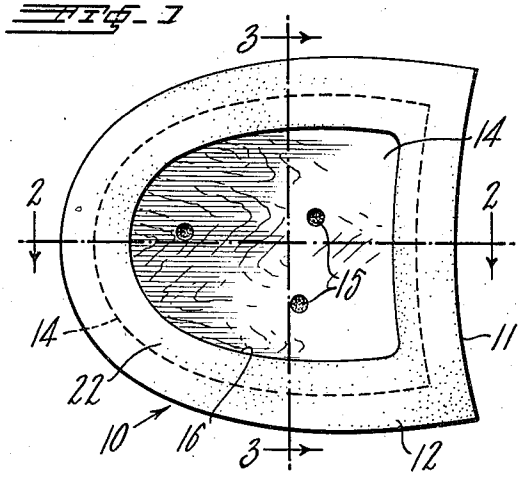
May 1, 1945. E. C. UHLIG 2,375,153

CUSHION HEEL

Filed Sept. 12, 1942

Fig. 1



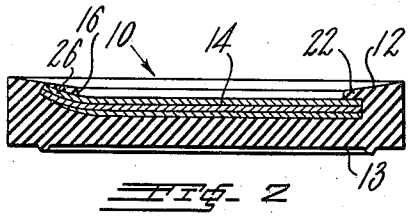


Fig. 2

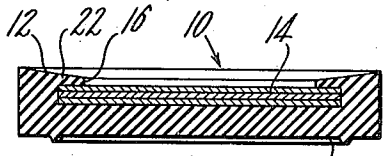


Fig. 3

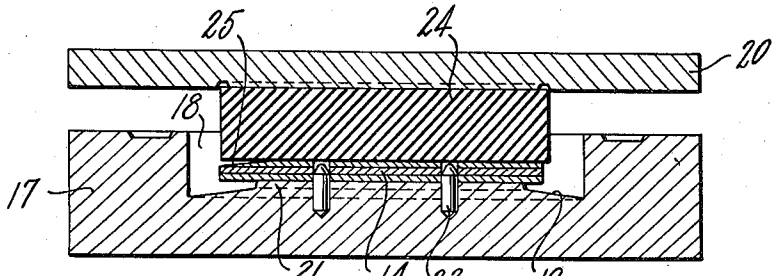


Fig. 4

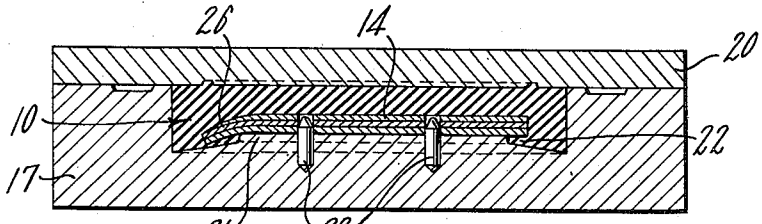
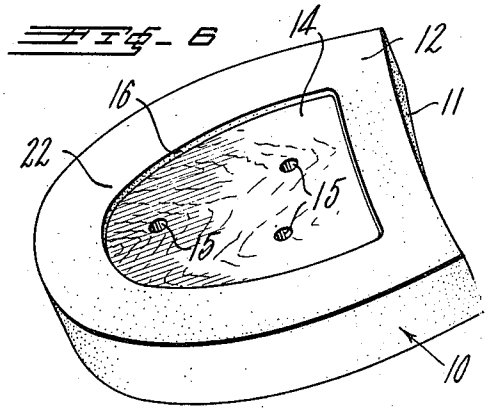


Fig. 5

Fig. 6



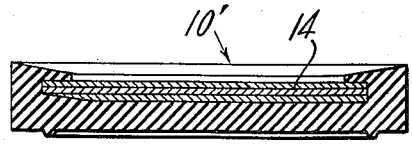


Fig. 7

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UNITED STATES PATENT OFFICE

2,375,153

CUSHION HEEL

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Application September 12, 1942, Serial No. 458,097

1 Claim. (Cl. 36—35)

This invention relates to cushion heels and more particularly to the type of cushion heel that has embedded therein a relatively rigid core or insert forming the nail-holding member.

It has been proposed heretofore to make rubber heels having a core of plywood or other relatively rigid material embedded therein to form the nail-holding member. These prior heels have had the relatively rigid core disposed at the attaching face of the heel so that the core formed a part of the attaching face and rested against the portion of the shoe to which the rubber heel was secured.

These heels as constructed heretofore have not been entirely satisfactory due to the tendency of the core of plywood or other relatively rigid material to pull loose from the vulcanized rubber heel member when the heel is worn upon a shoe.

The present invention contemplates a construction whereby the relatively rigid nail-receiving core is much more securely attached to the resilient heel member than heretofore. As a result of the construction of the present invention the likelihood of the core being pulled loose from the resilient heel member is greatly reduced, and a heel of increased cushioning effect is secured.

The type of heel above described as employed heretofore was molded in a heel vulcanizing mold of well known construction and comprising a metal member having formed therein a well or cavity adapted to receive the rubber blank of vulcanizable stock. The bottom or floor of such well was constructed to impart the desired shape to the attaching face of the rubber heel, and the mold had a top plate adapted to be subjected to pressure to cause the rubber blank to conform accurately to the interior of the mold during the vulcanizing period.

Heretofore it was the general practice to place the abovementioned core within the well of the mold just described so that this core would rest directly on the floor of the mold. This caused the outer face of the core to be disposed at the attaching face of the heel, and allowed almost no opportunity for the rubber in the mold to flow around the edge of the core and over its outer marginal edge thereof. As a result, in such prior construction, the bond between the inner face of the core or insert and rubber heel member was relied upon almost entirely to anchor one to the other. This bond frequently proved insufficient to prevent the core from being torn away from the vulcanized rubber, the bond being particularly weak at the forward corners of the core and along the breast portion of the heel.

This difficulty of the prior construction is overcome by the present invention through a construction whereby the core is embedded within the heel forming material at some distance from the attaching face of the heel so that a substantial amount of rubber overlies the outer face of the core around its marginal edge to help secure the core in place.

The present construction serves also to form a distinct well in the attaching face of the heel and having the core disposed at the bottom of the well. As a result of this construction the core does not rest directly against the portion of the shoe to which the heel is attached as heretofore, but the core is held slightly spaced from such portion of the shoe by the rubber that extends over its marginal edge. This permits slight relative movement between the core and shoe, whereby an increased cushioning action is secured.

The novel construction of the present invention may be readily formed by employing a heel vulcanizing mold similar to that above described as employed heretofore, except that in carrying out the present invention it is necessary to provide such heel mold with a raised block or platform secured to the abovementioned floor at the bottom of the cavity in the mold. The purpose of this block or platform is to hold the core in spaced relation to such floor during the molding and vulcanizing operation so that the pressure applied to the rubber blank by exerting pressure upon the mold top plate will cause the vulcanizable rubber to flow around the core and over the marginal portion of its outer face, to thereby cause a substantial amount of rubber to overlie this marginal edge portion of the core. The contour of the side walls of the raised block serves to determine the shape of the walls of the well. That is, this block will serve as a mold for the well that extends inwardly from the attaching face of the heel.

The various features of the present invention will be more fully understood from the following description when read in connection with the accompanying drawing illustrating two good practical embodiments of the present invention.

In the drawing:

Fig. 1 is a plan view of the attaching face of a cushion heel constructed in accordance with the present invention.

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

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a longitudinal sectional view through a heel vulcanizing mold constructed to produce a heel in accordance with the present invention, the parts being shown before the mold is closed.

Fig. 5 is a view similar to Fig. 4 showing the appearance of the parts when the mold is closed.

Fig. 6 is a perspective view of the finished heel produced in the mold of Fig. 5; and

Fig. 7 is a longitudinal sectional view through a modified type of heel constructed in accordance with the present invention.

The cushion heel of the present invention is of a type commonly referred to as a rubber heel, in which the major portion thereof is formed of vulcanized rubber or rubber-like material, and may be designed for attachment to a boot or shoe either as a whole heel, half heel or tread-lift.

The finished heel constructed in accordance with the present invention is herein designated in its entirety by the numeral 10. This heel has the usual curved breast 11 attaching face 12 which rests against a portion of the shoe when the heel is secured to a shoe, and the lower or wearing surface 13 which contacts the ground or floor when the shoe is worn.

The heel 10 has embedded therein a core or insert 14 to form the nail-holding member. This core which may be made of plywood or other relatively rigid sheet material and is preferably heel-shaped in contour, may be the same plywood core which has been extensively manufactured and sold heretofore. The core 14 is shown as having the usual holes 15 formed therein to receive positioning pins to be described.

The heel construction so far described by reference numerals is old, except that heretofore the core 14 has been positioned in the vulcanized heel member so that it lies upon and forms part of the attaching face 12, whereas in accordance with the present invention the core 14 is disposed well below the attaching face 12 and is positioned at the bottom of the well having the walls 16, as best shown in Fig. 6. In other words, cushion heels having a core embedded therein to lie upon the heel attaching face are old, but it is believed to be new to provide a heel having a core of nail-holding material embedded therein and exposed at the attaching face of the heel but with the core disposed some distance from this face so that it lies at the bottom of a well formed in the attaching face of the heel.

The heel 10 may readily be formed in the heel vulcanizing mold shown in Figs. 4 and 5, which mold differs only slightly in construction from the vulcanizing heel mold commonly used heretofore. This mold as shown comprises the usual metal body member 17 having the heel molding cavity 18 therein and at the bottom of which cavity is formed the floor 19 that is usually curved as shown to impart the desired curvature to the heel attaching face 12. The body member 17 has associated therewith the mold top plate 20 of usual construction and adapted to close the cavity 18 and to mold the wearing surface 13 of the heel.

Heretofore in constructing rubber heels having embedded therein a core of plywood or the like, the core has been placed in the mold so that it rests directly upon the floor forming the bottom of the heel receiving cavity of the mold, and as a result of such construction there has been very little opportunity for the vulcanizable rubber to flow around the outer edge of the core and over the outer marginal edge thereof to more firmly anchor the core to the vulcanized rubber.

In accordance with the present invention the mold shown in Figs. 4 and 5 is provided with a raised block or platform 21 that extends upwardly a short distance from the curved floor 19. This platform is somewhat smaller in surface area than the core 14 as will be apparent from the drawing and the purpose of the platform 21 is to hold the core 14 in a raised position within the mold throughout the heel forming operation. That is the platform 21 holds the core 14 sufficiently spaced from the floor 19 to permit a substantial amount of the vulcanizable rubber to flow around the outer edge of the core 14 and over its outer peripheral edge to thereby provide a covering rim 22 of substantial thickness, and which serves to hold the core very firmly in place. This rim also holds the core 14 slightly spaced from the portion of the shoe to which the heel is nailed.

The pins 23 within the mold enter the holes 15 of the core to position the core accurately in the mold upon the platform 21, and the vertical walls of this platform impart a corresponding shape to the side walls of the well 16.

In carrying out the present invention the core 14 is placed within the vulcanizing mold on the platform 21 as above described, whereupon the blank 24 of rubber or other vulcanizable material is placed in the mold in the position in which it is shown in Fig. 4. The mold may then be closed by hydraulically forcing the top plate 20 against the upper face of the body member 17 as shown in Fig. 5, to thereby subject the rubber blank 24 to sufficient pressure to cause it to conform accurately to the interior of the mold. This will cause the vulcanizable rubber to completely surround so much of the edge portion of the core 14 as projects beyond the supporting platform 21 and to accumulate over the edges of the platform 21 to form the rim 22, and around the sides of the platform to form the well 16 as will be apparent from Fig. 5.

The portion of the core 14 which is disposed near the curved rear wall of the heel is preferably beveled as at 25, so that the amount of rubber at this portion of the heel where it wears away rapidly may be increased. The amount of rubber in this area of the heel may be further increased, in accordance with the present invention, by forming the platform 21 so that the beveled portion 25 of the core 14 will project a substantial distance beyond the platform as shown in Fig. 4. As a result of this construction the severe pressure which the compressed rubber exerts upon the portion 25 of the core will bend this portion downwardly as shown in Fig. 5, so that the heat and pressure to which the mold is subjected during the rubber vulcanizing period will cause this flexed portion of the core to take a permanent set in this new position as indicated by 26.

In some cases it may not be desirable to flex the rear portion of the core 14 as at 26 in which case the platform 21 should be made wider in this area than shown in Fig. 5 so that the core will not extend so far beyond the platform. This will support the core sufficiently to prevent it from being flexed at any point and as a result the modified construction of Fig. 7 will be produced wherein it will be noted that no portion of the core 14 is flexed.

It will be seen from the foregoing that heels

constructed in accordance with the present invention will have the core very firmly anchored in the vulcanized heel member. Also, by providing a well 16 of appreciable depth above the core 14 the heel will have an increased cushion action. The term "heel" as herein used is to be construed broadly as including a whole heel, half heel or tread lift.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

A cushion heel of the well type comprising a body of resilient vulcanizable material provided with a heel-shaped core of hard stiff material embedded therein so that the major portion of one face of the core is exposed but the outer marginal portion of this face entirely around the core is covered by a lip of such resilient material of appreciable thickness to hold the core firmly in place, and thereby form a well of considerable less depth than the thickness of the core in the face of the heel and which has a well wall entirely around the heel.

EDWIN C. UHLIG.