April 13, 1943. F. V. LARKIN 2,316,601

CORD PLUG

Filed July 18, 1941

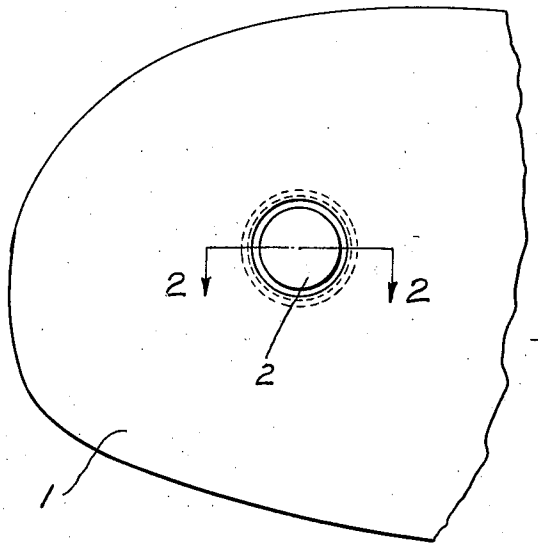


Fig. 1

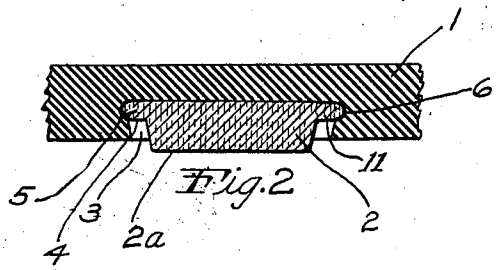


Fig. 2

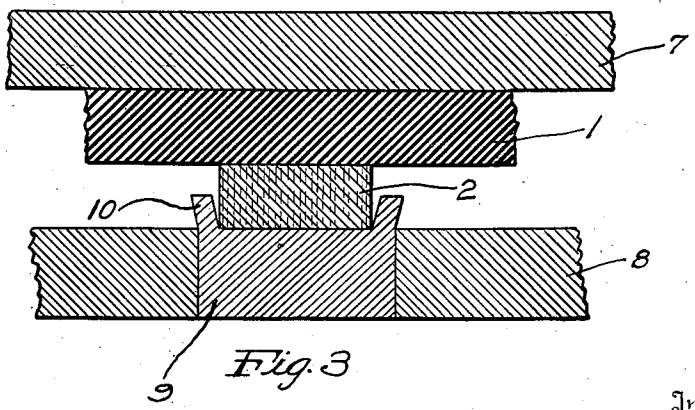


Fig. 3

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Patented Apr. 13, 1943 2,316,601

UNITED STATES PATENT OFFICE

2,316,601

CORD PLUG

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Application July 18, 1941, Serial No. 402,894

3 Claims. (Cl. 36—59)

This invention relates to improvements in rubber treads for soles and heels for boots and shoes.

The principal object of the invention is to provide a rubber sole or heel having wear-preventing means in the form of a plug made of rubberized fabric or other similar material.

Plugs of this character are usually secured in the heel or sole merely by the adhesiveness of the rubber, the plug or insert having applied thereto a rubber cement or other compound to promote the adhesion thereof to the sole or heel. It has been found in practice, however, that the union between the plug and sole is usually destroyed soon after the same is used in service or when subjected to hard usage, and the plugs have the tendency to pull away from the sole and drop out due to the fact the plug is made of a material which is much less elastic than the rubber sole, and this difference in elasticity causes a relative movement of the plug when it is compressed and expanded and contracted when in use, which tends to tear the plug away from the sole.

In the prior art, it is common practice to cut the stock into sole or heel shape, then to cut out the stock with a die to form a cavity for the reception of the plug, and to then vulcanize the same. This method is not efficient and materially increases the expense in manufacturing. The prior art also discloses plug-retaining means, which also adds to the manufacturing cost.

To overcome these difficulties, I have provided a sole in which the plug is anchored in place.

Whereas in the drawing I have illustrated a sole, it will, of course, be understood that the invention is equally applicable to a heel.

In the drawing:

Fig. 1 is a bottom view of a portion of a sole;

Fig. 2 is a sectional view taken on the line 2—2 of Figure 1; and

Fig. 3 is a sectional view of a mold showing the sole and plug prior to vulcanization.

Referring to the drawing, 1 designates a rubber sole having a friction plug 2 of rubberized fiber or cord, or other wear-resisting material embedded therein and forming an integral part thereof, the upper surface 2a of which extends slightly above the sole or beyond the tread surface (see Fig. 2). An inclined well or groove 3 is formed between the plug and sole, forming an under-cut bevel or lip 4 in the sole material. The plug is formed with an integrally connected flange 5 made of the same material as the plug, located at the bottom of the well, the outer edge 6 of the flange being disposed under the bottom of the lip 4 to securely lock and hold the plug against displacement when the sole is used in service.

In manufacturing this improved sole, the sole material 1 and plug 2 are placed between the mold sections 7 and 8. The mold section 8 has a cut-out portion for the reception of an insert 9, said insert having an outwardly inclined flange 10. The mold is then closed, which forces the plug 2 into the body of the sole 1. The pressure on the plug 2 causes the same to spread out at the base 11 thereof to form the flange 5, and the flange so formed is forced into the rubber sole under the lip portion 4, thus firmly anchoring the plug 2 in the sole and preventing the same from being pulled or forced out of the sole after the same has been vulcanized.

I have provided a plug, commonly termed a cord-on-end plug, which is usually made by wrapping a sheet of rubberized friction material into a circular or other cross-sectional form, and then cutting off a portion to the thickness desired. It is a difficult matter to make plugs of the same diameter since the length of developed sheet material, the tightness of the wrap, and the thickness of the sheet will affect the diameter of the same. It has been found that by providing a beveled well 3 around the plug 2, a greater variation in the plug diameters may be accommodated, thus materially reducing the cost of producing the plugs.

It will, of course, be understood that an adhesive, such as rubber cement, may be applied to the base 11 of the plug to promote the adhesion thereof to the sole before vulcanization.

In the drawing, I have illustrated a single circular plug. It will be understood that several plugs may be used and that the same may be of any shape or form, and any design may be formed thereon.

I claim:

1. A rubber sole having a friction plug located therein, said plug being separated at the upper portion thereof by an inclined well, a flange on said plug at the base portion thereof, said flange extending beyond the outer wall of said well, said plug and flange being integrally connected to said sole.

2. A rubber sole having a friction plug located therein, a well having an inclined wall around said plug, and a flange on the base of said plug, said plug and flange being integrally secured to said sole.

3. A rubber sole having a friction plug located therein, a well having an inclined wall thereabout, a flange on the base of said plug, said flange being integrally secured at the bottom of said well to the sole.

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