June 2, 1953 J. McCORD 2,640,283

BOWLER'S SHOE

Filed May 10, 1952

FIG. 1.

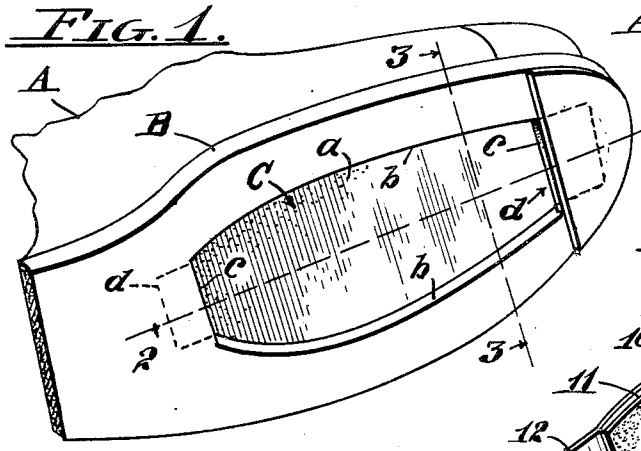


FIG. 3.

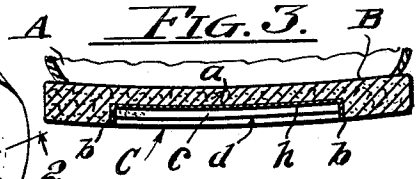


FIG. 4.

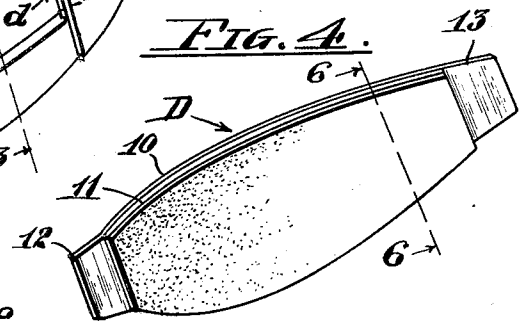


FIG. 2.

FIG. 5.

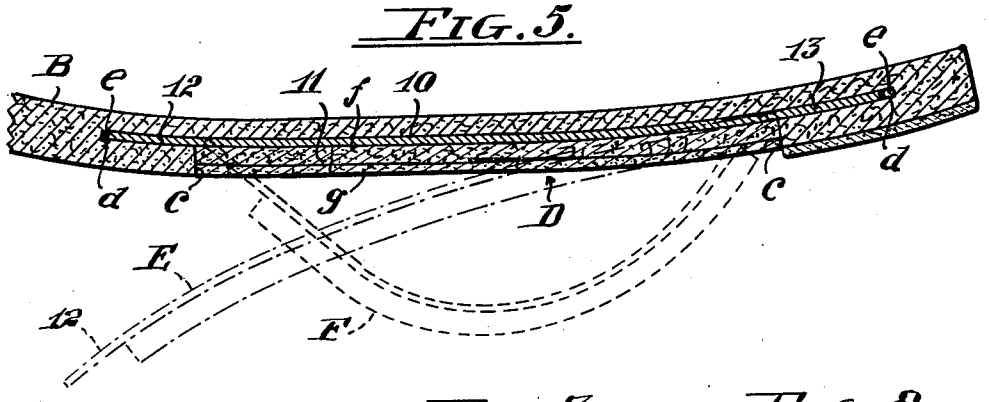


FIG. 6.

FIG. 7.

FIG. 8.

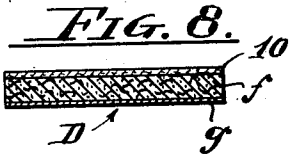
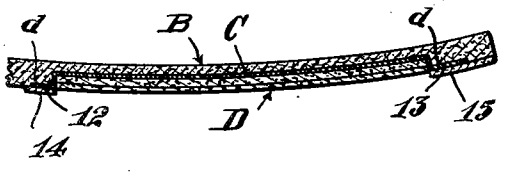


FIG. 9.



Inventor

Joses McCord:

By R. S. Berry

Attorney

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BOWLER'S SHOE

Joses McCord, Hollywood, Calif.

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3 Claims. (Cl. 36—25)

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This invention relates to a shoe and particularly pertains to shoes designed to be worn by bowlers when playing the game of bowling.

The primary object of the invention is to produce a construction whereby the traction of a shoe sole, or its adhesive friction on a surface, may be varied, so as to compensate for variations in the adhesiveness of a floor surface to be trod by the shoes wearer, and which is especially applicable to bowlers' shoes so as to enable proper sliding of the advanced foot on the floor of the bowling alley when casting the ball.

Floor surfaces of the approach portion of bowling alleys occupied or traversed by the bowler during play are variable in their adhesiveness, sometimes being excessively smooth or slippery, or excessively rough, tacky, or sticky. Where the surface is excessively smooth the player may slip in making a cast and where it is excessively rough or sticky the player's movement over the floor may be impeded. In either event the cast or throw of the ball may be interfered with and to such extent as to materially affect the score of even expert bowlers.

The present invention contemplates the provision of a removable and interchangeable tread section for the sole of a shoe which, with the provision of a series of tread sections of different traction characteristics, enables equipment of the shoe with a tread having an adhesiveness to compensate for an undesirable floor condition; the invention enabling fitting the shoe sole with a soft tread for use on smooth or slippery floors and with a hard tread for use on a rough or sticky floor, as well as a tread of normal tractive character for use on a normal floor.

A particular object is to provide a simple and readily operable means for effecting attachment of the interchangeable tread sections to a shoe sole and to provide a construction whereby the tread sections may be securely anchored to the shoe sole and thereby be held in position thereon against accidental displacement yet be subject to easy removal and replacement.

Another object is to provide a removable tread section for shoe soles and mode of attachment to the sole so designed as to be carried solely on the underside of the sole so as to obviate arrangements and fastenings which overlie the shoe upper or the margins of the shoe sole or otherwise afford objectionable projections on a shoe such as is occasioned in the slip-on type of supplemental shoe soles heretofore known.

Another object is to provide a removable and replaceable tread section for shoe soles and a

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mode of mounting same wherein the tread section when attached to a shoe sole will be countersunk therein at least in part with its tractive surface either on a plane with or protruding slightly relative to the tread surface of the shoe sole.

A further object is to provide a shoe sole tread attachment of the above character which may be easily and quickly removed and replaced by the wearer of the shoe while the shoe is being worn so as to obviate any necessity of removing the shoe for such purpose.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, the invention resides in the parts and in the combination, construction and arrangement of parts hereinafter described and claimed, and illustrated by way of example in the accompanying drawing, in which:

Fig. 1 is a perspective view of a shoe sole as seen from the underside thereof showing it as formed with a recess in the tread portion thereof for the reception of a removable and replaceable tread section;

Fig. 2 is a view in longitudinal section taken on the line 2—2 of Fig. 1;

Fig. 3 is a cross sectional view as seen on the line 3—3 of Fig. 1;

Fig. 4 is a perspective view of the removable and replaceable tread section as seen from the traction or tread side thereof;

Fig. 5 is a view in longitudinal section of the shoe sole showing the tread section of Fig. 4 in place thereon and indicating in dotted lines the mode of applying and/or removing the tread section;

Fig. 6 is a view in cross section of the tread section taken on the line 6—6 of Fig. 4 showing it as provided with a soft tread portion;

Fig. 7 is a view similar to that of Fig. 6 showing the tread section as provided with a normal tread portion;

Fig. 8 is a view similar to that of Fig. 6 showing the tread section as provided with a hard tread portion; and

Fig. 9 is a view in longitudinal section similar to that of Fig. 5 showing a modified form of the invention.

Referring to the drawing more specifically A indicates a shoe and B designates the shoe sole. In carrying out the invention the sole B is formed with an elongated longitudinally extending recess C having a bottom wall *a*, side walls *b* and end walls *c*; the bottom wall *a* being substantially flat although slightly curved longitudinally

and transversely in conformity to the usual slight curvatures of the shoe sole, and the side and end walls *b*—*c* being perpendicular to the bottom wall *a* or substantially so. The end walls *c*—*c* are each formed with a recess *d* which in the construction shown in Figs. 1, 2 and 5 has a bottom wall *e* extending in continuation of the bottom wall *a*, and in the construction shown in Fig. 9 is inset in the tread face of the sole.

The recess C is designed to receive a tread insert D particularly shown in Fig. 4 which insert is contoured to conform to the recess C and comprises a hard flexible and spring-like backing plate **10** on which is mounted a traction pad **11** here shown as formed of two adhered together plies *f*—*g* of sheet material which plate **10** and pad **11** have a combined thickness at least equalling the depth of the recess C. The traction pad **11** is adhered to the backing plate by a suitable adhesive or may be secured thereto by stitching, riveting or other conventional fastening means.

The ply *f* of sheet material is formed of a cushioning material such as leather, rubber, rubber composition, or synthetic rubber, while the tread ply *g'* is formed of a sheet material having a requisite degree of hardness or surface finish to afford a desired traction characteristic; it being contemplated to provide a series of at least three tread inserts equipped with tread plys of different tractive properties as shown for example in Figs. 6, 7 and 8 in which the tread ply *g* shown in Fig. 6 is soft and yielding in comparison with the normal texture of the sole of a bowling shoe; the tread ply shown in Fig. 7 is of medium hardness or comparable to the normal texture of the shoe sole; while the tread ply shown in Fig. 8 is relatively hard and smooth compared with the normal shoe sole.

The backing plate of the insert C is extended beyond the ends of the traction pad **11** to form stiff flat tangs **12**—**13** which are insertable in the recesses *d* to effect interengagement of the ends of the tread insert with the sole B at the ends of the recess C; the tangs **12**—**13** serving when engaged within the recesses *d* to hold the tread insert D in the recess C while the margins of the tread insert in conforming to the walls of the recess and abutting thereagainst serve to hold the insert against longitudinal or lateral displacement.

In order to inhibit longitudinal movement of the insert D relative to the shoe sole B under the thrust of traction imposed on the insert, the side walls *b*—*b* of the recess C and the conforming side margins of the insert are outwardly curved or bowed to afford a transversely abutting relation between the longitudinal margins of the insert D and the side walls of the recess. This is an important feature of the construction since the insert D is flexible and capable of bending longitudinally which is essential in order to effect its application and removal which is accomplished as shown in Fig. 5 and is as follows:

In initially applying the insert one of the end tangs **12** or **13** thereof is directed into its companion recess *d* at an end of the recess C as indicated by the dot and dash lines E in Fig. 5 whereupon the insert D is bowed outwardly as indicated by the dotted lines F and the tang **12** or **13** at the other end of the insert is directed into its companion recess *d*; the insert being then bodily depressed into the recess C so that the backing plate **10** will seat on the bottom wall of

the recess C with its end tangs **12**—**13** engaged in the end recesses *d*—*d* as illustrated in Fig. 5. The insert will then be securely held in place. To effect removal of the insert it is engaged at its edges intermediate its ends as by the nails of the thumb and fingers and pulled bodily outward to flex the insert and withdraw the tangs **12**—**13** out of engagement with the recesses *d*—*d*.

In the modified construction shown in Fig. 9 the shoe sole is provided with transverse straps **14**—**15** at the opposite ends of the recess C which overlie the recesses *d*—*d* inset in the surface of the shoe sole, and the tangs **12**—**13** on the ends of the backing plate **10** are offset relative to the backing plate proper so as to be engageable in the recesses *d*—*d*.

As a means for facilitating removal of such dust or particles of matter as may accumulate in the recess C the bottom *a* and marginal walls *b* and *c* may be coated with a hard smooth surfacing material, such as a plastic varnish, as indicated at *h* in Fig. 3.

In the use and operation of the invention, the bowler ascertains the surface condition of the approach portion of the bowling alley, which may be effected by testing with the shoe fitted with an insert D or normal traction characteristic. If it is found that the floor surface is abnormally slippery the normal insert is removed and replaced by one having a softer tread *g* which will have greater frictional engagement with the floor surface than would the normal shoe sole, and if it is found that the floor surface is abnormally rough or tacky so as to interfere with desired sliding of the normal tread insert thereover, the latter is removed and replaced by an insert D having a hard and smooth tread *g* which will permit requisite sliding action.

While I have shown and described a specific embodiment of my invention, I do not limit myself to the exact details of construction set forth, and the invention embraces such changes, modifications and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

I claim:

1. A shoe sole having a tread surface and formed with a recess in said surface having marginal walls, including end walls each of which is formed with a recess, a traction insert seated in said recess, and end tangs on said insert detachably engageable in the recesses in said end walls.

2. A shoe sole having a tread portion formed with a recess; a traction insert for said recess conformable therewith including a backing plate, and a traction pad affixed to said plate; and tangs on said backing plate projecting beyond the ends of said pad detachably engageable with recesses with which said sole is formed; said plate and pad being flexible whereby the insert may be bent in engaging said tangs with said recesses and in disengaging the tangs therefrom.

3. A shoe sole having a tread formed with a recess having end walls each of which is formed with a recess and a tread insert for said recess conformable thereto embodying a hard but pliable backing plate having tangs thereon detachably engageable with said end wall recesses, said plate being adapted to seat in said tread recess, and a pad affixed to said backing plate conformable to said tread recess having a traction

surface at least substantially coplaner with the tread of said sole.

JOSES McCORD.

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