

Dec. 18, 1956

A. S. CLARK

2,774,699

RIBBED STRIPS FOR INSOLES, AND METHODS OF MAKING THE SAME

Filed May 14, 1954

2 Sheets-Sheet 1

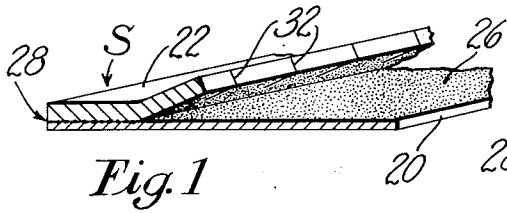


Fig. 1

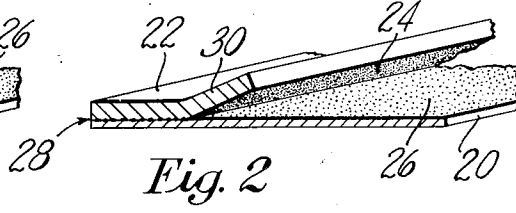


Fig. 2

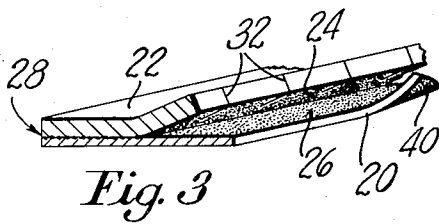


Fig. 3

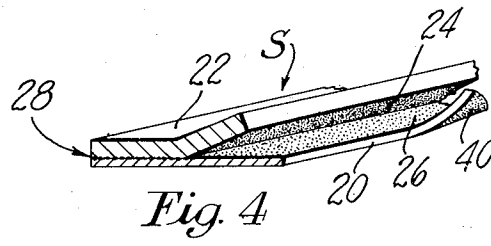


Fig. 4

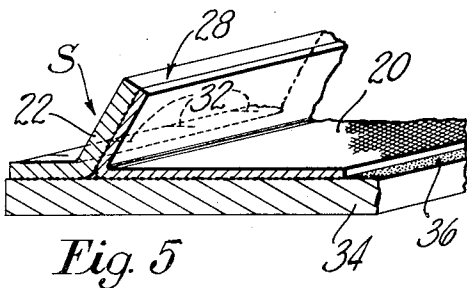


Fig. 5

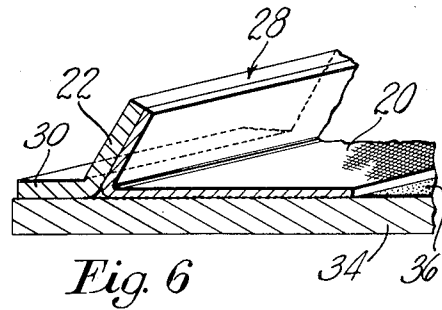


Fig. 6

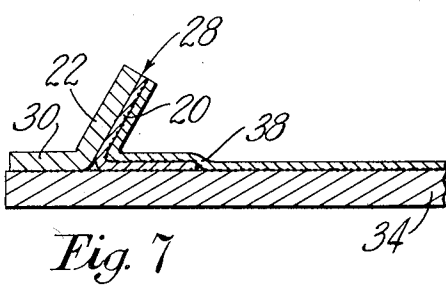


Fig. 7

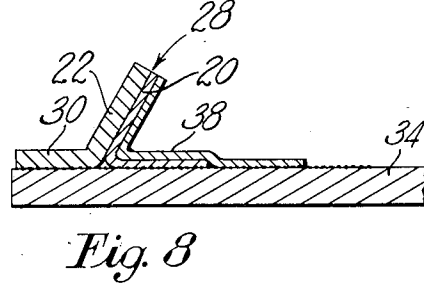


Fig. 8

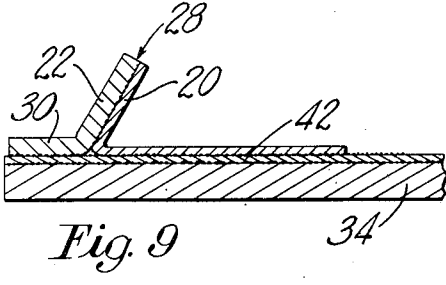


Fig. 9

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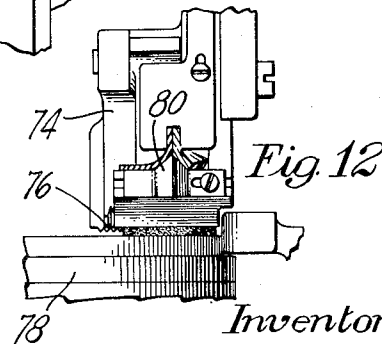
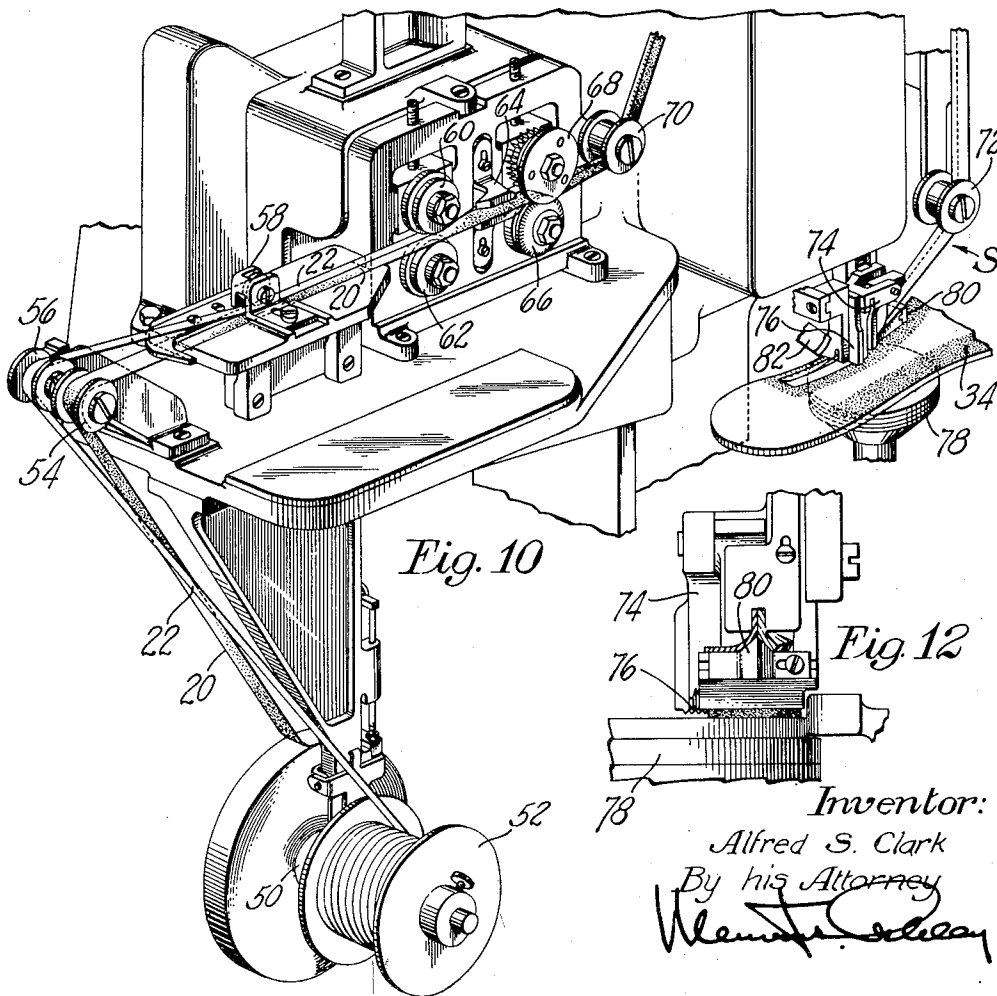
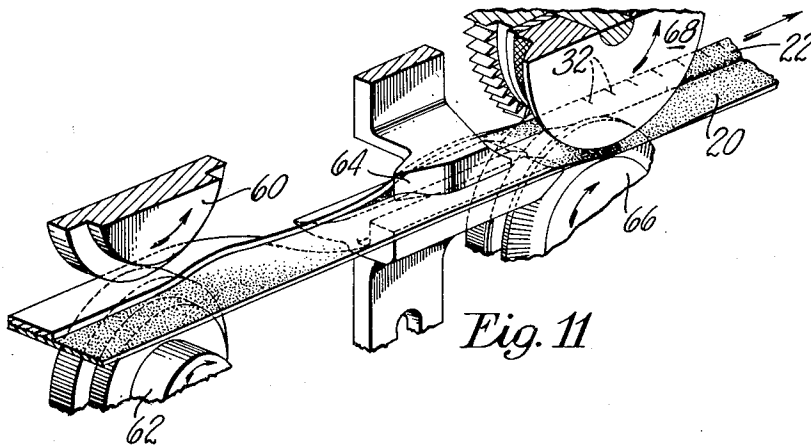
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Filed May 14, 1954

2 Sheets-Sheet 2



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2,774,699

RIBBED STRIPS FOR INSOLES, AND METHODS OF MAKING THE SAME

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Application May 14, 1954, Serial No. 429,926

9 Claims. (Cl. 154—53.6)

This invention relates to ribbed strips suitable for attachment to insoles to form sewing ribs thereon, and to an improved method of making such strips.

In the manufacture of certain types of shoes, increasing use has been made in recent years of insoles provided with lasting or sewing ribs made from separate strips, such insoles being usually made of thin leather or leather substitutes on which it is impractical to form ribs by the conventional method of raising and cementing together the lips of channels cut in the insole body. The ribs are made from one or more strips of material usually folded lengthwise and attached to the insoles by cement or stitches. In order to give the rib the desired rigidity, a core piece is sometimes provided between the folds of the strip or strips from which the rib is made.

A difficulty encountered in the manufacture of shoes with insoles provided with sewing ribs of the type above mentioned is that in the inseaming operation the needle tends to pass under the base of the rib and to lift the core piece, if there is one, and sometimes to lift the ribbed strip itself, away from the insole body. If, in order to overcome this difficulty, the stitching is done along a line located above the base of the rib, there is the possibility that the inseaming will not produce the desired close joint in the finished shoe.

It is, accordingly, an object of the present invention to provide an improved composite ribbed strip which may be manufactured in indefinite lengths and wound on reels for later attachment to insoles to form sewing ribs thereon, and by use of which the inseaming stitches by which an upper, an insole and a welt are joined together may be located at or close to the base of the rib to form a tight joint, without danger that the ribbed strip will be detached from the insole by the needle of the inseaming machine.

It is a further object of the invention to provide an improved method of making such a composite ribbed strip.

In accordance with an important feature of the invention, the composite ribbed strip comprises a strip of fabric and a strip of fibrous material narrower than the fabric strip, the two strips being bonded together throughout a restricted area of their respective widths to form a two-ply rib portion and oppositely extending single-ply attaching flanges. Preferably the strip of fibrous material is provided with a longitudinal crease adjacent to the base of the rib and the flange portion of the same strip is provided with spaced transverse slits, to enable the strip to be attached flat and firmly bonded around the periphery of an insole without producing undesirable pleats or wrinkles.

In its method aspect, the invention comprises providing a strip of fabric coated on at least one side with cement, providing a strip of fibrous material narrower than the fabric strip and also coated on at least one side with cement, and bonding the two strips throughout a restricted area of their respective widths to form a two-ply rib portion and single-ply attaching flanges.

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These and other features and advantages of the invention will be more clearly understood from the following description, in connection with the accompanying drawings, and will be more particularly pointed out in the claims.

In the drawings:

Figs. 1 to 4, inclusive, are sectional plan views, on an enlarged scale, of a composite ribbed strip embodying the invention in one aspect thereof;

Figs. 5 and 6 are sectional perspective views showing the composite strips of Figs. 1 and 2 attached to insoles;

Fig. 7 is a sectional view illustrating the method of making ribbed insoles in accordance with the invention by attaching to an unchanneled insole the composite ribbed strip shown in either Fig. 3 or Fig. 4 and an overall layer of reinforcing materials;

Fig. 8 is a view similar to Fig. 7 but showing an insole provided with a composite ribbed strip and a strip of reinforcing material applied to a marginal portion of the insole and to the inner layer of the composite strip;

Fig. 9 is a sectional view of a modification of the method of making ribbed insoles in which the composite strip illustrated in either Fig. 1 or Fig. 2 is attached to an unchanneled insole provided with a layer of reinforcing material;

Fig. 10 is a view in right-hand side elevation of portions of a machine suitable for making the composite strip according to the invention and attaching it to an insole;

Fig. 11 is a detail perspective view, on an enlarged scale, of parts of the strip forming mechanism of the machine; and

Fig. 12 is a detail front elevation showing means for spreading apart the flange portions of the composite ribbed strip before its attachment to an insole.

Referring to Figs. 1 to 4, inclusive, the composite ribbed strip S according to the invention may be made by providing a strip 20 of fabric, such as canvas or other suitable textile material, and a strip 22 of fibrous material bonded with latex, such as that sold commercially under the trade name "Texon," or other similar material. The strip of fibrous material 22 is narrower than the fabric strip 20, and may be coated on one side with cement, preferably pressure-responsive cement, as indicated at 24. The fabric strip 20 is also coated, at least on one side, with a similar cement, as indicated at 26. The two strips 20, 22 are bonded together by the cement between them throughout a substantial portion of their respective widths to form a two-ply rib portion indicated generally by the numeral 28, leaving a marginal portion 30 of the strip of fibrous material 22 substantially free of the fabric strip 20. When the composite strip S is attached to an insole, the unbonded marginal portion 30 of the strip of fibrous material 22 will form the outer base flange of the ribbed strip, and the unbonded portion of the fabric strip 20 will form the inner base flange. To facilitate the application of the composite strip to an insole, particularly around the toe and in the shank portions of the insole, the unbonded marginal portion 30 of the strip of fibrous material 22 is preferably provided with transverse slits indicated at 32 in Figs. 1 and 3.

The composite ribbed strip S made as just described may be attached to an insole 34 (Figs. 5 to 9 inclusive), of suitable material, by applying to the marginal portions of the insole a layer of cement 36, preferably of the type mentioned above, and pressing the base flange portions of the strips 20, 22 against the cemented portions of the insole in a manner such that the two-ply rib portion 28 forms an upstanding rib and the substantially free marginal portion 30 of the strip 22 extends toward the edge of the insole, while the corresponding free portion of the

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fabric strip 20 extends inwardly of the insole from the base of the rib.

In Figs. 5 and 6 the composite strip is shown attached directly to the body of the insole 34 without any reinforcement. The rib 28 of the composite strip of the present invention will be found to be sufficiently firm to withstand the strains of most normal lasting and inseaming operations without further reinforcement. If, however, it is desired to provide a rib of greater firmness, or if the insole material is of a nature such as to require reinforcement, a layer 38 of fabric, or other suitable material, may be applied to the inner layer 20 of the composite strip and to the entire surface of the insole, as shown in Fig. 7, or to the inner layer 20 of the composite strip and an adjacent portion only of the insole, as illustrated in Fig. 8. In that case the fabric strip 20 will preferably be coated on both sides with pressure-responsive cement, as indicated at 26 and 40 in Figs. 3 and 4, and the reinforcing layer will also be coated on one side with a similar cement, thereby permitting attachment of the reinforcing layer without the necessity of subsequent additional cementing of the upper surface of the fabric layer of the composite strip. When the reinforcing layer is applied after the attachment of the composite ribbed strip, the fabric strip 20 may be narrower (as shown in Figs. 7 and 8) than the strip used when no reinforcing layer is attached later.

When an insole of relatively thin and inexpensive material is used, it may be desirable to apply to it a layer of fabric or other suitable material, as indicated at 42 in Fig. 9, and to attach the composite ribbed strip to the layer of reinforcing material. The reinforcing layer 42 is coated on both sides with cement, preferably pressure-responsive cement, and the attaching face of the fabric strip 20 is similarly coated with cement.

The composite strip of the present invention may conveniently be made and attached to an insole by use of a machine of the type disclosed, for example, in United States Letters Patent No. 2,670,480 granted March 2, 1954, upon an application of mine.

Referring to Figs. 10 to 12, inclusive, which illustrate portions of the above-mentioned machine, the strips 20, 22 are supplied simultaneously from reels 50, 52, respectively, and first pass over guide rolls 54, 56, from which they are moved in substantially flat condition under a guide 58 which causes the strips to be assembled together in superimposed relation, with the strip of fibrous material 22 uppermost and its outer edge substantially flush with the outer edge of the strip of fabric 20. Instead of drawing the strips 20, 22 from separate reels and assembling them together in the machine, the strips may, if desired, be provided in the form of a composite strip of indefinite length in which the strips are assembled with their adhesive faces in contact with each other and one edge of one strip substantially flush with the corresponding edge of the other strip, the composite strip being preferably wound on a reel to be mounted in the machine as needed, in readiness for the subsequent rib forming and other operations. The assembled strips then pass under a first pair of rolls 60, 62, which are so shaped as to apply relatively heavy pressure to restricted widthwise portions of the two strips to bond them firmly together and form the two-ply rib portion 28 of the composite strip, leaving a marginal portion of the strip of fibrous material 22 substantially free of the fabric strip 20. The composite strip is next moved past a plow 64 which turns the unbonded portion of the strip 22 upward away from the strip 20, then passes between a lower feed roll 66 provided with a peripheral groove for receiving the rib portion 28 and an upper, bladed roll 68 which presses the unbonded portions of both strips against the roll 66 to form flanges extending laterally from the base of the rib portion 28 and at the same time cuts the transverse slits 32 in the said unbonded portion of the strip of fibrous material. In pressing the unbonded portion of the strip of fibrous material against the periphery of the roll 66, the roll 68 creases the strip longitudinally along a line adja-

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cent to the base of the two-ply rib portion 28. This creasing of the strip of fibrous material enables the flange portion of the strip to be applied flat against the margin of the insole, so as to be firmly bonded thereto, and permits use of stiffer and thicker fibrous material than would otherwise be possible. The composite strip thus completed is then guided by a roll 70 and other means (not shown) to a guide roll 72, from which it is moved into a guide 74 forming part of the rib attaching mechanism, this mechanism comprising also a presser and feed foot 76 which presses the flange portions of the composite strip S at successive points against the insole 34, supported on a table 78, and feeds the strip and insole in unison. Located in advance of the guide 74 is a plow 80 which separates the flange portions of the strips 20, 22 which may have been caused to adhere lightly to each other after leaving the rolls 66, 68, so they can be pressed flat against the insole body by the presser and feed foot 76. A knife 82, located rearwardly of the presser and feed foot 76, severs the ribbed strip at the heel breast line, at a point substantially in transverse alignment with the end of the strip first attached to the insole.

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 composite strips for attachment to insoles to provide sewing ribs thereon, which comprises the steps of drawing from a source of supply simultaneously a fabric strip coated on at least one side with pressure-responsive cement and a strip of fibrous material narrower than the fabric strip and coated on one side with pressure-responsive cement, assembling the two strips in a manner such that an edge of one strip is substantially flush with the corresponding edge of the other strip, pressing the strips together progressively over a restricted area of their respective widths to form a two-ply rib portion and to leave portions of said strips unbonded and substantially free of each other, turning the unbonded portion of the strip of fibrous material away from the fabric strip, and bending the unbonded portions of both strips outward at substantially right angles to the two-ply rib portion to form oppositely extending flanges for attachment of the composite strip to an insole.

2. That improvement in methods of making composite strips for attachment to insoles to provide sewing ribs thereon, which comprises the steps of drawing from a source of supply simultaneously a fabric strip coated on at least one side with pressure-responsive cement and a strip of fibrous material narrower than the fabric strip and coated on one side with pressure-responsive cement, assembling the two strips in a manner such that an edge of one strip is substantially flush with the corresponding edge of the other strip, pressing the strips together progressively so as to cause a portion of the width of the strip of fibrous material to be bonded to the fabric strip to form a two-ply rib portion and to leave a marginal portion of the strip of fibrous material substantially unbonded, turning the unbonded portion of the strip of fibrous material upward relatively to the fabric strip, progressively bending the unbonded portions of both strips outward at substantially right angles to the two-ply rib portion to form oppositely extending flanges for attachment to an insole, and simultaneously creasing the strip of fibrous material along a line adjacent to the base of the two-ply rib portion and cutting transverse slits in the unbonded marginal portion of said strip of fibrous material.

3. As an article of manufacture, a composite ribbed strip adapted for attachment to an insole to provide a sewing rib thereon, comprising a strip of fabric coated on at least one side with pressure-responsive cement and a strip of fibrous material narrower than the fabric strip and coated on one side with pressure-responsive cement, said strips having their cemented sides bonded together throughout a restricted area of their respective widths and their outer edges substantially flush to form a two-

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ply rib portion, and single-ply flange portions extending laterally from the base of said rib portion.

4. As an article of manufacture, a composite ribbed strip adapted for attachment to an insole to provide a sewing rib thereon, comprising a strip of fabric coated on at least one side with pressure-responsive cement and a strip of fibrous material narrower than the fabric strip and coated on one side with pressure-responsive cement, said strips having their cemented sides bonded together throughout a restricted area of their respective widths and their outer edges substantially flush to form a two-ply rib portion, said strip of fibrous material being provided with a longitudinal crease adjacent to the base of the two-ply rib portion, the unbonded marginal portions of the two strips being adapted to be bent at substantially right angles to said rib portion to provide oppositely extending single-ply attaching flanges.

5. As an article of manufacture, a composite ribbed strip adapted for attachment to insoles to provide sewing ribs thereon, comprising a two-ply rib portion formed by a widthwise portion of a strip of fabric coated on at least one side with pressure-responsive cement and a corresponding portion of a strip of fibrous material narrower than the fabric strip and coated on one side with pressure-responsive cement, said strips having their outer edges substantially flush and being bonded throughout a restricted area of their respective widths, and integral single-ply attaching flanges formed by the unbonded portions of said strips, the strip of fibrous material being provided with a crease extending longitudinally thereof along a line adjacent to the base of the two-ply rib portion, and the flange portion of said strip being provided with spaced transverse slits to facilitate attachment to an insole.

6. That improvement in methods of making composite ribbed strips for attachment to insoles to provide sewing ribs thereon, which comprises the steps of providing a fabric strip coated on at least one side with pressure-responsive cement and a strip of fibrous material narrower than the fabric strip and coated on one side with pressure-responsive cement, assembling said strips in superposed relation with their adhesive faces in contact with each other and an edge of one strip substantially flush with the corresponding edge of the other strip, pressing the strips together progressively over a restricted area of their respective widths to form a two-ply rib portion and to leave portions of said strips unbonded and substantially free of each other, turning the unbonded portion of the strip of fibrous material away from the fabric strip, and bending the unbonded portions of both strips outward at substantially right angles to the two-ply rib portion to form oppositely extending single-ply flanges for attachment of the composite strip to an insole.

7. That improvement in methods of making composite ribbed strips for attachment to insoles to provide sewing ribs thereon, which comprises the steps of providing a fabric strip coated on at least one side with pressure-responsive cement and a strip of fibrous material narrower than the fabric strip and coated on one side with pressure-responsive cement, assembling said strips in superposed relation with their adhesive faces in contact with

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each other and an edge of one strip substantially flush with the corresponding edge of the other strip, pressing the strips together progressively so as to cause a widthwise portion of the strip of fibrous material to be bonded to the fabric strip to form a two-ply rib portion and to leave a marginal portion of the strip of fibrous material substantially unbonded, turning the unbonded portion of the strip of fibrous material upward relatively to the fabric strip, progressively bending the unbonded portions of both strips outward at substantially right angles to the two-ply rib portion to form oppositely extending single-ply flanges for attachment to an insole, and simultaneously creasing the strip of fibrous material along a line adjacent to the base of the two-ply rib portion and cutting transverse slits in the unbonded marginal portion of said strip of fibrous material.

8. As an article of manufacture, a composite ribbed strip for attachment to insoles to provide sewing ribs thereon, comprising a strip of fabric and a strip of fibrous material narrower than said fabric strip, said strip of fibrous material having a portion only of its width adhesively bonded to said fabric strip and one edge substantially flush with an edge of said fabric strip, the adhesively-bonded portions of said strips forming a two-ply rib portion, and single-ply flange portions extending from the base of said rib portion.

9. A composite ribbed strip for attachment to insoles to provide sewing ribs thereon, comprising a strip of fabric and a strip of fibrous material narrower than said fabric strip and having a portion only of its width bonded to said fabric strip to form therewith a two-ply rib portion and single-ply flange portions, said strip of fibrous material being provided on its outer face with a crease extending longitudinally thereof at the base of said rib portion, to enable the flange portion of said strip to be turned outwardly with relation to said ribbed portion during attachment of said ribbed strip to an insole.

References Cited in the file of this patent

UNITED STATES PATENTS

1,227,483	Murphy et al. -----	May 22, 1917
1,895,709	Emerson -----	Jan. 31, 1933
2,070,314	Poole -----	Feb. 9, 1937
2,121,938	Wagner -----	June 28, 1938
2,203,882	Hyman -----	June 1, 1940
2,234,136	Barr -----	Mar. 4, 1941
2,326,119	Bertrand -----	Aug. 10, 1943
2,348,327	Calleo -----	May 9, 1944
2,381,951	Griswald -----	Aug. 14, 1945
2,398,277	Ayers -----	Apr. 9, 1946
2,458,500	Bertrand et al. -----	Jan. 11, 1949
2,498,751	Clark -----	Feb. 28, 1950
2,499,463	Crary -----	Mar. 7, 1950
2,528,718	Bertrand et al. -----	Nov. 7, 1950
2,541,151	Brandt -----	Feb. 13, 1951
2,571,299	Sherbrook -----	Oct. 16, 1951
2,598,296	Pierson -----	May 27, 1952
2,627,079	Ridderstrom -----	Feb. 3, 1953
2,670,480	Clark -----	Mar. 2, 1954