July 20, 1948. W. H. DOHERTY 2,445,665

SHOE CONSTRUCTION

Filed March 29, 1946

Fig. 1.

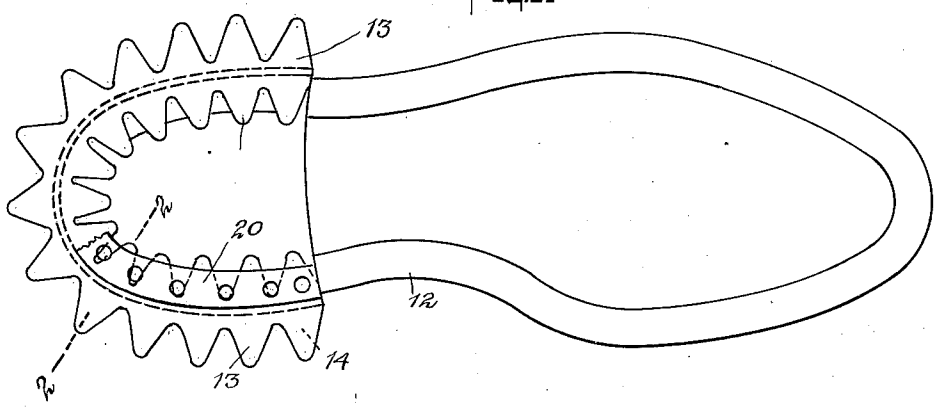


Fig. 2.

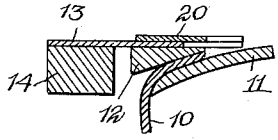


Fig. 3.

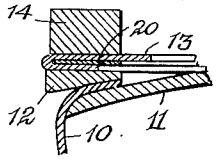


Fig. 4.

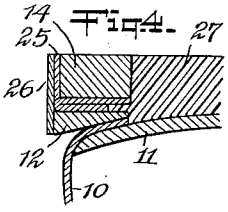


Fig. 5.

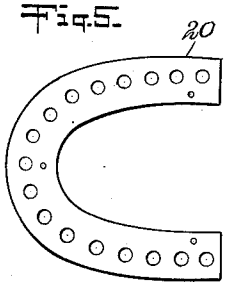


Fig. 6.

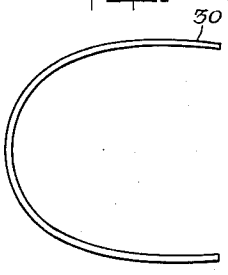


Fig. 7.

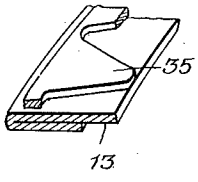


Fig. 8.

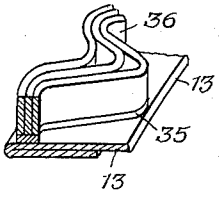
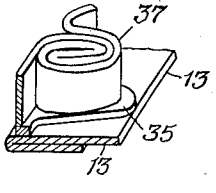


Fig. 9.



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SHOE CONSTRUCTION

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Application March 29, 1946, Serial No. 658,107

4 Claims. (Cl. 36—14)

1

This invention relates to shoe treads.

The primary use of the present invention is in connection with shoe heels. It may however be used in connection with shoe soles and its use in such latter connection is equally advantageous.

The principal object of the invention is the provision of a shoe tread (and as these words "shoe tread" will hereinafter be used they are intended to mean shoe heels and shoe soles) which is long wearing and yet resilient and which is adapted to make use of many of the new advances in the field of plastics.

Another object of the invention is the provision of a shoe tread which is formed of different materials for the different parts thereof, a resilient material for that part of the tread which should be resilient, and a non-resilient material for that part of the tread which should be non-resilient.

A further object of the invention is the provision of a shoe tread of the character described which may be manufactured by mass production methods and which will be relatively inexpensive in construction and of pleasing appearance.

Preferred embodiments of this invention are shown in the accompanying drawing in which

Figure 1 is a bottom view of a heel incorporating the principles of this invention, said heel being shown in both assembled and unassembled condition.

Figure 2 is a section on line 2—2 of Figure 1 showing in detailed form how the outer edge of the unassembled heel looks.

Figure 3 is a view similar to that of Figure 2 showing a second step in the manufacture of the heel.

Figure 4 is a view similar to that of Figure 3 showing the heel in assembled and finished condition.

Figure 5 is a plan view of a stiffening plate used in the manufacture of said heel.

Figure 6 is a view similar to that of Figure 5 showing a stiffening member similar to the stiffening plate shown in Figure 5 but made instead of wire or similar material.

Figure 7 is a fragmentary perspective view of another type of tread construction showing an intermediate step in the production thereof.

Figure 8 is a view similar to that of Figure 7 with an added feature, to wit, the tread proper attached, and

Figure 9 is a view similar to that of Figure 8 showing another form of tread construction substantially similar to that shown in Figure 8.

2

Although the present description will be solely of the heel member of the shoe and not of the sole member thereof, it will be understood that the constructional features of the heel relate equally well to the sole. The description will be solely of the heel for purposes of convenience.

Shown in Figures 2, 3 and 4 is a fragmentary view of a shoe having an upper 10, an inner sole 11, and a welt 12. The heel forming the subject matter of this application is provided with a substantially U-shape strip of rubber or similar material 13, said strip being affixed to the welt along the inner edge of said strip. This may be done by means of an adhesive or in any other suitably conventional manner.

Affixed to the lower side of said strip 13, as viewed in Figures 2, 3 and 4 and along its outer periphery, is a plurality of tread members 14. The view of treads 14 shown in Figure 1 will indicate that these treads are substantially triangular in shape. They need not be triangular in shape, however, but for reasons which will hereinafter appear this construction is preferred.

It will be seen in Figure 3 that the strip 13 is adapted to fold over upon itself so that the outer edge thereof becomes superimposed upon the inner edge thereof and more particularly upon that portion thereof which is affixed to the welt. In consequence the treads 14 are brought into the position shown in Figure 3.

As seen in Figure 1 these treads extend along a line which coincides with the welt. The reason may now be seen for preferring to use triangular shaped tread members 14. Since these tread members are brought together by the folding over of the strip 13 and since they are arranged in a somewhat horseshoe shaped line they nestle closely to each other without actually engaging one another.

It will be noted in Figure 2 that a stiffening plate 20 is laid upon the strip 13 before said strip is folded over in the manner above described. When the strip is folded over as described the plate 20 becomes sandwiched in between the two parts of the strip 13. This stiffening plate is of substantial horseshoe shape and therefore conforms to the lines of the welt. It may be said at this point that the use of the stiffening plate in this connection renders it a much easier matter to fold the strip 13 over as described.

The heel is now ready for the final operation which is the filling operation. A band 25, generally a rubber band, is placed around the heel in the manner shown in Figure 4. This is a finishing band which finishes off the side of the heel.

A retaining band 26 is now placed around the heel also in the manner shown in Figure 4. This retaining band is a type of mold which holds the several parts of the heel together during the filling operation. A filler 27 is now poured into the spaces among the several tread members 14. A common surface is thereby provided between the tread members 14 on the one hand and the filler 27 on the other. This may be seen in Figure 4.

It will be understood that different materials may be used in the several members above described. For example, the tread members 14 may be made of plastics. On the other hand, they may also be made of rubber or rubber composition or any other suitable material. The filler 27 may be made of plastics or it may be a rubber composition. The stiffening plate 20 may be made of metal and on the other hand a plastic plate would be equally suitable. The retaining band 26 itself may be a plastic band.

Figure 6 shows a stiffening wire 30 intended to take the place of the stiffening plate 20. This wire may be made of metal or it may be made of plastics.

In Figures 7 and 8 another type of tread block construction is shown. On the rubber strip 13 a plurality of triangular shaped rubber members 35 is affixed. A plurality of strips of fabric 36 is affixed to the rubber members 35 in the manner shown in Figure 8, that is they are affixed along their edges rather than along their sides. They conform substantially to the triangular shape of the members 35 but in so doing they necessarily come together intermediate adjacent triangular members 35 and separate in the center of said triangular members 35. This is clearly shown in Figure 8. A space is thereby provided between adjacent strips of fabric and this space is filled with a composition similar to that of filler 27 hereinabove described. In all other respects the construction is the same as that shown in Figure 4.

In Figure 9 a construction is shown similar to that of Figure 8, the strip of fabric, however, being continuous and being coiled upon each of the triangular members 35. The spaces among the several of these coiled members 37 are filled in the manner above described with a filler 27.

It will be appreciated that what have above been described are but preferred embodiments of this invention and that a great many changes and variations may be incorporated therein without departing from the basic principles of the invention. For example, the strips 36 and the coiled members 37, as shown in Figures 8 and 9, may be prefilled with filler 27. In actual production these prefilled strips would be cut from long rolls of the filled material in much the same manner, for example, as a jelly-roll is sliced transversely thereof.

I claim:

1. A welted shoe having a tread comprising a rubber strip affixed to the welt by means of an adhesive, said strip being folded over itself to form a pocket, a stiffening plate in said pocket, a plurality of tread blocks affixed to that part of the strip which is folded over the stiffening plate, and a molded composition filler occupying the space between said tread blocks.

2. A welted shoe having a tread comprising a rubber strip affixed, along its inner edge, to the shoe welt, the outer edge of said strip being folded over the inner edge to form a pocket therebetween, a stiffening plate in said pocket, a plurality of tread blocks affixed to that part of the strip which is folded over the stiffening plate, and a filler of plastics occupying the space between said tread blocks.

3. A welted shoe having a tread comprising a rubber strip affixed, along its inner edge, to the shoe welt, the outer edge of said strip being folded over the inner edge to form a pocket therebetween, a stiffening plate in said pocket, a plurality of tread blocks affixed to that part of the strip which is folded over the stiffening plate, and a filler of plastics occupying the space between said tread blocks, said tread blocks being made of a rubber material.

4. A welted shoe having a tread comprising a rubber strip affixed, along its inner edge, to the shoe welt, the outer edge of said strip being folded over the inner edge to form a pocket therebetween, a stiffening plate in said pocket, a plurality of tread blocks affixed to that part of the strip which is folded over the stiffening plate, and a filler of rubber material occupying the space between said tread blocks, said tread blocks being made of plastics material.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
546,932	Mayer	Sept. 24, 1895
1,032,640	Wette	July 16, 1912
1,604,583	Karpe	Oct. 26, 1926
2,353,829	Jakosky	July 18, 1944
2,364,134	Dow et al.	Dec. 5, 1944
2,383,122	Ghez et al.	Aug. 21, 1945