

Sept. 10, 1946.

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2,407,498

SHOE

Filed Nov. 8, 1944

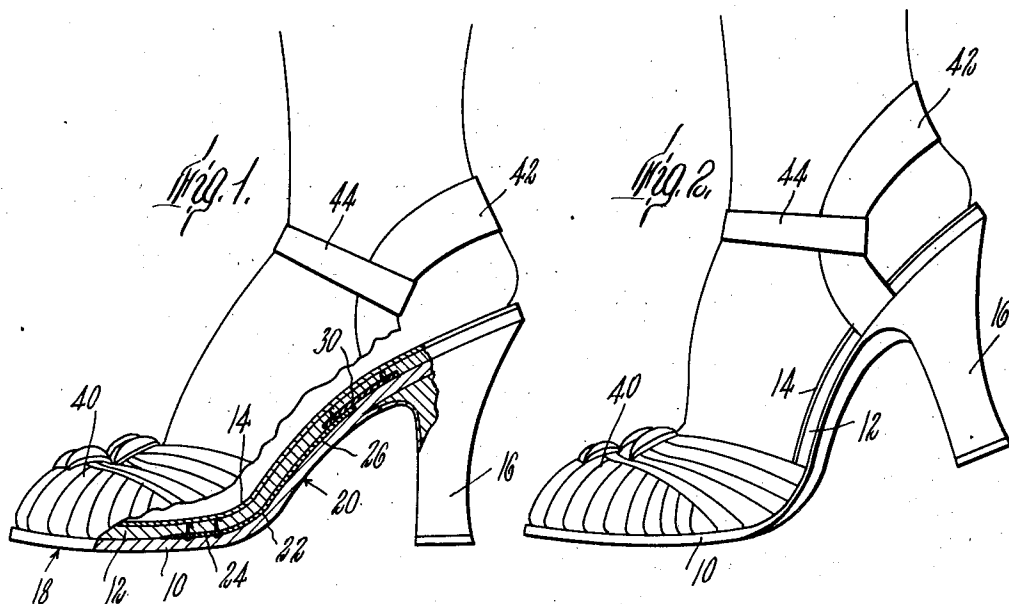
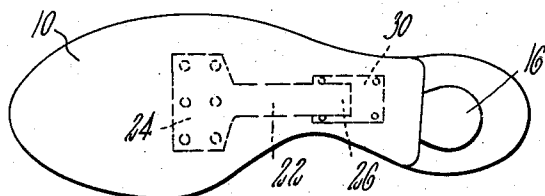
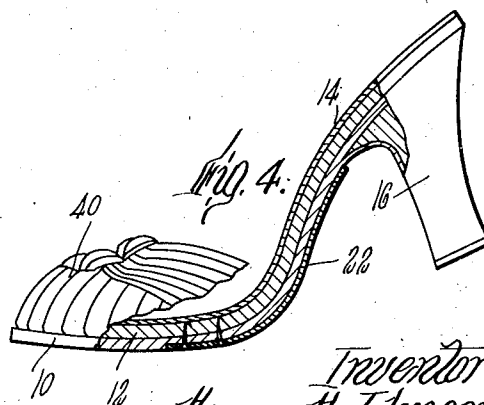


Fig. 3.



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UNITED STATES PATENT OFFICE

2,407,498

SHOE

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Application November 8, 1944, Serial No. 562,439

6 Claims. (Cl. 36-2.5)

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This invention relates to improvements in footwear and to sole structures for use therein.

In certain kinds of footwear such as ladies' evening slippers of the sandal type, mules, and the like, a rigid shank is usually employed to maintain the proper relation between the sole and heel, the latter frequently being of the Louis variety. If an instep strap is provided to secure the shoe to the foot, the strap must be left quite loose as otherwise it will bind and chafe on the instep when the wearer walks. Consequently, when the wearer flexes the ball of the foot in taking a step, the heel of the wearer lifts away from the heel portion of the shoe sole, and the heel of the shoe clatters on the floor as the foot is swung forward for the next step. Furthermore, when the foot which has lifted away from the heel portion of the sole descends again, it is liable to be offset to one side or the other so as to strike first on a side rim of that part of the sole, as a result of which the foot is apt to tire quickly. Such footwear well illustrates the objectionable features which my invention eliminates.

It is an object of the invention to avoid these troubles by providing spring means in the shank for causing the heel portion of the shoe to remain in contact with the heel of the wearer during walking, dancing or the like. According to the invention, a spring or its equivalent is incorporated in the shoe in such a manner as to tend to cause the sole to flex at the junction of the ball and shank so as to decrease the angle of the sole at said junction, that is, in such a manner as to tend to elevate the heel if the ball portion of the sole is held flat against the floor. This causes the heel portion of the shoe sole to remain against the heel of the wearer when the foot is flexed as in walking or dancing.

For a more complete understanding of the invention, reference may be had to the following description of certain embodiments thereof, and to the drawing, of which:

Figure 1 is a side elevation of an evening slipper or sandal, a portion being broken away to show in section.

Figure 2 is a side elevation of the same in flexed position.

Figure 3 is a bottom plan view of the same.

Figure 4 is a side elevation of a modified form of the invention, partly broken away to show in section.

Figure 1 shows an evening shoe or slipper of the sandal type comprising a sole structure consisting of an outsole 10, an insole 12 and a sock-

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lining 14. This shoe has a Louis heel 16 so that when the tread surfaces of the sole 10 and the heel 16 are in a common plane (as when in actual engagement with the floor) the angle between the top surface of the ball portion 18 and the top surface of the shank portion 20 is approximately 130°.

According to the invention, a resilient element 22 of spring metal, plastic, fiber, or other suitable material is mounted in or on the sole structure of the shoe in such a way as to tend to maintain the shank and heel portions of the sole at a materially steeper angle of inclination with respect to the ball portion of the sole than the corresponding angle in an ordinary shoe of the same size and style when off the foot. Thus, as shown, the spring means 22 may have a forward portion 24 secured by tacks, rivets or other means in the ball portion 18 of the sole between the outsole 10 and the insole 12. The rear portion 26 of the spring is preferably free and extends rearwardly up the shank portion of the sole, preferably terminating forward of the heel portion of the sole, as indicated in Figure 1. The intermediate portion of the spring has therein a bend such that when in the position shown in Figure 1, the rear portion 26 presses upward so that if the ball portion of the sole is held down and the heel portion released, the latter is raised and lifts the heel off the floor, as indicated in Figure 2. This condition exists when the foot of the wearer is flexed in walking or dancing. The weight of the wearer holds the ball portion of the shoe against the floor while the heel of the wearer rises to release the heel of the shoe. The effect of the spring action then is to cause the heel portion of the shoe to rise with the heel of the wearer, and to remain in engagement therewith. As indicated in Figure 2, the spring may flex the sole so that the angle between the ball and shank portions is decreased to approximately 110° or even less. Since a shoe heel weighs little and does not have to be lifted far to follow the heel of the wearer, a light spring will suffice. The springs illustrated in the drawing are shown disproportionately thick for clarity.

In order to avoid rapid wear of the insole 12 where it is pressed by the free end portion 26 of the spring element 22, I may provide a wear plate 30 on which the end of the spring may slide readily when the sole is flexed, the plate 30 being preferably secured by tacks or otherwise.

The invention is particularly advantageous in shoes having vamps or toe straps 40 entirely or

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substantially unconnected with the heel portion of the shoe except by the sole itself. It is effective and desirable even where, as illustrated, the shoe is provided with a heel strap 42 and an instep strap 44, or equivalent rigging. Such straps cannot be set up tight enough to be effective without causing objectionable binding and discomfort.

The spring 22 is shown in Figures 1 and 2 as built into the shoe. The invention can also be readily applied to an already completed shoe. For example, as indicated in Figure 4, the spring may be secured outside of the outsole 10, the spring having a bend tending to elevate the heel.

In the foregoing embodiments of the invention, the resilient element, which is a part of or is added to the sole of the shoe, causes the heel portion of the shoe sole to cling to the heel of the wearer so that walking, dancing, etc. are made easier, and fatigue is greatly reduced.

The foregoing description of certain embodiments of the invention is by way of illustration and not limitation, and it is to be understood that the invention includes whatever variations and modifications of form or structure may come within the scope of the appended claims.

I claim:

1. In an article of footwear, a sole structure which has ball, shank and heel portions and has a spring means incorporated within the ball and shank portions thereof and of such a strength and configuration as to resiliently maintain said shank and heel portions of the sole at a materially steeper angle of inclination with respect to said ball portion than the corresponding angle in an ordinary shoe of the same size and style when off the foot, said spring means having a forward portion in the ball of the sole, a flexibly resilient intermediate portion and a rear portion extending rearwardly well into the shank portion of the sole, whereby when said footwear is worn said spring means inherently presses the shank portion of the sole resiliently against the foot and tends to elevate the shank and heel portions of the sole at all times during walking.

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2. In an article of footwear, a sole structure as set forth in claim 1, wherein the rear portion of the spring means terminates forward of the heel portion of the sole.

3. In an article of footwear, a sole structure as set forth in claim 1, wherein the forward portion of the spring is substantially wider than the rear portion.

4. In an article of footwear, a sole structure as set forth in claim 1, wherein the forward portion of the spring means is rigidly fastened to the ball portion of the sole.

5. In an article of footwear, a sole structure which has ball, shank and heel portions and has a flexibly resilient means incorporated within the ball and shank portions thereof and of such a strength and configuration as to resiliently maintain said shank and heel portions of the sole at a materially steeper angle of inclination with respect to the ball portion than the corresponding angle in an ordinary shoe of the same size and style when off the foot, whereby when said footwear is worn said flexibly resilient means in the sole inherently presses the shank portion of the sole resiliently against the foot and inherently tends to elevate the shank and heel portions of the sole at all times during walking.

6. In an article of footwear, a sole structure which has ball, shank and heel portions, said heel portion having a heel member projecting down therefrom with a tread surface adapted to be brought in use in line with the tread surface of said ball portion, an intermediate part of said sole structure consisting of mutually contiguous parts of said ball and shank portions which are flexibly resilient and of such strength and configuration as to elevate inherently said heel member so that its tread surface is materially above the plane of the tread surface of said ball portion of the sole when the article of footwear is off the foot, whereby during walking the sole is inherently flexed by said intermediate part thereof to maintain the shank and heel portions resiliently against the foot at all times.

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