(No Model.)

A. P. GOTHAM.

HEEL,

No. 520,522. Patented May 29, 1894.

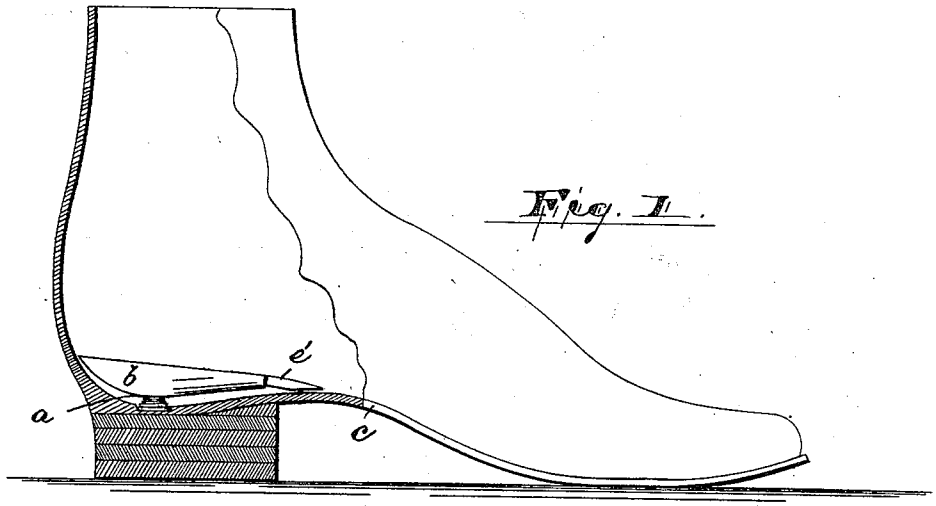

Fig. 1.

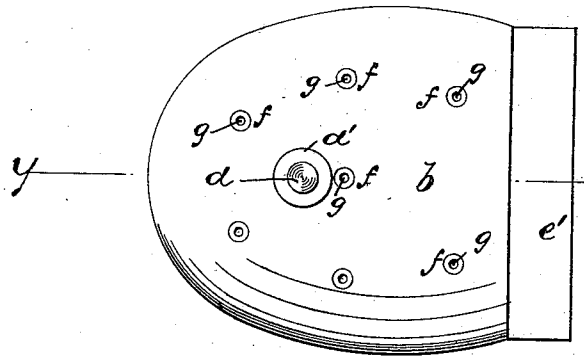

Fig. 2.

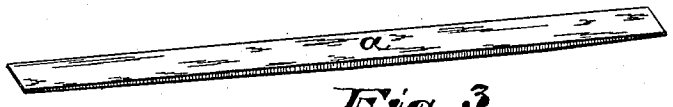

Fig. 3.

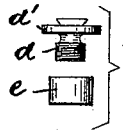

Fig. 8.

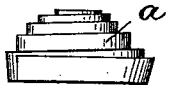

Fig 4.

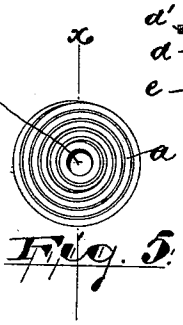

Fig. 5.

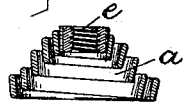

Fig. 6.

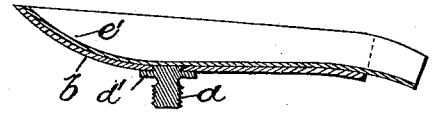

Fig. 7.

Witnesses

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HEEL.

SPECIFICATION forming part of Letters Patent No. 520,522, dated May 29, 1894.

Application filed January 5, 1893. Serial No. 457,337. (No model.)

To all whom it may concern:

Be it known that I, AMISA P. GOTHAM, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Spring-Heels for Boots and Shoes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The primary object of this invention is to afford more perfect ease and comfort to the wearer of boots and shoes, and it consists in providing the boot or shoe heel with a movable plate to which a spring is secured, as will be hereinafter more particularly set forth.

Referring to the accompanying drawings in which similar letters of reference indicate corresponding parts in each of the several figures where they occur, Figure 1 represents partly in elevation and partly in section a shoe having my improvement combined therewith. Fig. 2 represents a plan view of the heel-plate shown in Fig. 1. Fig. 3 shows a plan, in perspective, of a flat wire such as may be used in the formation of a spring shown in Fig. 1. Fig. 4 represents in elevation the completed spring enlarged. Fig. 5 is a plan view of the same, and Fig. 6 is a section taken through the line *x* of Fig. 5. Fig. 7 is a section taken through the line *y* of Fig. 2, and Fig. 8 is a detail, in elevation, of the fastening-screw and nut, shown in Figs. 6 and 7.

In said drawings, *a*, indicates a spring, *b*, the heel-plate and *c*, the sole of the boot or shoe. The heel-plate *b*, is firmly and rigidly secured to the spring *a*, in this instance by means of a screw *d*, secured to said plate, as indicated in Figs. 6, 7 and 8, which screws into a correspondingly threaded socket or nut *e* which is brazed or otherwise secured in the upper coil of the spring, and flush with the top thereof, as will be understood upon reference to Fig. 6. A flange or collar *d'* forms a broad and level bearing upon the top of the spring and is a support to the plate. The heel-plate is covered with leather *e'*, or other soft material, which is pasted thereon and further secured by eyelets *f*, riveted at both ends, as indicated in Fig. 2, whereby perforations *g*, are formed in the plate and covering, to ventilate and fan the foot of the wearer as the heel rises and settles, in the act of walking.

The spring may be made of flat wire, and tapered, as to thickness, (see Fig. 3) and the coils telescope loosely into one another so that when the spring is fully compressed the depth of the spring is equal to only one coil, *i. e.*, the coils settle gradually and uniformly into one another as the spring is compressed, until they are all embraced in and lie flush with the upper edge of the bottom coil. A spring in the heel of a boot or shoe will permit the plate to tilt when the weight of the body is upon it, in any direction, whereby the ankle is always relieved from undue strain when the heel of the shoe strikes an obstruction, such as a stone or unevenness of any kind in the surface walked upon, thus, no matter upon what angle the heel of the boot or shoe may be tilted, the heel-plate and the heel of the wearer, will remain practically level, and without injury to the spring. The top and bottom coils of the spring are formed so as to present a practically level seat and the said bottom coil is snugly fitted and pressed into a tapering socket or recess formed into the sole of the boot or shoe at the heel, to a depth somewhat deeper than, or about the same as the depth of said coil, as will be understood upon reference to Fig. 1. If desired the spring may be secured in said socket by any suitable extraneous means, though such means of securing it are not usually necessary.

Ordinary coiled springs, which are made of wire of uniform thickness, are objectionable in that the upper coils, owing to their decreasing size and the uniform thickness of the metal are so stiff that they will not yield to the weight of the body and therefore only the lower or larger coils are serviceable, as will be readily understood; but this defect is remedied by tapering the wire gradually to a knife-edge at the end, as shown, which allows all the coils to settle simultaneously, uniformly and gradually into one another and also renders the spring much more elastic and easy in its action, as will be obvious.

Having thus described my invention, what I claim as new is—

1. In combination, a coiled spring, the lower end of which is adapted to rest in a recess in the heel of a boot or shoe, a plate to fit in the heel of the boot or shoe, and a screw rigidly secured thereto, the top of which is provided with a shoulder to bear against the under side of the plate and the lower end is screw-threaded to fit in the upper end of the spring, substantially as set forth.

2. The combination in a spring heel of a spring composed of a flat wire of spring metal formed into a succession of coils telescoping into or overlapping one another, the lower or largest coil adapted to be seated in a recess in the heel of said boot or shoe; a screw-threaded socket secured in the top or smaller coil, a heel plate and a screw secured thereto and adapted to screw into said socket, as described and for the purposes set forth.

3. The combination in a spring heel, of a spring composed of a flat wire of spring metal formed into a succession of coils telescoping into or overlapping one another and adapted to be seated in a recess in the heel or sole of said boot or shoe, and a perforated heel-plate firmly secured to the top of said spring, as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of December, 1892.

AMISA P. GOTHAM.

Witnesses:
OLIVER DRAKE,
OSCAR A. MICHEL.