No. 614,688. Patented Nov. 22, 1898.

E. L. BARBER.

SPRING HEEL FOR BOOTS OR SHOES.

(Application filed Oct. 27, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



Fig. 3a

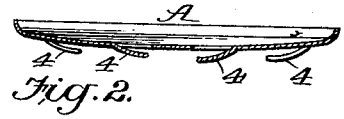


Fig. 2.

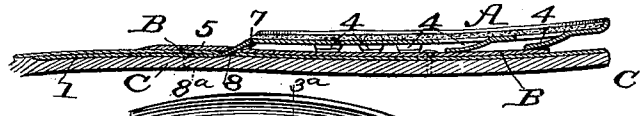


Fig. 3.

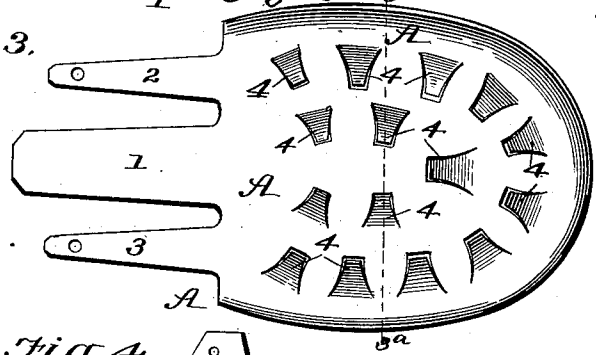
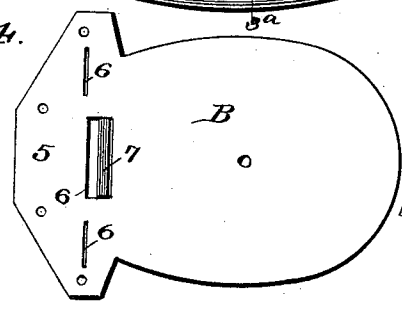


Fig. 4.



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SPRING HEEL FOR BOOTS OR SHOES.

(Application filed Oct. 27, 1897.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 6.

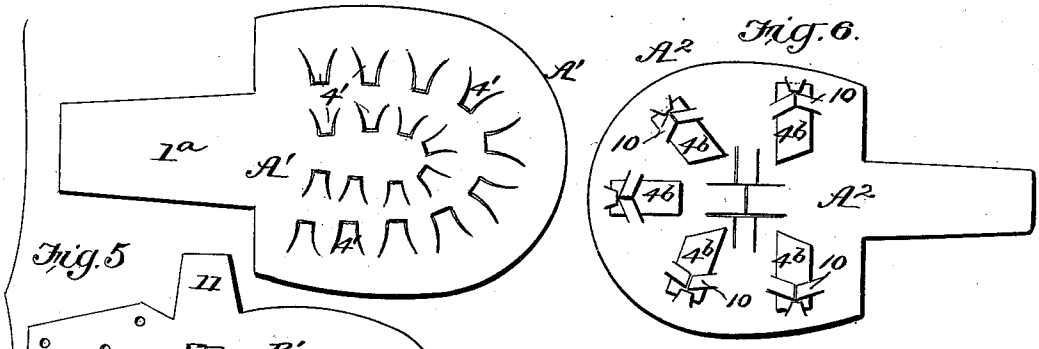
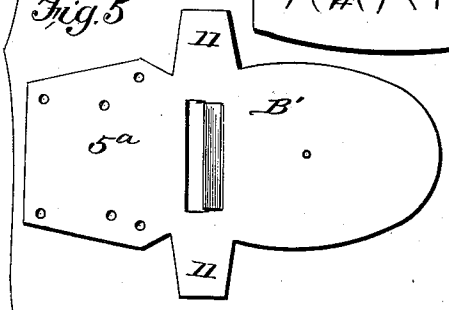


Fig. 5



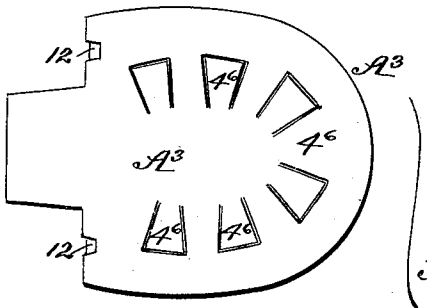


Fig. 7.

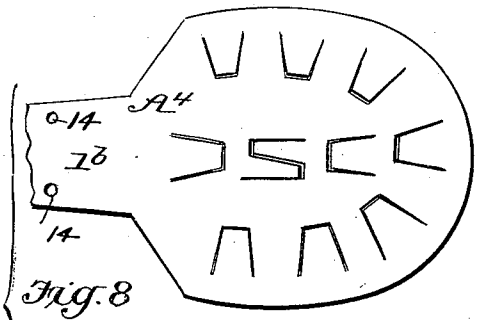


Fig. 8

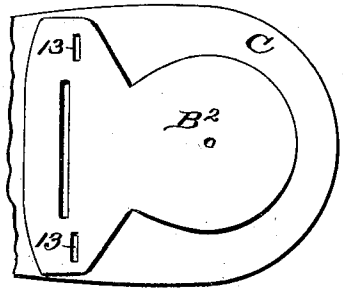
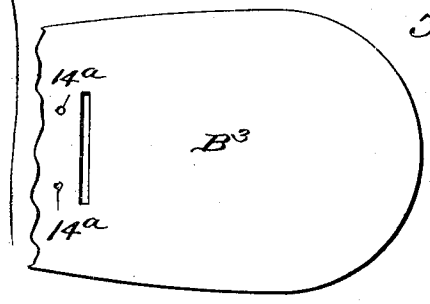
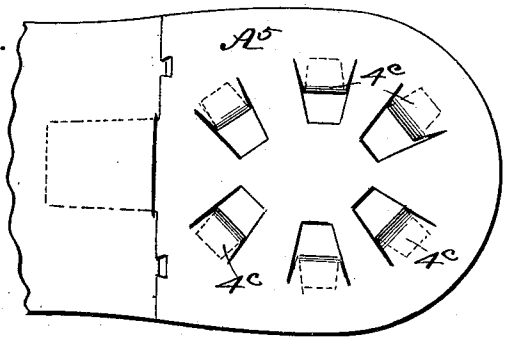


Fig. 9.





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UNITED STATES PATENT OFFICE.

EDWIN L. BARBER, OF LARWILL, INDIANA.

SPRING-HEEL FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 614,688, dated November 22, 1898.

Application filed October 27, 1897. Serial No. 656,617. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. BARBER, of Larwill, in the county of Whitley and State of Indiana, have invented a new and useful Improvement in Spring-Heels for Boots or Shoes, &c., of which the following is a specification.

My invention is in the class of supplemental elastic attachments of boots and shoes for relieving the jar or strain incident to walking or standing on hard surfaces. I have devised and put in practical use an improved form of such attachment for boots, shoes, slippers, sandals, and detachable insoles which is applied to the inner sole in a simple manner and is light and thin, so as to occupy minimum space, yet furnishes a highly-elastic support for the wearer's heel.

I have embodied the invention in several allied forms, which are illustrated in the accompanying two sheets of drawings.

Figure 1 is a perspective view of a shoe having a portion broken away to exhibit the practical application of my invention thereto. Fig. 2 is an enlarged longitudinal section of a portion of an insole having my device attached. Fig. 3 is a plan view of a preferred form of my spring heel plate. Fig. 3^a is a cross-section on line 3^a 3^a of Fig. 3. Fig. 4 is a plan view of the base-plate on which such heel-plate bears when in use. Figs. 5 to 9, inclusive, Sheet 2, are plan views of modified forms of my invention.

I will first describe with due detail the attachment illustrated in Figs. 1, 2, 3, and 4. The attachment comprises two metal parts or plates A and B, formed, preferably, of thin steel or brass. The upper or spring-heel plate A is so constructed and attached to the insole C of a boot or shoe as to constitute a duly elastic support for the wearer's heel, to which it is suitably conformed in shape, being slightly concave and its edge turned up and corrugated, crimped, or doubled on itself to impart increased strength and rigidity. The front end of this heel-plate A is extended in the form of fingers 1 2 3, the central one 1 being the longest and widest. These fingers are attached to the insole C, as hereinafter described. The body of the heel-plate A is provided with a series of short spring-tongues 4, which project from its under side at an angle thereto. Said tongues 4 are preferably formed by slitting the plate A in a suitable manner and then bending down the portions thus partly severed from the latter. These tongues 4 supplement the function of the fingers 1 2 3, before described, in furnishing a duly elastic support for the heel-plate A.

The aforesaid tongues 4 bear directly upon the base-plate B, which thus protects the insole proper from abrasion and wear. The base-plate B has, however, another function in that it furnishes a fulcrum for the heel-plate A as well as an additional means for securing the latter in place. For this purpose the broadened front portion 5 of the base-plate B is provided with three transverse slits 6, Fig. 4, to receive the spring-fingers 1 2 3 of the heel-plate A, and also with a spring 7, which forms an elastic fulcrum for the heel-plate. Said spring 7 is formed by bending upward and backward a tongue formed on the front portion of the base-plate at a point directly beneath the rear end of the main finger 1 of the heel-plate.

The angular front end 5 of the base-plate B is secured to the insole C by means of barbed nails or flat-head screws, the heads of the nails or screws being countersunk in part B, as shown. The ends of the heel-plate fingers 2 3 are similarly secured to the insole C by nails or screws, but the larger or middle finger 1 is left free, the same passing through a slit 8 (see Fig. 2) in the top layer of the insole C and projecting forward beneath the same parallel to its surface, as shown.

The three fingers 1 2 3 being normally at a slight angle to the body of the heel-plate A it is apparent the latter is normally held at a corresponding angle to the base-plate B and surface of the insole C, and when pressure is imposed on plate A by the wearer's heel its depression is resisted by all the fingers 1 2 3 as well as the tongues 4 of the heel-plate. Thus the attachment constitutes an elastic heel-support whose resiliency is gradually increased as it is depressed, and it being composed of but two thin light plates it occupies minimum space and may be very cheaply manufactured. It is also adapted to be easily attached both to boots and shoes already made or in process of manufacture. I also

contemplate applying it in a similar manner to detachable insoles, which are worn by many persons, or to any form of boot, shoe, or sandal. In practice a strip of felt will be applied over the heel-plates, as shown in Fig. 2.

In practice the front edge of the plates A B may be thinned or beveled to a finer edge, and in this and other particulars which do not involve patentable invention and require no specification I propose to modify the details of construction as judgment and experience may dictate.

In Fig. 5 the heel-plate A′ is shown provided with a single spring-tongue 1^a. The base-plate B′ has an extended front portion 5^a and two lateral ears 11.

In Fig. 6 the spring-tongues 4^b of the heel-plate A^2 are not integral with the same, but separate and detachable, and are held in prongs or clasps 10, formed by bent-down portions of the plate.

In Fig. 7 the heel-plate A^3 is provided with two lugs or very short lateral fingers 12, that enter slits 13 in base-plate B^2 and serve to keep the heel-plate in place. It also has spring-tongues, which are arranged circularly and turned backward from the center of the plate, which center is thus left supported by radial portions of the plate, and therefore constitutes a spring-support independently of or supplemental to the plate proper.

Fig. 8 shows a heel-plate A^4 whose single spring is provided with holes 14 for receiving screws that in practice secures it to an insole.

The heel-plate B^3, Fig. 8, has coincident screw-holes 14^a. Fig. 9 shows a heel-plate having radial tongues 4^c.

In any of these forms the attachment relieves the jar incident to walking on hard surfaces, so that the pleasure and physical benefit of the latter are greatly increased, and it also enables one to stand with greater ease and comfort.

In any or all the forms described the fingers are preferably enlarged at the base, as shown in Fig. 3, to secure increased strength at that point.

What I claim is—

1. An improved spring attachment for the purpose specified, comprising a spring-heel plate which is provided with springs, and a base or wear plate, arranged directly beneath such heel-plate, and connected therewith at its front end, substantially as shown and described.

2. An improved spring attachment for the purpose specified, comprising the spring-heel plate having one or more front fingers, and a base-plate having one or more transverse slits, through which the said finger or fingers project, substantially as shown and described.

3. A base-plate for an elastic or spring heel plate, which is provided at its front end with a spring-fulcrum for said heel-plate, substantially as shown and described.

4. A base-plate for an elastic, or spring, heel plate, which is constructed of spring sheet metal and provided at its front end with a bent-up or recurved integral portion to serve as a spring-fulcrum for the heel-plate, as shown and described.

5. The combination with an insole of an elastic or spring heel plate having one or more fingers connected with the insole, a base-plate having one or more transverse slits, and secured to the said insole the fingers passing through the said slits, substantially as shown and described.

6. The combination with an insole and a base-plate having a transverse slit, and secured at its front end to the said insole by nails or screw, of the spring-heel plate having a central integral finger which projects through a slit in the insole and forwardly beneath the surface of the same, and having also lateral integral fingers which likewise pass through slits in the base-plate, as shown and described.

EDWIN L. BARBER.

Witnesses:
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LEWIS H. CLEVINGER.