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SHOE SOLE CONSTRUCTION

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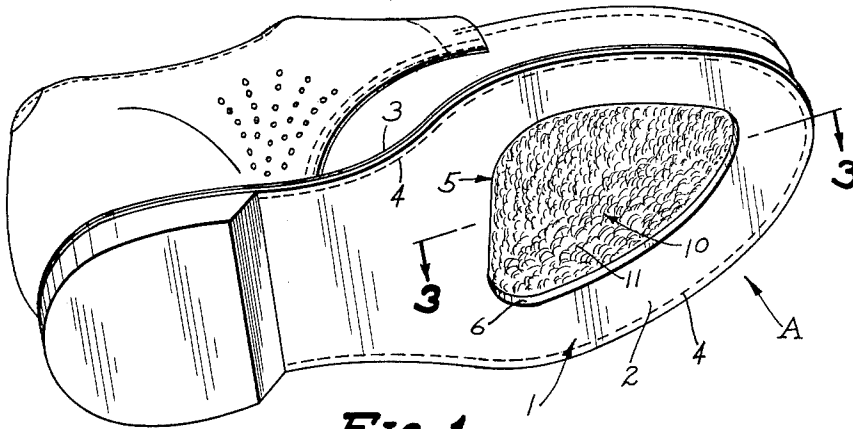


FIG. 1

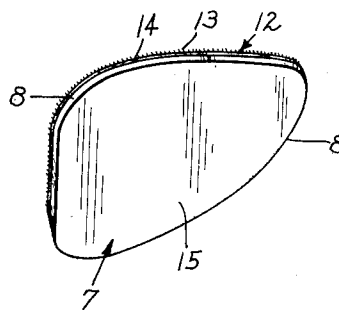


FIG. 2

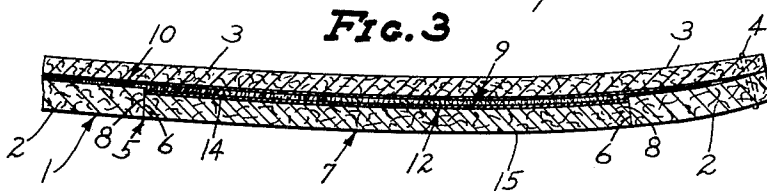
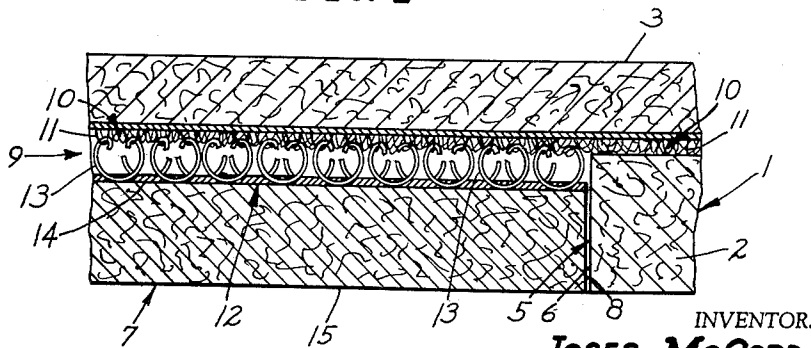


FIG. 3

FIG. 4



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## SHOE SOLE CONSTRUCTION

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1 Claim. (Cl. 36—30)

This invention relates generally to a shoe and more particularly it relates to a new and useful shoe sole construction in which the coefficient of friction thereof may be easily varied in relation to the frictional quality of a floor surface.

This invention will be seen to be extremely useful whenever it is desirable to change the attrition of a person's shoe sole. Due to the fact that there is a great differential in the frictional qualities of the surfaces of bowling alley floors, it becomes evident that one use of this invention would permit participants in the game of bowling to adjust the frictional qualities of their shoe soles with relation to the varying frictional qualities of the floor. If the surface of a bowling alley floor happens to be excessively smooth or slippery, it is more likely that the bowler will slip while delivering the ball; and if the surface of the bowling alley floor happens to be excessively rough or sticky, it is more likely that the movement of the bowler while delivering the ball will be hindered to the extent that the accuracy of the delivery will be affected. In light of the above, an important object of this invention is the provision of a shoe sole construction in which the coefficient of friction between the shoe sole and the floor may be varied in proportion to the sliding resistance of the surface of the bowling alley floor.

Another object of this invention is the provision of a shoe sole construction in which the lower tread ply thereof defines a recess which receives interchangeable tread inserts having various coefficient of friction.

Another object of this invention is the provision of a shoe sole construction in which the tread inserts may be quickly, easily and simply changed without removing the shoe from the wearer's foot, and in which said tread inserts are tightly secured solely to the underneath side of the shoe without the use of extraneous fasteners.

A further object of this invention is the provision of a shoe sole construction in which the interchangeable tread inserts are substantially coplanar with the tread surface of the shoe sole so as to produce a shoe sole that is free from protruding obstacles which might be likely to trip or hinder the movement of the wearer.

The above and still further objects of this invention will become apparent from the following detailed specification, appended claim and attached drawings.

Referring to the drawings wherein like reference characters indicate like parts or elements throughout the several views:

FIG. 1 is a view in perspective, some parts removed;

FIG. 2 is a view in perspective of a tread insert;

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 1 with the insert of FIG. 2 added thereto; and

FIG. 4 is a greatly enlarged fragmentary sectional view corresponding to FIG. 3.

Referring with greater particularity to the drawings, the reference letter A represents generally a shoe, and the reference numeral 1 represents generally the sole thereof. The sole 1 comprises a lower ground engaging tread ply 2 and an upper ply 3 which is secured to the lower ply 2 preferably, and as shown, by the stitching 4. With

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relation to the use of this invention by participants in the game of bowling, it should be noted that it is common knowledge that the game of bowling requires the use of a pair of shoes in which the sole of one of the shoes is formed from a material which will allow the bowler to slide his foot easily across the floor.

In carrying out the invention, the lower ply 2 of the sole 1 is formed with an arcuate recess 5 defined centrally within the fore part thereof. The recess 5 has a wall portion 6 which is generally perpendicular to the lower ply 2. The recess 5 is designed to receive an annular tread insert 7 which is shown particularly in FIG. 2. The tread insert 7 is contoured so as to conform to the recess 5, and defines an annular outer edge 8 which abuts with the wall portion 6 of the recess 5 when the tread insert 7 is received within the recess 5.

The tread insert 7 is adhered to the upper ply 3 preferably, and as shown, by means of the Velcro fastening device, represented generally by the reference numeral 9, and manufactured in the United States by American Velcro, Incorporated. The fastening device 9 comprises a pile fabric 10 comprised of a plurality of tiny loops 11 and a cooperating fabric 12 comprised of a plurality of tiny hooks 13. When the two fabrics 10, 12 are pressed together a great portion of the hooks 13 engage the loops 11 so as to secure the two fabrics 10, 12 together. However, when it is desired to separate the fabrics 10, 12, the same is accomplished merely by pulling on the fabrics 10, 12 until the hooks 13 become so deformed that they slip out of the loops 11.

Preferably, and as shown, the pile fabric 10 is secured to the upper ply 3 by a suitable adhesive, not shown, so as to form the upper extent of the recess 5. The cooperating fabric 12 is also secured by a suitable adhesive, not shown, to the upper side 14 of the tread insert 7. Of course, it should be understood that the disposition of the fabrics 10, 12 may be reversed, i.e., the pile fabric 10 being secured to the tread inserts 7 and the cooperating fabric 12 being secured to the upper ply 3.

In accordance with this invention, it is contemplated that a series of tread inserts, which correspond to the tread inserts 7 are to be provided. Each of these inserts will differ from one another only in the relative smoothness of the bottom side 15 thereof.

In using this invention the wearer first must obtain the relative frictional surface condition of the floor surface upon which he is to walk. Then he selects a tread insert 7 which will compensate for the floor condition so as to provide the desired coefficient of friction between his shoe and the floor, and presses the insert 7 within the recess 5 whereby the hooks 13 engage the loops 11 so as to removably secure said tread insert 7 to the upper ply 3, as described above.

This invention has been thoroughly tested and found to be completely satisfactory for the accomplishment of the above objects; and while I have shown a preferred embodiment thereof, I wish it to be specifically understood that same may be modified without departure from the scope and spirit of the appended claim.

What I claim is:

A shoe sole comprising a lower tread ply and an upper ply, said plies having aligned marginal edges and said plies being secured to one another with the upper surface of said lower ply in engagement with the bottom surface of said upper ply, said lower ply having intermediate its marginal edges a generally centrally disposed aperture which extends through said lower ply and in

cooperation with the lower surface of said upper ply defines a recess, a tread insert the size and shape of which conforms generally to said recess of said lower ply, said tread insert being receivable within said recess, a first fabric secured to the bottom surface of said upper ply and forming the upper extent of said recess, a second fabric secured to the upper surface of said tread insert, one of said fabrics comprising a plurality of tiny loops and the other thereof defining a plurality of tiny hooks, said hooks being adapted to engage said loops when said

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tread insert is pressed within said recess so as to removably secure said tread insert to said upper ply of the sole.

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