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J. P. WARRINGTON

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SPRING HEEL ADAPTER

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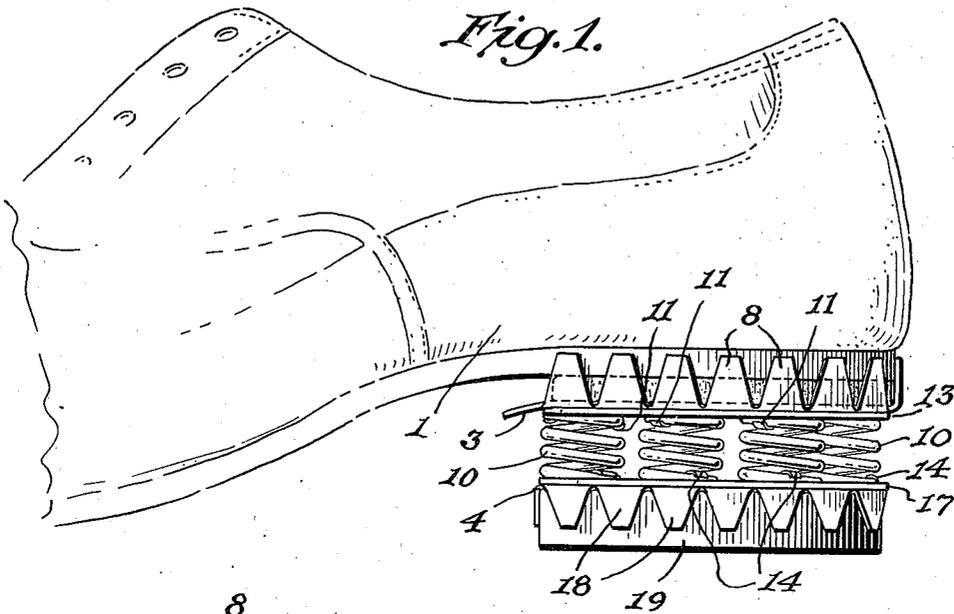


Fig. 1.

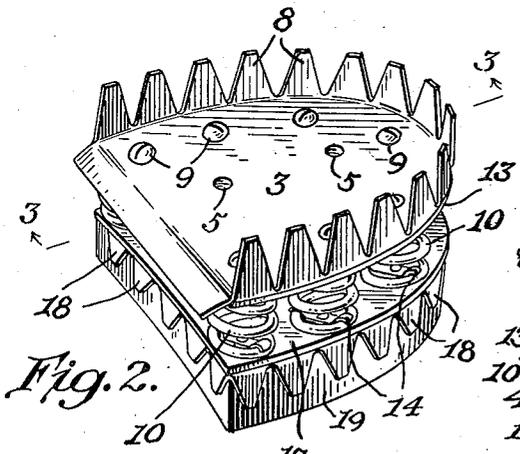


Fig. 2.

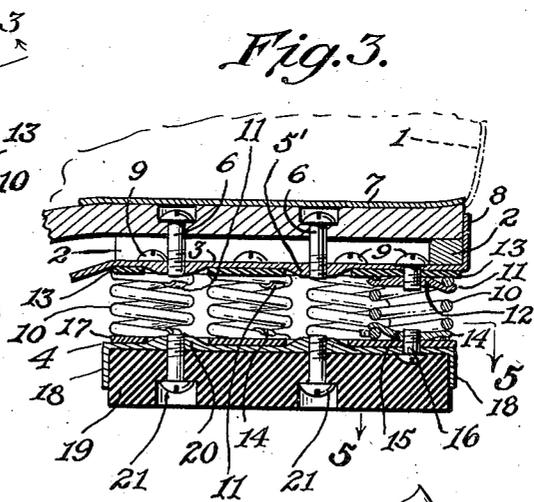


Fig. 3.

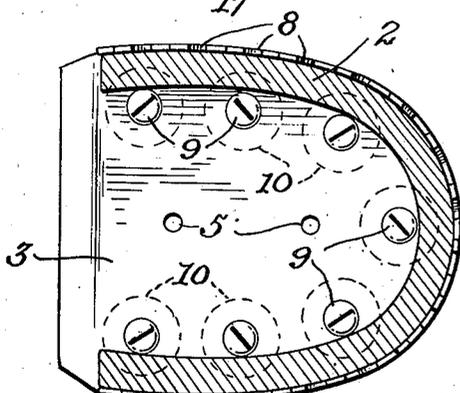


Fig. 4.

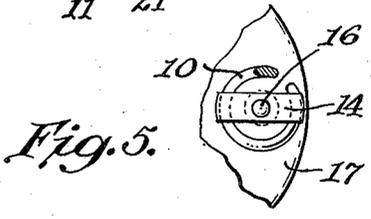


Fig. 5.

INVENTOR.
John P. Warrington

BY
Harold R. Eccleston
Attorney

UNITED STATES PATENT OFFICE

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SPRING HEEL ADAPTER

John P. Warrington, Bellflower, Calif.

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1 Claim. (Cl. 36-38)

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The fatigue resulting from walking is due in large part to the shock imparted to the body by each step taken on hard surfaces, and one of the objects of the present invention is to provide a simple and inexpensive device which will be sufficiently resilient to substantially eliminate the body shocks in walking.

Another object of the invention is to provide a device of this character which is evenly balanced by the proper arrangement of coil springs.

Another object of the invention is to provide means for so attaching the adapter to a shoe that accidental dislodgment is practically impossible, and to provide similar means for so attaching a rubber or other heel to the adapter that accidental dislodgment of the rubber or leather heel is practically impossible.

A further object of the invention is to provide means in a device of this character to render its operation absolutely silent.

A further object of the invention is to provide a device of this character in which springs of different strength, height or width can be quickly and easily substituted.

Another object of the invention is to provide a device of this character which can be used with a heel of leather or rubber or any other desired material, and in which a worn heel can be easily replaced with a new one.

Still another object of the invention is to provide a device of this character which when the shoes become worn the adapter can be easily removed and easily mounted on another pair of shoes.

A further object of the invention is to provide a device of this character which instead of trying to hide the springs, exposes them to the eye; and the construction being such that the device presents a very pleasing appearance.

Various other objects and advantages of the invention will be apparent to those skilled in the art, from the following detailed description, when taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevational view of the adapter mounted on a shoe;

Figure 2 is a perspective view of the adapter ready to be mounted on a shoe;

Figure 3 is a vertical, longitudinal, sectional view taken on line 3-3 of Figure 2, but showing the adapter mounted on a shoe;

Figure 4 is a plan view of the adapter removed from a shoe, but showing a rim portion of the shoe hatched; and

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Figure 5 is a fragmentary sectional view taken on line 5-5 of Figure 3.

Referring to the drawings in more detail, numeral 1 refers generally to a shoe of any desired type, for men or women, and the spring heel adapter as shown in Figure 1 is mounted on the shoe. The conventional shoe heel is preferably considerably reduced in height, and the central part of the reduced portion is cut away, leaving a rim portion 2.

The adapter, as a unit, removed from the shoe, is shown in Figure 2. It includes an upper thin plate 3 and a spaced lower thin plate 4. These plates are preferably made of stainless steel, and if not they may be chrome plated.

The upper plate along its central line is provided with a plurality of threaded openings 5; two of such openings being shown in the present embodiment, and the metal plate is preferably thickened at these points, as indicated by numeral 5', to provide sufficient threads.

Screws 6 pass through the bottom of the shoe and are threaded into the openings 5 to thereby secure the adapter to the shoe, as shown in Figure 3. The heads of these screws are preferably countersunk and covered by an ordinary inner liner 7.

Of course the adapter is secured to the shoe as a unit, but before describing the complete unit it will be helpful to describe how it is secured to the shoe. It will be noted that the peripheral portion of the upper plate 3 is turned upwardly; the upturned portion, in the specific embodiment illustrated, taking the form of a plurality of tangs or tongues 8 which fit neatly about the reduced heel of the shoe and preferably extend upwardly to substantially the base of the shoe. Of course this upturned peripheral portion of the upper plate could be in the form of a continuous flange, or of any other desired form.

As shown in Figures 2, 3 and 4, a plurality of screw heads 9 extend at spaced intervals around the upper plate, and are spaced inwardly of the upturned tangs 8. This construction forms what might be termed a channel or seat which is adapted to receive the lower edge of the heel rim portion 2; the width of this rim portion preferably being substantially the same as the channel or seat formed by the upturned tangs 8 and the screw heads 9, as best shown in Figures 3 and 4. Thus the shoe and adapter are so held that there can be no relative movement between them either forwardly or backwardly or sidewise. This results in an unusually firm connection, and of course it very considerably reduces strains and

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pressures on the screws 6 which hold the adapter on the shoe. And it is also to be noted that as the upturned tangs 8 are preferably of stainless steel or are chrome plated, the construction presents a very pleasing appearance to the eye.

A plurality of coil springs 10 extend between the upper and lower plates 3 and 4. These springs may be of any desired number, seven being shown in the present embodiment, and they are preferably arranged in evenly spaced relation about the peripheral portion of the adapter in order to provide an evenly balanced device. The springs are preferably chrome plated in order to present an attractive appearance.

The means for attaching the springs to the plates 3 and 4 will now be described. Reference has previously been made to the screws 9, the heads of which in combination with the tangs 8 form a channel or seat for the rim portion 2 of the shoe. These screws perform a double function. Associated with the upper end of each spring, between coils, is a clip 11 which has thin end portions and a thickened central portion 12 having a threaded opening which is engaged by the short screw 9, as best shown in Figure 3. Thus the upper end of each coil spring is firmly held in position, without interfering with the resiliency of the springs. In order to insure absolute silence of the device, a silencer 13 consisting of a sheet of rubber, leather, or other desirable material is provided on the under side of the plate 3. The springs rest on this silencer, which is preferably secured to the plate by an adhesive.

The lower ends of the springs 10 are attached to the lower plate 4 in exactly the same manner. Numeral 14 indicates the clips mounted in the lower coils, and these clips also have thin end portions and a thickened central portion 15 having a threaded opening to receive screws 16. And a silencer 17, consisting of a sheet of rubber, leather, or other desired material is provided on the upper side of lower plate 4; the coil springs resting on the silencer, which is preferably secured to the plate by an adhesive.

The periphery of the lower plate is provided with a downturned flange portion, which in the specific embodiment illustrated takes the form of a plurality of tangs or tongues 18, the same as the upturned tangs 8 on the upper plate 3.

Numeral 19 refers to a heel which may be of rubber, leather, or other material, and which is positioned within the circumscribing tangs 18. It is to be noted that in the claims, the definition

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of a rubber heel is intended to also include heels of leather or of any other desired material. To fasten the heel 19 to the lower plate, the latter is provided with centrally arranged thickened portions 20 having threaded openings to receive screws 21; the heads of these screws preferably being deeply countersunk, as shown in Figure 3. Obviously the tangs 18 assist the screws 21 in firmly holding the heel 19 in place.

The lower plate 4 and tangs 18, like the upper plate 3 and tangs 8, are preferably made of stainless steel, or are chrome plated, and in combination with the chrome plated coil springs the whole adapter presents a very attractive appearance.

The whole adapter as a unit can be removed from a shoe and be replaced thereon or placed on another shoe merely by manipulating the screws 6. Likewise, the heel 19 can be removed and be replaced merely by operating the screws 21. Also, the springs being held only by screws 9 and 16, it is a very simple matter to substitute other springs of any desired size or strength. While the embodiment illustrated is for a straight sided heel, it will be obvious that a tapered type of heel can be simulated by making the lower plate smaller than the upper plate.

What I claim is:

A spring heel adapter including two spaced plates, coil springs between the plates, means associated with the upper plate to secure the adapter to a shoe, means associated with the lower plate to secure thereto a rubber heel, a series of tangs on the upper plate and extending upwardly therefrom to embrace the shoe heel portion, and a series of tangs on the lower plate and extending downwardly therefrom to embrace the rubber heel.

JOHN P. WARRINGTON.

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