

No. 653,042.

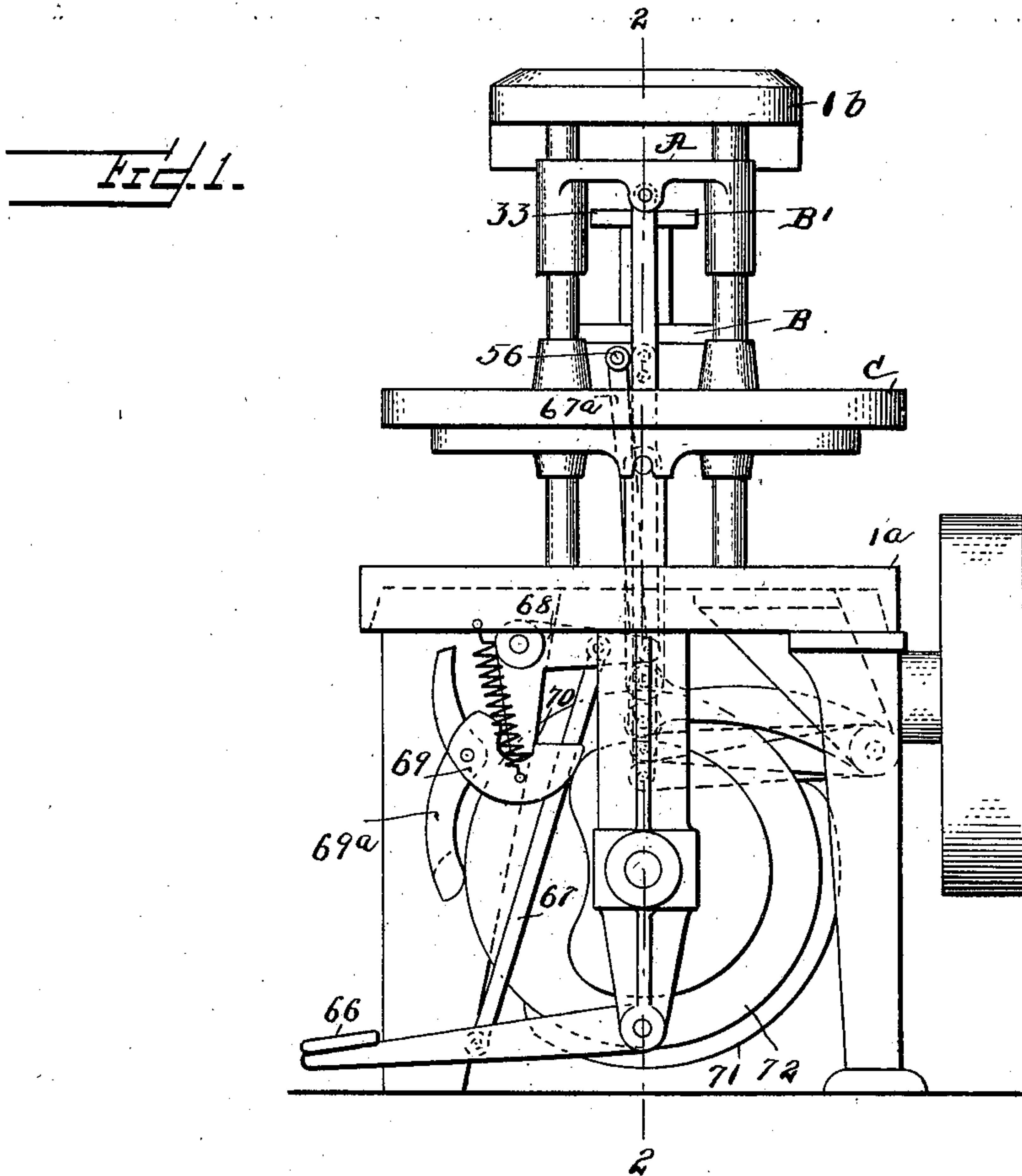
Patented July 3, 1900.

W. SELLERS & J. S. BANCROFT.  
LASTING MACHINE.

(Application filed Oct. 5, 1899.)

(No Model.)

5 Sheets—Sheet 1.



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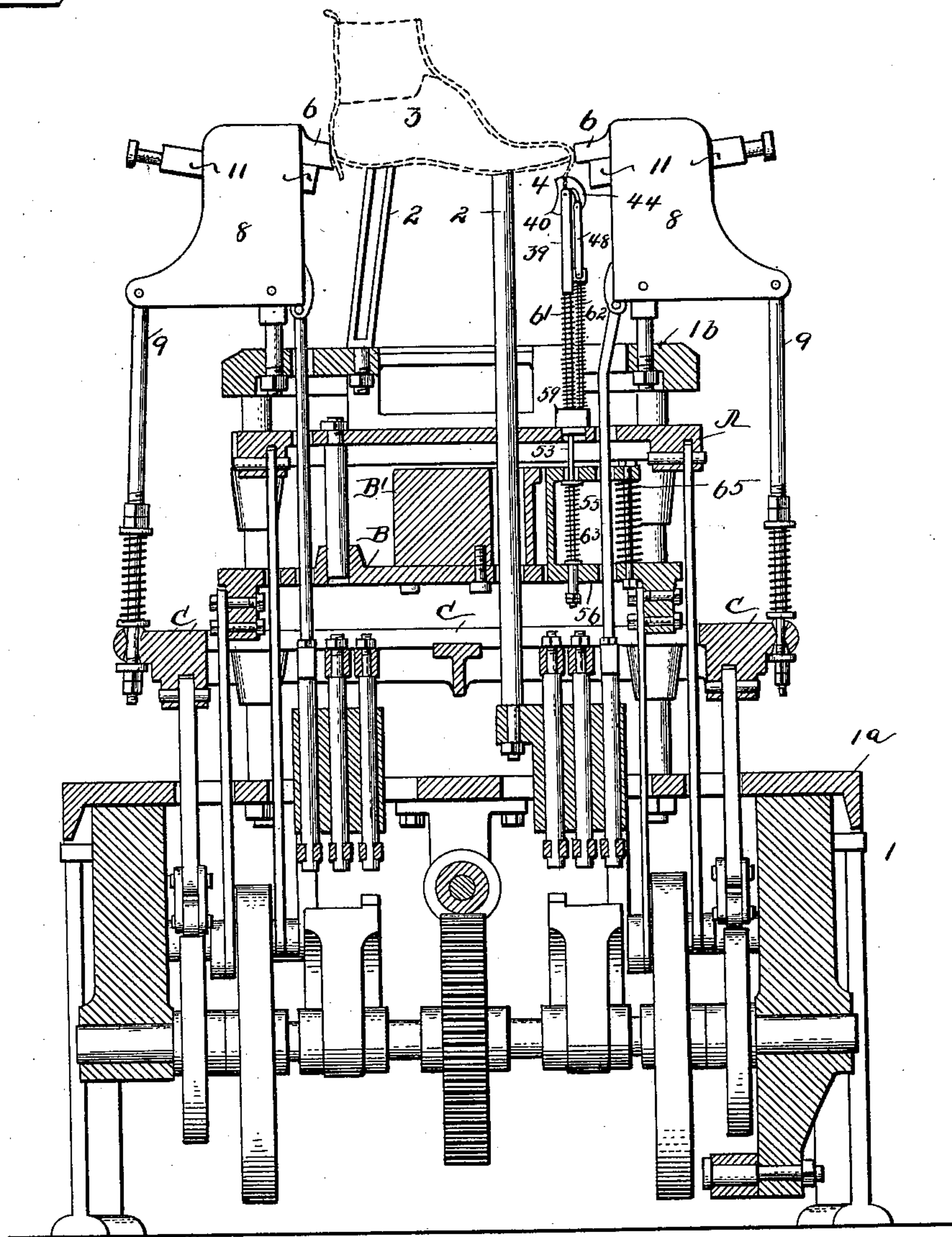
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FIG. 2.



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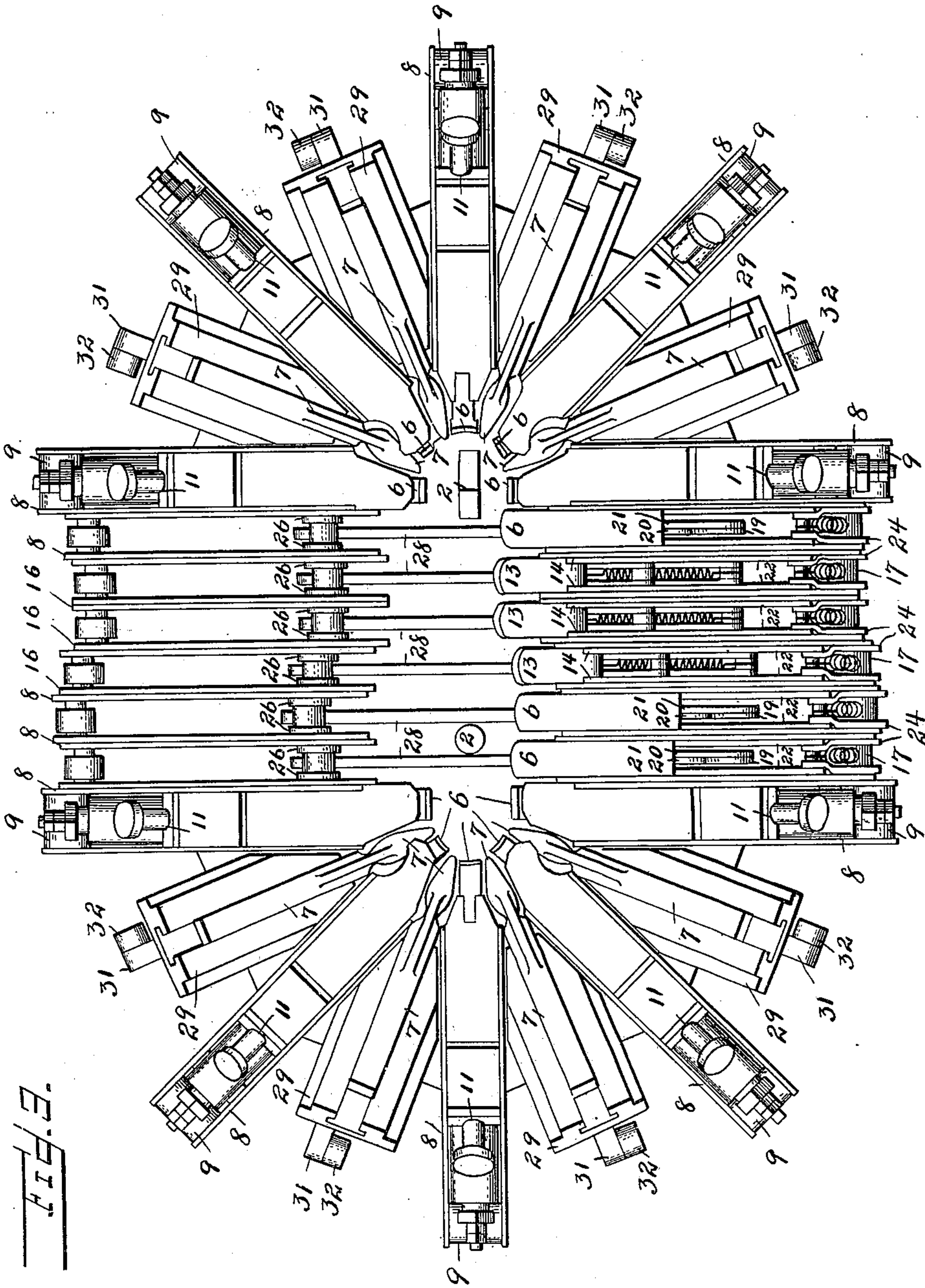
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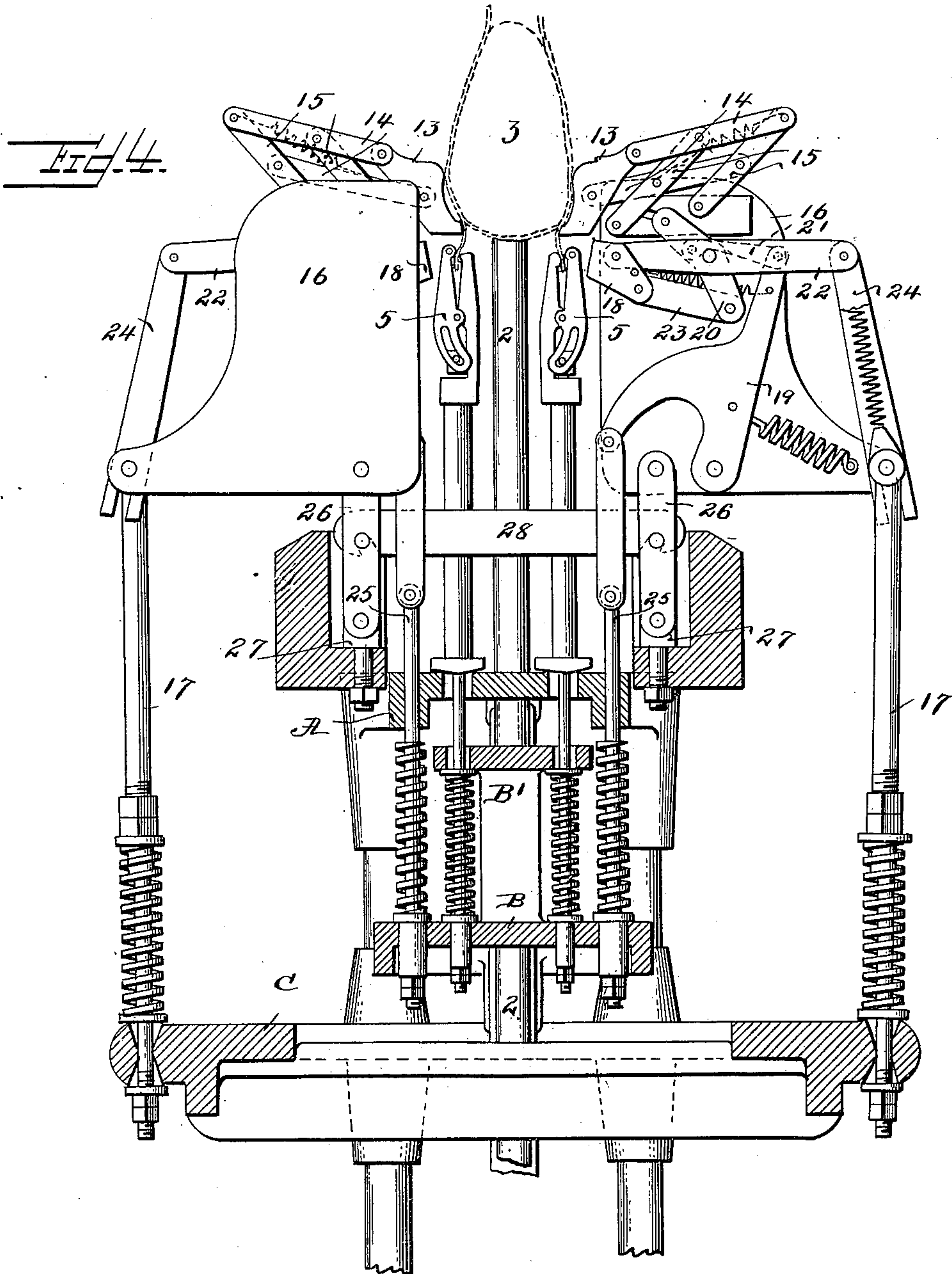
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5 Sheets—Sheet 4.



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5 Sheets—Sheet 5.

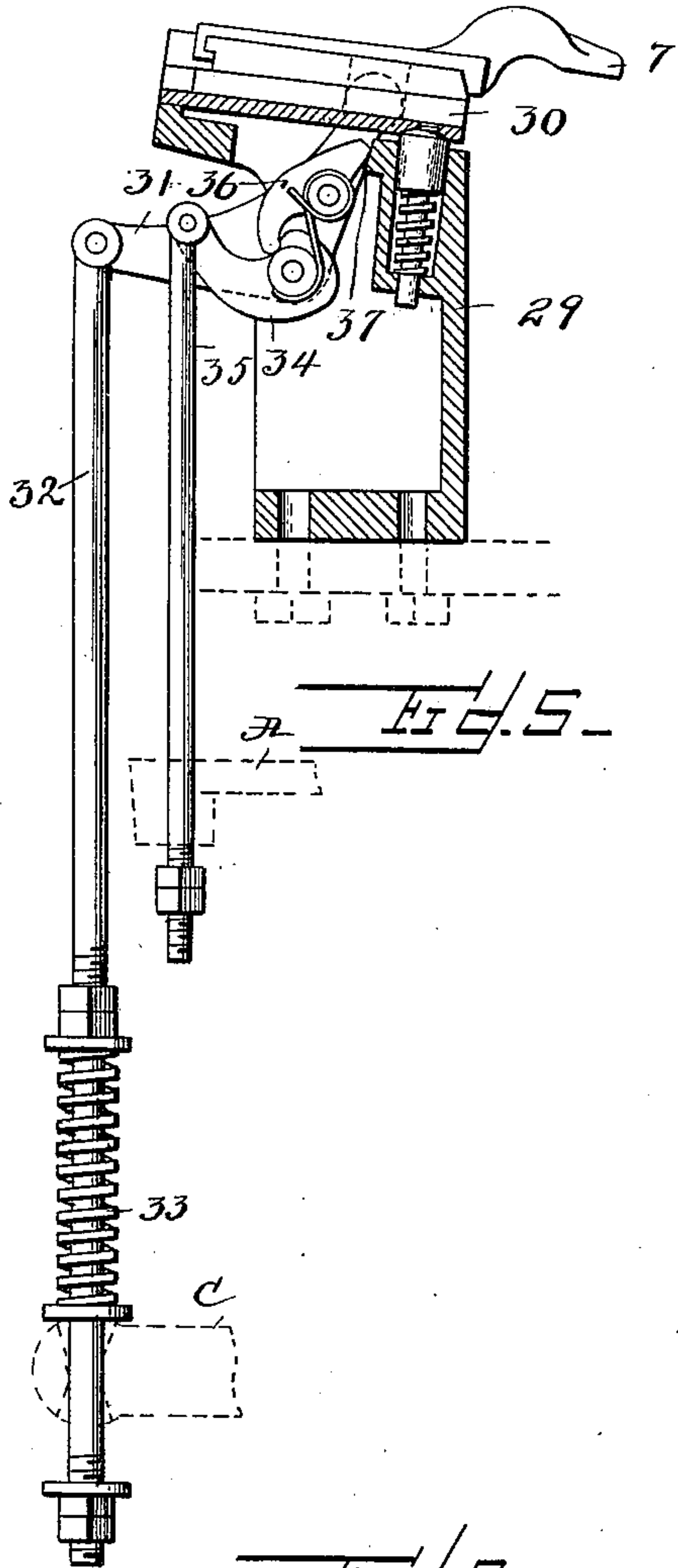


Fig. 5.

Fig. 6.

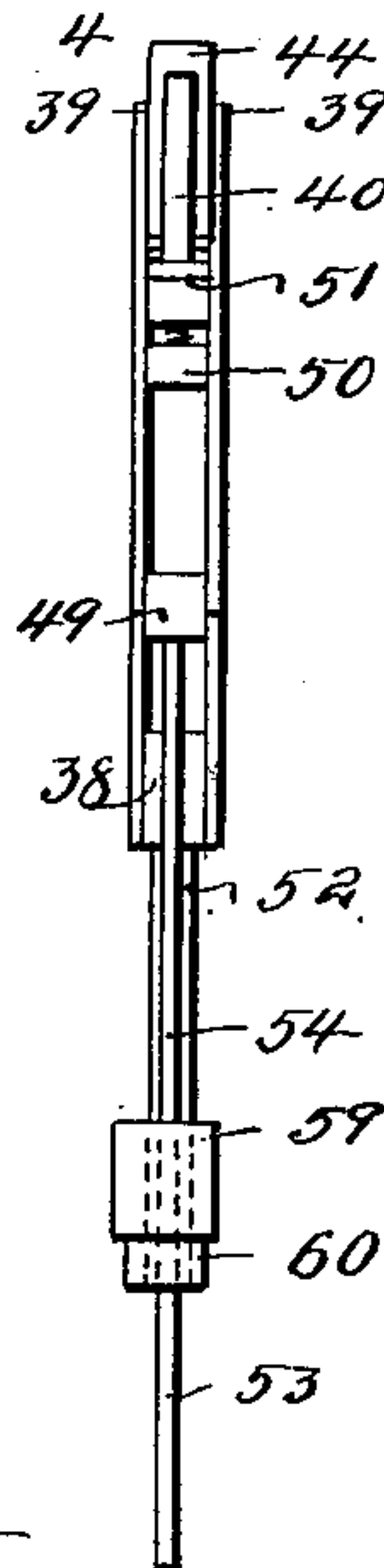
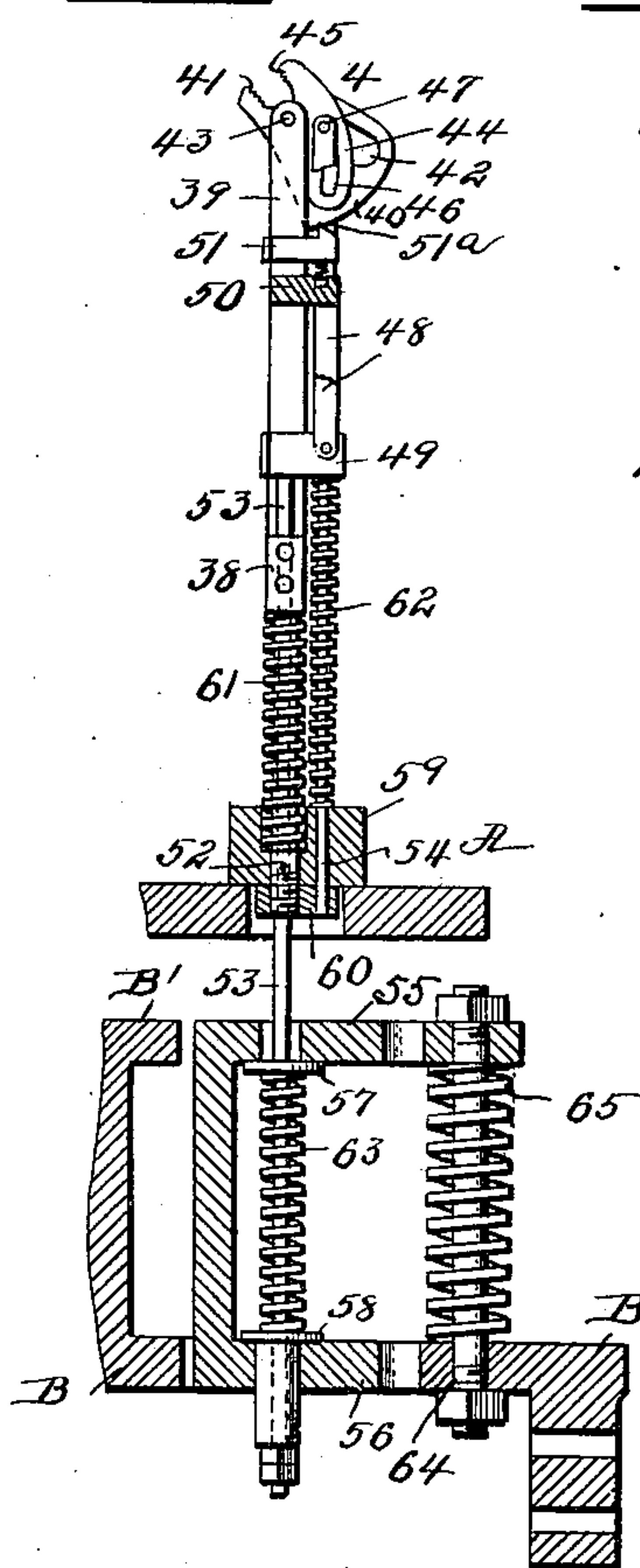
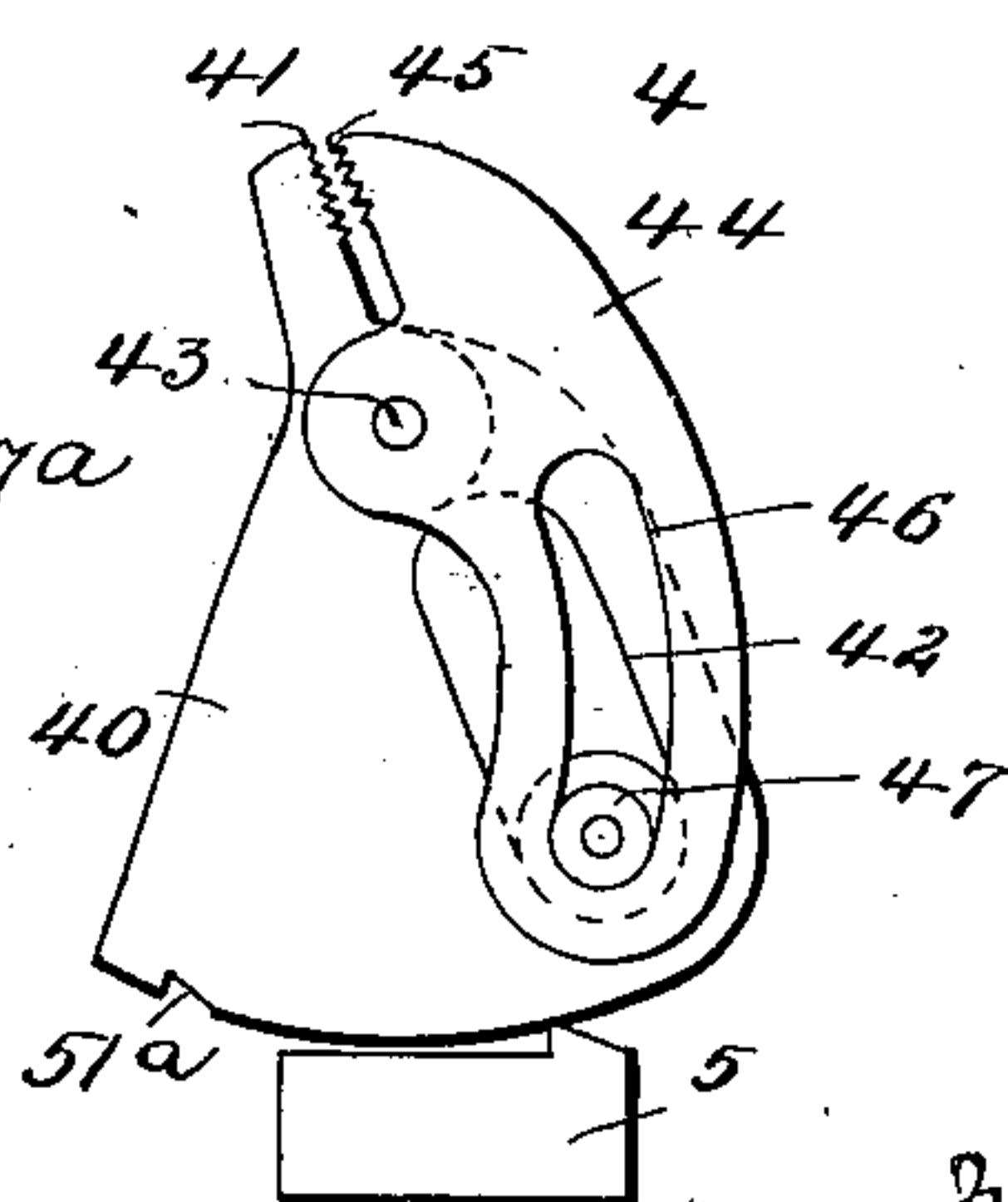
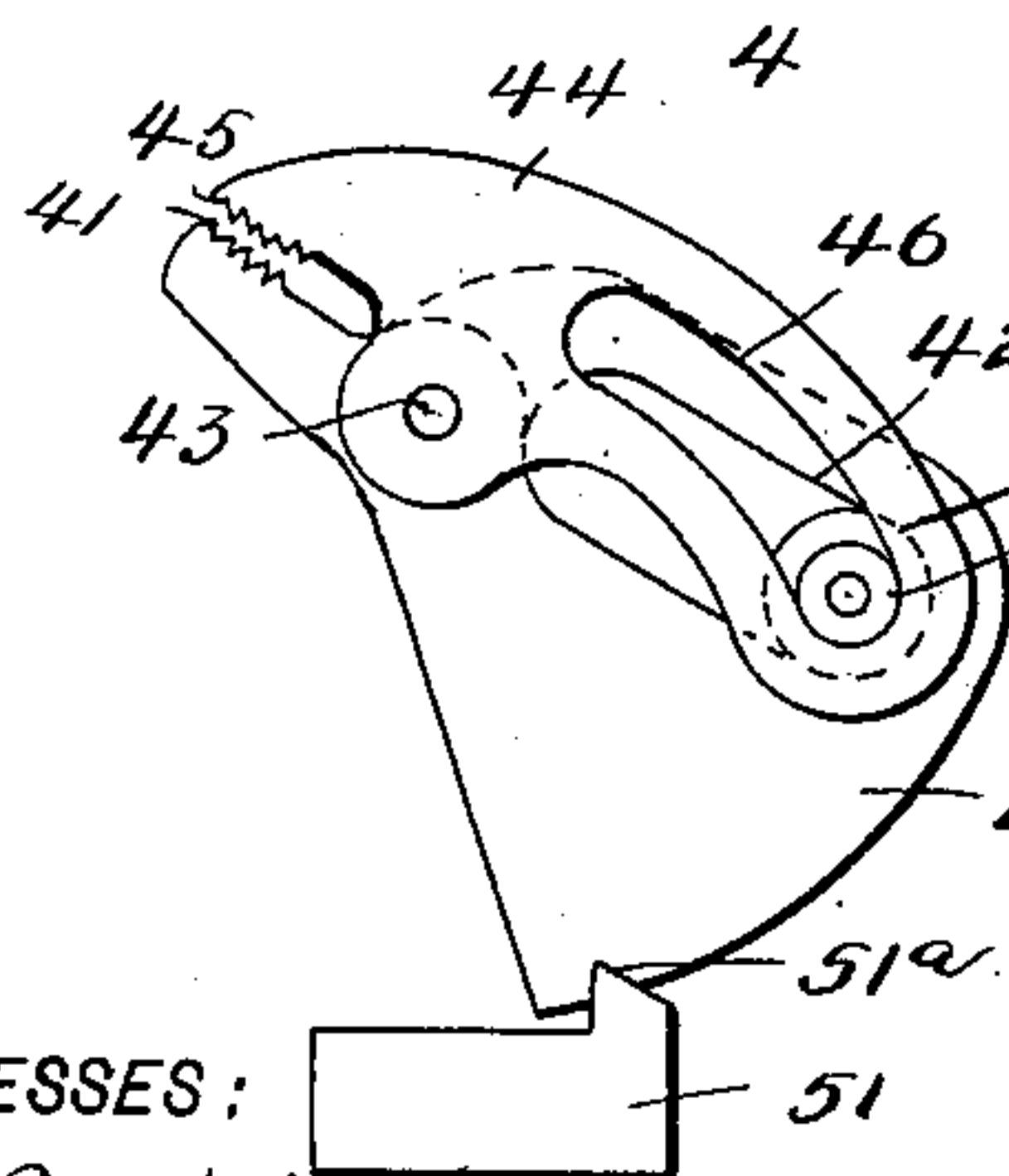


Fig. 8.

Fig. 9.



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# UNITED STATES PATENT OFFICE.

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PENNSYLVANIA, ASSIGNORS TO THE WILLIAM SELLERS & COMPANY,  
INCORPORATED, OF PENNSYLVANIA.

## LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 653,042, dated July 3, 1900.

Application filed October 5, 1899. Serial No. 732,657. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM SELLERS and JOHN SELLERS BANCROFT, citizens of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Shoe-Lasting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to that class of shoe-machines which stretch the upper over the last and secure it to the insole by glue or cement—such, for example, as that described and claimed in the Letters Patent of the United States issued to William Sellers, John Sellers Bancroft, and Mauritz C. Indahl, assignors to William Sellers & Company, Incorporated, April 10, 1900, No. 647,037; and the object of this invention is to improve the machine forming the subject-matter of said patent by perfecting the structure and operation of the crimping devices, the pincers or nippers, and the rocking clamps and folders which operate upon and against the side and under surface of the last at the shank.

To these ends our invention consists in providing means whereby the bars that slide underneath the last and crimp the leather of the heel and toe at different points preparatory to the operation of the bars for folding the leather underneath the last at the heel and toe are caused to be automatically retracted in proper sequence to permit the folders to operate.

It further consists in the provision of an equalizing device connecting the sets of rocking clamps and folders on each side, whereby no pressure will be exerted against the last by the folders first coming in contact therewith until the corresponding folders on the opposite side are brought against the last and whereby in the subsequent operation of the machine the clamps on opposite sides will be caused to press with equal force against the last.

It further consists in a special construction of the pincers or nippers that act upon the

leather at the toe whereby the jaws of the nippers are caused to first clamp the leather and then shift their position preparatory to being moved down to stretch the leather over the last, in improved automatic mechanism for imparting to the nippers the desired operation, and in the provision of means whereby the jaws of the nippers may, if desired, be closed and their position shifted by manual means preparatory to the automatic operation of the machine.

It further consists in certain details of construction and combination of elements to be hereinafter described.

We shall first describe the general construction and operation of the machine as a whole without, however, going into unnecessary details, as the said machine to which our invention is applied does not differ in any substantial respect from the machine specifically described in the Letters Patent No. 647,037, hereinbefore referred to. We shall then describe more particularly the structure and operation of the improvements forming the subject-matter of this application.

In the drawings, Figure 1 is a partial end view of the machine. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a plan view of the machine. Fig. 4 is a partial section showing the rocking clamps and folders and equalizing devices. Fig. 5 is a detail section through one of the crimpers and its actuating mechanism. Figs. 6 and 7 are detail views of the pincers. Figs. 8 and 9 are diagrams showing the nippers in different positions.

1 is the frame of the machine.

1<sup>a</sup> is the main bed-plate, and 1<sup>b</sup> the supplementary bed-plate, supported by the main bed-plate on standards or posts.

2 indicates the supports arranged to receive the last 3. The last is clamped in position upon these supports by last-clamping mechanism, not herein shown, as the same forms no part of our invention. The insole is secured upon the bottom of the last by means of temporary nails or pegs. The upper is drawn down over the last, the depending edges having been previously prepared with glue to adhere quickly to the insole, which is similarly prepared to



insure adhesion when in the operation of the machine the upper is folded inwardly against it.

4 indicates the nippers, three in number, 5 which set upon the leather at the toe, and 5 the nippers, six in number, which act upon the leather at the shank. The nippers 5 are the same in construction as those described in the said Patent No. 647,037 and extend down 10 through and engage the table A and are connected with the tables B and B', which are bolted together to act as one. By means of the downward movement of the tables B and B' the jaws of the nippers are closed upon the 15 depending edge of the upper, and by a further movement of said tables, together with a simultaneous movement of table A, the nippers are drawn bodily down, stretching the upper down closely over the instep. After 20 the tables remain stationary the required length of time that it is desired to hold the upper stretched tables B and B' move up to relieve the grip of the pincers, and then tables A, B, and B' move down together to carry 25 the pincers out of the road of the folders that subsequently come into action. The nippers 4 operate, generally speaking, in the same way to pull the upper down closely over the toe. Their construction, actuating mechanism, and operation will be hereinafter more 30 fully described. To secure the leather thus stretched against retraction upon the last at the heel and toe, we provide the clamps or clamp-bars 6, there being nine at the toe and 35 seven at the heel, and the binders, crimpers, or crimping-bars 7, which are eight in number, four at the toe and four at the heel, and arranged alternately with respect to the clamps. The clamps are caused to press against that 40 part of the upper lying against the last immediately above the insole, while the crimpers, which are pointed bars, are at the same time caused to move inward underneath the last, bending certain portions of the depending 45 leather inward preparatory to the folding operation, and which, in addition to cooperating with the clamps to prevent retraction of the upper, prevent the irregular overlapping of the leather at the sharp curves of the insole at the heel and toe by the subsequent action of the folding-bars. The clamps are secured to the rocking carriages 8, which are 50 pivoted to the supplementary bed-plates and connected, by means of spring-pressed rods 9, with the lower table C and are thrown into action by the upward movement of the lower table. The crimping-bars slide in guides on the frames 29, and their construction, actuating mechanism, and operation will be hereinafter more fully described. 60

To bend the edges of the upper inwardly against the insole at the heel and toe, a series of folding-bars 11 are provided, ten in number, five at the heel and five at the toe. These 65 folders slide in guides on the five end carriages 8 at the heel and toe, respectively, and each is actuated by means of a bell-crank

(not shown) below the bed-plate of the machine. The folders are caused to move in after the clamps have acted, and the clamps 70 remain stationary during the operation of the folders, while the crimpers are caused to be retracted to permit the folders to move in without interference by mechanism to be hereinafter described. 75

The mechanism for acting upon the instep is as follows: In place of the clamps 6 at the heel and toe the rocking clamps or pads 13 are provided, six in number, three at each 80 side of the machine. Each of these pads is secured to the ends of two parallel horizontal levers 14, pivoted upon two parallel upright levers 15, pivoted to the rocking carriage 16. The carriages are pivoted to the supplementary bed-plate and are connected to spring- 85 pressed rods 17, connected with the lower table C. The pads 13 are thrown toward and against the upper by the upward movement of the lower table, and then by the subsequent folding in of the parallel-lever mechanism 90 the pads move down and draw the leather tightly about the instep and downward around the curve thereof.

In place of the sliding folders 11 at the heel and toe we provide the rocking folders or pads 95 18, which are twelve in number, six on each side. Four of these pads are carried by the four carriages 8 at the junction of the toe and shank, two of them are carried by the two carriages 8 at the junction of the heel and 100 shank, while the remaining six are carried by the carriages 16, which also carry the rocking clamps. Each pad is carried by its carriage in the following manner: Upon the carriage are pivoted a spring-actuated bell- 105 crank 19 and a lever 20, the bell-crank and lever being connected by a link 21. A spring-pressed arm 22 carries at its forward end the pad, which is connected by a link 23 with the lever 20. To the arm 22 is pivoted a link 24, 110 which is slidably connected to the carriage. The carriages are connected, as before described, with the lower table C, which by its upward movement brings the pads 18 adjacent to the bottom of the last. Spring-pressed 115 rods 25 connect the bell-cranks 19 with the upper table A, which by the downward movement thereof draws the bell-cranks, which, through the link and lever connections described, impart a rolling motion to the pads 120 18, effecting a pressure and adhesion of the edge of the upper against the insole.

The tables A, B, B', and C are actuated by means of cams underneath the bed-plate of the machine; but as these and their connections with the tables are fully described in 125 the Patent No. 647,037 it will be unnecessary to here illustrate or describe them.

We will now describe more particularly the mechanisms which embody the invention 130 forming the subject matter of this application.

The machine herein described is designed to last both right and left shoes. The mechanisms on each side of the machine that are



provided to effect the lasting operation are precisely the same. Inasmuch as the inside of the shank of a shoe differs in contour from the outside of the shank, the inside of the shank being also hollowed out more than the outside, it will necessarily happen in the operation of the machine that the clamps and folders on one side will contact with the upper on the last before the clamps and folders on the other side. In the absence of auxiliary mechanism the clamps and folders immediately after engaging the upper would begin to exert a progressively-increasing pressure, the result of which would be that first there would be lateral pressure against only one side of the shank and subsequently an unequal pressure on opposite sides. This would effect an unequal stretching of the upper on opposite sides, and the lasting would therefore not be properly accomplished. We have provided mechanism whereby after the clamps and folders on one side are brought into contact with the last they will be prevented from exerting any substantial pressure thereupon until the clamps and folders on the opposite side are brought into contact with the last, said mechanism operating as well to shorten the time necessary to bring the later-acting clamps and folders into contact. This mechanism is as follows: On each carriage 16 and on each of the four carriages 8 contiguous to the carriages 16 at the toe and on each of the two carriages 8 contiguous to the carriages 16 at the heel is a depending link 26, pivoted to a lug 27 on the supplementary bed-plate, this link constituting the only means for supporting the carriage on the supplementary bed-plate. The links 26 of immediately-opposite carriages are connected together by means of the equalizing-bar 28, which is slotted at its ends to engage pins on the links 26. It will readily be seen that when the clamping-pad and folding-pad of any one carriage are brought into contact with the last by the rocking of the carriage on its pivotal connection with link 26 any further upward movement of the spring-pressed rod will draw the lower end of the carriage and the upper end of the link 26 outwardly, moving the equalizing-bar laterally and moving also the immediately-opposite carriage inwardly on the pivot of its link, this continuing until by the combined lateral movement of the equalizing-bar and the upward movement of its spring-pressed actuating-rod the immediately-opposite carriage is rocked to the extent necessary to bring its clamps and folders against the upper. It will readily be seen that not until then do the clamps and folders first brought in contact with the upper exert any substantial pressure thereupon and that in the subsequent operation the equalizing-bars insure an equal and opposite pressure being exerted by immediately opposite clamps and folders carried by the specified carriages.

It is necessary, as before stated, to withdraw the crimping-bars preparatory to actu-

ating the five folders at the toe and the five folders at the heel, which are arranged alternately to the crimpers. We shall first describe the devices for moving the crimpers inward. 29 is a stand or frame secured to the supplementary bed-plate. 30 is a slide or block adapted to slide in guides on said frame. To this block the crimper is secured. 31 is a bell-crank pivoted on the frame 29 and having a rounded head at the end of one arm, which fits into an orifice in the block 30. The other arm of the bell-crank is pivoted to a rod 32, which extends down through an orifice in the lower table C, the operating pressure being applied through the spring 33 to cushion its action. The upward movement of the rod 32 tilts the bell-crank and moves the crimping-bar inward, as shown and described in said Patent No. 647,037. To retract the crimpers, we provide the following mechanism: 34 is a bell-crank pivoted to the frame 29, one arm of which is pivoted to a rod 35, which extends down through the upper table A. The other arm of the bell-crank 34 engages the end of lever 36, intermediately pivoted on the bell-crank 31. The opposite end of lever 36 engages a fixed stop or abutment 37 on the frame 29. When in the operation of the machine the upper table has moved down to a distance sufficient to engage the washer on the lower end of rod 35, the rod 35 is depressed, rocking the bell-crank 34 and moving out the lower end of lever 36. As the upper end of lever 36 is prevented from moving inwardly by its engagement with the frame 29, the upper arm of bell-crank 31 is swung out to withdraw the crimper, the spring 33 yielding to permit the rod 32 to be depressed.

We shall now describe the construction of the toe-nippers 4 and their actuating mechanism.

38 is a block to which are secured the side pieces 39. Pivoted on a rod 43, joining the upper ends of the side pieces, is the member 40, having the jaw 41 and a cam-slot 42. In the slot 42 is a block or roller 47<sup>a</sup>, said block or roller being substantially the width of slot 42. Pivoted on the rod 43 is the bifurcated member 44, embracing the member 40, having the jaw 45 and the cam-slots 46, said slots being at an angle with slot 42. Extending through slots 42 and 46 and block 47<sup>a</sup> is the pin 47, connecting the upper ends of the side pieces 48, the lower ends of which are secured to a block 49, slidable on the side pieces 39. The pin 47 is of size sufficient to substantially fill the slots 46, forming blocks or rollers in said slots 46.

50 is a block between the side pieces 39, and 51 a dog-spring connected with the block 50 and adapted to engage the inset 51<sup>a</sup> on the member 40 to limit the extent of outward and upward movement of the member 40 on its pivotal support. Secured to the block 38 is a tube 52. Projecting downwardly from the block 49 are the rods 53 and 54. The rod 54 extends through one side of the block 38. The



rod 53 extends through the block 38 and tube 52, as well as through upper table A and horizontal plates 55 and 56, and has a loose washer 57, which normally rests underneath plate 55, and a tight washer 58, which normally rests above the plate 56.

59 is a block which rests upon the upper table A and through which extends the lower ends of tube 52 and rod 54.

60 is a nut on the lower extremity of tube 52 and abutting against the under surface of block 59.

61 is a spring interposed between blocks 38 and 59 and surrounding the tube 52.

62 is a spring interposed between blocks 49 and 59 and surrounding the rod 54.

63 is a spring interposed between washers 57 and 58 and surrounding the rod 53. The plates 55 and 56 are secured together to act as one and may be made of a single casting.

64 is a bolt extending through the central table B and plate 55. Surrounding the bolt is a spring 65.

66 is a foot-treadle pivoted on the frame of the machine.

67 is a rod connecting the foot-treadle with the bell-crank 68, pivoted on the frame of the machine, one arm being connected to the rod 67 and also to the rod 67<sup>a</sup>, the other end of which is connected to the plate 56.

69 is a spring-pressed locking-lever having a detent 70. When the treadle is depressed to operate the toe-pincers, as will be hereinafter described, the bell-crank 68 engages and depresses the lever 69 until it passes beyond detent 70, whereupon lever 69 springs back into its normal position and locks the bell-crank from returning after the pressure upon the foot-treadle is removed.

When the treadle is depressed, the first operation is to draw upon the block 49 against the action of the comparatively-light spring 62, thereby swinging the nipper-jaw members and their directly-actuating parts from the position shown in Fig. 6 successively into the positions shown in Figs. 8 and 9. The same movement of the treadle necessarily compresses spring 65. Further movement of the treadle through the medium of spring 63 draws down upon the nippers bodily, compressing spring 61 and necessarily further compressing spring 65.

When the machine starts, the table B will first move downward until it is opposite the plate 56, permitting the spring 65 to expand. Before table B has reached this position the upper table A is caused to move downward, the spring 61 by the expansion forcing the block 59 to follow up the table A. The tables then move down together. Further downward movement of table B draws down plates 55 and 56. The rod 53 is further depressed, drawing down the nippers still farther until the upper is stretched tightly over the last. Further downward movement of table A permits the spring 61 to expand to its fullest extent. After the leather is stretched as tightly

as possible any further movement of table B will merely compress spring 63. Both tables then remain stationary for an instant until the clamps have reached their limit of movement. Table B is then caused to move upwardly, permitting the spring 63 to expand to its full extent. Further upward movement of table B carries up the rod 53 and block 49, permitting spring 62 to expand and opening the jaws of the nippers. After the table B has reached its lowermost position and before it has moved in its upward movement to a point opposite the plate 56 the foot-treadle is released by the following mechanism: 71 is a projecting cam fastened to one of the cams 72 for operating one of the tables. This cam is in alinement with the locking-lever 69 and at the proper time engages locking-lever 69, unlocking bell-crank 68 and disengaging the foot-treadle and holding it disengaged until the rod 53 is moved up, as before described. After the nippers are released both tables move down together, carrying the nippers out of the road to permit the folders to be operated.

Having now fully described our invention, what we claim, and desire to protect by Letters Patent, is—

1. In a machine for lasting shoes, the combination with devices for acting upon the upper on opposite sides of the machine, of actuating mechanism for moving each of said devices inwardly toward the last, said mechanism being secured to the machine so as to be pivotally movable thereon and a bar connecting the actuating mechanisms on opposite sides adjacent to their pivotal connections, whereby when one of said devices contacts with the last further movement of its actuating mechanism will advance toward the last the device upon the opposite side.

2. In a machine for lasting shoes, the combination, with the pads for directly acting upon the upper on opposite sides of the machine, carriages upon the upper inner ends of which said pads are carried, said carriages being pivoted at their lower inner ends, mechanism connecting the carriages together and for swinging the carriages to advance said pads, and means for actuating said mechanism, whereby when the pads on one carriage are held from further inward movement said mechanism will be actuated to swing only the opposite carriage.

3. In a machine for lasting shoes, the combination with pads for directly acting upon the upper on opposite sides of the machine, swinging carriages upon which said pads are carried, a connection between said carriages whereby when the pads on one carriage are held from further inward movement the said carriage will swing and actuate said connection to advance the opposite carriage, and means for operating said carriages and connections.

4. In a machine for lasting shoes, the combination with pads for directly acting upon



the upper on opposite sides of the machine, carriages upon the upper inner ends of which said pads are carried, links depending from the lower inner ends of said carriages, said links being pivoted on the machine, means 5 connected to the outer ends of said carriages for swinging the same, and a bar connecting the links on opposite sides of the machine.

5. In a machine for lasting shoes, the combination with a frame for supporting the operating parts, a series of clamp-bars adapted to be brought into contact with the leather upon the last, a series of crimping-bars for turning certain portions of the depending 15 leather inward, a series of folding-bars for carrying said leather inward against the insole carried by the last, mechanism for retracting said crimping-bars to permit the folding-bars to operate, and means for effecting said movements.

6. In a machine for lasting shoes, the combination with a frame for supporting the operating parts, a series of stretchers for drawing the leather downward, a series of clamps 25 adapted to be brought into contact with the leather upon the last, a series of crimping-bars for turning certain portions of the depending leather inward, a series of folders for carrying said leather inward against the insole carried by the last, mechanism for retracting said crimpers to permit the folders to operate, and means for effecting said movements.

7. In a machine for lasting shoes, the combination with a frame for supporting the operating parts, of guides in the frame, a series of crimping-bars slidable in said guides, a lever engaging each of said crimping-bars, a spring-pressed rod for actuating said lever 40 to move said bar inwardly to turn a certain portion of the depending leather inwardly, a second lever connected with the first-named lever, and means for actuating the second lever to return the first lever toward its initial position against the action of its spring-pressed actuating-rod, and retract said crimping-bars.

8. In a machine for lasting shoes, the combination with a frame for supporting the operating parts, of guides on the frame, a series of crimping-bars slidable on said guides, bell-cranks, each of which engages one of said crimping-bars, a spring-pressed rod for actuating said bell-crank to move said bar inwardly, a lever pivoted on said bell-crank and engaging the frame, a lever pivoted on the frame and engaging the first-named lever, and means for actuating the second lever.

9. In a machine for lasting shoes, a nipper comprising a jaw member, having a slot, a block in said jaw member of substantially the width of the slot, a second opposing bifurcated jaw member embracing the first-mentioned jaw member and provided with slots 65 at an angle with the slot in the first-mentioned jaw member, blocks in the slots in the

bifurcated jaw member, a movable rod carrying said blocks on a common axis.

10. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, each of said members having a slot, the slots in the two jaw members being at an angle with each other, and a rod engaging both of said slots and slidable upon the supporting-bar.

11. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, each of said members having a slot, one of said slots having straight faces, the other curved faces locking means 80 on the supporting-bar adapted to engage one of said jaw members, and a rod engaging both of said slots and slidable upon the supporting-bar.

12. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, each of said members having a slot, one of said members having an inset, a block on said supporting-bar, a dog spring-connected with said block and adapted to engage said inset, and a rod engaging both of said slots and slidable upon said supporting-bar.

13. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, both of which are movable, slots on both of said jaw members, the slot on one jaw member being curved and the slot on the other jaw member being straight, a rod engaging said slots and a retarding device 100 acting against the movement of the jaw having the straight slot, whereby the movement of the rod in one direction operates only the jaw with the curved slot until the rod reaches the end of the straight slot, thereby first closing the jaws and then swinging both jaw members simultaneously on their pivot.

14. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, both of which are movable, cams on both of said jaw members and a rod engaging said cams and adapted, when actuated to successively move one of said jaw members toward the other to close the jaws and then swing both members simultaneously on their pivots, in combination with a block slidable upon the supporting-bar, said rod being connected to said block, a tube connected to said supporting-bar, a rod connected to said block, and extending alongside 120 of said tube, a block through which the last-named rod and the tube extend, springs surrounding said rod and tube, a movable table over which the last-named block rests, two horizontal plates rigidly connected together, 125 a rod connected to the first-named block extending down through said tube and said horizontal plates, a fixed collar and a loose collar on the last-named rod between said horizontal plates, a spring surrounding the last-named rod between said collars, a second movable table, a bolt connecting it loosely 130



with the upper horizontal plate, a spring surrounding said bolt, a manually-operated lever, and a rod connecting the lower horizontal plate with the manually-operated lever.

5 15. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, both of which are movable, cams on both of said jaw members and a rod engaging said cams and adapted when  
10 actuated to successively move one of said jaw members toward the other to close the jaws and then swing both members simultaneously on their pivots, in combination with a manually-operated lever, and a connection be-  
15 tween the rod and the lever.

16. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, both of which are movable, cams on both of said jaw members and  
20 a rod engaging said cams and adapted when actuated to successively move one of said jaw members toward the other to close the jaws and then swing both members simultaneously on their pivots, in combination with a man-  
25 ually-operated lever, a connection between the rod and the lever, and automatic means for locking said lever.

17. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw mem-  
30 bers pivoted thereto, both of which are movable, cams on both of said jaw members and a rod engaging said cams and adapted when actuated to successively move one of said jaw members toward the other to close the jaws  
35 and then swing both members simultaneously on their pivots, in combination with a manually-operated lever, a connection between the rod and the lever, automatic means for locking said lever, a cam in alinement with  
40 said locking means, and means for bringing said cam, at a predetermined point in the operation of the machine, into engagement with said locking means to move the same to unlock said lever.

45 18. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaws pivoted thereto, and a rod connected with and adapted to close said jaws, a block slidable upon said supporting-bar, said rod being connected to  
50 said block, means for actuating said block to close said jaws and move said nipper bodily, and a spring against which said block is adapted to move.

19. In a machine for lasting shoes, a nipper  
55 comprising a supporting-bar, two jaws pivoted thereto, and a rod connected with and adapted to close said jaws, a block slidable upon said supporting-bar, said rod being connected to said block, means for actuating said block to  
60 close said jaws and move said nipper bodily, a block to which said supporting-bar is connected, and a spring against which the last-named block is adapted to move.

20. In a machine for lasting shoes, a nipper  
65 comprising a supporting-bar, two jaws pivoted thereto, and a rod connected with and adapted

to close said jaws, a block slidable upon said supporting-bar, said rod being connected to said block, means for actuating said block to close said jaws and move said nipper bodily, a block to which said supporting-bar is connected and springs against which said blocks are adapted to move. 70

21. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaws pivoted thereto, and a rod connected with and adapted to close said jaws, a block slidable upon said supporting-bar, said rod being connected to said block, a second rod connected to said block, plates to which the second rod extends, a fixed collar thereon, a spring surrounding the second rod between said plates and bearing against said collar, and means for operating said plates whereby said spring is actuated to move the second rod, and through it  
80 the first rod to close said jaws and move said nipper bodily. 85

22. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaws pivoted thereto, and a rod connected with and adapted to close said jaws, a block slidable upon said supporting-bar, said bar being connected to said block, a second rod connected to said block, plates to which the second rod extends, a fixed collar thereon, a spring surrounding the second rod between said plates and bearing against said collar, a table spring-connected with said plates, means to move said plates, and means to move said table and through it the plates, whereby the second rod  
90 will be moved against the action of its spring. 95

23. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaws pivoted thereto, and a rod connected with and adapted to close said jaws, a block slidable upon said supporting-bar, said rod being connected to said block, a second rod connected to said block, a movable table, a connection between the movable table and the second rod, and springs interposed in said connection. 100

24. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaws pivoted thereto, and a rod connected with and adapted to close said jaws, a block slidable upon said supporting-bar, said rod being connected to said block, means for actuating said block to close said jaws and move said nipper bodily, a block to which said supporting-bar is connected and springs against which said blocks are adapted to move. 110

25. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, both of which are movable, cams on both of said jaw members and a rod engaging said cams and adapted, when  
115 actuated, to successively move one of said jaw members toward the other to close the jaws and then swing both members simultaneously on their pivots, manual means connected with said rod to operate the same to  
120 produce the specified operation of the jaw members and move said nipper bodily down- 125



ward, and automatic means connected with and operating said rod to further draw down said nipper.

26. In a machine for lasting shoes, a nipper 5 comprising a supporting-bar, two jaw members pivoted thereto, both of which are movable, two movable tables, and devices spring-connected with said tables and engaging cams on both of said jaw members, said tables ac- 10 tuating said devices to successively move one of said jaw members relatively toward the other to close the jaws, then swing both members simultaneously on their pivots, then depress said jaw members, and then swing said 15 members back and open the jaws.

27. In a machine for lasting shoes, a nipper comprising a supporting-bar, two jaw members pivoted thereto, both of which are movable, two movable tables, devices engaging 20 cams on said jaw members adapted when op-

erated in one direction to successively move one of said jaw members toward the other to close the jaws, then swing both members simultaneously on their pivots and then depress said jaw members, and when operated in the 25 other direction to swing said members back and open the jaws, a movable table spring-connected with said devices to impart to them the specified movements, a second movable table, and springs interposed between said 30 devices and the second table.

In testimony of which invention we have hereunto set our hands, at Philadelphia, Pennsylvania, on this 4th day of October, 1899.

WM. SELLERS.

J. SELLERS BANCROFT.

Witnesses:

M. F. ELLIS,

M. M. HAMILTON.