

No. 641,863.

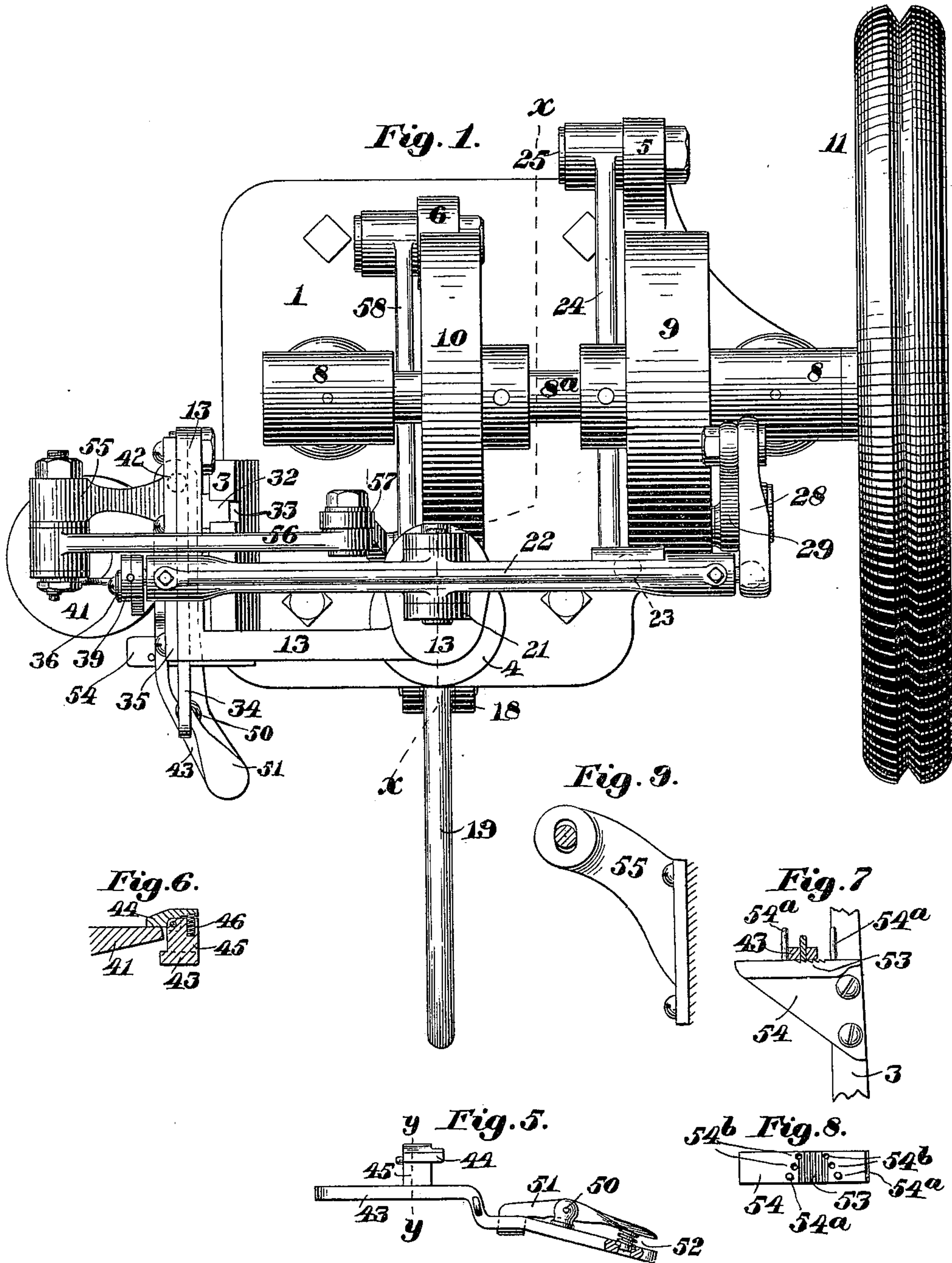
Patented Jan. 23, 1900.

A. E. JOHNSON.  
MACHINE FOR REINFORCING INSOLES.

(Application filed June 28, 1899.)

(No Model.)

4 Sheets—Sheet 1.



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Inventor:  
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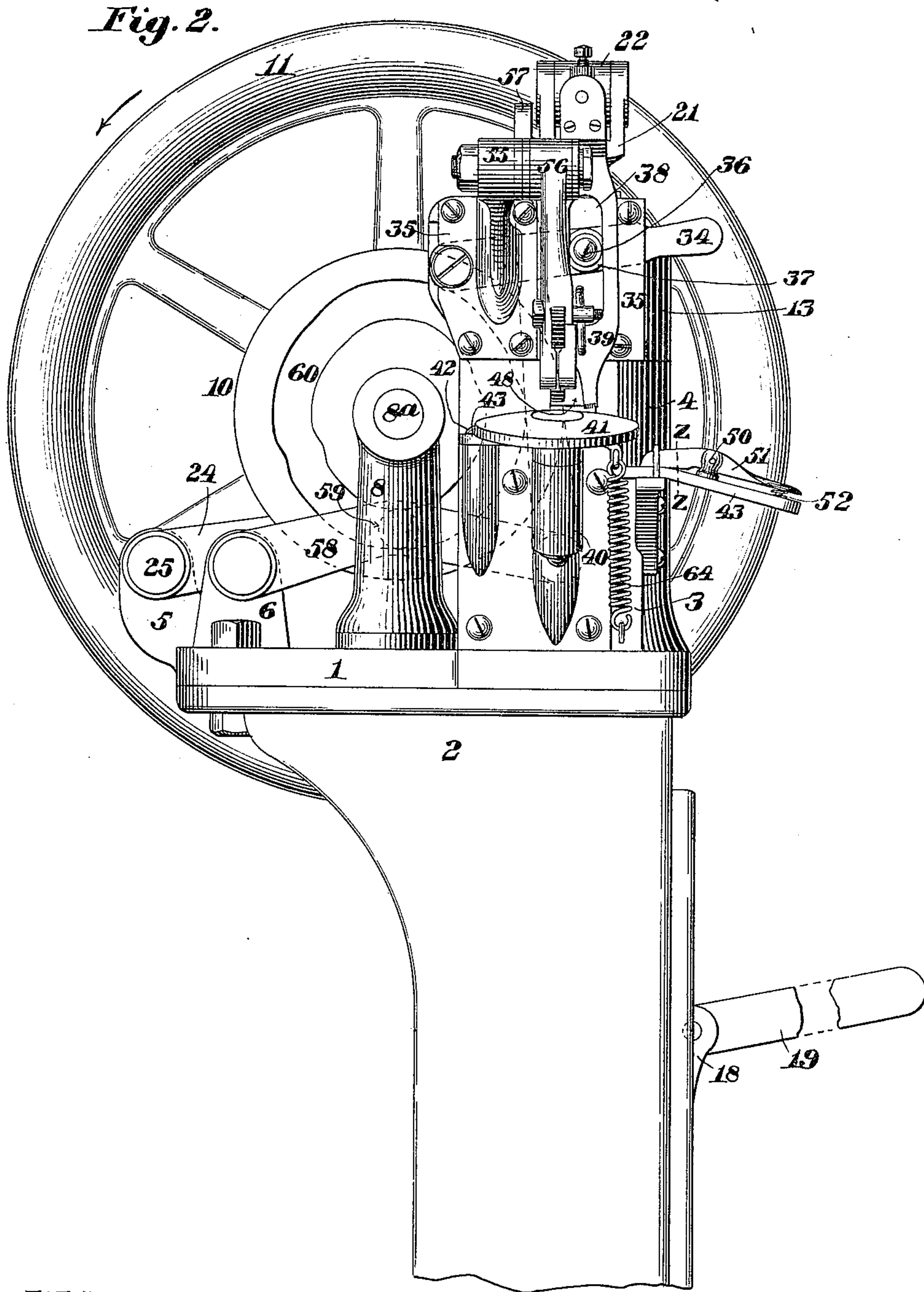
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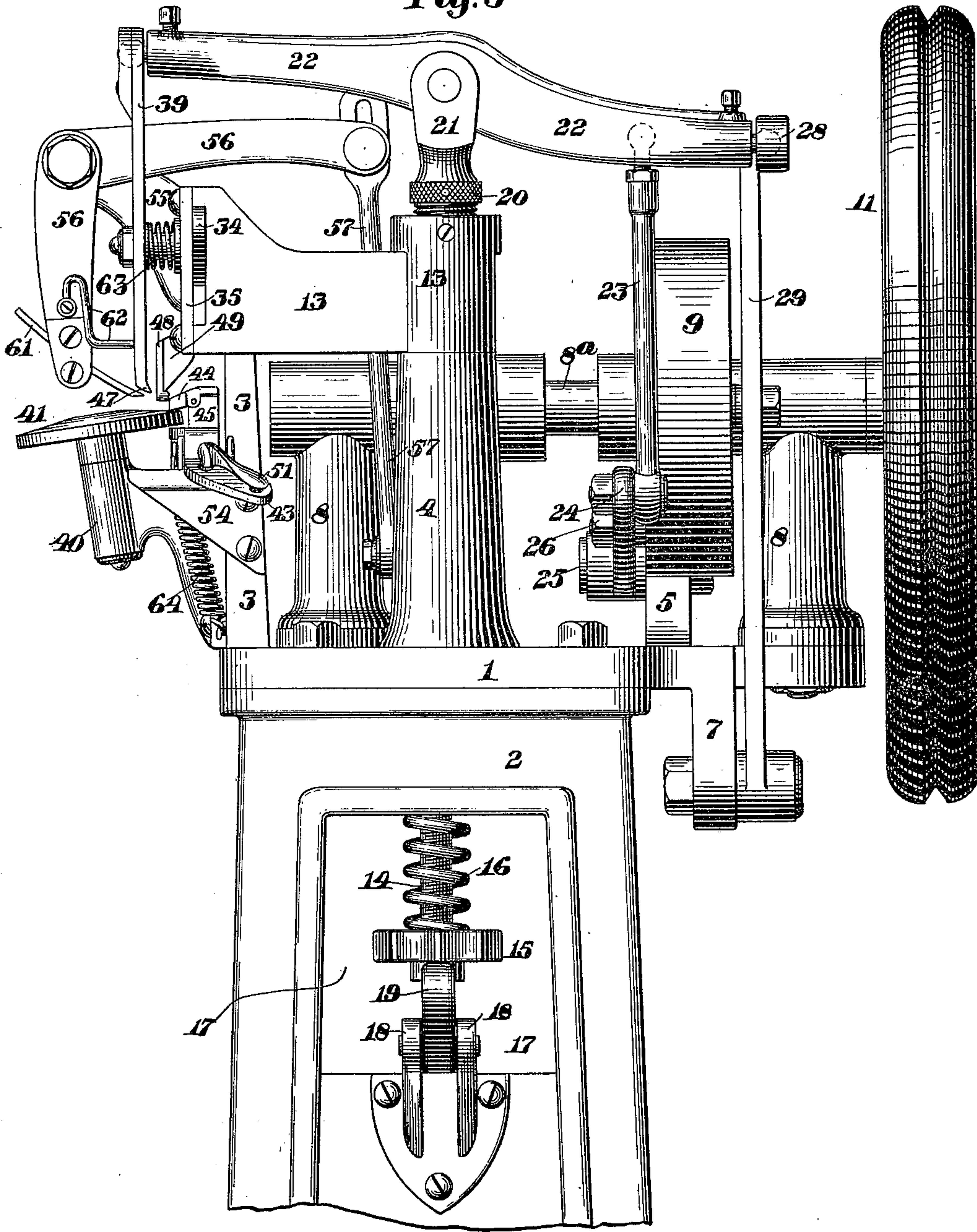
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**4 Sheets—Sheet 3.**

*Fig. 3*



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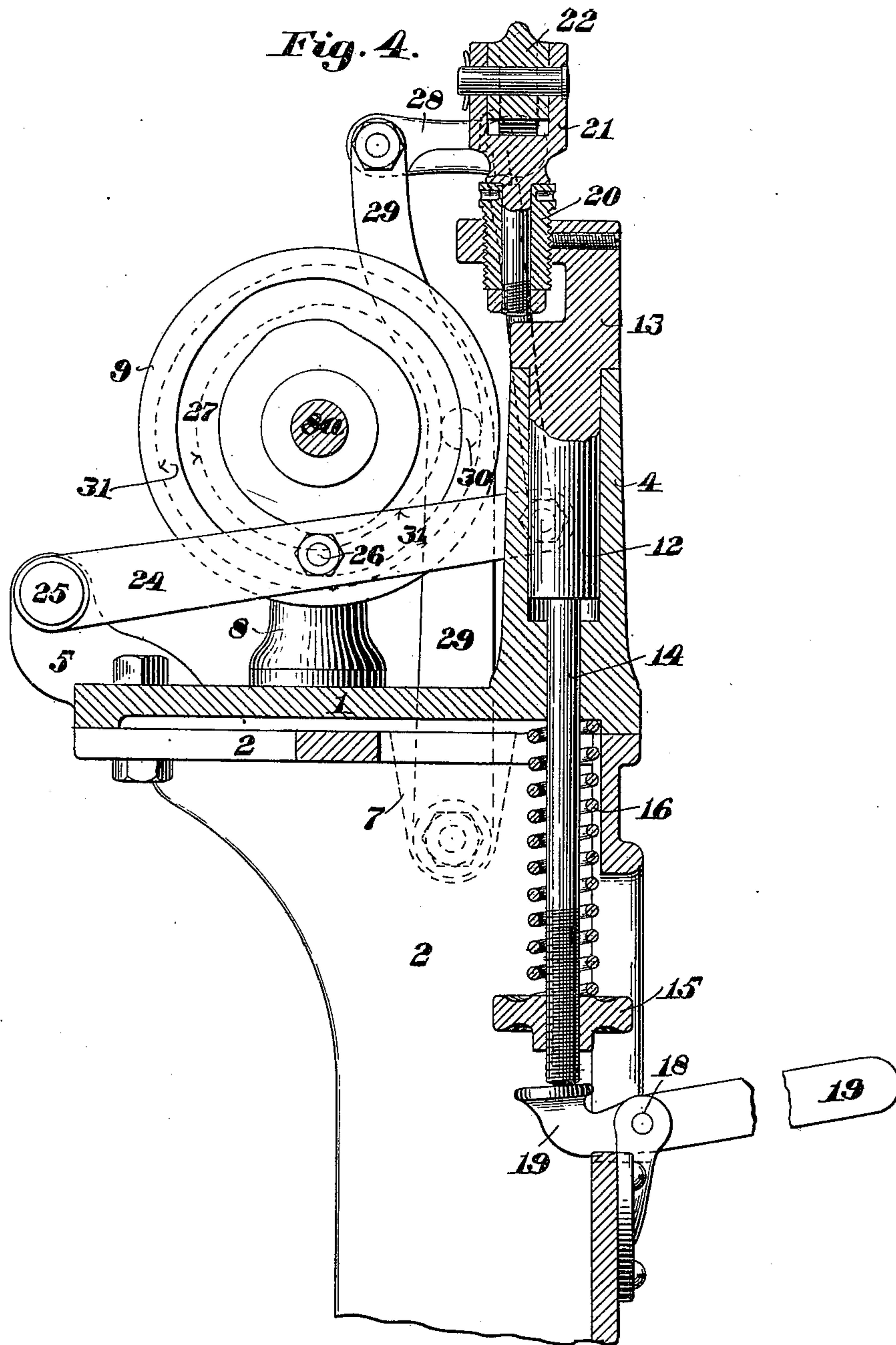
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4 Sheets—Sheet 4.



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# UNITED STATES PATENT OFFICE.

ALBERT E. JOHNSON, OF BROCKTON, MASSACHUSETTS, ASSIGNOR, BY  
DIRECT AND MESNE ASSIGNMENTS, TO THE ECONOMY MACHINE  
COMPANY, OF PORTLAND, MAINE.

## MACHINE FOR REINFORCING INSOLES.

SPECIFICATION forming part of Letters Patent No. 641,863, dated January 23, 1900.

Application filed June 28, 1899. Serial No. 722,146. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT E. JOHNSON, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Machines for Reinforcing Insoles, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to machines for reinforcing insoles; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the accompanying drawings and to the claims hereto appended and in which my invention is clearly pointed out.

Figure 1 of the drawings is a plan of a machine embodying my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a front elevation. Fig. 4 is a vertical section on line *x x* of Fig. 1. Fig. 5 is an elevation of the gage and its carrying-lever. Fig. 6 is a transverse section on line *y y* of Fig. 5. Fig. 7 is a section of said gage-carrying lever on line *z z* of Fig. 2 and showing in elevation the ratcheted bracket upon which the said lever rests and by which and the pawl-lever said gage-lever is locked against backward movement while the sole is being operated upon. Fig. 8 is a plan of said ratcheted bracket with the lever removed. Fig. 9 is an elevation of stand 55, with the adjustable fulcrum-pin, upon which is mounted the elbow-lever 56, shown in section.

In the drawings, 1 is the base of the head of the machine, secured to the column 2 and having formed in one piece therewith the plate 3, the cylindrical hub 4, the upwardly-projecting ears 5 and 6, and the downwardly-projecting ear 7. The base 1 also has set therein and firmly secured thereto the two upwardly-projecting columns 8, in bearings in the upper ends of which is mounted the shaft 8<sup>a</sup>, having firmly secured thereon between said bearings the two cam-disks 9 and 10 and upon its right-hand end the driving-wheel 11.

The vertical hub 4 has fitted to a bearing therein the shank 12 of the bracket 13, so as to be movable vertically therein, said shank having set in its lower end the extension-spindle 14, the lower end portion of which is threaded and has fitted thereon the adjust-

able collar 15, between which and the under side of the base 1 said spindle is surrounded by the coiled spring 16, the tension of which tends to hold the bracket 13 in its normal position with its hub in contact with the upper end of said hub 4, as shown.

The column 2 has an opening 17 in its front side, and has secured thereto or formed in one piece therewith a pair of ears 18 18, to which is pivoted the lever 19, the rear end of which extends beneath the lower end of the spindle 14 to serve as a means of raising the bracket 13 against the tension of the spring 16 when it is desired to insert or remove a sole from the machine.

The hub of the bracket 13 has set therein the adjustable threaded sleeve 20, in which is set the forked standard 21, to which is pivoted the two-armed lever 22, to one arm of which is connected, by a ball-and-socket joint, the upper end of the link 23, the lower end of which is pivoted to the movable end of the lever 24, fulcrumed at 25 and provided with a cam-truck on pin 26 to enter and be acted upon by the cam-path 27 in the disk 9, as shown in Figs. 1, 3, and 4, by which said lever 24 has a vertical vibration imparted thereto. The extreme end of the same arm of said lever 22 has connected thereto by a ball-and-socket joint the link 28, the opposite end of which is pivoted to the upper end of the lever 29, pivoted to the ear 7, and carrying a cam-truck 30, fitted to and acted upon by the cam-path 31, formed in the outer face of the disk 9, said truck and path being shown only in dotted lines in Fig. 4.

The bracket 13 is prevented from movement about the axis of its shank by the guide-rib 32, formed upon its inner face and projecting into a guideway 33, formed in the upper end of the upright plate 3, as shown in Fig. 1.

The bracket 13 has pivoted thereto the lever 34, which projects toward the right of Fig. 2, between said bracket and the cap-plate 35, and has secured thereto the fulcrum-pin 36, upon which is fitted the swiveling sleeve 37, which engages the slot 38 in the presser-plate 39, the upper end of which is connected by a ball-and-socket joint to the left-hand end of the lever 22, as shown in Figs. 1, 2, and 3.



The upright plate 3 has secured thereto a stand 40, in an inclined bearing in which is mounted the revoluble work-supporting disk 41, and said stand also has pivoted thereto at 5 42 the gage-carrying lever 43, to which is pivoted the gage 44, between the inner arm of which and the bottom of a cavity formed in the lug 45, projecting upward from said lever 43, is a spring 46, the tension of which tends 10 to hold the outer edge of said gage in contact at all times with the surface of the work-support.

The lower end of the presser-plate 39 has formed upon its inner face an acute-angled 15 projection 47, which acts to press the reinforcing fabric into the acute angle of the channel and firmly against the inner face of the channel-lip to cause it to adhere thereto, said lip being pressed between said presser-plate and the plate 48, secured to a lug 49, projecting from the bracket 13, as shown in Figs. 2 and 3.

The lever 43 has pivoted thereto at 50 the pawl-lever 51, the outer end of which is pressed 25 upward by the spring 52 to cause its pawl-edged inner end to engage the ratchet-teeth 53, formed in the upper edge of the bracket 54, to lock the gage 44 against backward movement when set to the desired position, 30 said adjustment being limited by the pins 54<sup>a</sup>, interchangeably set in the holes 54<sup>b</sup> in said bracket.

The bracket 13 has secured to its left-hand vertical face, as seen in Fig. 3, the stand 35 55, to the outer end of which is adjustably pivoted the elbow-lever 56 by means of a fulcrum-pin fitted to a vertical slot formed in the outer end of said stand 55, as shown in Fig. 9, the nearly horizontal arm of which lever 40 has adjustably pivoted thereto the upper end of the link 57, the lower end of which is pivoted to the movable end of the lever 58, which is fulcrumed upon the ear 6, and has mounted thereon near the middle of its length the cam-truck 59, (shown only in dotted lines in Fig. 45 2,) which is fitted to and acted upon by the cam-path 60 in the outer face of the disk 10 to vibrate said lever 58.

The pendent arm of the lever 56 has adjustably secured therein at its lower end the 50 cutter-bar 61, the inner end of which has a chisel-like cutting edge, which as said lever is vibrated cuts against the plate 48 of soft metal and operates to sever a section of the channel-lip of a sole and the reinforcing fabric at 55 each inward movement of said cutter. The pendent arm of said lever 56 also has secured thereto the bent spring-rod 62, the inner or free end of which abuts against the presser-plate 39 at each inward movement of said 60 pendent arm and forces said presser-plate inward with a slightly-yielding pressure against the pressure of the spring 63, which moves said presser-plate outward again when the 65 motion of the lever 56 is reversed.

A spring 64 is connected at one end to the lever 43 and at its other end to a hook set in

the plate 3, the tension of which spring causes the lever to be held in firm contact with the bracket 54 until force is applied thereto to 70 readjust said lever and its gage.

The operation of my invention is as follows: The leather insole cut to the desired shape, 75 channeled, and having its lip turned upward and having a reinforcing-sheet of textile fabric firmly cemented to the central portion of said sole is placed upon the work-support 41, with its edge at the heel end of the shank bearing against the gage 44 and the upturned lip 80 and the outer portion of the reinforcing fabric projecting upward between the presser-plate 39 and cutter 61 on one side and the soft-metal plate 48 on the other side, the outer end of the lever 19 being depressed by the operator to enable the work to be so placed and then 85 released. If now motion be imparted to the wheel 11 in the direction indicated by the arrow on Fig. 2, the first operation is to move the presser-plate 39 downward upon the textile fabric and press it into close contact with 90 the inclined surface of the channel through the action of the cam-path 27 upon the lever 24, and then the cam-path 60, acting upon the lever 58, causes the lower end of the pendent arm of the lever 56 to be moved inward, causing 95 the cutter 61 to contact with the plate 48 and sever a section of any intervening substance, and at the same time the spring-rod 62 presses the lower end of the presser-plate 39 toward the gage 44, thereby forcing the cemented reinforcing material into firm contact 100 with the inclined surface of the channel, causing it to adhere thereto, and forcing the textile fabric into the acute angle of the channel of the sole and pressing the upturned portion 105 thereof into firm contact with the inner face of the upturned lip of said sole by clamping the said lip and fabric between said plates 39 and 48. The next movement is a slight outward movement of the lower end of the pendent 110 arm of the lever 56 toward the left of Fig. 3 by the action of the cam-path 60 upon the lever 58 to release the cutter 61 from the work and permit the reaction of the spring 63 to move the lower end of the presser-plate 39 115 slightly outward, thus relieving the pressure thereof upon the lip and the plate 48, when the action of the cam-path 31 upon the lever 29 causes the lower end of the presser-plate 39 to be moved toward the left of Fig. 2 to feed 120 the work. Said plate is then raised from contact with the work, is moved still farther toward the left of Fig. 3, and then by the action of the cam-path 31 upon the lever 29 the lower end of the said presser-plate is moved toward 125 the right of Fig. 2 to the point of beginning.

As the cam-paths 27, 31, and 60 are each provided with two sets of throws which are duplicates, the cycle of movements above described is twice repeated at each revolution 130 of the shaft 8<sup>a</sup>.

It will be seen from the foregoing that the plate 39 has six distinct and independent motions, all of which are essential to the proper



and effective applying of the reinforcing material. The said plate is moved vertically into contact with the reinforcing material at a little distance from the acute angle of the channel and is then moved into said acute angle while still being pressed firmly into contact with said material, thereby firmly securing said material to the inclined surface of the channel.

The object of mounting the lever 56 upon an adjustable fulcrum-pin is to enable the operator to adjust the trimming-knife so as to trim the reinforcing material and the lip at a greater or less distance above the upper surface of the sole.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for applying a reinforcing fabric to insoles, the combination of a work-support; a gage to locate the position of the sole upon said support, and guide it as it is being fed through the machine; a presser-plate provided with an acute-angled inwardly-projecting lug constructed and arranged to fit the inclined bottom and acute angle of the sole-channel; means for imparting to the acute-angled end of said presser-plate a vertical reciprocation to clamp the work between it and said work-support; means for imparting to said plate a laterally-vibrating movement to feed the work; and means for imparting to said presser-plate an independent vibratory movement toward and from the gage, the motion toward the gage being made while said plate is pressed into firm contact with the work, whereby the reinforcing material is firmly pressed into contact with the inclined surface of the channel, and is forced into the acute angle of said channel, and into contact with the inner surface of the channel-lip.

2. In a machine for applying a reinforcing textile fabric to a channeled insole, the combination of a work-support; a gage arranged above the upper surface of said work-support; a vertically-reciprocating and laterally-vibrating presser-plate provided at its lower end with an acute-angled inwardly-projecting lug constructed and arranged to fit the inclined bottom and acute angle of the sole-channel; means for imparting to said presser-plate a vertically-reciprocating and a laterally-vibrating movement in one direction to feed the work; means for vibrating said presser-plate in a plane at right angles to the line of feed of the material to press the reinforcing material in the acute angle of the channel and cause it to adhere to the inner surface of the channel-lip; a reciprocating cutter; a soft-metal plate to receive the impact of the edge of said cutter; means for moving said cutter toward and from said soft-metal plate; and means intervening between the cutter-carrier and presser-plate whereby said plate is compelled to move in the same direction as said cutter and in unison therewith.

3. In a sole-reinforcing machine the combination with a work-support, and a gage to locate the work upon said support, of a vertically and laterally movable presser-plate, provided with an acute-angled inwardly-projecting lug, constructed and arranged to fit the inclined bottom and acute angle of the channel; the elbow-lever 56; the spring-arm 62 carried by the pendent arm of said lever in position to bear against said presser-plate; means for imparting to said lever a vibratory movement to move the lower end of said presser-plate toward said guide; and the spring 63 constructed and arranged to move said presser-plate in the opposite direction.

4. The combination in a sole-reinforcing machine, of a work-support; an adjustable gage to receive the edge of the sole and guide it while being fed; a vertically-movable bracket; a swiveling support carried by said bracket; a two-armed lever fulcrumed in said swiveling support; a presser-plate mounted upon an adjustable fulcrum and provided at its lower end with an acute-angled inwardly-projecting lug or operating part and connected at its upper end to one end of said two-armed lever; means for imparting to said lever vertical and horizontal vibrations; and means for raising said bracket and the parts carried thereby to enable the work to be placed in position on the work-support.

5. In a sole-reinforcing machine the combination with a work-support and a suitable gage for locating the work on said support, of a vertically-reciprocating and laterally-vibrating presser-plate having an inclined lower end and an acute-angled inwardly-projecting lug; the bracket 13; the stand 55 secured to and movable vertically with said bracket; a lever fulcrumed upon said stand; a cutter adjustably secured to the movable end of the pendent arm of said lever; the disk 10 provided with the cam-path 60; lever 58; and rod 57 for imparting motion to said lever; and means for imparting to the lower end of said presser-plate a vertical reciprocation and a vibratory motion in two vertical planes at right angles to each other.

6. In a machine for reinforcing insoles, the combination with a work-support, a gage to locate the sole upon the work-support, and means for pressing the reinforcing material into the acute angle of the channel and into firm contact with the inner surface of the channel-lip; of the lever 56 mounted upon an adjustable fulcrum; a cutter carried by the free end of the pendent arm of said lever and means for imparting to said lever a vibratory movement substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 5th day of June, A. D. 1899.

ALBERT E. JOHNSON.

Witnesses:

N. C. LOMBARD,  
GEO. E. HARRIS.