

(No Model.)

G. C. BUCH.

SPRING HEEL FOR BOOTS AND SHOES.

No. 357,062.

Patented Feb. 1, 1887.

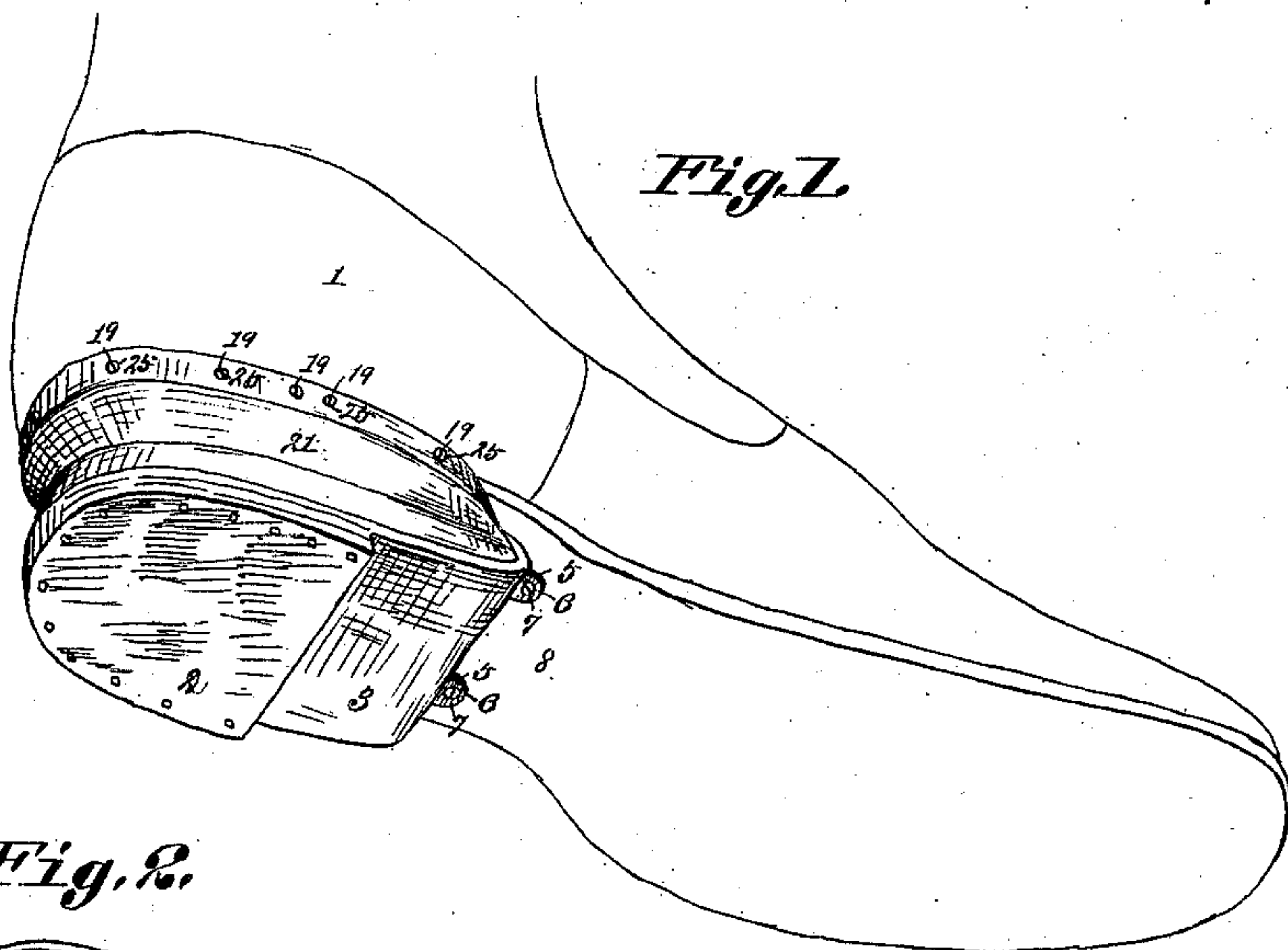


Fig. 2.

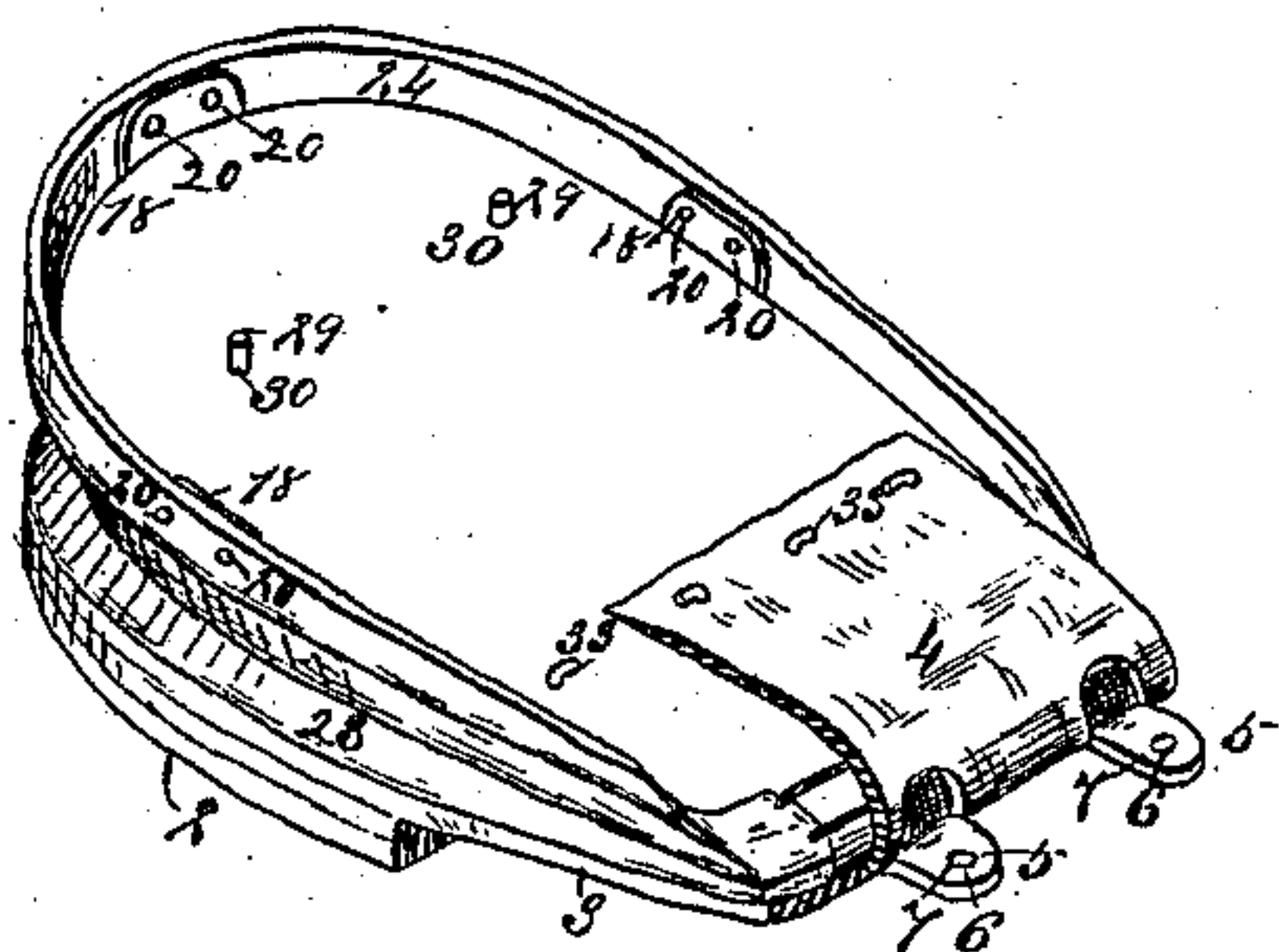


Fig. 3.

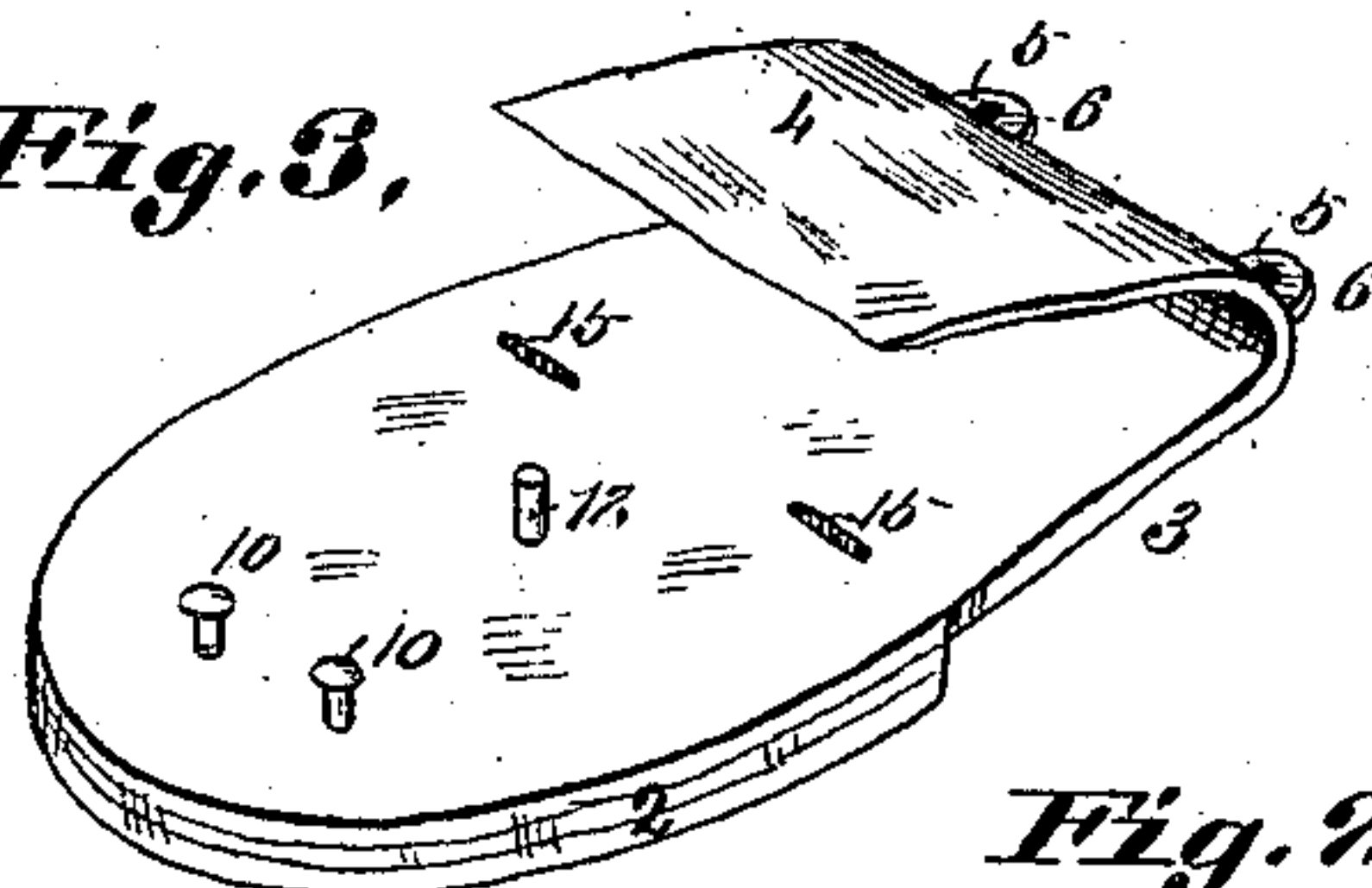


Fig. 4.

Fig. 5.

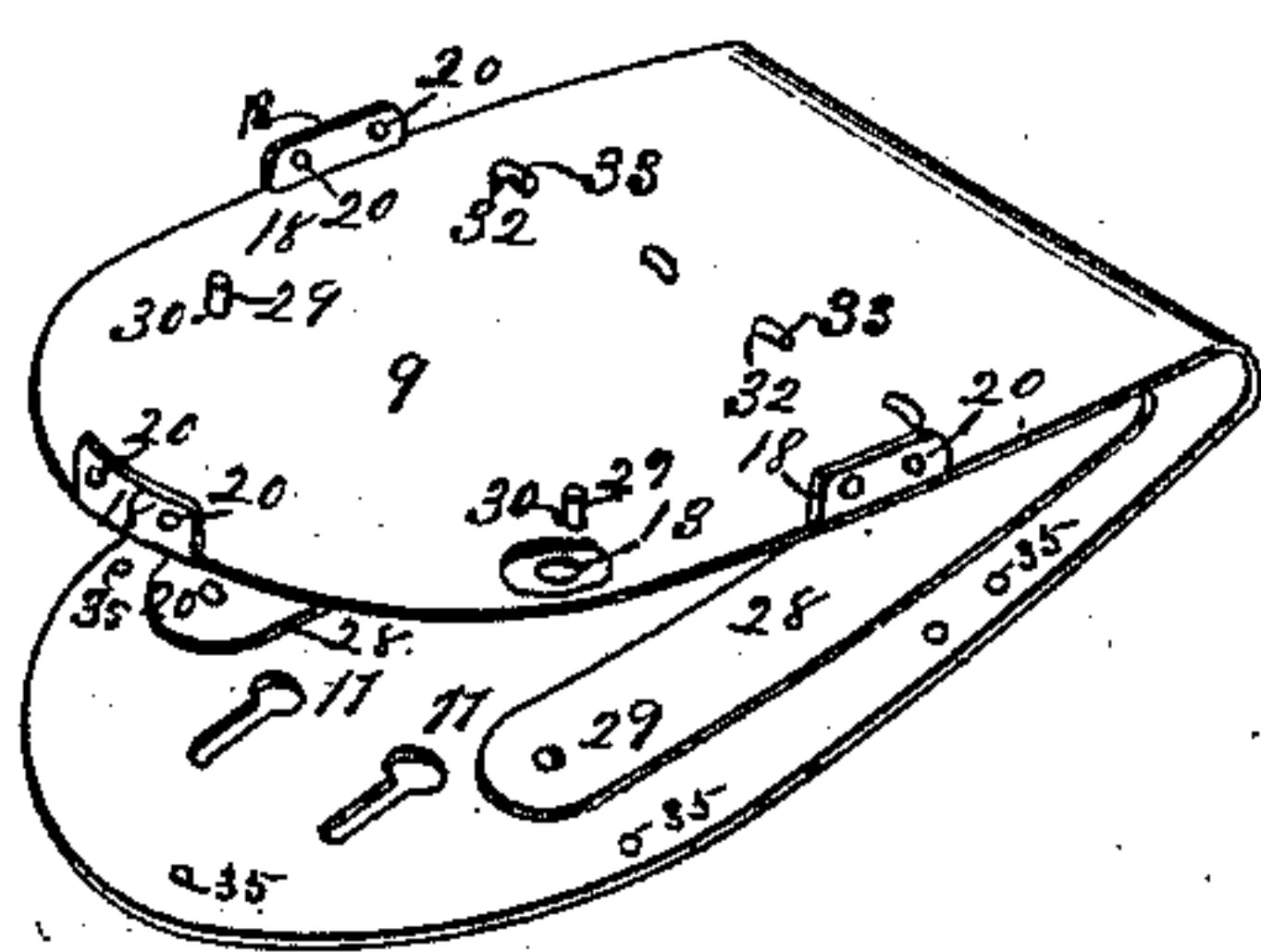


Fig. 6.

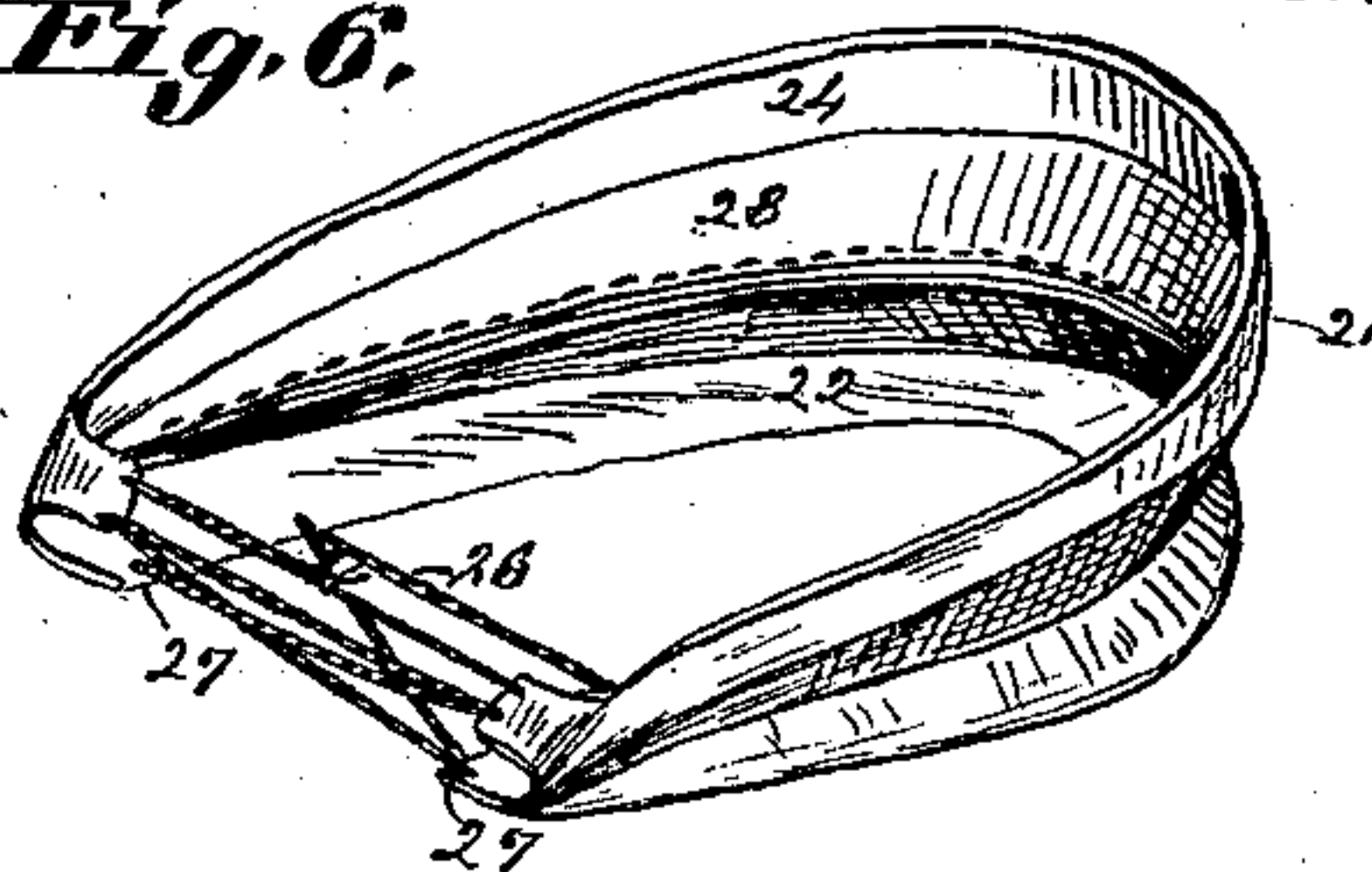
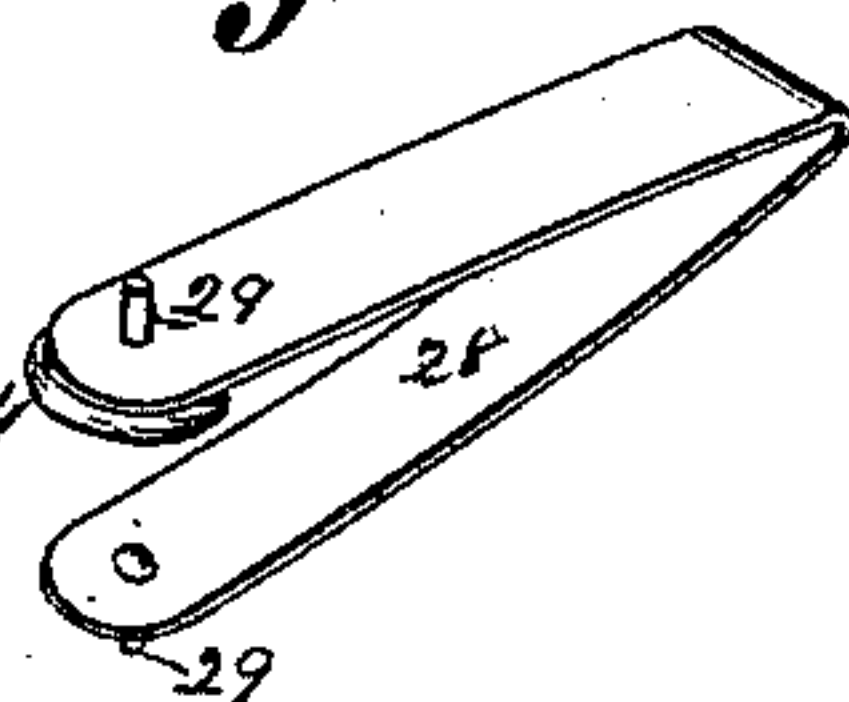


Fig. 7.



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UNITED STATES PATENT OFFICE.

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SPRING-HEEL FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 357,062, dated February 1, 1887.

Application filed November 15, 1886. Serial No. 218,937. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. BUCH, of Eureka, in the county of St. Louis and State of Missouri, have invented certain new and
5 useful Improvements in Spring-Heels for Boots and Shoes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

10 Figure 1 is a perspective view of a shoe with my spring-heel attached. Fig. 2 is a perspective view of the leather spring-boxing and the housing-pad with the heel attached, and part broken away to show the lacing of the
15 pad. It also shows the lugs that secure the front of the pad to the body of the shoe. Fig. 3 is a perspective view of the heel, showing the flap and lugs that hold it to the sole of the shoe, and also the screw-heads that fasten
20 the main or outer spring to the heel. Fig. 4 is a perspective view of the springs before attachment to the shoe, showing the key-hole slots that secure it to the heel, and has part broken away to show the perforation or key-
25 hole through the lower fold of spring for the entrance of the key-pin that holds the spring from sliding. It also shows the means of attaching the re-enforcing springs to the outer
30 or main spring by pins that project from the former and engage in perforations in the latter; also, the staples that hold the re-enforcing spring (by their attachment to the main spring) from too great lateral movement. The
35 view also shows the perforated lugs by which the main spring is secured to the sole above. Fig. 5 is a perspective view of one of the re-enforcing springs, showing the pins that secure it to the outer spring, and a supplementary rubber-cushion spring used as a buffer
40 when the springs are exposed to heavy strain. Fig. 6 is a perspective view of the housing or pad that incloses the springs and helps to secure the parts together; and Fig. 7 is a transverse section taken across the spring-
45 boxing in front of the heel, and showing the re-enforcing springs in elevation.

This invention relates to improvements in spring-heels for boots and shoes; and the invention consists in features of novelty herein-
50 after fully described, and pointed out in the claims.

Referring to the drawings, in which like figures of reference indicate like parts in all the figures, 1 represents a shoe with my spring-heel attached. 2 is the heel; and 3 the flap—that
55 is, an extension from the top lift of the heel, and passes around the front of the main spring at 4. Lugs 5, cut out from and integral with said flap, have perforations 6, through which
60 screws 7 attach the front of the flap and its inclosed main spring to the sole 8 of the shoe.

9 represents the main spring, which is secured to the heel by two round-headed screws, 10, that are screwed into the heel, and their
65 heads passed through the enlarged ends of two key-hole slots, 11, in the main spring, and then the spring-plate being slid forward, the heads of the screws, which have passed into the narrow
70 tongues of the slots, hold the rear of the main spring rigidly to the sole, and a headless screw, 12, also screwed into the heel, passes through a perforation, 13, in the main spring,
75 and thus locks the attachment to the rear of the heel by preventing the main spring from sliding forward, without which action the headed
screws 10 could not be disengaged from the key-hole slots 11. (See Fig. 4.)

14 represents lugs attached to the under side of the lower fold of the main spring that are
80 passed through perforations 15 in the extension-flap to the upper lift of the heel, and are secured to the front of the lifts of said heel by screws 16, that pass through perforations 17 in said lugs.

18 represents lugs that rise from the upper
85 fold of the main spring, and which are secured to the sole of the shoe by screws 19, that pass through the housing or pad that incloses the spring and perforations 20 in the lugs and fasten
90 into the sole.

21 represents the leather housing or pad that cases in the combination-springs and assists to couple the connection of the heel to the sole and body of the shoe. The housing
95 is turned at bottom, forming a flange, 22, that is rigidly secured between the main spring and the heel. The housing at 23 folds in between the folds of the main spring to accommodate
itself to the action of the spring when it is depressed, and has a vertical flange at 24 running
100 around it, by which it is secured by the before-mentioned screws 19 and similar ones

that pass through perforations 25 in the upper flange of the housing and into the sole of the shoe. A lace cord, 26, passes through perforations 27 in the lower flange and front ends 5 of the housing and draws it snugly in place around the spring-boxing and the several parts that it protects.

28 represents the inside or re-enforcing springs that are supplied at their open ends 10 with attachment-pins 29, that pass through perforations 30 in both folds of the main springs, and are retained in said holes by the expansion of the springs, and securely hold said springs at their rear ends. Fastening-staples 15 31 grasp the re-enforcing springs toward their forward ends and pass through perforations 32 in the upper fold of the main-spring plate, and their ends are clinched down on said plate at 33.

34 represents rubber cushion buffer-springs 20 that re-enforce the other springs at times of greatest depression, and act as buffers to cushion or break the concussion of the parts when the wearer, by jumping or from other causes, 25 brings the ends of the springs down violently together. These buffer-springs may be made of rubber or other gum, and as also the re-enforcing springs to which they are attached may be made heavier for the one side of the shoe 30 than the other to adapt them to the action of the wearer, as most persons tread heavier on one side than the other and generally on the outer side.

35 represents perforations in the lower fold 35 of the main-spring plate that are intended for use (when repairs are necessary) by the insertion of screws through said holes into the heel beneath. The springs are preferably made of good spring-steel, but may be made of any 40 suitable material.

I have shown my invention as applied to a shoe; but it is evident that it can as readily, and it is also so intended to, be applied to boots.

I claim as my invention—

45 1. In spring-heels for boots and shoes, the combination of the folded main spring 9, re-enforced on the inside by the twin folding springs 28 and cushion buffer-spring 34, and arranged to be inclosed in the leather spring-boxing by 50 which it is incased and which couples the heel to the body of the shoe, all substantially as described, and for the purpose set forth.

2. In a boot or shoe, the springs 9, 28, and 34, arranged to re-enforce each other as a spring- 55 lift to the heel, the spring 9 provided with

the key-hole slots 11, and key-hole 13, which, in combination with screws 10 and 12 and lugs 14, secured by screws, fasten the combination-springs to the heel, and the lugs 18 and leather pad 21, that are secured to the 60 sole, all substantially as described, and for the purpose set forth.

3. In a boot or shoe, the combination of the folding and rubber springs inclosed in leather spring-boxing, that, with the attachment-lugs 65 and their fastenings, connect the heel to the sole, all substantially as described, and for the purpose set forth.

4. In a boot or shoe, the folding and rubber springs fastened to the heel by headed screws 70 that engage in key-hole slots, and are locked therein by the headless screw 12, in combination with the perforated lugs 5, 14, and 18, staples 31, and pad 21, which fasten the spring-heel to the sole, all substantially as described, 75 and for the purpose set forth.

5. A boot or shoe having folded steel springs, and rubber buffer-springs secured to the heel and sole, and incased by a leather pad that is fastened to the heel and sole, and laced by a 80 cord, 26, that fastens it around the main spring, forming a boxing for it, substantially as described, and for the purpose set forth.

6. A boot or shoe provided with a leather boxing that unites the heel and sole to which 85 it is secured at a separable distance, and incases combination folded springs and rubber buffer-springs within the boxing, with perforations 35 in the main-spring plate, for reattachment of the spring-plate to the heel in re- 90 pairs, all substantially as described, and for the purpose set forth.

7. A boot or shoe with a leather boxing that connects the heel to the sole, arranged with a chamber between said heel and sole, 95 in which are located folded steel springs and rubber buffer-springs, with an extension-flap from the top lift of the heel that encompasses the fold of the main-spring, and, passing backward, is fastened by clinches of the staples that 100 grasp the re-enforcing springs within the main spring, and pass through perforations in the main-spring plate above and through said return flap on which they are clinched, substantially as and for the purpose set forth.

GEORGE C. BUCH.

In presence of—

BENJN. A. KNIGHT,
J. WAHLE.