

No. 731,168.

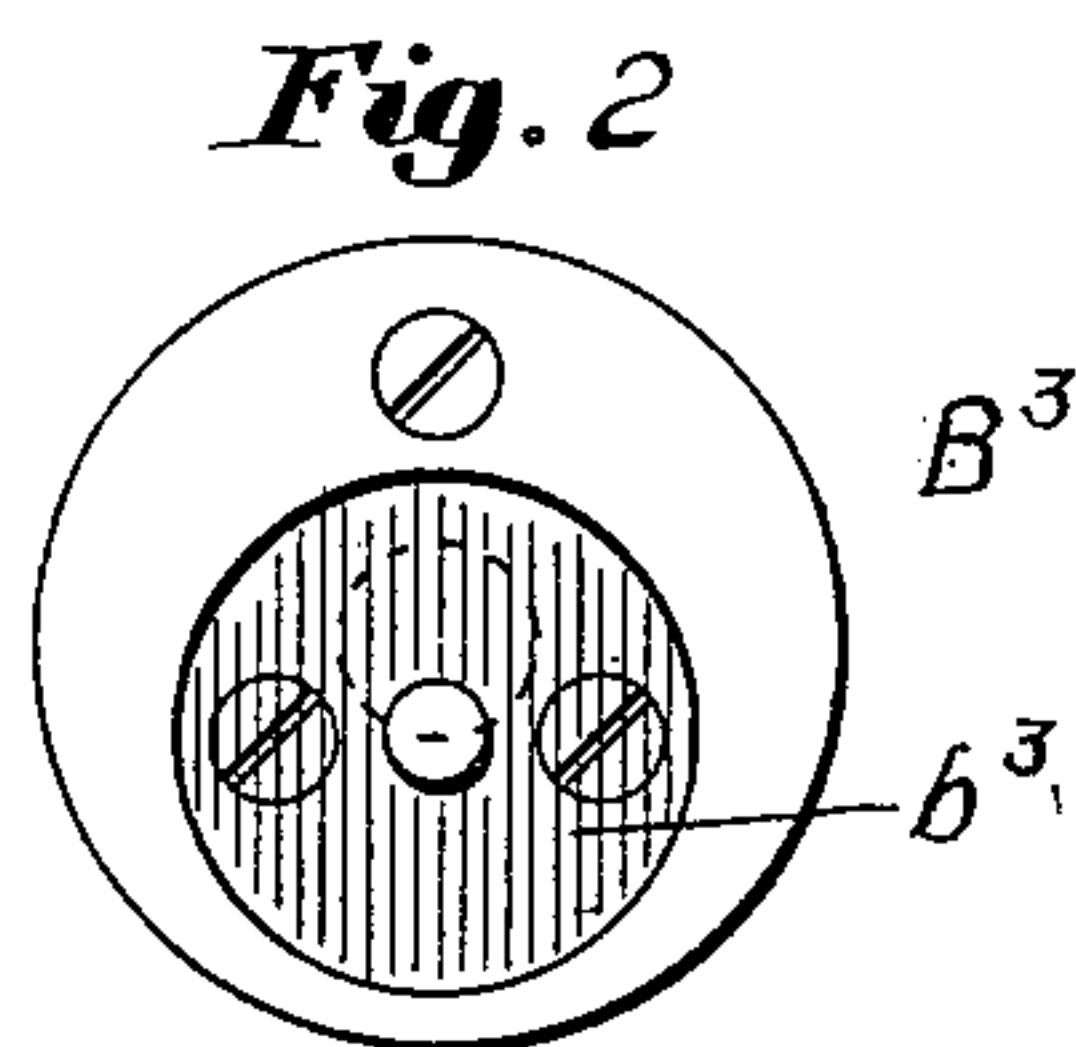
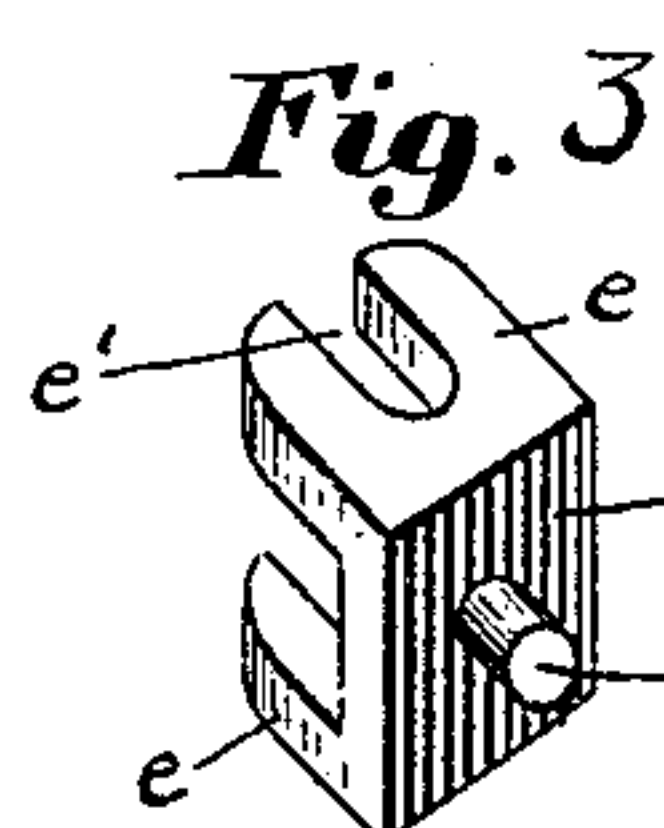
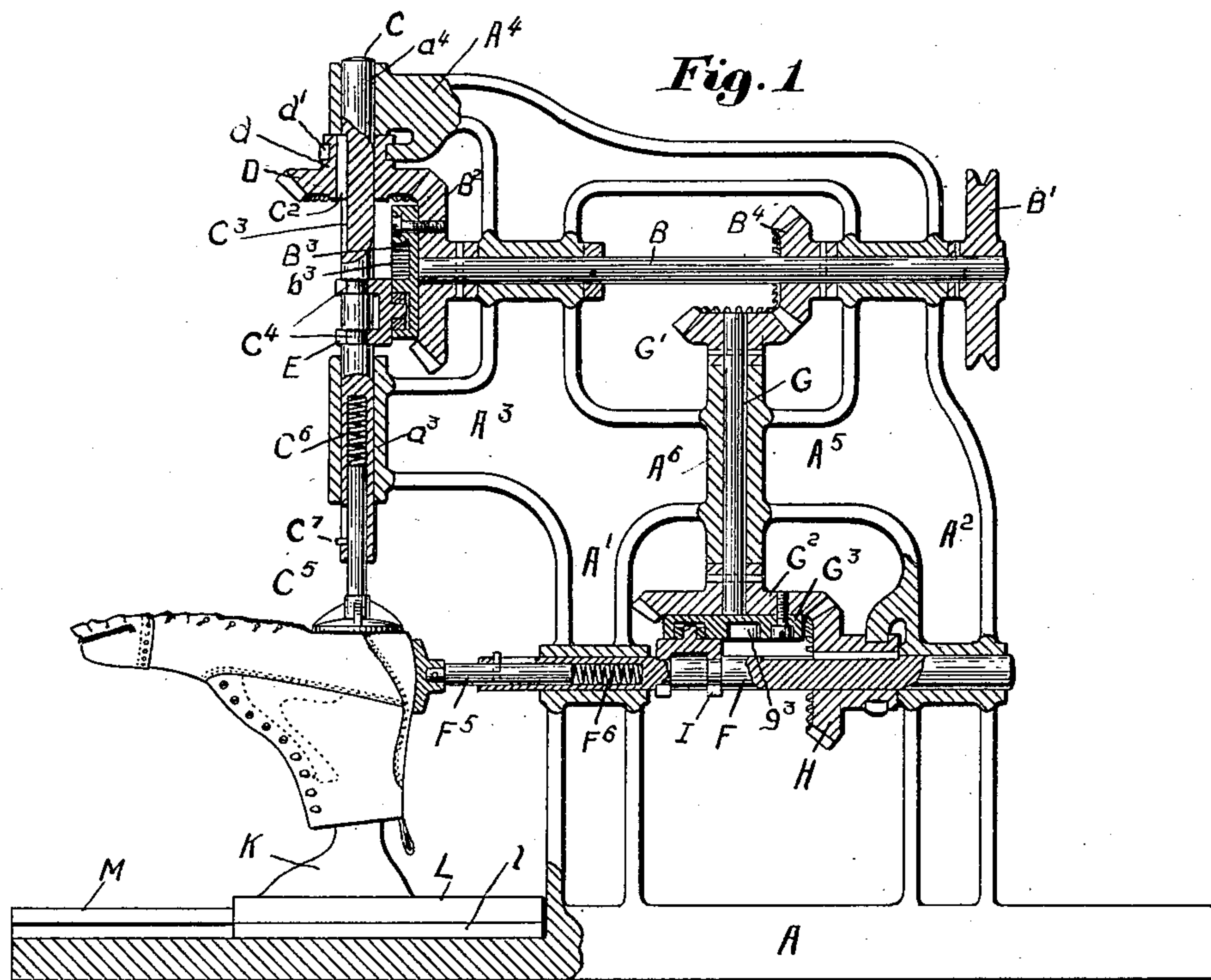
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C. L. EATON.

HEEL SEAT AND COUNTER BEATING MACHINE.

APPLICATION FILED JUNE 16, 1902.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

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HEEL-SEAT AND COUNTER BEATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 731,168, dated June 16, 1903.

Application filed June 16, 1902. Serial No. 111,843. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE L. EATON, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Heel-Seat and Counter Beating Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in boot and shoe machinery, and more particularly to a machine for beating the heel-seat and counter of a lasted shoe.

In the process of lasting a shoe the upper must be pulled and stretched so as to give it the shape of the last. The several thicknesses of leather and cloth prevent perfect smoothness of the counter being attained in this preliminary operation, the result often being that wrinkles or ridges appear upon the shoe. Also on account of the stiffening for the counter it is difficult to make the heel part of the shoe conform to the shape of the last. During this operation the counter-seam is roughened and distended, due to the pulling about of the leather, and it is necessary to remedy this defect before the shoe can be put on sale.

It is easily seen that where the counter, counter-stiffener, stays, and linings are all doubled over together and tacked in place the heel-seat will be left very rough—so much so that considerable beating is required to flatten it preparatory to applying the outsole and completing the shoe.

The object of the present invention is to provide a machine for rapidly and accurately beating the counter and its seam and also the heel-seat while the boot or shoe remains on the last, whereby the counter is given a smooth and symmetrical appearance, the seam is beaten neatly flush with the surface of the leather, and the heel-seat is leveled.

To the above ends the present invention consists of the devices and combinations of devices, which will now be described, and particularly pointed out in the claims.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical section taken through the center of my improved machine

and showing a shoe in position to be operated upon. Fig. 2 is a plan view of a plunger-operating cam. Fig. 3 is a perspective view of one of the yokes for carrying a cam-roll and adapted to connect the plungers and cams.

Similar reference characters will be used throughout the specification and drawings to designate corresponding parts.

The machine comprises a suitable frame formed of a suitable base A and horizontal arms A³ and A⁴, with connecting-pieces for the standards and arms. These parts are shown as being in the form of a single integral casting, yet any arrangement of frame for supporting the operative parts may be employed. Mounted in the upper part of the frame is a horizontal shaft B, driven by means of a belt passing over a pulley B' or in any other suitable manner. This shaft carries at the end opposite that on which the driving-pulley is mounted a bevel-gear B², which has secured thereto or formed integral therewith a disk B³, provided with the cam-groove b³. The bevel-gear and cam are for operating the heel-seat-beating plunger.

The heel-seat plunger C is arranged vertically mounted to both rotate and reciprocate in bearings a³ and a⁴ in the arms A³ and A⁴ of the frame. A bevel-gear D, meshing with bevel-gear B², is connected with the plunger by means of a spline c², engaging in a way C³, formed in the plunger, thereby enabling the gear D to turn the plunger, while at the same time permitting the plunger to reciprocate independently of the gear.

Inasmuch as the heel-seat plunger affords no vertical support to the gear D, an independent support must be provided. In the drawings a hub d, having an annular groove d', is shown extending from one side of the gear. This hub slips into an open bearing in the arm A⁴, the groove engaging a fixed portion of the frame and preventing vertical displacement. The introduction of the plunger into the gear and the plunger-bearing a⁴ effectually holds the gear in position.

Reciprocating motion is imparted to the plunger through the cam B³. A yoke E, having a pair of arms e, provided with open slots e', straddles the plunger, the slots e' engaging grooves c⁴ in the plunger, whereby the plunger is free to rotate within the slots, but has no

reciprocating motion relatively to the yoke E. This yoke is provided with a stud e^2 , which, as shown in Fig. 1, is surrounded by an anti-friction-roll. The stud e^2 , with its roll, is fitted in the cam-groove b^3 of the disk B^3 .

From this description it will be apparent that as the shaft B revolves the plunger C will be caused to revolve by means of the intermeshing gears and also to reciprocate by the action of the cam upon the roll carried by the yoke, the length of stroke depending upon the dimension of the cam-groove.

The lower end of the plunger is recessed, and mounted within the recess is a hammer C^5 , held in its outer position by a spring C^6 , but free to move inward against the tension of the spring. A pin C^7 on the hammer shank engages the end of a slot in the plunger when the hammer is in its outermost position and prevents complete withdrawal thereof. The operating-face of this hammer is preferably a plane surface in order to beat the heel-seat flat.

A horizontal counter-beating plunger F is arranged below the driving-shaft and parallel thereto, and therefore at right angles to the heel-seat-beating plunger. The manner of mounting and the movements of this counter-beating plunger are identical with those of the heel-seat-beating plunger and need not, therefore, be described in detail. Power is transmitted from the shaft B through a vertical shaft G, mounted in a bearing A^6 of the frame, the two shafts having intermeshing gears B^4 and G^1 . The lower end of the shaft G is provided with a bevel-gear G^2 and cam G^3 , similar in every respect to B^2 and B^3 . A gear H for rotating the plunger F is mounted upon the standard A^2 , similarly to the gear D, and meshes with the gear G^2 . A yoke I engages the plunger and is provided with a stud and cam-roll for engaging the cam-groove g^3 , whereby the plunger is reciprocated. A yielding hammer F^5 is mounted in the outer end of the plunger, this hammer being similar in construction to the hammer c^5 , except that the beating-face thereof is preferably concave.

A jack K for holding the shoe which is being operated upon is carried by a slide L, provided with flanges l , engaging grooves in the base A, whereby the position of the jack may be adjusted. Any suitable means—such, for instance, as a hand-wheel (not shown)—may be employed for locking the jack in position while a boot or shoe is being operated upon. Also, if desired, suitable means may be provided for adjusting the jack vertically.

The operation of the machine is as follows: A lasted shoe is placed upon the jack K, with the heel-seat immediately below the hammer c^5 and the counter directly in front of the hammer F^5 . The machine is now started in operation, and the two plungers C and F are rapidly reciprocated and at the same time rotated, delivering resilient blows upon the heel-seat and counter of the boot or shoe. These parts are rapidly and accurately beaten into the proper shape, the material adjacent the heel-seat being flattened and the counter and its seam relieved of any irregularities. On account of the rotary movement given the hammer-plungers absolute uniformity of results are secured. Preferably the hammers are operated so as to give simultaneous blows, though this is not absolutely essential.

The spring action of the hammers obviates the danger of marring the leather on account of the blows being too heavy and also obviates the necessity for perfect adjustment of the jack, as a slight difference in height or a slight horizontal displacement is of no moment, the hammers being able to follow up their work.

From the above description it will be seen that I have produced means whereby heel-seats of lasted shoes may be beaten even and true and counters smoothly and symmetrically formed in a rapid and convenient manner.

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

1. A heel-seat and counter beating machine, having in combination, a suitable jack for supporting a lasted shoe, a hammer for beating the heel-seat of such shoe, a hammer for beating the counter thereof, and connected mechanism for operating the hammers, substantially as described.

2. A heel-seat and counter beating machine, having in combination, a suitable jack for supporting a lasted shoe, a yielding hammer reciprocating vertically above such jack, a second yielding hammer arranged and reciprocating at right angles to the first-named hammer and means for operating the hammers, one hammer beating the heel-seat, and the other the counter of said shoe, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CLARENCE L. EATON.

Witnesses:

HIRAM MINTZ,

GUSTAVE E. MINTZ.