Jan. 7, 1930. R. V. CREERY 1,742,460

SPRING SOLE

Filed July 13, 1927

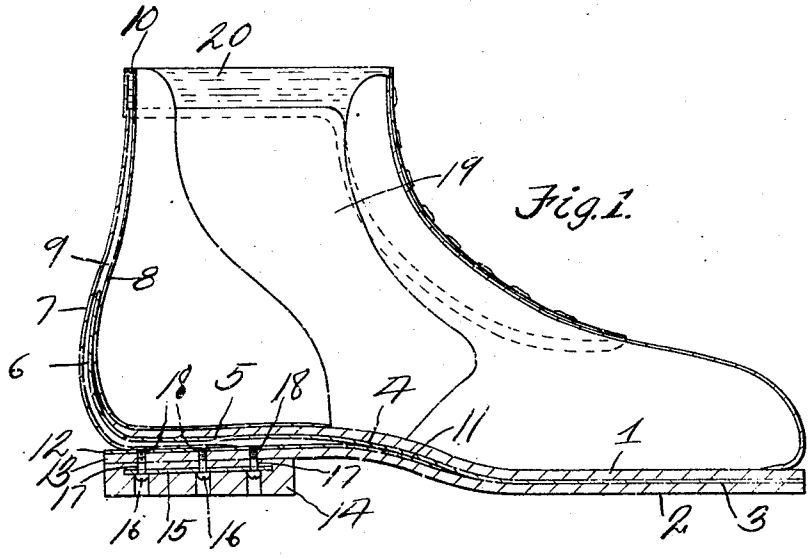


Fig. 1.

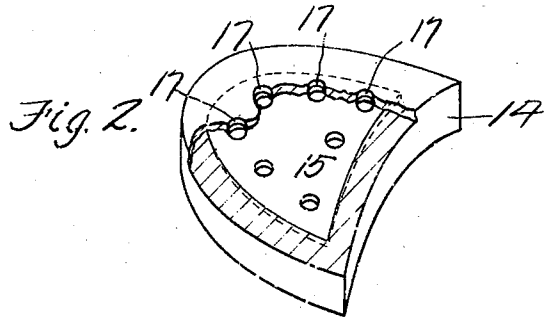


Fig. 2.

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SPRING SOLE

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The invention relates to spring soles, and has for its object to provide a device of this character comprising a flexible spring plate interposed between the inner and outer soles of the shoe and extending rearwardly over the heel and thence upwardly into the counter, and to which plate is secured a spring plate or heel plate which extends rearwardly in relation to the shoe and in spaced relation to the first mentioned plate, and to which heel plate is secured a heel.

A further object is to imbed an apertured plate in the heel, and to secure said heel to the spring heel plate by means of screws extending through the apertured plate and into the spring heel plate.

A further object is to provide the upper of the shoe with means whereby during the spring action of the spring heel plate, air may be exhausted or sucked into the upper of the shoe.

A further object is to provide the upper of the shoe with a yieldable member whereby the upper of the shoe may yield during the walking operation, thereby preventing the upper from pulling against the spring action and the semi-rigid parts.

A further object is to provide a shoe heel having an apertured plate disposed therein and through the apertures of which headed securing means may be passed for securing the heel to a shoe.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:—

Figure 1 is a vertical longitudinal sectional view through the shoe and heel.

Figure 2 is a perspective view of the heel, parts being broken away to better show the apertured plate therein.

Referring to the drawing, the numeral 1 designates the inner sole of the shoe and 2 the outer sole. Disposed between the inner and outer soles of the shoe is a spring plate 3, which spring plate extends rearwardly, curves upwardly at 4 and thence rearwardly forming the heel portion 5. The heel portion of the plate terminates in an upwardly curved portion 6, approximately conforming to the curvature of the heel, and which portion 6 is disposed between the outer portion 7 and the inner portion 8 of the heel of the upper where it will be entirely concealed. It will be noted there is an air space 9 between the portions 7 and 8 of the heel of the upper, and said air space is in communication with the atmosphere, for instance at 10 whereby it may exhaust and be sucked in during the operation of the spring heel hereinafter set forth. The air space 9 is shown relatively large for purposes of illustration.

Welded or otherwise secured at 11 to the under side of the plate 3 is a rearwardly extending spring heel plate 12, which is in spaced relation to the heel portion 5 of the plate 3, thereby allowing a range of flexing action to the heel plate 12 during a walking operation, consequently absorbing the shock, incident to walking on hard surfaces. It will be noted that the outer sole 2 extends rearwardly and has its portion 13 in engagement with the under side of the spring heel plate 12 and it is understood that the portion 13 may be secured to the under side of the plate 12 in any suitable manner, for instance by riveting or by an adhesive. Secured to the under side of the portion 13 of the outer sole and to the spring heel plate 12 is a heel 14, which may be a rubber heel or other composition heel, and imbedded in the heel 14 is an apertured plate 15, which stiffens the heel, and also forms means adapted to be engaged by the heads 16 of screws 17, which screws extend through the heel 14, sole portion 13, and are threaded at 18 into the spring heel plate 12, thereby positively anchoring the heel 14 to the heel plate 12, whereby it will move therewith. During a walking operation the spring plate 3 flexes, thereby allowing the foot to bend incident to walking, and as the heel is placed on the ground, during the walking operation, the heel plate 12 flexes and imparts a springing shock ab-

sorbing action, and air between the plates is forced through the air space 9 to the atmosphere at 10, as the weight of the body is relieved from the portion 5 of the plate 3 the plate 12 assumes its normal outer position as shown in Figure 1, air is sucked into the air space 9, therefore it will be seen that the device will not become air bound, and the flexing action of the heel plate 12 will be free in both directions. The upper portion of the upper 19 is preferably formed from yieldable material 20, for instance rubber cloth, therefore it will be seen that during the walking operation the rigid portion 6, as well as the other rigid portion or semirigid portion will not pull against each other and render the upper portion of the upper uncomfortable around the leg of the wearer.

From the above it will be seen that a spring sole is provided, which is simple in construction, the parts reduced to a minimum, and one wherein the spring and flexing action of plates is utilized, thereby obviating the use of coiled springs and other structures which are common in the art.

The invention having been set forth what is claimed as new and useful is:—

The combination with a shoe sole comprising inner and outer soles, a heel carried by the rear end of the outer sole in spaced relation to the rear end of the inner sole, of a spring device, said device comprising spring plates interposed between the inner and outer soles, the forward ends of said plates being secured together forwardly of the heel, said plates diverging rearwardly above the heel in spaced non-connected relation and maintained spaced by the spring action thereof, an upper comprising two heel portions, an outer one attached to the outer sole, an inner one attached to the inner sole in spaced relation to the former, the rear end of one of said plates terminating in an upwardly extending portion interposed between the said inner and outer layers of the heel of the upper.

In testimony whereof I affix my signature.

ROY V. CREERY.