

H. E. BURNHAM.  
HEEL ATTACHING DEVICE.  
APPLICATION FILED FEB. 9, 1906.

929,830.

Patented Aug. 3, 1909.

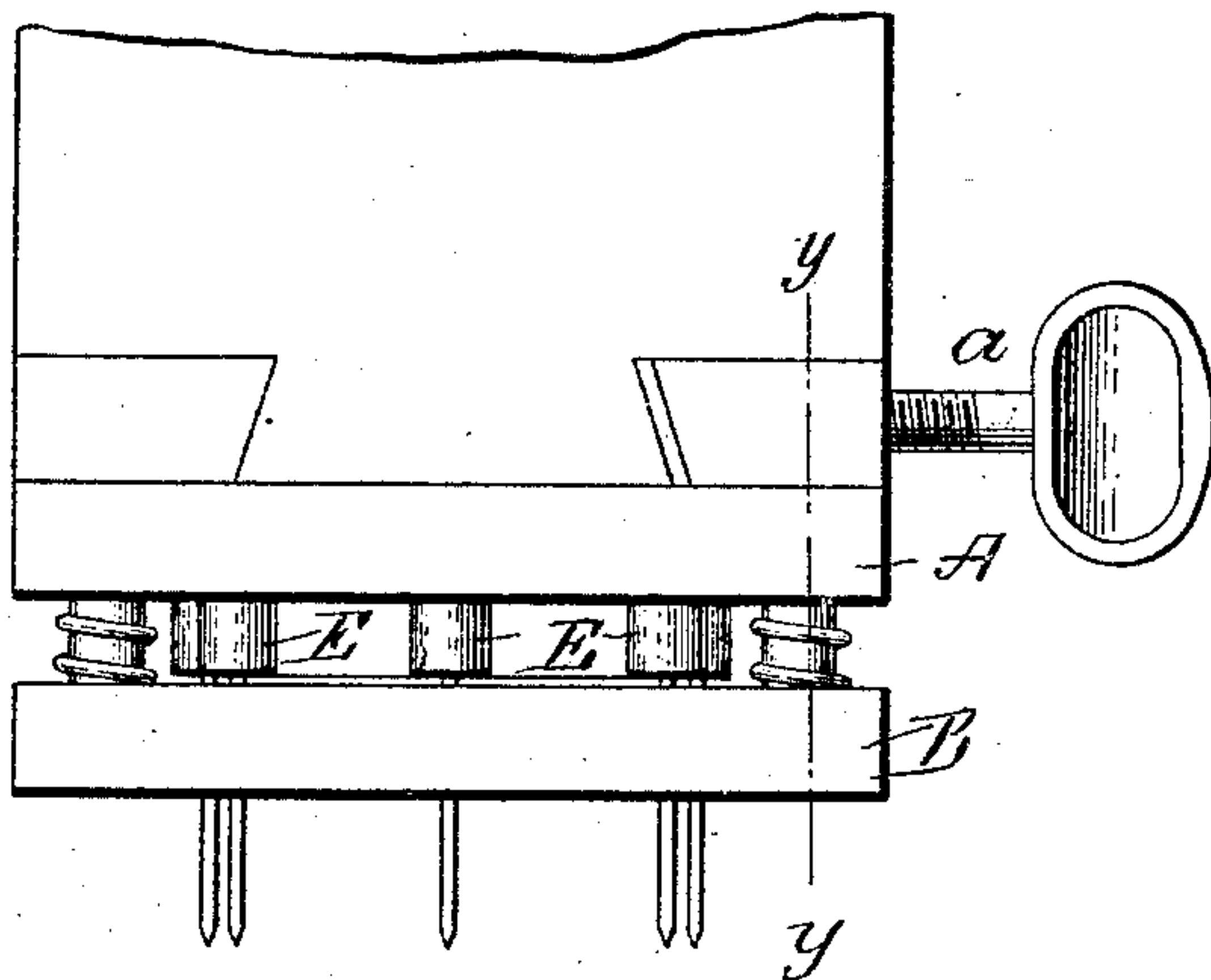


Fig. 1.

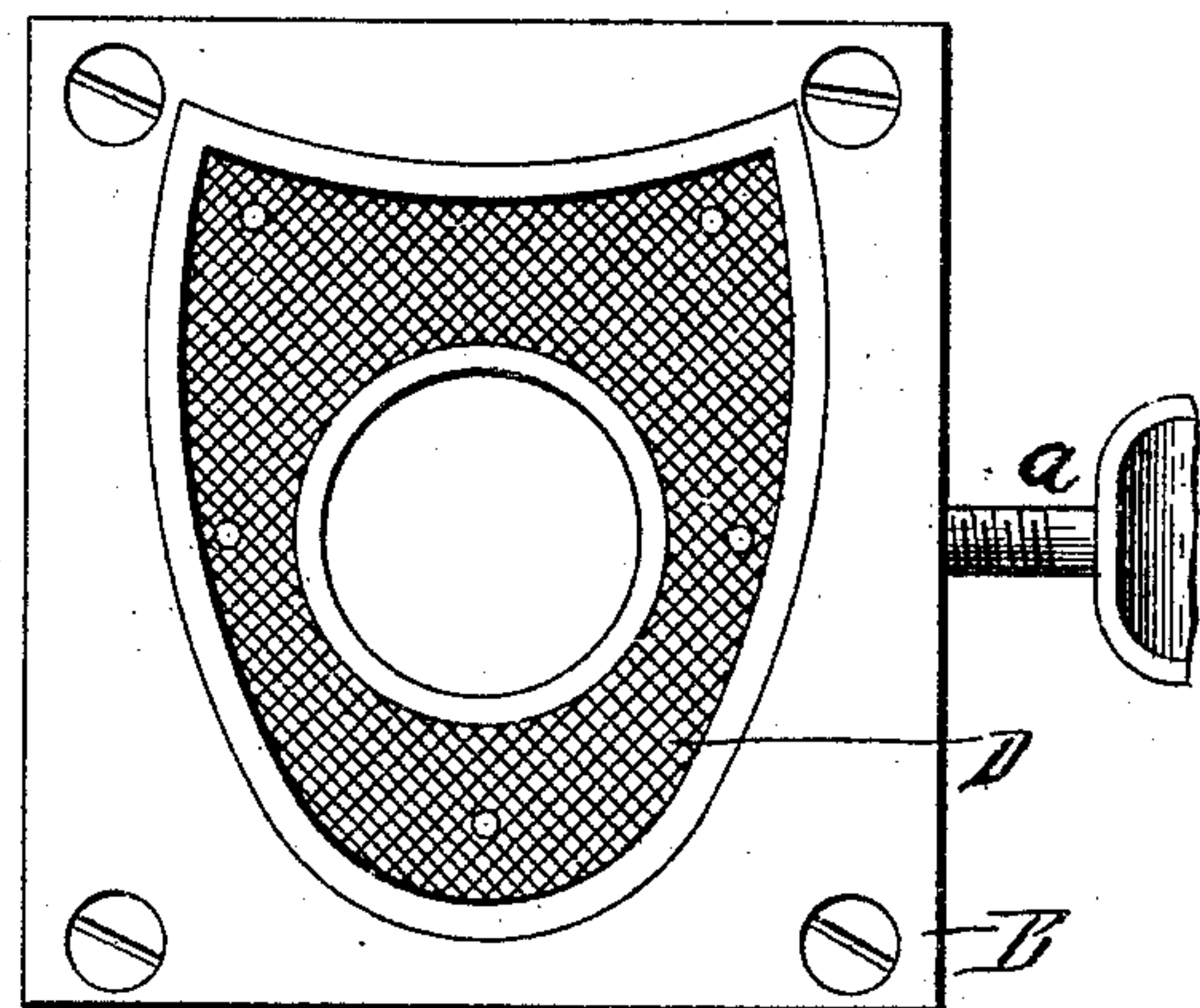


Fig. 3.

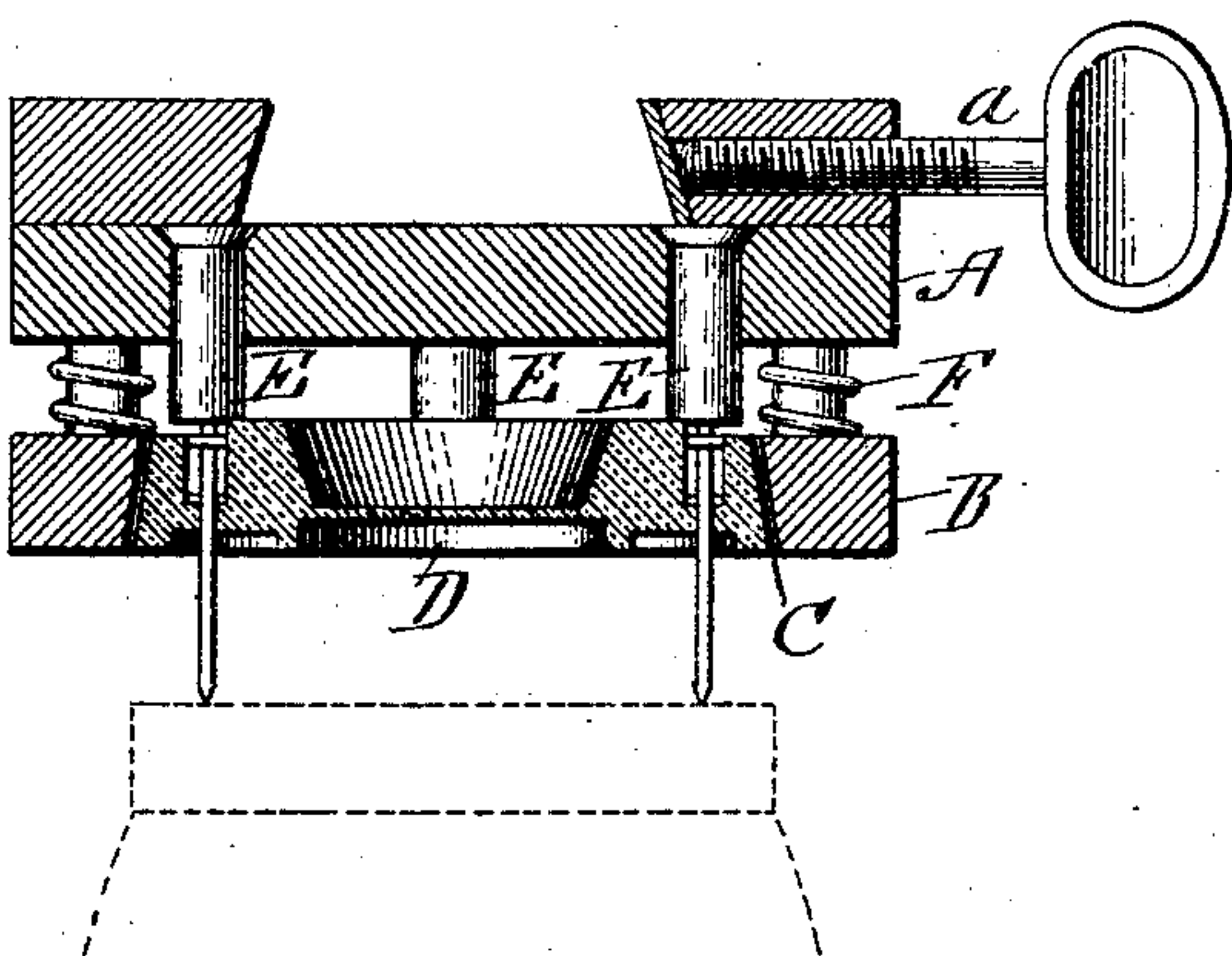


Fig. 2.

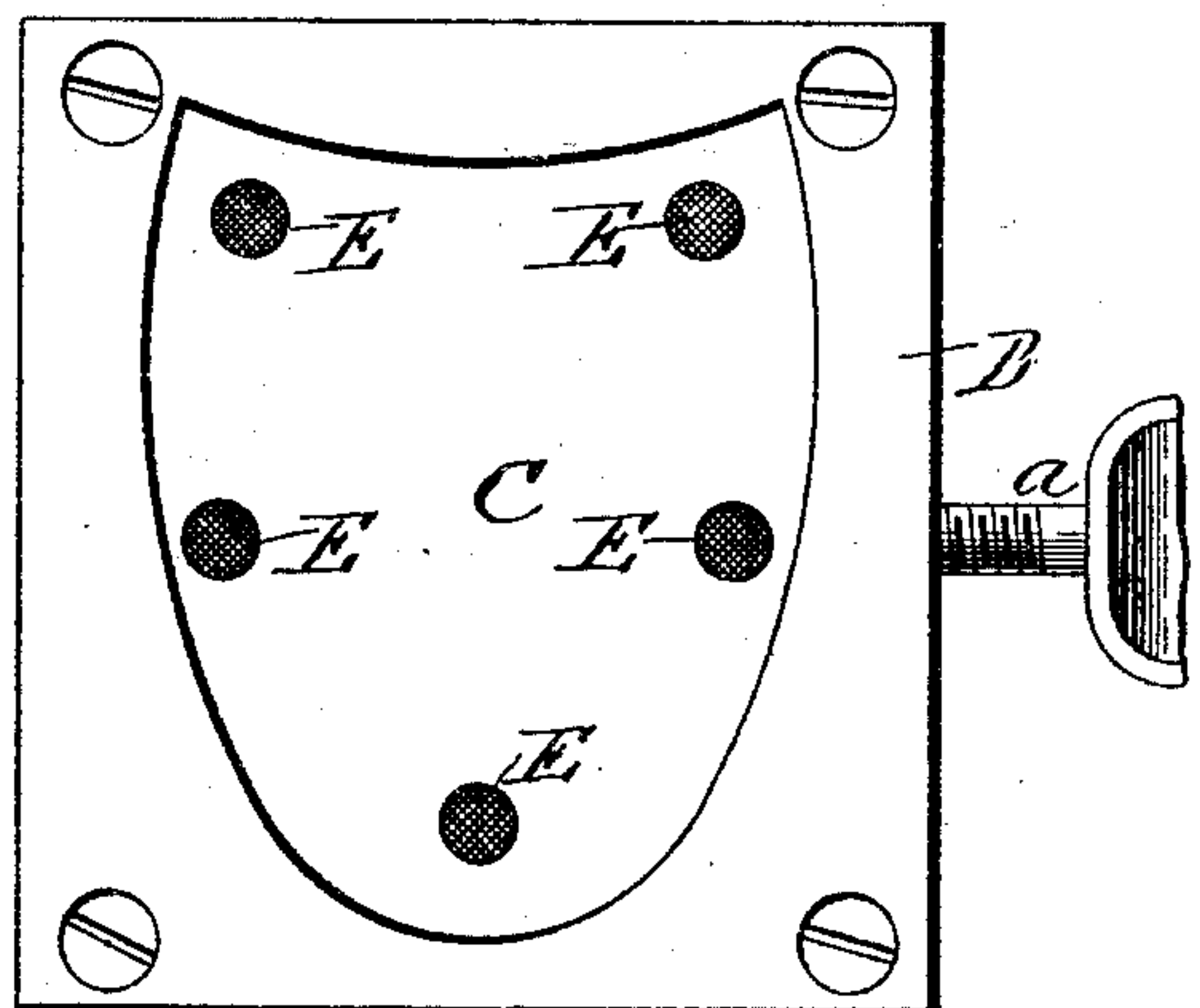


Fig. 4.

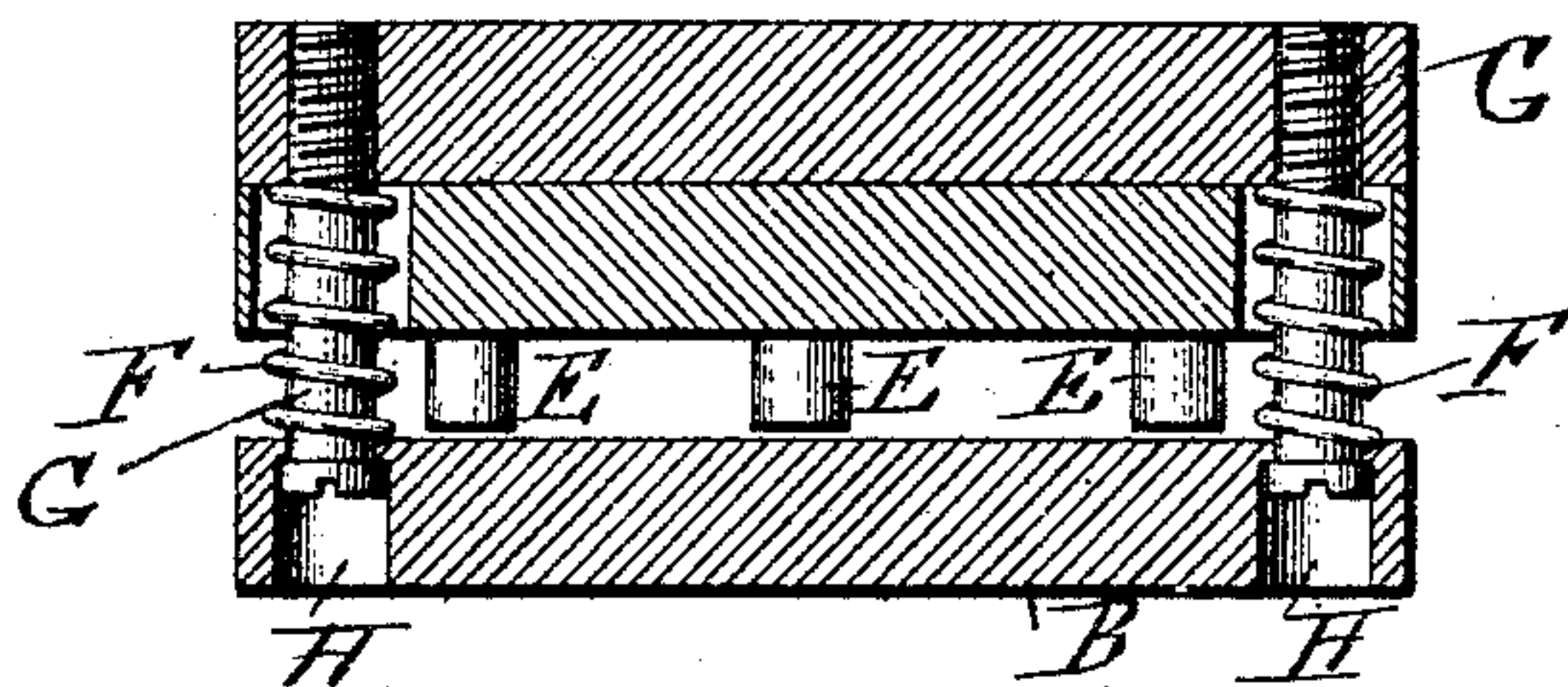


Fig. 5.

WITNESSES

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# UNITED STATES PATENT OFFICE.

HENRY E. BURNHAM, OF SALEM, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## HEEL-ATTACHING DEVICE.

No. 929,830.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed February 9, 1906. Serial No. 300,238.

*To all whom it may concern:*

Be it known that I, HENRY E. BURNHAM, a citizen of the United States, and a resident of Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Heel-Attaching Devices, of which the following is a specification.

This invention relates to heel attaching machines and more particularly to machines for attaching rubber heels or heels having similar properties.

Rubber heels are commonly attached to boots or shoes by nails that are driven by hand and, so far as I am aware, prior to the present invention there has been no machine adapted for doing this work. In attaching such heels it is customary to drive the attaching nails a considerable distance below the surface of the heel, the heads of the nails engaging metallic washers or equivalent devices embedded in the heel in the course of manufacture. It has been found impracticable heretofore to attach such heels by ordinary heel nailing machines.

The object of the present invention is to provide mechanism for attaching mechanically heels of this class.

As is well-known, rubber heels are considerably more yielding than are other heels and if subjected to pressure in the attaching operation in the same way as are other heels there would be an objectionable distortion of the heel during said operation, resulting in an improper position of the heel upon the shoe or an inaccurate or incomplete driving of the nails.

An important feature of the present invention consists in means for pressing a heel upon a shoe constructed to impart pressure to the heel over a portion only of its area. The pressure is applied along the line of nails to be inserted, and the middle portion of the heel is left substantially free from pressure. In the particular embodiment of the invention herein shown, the construction is such that the nails are inserted by hand in the heel before the latter is placed in position in the machine. The tread face or outer surface of the heel is engaged in the attaching operation by a pressure device, preferably arranged as a spanker plate provided

with raised portions with which the heads of the nails have contact. The nail engaging portions of the spanker plate are preferably roughened to prevent lateral slipping of the heads of the nails as they are driven. While the raised portions of the spanker plate may be arranged in different ways without departing from the present invention, in the construction shown there is provided a series of independent drivers which are rigid with the spanker plate and project outwardly a suitable distance therefrom to drive the nails to the required distance below the surface of the heel. The outer end of each driver is of considerably greater area than the head of a nail, so that engagement of the driver with the nail in the attaching operation is insured. This is particularly of advantage where, as in the use of the mechanism shown, the heels are loaded with nails before they are inserted in the machine. To locate the heel in proper relation to the drivers there is provided a holder for sustaining the heel in a predetermined location upon the spanker plate. The holder shown is yieldingly mounted for movement in the line of relative movement of the spanker plate and the shoe support in the attaching operation.

Other features of the invention will be hereinafter described.

In the drawings which illustrate one embodiment of the invention, Figure 1 is a view in front elevation of a portion of the turret of a well-known form of heel nailing machine equipped with a device embodying the present invention; Fig. 2 is a view in vertical section of parts shown in Fig. 1; Fig. 3 is a view in plan looking from below in Fig. 1 showing a heel sustained in its holder; Fig. 4 is a view similar to Fig. 3 with the heel removed, and Fig. 5 is a vertical sectional view on the line  $y-y$  of Fig. 1.

Referring to the drawings, the reference character A indicates a spanker plate which is detachably secured to the turret of an ordinary form of heel nailing machine by means of a clamping screw  $\alpha$ . Beneath the spanker plate A is suspended a holder B formed as a plate having a central opening C shaped to receive a rubber heel D. The holder B is sustained by screws G which



pass through perforations in the holder B, and are secured at their upper ends to the spanker plate A. As shown in the drawings, the holder is suspended at its four corners. Between the holder and the spanker plate are arranged springs F encircling the screws G, the springs F serving to press the holder B away from the spanker plate A. The movement of the heel away from said plate is limited by the heads of the screws G as will appear from Fig. 5. The spanker plate is provided with a series of outwardly projecting cylindrical drivers E arranged at such points as may be occasioned by the location of the nails in the heel. The outer ends of the drivers E are roughened as shown in Fig. 4, and each driver is of a diameter considerably greater than that of the head of a nail, as shown in Fig. 2.

In the use of the mechanism shown, the attaching nails are inserted in the heel before it is placed in the holder B. It will be understood that the mechanism shown is adapted to attach either a section of a heel, such as a rubber toplift, or a whole heel of rubber. In the latter case the part to be attached is merely of a greater height than is the case where it is desired to attach a rubber toplift. A heel provided with nails having been inserted in the holder B and the holder being in suitable alinement with the shoe upon the shoe support, the operation of attaching the heel is effected by relative movement of the shoe support and spanker plate. In this movement the heel or section to be attached is pressed upon the shoe, the holder B yielding to accommodate this operation. The heads of the nails are engaged by the drivers E and forced into the shoe, and the rubber yields to the drivers so that the nails are driven by the drivers a considerable distance below the surface of the heel until their heads come in contact with the metallic washers embedded in the heel. The holder B resists expansion of the heel in the plane of its outer surface, and aids in insuring the attachment of the heel in a proper position upon the shoe. It will also be seen that vertical pressure is applied to the heel along the line of nails inserted and that the middle portion of the heel is not subjected to pressure.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A heel attaching machine, having in combination, a shoe support and a pressure device for pressing a heel upon the shoe provided with a series of independent drivers constructed and arranged to drive the attaching nails below the outer surface of the heel and having acting surfaces of greater area than the heads of the nails.

2. In a heel attaching machine, a pressure

device arranged for engagement with the outer surface of the heel to be attached and provided with raised portions formed to drive the attaching nails below the outer surface of the heel, said raised portions being roughened to prevent lateral slipping of the heads of the nails having engagement therewith.

3. In a heel attaching machine, a pressure device arranged for engagement with the outer surface of the heel to be attached and provided with cylindrical drivers projecting outwardly from the surface of said device for driving the attaching nails below the outer surface of the heel.

4. In a heel attaching machine, a spanker plate arranged for engagement with the outer surface of the heel to be attached and provided with raised portions formed to drive the attaching nails below the outer surface of the heel.

5. In a heel attaching machine, a spanker plate arranged for engagement with the outer surface of the heel to be attached and provided with a series of independent raised portions formed to drive the attaching nails below the outer surface of the heel and having acting surfaces of greater area than the heads of the nails.

6. In a heel attaching machine, a spanker plate arranged for engagement with the outer surface of the heel to be attached and provided with raised portions formed to drive the attaching nails below the outer surface of the heel, and a holder for sustaining the heel in operative alinement with the spanker plate constructed to resist expansion of the heel in the plane of said surface.

7. In a heel attaching machine, a spanker plate arranged for engagement with the outer surface of the heel to be attached and provided with raised portions formed to drive the attaching nails below the outer surface of the heel, a holder for maintaining the heel in operative alinement with the spanker plate, and means for supporting said holder normally at a distance from said plate constructed to permit yielding movement of the holder toward said plate in the attaching operation.

8. In a machine for attaching top lifts or heels to boots a support for a boot, a holder for said top lift or heel, said holder having a projecting portion thereon adjacent to the tread of said top lift or heel, and mechanism for moving said holder toward and away from said support, whereby said projecting portion may be forced into said top lift or heel.

9. In a machine for attaching top lifts or heels to boots by nails or the like, a support for a boot, a holder for said top lift or heel, said holder having a projecting portion thereon adjacent to the tread of said top lift or heel adapted to engage the heads of said



nails or the like and also the tread of said  
top lift or heel, and mechanism for moving  
said holder toward and away from said sup-  
port, whereby said projecting portion may  
5 be forced into said top lift or heel and said  
nails driven into said shoe with the heads  
thereof partly driven through said top lift  
or heel.

In testimony whereof, I have hereunto  
subscribed my name this 6th day of Febru- 10  
ary 1906.

HENRY E. BURNHAM.

Witnesses:

GEORGE LEMIST CLARKE,  
E. B. TOMLINSON.