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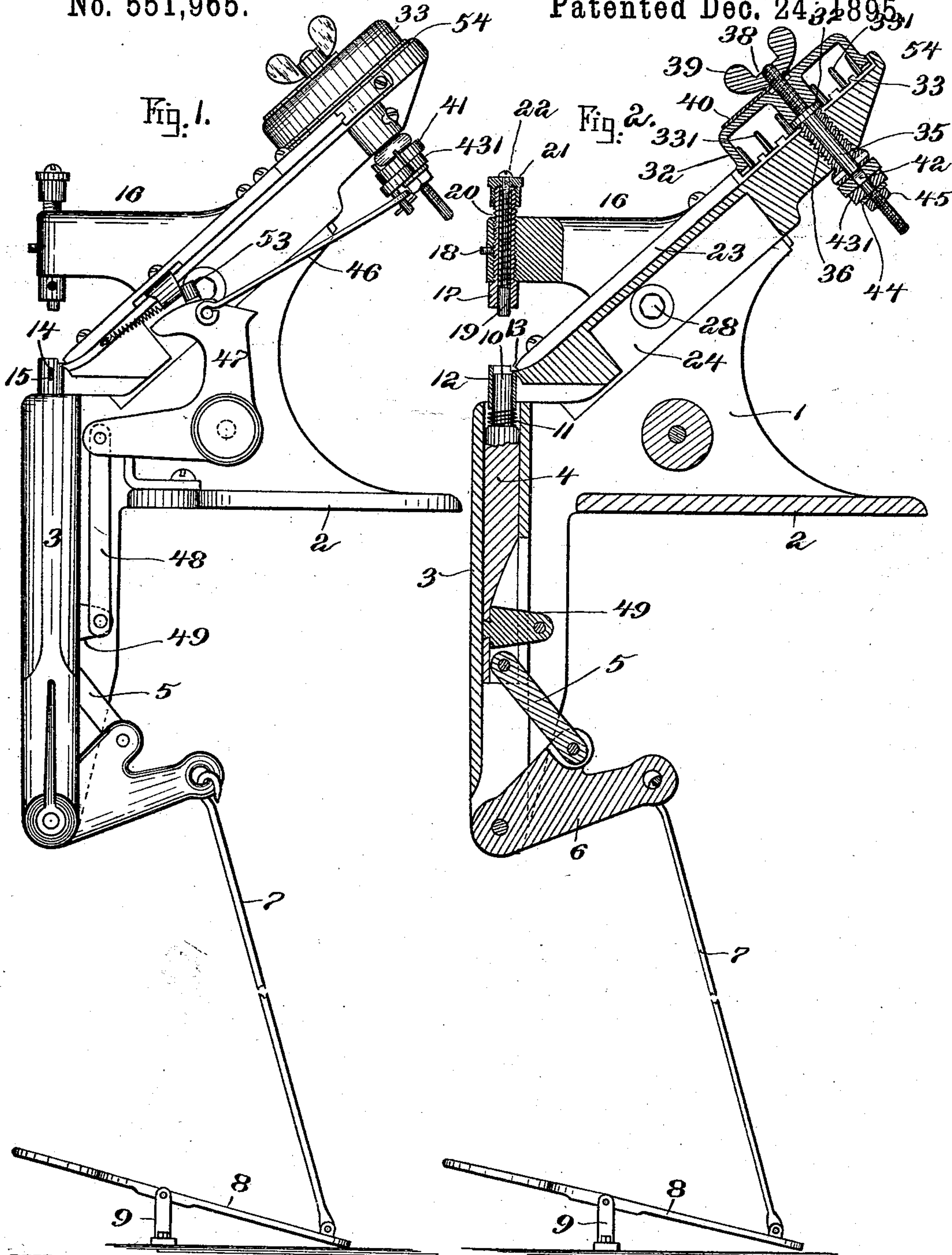
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J. HIGGINS.

MACHINE FOR APPLYING PROTECTORS TO HEEL LIFTS OF BOOTS
OR SHOES.

No. 551,965.

Patented Dec. 24, 1895.



Witnesses.

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Inventor.

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by Maceo Calver & Randall
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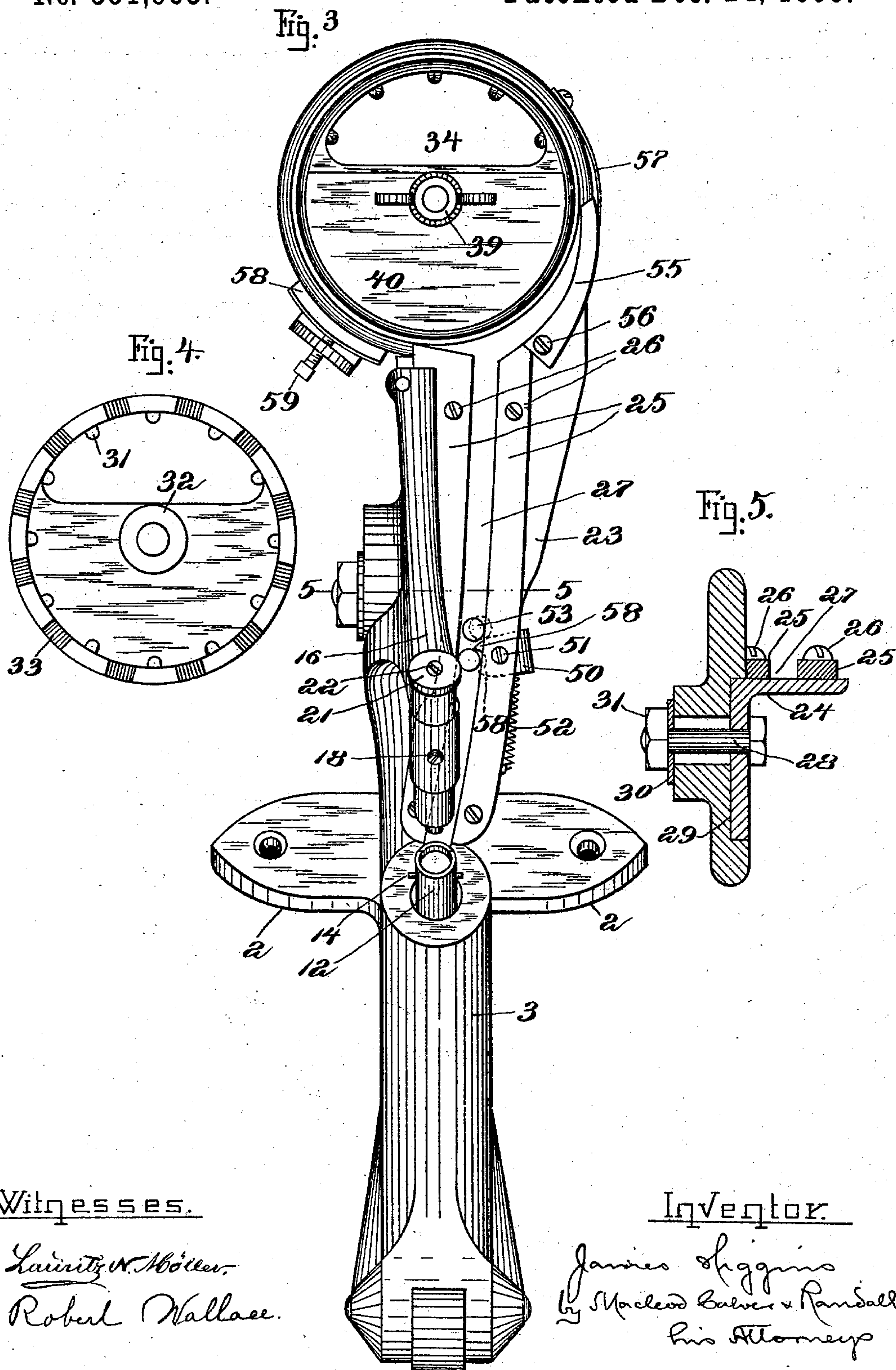
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UNITED STATES PATENT OFFICE.

JAMES HIGGINS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE SANFORD MANUFACTURING COMPANY, OF PORTLAND, MAINE, AND BOSTON, MASSACHUSETTS.

MACHINE FOR APPLYING PROTECTORS TO HEEL-LIFTS OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 551,965, dated December 24, 1895.

Application filed August 13, 1895. Serial No. 559,159. (No model.)

To all whom it may concern:

Be it known that I, JAMES HIGGINS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Applying Protectors to the Heel-Lifts of Boots or Shoes, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention will be described first with reference to the accompanying drawings, in which the same is shown embodied in the best form for practical use which I have yet devised, after which it will be more particularly pointed out and distinctly defined in the claims at the close of this specification.

In the drawings, Figure 1 shows in side elevation a machine embodying my present invention. Fig. 2 is a view of the same in vertical section. Fig. 3 is a view of the same in front elevation. Fig. 4 is a view of the feed-box, showing it in inverted position. Fig. 5 is a view in cross-section on the line 5 5 of Fig. 3.

1 is a frame which is provided with lateral flanges 2 2, by means of which to secure it to a bench, table, or other suitable support. This frame is suitably formed to provide for the support of the various working parts of the machine.

3 is a downward extension of the frame 1, the said extension being made hollow in order that it may receive within it the plunger 4. The said plunger moves in the direction of its length within the extension 3, and for the purpose of actuating the said plunger one end of a link 5 is pivoted thereto, as shown in Fig. 2. The other end of the said link is pivoted to an elbow-lever 6, which latter also has joined thereto one end of a connecting-rod 7. The lower end of the said connecting-rod is joined to a treadle 8, which is pivoted upon the standard 9. As will be apparent, pressure of the foot of the operator upon the treadle 8 will cause the plunger 4 to be forced upwardly.

The upper end of the plunger 4 is reduced somewhat in diameter at 10, and upon this reduced end are placed the spiral spring 11 and the sleeve 12. The latter rests upon the

spring and is upheld thereby normally, so that the upper end of the sleeve rises a short distance above the upper end of the plunger 4.

The rear side of the sleeve 12 is cut away, as at 13, for a purpose which will be made to appear hereinafter. By means of a pin 14 on the plunger projecting through a slot 15 in the sleeve the sleeve is prevented from rotating on the plunger.

16 is a forwardly-extending arm with which the upper part of the frame 1 is provided; the free end of said arm having a screw-threaded hole made vertically therethrough, as shown in Fig. 2. Into this hole is screwed the externally-threaded hollow post 17, which is locked in the desired position by the screw 18, the latter fitting a threaded hole in arm 16 and engaging by its inner end the threaded surface of the post 17. The lower end of post 17 extends below the arm 16. Within the post 17 is placed the spindle 19, having an enlarged lower end or head, which projects below the lower end of the post 17. The stem of this spindle is surrounded by a spiral spring 20, which is compressed between the upper end of the said head and the under side of a cap 21 that is screwed onto the upper end of the post 17. The upper end of the spindle passes through a hole in the said cap, and has applied thereto the screw 22. The head of said screw is larger in diameter than the said hole, and the spindle thereby is prevented from descending too far.

23 is an inclined chute having its lower end located adjacent to the upper end of the plunger 4, as shown clearly in Figs. 1, 2, and 3. This chute comprises a base-piece 24, of L shape in cross-section, as shown in Fig. 5, and the two strips 25 25, which are secured by screws 26 26 to the upper surface of the horizontal part thereof. The passage-way 27 is left between the said strips. The chute is fastened to the frame 1 by a bolt 28 passing through the vertical part of the base-piece, the said vertical part fitting within a recess 29, corresponding in shape therewith in the frame 1, and the bolt having applied thereto the washer 30 and nut 31.

32 is the feed box or hopper, it being applied to the upper end of the base-piece 24. The

said feed box or hopper is in the form of an inverted cup with notches 33 in the edge of the flange thereof and vertical ribs 331 on the interior of said flange to constitute stirrers for the contents of the feed-box. The top of the feed box or hopper has the hole 34 there-through, to enable it to be filled when required, and it is mounted upon a spindle 35 which is journaled within the sleeve 36, applied to the upper end of the base-piece 24. Spindle 35 is formed with a collar 37, which rests upon the upper end of sleeve 36. Above the collar 37 the spindle 35 is screw-threaded, and the hub of the feed box or hopper is applied to this threaded portion, the feed box or hopper being secured in place by a wing-nut 39, which is applied to the said threaded portion. 40 is a cover-plate which is held to the top of the feed-box by the wing-nut 39, and serves to prevent the contents of the feed-box from escaping therefrom when, in the revolution thereof, the opening 34 is in its lowest position. The sleeve 36 is screw-threaded externally and fits a correspondingly-threaded hole in the base-piece 24. By rotating the said sleeve the position of the feed-box may be adjusted vertically, and the distance between the edge of its flange and the adjacent surface of the base-piece 24 may be regulated to a nicety.

For the purpose of intermittently rotating the feed box or hopper a ratchet-wheel 41 is applied to a squared portion 42 of spindle 35, and is engaged by a pawl 43 carried by an arm 431 mounted to swing loosely on the said spindle. The ratchet-wheel 41 and arm 431 are held on the spindle by a washer 44 and nut 45, the last being turned onto the threaded lower end of the spindle.

The arm 431 has connected therewith one end of a connecting-rod 46, the other end of which is joined to one arm of an elbow-lever 47, that is pivoted on frame 1. The other arm of said elbow-lever 47 is joined by a connecting-rod 48 to a lug 49 on the plunger 4, whereby as the plunger is reciprocated the pawl-carrying arm is operated, and an intermittent movement of rotation is communicated to the feed box or hopper.

58 is a brake-block which is pressed by means of a screw 59 against the feed-box to prevent return movement thereof.

50 is a detent pivoted at 51 to the chute and projecting at one end into the passage-way 27 so as to block the latter.

52 is a spring which holds the detent in the position just mentioned.

53 is a projection on the elbow-lever 47, arranged to engage with the said detent when the said elbow-lever is swung forward, so as to turn the inner end of the detent downwardly in the passage-way 27. When the elbow-lever is swung backward, the spring 52 returns the detent to its normal and operative position.

The machine herein shown and described is designed more especially for the introduction of protecting-disks of wear-enduring ma-

terial, such as metal, into holes prepared therefor in the top lifts of the heels of boots and shoes. These disks are to be placed in the feed-box 32, from which latter they will be allowed to discharge through the notches 33 into the passage-way 27, wherein they will lie one behind another on their flat sides. To guard against jamming of the disks at the upper end of the chute and breakage of the machine, I remove a portion of the flange 54, which is provided on the base-piece 24 to inclose the edge of the feed-box, and close the gap by a section 55 which is pivoted by a screw 56 at its lower end and pressed inwardly at its free end by a spring 57. This section will yield in case a number of the disks aforesaid should mass together at the upper end of the chute.

The swinging detent 50 is formed at its inner end with two projections 58 58, which are separated from each other by a space about equal to the diameter of one of the protector-disks aforesaid. In the position in which the detent normally is held by the action of spring 52 the lower projection extends into the passage-way 27, and by engaging the lowest disk retains the series of disks in said passage-way from descending. As the inner end of said detent is swung downwardly by the projection 53, it reaches the position shown in Fig. 3, which withdraws the lower projection from beneath the lowest disk and allows the latter to descend to the lower end of the chute, but inserts the upper projection so as to detain the next disk, as shown. Then, as the detent is allowed to assume its normal position again under the action of spring 52, the upper projection is swung out of the passage-way and the lower projection is swung into the latter, permitting the disks to move a short distance along the passage-way until what is now the lowest disk engages with the lower projection on the detent.

The notch 13 in the side of the sleeve 12 permits the disks as they successively reach the bottom of the chute to pass therefrom into the space inclosed by the sleeve above the top end of the plunger 4. The sleeve serves to receive the disks as they fall from the end of the chute and place them properly with relation to the plunger; also to retain them on the upper end of the plunger while the latter is being operated to drive the disks into the holes which have been prepared for their reception in the heel-lift which is held in place beneath and in contact with the lower end of post 17. The projecting enlarged head of the spindle 19 enters the hole into which a disk is to be driven and holds the lift in such position as to insure the entrance of the disk into such hole. As the plunger forces the disk into the hole, the spindle is forced upwardly out of the latter by the contact of the upper surface of the disk with the end of the spindle, while at the same time the contact of the upper end of the sleeve 12 with the under surface of the lift arrests the ascent of the sleeve

while the plunger continues to rise and drives the disk home.

I claim as my invention—

1. The improved machine for inserting protectors into heel-lifts comprising a chute, means for feeding protectors along said chute successively, a plunger at the lower end of said chute, a sleeve surrounding the upper end of said plunger and projecting above said end to receive the protectors as they leave the lower end of the chute, a spring supporting said sleeve, and a backing to sustain a heel-lift while the protectors are being forced into the same by the plunger, substantially as described.

2. The combination with a plunger and a movable retainer at the end of such plunger to hold a protector in place on said end, of a backing to sustain a heel-lift while the protector is being driven, a yielding spindle normally projecting beyond said backing to enter the hole which is made in the heel-lift for the reception of the protector, whereby said hole is held in proper position, and means to actuate the plunger, substantially as described.

3. The improved machine for inserting protectors into heel-lifts, comprising a chute, means for feeding protectors along said chute successively, a plunger at the lower end of

said chute, a sleeve surrounding the upper end of said plunger and projecting above the said end to receive the protectors as they leave the lower end of the chute, a spring supporting said sleeve, a backing to sustain a heel-lift while the protectors are being driven, a yielding spindle normally projecting beyond said backing to enter the hole which is to receive a protector, and means to actuate the plunger, substantially as described.

4. The combination with the chute and the feed-box, of the yielding section 55 at the upper end of the chute adjacent to the feed-box, whereby breakage and jamming are avoided when the protectors accumulate at said upper end of the chute, substantially as described.

5. The combination with the feed-box, of the supporting spindle 35 therefor provided with a collar 37, the adjusting sleeve 36 screw threaded exteriorly and contacting at its end with said collar, and the support having a screw-threaded hole to which said sleeve is fitted, substantially as described.

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

JAMES HIGGINS.

Witnesses:

FRANK W. WHITCHER,
CHAS. F. RANDALL.