This invention relates to shoes, more particularly to women's shoes, and an essential object thereof is the provision of a woman's shoe having an extendible and retractable heel, that is, a heel which may be readily converted from a high heel to a low heel and vice versa.

It has been observed that women after wearing high heeled shoes for a while tend for a change to low heels to rest their feet, and of course they are unable to make the change until they arrive at home. With the convertible heel of the present invention she may almost anywhere make the conversion to low heels, or vice versa, in a matter of seconds.

Another object of the invention is the provision of an improved arch construction as part of the shoe having such a convertible heel, so that the arch may readily accommodate for the difference in height of the heel.

The above as well as additional and more specific objects will be clarified in the following description, wherein characters of reference refer to like-numbered parts in the accompanying drawing. It is to be noted that the drawing is intended solely for the purpose of illustration and that it is therefore neither desired nor intended to limit the invention necessarily to any or all of the exact details of construction shown or described except insofar as they may be deemed essential to the invention.

Referring briefly to the drawing, Fig. 1 is an exploded perspective view of a shoe embodying the features of the present invention, showing the moveable heel portion detached from the fixed heel portion or housing of the shoe. Fig. 2 is a longitudinal vertical section through the shoe with the heel in extended, or high-heel, position.

Fig. 3 is a view similar to Fig. 2, but showing the heel in the low-heel position.

Fig. 4 is a sectional view taken on the line 4--4 of Fig. 2.

Fig. 5 is a sectional view taken on the line 5--5 of Fig. 3.

Fig. 6 is fragmentary enlargement of the moveable heel portion of either Fig. 4 or Fig. 5, but showing the latter with the spring actuated button in extended position as it would appear if the said heel portion were entirely separated from the shoe, as in Fig. 1.

Referring in detail to the drawing, the numeral 10 indicates a woman's shoe having the heel 11 attached to the sole 12 through the medium of the arch 13.

In the present case the heel 11 is formed of two parts 14 and 15. The part 14 has the general external appearance of a heel but it is hollow and rather constitutes a hollow housing than a heel. The part 15 is sladly mounted in the housing 14. The top surface 16 of the part 15 is flat, and the housing 14 has a substantially constant cross-sectional area of the same contour and dimensions as the top 16 of the sladly heel member 15.

On opposite sides of the part 15, cut-outs 17 extend downward from the top 16. For each cut-out, a spring leaf 18 is anchored by a rivet or the like 19 in upstanding position, and extends from the base of the cut-out toward but short of the surface 16. It is flexed as shown in Fig. 6, so that its upper extremity is normally urged outward from the cut-out through the side of the member 15. Each spring 18 has a button 20 facing outward from the member 15, at or near the upper end of the spring.

At similarly opposite sides of the interior wall of the housing 14, the same is provided with aligned recesses 21 substantially in conformation but whose floors 22 are rounded or curve downward toward and into the interior of the housing. The ceiling 23 of the housing 14 is flat, like the top surface 16 of the moveable heel member, but if desired a lining 24 may be secured to the ceiling 23. In the present discussion when it is referred to the ceiling of the housing is made, it will be understood to signify a lined or an unlined ceiling.

The similarly opposed sides of the housing 14 are additionally provided with circular openings through the wall thereof, shown at 25, in which the buttons 20 are adapted to register when the heel member 15 is in extended or high-heel position. The distance between the recesses 21 which are positioned near the ceiling of the housing, and the openings 25 which are positioned nearer the lower end of the housing, defines the amount of slideable movement of the member 15 in the housing 14.

When the member 15 is in the withdrawn or low-heel position shown in Figs. 3 and 5, the buttons 20 register, by force of the springs 18, in the recesses 21 of the housing and thus prevent the member 15 from falling downward in the housing. In this position the flat top 16 of the member 15 has the ceiling of the housing resting thereon and taking up the weight of the wearer. To extend the heel into high-heel position, the member 15 is simply pulled outward from the housing, the rounded or cam-like lower portions of the recesses 21 permitting this as the buttons will ride down the surfaces 22 while pushing the springs 18 and the buttons into the cut-outs 17. When the buttons reach the openings 25 in the housing, their springs will urge them to enter and register in the said openings, thus stopping the member 15 in the position shown in Figs. 2 and 4. To permit the members 15 again to be restored into the housing in the low-heel position, the buttons 20 are pushed inward until clear of the inner surface of the housing, then the member 15 is pushed upward as far as it will go, and at its extreme upper position the buttons 20 will enter the recesses 21.

Since it is desirable that the heel of the shoe be positioned flat on the ground in both low-heeled and high-heeled conditions of the shoe, and otherwise to accommodate the arch of the shoe to both conditions, it is desirable to have a portion, preferably the forward portion 26 of the arch, made of rubber or other suitable yieldable material.

When the heel is in low-heel position, only a small portion, preferably the lift of the heel, protrudes from the housing 14.

Obviously, modifications in form and structure may be made without departing from the spirit or scope of the invention.

1. A shoe heel comprising a hollow housing enclosing a compartment open at the bottom and having a ceiling at the top parallel with the open bottom end, the cross-sectional area of said compartment being substantially constant in form and dimensions between said bottom end and said ceiling, a moveable member slidably mounted in said housing and having a length slightly greater than the depth of said compartment, said member having approximately the same area and form in cross-section as said compartment at least in the upper portion thereof and being insertible into said compartment with the top of the member in contact with said ceiling in the upper limit position of the member, limit stop means partly on said member and partly on said housing limiting move-
3. The shoe heel set forth in claim 1, having additional means for releasably locking said moveable member in said upper limit position.

4. The shoe heel set forth in claim 1, said limit stop means comprising normally outwardly urged buttons on opposed sides of the member, said housing having opposed openings through the wall thereof remote from said ceiling, resilient means normally urging said buttons outward from said sides of said member, said buttons being registrable in said openings, said housing having opposed recesses in the internal wall thereof near said ceiling lying in substantially the same vertical plane as said openings, said buttons in said upper limit position of the member registering in said recesses, the lower edges of said recesses curving downward into the compartment to facilitate pressing of the buttons inward into the member upon pulling the member downward to extend the heel to a high heel, said member having opposed cut-outs receptive of said buttons when depressed inward into the member as aforesaid.

References Cited in the file of this patent

UNITED STATES PATENTS
1,604,826 Hornicek Oct. 26, 1926