Aug. 2, 1960 D. E. RYAN 2,947,033

SHOE REPAIR MOLDS

Filed April 12, 1957 3 Sheets-Sheet 1

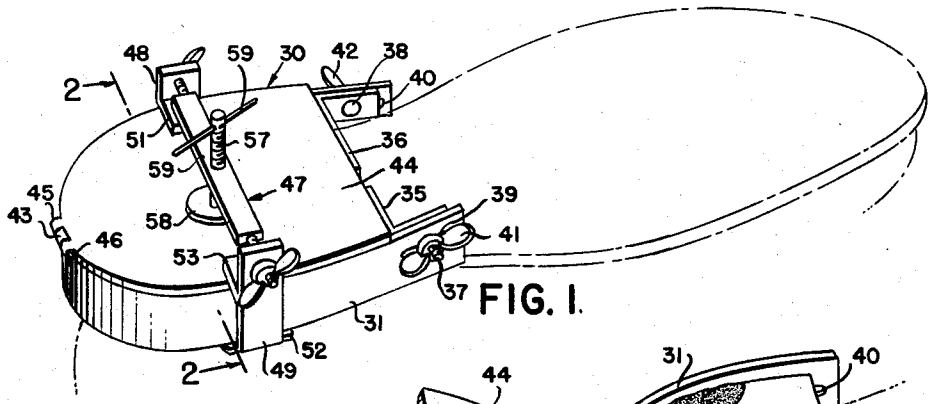



FIG. 1.

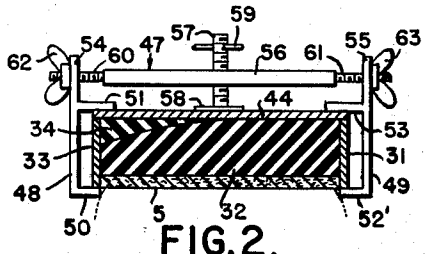



FIG. 2.

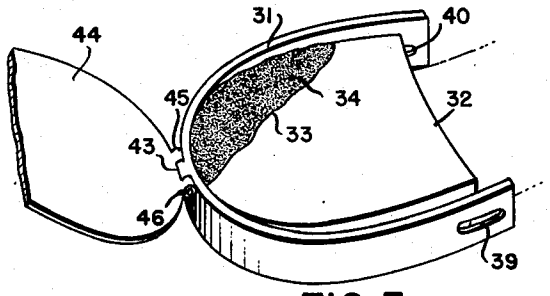



FIG. 3.

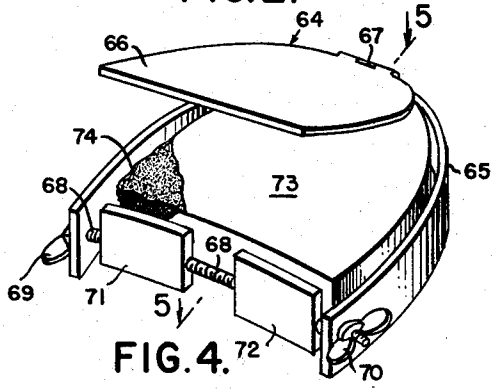



FIG. 4.

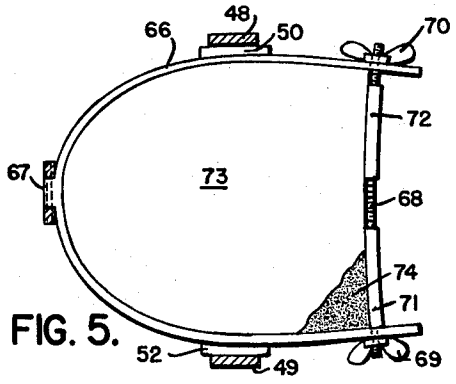



FIG. 5.

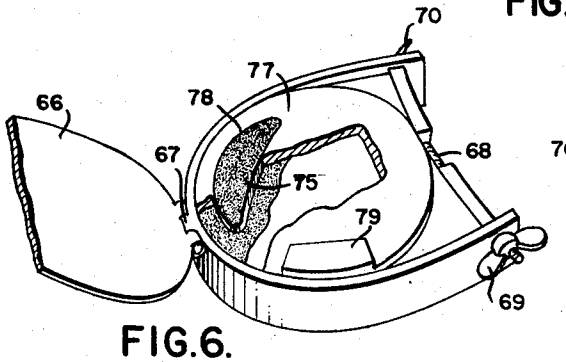



FIG. 6.

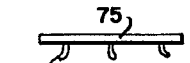



FIG. 7.

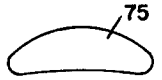



FIG. 8.

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SHOE REPAIR MOLDS

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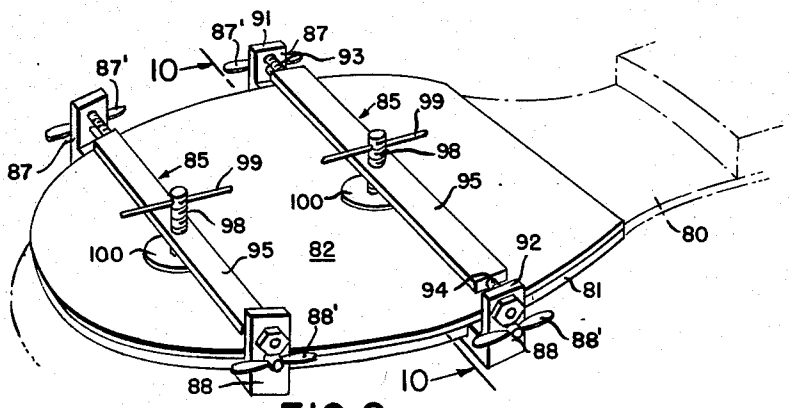



FIG. 9.

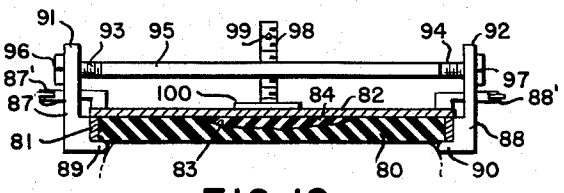



FIG. 10.

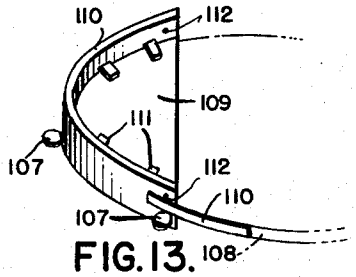



FIG. 13.

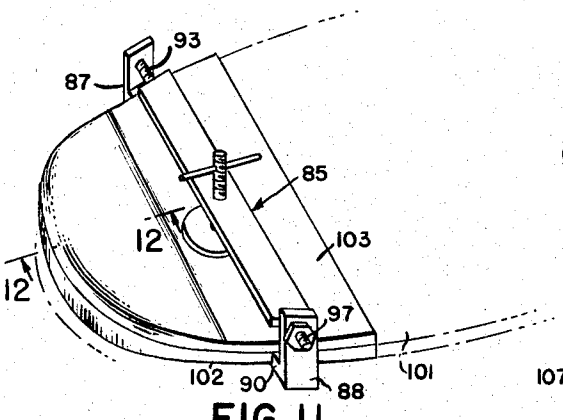



FIG. 11.

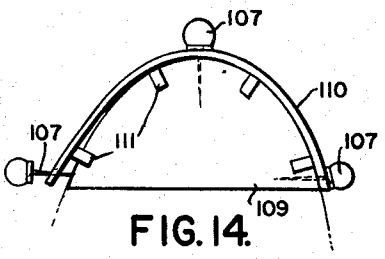



FIG. 14.

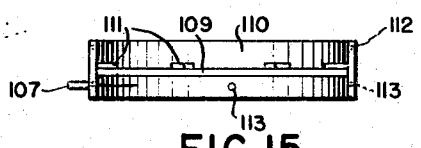



FIG. 15.

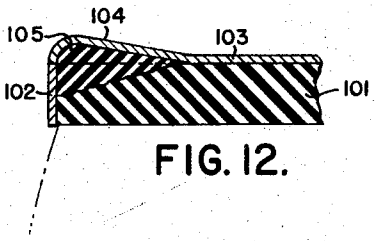



FIG. 12.

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SHOE REPAIR MOLDS

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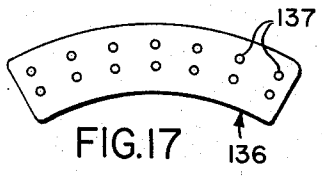


FIG.17

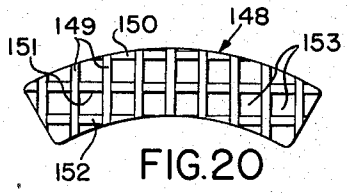


FIG.20

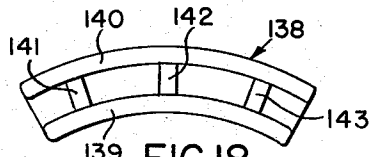


FIG.18

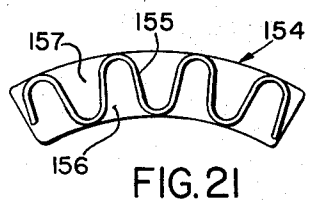


FIG.21

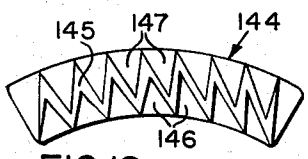


FIG.19

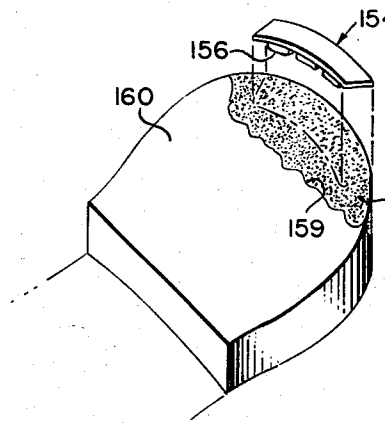


FIG.22

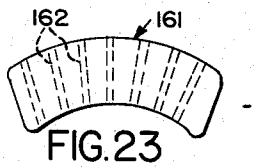


FIG.23

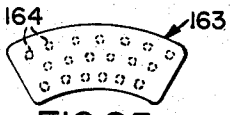


FIG.25



FIG.24



FIG.26

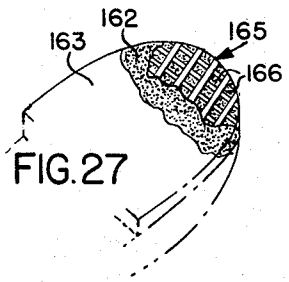


FIG.27

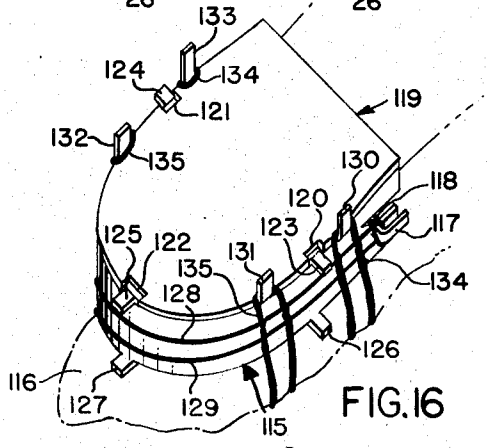


FIG.16

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United States Patent Office

2,947,033

Patented Aug. 2, 1960



2,947,033

# SHOE REPAIR MOLDS

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Filed Apr. 12, 1957, Ser. No. 652,383

9 Claims. (Cl. 18—34)

This invention relates to shoe repair molds.

In shoes, the heels and soles of the shoe become worn off or run over at their edges requiring normally a new heel or a new sole at a great expense when actually the amount of wear is only a fraction of the surface of the heel or sole and which could be replaced in a simple manner. Heretofore rubber-like materials not requiring heat vulcanization but in the nature of molding material which could be left to cold vulcanization for the purpose of being hardened and providing the heel and sole with material of such consistency and wear qualities as which had been removed and of the consistency of the heel and sole material themselves, have not been available.

Within recent years there has been developed a cold setting rubber material which can be applied to the rubber or rubber-like material for the purpose of covering a wear spot or opening thereon by simply shaping the material by working it with the hands and fingers and with the amount of material needed for the particular hole or opening and thereafter fixing the material to and within the opening by suitable adhesive thereafter allowing the material to cold set and become hard for final use and wear.

It is the principal object of the present invention therefore to provide molds which can be quickly and easily applied to the heel or sole of a shoe and in which this mold material can be packed or forced or shaped to fill openings or run off spots at the sides of the rubber heel or on the toe of the sole.

It is another object of the invention to provide a mold adapted to be applied to the rubber heel of a shoe which will extend completely around the side, front and back of the heel and adapted to be clamped thereto so that molding material can be packed about the front edge of the heel at the corners or side thereof as well as at the rear of the heel.

It is a further object of the invention to provide a shoe repair mold adapted to be placed about the heel which has a top surface swing down member and combined clamp means for securing the sides of the mold to the sides of the heel and for holding the top mold plate over the mold material and the top of the heel.

It is a further object of the invention to provide a shoe repair mold for cold setting moldable repair materials in which the parts of the mold are adjustable to different size heels or soles.

It is a still further object of the invention to provide a mold for holding cold setting moldable material which is adapted to not only effect a molding of the material with its top plate but to provide an angularly adjustable centering or retaining member within the mold that will hold a wear plate in proper position upon the molding material so that the heel will be provided with a lift with this wear plate when the moldable material has finally been hardened or vulcanized, projections being provided on the bottom of the wear plate which will have become embedded, secured and locked within the molding material mass.



It is a still further object of the invention to provide in a mold for fixing moldable material to a heel or toe of the shoe and which the moldable material will be elevated from the surface of the heel or sole when the mold has been removed.

It is a still further object of the invention to provide a repair mold for heel and soles of shoes in which parts can be secured upon the shoe and to one another in as simple a means as with elastic bands.

It is a still further object of the invention to provide a suitable reinforcing member or combination reinforcing and wear plate member adapted to be embedded wholly or partially in the moldable material and secured to and made a part thereof.

Other objects of the invention are to provide a shoe repair mold for use in making repairs upon the heels and sole of a shoe, which is of simple construction, inexpensive to manufacture, has a minimum number of parts, easily and quickly applied to the shoe, compact and requires little storage space, effective and efficient in use.

For a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which—

Figure 1 is a perspective view of a shoe repair mold clamped to the heel of a shoe,

Fig. 2 is a transverse sectional view taken through the mold and through the heel of the shoe, on line 2—2 of Fig. 1,

Fig. 3 is a perspective view of the mold being separated from the repaired heel,

Fig. 4 is a perspective view of a slightly modified form of a mold, where laterally-adjustable backing members are used for the front edge of the heel,

Fig. 5 is a horizontal sectional view taken generally on line 5—5 of Fig. 4 and through top plate and its clamping members,

Fig. 6 is a perspective view of a repair mold similar to that shown in the above figures but with an angularly adjustable hold down plate inserted which has openings therein for containing different shaped wear plates to hold them against lateral displacement while the mold material is being hardened about the underside of the wear plate,

Fig. 7 is a side elevational view of a metal wear plate having embedding projections therein,

Fig. 8 is a top plan view of the metal wear plate shown in Figs. 6 and 7,

Fig. 9 is a perspective view of a repair mold secured to the sole of a shoe,

Fig. 10 is a transverse sectional view taken on line 10—10 of Fig. 9 through the mold and through the shoe sole,

Fig. 11 is a perspective view of a mold only partially extending over the toe portion of the sole and having an elevated relief for permitting an elevated excess of the mold material on the wear area,

Fig. 12 is a sectional view of the partial toe mold shown in Fig. 11 and as viewed on line 12—12 thereof,

Fig. 13 is a perspective view of the toe sole repair mold,

Fig. 14 is a plan view of the toe sole mold assembly shown in Fig. 13,

Fig. 15 is a rear elevational view of the toe mold assembly shown in Figs. 13 and 14,

Fig. 16 is a perspective view of a still further form of a mold, shown in place upon the heel of a shoe and the parts thereof held in assembled relationship and upon the shoe with rubber bands,

Figs. 17, 18, 19, 20 and 21 are respectively bottom plan views of rubber wear plates having formations on

the bottom sides thereof respectively of different shapes for securing the wear plate in the embedded material,

Fig. 22 is a perspective view of a heel and of the wear plate shown in Fig. 21 positioned above the heel and over the molding material to which the wear plate is to be secured,

Fig. 23 is a top plan view of a wear plate having a roughened or serrated bottom formation,

Fig. 24 is a sectional view of the wear plate shown in Fig. 23 taken on line 24—24 thereof,

Fig. 25 is a top plan view of a wear plate having a plurality of projections depending therefrom,

Fig. 26 is a front elevational view of the plate shown in Fig. 25 as viewed generally on line 26—26 thereof, and

Fig. 27 is a fragmentary perspective view of a heel with a grille reinforcing member embedded in the molding material.

Referring now particularly to Figs. 1 to 3, there is shown the heel mold indicated generally at 30 having a band 31 adapted to be extended about a rubber heel 32 that has a worn down rear edge indicated generally at 33 into which mold material 34 is to be placed. This mold material can be packed within the mold so as to conform to the rounded shape of the band part 31 and in such a manner as to fill up the space 33 with the molded material up to the top surface of the heel 32. This band part according to this form of the invention is held in place by angle-shaped side members 35 and 36 which carry respectively clamping bolts 37 and 38 and which are respectively extendable through slots 39 and 40 in the ends of the band 31. By forcing the angle-shaped members 35 and 36 tightly against the rear edge of the heel and with respectivel wing nuts 41 and 42 tightening the members in their clamped position the band will be held against rearward and outward displacement from the heel. At the rear of the band is a hinge projection 43 to which there is hingedly connected a cover 44 by its projections 45 and a hinge pin 46. This cover can be brought over the top of the material 34 to shape its upper surface while it is being hardened. In order to hold the plate 44 over the heel a clamp assembly indicated generally at 47 is applied to the sides of the shoe. This assembly 47 has two side clamp members 48 and 49. The clamp member 48 has lower and upper lips 50 and 51 adapted to respectively overlie the edges of a shoe sole 52 on which the rubber heel 32 is already fixed. The upper lip 51 will overlie the plate 44. The side clamp member 49 similarly has lower and upper lugs 52' and 53 adapted to respectively underlie the opposite edge of the sole 52 and overlie the plate 44. The side members 48 and 49 respectively have upper extensions 54 and 55 respectively between which extends a threaded support member 56 for a hold down clamp screw 57 having a plate 58 engaging with the top of the mold plate 44 to hold down the plate 44 when screw 57 is tightened with the fingers and a turn handle 59. The support member 56 has threaded extensions 60 and 61 that respectively extend through the respective extensions 54 and 55 of the respective clamp members 48 and 49. The clamp members 48 and 49 are held in place by tightening respective wing nuts 62 and 63. When the mold is left in place for a definite period, such as overnight, the mold material 34 will have been substantially adhered to the worn heel area 33 and will have become sufficiently hard to provide a built up heel and give wear to the heel the same as the original rubber had given wear. A primer liquid is first applied to the wear surface 33 to condition it, thereafter the mold material is applied and allowed to harden to provide thereby a substantially built up mass integrally consolidated with the original heel.

In Figs. 4, 5 and 6, there is shown a modified form of the arrangement as indicated generally at 64, which comprises a band 65 adapted to have its ends drawn about the heel and to which a top mold plate 66 is hingeably connected at 67. Extending between and through holes in the ends of the band member 65 is a threaded tie rod 68, on the ends of which are wing tightening nuts 69 and 70. The tie rod 68 is threaded throughout its length and mold members 71 and 72 are respectively adjustable thereupon for adapting the band 66 to different size heels. These mold members 71 and 72 thus form a mold plate for the forward edge of the heel for the addition to a heel 73 of a molded mass 74. The mold member 72 can be used for holding molding material on the opposite side of the heel, when that corner of the heel may have been worn.

It will be understood that these members 71 and 72 can be adjusted along the tie rod 68 in order to alter the band for different size widths of heels. The molding material 74 is similarly applied and the top of the molding material is shaped with the top plate 66. The top plate 66 is held down by the same clamping assembly 47 that was used with the form of the invention shown in Figs. 1, 2 and 3.

If it is desired to affix heel plates 75 with the molding material projections 76 of these plates are forced into the molding material 74 and it is held in place by a round retaining plate 77 having an opening 78 or indentation 79 therein conforming in shape to the plate 75. The cover 66 is hinged downwardly over the plate 77 and will be held in place thereover by the hold down clamp assembly 47. The plate 77 can be turned to center the opening 78 or indentation 79 over the worn area. This plate is of circular shape and can be angled into a position where an upwardly depressed indentation 79 can receive and retain another heel plate of a different shape. In this case the circular plate, when the indentation 79 has been oriented for its particular function of retaining another shaped heel plate at the rear of the heel, the clamp assembly 47 can be used directly thereover without the need of the cover plate 66. When making this formation or with any such formation provided on the rear of the heel, the heel mold members 71 and 72 are not needed. The plate 77 may also have indentations on its underface conforming in shape to a design or trademark to give the finished molded material a pleasing appearance.

Referring now particularly to Figs. 9 and 10, there is shown the adaptation of the mold to a toe sole of the shoe. The shoe has the usual leather or rubber-like sole 80 about which a flexible band 81 is extended. Over this band is placed a sole plate 82. This sole 80 can have a central worn area 83 into which is placed cold vulcanizing molding material 84 adapted to be affixed to the worn area 83 by an adhesive and which will harden under the mold plate 82 over a short period of time. This plate 82 and the band 81 is held upon the sole of the shoe by hold down clamp assemblies 85 of similar construction to the hold down clamp assembly 47 above described. Turn cams 87' and 88' are respectively provided on respective end members 87 and 88 to tighten and clamp the end members together and upon the sole of the shoe. The end members 87 and 88 respectively have lugs 89 and 90 engageable with the under edges of the shoe sole 80 and respective upper extensions 91 and 92 through which extends threaded extensions 93 and 94 of a plate 95. Nuts 96 and 97 are respectively threaded upon the extensions 93 and 94 and when tightened will draw the respective clamp members 87 and 88 against the sides of the shoe sole. The plate 95 carries intermediate its length thereof a hold down screw 98 that can be turned by a turn handle 99 and which has a plate 100 that engages with the top of the hold down plate 82. With the assembly properly prepared in this manner the molding material 84 is allowed to harden and is integrally united with the shoe sole.

In Figs. 11 and 12, a similar arrangement is shown for

the securement of molding material across the toe of a shoe sole **101**. About the toe is placed a band **102** and over which a special mold plate **103** is placed. The plate **103** has a raised formation **104** to provide for a raised mass **105** upon the toe of the sole **100** when the material has finally been hardened and in that way provide for additional wear material. If desired, a wear plate similar to the plate shown in Figs. 7 and 8 may be disposed within the portion **104** to be held in place while the mass is being hardened. Over this plate **103** there is placed a hold down clamp assembly **85** constructed in the manner above described, and applied to hold the part together while the material is hardened.

As shown in Figs. 13, 14 and 15, an assembly is provided which can be secured to the toe of a sole by pins **107** extended into the side of the sole **108** and adapted to hold down top plate **109** as well as a band **110**. The band **110** has inwardly-extending lugs **111** adapted to overlie the periphery of the plate **109** as the band is brought down over the sole and are locked by thrusting the pins **107**, three in number, inwardly into or underneath the sides of the sole **108**. The band **110** may also be retained about the edge of the sole by tacky tape strips **110'** running from the ends of the band and along the edge of the sole. The band **110** has upper and lower holes **112** and **113**. The lugs are spaced differently from the upper and lower edges of the band so that for a thick sole the band is placed upon the sole on one side and for a thin sole the band is inverted and the lugs placed upon the plate on their other side. With the band secured as shown in the figures, the plate is positioned for use over a thick sole, whereas if the band is inverted its lugs will overlie the plate for connection with a thin sole. The molding material will have been placed under the plate **109** and when hardened the plate **109** and band **110** are removed.

In Fig. 16, there is shown a still further form of the invention wherein the parts are retained upon the heel in assembled relationship by elastic bands. According to this form of the invention a metal strip **115** is extended about the edge of the heel of a shoe **116**. This strip **115** has on its opposite rear ends, projections **117** over which an elastic band **118** can be placed to hold the ends of the metal strip **115** against the sides of the heel and by engagement with the front edge of the heel will prevent the rearward displacement of the strip from the heel. The mold material is applied on the rear edge of the heel in the usual manner and against the inner face of the strip **115**. Thereafter, a top mold plate **119** is fitted over the heel and made to bear against the top of the mold material to form and shape the same. In order to hold the plate **119** against lateral displacement over the edge of the strip **115** this plate is notched on its opposite sides as indicated at **120** and **121** and at its rear edge at **122**. These notches receive respective projections **123**, **124** and **125** that are bent to extend laterally outwardly but are of sufficient size to engage the side edges of the notches and thereby prevent the lateral displacement of the plate **119**. Lying on the lower edge of the strip **115** are respective projections **126** and **127** vertically aligned with the respective projections **123** and **125**. A similar projection not shown is vertically aligned with the projection **124**. These projections may thus serve to retain elastic bands **128** and **129** that can extend around the full heel and including the forward edge thereof to hold the metal strip **115** upon the heel.

In order to hold the plate **119** tightly assembled upon the surface of the heel, and against the upper edge of the plate **119**, there are provided upstanding projections **130**, **131**, **132**, and **133**, to the projections **130** and **133** of which the ends of an elastic band **134** is extended and the band running over the top of the shoe **116**. The ends of a band **135** are placed over projections **131** and **132** and extend over the open top of the shoe. These bands will hold the assembly tight upon the shoe while the molded material is being set. When the molding material has finally set the elastic bands can be removed and the mold parts disassembled from the heel.

It has been found that moldable material can accommodate a wear plate and such plate can be rigidly made secure to the heel by this mold material as it hardens in recesses or projections on the underside of the wear plate. As shown in Fig. 17, a heel plate **136** formed of hard rubber, leather or similar durable material is provided with holes **137** into which the molding material may extend or penetrate when in its pliable state to lock with the sides of the holes when the material hardens.

In Fig. 18, is a heel plate **138** having inner and outer arcuate ribs **139** and **140** on the underside thereof and angularly spaced transverse ribs **141**, **142** and **143**. The material will be projected into spaces between the ribs and will integrally adhere to the faces of the ribs as it becomes set.

In Fig. 19 a plate **144** has a continuous zig-zag formation **145** having spaces **146** and **147** of open triangular shape into the apex of which the molding material will be extended and adhered.

In Fig. 20 a heel plate **148** is provided which has criss-cross formations formed of ribs **149** running from front to rear and interconnecting transverse ribs **150**, **151** and **152** of substantially the same height running transversely so as to provide square openings **153** into which the moldable material can be pressed for adhesion with the sides of the ribs.

In Fig. 21 a heel plate **154** is provided with a serpentine-shaped projection or formation **155** on its underside providing oppositely-extending spaces **156** and **157** into which the molding material is extended. This plate **154** can be applied as illustrated in Fig. 22 to moldable material **158** placed over the worn area **159** of a heel **160**. As the molding material **158** hardens it will adhere to the serpentine projection **156** of the plate and be rigidly and integrally secured to the mass material **158**. While this is being done the wear plates can be retained in position upon the heel **160** by the round plate **77**, Fig. 6 which has indentation **79** of such shape as to accommodate the wear plate **154**. In providing the wear formations of the undersides of the several wear plates shown in Figs. 18 to 22, the height of the portion of the projections along the outer peripheral edge can be greater than the height of the portion along the inner peripheral edge and so that the shape of the projection from front to rear can conform generally to the angle of wear of the heel.

Other wear plates are shown in Figs. 23 to 26 which can be similarly applied to the molding material **158** of the heel by the use of the plate **77**. A plate **161** formed of rubber or the like has on its underside a plurality of serrations **162** angularly spaced from one another. A similar effect can be had by roughening the underface of the plate. A wear plate **163** of somewhat similar shape to the other plates but smaller may be used. This plate **163** has several arcuate rows of depending pointed projections **164** adapted to penetrate the molding material to which the material will be adhered.

In Fig. 27, there is shown a reinforcing grille member **165** adapted to be fully embedded in molding material **166** of a heel sole **163** and through openings **166** of which the molding material may extend and over the top of which may be sufficient thickness of material to cover the member **165**.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means

for securing said top mold plate between the sides of the strip and over the shoe sole, said top mold plate hingedly connected to the band mold strip intermediate its length thereof and adapted to overlie the upper edges of the band strip.

2. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, and said means for securing the band strip to the shoe sole comprising adjustable mold members extending inwardly from the ends of the band strip along the front edge of a heel sole and a thumb clamp screw fastening member securing said adjustable mold members in their adjusted positions whereby mold material may be applied to the sole along the adjustable mold members and between the ends of the band strip.

3. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, and said means for clamping the top plate to the edges of the band strip and over the sole including opposing side clamp members having lower and upper lips adapted to overlie the lower and upper edges of the band strip and the plate, a transversely-extending bar support extending between the side clamp members, tightening nuts on the bar support for drawing the side clamp members toward one another and against the shoe sole, an adjustable pressure screw extending through the bar support and having a pressure plate engageable with the top cover plate to press and hold the plate against upward displacement while the mold material is being hardened.

4. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, and said means for securing the ends of the bendable band strip together comprising a threaded screw with an adjustable nut means thereon extending between the ends of the band strip and forwardly of the sole, mold plates adjustable upon said threaded screw to permit the band strip to be adjusted to different width soles and the mold plate adjusted to lie at the corners of the sole.

5. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, and said top plate having an upward indentation whereby the molded material when finally hardened will be shaped to provide mold material elevated from the surface of the sole.

6. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, said means for securing the band strip about the sole comprising elastic rubber bands surrounding the outer face of the band strip and across the front edge of the sole, and said band strip having laterally-outwardly extending projections on its upper and lower edges to confine and retain the elastic band upon the exterior surface of the band strip and against upward and downward displacement therefrom.

7. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, and said means for securing said band strip about the shoe sole comprising elastic means, projections on the ends of the band strip to which the elastic means can be readily attached.

8. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, and said means for securing the top plate over the band strip and over the shoe sole comprising hook projections extending upwardly from opposite sides of the top plate and elastic bands having their ends extended between the hook projections on the opposite sides of the top plate and over the top of the shoe.

9. In a shoe repair mold, a bendable band strip adapted to be wrapped about the edge of a shoe sole and to confine the shape of moldable material to the contour of the shoe sole, means for securing the ends of the band strip to the shoe sole, a top mold plate extended over the shoe sole to shape the top of the moldable material and means for securing the top mold plate between the sides of the bendable band strip and over the shoe sole, and said top plate having recesses adapted to be aligned with the projections on the top edge of the band strip whereby the top plate can be held against lateral displacement therefrom.

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