacent the breast line of the heel, stitching the lining of the quarter of the upper to the margin of the sock lining around the heel between the slits, stitching the vamp of the upper to the margin of the sock lining between the notch and slit at each side of the sock lining, said stitching forming a downwardly extending rib, introducing a last to tension the upper and sock lining, bonding a midsole to the under surface of the sock lining within such rib, wiping or pounding the lower margins of the vamp and quarter in over the rib against the bottom surface of the midsole and bonding said wiped-in margins to the mid-sole, providing an outsole, securing a storm welt upon the upper surface of the outsole around the edge thereof to define a central area, and bonding said central area of the upper surface of the outsole to the under surface of the midsole and the outer surfaces of said wiped-in margins with the storm welt in contact with the outer surface of the shoe upper.

13. That method of making a shoe of the class described which comprises the following steps, providing an upper having a vamp and a lined quarter, providing a sock lining having aligned notches at opposite sides of the forepart and aligned slits at the opposite sides of the sock lining at the forward edge of the heel, stitching the lining of the quarter of the upper to the margin of the sock lining around the heel between the slits, stitching the vamp of the upper to the margin of the sock lining between the notch and slit at each side of the sock lining, said stitching forming a downwardly extending rib introducing a last to tension the upper and sock lining, bonding a midsole to the under surface of the sock lining within such rib, wiping the lower margins of the vamp and quarter in over the rib against the bottom surface of the midsole and bonding

them thereto, providing an outsole, providing a storm welt having spaced inner and outer walls, securing the outer wall of the storm welt to the upper surface of the outsole around the edge thereof, whereby the inner wall of the storm welt defines a central area, and bonding said central area of the upper surface of the outsole to the under surface of the midsole and the outer surfaces of said wiped-in margins, with the inner wall of the storm welt in contact with the outer surface of the shoe upper.

14. That method of making a shoe of the class described which comprises the following steps, providing an upper comprising an unlined vamp, providing a sock lining, stitching the margin of the sock lining to the vamp by a sewed seam spaced from the lower edge of the vamp, except at the toe thereof, displacing the toe of the sock lining to provide an opening which affords access to the inner surface of the toe portion of the vamp, inserting a toe box through such opening and affixing it to the inner surface of the toe portion of the vamp, introducing a last to tension the upper and sock lining and to hold the toe box in contact with the inner surface of the vamp, securing a midsole to the sock lining, wiping the lower margin of the vamp, below the seam which unites the vamp and sock lining, in upon the bottom surface of the midsole, and securing an outsole to the bottom surface of the midsole and the outer surface of the wiped-in margin of the vamp.

15. A shoe of the class described including an upper, a sock lining, an outer sole and filler means interposed between the sock lining and outer sole, the upper comprising a lasting allowance which underlies and which is united to said filler means, and a storm welt bonded to the outer sole and defining a central area of the upper surface of the outersole upon which the filler means rests, said storm welt having an outer wall fixed to the outer sole and an inner wall which is closely engaged by the shoe upper and which is deflected by the upper toward said outer wall of the welt.

16. A shoe of the California type comprising an upper assembly including a vamp and quarter and a bottom element, the vamp and quarter having marginal lasting allowances which underlie said bottom element, and an outer sole having a storm welt bonded thereto to define a central area of the upper surface of the outersole, means uniting the bottom element of the upper assembly to said central area of the outersole, the storm welt comprising an outer wall which is fixed to the outer sole, the welt also including an inner wall, the vamp and quarter of the upper contacting said inner wall, and means bonding the outer surfaces of the vamp and quarter to said inner wall of the welt.

17. A shoe of the class described including an upper, a sock lining, an outer sole, and filler means interposed between the sock lining and outer sole, the upper having a lasting allowance which underlies the filler means, a storm welt bonded to the outer sole and defining a central area of the upper surface of the outersole upon which the filler means rests, adhesive uniting the filler means to said central area of the upper surface of the outersole, the storm welt having an outer wall fixed to the outer sole and an integral inner wall which is contacted by the shoe upper, and means bonding the outer surface of the upper to said inner wall of the welt.

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