

(No Model.)

2 Sheets—Sheet 1.

C. H. MARTIN.
HEEL FOR BOOTS OR SHOES.

No. 384,634.

Patented June 19, 1888.

Fig. 1.

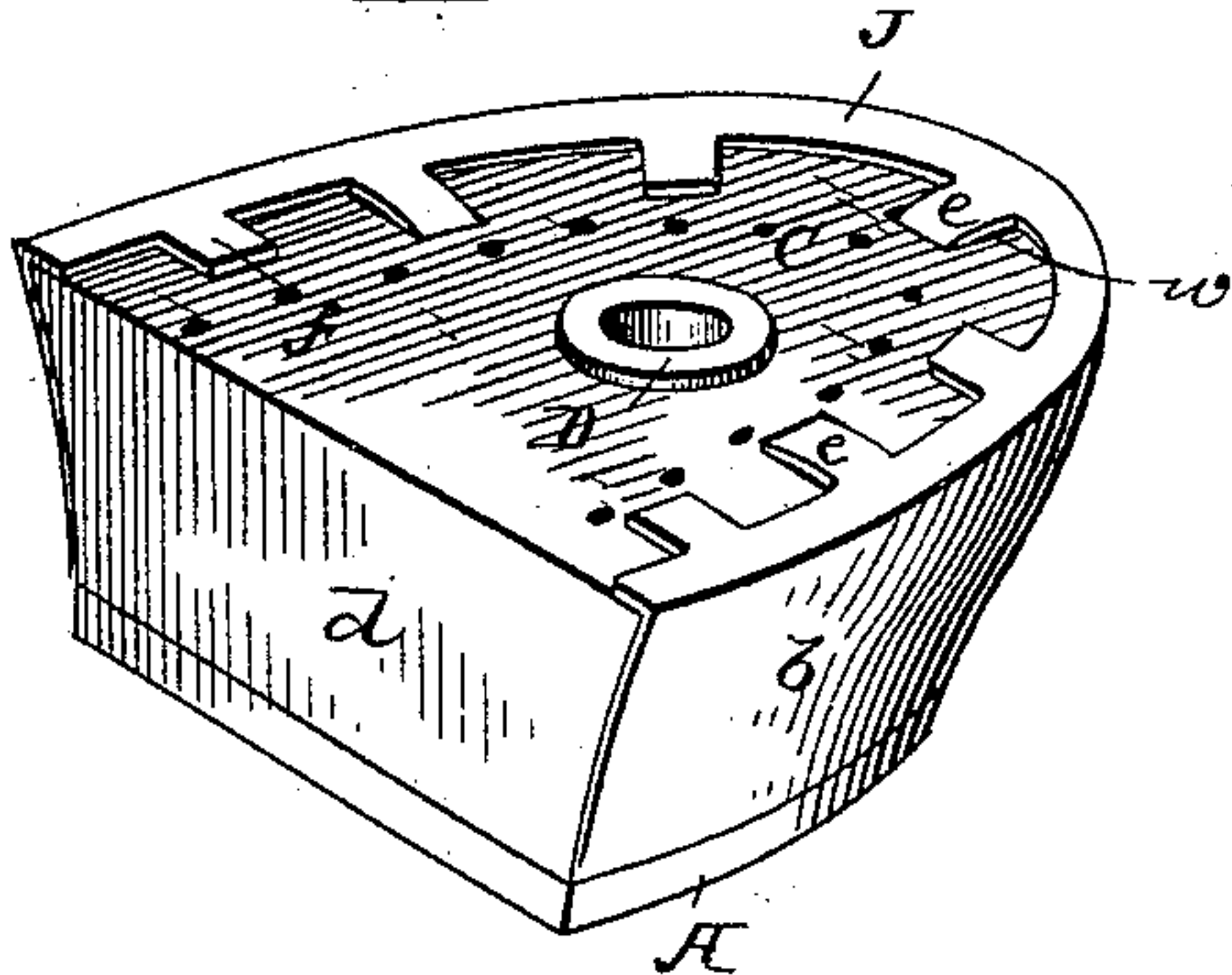


Fig. 2.

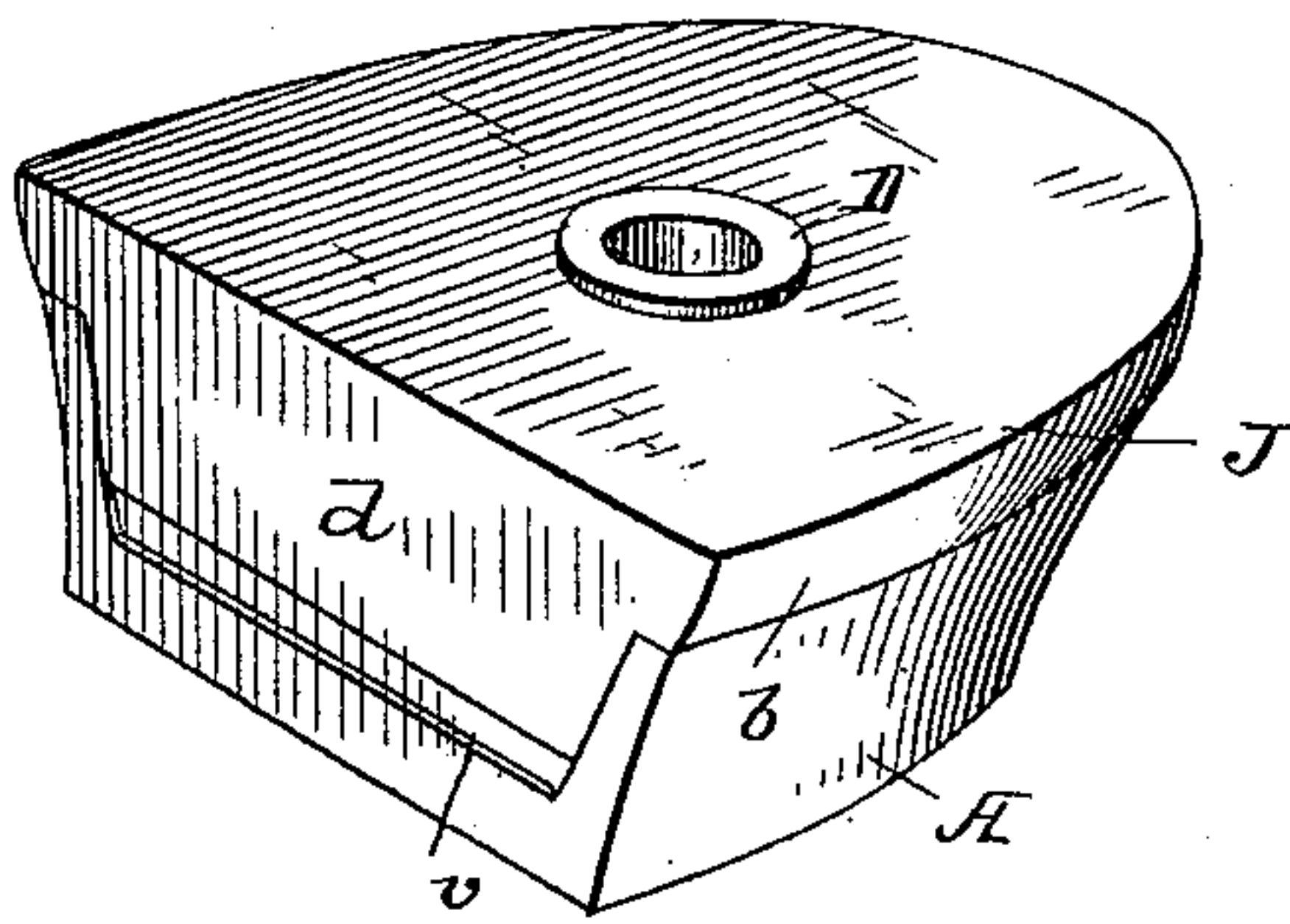


Fig. 3.

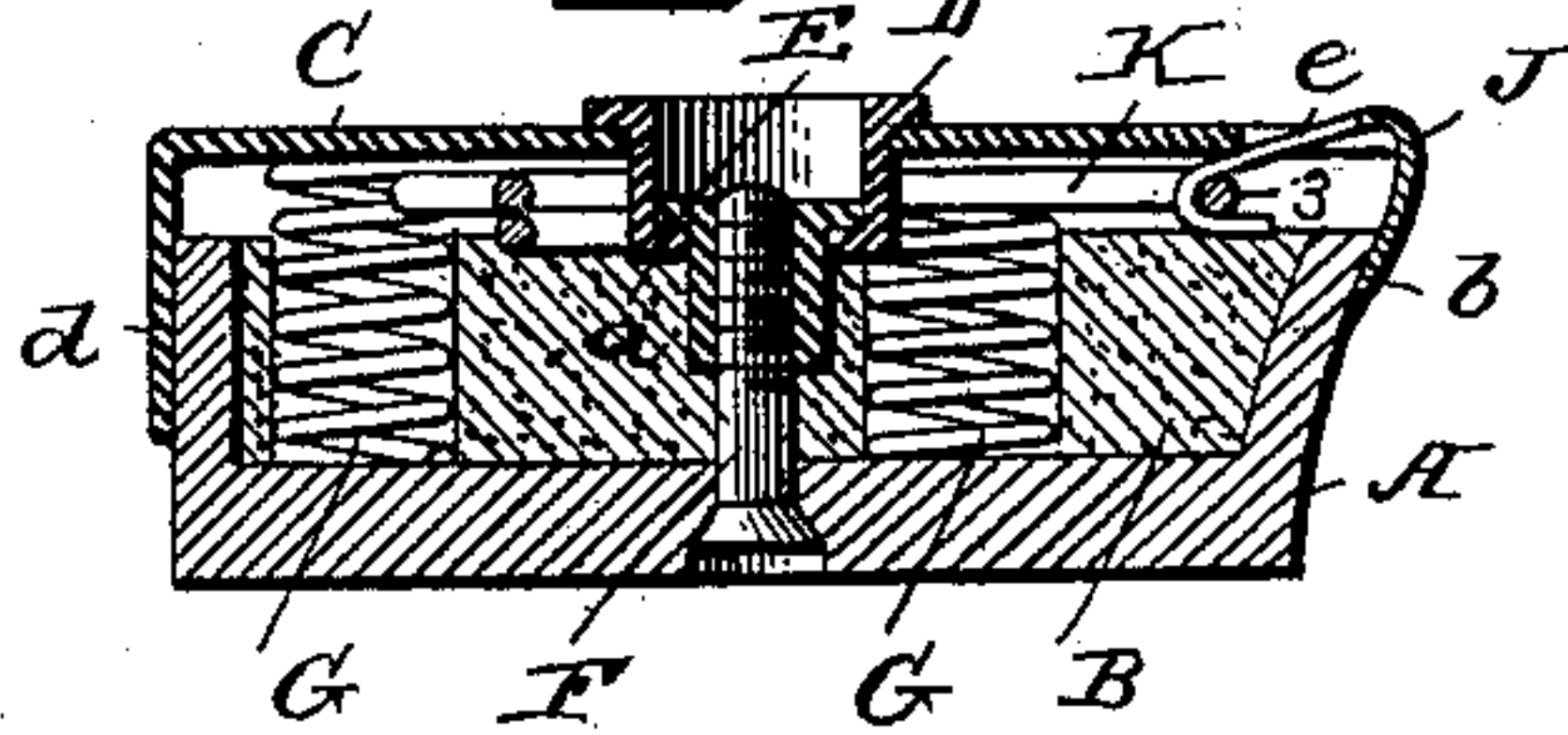


Fig. 4.

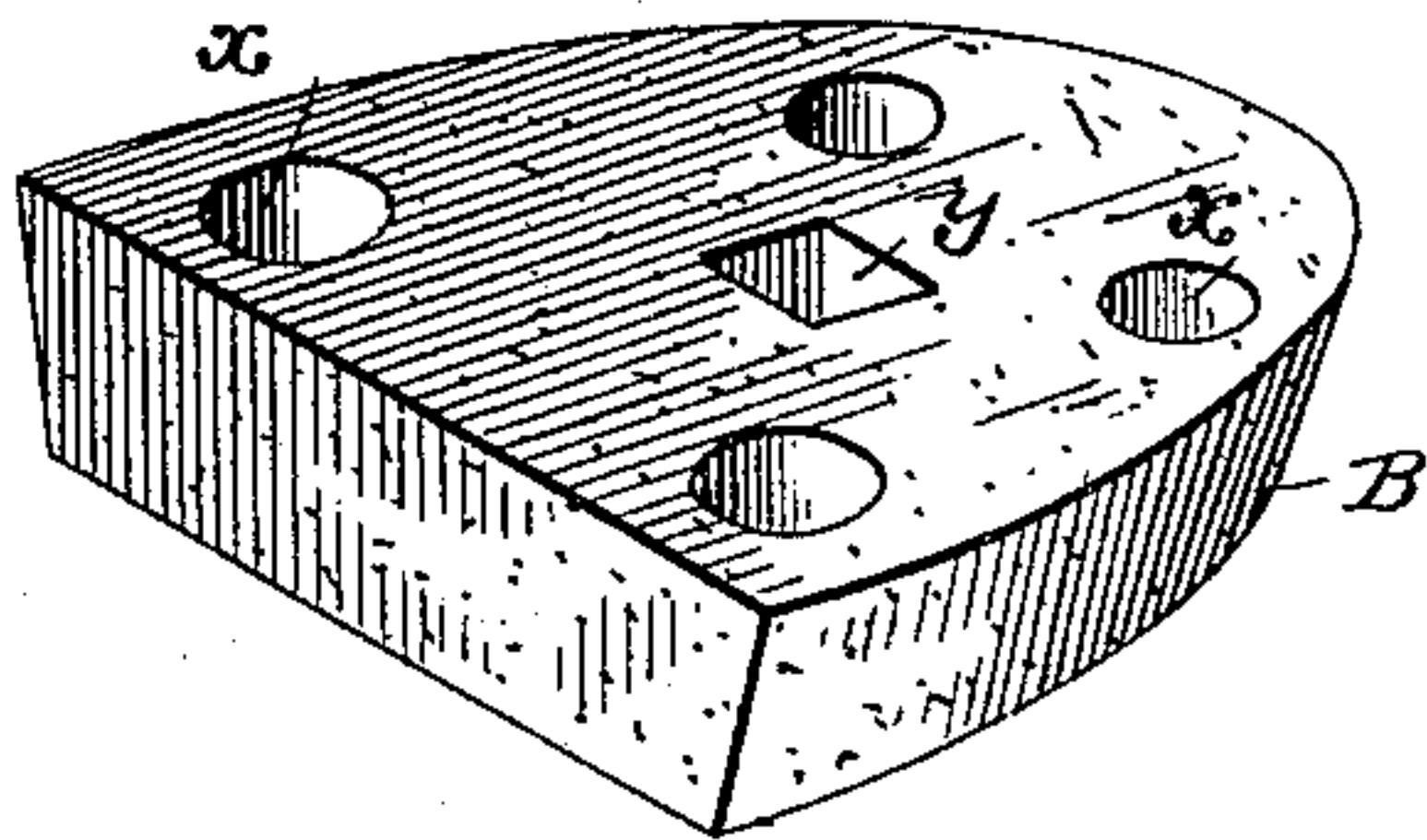


Fig. 5.

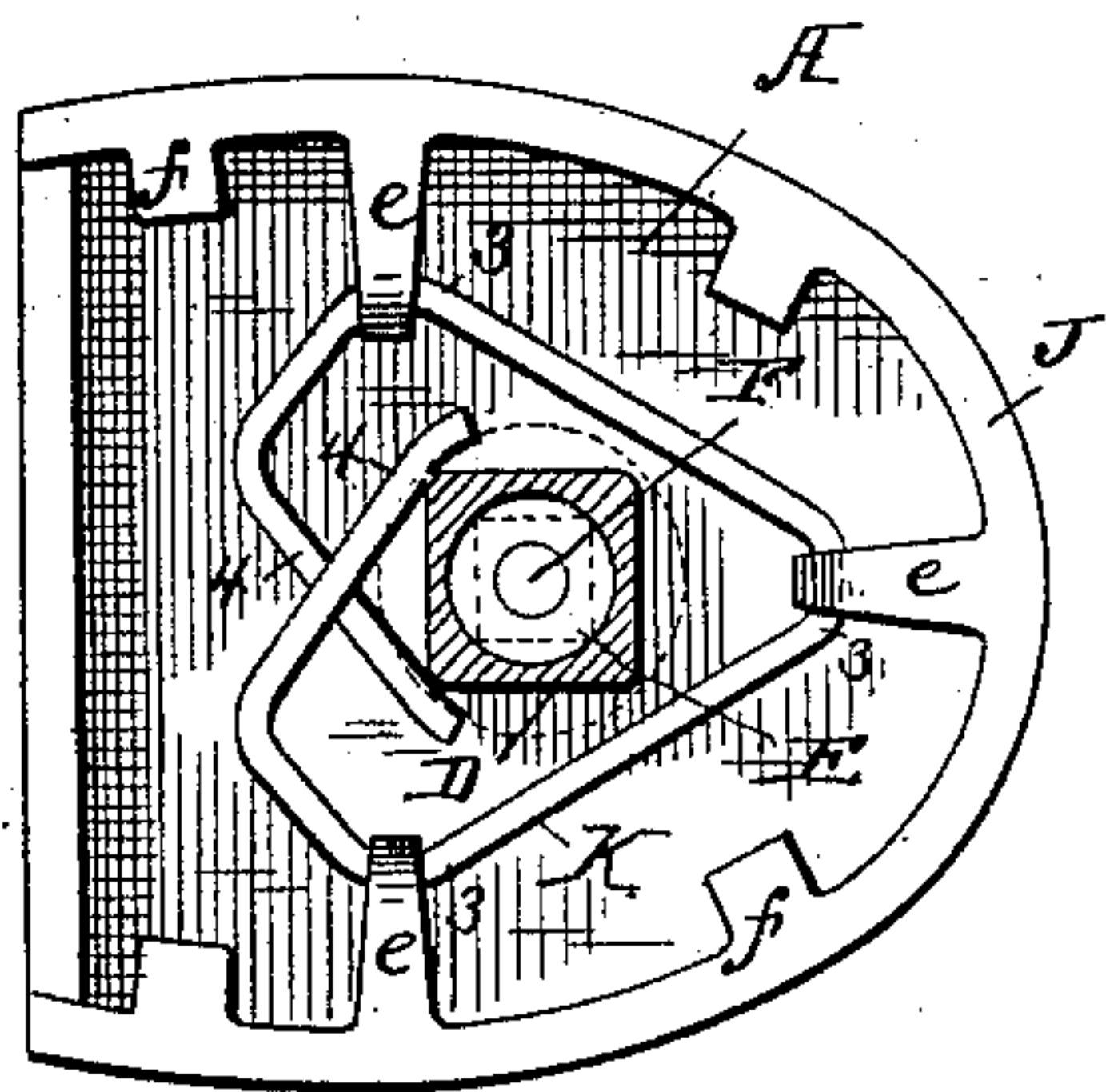


Fig. 6.

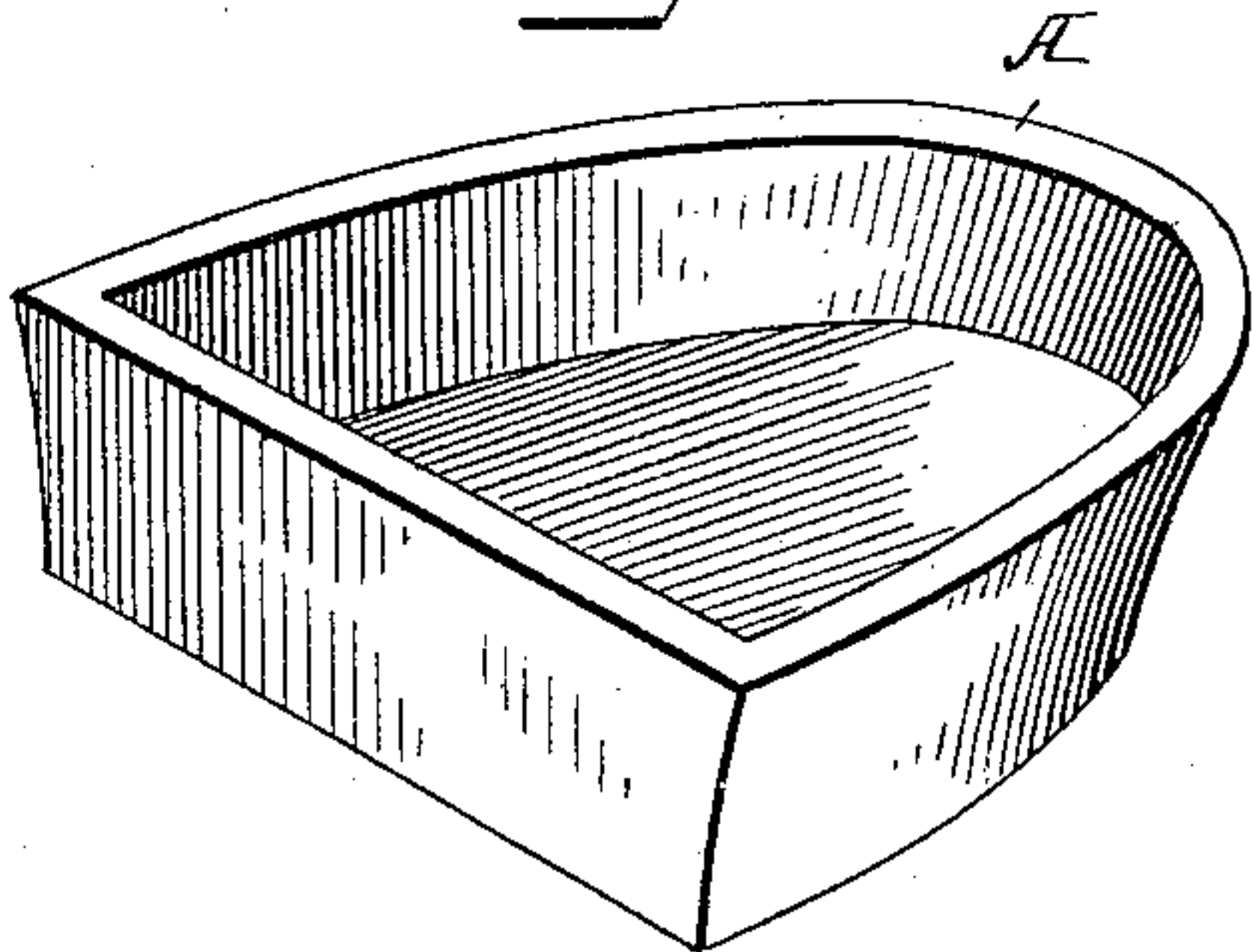
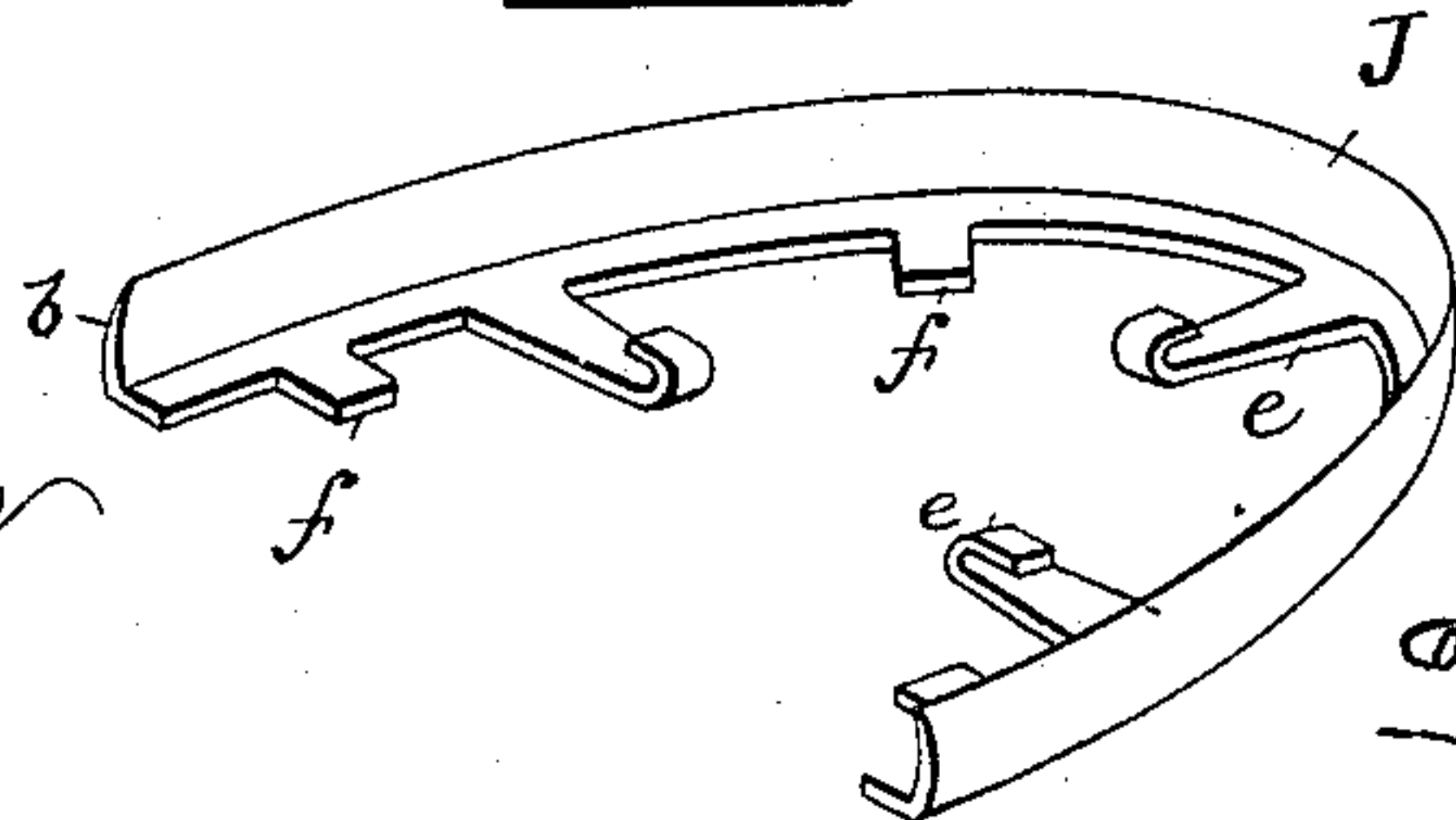


Fig. 7.



Witnesses.

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Fig. 8.

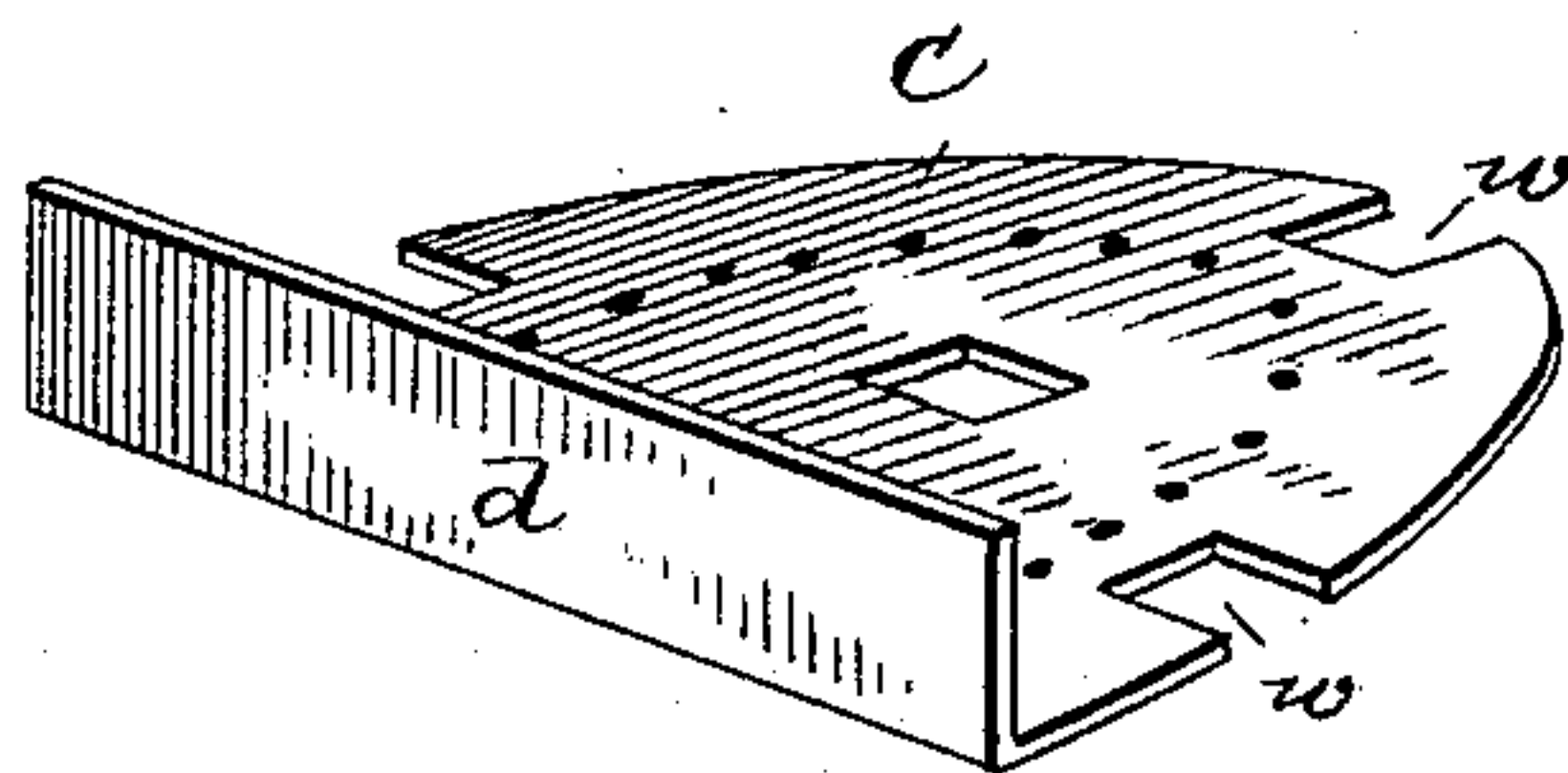


Fig. 10.

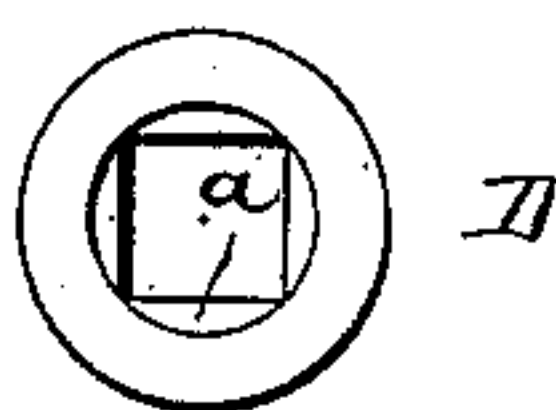


Fig. 9.

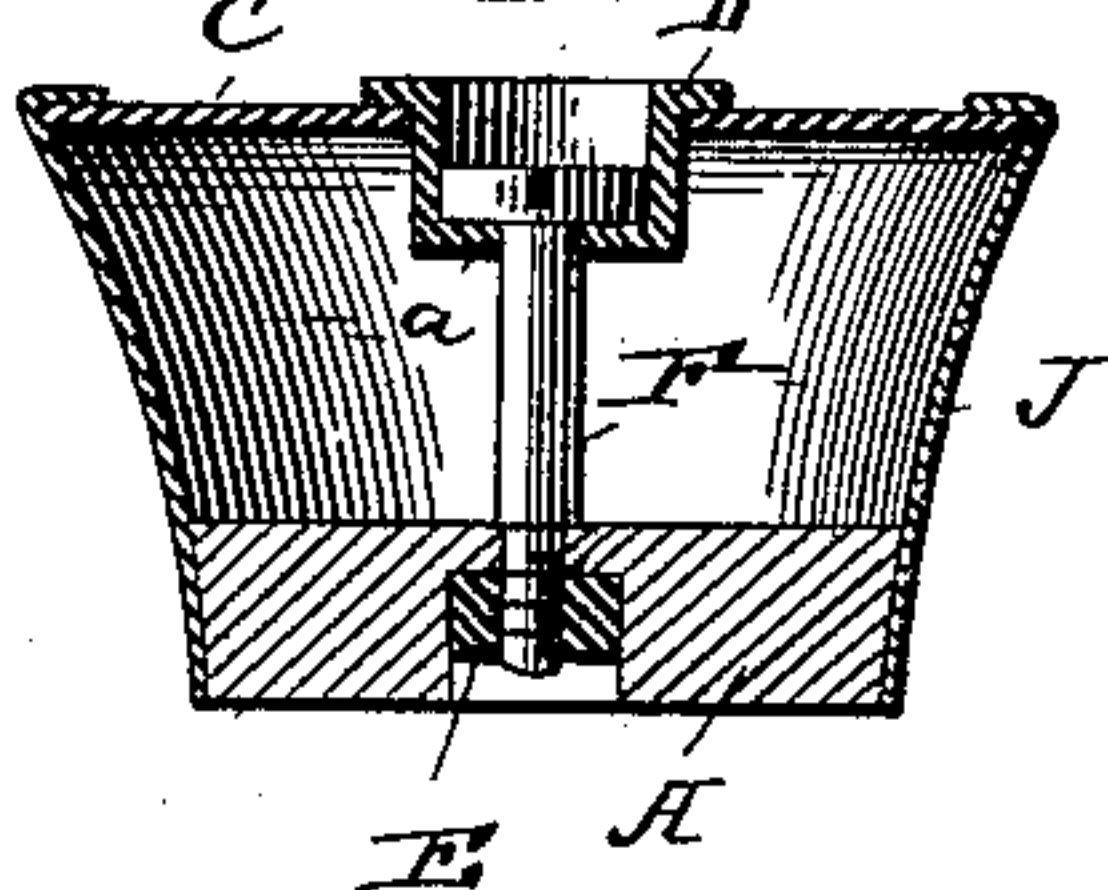


Fig. 11.

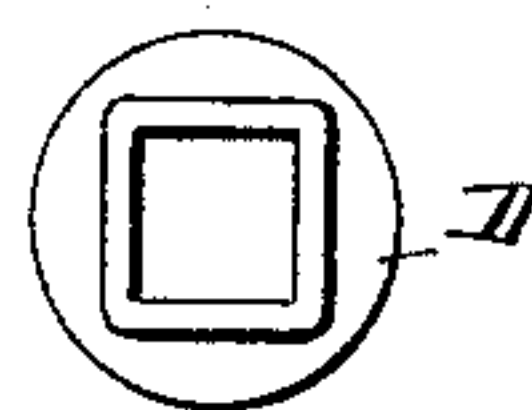


Fig. 12.

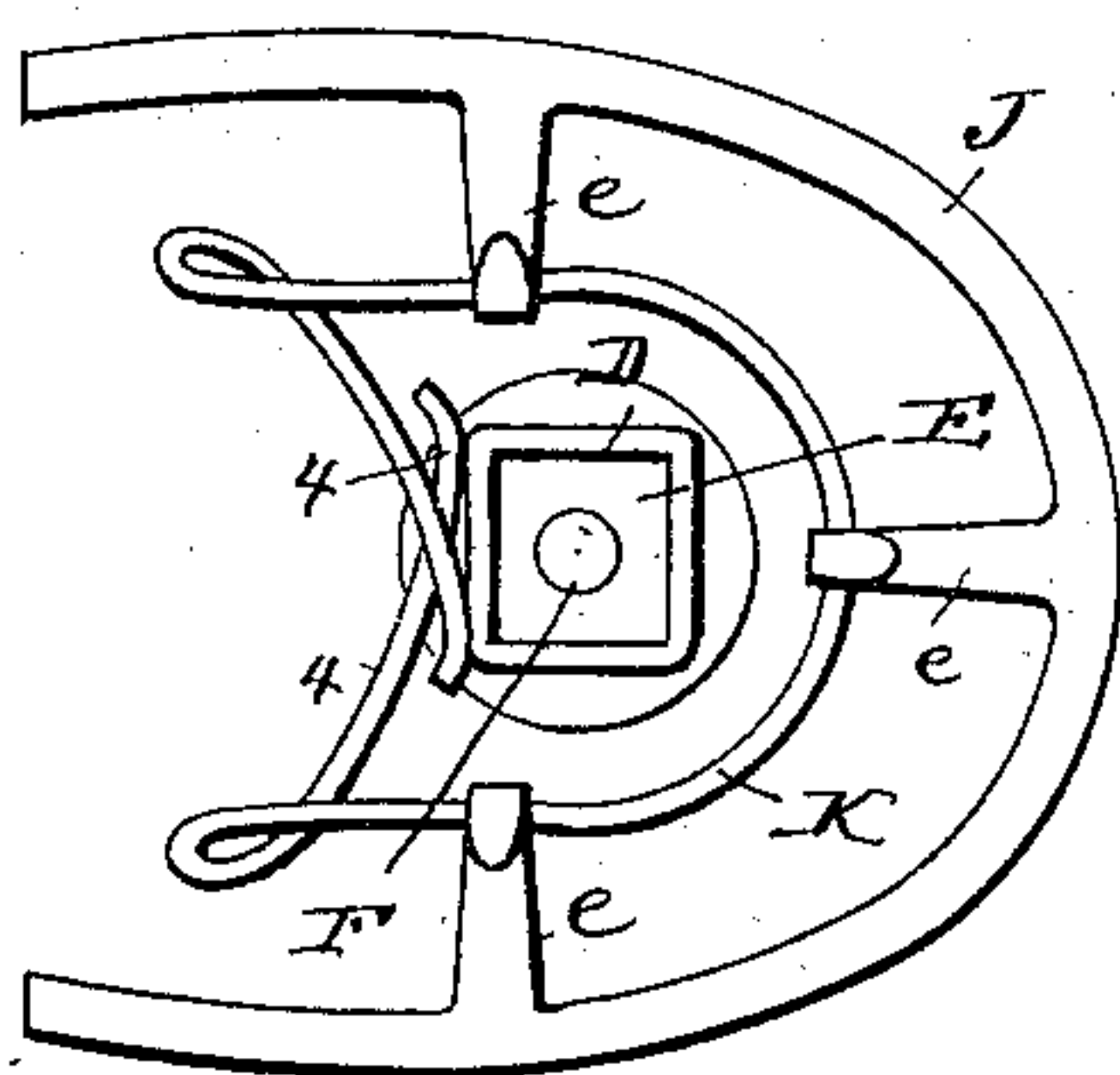
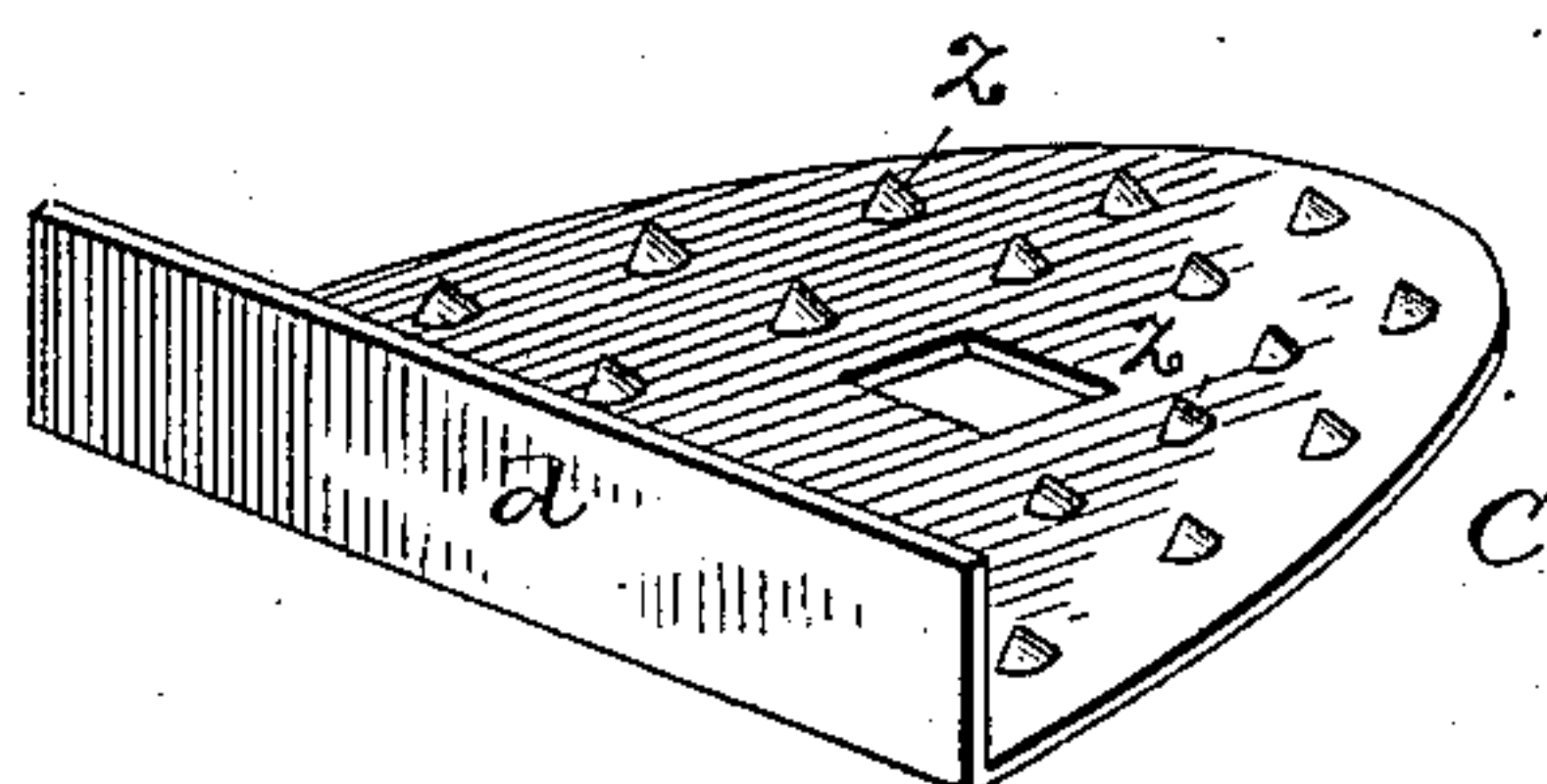


Fig. 13.



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UNITED STATES PATENT OFFICE.

CHARLES H. MARTIN, OF BRIDGEPORT, CONNECTICUT.

HEEL FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 384,634, dated June 19, 1888.

Application filed March 23, 1888. Serial No. 268,277. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. MARTIN, a citizen of the United States, and a resident of Bridgeport, Fairfield county, Connecticut, have invented certain new and useful Improvements in Cushioned Heels, of which the following is a specification.

My invention relates to that class of boot or shoe heels in which an elastic medium is interposed between the boot or shoe and the heel block or plate to reduce shocks and consequent fatigue in walking; and my invention consists in constructing the cushioned heel, as fully set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved cushioned heel. Fig. 2 is a perspective view showing a slightly different construction. Fig. 3 is a longitudinal section of Fig. 2. Fig. 4 is a perspective view of a filling block or pad, which, in combination with the springs, forms the cushion. Fig. 5 is a plan view, the upper plate being removed. Fig. 6 is a perspective view of the heel block or case; Fig. 7, an inverted perspective view of the guard; Fig. 8, an inverted perspective view of the upper plate. Fig. 9 is a transverse section showing a modified form of locking device. Fig. 10 is a plan, and Fig. 11 an inverted plan, of part of the locking device. Fig. 12 is a plan showing a different mode of forming the retracting-spring. Fig. 13 is a perspective view showing a modification.

The heel of the boot or shoe consists of a plate or block, A, which may be of any suitable material and of the usual outline; but, as shown, it consists of a flanged block or case, and in most instances I prefer to place within the said case a filling block or pad, B, of rubber, felt, or other suitable material, which has recesses *x y* for the springs and connecting-bolt hereinafter referred to.

To secure the heel to the sole of the boot or shoe, I use a metallic plate, C, having openings for the passage of securing nails or screws, by means of which it is fastened to the under side of the sole at the heel portion, and in the constructions shown in Figs. 3 and 5 in a recess in the said plate C is fitted a socketed detachable block, D, receiving an angular nut, E, having an enlarged head which contacts with

the flange *a* of the socket-block, so that the said nut can have a limited vertical movement, but cannot be drawn downward from the socket.

A screw, F, which passes through the heel-plate A, engages with the nut E and serves to secure the heel-plate to the plate C, and springs G G, of any suitable character, compressed between the two plates A C and arranged within the openings *x* in the pad B, (when this combination is used,) tend to separate the plates and constitute a yielding cushion-bearing, which diminishes the shocks in walking and consequent fatigue, thereby obviating the objections to the usual rigid heels. By varying the thickness of the pads the cushioned heels may be adapted to the weights of the different wearers without varying the springs G.

In Letters Patent No. 354,986, granted to me on the 28th day of December, 1886, I describe a spring-heel in which the movable heel plate or block A is surrounded by a guard-strip or guard having a lining of felt.

I have found in practice that while the use of such a lining is practicable in some instances and in certain forms of guards, it may in most cases be dispensed with, and that by using a spring-guard capable of yielding in all directions and yet bearing close at its lower edge against the outer face of the heel-block, I am enabled to dispense with the felt lining and not only secure the advantage of reduced expense, but avoid the objections incident to the partial detachment of the lining when it becomes worn. The said guard may form part of the plate C, Fig. 1, or may be separate therefrom, Figs. 2 to 9, the latter being much preferable. As shown in the drawings, the guard J, conforming in its general outlines to the curved edge of the heel, is provided with a pendent flange, *b*, the upper edge of which is on a level with the plate C, while the lower edge is below the top of the heel block or plate A. In Fig. 1 it is shown as deeper than in Fig. 2. The said flange is curved inward, so that its lower edge meets the edge of the heel-block, and the plate C is provided at its straight edge with a pendent flange, *d*, which overlaps the straight edge of the heel block or extends into a recess, *v*, thereof.

The guard J may be of spring metal, so as

to spring inward and clasp the heel-block by its own elasticity. I prefer, however, to supplement or effect the spring action by the use of one or more springs, K, connected with the guard and tending to draw it toward or cause it to hug the heel-block.

In the construction shown in Figs. 3 and 5 the spring K consists of a spring-wire bent to form three loops, 3 3 3, and two crossed arms, 4 4, and the loops 3 engage each with the hook end of an arm, *e*, extending inward from the guard J, while the arms 4 4 of the spring bear against the socket-block D.

In the construction shown in Fig. 12 the spring K has a single loop engaging the hooks, and the ends are bent to form inwardly-crossing spring-arms 4 4, that bear on the socket-block. The spring K must be expanded to take the position indicated in the drawings, so that as it contracts the rear end the guard is drawn forward by the pressure of the arms 4 of the spring upon the block D, while the sides of the guard are drawn inward by the tendency of the sides of the spring to come together, the guard being thus caused to hug the heel-block at all points, while it will accompany the movements of the heel-block as the latter yields under the weight and movements of the wearer.

In order to maintain the guard in proper position in respect to the plate C, it is preferably provided with inwardly-projecting lips *f*, that extend over the plate, while the arms *e* extend beneath the plate, which has edge slots *w* to permit the freedom of movement of the said arms.

When the cushioned support consists of an elastic pad without the springs G, I prefer to use a plate, C, having a series of conical projections, *z z*, Fig. 13, which bear upon the pad and penetrate the latter, as the weight on the heel increases, with an elastic resistance which deadens the shocks.

Instead of using a screw bolt or pin F extending upward through the case to a nut supported by the plate C, I sometimes secure the parts together, as shown in Fig. 9, by a screw-bolt passing through the block D, with its head resting on the flange *a*, its threaded end entering a nut, E, within a socket in the case or entering a threaded socket in the case itself. The block D may form part of or be an attachment to the plate C.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination, with a movable heel-case, A, adapted to be secured to a sole and having a cushion bearing thereon, of a surrounding spring-guard plate bearing directly against the case, substantially as set forth.

2. The combination, with the cushion-sup-

ported heel-case A, adapted to be connected with a boot or shoe, of a guard, J, connected movably with the boot or shoe and surrounding the case, substantially as set forth.

3. The combination, with a shoe having a movable heel-case, A, of a spring-guard, J, adapted to be connected with the shoe to move to a limited extent horizontally and bearing against the outer curved face of the heel-case, substantially as set forth.

4. The combination of the movable heel-case, a surrounding independent guard inclosing the upper portion of the case, and a spring contracting the guard upon the case, substantially as set forth.

5. The combination, with the plate C, heel-case A, connected movably to said plate and interposed cushion, of a guard, J, having a limited horizontal movement in respect to said plate C, and a spring bearing upon the guard and contracting it upon the case, substantially as set forth.

6. The combination, in a cushioned heel, of a plate, C, for attaching the shoe, a heel-case, A, connected movably with the plate C, interposed cushion and a guard, J, provided with inwardly-extending arms *e*, and a spring connected with said arms to contract the guard, substantially as set forth.

7. The combination of the plate C, socket-block D, having a flange, a nut, E, having a head and fitted to the socket-block, screw F, extending through the heel-case into the nut, and cushion interposed between the case and the plate C, substantially as set forth.

8. The combination, in a cushion-heel, of a plate, C, adapted to be connected with the shoe and having a downwardly-extending flange, *d*, a movable heel-case, A, having a recess, *v*, to receive the flange *d* and interposed cushion, substantially as set forth.

9. The combination, in a cushioned heel, of the case A, plate C, supporting a separate block, D, and a screw passing through the block and connecting with the case, substantially as described.

10. The combination of the case, plate C, separate block D, screw F, and nut, substantially as described.

11. The combination of the case, plate having a flange, *b*, springs G, and perforated pad B of elastic material, substantially as described.

12. The combination of the case A, containing an elastic support, and the plate C, having projections *z*, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. MARTIN.

Witnesses:

J. M. OTIS,

A. J. SMITH.