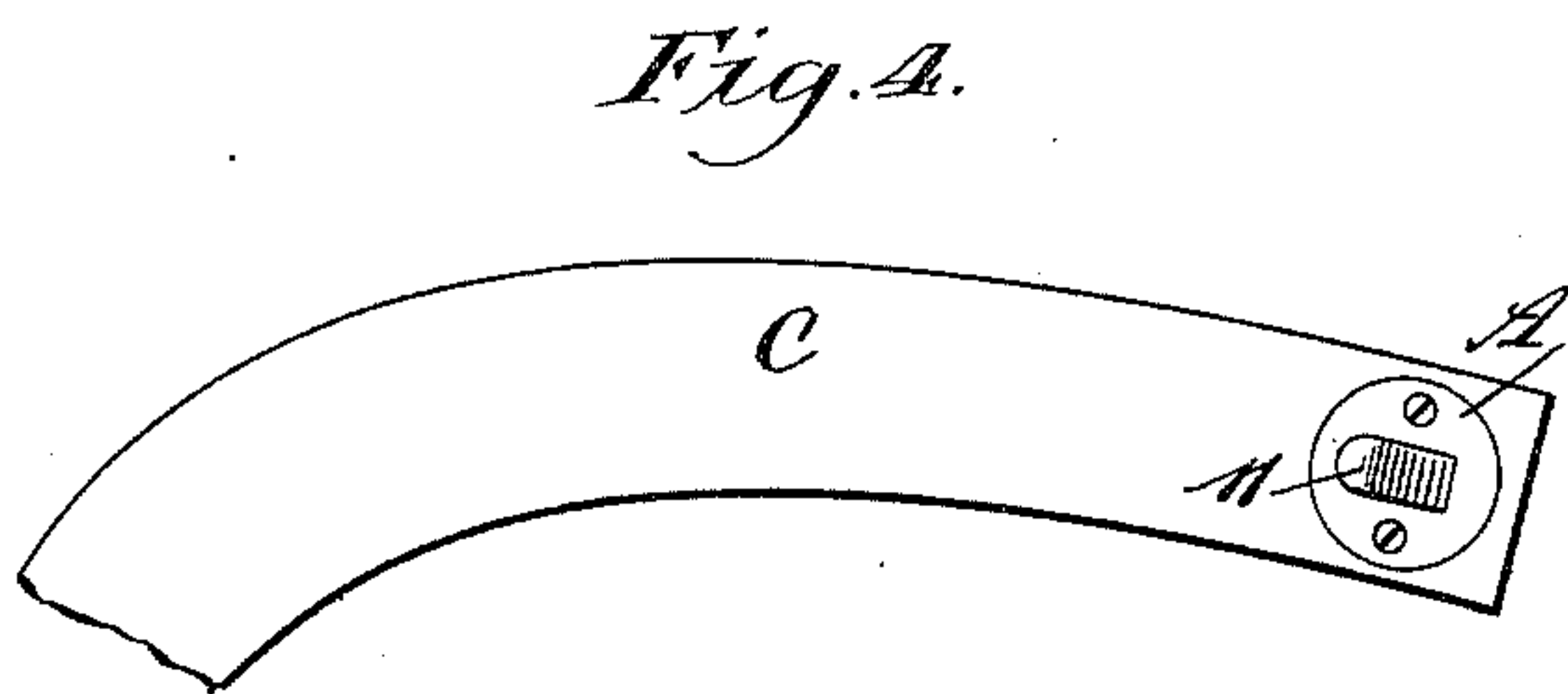
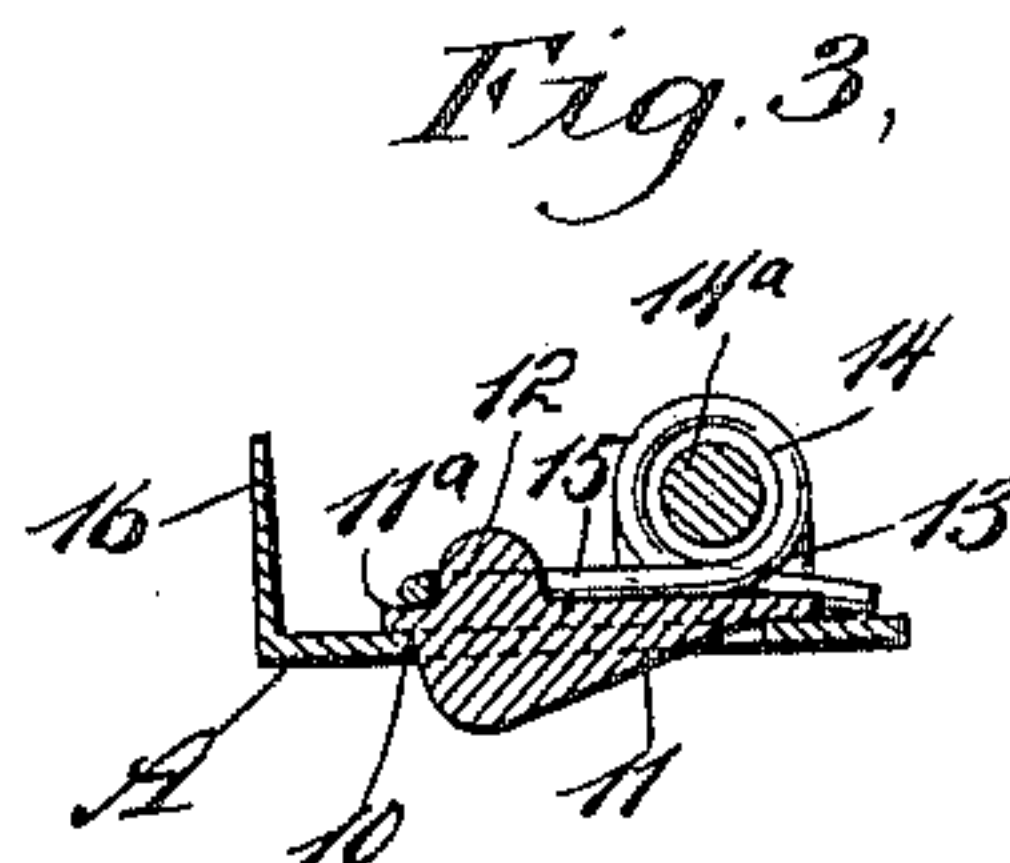
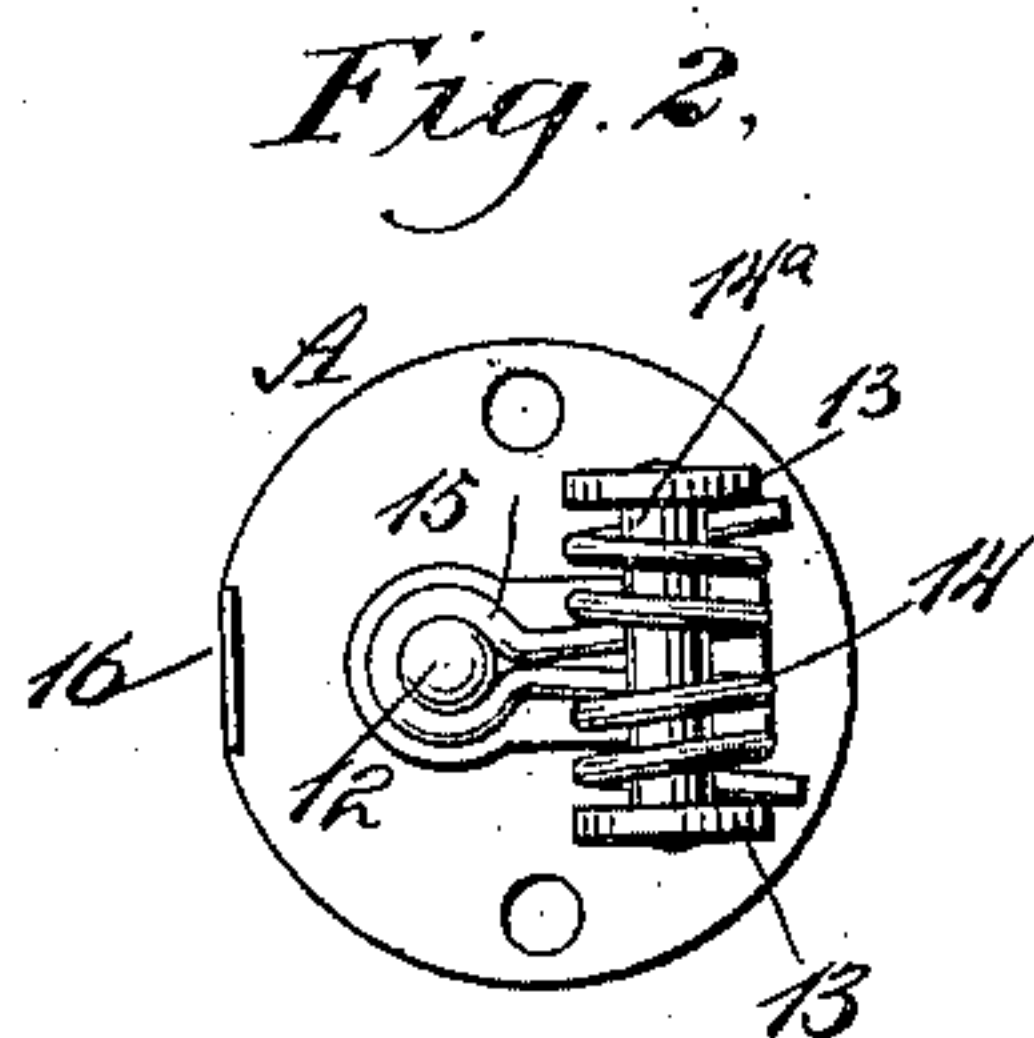
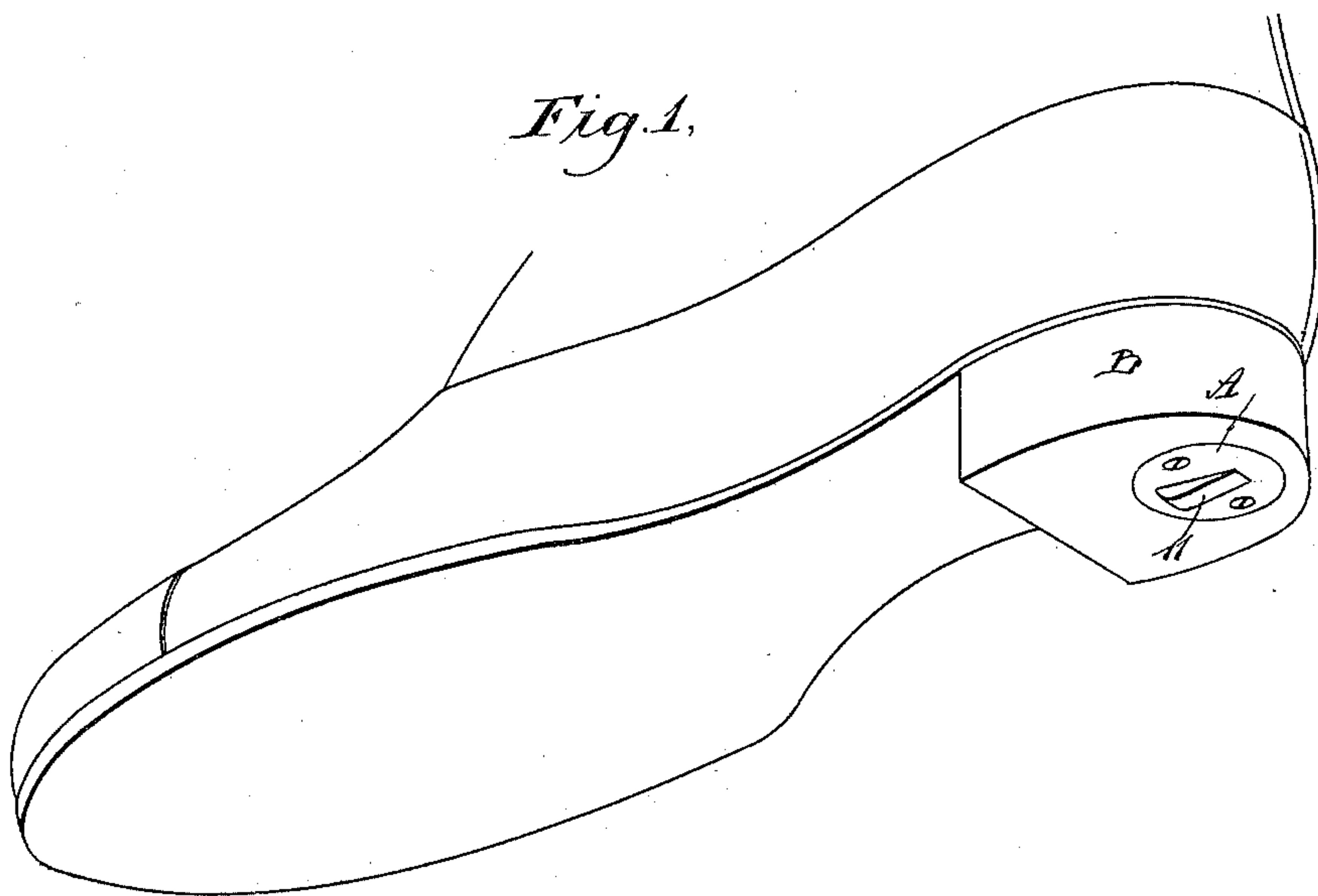


(No Model.)

G. E. SWAN.
HEEL SPRING FOR BOOTS OR SHOES.

No. 604,805.

Patented May 31, 1898.



WITNESSES:

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GEORGE E. SWAN, OF BEAVER DAM, WISCONSIN.

HEEL-SPRING FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 604,805, dated May 31, 1898.

Application filed April 22, 1897. Serial No. 633,358. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. SWAN, of Beaver Dam, in the county of Dodge and State of Wisconsin, have invented a new and Improved Heel-Spring for Boots or Shoes, of which the following is a full, clear, and exact description.

The object of my invention is to construct a heel-spring for boots or shoes, but which may also be attached to a horse's shoe, the construction being such that the foot will be allowed a certain amount of elasticity in the act of walking, thereby relieving the muscles from the severe strain to which they are subjected under ordinary circumstances.

A further object of the invention is to construct a heel-spring of the character above set forth which will be durable, simple, economic, and readily applied.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a shoe, viewed from the bottom, having the invention applied to the heel thereof. Fig. 2 is a plan view of the improved heel-spring. Fig. 3 is section through the center of the device, and Fig. 4 illustrates the application of the device to a horseshoe.

Usually a plate A is provided, preferably of circular form, the said plate having an opening 10 in its central portion and lugs 13 formed upon its inner face at each side of one end of said opening, as illustrated in Fig.

2. In the opening 10 of the plate a tread-block 11 is placed, said tread-block having its under face tapering, being thickest at one end, which is usually the forward end, and being provided at that end with a lug 11^a. The lug 11^a is adapted to engage with the inner face of the plate A or other support used, the thin or tapering end of said tread-block extending over the upper surface of the plate A at the rear, as shown in Fig. 3.

A spring 14 is coiled around a pin 14^a, secured in the lugs 13, and the said spring is provided with a loop extension 15, which loop

extension is carried around a projection 12, formed upon the upper surface of the tread-block 11 at its thicker end, as shown in Fig. 3. The spring 14 normally acts to hold the thicker end of the tread-block below the level of the plate A or below the level of the under face of the heel, and a lip 16 is usually projected upward from the front of the plate A in order that it may engage with the wall of the aperture made in the heel for the reception of the device.

The opening in the heel B of the boot or shoe adapted to receive the device is concentric with the line of nails which is usually placed near the margin of the heel of the boot or shoe, and this opening is also so placed that it will be adjacent to the line of nails on the edge of the heel at the back. The plate A when used is secured to the heel by means of screws or their equivalents.

When a boot or shoe is provided with the attachment above described, the wearer of said boot or shoe in walking will tread upon the block 11, and said block being spring-controlled will yield when downward pressure is applied to said boot or shoe, but will extend beyond the heel when the latter is lifted from the ground or the surface traveled over. In this manner the muscles of the foot are assisted largely in a pedestrian's movements and greatly relieved from the acute shock or jar incident to a solid heel striking the ground or the floor. The spring is so coiled and the connection between the tread-block and the spring is such that when the spring is brought under tension it winds up upon itself in a manner to insure the pressure or strain being equally distributed throughout its entire length.

It is evident that the device may be efficiently applied to the heel or other portion of a horseshoe C, as shown in Fig. 4, and with as good results as to any other shoe, rendering the step of the horse much more elastic and more graceful than if the shoe were solid and unyielding throughout its entire surface, and likewise preventing injury to the hoof when brought heavily to the ground, as in trotting or in going downhill. When the device is applied to a horseshoe, the projecting portion of the tread-block may face either forward or rearward.

In youth the cartilage at the joints is so abundant that young persons are enabled to spring along with the greatest of ease. Later these cartilages become thinner, more bony, and less elastic, so that many people past youth when they travel with hard heels over hard pavements or floors receive a shock with each step, tending to spinal irritation, nervous exhaustion, and many other troubles. These cartilages cannot be renewed, and with this fact in view I have devised the most complete possible substitute—namely, the heel-spring heretofore described.

These springs will not clog, click, slip, or break and the heels to which they are applied will never need repair from wear or running over, while the wearer will have a cushion constantly under the heels which will not in the slightest degree interfere with locomotion, but which will effectually prevent the shocks daily received when a rigid heel is worn.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A spring attachment for heels, comprising a plate adapted for attachment to a heel and having an opening therein, a tread-block having its ends resting against the inside of the plate, the tread-block being of reduced thickness at its rear end and its forward thickened end projecting outward through the slot in the plate, and a spring bearing against and exerting a downward pressure on the block, the spring at its forward end pressing against the front end of the tread-block and the rear end of the tread-block being free to slide on the plate when the front end is pressed inward, substantially as described.

2. A spring attachment for heels, comprising a plate adapted for attachment to a heel and having a slot therein, a tread-block of tapering outline projecting through said hole having a lug upon the thicker end thereof limiting its outer projection and an inwardly-extending knob upon the same end, the smaller end of said tread-block resting upon the inner side of the plate, and a spirally-coiled spring mounted upon the plate within the reduced end of the tread-block and having a loop projecting forwardly from the middle thereof, and terminating in an eye encircling the knob on the tread-block, whereby the block is loosely held projected and its rear or reduced end is free to move on the plate, substantially as described.

3. A spring heel attachment, comprising a plate adapted for attachment to a heel, said plate having an opening therein, lugs on each side of said opening projecting beyond the upper surface of the plate, a pin connecting said lugs, a tread-block loosely swinging in the opening of the plate and provided with a knob at the top of its thickened forward end, a spring coiled around said pin having bearing upon said plate and provided with an extension which embraces the knob on the tread-block, a lug horizontally projected from the tension-control or forward end of the tread-block adapted for engagement with the upper surface of the plate, and a loop formed upon the plate at its forward portion and extending upwardly therefrom, substantially as described.

GEORGE E. SWAN.

Witnesses:

GEO. C. CONGDON,
THEO. G. HUTH.