Dec. 26, 1950 J. W. TAYLOR 2,535,102

SHOE HEEL

Filed Nov. 24, 1945

FIG. 3

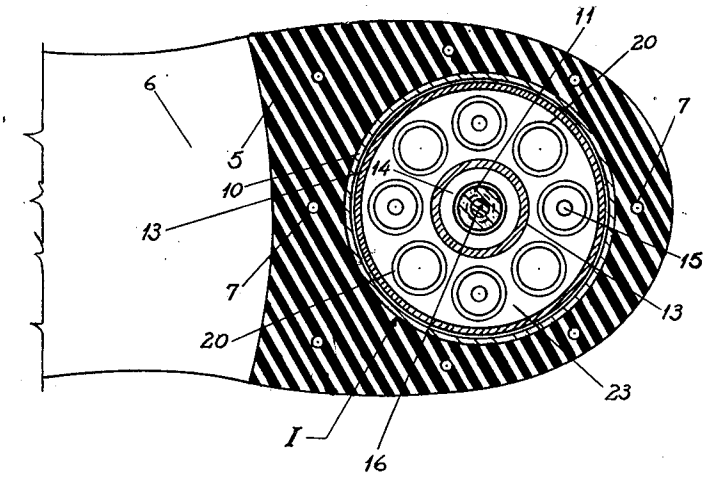


FIG. 2

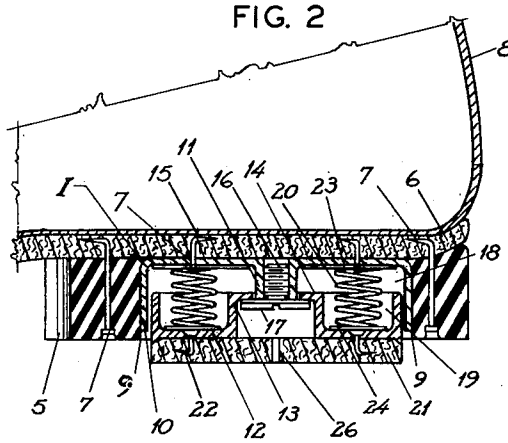
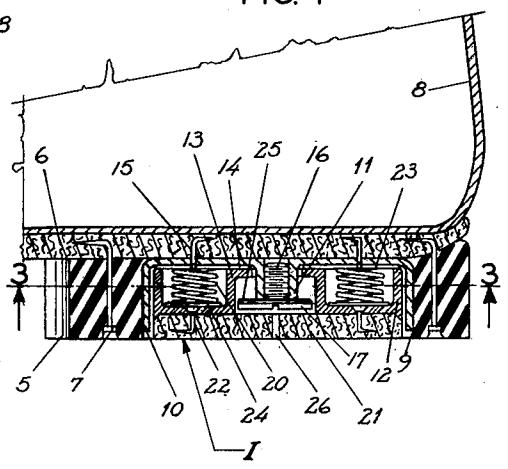


FIG. 1



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SHOE HEEL

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8 Claims. (Cl. 36—39)

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This invention relates to shoes, and more particularly to a shoe heel and a cushion insert therefor which provides an additional cushioning effect for the greater comfort of the wearer.

Among the objects of this invention are to provide a novel cushioned shoe heel construction; to provide such a construction in which adequate resiliency may be obtained; to provide a cushion insert which may be applied to substantially any size of heel; to provide a cushion insert for a shoe which includes resilient means, such as springs, which may readily be interchanged with springs of greater or less compressive force, in accordance with the weight of the wearer; to provide such a shoe heel which will be long wearing; to provide such a shoe heel in which the wearing surface may be made of different materials, to improve the wearing qualities of the heel; to provide a cushion insert for a shoe heel in which compensation may be made for wear; and to provide such a heel and insert which is relatively light in weight, but rugged in construction.

The above and additional objects of this invention, as well as the novel features thereof, will become apparent from the following description, taken in connection with the accompanying drawing, in which:

Fig. 1 is a vertical section of a portion of a shoe and a heel constructed in accordance with this invention, in the position assumed when the weight of the wearer is thereon;

Fig. 2 is a vertical section similar to Fig. 1, but in which the heel has been lifted or the weight of the wearer otherwise removed therefrom; and

Fig. 3 is a horizontal section looking upwardly along line 3—3 of Fig. 1.

As illustrated in the drawing, a cushion insert I, constructed in accordance with this invention, is provided for a heel 5, attached to a sole 6, by nails 7, the shoe also having an upper 8 in the conventional manner. Heel 5 may be formed of suitable material, such as rubber or the like, and is conventional in shape except that it is provided with a central circular hole or aperture 9 adapted to receive the cushion insert I, which is preferably circular in shape, although other shapes may be utilized, and the aperture 9 in the heel for receiving the insert correspondingly modified. The cushion insert I preferably always comprises less than the total area of the heel.

The cushion insert I includes an upper cylindrical cup 10 having a central depending boss 11, and a lower cylindrical cup 12 having a centrally upwardly extending boss 13 of larger diameter than boss 11 and provided at its upper end with an inwardly extending flange 14. The upper and lower cups are preferably formed of metal, such

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as drawn or forged steel sheet, die cast aluminum, or the like. Upper cup 10 may be attached to sole 6 in any suitable manner, as by nails 15, while the upper and lower cups are attached together in telescoping relation, with limited vertical movement, by a stop screw 16. Stop screw 16 is threaded into a threaded central aperture in upper cup boss 11, as shown, while the head 17 of stop screw 16 extends outwardly so as to be slightly spaced from lower cup boss 13 and is adapted to limit downward movement of lower cup 12, through flange 14.

Boss 11 forms within upper cup 10 an annular space 18, while boss 13 forms within lower cup 12 an annular space 19, in which spaces are disposed a plurality of coil springs 20. Preferably, the springs 20 are spaced equally about the periphery of the annular spaces 18 and 19, there being eight shown in Fig. 3, but the number of springs may be varied as desired. The springs 20 are preferably formed of piano wire or the like, and also are preferably coil springs, the total resistive force of which will equal a predetermined portion of the weight of the wearer, preferably not less than 30%.

The cushion insert I is also provided with a wearing lift 21, which may be formed of leather or other long wearing material, such as vinyl resin or the like. Also, if desired, the main heel portion 5 may be a non-resilient material due to the cushioning effect of the insert. The wearing lift 21 is attached to the lower cup 12 in any suitable manner, as by nails 22. An upper non-metallic ring 23 may be disposed above springs 20, resting against the upper cup to provide a cushioning effect, and may be sufficiently large to be engaged also by the upper surface of flange 14 on boss 13 when the springs are compressed, as in Fig. 1. A lower non-metallic ring 24 may be similarly disposed below the springs 20, resting against the lower cup 12, and the springs 20 may be attached to the lower ring 24, as shown, or to both the upper and lower rings, so that the springs and rings may be placed in or removed from the insert as a unit, and also to retain the springs in position during use. A non-metallic washer 25 may also be placed between the head 17 of stop screw 16 and boss 11, for additional cushioning effect.

As illustrated in Fig. 1, when the weight of the wearer is on the heel, the springs 20 will be compressed, the lower cup 12 moving upwardly within the upper cup 10 until the lower surface of lift 21 is level with the lower surface of heel 5. When the heel is lifted, or the weight of the wearer is otherwise removed from the heel, springs 20 expand so that the lower cup moves down, as to the

position of Fig. 2. Downward movement of the lower cup is restricted by flange 14, which engages ring 23, the movement being thereby limited by head 17 of stop screw 16.

In assembling or disassembling the cushion insert I, access to the stop screw 16 may be obtained through a hole 25 in lift 21, through which a suitable tool, such as a screw driver or socket type wrench, may be inserted. As indicated previously, the springs 20 and lower ring 24, or the springs and the upper and lower rings are formed as an integral unit, the lower or/and upper ends of the springs being embedded in the rings 24 and 23, respectively, if desired. Thus, it is relatively easy to provide a new heel construction for the weight of a particular wearer, merely by inserting the proper spring unit. Also, since the cushion insert I may be made standard in dimension for substantially all heel sizes, the spring assembly may also be made correspondingly standard in dimension, the spring assemblies differing only in the compressive force of the springs. As only one size of cushion insert is necessary, the various spring assemblies may be made to standard increments of spring force, such as varying from 80 to 150 lbs. by 10 lb. increments of total resistive force. A similar effect may be attained by increasing the thickness of ring 23. While heel 5 may be specially made, conventional rubber heels may be utilized, merely by boring a hole the size of the exterior diameter of cushion insert I.

An advantage of a circular cushion insert lies in the fact that, since the rear edge of lift 21 will be first to strike the surface on which the wearer is walking, such rear end will tend to wear more quickly than the remainder of the lift. However, as soon as one portion of the wearing lift 21 becomes slightly worn, the insert may be adjusted to a different radial position merely by loosening stop screw 16 slightly, rotating the lower cup 12 and wearing lift 21 to a desired new position, and then tightening the stop screw 16. This permits a maximum amount of wear to be obtained from any particular wearing lift. It is also relatively easy to replace a wearing lift merely by loosening stop screw 16, removing the lower cup and wearing lift, and replacing the worn wearing lift by a new one. Since the impact of the heel is first on the wearing lift 21, the material of heel 5 will tend to wear less than normally, so that much longer wear can be obtained from a particular heel. Also, the lower cost of a new wearing lift 21, which contains less material and is therefore less expensive than a rubber heel, will reduce the cost of heel repairs.

As will be evident, the heel and cushion insert of this invention fulfills to a marked degree the requirements and objects hereinbefore set forth. It will be understood that the materials of which the various parts are made may differ from the materials mentioned herein, and that various changes in the construction and relationship of parts may be made, all without departing from the spirit and scope of this invention.

What is claimed is:

1. A cushion insert for a shoe heel, comprising upper and lower telescoping cylindrical members separated by springs, and connected by a stop screw, said upper member having a central depending boss containing a threaded hole to receive said stop screw, and said lower member having a raised central boss to accommodate the head of said stop screw.

2. In combination, a shoe heel constructed to receive a cushion insert, and an insert comprising upper and lower telescoping cylindrical members separated by springs, and connected by a stop screw, said upper member having a central depending boss containing a threaded hole to receive said stop screw, and said lower member having a raised central boss for accommodating the head of said stop screw.

3. A cushion insert for a shoe heel comprising an upper inverted cylindrical cup adapted to be attached to the sole of said shoe, said cup having a central depending boss provided with a central threaded aperture; a lower cylindrical cup having a central upwardly extending boss having an inwardly extending flange; a stop screw received by the threaded aperture of said upper cup boss; a non-metallic cushion washer between the head of said stop screw and said upper cup boss, said washer being engageable by said inwardly extending flange upon downward movement of said lower cup; a non-metallic wear lift attached to said lower cup, said lift having a central aperture for access to said stop screw; a plurality of coil springs disposed in the annular space formed around said lower cup boss; an annular non-metallic cushion between said springs and said lower cup; and an annular non-metallic cushion between said springs and said upper cup, said last mentioned cushion being engaged by said upstanding lower cup boss when said springs are compressed.

4. A cushion insert for a shoe heel, as defined in claim 3, wherein said springs are attached to said lower cushion for insertion or removal as a unit.

5. A cushion insert for a shoe heel as defined in claim 3, wherein said springs are attached to said upper and lower cushions for insertion or removal as a unit.

6. In a shoe, a heel having a circular aperture; and a cushion insert, as defined in claim 3, secured to said shoe in said aperture.

7. A resilient shoe heel insert comprising upper and lower telescoping members, axial means rotatably connecting said members and limiting relative axial movement of said members, and a plurality of separate and independent resilient means between said members circularly surrounding said axial means and normally preventing relative rotation between said members by frictional engagement therewith but permitting said relative rotation on release of said axial means.

8. A resilient shoe heel insert as set out in claim 7 where in said axial means threadably engages one of said members for adjustably limiting relative axial movement between said members.

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