Aug. 30, 1938. A. W. BRADBURY 2,128,282

SHOE

Filed Dec. 14, 1936

Fig. 1.

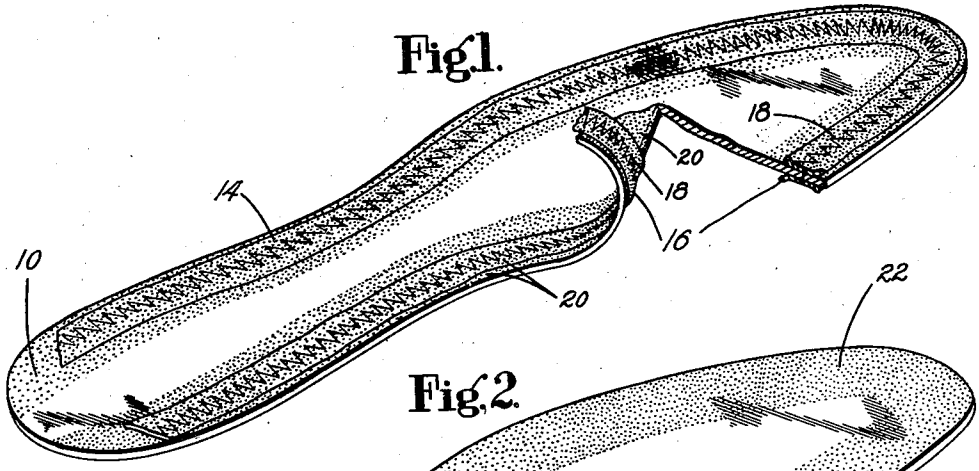


Fig. 2.

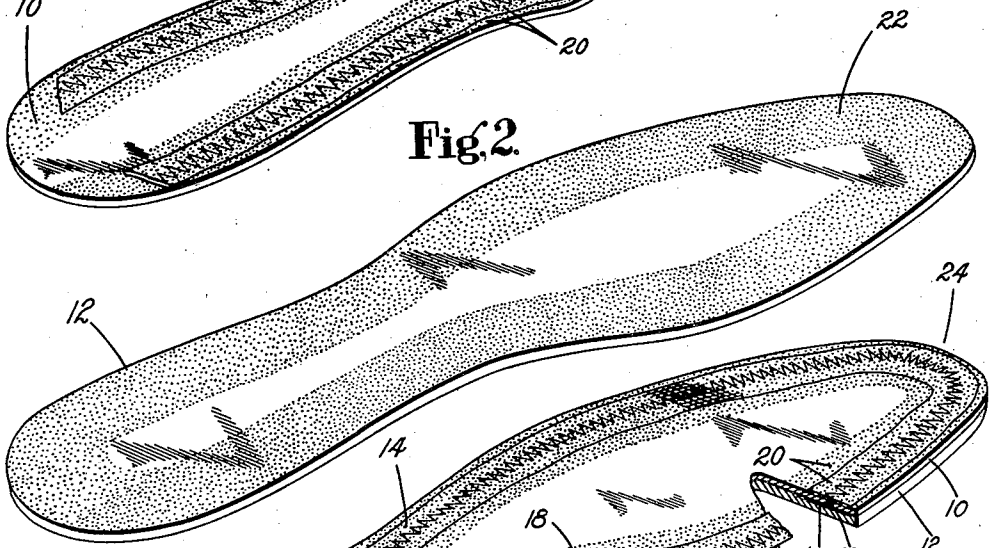


Fig. 3.

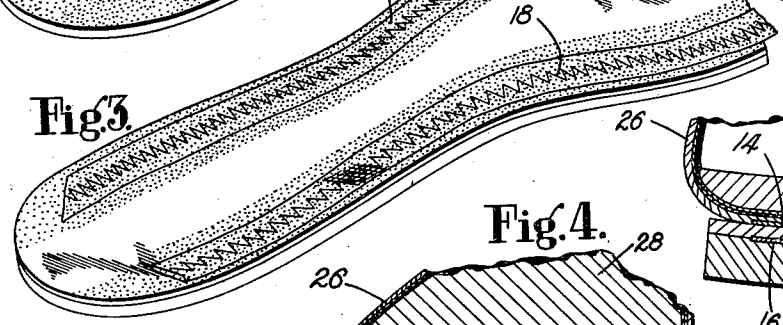


Fig. 5.

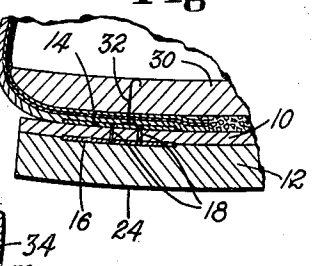
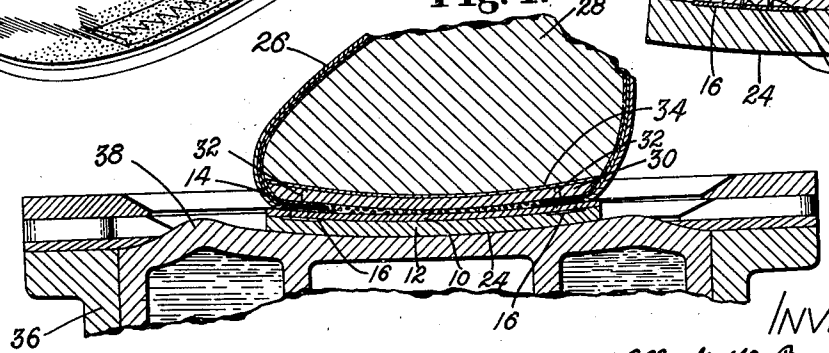


Fig. 4.



INVENTOR

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UNITED STATES PATENT OFFICE

2,128,282

SHOE

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Application December 14, 1936, Serial No. 115,731

13 Claims. (Cl. 36—12)

This invention relates to shoes and is illustrated herein with particular reference to shoes or slippers having outsoles attached by cement.

In the manufacture of many of the less expensive types of shoes, in order to provide an outsole of the proper thickness and yet to keep the cost of production as low as possible, it is customary to build up an outsole to the proper thickness by securing an inner layer or middle sole member of relatively weak material such as cardboard, paper or other fibrous material of a predetermined thickness to the inner surface of an outer or tread sole member of sole material such, for example, as leather, the latter being only of sufficient thickness to make up the required thickness of the outsole when combined with the fibrous sole member.

Owing to the weakness of the inner fibrous layer of a laminated outsole of this character, it has been impracticable heretofore to attach the outsole to a shoe or slipper in any manner other than by through and through stitches, which pass through the outsole including the weak inner layer, the upper and the insole, and fasten the outsole to the shoe bottom in such a manner that the pull or strain of the upper during the wear of the shoe will have no damaging effect on the inner layer or middle sole member which is engaging the overlasted marginal portion of the upper. Obviously, if an outsole of this character were to be attached to a shoe by cement, the weak middle sole would not stand the strain exerted against it by the upper during the wear of the shoe and would soon tear and cause the sole to come off the shoe.

Objects of the present invention are to provide an improved shoe having a liminated outsole attached by cement, to provide an improved laminated outsole adapted for attachment to a shoe by cement, and to provide an improved middle sole for a shoe.

With these objects in view the invention provides in accordance with one feature an improved shoe or slipper having an outsole consisting of an inner layer having fabric material secured to its inner and outer surfaces and an outer or tread layer secured to said inner layer, the outsole being secured to the shoe by cement between the fabric material on the inner surface of its inner layer and the shoe bottom. As herein illustrated the fabric material comprises strips located at the marginal portions of the inner and outer surfaces of said inner layer, the strips being secured to said layer by stitches.

The invention further provides an improved laminated outsole the layers of which are secured together by cement and the inner layer of which has a strip of fabric material on its inner surface for receiving cement whereby the outsole may be readily attached to a shoe bottom. The layers of the outsole may also have a strip of fabric material between them which may be interconnected to the inner strip by stitches so that the outer layer will be connected to the upper through these strips when the outsole is cemented to a shoe.

As a further article of manufacture the invention provides an improved middle sole having strips of fabric material secured to the marginal portions of its inner and outer surfaces for receiving cement whereby the middle sole may be attached by cement to an outer layer or tread sole and may also be attached by cement to a shoe bottom to hold the outsole unit on the shoe. As illustrated the strips are secured to the middle sole by stitches which connect the strips to each other as well as to the middle sole.

In utilizing the invention the inner layer or middle sole may, for example, be composed of relatively weak fibrous material such as cardboard, paper or the like and the outer layer or tread sole may be composed of usual sole material such, for example, as leather or a substitute therefor which is relatively strong. It should be understood, however, that it is within the invention to form the layers of the laminated outsole member of materials other than those specified above.

With the above and other objects and features 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 perspective view of a sole member having at the marginal portions of its inner and outer surfaces strips of fabric material secured thereto by stitches, the forepart of the sole member being broken and turned back to show the strip on its outer surface;

Fig. 2 is a perspective view of a tread sole member having cement on its inner surface;

Fig. 3 is a perspective view of the sole members secured together to form a laminated outsole member;

Fig. 4 is a transverse sectional view of the laminated outsole being pressed on the bottom of a shoe; and

Fig. 5 is an enlarged sectional view of a lower portion of the shoe of Fig. 4.

In making the shoes and more particularly

the slippers having cement attached outsoles, in accordance with the present invention, a sole member 10 approximately three irons thick is cut or rounded to the shape of the required sole and another sole member 12 (Fig. 2), about five irons thick, is conformed to the periphery of the sole member. The sole member 10 forms the middle sole of the shoe or, more specifically, the inner layer of a laminated outsole of the type referred to above. The sole member 12 forms the outer layer or tread sole member of the outsole.

Tapes or strips are secured respectively to the marginal portions of the inner and outer surfaces of the middle sole member 10, these strips preferably being composed of fabric material such, for example, as duck or canvas although other suitable materials may be used if desired. A fabric strip 14 approximately one-half inch wide is applied to the marginal portion of the inner surface of the sole member 10 and a similar strip 16 is applied to the marginal portion of its outer surface, these strips being secured to the sole member, as shown in Fig. 1, by stitches 18 passing through the sole member and both strips. As herein illustrated, the stitches 18 which secure the strips to the opposite surfaces of the sole member 10 are of the type commonly known as zigzag or "whip" stitches and they are preferably located approximately at the central portions of the strips so that the latter lie substantially flat against the surfaces of the sole member. Although the stitches are illustrated herein as zigzag stitches, other types of stitching such, for example, as lock stitches or chain stitches could be used. Irrespective of the type of stitching, the strips are preferably attached in a single operation and the stitches pass through the sole member 10 and both strips thereby connecting the strips to each other as well as to the sole member. As illustrated in Fig. 1, the strips 14 and 16 are preferably but not necessarily located with their outer edges spaced a short distance inwardly from the edge face of the sole member.

After the strips 14, 16 have been applied to the sole member 10 in the manner described, they and, if necessary, the material of the sole member outside the edges of the strips are coated with an adhesive such, for example, as pyroxylin cement which is then allowed to dry, the cement being indicated in Fig. 1 by the numeral 20. The rough fabric strips provide good surfaces for receiving the cement and accordingly no roughening operation, which would tend to weaken the material of the sole member 10, is necessary.

The tread sole member 12 is now coated on the margin of its inner surface with cement 22, such, for example, as pyroxylin, which preferably extends inwardly about an inch from the edge of the sole. The cement on the strip 16 on the outer surface of the middle sole member 10 is activated by a solvent and the sole member is positioned against the inner surface of the tread sole member 12 and the two members are pressed firmly together until the cement has set, thereby producing a laminated outsole member 24 (Fig. 3) approximately eight irons thick. The sole members 10 and 12 may be pressed together in any suitable manner to insure the permanent attachment of the tread sole member 12 to the fabric strip 16 on the middle sole member and, if the strip does not extend to the edge of the middle sole member, to the edge portions thereof outside the strip. A machine which may be conveniently used for performing this operation may be of the general type disclosed in Letters Patent of the United States No. 1,271,315, granted July 2, 1918, on an application filed in the name of John J. Heys.

The laminated outsole 24 is now attached to a shoe bottom. As indicated above, shoes to which laminated or built-up outsoles of this character are most commonly applied are slippers such as house slippers for men, women and children, these slippers usually having leather uppers and relatively low heels, although, of course, built-up outsoles of this type might well be applied to other kinds of shoes, if desired. As illustrated in Fig. 4, an upper 26 for a shoe or a slipper is assembled on a last 28 in the usual manner with an insole 30 of leather or a substitute therefor (depending upon the type or quality of the shoe or slipper to be made) and the marginal portion of the upper is secured in lasted relation to the insole in any desired manner, for example, by tacks 32 which are clinched against the inner surface of the insole by a metal plate 34 on the bottom of the last. The overlasted marginal portion of the upper 26 is then roughened and a cement such, for example, as pyroxylin is applied thereto. The cement 20 on the fabric strip 14 on the inner layer 10 of the laminated outsole 24 is next activated by a solvent and, after being properly positioned on the shoe bottom, the outsole may be pressed on the shoe in any suitable sole attaching press 36 (Fig. 4) provided with a pressure applying pad 38 of rubber or similar material. The pressure is preferably applied until the cement has thoroughly set after which the shoe or slipper is removed from the press and the last 28 is withdrawn from the shoe. If desired, the upper 26 of the shoe or the slipper may be secured in lasted relation to the insole 30 by cement or staples rather than by tacks as described above, the particular manner of lasting the shoe forming no part of the present invention.

As indicated above, in shoes or slippers of the type referred to the inner and outer layers of the laminated outsoles are generally made from different materials, the inner layer or middle sole usually being composed of fibrous material of a relatively weak nature such, for example, as cardboard, paper or the like in order to reduce the expense of the shoe, and the outer or tread layer preferably being composed of a relatively thin layer of sole leather or a substitute therefor, the two layers together making up the desired thickness of the outsole.

It will be obvious from the foregoing, that in the shoes herein disclosed a laminated outsole having a weak inner layer of cardboard, paper or other fibrous material may be cement attached to the bottom of the shoe or slipper without danger of the inner layer of the outsole tearing away from the shoe bottom during the wear of the shoe due to the strain or pull of the upper to which this inner layer is attached. The tape or strip of fabric material engaging the upper will not tear under the usual strain of the upper during the wear of the shoe, and this strip is connected by stitching to the lower fabric strip on the outer surface of the weak sole member which strip, in turn, is securely bonded to the leather tread sole member so that the strain or pull of the upper is actually against the leather member which is strong enough to withstand any strain to which it may be subjected by the upper.

Instead of attaching the inner layer of the laminated outsole member to the outer layer before the outsole is attached to the shoe as described above, the invention further contemplates two

sole members attached to each other and to the shoe bottom simultaneously in a single operation if that is more convenient or desirable. The two sole members having cement applied to the proper portions thereof, including the strips on the inner or middle sole member, may be mounted in a sole attaching press and positioned relatively to each other and the shoe may be positioned on the inner layer after the shoe upper had been treated with cement. Pressure may then be applied simultaneously to the three members to secure the two sole members to each other and the inner layer or middle sole to the shoe bottom in a single operation. A machine that may be conveniently used in carrying out this operation is that of the type disclosed in Letters Patent of the United States No. 2,047,185, granted July 14, 1936, on an application filed in the names of Milton H. Ballard et al.

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

1. A shoe comprising an insole, an upper and an outsole, said outsole consisting of an inner layer having separate strips of fabric material secured to its inner and outer surfaces by a single row of stitches passing through both strips, and an outer layer secured to the strips on the outer surface of said inner layer, the fabric material on the inner surface of said inner layer being secured to the shoe bottom by cement.

2. A shoe comprising an insole, an upper and an outsole, said outsole consisting of an inner layer having fabric material on its inner and outer surfaces only, the edges of said material not extending to the edge face of said inner layer, and an outer layer secured to said inner layer by cement located between said outer layer and the fabric material on said inner layer, said outsole being secured to the shoe by cement between the fabric material on said inner layer and the shoe bottom.

3. A shoe comprising an insole, an upper and a laminated outsole consisting of an inner layer and an outer layer, a strip of fabric material located between the marginal portion of the inner layer and the overlasted portion of the shoe upper, cement securing said strip to said upper, a strip of fabric material located between the marginal portions of said inner layer and said outer layer, cement securing said outer layer to said strip, and a single row of stitches securing both of said strips to said inner layer.

4. A shoe comprising an insole, an upper and an outsole, said outsole consisting of an inner layer of relatively weak fibrous material and an outer layer of leather, strips of textile material extending around the marginal portions of the inner and outer surfaces only of said inner layer, a single row of stitches securing both of said strips to said inner layer thereby connecting said strips to each other through the inner layer, cement securing the strip on the inner surface of said inner layer to the shoe upper, thereby holding the outsole on the shoe bottom, and cement securing said outer layer to the strip on the outer surface of said inner layer, thereby connecting said outer layer to the upper through the interconnected strips.

5. A shoe comprising an insole, an upper and a laminated outsole, said outsole consisting of a relatively thin inner layer of weak fibrous material having a strip of fabric material stitched to the marginal portion of its inner surface and a relatively thin outer layer of strong but flexible material cemented to said inner layer, said outsole being secured to the shoe by cement located between the shoe upper and the strip of fabric material on said inner layer.

6. A sole for a shoe comprising relatively thin inner and outer layers, said inner layer having strips of fabric material stitched to its inner and outer surfaces, and said outer layer being secured to the strip on said inner layer by cement.

7. A laminated sole adapted for attachment to a shoe by cement comprising a relatively thin inner layer of weak material and a thicker outer layer of stronger material, said inner layer having a strip of fabric material reinforcing its inner surface, stitches securing the fabric strip to said inner surface, and cement securing the marginal portion only of said outer layer to the outer surface of said inner layer.

8. A sole adapted for attachment to a shoe by cement comprising an inner layer and an outer layer, said inner layer having strips of fabric material secured to the marginal portions of its inner and outer surfaces only by a single row of stitches, and said outer layer being secured to said inner layer by cement between said outer layer and the strip of fabric material on the outer surface of said inner layer.

9. A sole adapted for attachment to a shoe by cement comprising an inner layer and an outer layer, said inner layer having on the marginal portions of its inner and outer surfaces strips of fabric material which are connected to the inner layer and to each other by a single row of stitches passing through the inner layer and both strips, and said outer layer being secured to the inner layer by cement between the marginal portion of said outer layer and the fabric strip on the outer surface of said inner layer.

10. A middle sole for a shoe having relatively narrow strips of fabric material secured at their median portions only to the marginal portions of the inner and outer surfaces of the middle sole for receiving cement.

11. A middle sole for a shoe having marginal strips of fabric material secured to its inner and outer surfaces by zigzag stitches which are located at the median portions of the strips.

12. A middle sole for a shoe having narrow strips of fabric material secured to the marginal portions of its inner and outer surfaces by a single row of zigzag stitches which pass through the middle sole and both strips, thereby interconnecting said strips, the intra-marginal portions of said inner and outer surfaces being uncovered.

13. A middle sole for a shoe having cement receiving strips of fabric material permanently secured to the marginal portions of its inner and outer surfaces, the outer edges of said strips being spaced inwardly from the edge face of said middle sole and being unattached to said middle sole.

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