

May 19, 1964

K. G. TAYLOR, JR
SHOE CONSTRUCTION HAVING UPPER SECURED
WITHIN GROOVE OF SOLE RING

3,133,360

Filed July 15, 1960

3 Sheets-Sheet 1

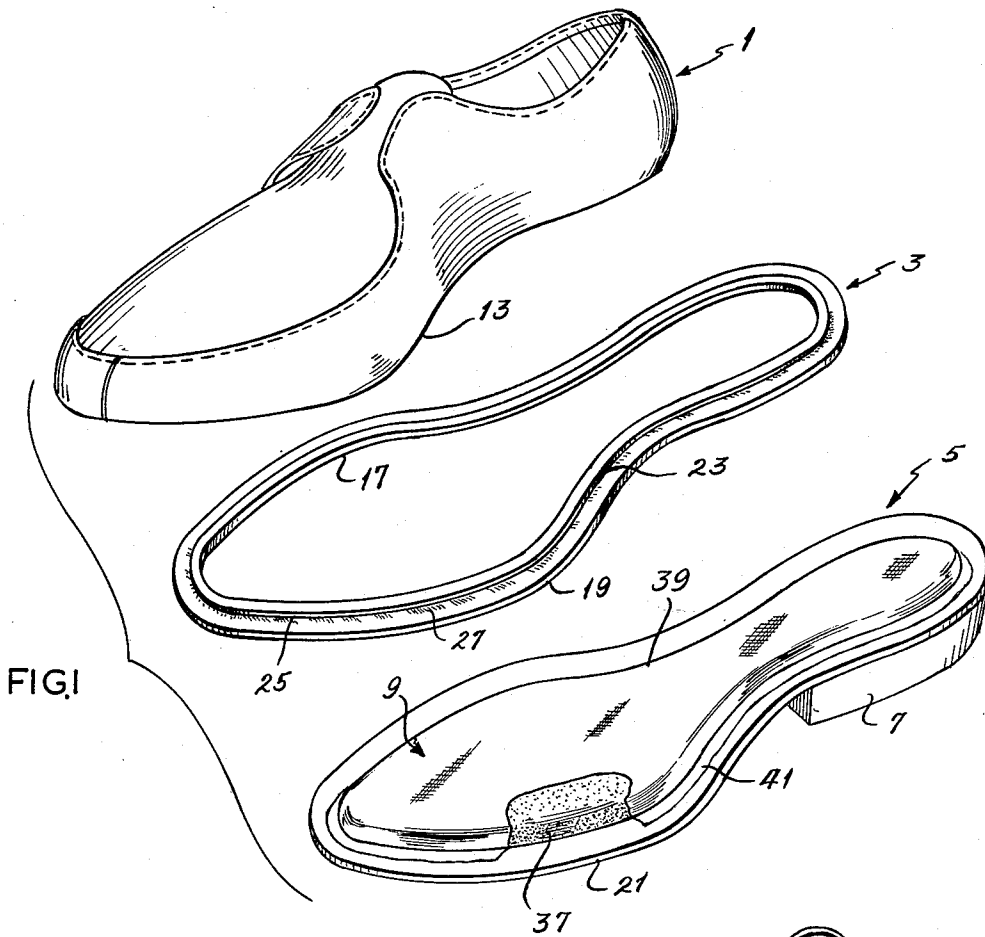


FIG. 1

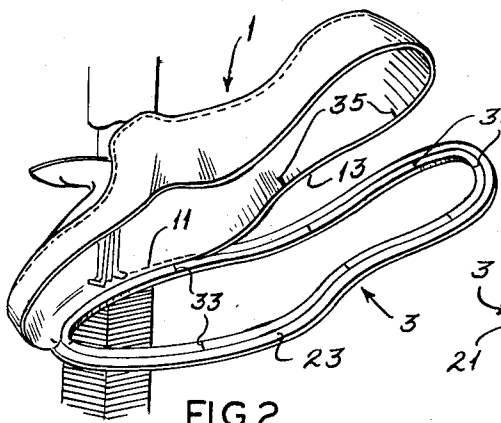


FIG. 2

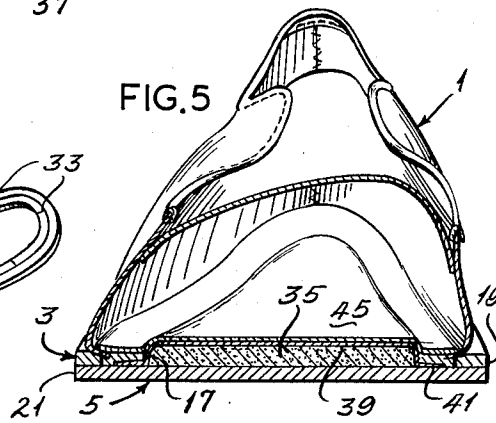


FIG. 5

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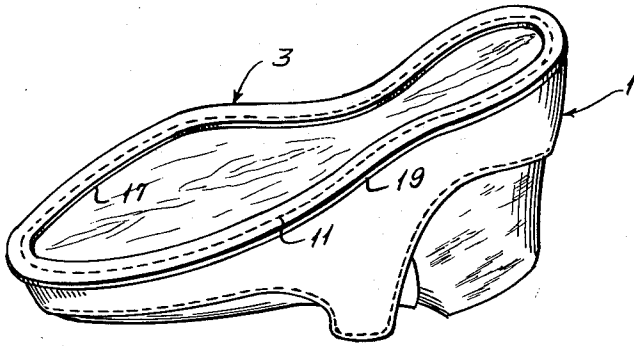


FIG. 3

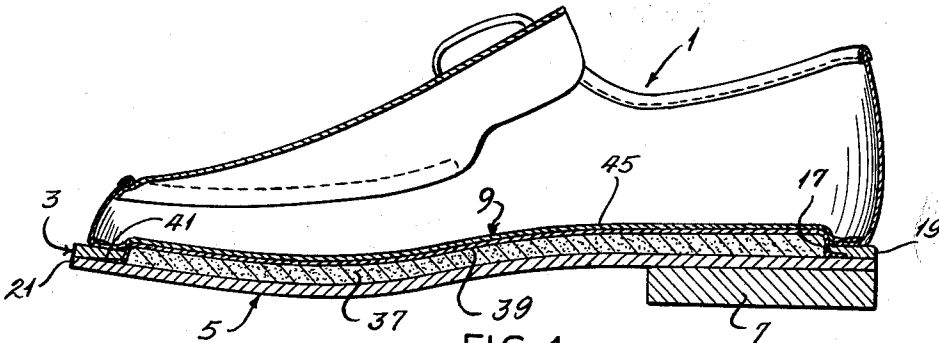


FIG. 4

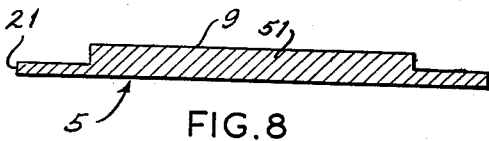


FIG. 8

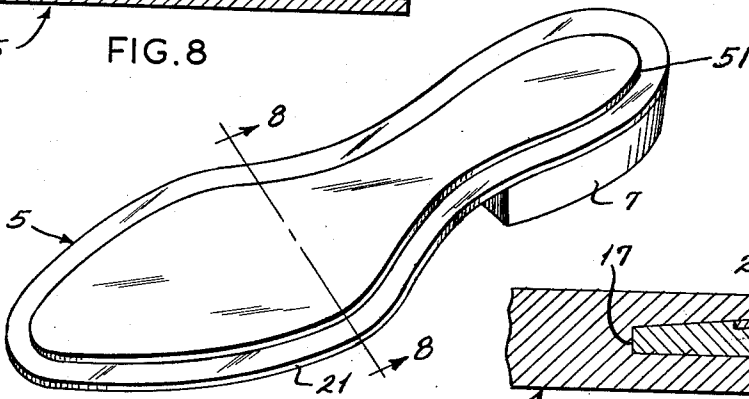


FIG. 7

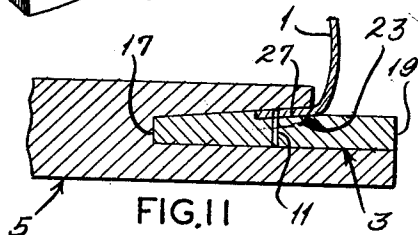


FIG. 11

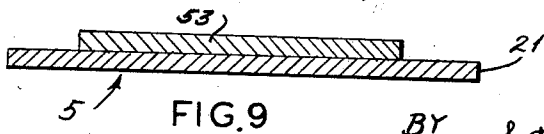


FIG. 9

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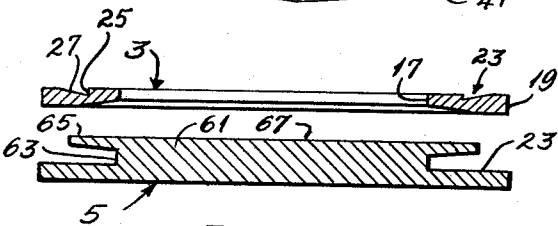
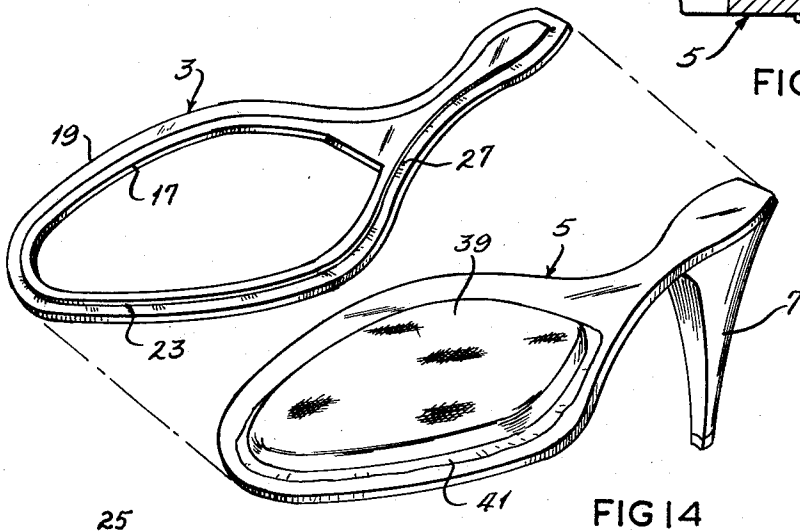
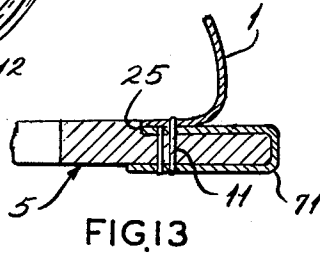
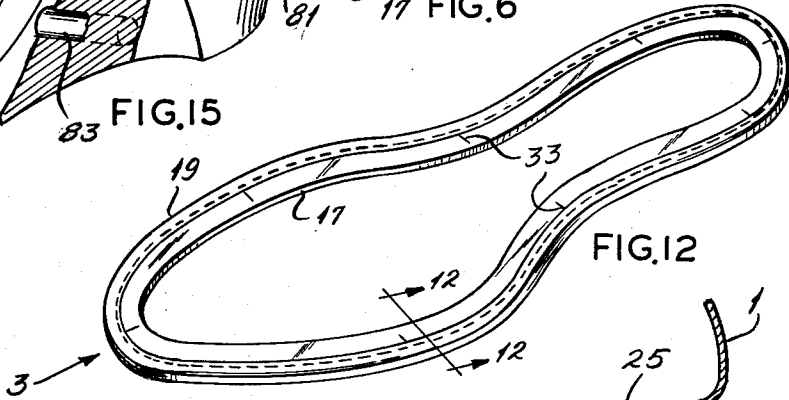
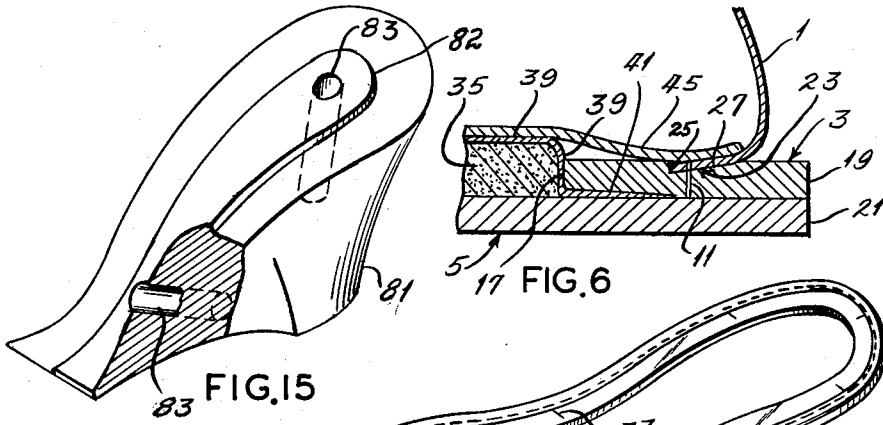


FIG. 14

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SHOE CONSTRUCTION HAVING UPPER SECURED WITHIN GROOVE OF SOLE RING

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4 Claims. (Cl. 36-17)

This invention relates to shoe constructions and methods of manufacture.

A typical shoe manufacturing system of today involves making uppers in the fitting department, preparing soles in the sole department, and joining upper to sole in the lasting department. A lasted shoe is produced by temporarily securing an insole on a last, stretching an upper over the last, the upper having a lasting allowance which is pulled over the margin of and secured to the insole with special machinery, and thereafter attaching an outsole. The resulting shoe is of good quality, but the lasting operation requires special skills and machinery, is time-consuming and introduces complexities in inventory, material flow and the like. Although there are ways of making shoes without lasting machinery, the resulting products have tended to be of inferior appearance and quality. Accordingly, one of the objects of the present disclosure is to provide a process for making shoes of superior appearance and comfort with a last being used (if at all) only in attaching the outsole.

Briefly, this objective is achieved by providing an upper and a ring of sole material, to which the upper is secured. The outer edge of the ring corresponds to the edge of the sole, and the inner edge is of similar shape, so as to form a stiff continuous loop of from a half to one inch in width. The ring may be cut from sheet material or may be molded from plastic, and it is further formed with a continuous groove in its top surface between its inner and outer edges. The groove is slanted with its deeper portion positioned to accommodate the edge of the upper. The edge of the upper is abutted against the deep edge of the groove and secured, as by stitching, the slanting wall of the groove thereby relieving stress on the stitches. Peripherally spaced marks may also be formed on the ring and bottom of the upper to facilitate proper assembly of the parts. The bottom edge of the upper may be turned in or out, but is located in from the inner and outer edges of the ring.

The upper is first secured to the ring and the ring is then secured to an outsole, as by adhesive. The upper should have a raised portion, which fills the opening in the ring, and may have a pre-attached heel. The upper is assembled with the ring in the fitting department, and once this operation is completed, the shape of the shoe is fairly well set. At least, there is no necessity for lasting, hence the lasting room and associated machinery may be eliminated from the shoe plant. There is also a corresponding reduction in the number of employees and production time, as well as a reduced likelihood of soiled or damaged shoes.

Although various types of shoes may be made in this manner, the process is particularly adapted for producing shoes with a foam or sponge cushion sole. The outsole is prepared in the conventional manner, but before attaching it to the sole ring, a cushion is secured to its upper surface, the cushion being of an outline such as to fit within and substantially fill the opening in the sole ring. It will be understood the outsole would be appropriately marked to facilitate attachment of the cushion. The cushion is made up of a molded or shaped pad of sponge rubber or resilient plastic covered with fabric, the margins of the fabric projecting beyond the foam pad

and being glued flat against the outsole. Normally, a shoe lining would be inserted to cover the cushion.

In an alternative embodiment of the invention, the opening in the sole ring is filled with relatively hard material, such as that from which the sole ring or outsole is formed. A particularly convenient procedure is to form the outsole with a raised center portion of an outline corresponding to the interior margin of the sole ring, in which event the edge of the raised portion may be utilized in shaping the shoe. The raised portion may be thicker than the ring and a tapering groove may be formed in the edge of the raised portion of the outsole, the groove being such as to accommodate a tapering inner margin of a sole ring so that the top margin of the outsole extends substantially over the sole ring to the upper, in which event, a sock lining is not necessary. Where the sole ring is cut from sheet material, the portion cut away from the inner part of the sole ring may be glued to the outsole prior to attachment of the outsole to the sole ring, thereby to fill the opening in the sole ring and provide a somewhat stiffer sole.

Other features of the invention will be in part apparent from and in part pointed out in the following detail description taken in connection with the accompanying drawings, in which:

FIG. 1 is an exploded perspective view illustrating an upper, sole ring and cushion-type outsole utilized in making a shoe embodying the invention;

FIG. 2 is a perspective view illustrating how the upper is attached to the sole ring;

FIG. 3 is a perspective view illustrating the upper and attached sole ring mounted on a last preparatory to attaching an outsole;

FIG. 4 is a longitudinal section of a finished shoe;

FIG. 5 is a transverse section of a finished shoe;

FIG. 6 is an enlarged section of the finished shoe illustrating details of the sole construction;

FIG. 7 is a perspective view of a modified outsole, such as might be used where the cushion effect is not desired;

FIG. 8 is a cross section taken on the line 8-8 of FIG. 7;

FIG. 9 is a view similar to FIG. 8, but illustrating another embodiment of the outsole;

FIG. 10 is an exploded cross sectional view of the sole ring and outsole illustrating a further variation of the invention;

FIG. 11 is a view similar to FIG. 6, but showing the FIG. 10 sole construction;

FIG. 12 is a perspective or section view of a different sole ring with an edge covering;

FIG. 13 is a detail section showing how the FIG. 12 ring is secured to an upper;

FIG. 14 is an exploded perspective view of another type sole ring and outsole such as might be utilized in making narrow-shanked shoes; and

FIG. 15 is a longitudinal cross section illustrating a further modification for wedge type construction.

Referring to FIG. 1 of the drawings, there is shown an upper 1, a sole ring or inner sole piece 3 and an outsole 5 with a pre-attached heel 7 and a raised portion 9. The upper is made in a conventional manner—indeed, the patterns for the shoe uppers are graded and made in the same way as present slip-lasted patterns. Any style of upper might be utilized, such as closed-toe open-heel, closed-toe open-shank, closed-toe open-shank closed-heel, closed-toe closed-heel, open-toe open-heel, and sandals. The upper is made from any suitable material, although the process is especially applicable to leather uppers, with or without linings. The only requirement is that the upper have sufficient strength such that it can be strongly secured by a line of stitching 11 extending adjacent its bottom edge 13. For example, the line of stitching 11

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might be located only one-eighth of an inch in from the bottom edge 13 of the upper, and in this respect, less material is required in forming the upper, as compared with a conventional lasted shoe with a relatively wide lasting allowance.

The outsole 5 may be made in a conventional manner from any suitable sole material. The outsoles are graded so that the finished appearance is graded into the pattern. For example, if a close edge effect is desired, the patterns are graded to such an appearance. If a welt edge effect is sought the patterns are made to provide the proper extension of the sole edge around the shoe. Heels may be pre-attached to the outsole, and maximum economies are realized when the outsole is in as near a finished condition as possible, before being attached to the rest of the shoe.

The sole ring 3 can be cut from any of the materials presently employed for either insoles or outsoles, it may be a unitary continuous piece, it might be molded from plastic materials, such as are presently used in insoles and outsoles, or it might be built up by assembling and cementing of several pieces. The principal requirement of the sole ring is that it be of a size and strength such that it can be firmly secured upon the outsole, since this ring serves as the only connection between the upper and outsole. The sole ring is of a thickness of about one-eighth of an inch or more and is about one half of an inch in width, so that the inner edge 17 of the ring extends three-eighths of an inch under the sole of the last or in from the edge of the upper in order to permit a strong adhesive attachment to the outsole. The outer edge 19 of the ring fits or corresponds with the outer edge 21 of the outsole.

In addition, the ring is formed with a groove 23 in its upper surface, the groove being located between the inner and outer edges 17 and 19 and extending continuously about the ring. The groove is positioned with its deep inner edge 25 located in from the adjacent edge of the ring. The other wall of the groove slants upwardly and outwardly at 27. The depth of the groove is sufficient to recess the bottom edge of the upper, thereby to avoid a rib within the shoe, and the slope is disposed at an angle, say forty-five degrees, to minimize stress on the stitching 11. The groove also serves as a means of shaping the shoe by aligning the edge 13 of the upper against the edge 25 of the groove. It will also be noted that the top surface of the ring has a series of spaced marks 33 extending inwardly from the groove. The bottom margin of the upper is similarly formed with spaced marks 35 on its inner surface, and the marks 33 and 35 are aligned (by stretching or crowding the upper) when assembling the upper to the ring, so as to assure proper shaping of the shoe. The ring may be pre-roughened and pre-cemented prior to assembly with the upper, thereby to facilitate subsequent assembly with the outsole, which may also be pre-roughened and pre-cemented.

Molded rings might be molded separately or could be molded with grooves and marks on both sides and to an extra thickness, such a molded ring then being split apart to form a pair. The upper outer portion of the ring may have any desired texture molded therein so as to simulate welting, mud guard and other effects. Also, the outer margin of the ring might be covered with leather, cloth or other material to produce interesting color combinations (FIG. 12).

It will be understood that the upper will be made in the fitting room, as heretofore, and that the outsole and ring would normally be made in the sole department. The rings are then transferred to the fitting department for assembly with the uppers. Referring to FIG. 2, the bottom margin of an upper is turned inwardly over the upper surface of a ring and is fitted within the groove 23, where it is secured by a line of stitching 11. The upper is aligned with the ring by fitting the edge 13 of the upper against the edge 25 of the groove, and by matching the

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marks 33 and 35 as closely as possible. Since the ring is open, the stitching operation is simple. As indicated above, the stitching should be about one-eighth inch back from the edge of the upper, and upon completion of this step, the shape of the shoe is fairly well determined. Although it is contemplated that the upper would normally be stitched to the ring, it will be understood the upper might be fastened in other ways, as by staples, slotting or adhesive, the latter procedures generally requiring a somewhat larger upper and sole ring, in order to provide adequate strength.

The upper, with its ring attached, is then slipped over a last (FIG. 3), which can be a conventional last, and the outsole is secured. In most instances, the outsole will be attached by adhesive with a conventional sole press, the only critical step being alignment of the edges 19 and 21 of the ring and outsole. Since the process contemplates that there will be a minimum degree of waste allowance in cutting these parts, the alignment should be precise. If desired, the outsole might be further secured with a line of stitching, so as to simulate a welt shoe. Alternatively, a close edge trim would be utilized if that is the appearance desired. The shoe is then ready for packaging.

Since the attachment of the outsole is a relatively simple proposition, the operation can be performed in the packing department by moving the lasts and sole presses to this department, thereby completely eliminating the lasting department along with the extra handling operations required where lasting is performed in a separate department. Among the additional advantages of this process may be noted less likelihood of soiled or damaged shoes and reduced manufacturing time, since the upper need not remain upon a last any longer than is necessary to attach the outsole. In fact, it might be possible to attach the outsole without a last.

The shoe illustrated in FIGS. 1-6 has a cushioned sole, and the process disclosed herein is particularly suited to the manufacture of such cushioned sole shoes. The cushion is formed with a sponge or foam pad 37 having a fabric covering 39. The pad 37 is molded or cut from any suitable resilient cushioning material so as to fit rather closely with the inner edge 17 of the sole ring. It is then secured to the outsole by glue and by means of the fabric covering 39, which is of slightly larger outline, the marginal portions 41 of the covering being glued flat against the outsole about the pad. The cushion 9 is formed on the outsole prior to assembly with the upper, and since the cushion must be properly located on the outsole, the upper surface of the outsole may be first marked to the outline of the cushion or inner edge of the ring. Accordingly, the cushion becomes automatically incorporated within the shoe when the outsole is attached. Normally, a sock lining 45 would be inserted to cover the cushion and upper surface of the sole ring to complete the shoe.

Referring now to FIGS. 7-9, there is shown an alternative embodiment of the outsole, such as might be employed in providing a stiffer sole. The shoe is similar to that described heretofore, but the raised central portion of the outsole is formed of relatively tough sole material and is of a thickness approximately equal to that of the sole ring. The invention contemplates that such an outsole might be molded from plastic material, in which event, the raised portion 51 thereof is formed integral with the remainder of the outsole, as indicated in FIG. 8. Alternatively, the raised portion on the outsole could be formed as a separate piece 53, as indicated in FIG. 9. For example, the latter approach is particularly applicable where the sole ring is cut from sheet material, the portion which is cut from the ring to leave the center opening being attached to the outsole prior to assembly of the outsole with the sole ring. In either case, the edge of the raised portion 9 simplifies proper shaping of the shoe as the outsole is applied, since the inner edge of the ring is abutted against the edge of the raised portion 9. Ac-

cordingly, a last may not be necessary in making some types of shoes.

With the embodiments illustrated above, a sock lining would normally be inserted within the shoe to cover the sole ring and raised portion of the outsole. Referring now to FIGS. 10 and 11, there is shown another embodiment of the invention wherein the sock lining is eliminated. In this instance, the outsole is formed with a raised portion 61, which further has a groove cut 63 inwardly about the periphery of the raised portion, thereby to provide a top lip portion 65. The sole ring is accommodated within the groove, whereas the lip portion 65 of the outsole extends over the ring generally to the edge of the upper. The top surface 67 of the outsole may be suitably embossed or otherwise treated to produce the appearance of a sock lining. The outsole illustrated in FIG. 10 might be formed as an integral molded piece, it might be initially cut from a relatively thick piece of sole material, and then skived or carved about its edges to produce its shape, or the outsole might be fabricated from several pieces of sheet material which are glued or otherwise secured in assembly. FIG. 10 also indicates how the groove 63 may be tapered and how the bottom inner surface of the ring may be tapered.

FIGS. 12 and 13 show how the sole ring may have a fabric or other binding 71 applied about its outer margin, as may be desirable in making a platform shoe, or in covering the edge of the upper when it is turned outwardly.

FIG. 14 illustrates how the invention is applied to a shoe having a narrow shank and heel portion. In this instance, the opening 17 in the ring 3 is located only in the relatively wide part of the shoe, since the shank and heel portions are narrow, but the groove 23 for locating the edge of the upper would extend through the back portion of the ring, as indicated.

FIG. 15 illustrates how a wedge heel 81 might be utilized in making shoes in accordance with this invention. The wedge heel would be formed from wood or other material and preferably incorporates a raised upper portion 82 which fits within the opening in the back part of the sole ring. The ring could also be formed with holes or recesses 83 for reducing the weight of the shoe.

Changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. A shoe comprising an upper having a turned bottom margin, an inner sole piece having an outer edge corresponding to the edge of the shoe sole and a groove in its top surface extending generally parallel to said outer edge, said groove having a sharp edge at its inner side, said turned bottom margin of the upper being secured within said groove with the edge of the upper against the sharp edge of the groove, and an outsole secured to the bottom surface of said inner sole piece.

2. A shoe comprising an upper having a turned bottom margin, an inner sole piece having an outer edge corresponding to the edge of the shoe sole and a groove in its top surface extending generally parallel to said outer edge, said groove having (a) a sharp edge, (b) a depth corresponding to the thickness of said upper, and (c) a slanting wall; said turned bottom margin of the upper being secured within said groove with the edge of the upper against the sharp edge of the groove and the margin of the upper seated against the slanting wall; and an outsole secured to the bottom surface of said inner sole piece.

3. A shoe comprising an upper having a turned bottom margin, an inner sole piece having an outer edge corresponding to the edge of the shoe sole and a groove in its top surface extending generally parallel to said outer edge, said groove having (a) a sharp edge, (b) a depth corresponding to the thickness of said upper, and (c) a slanting wall, the sharp edge of the groove being at the inner side of the slanting wall; said turned bottom margin of the upper being turned inwardly and secured within the groove with the edge of the upper against the sharp edge of the groove and the margin of the upper seated against the slanting wall; and an outsole secured to the bottom surface of said inner sole piece.

4. A shoe comprising an upper having a turned bottom margin, an inner sole piece having an outer edge corresponding to the edge of the shoe sole and a groove in its top surface extending generally parallel to said outer edge, said groove having a sharp edge, said turned bottom margin of the upper being secured within said groove with the edge of the upper against the sharp edge of the groove, and an outsole secured to the bottom surface of said inner sole piece, said inner sole piece being formed as a ring and said outsole having a raised top portion projecting within said ring.

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