

No. 824,569.

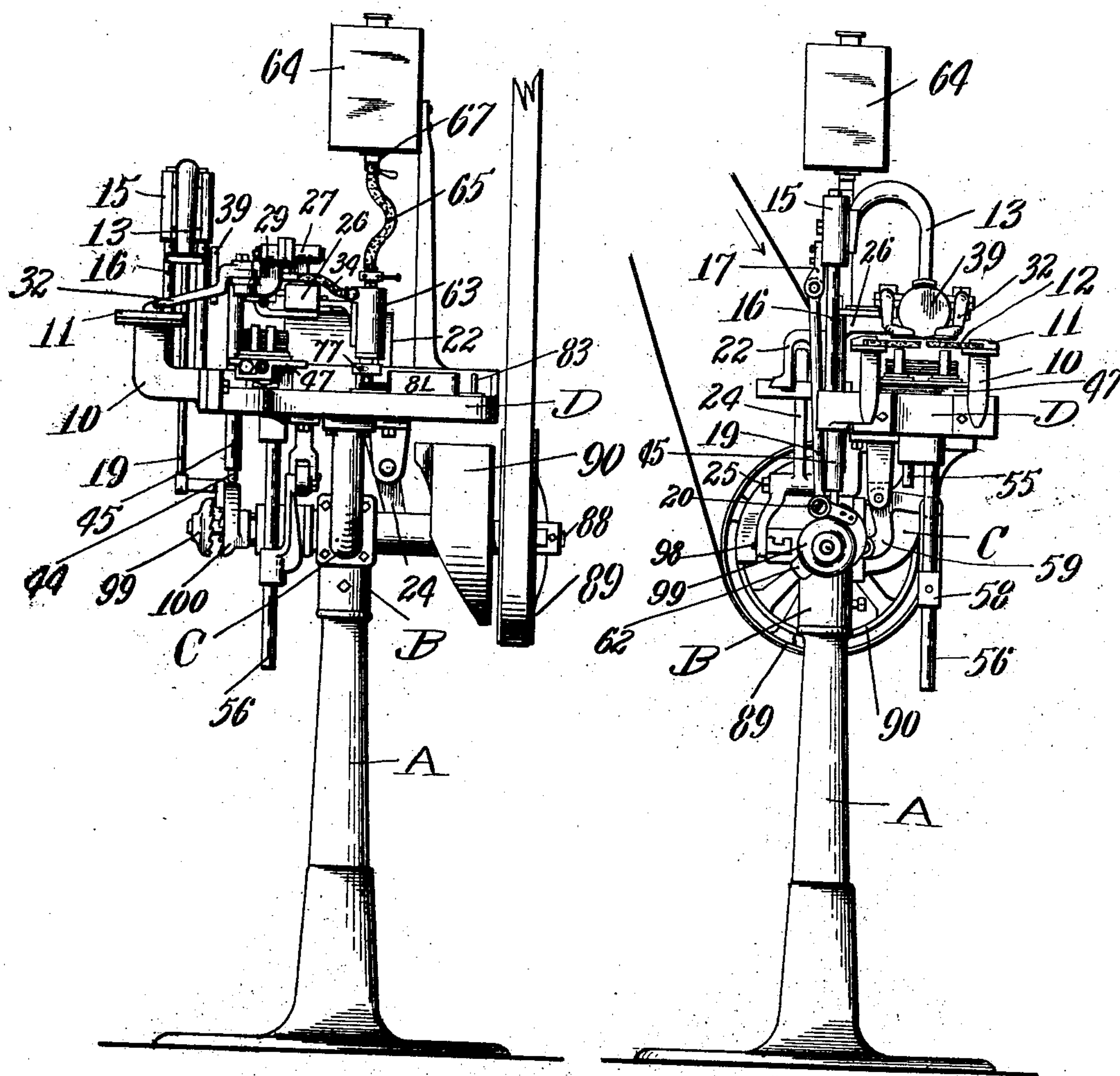
PATENTED JUNE 26, 1906.

N. MUSLAR.
BOTTLE LABELING MACHINE.
APPLICATION FILED OCT. 22, 1903.

6 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.



Witnesses:
C. F. Mason.
M. E. Quinn.

Inventor:
N. Muslar.
By his Attorneys.

Smithgate & Smithgate

No. 824,569.

PATENTED JUNE 26, 1906.

N. MUSLAR.
BOTTLE LABELING MACHINE.
APPLICATION FILED OCT. 22, 1903.

6 SHEETS—SHEET 2.

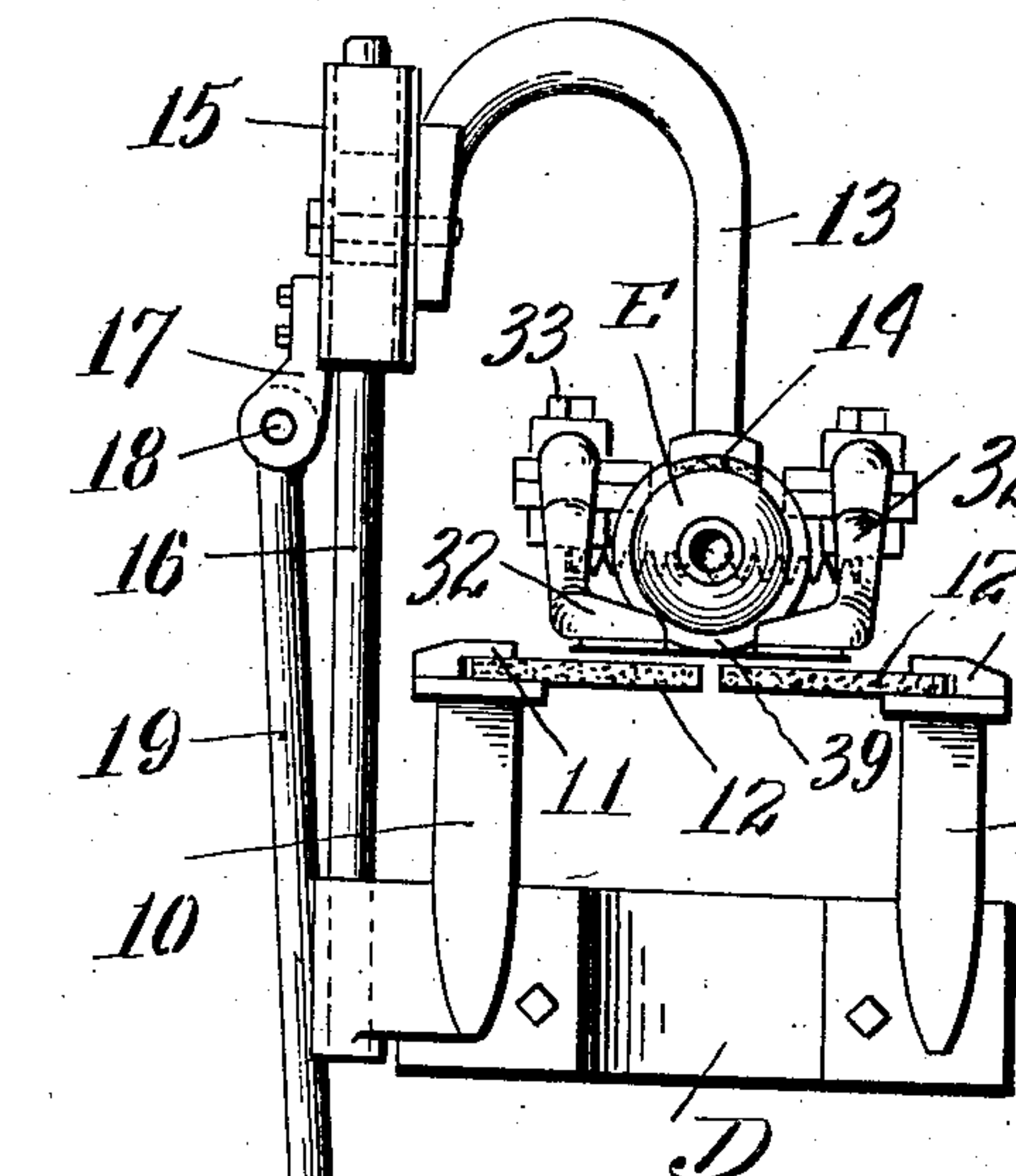


Fig. 3.

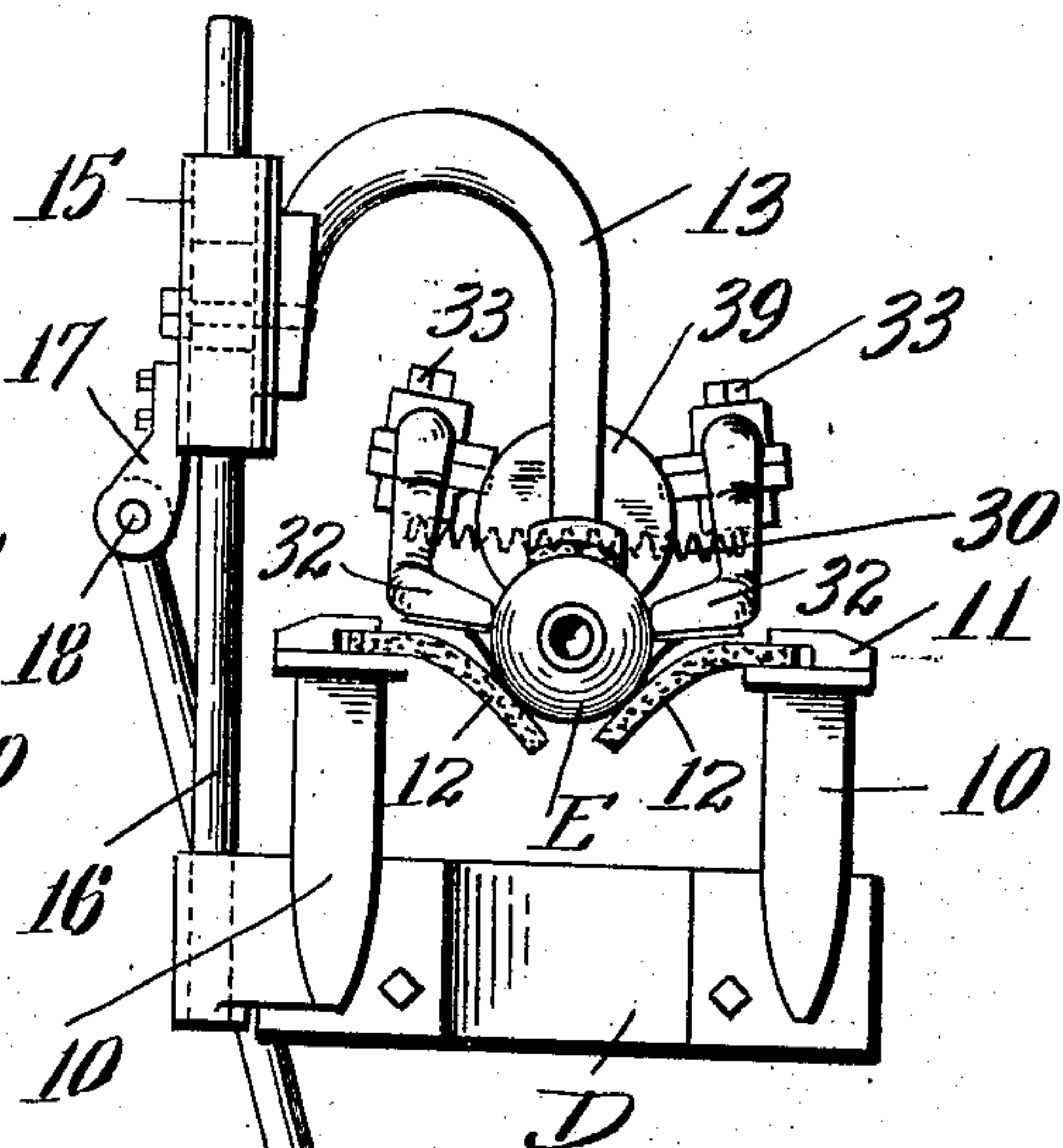


Fig. 4.

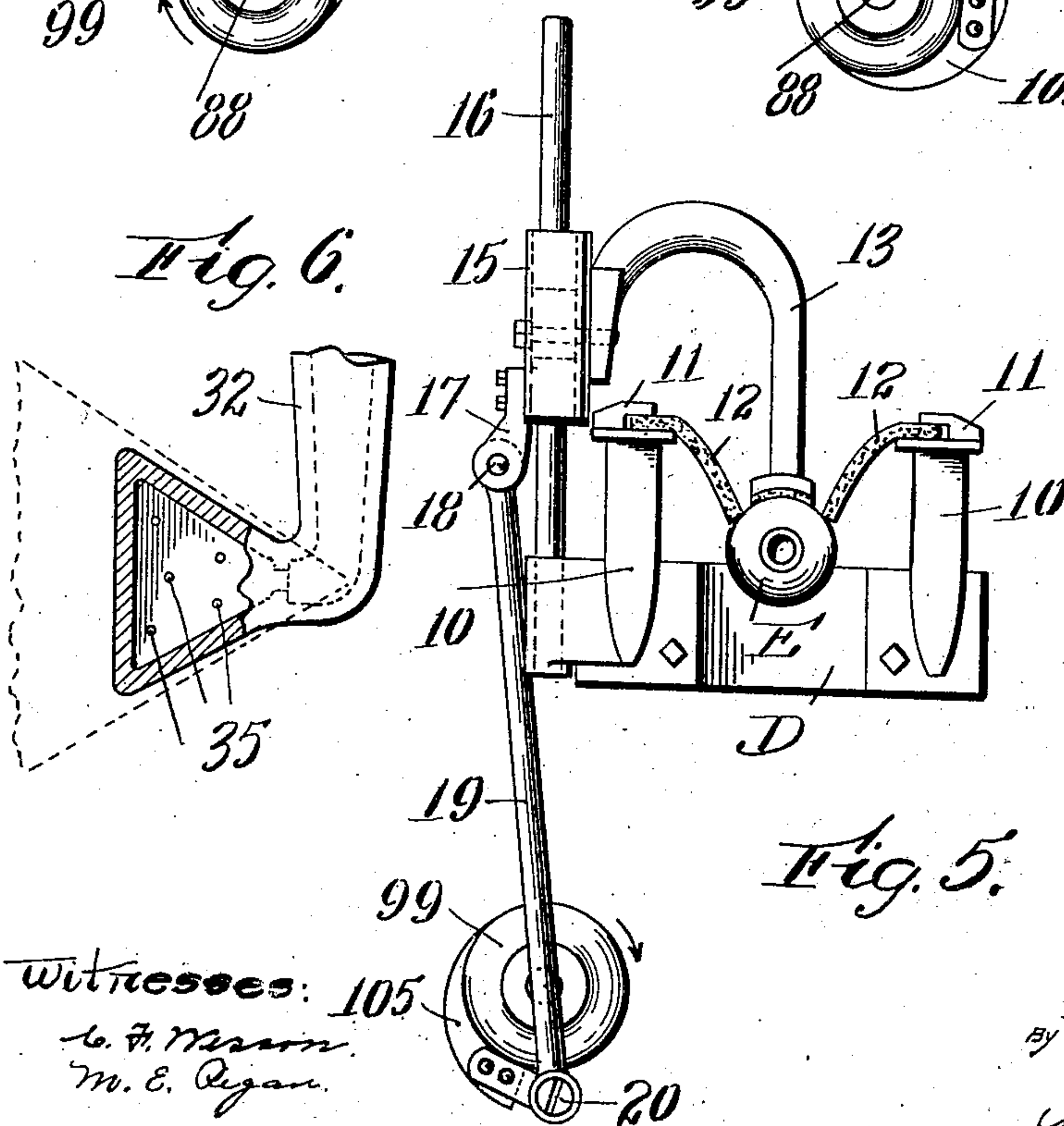


Fig. 5.

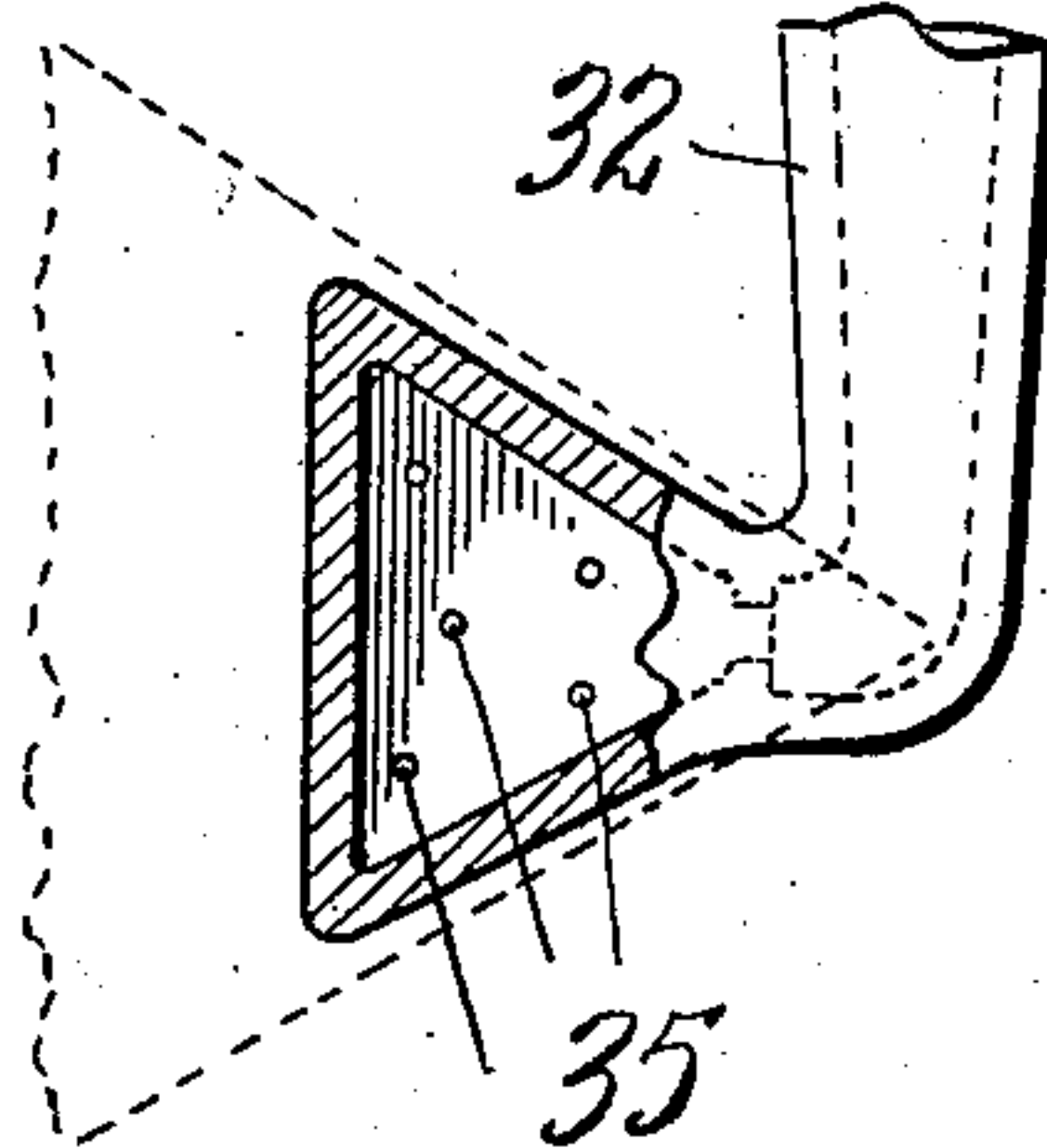


Fig. 6.

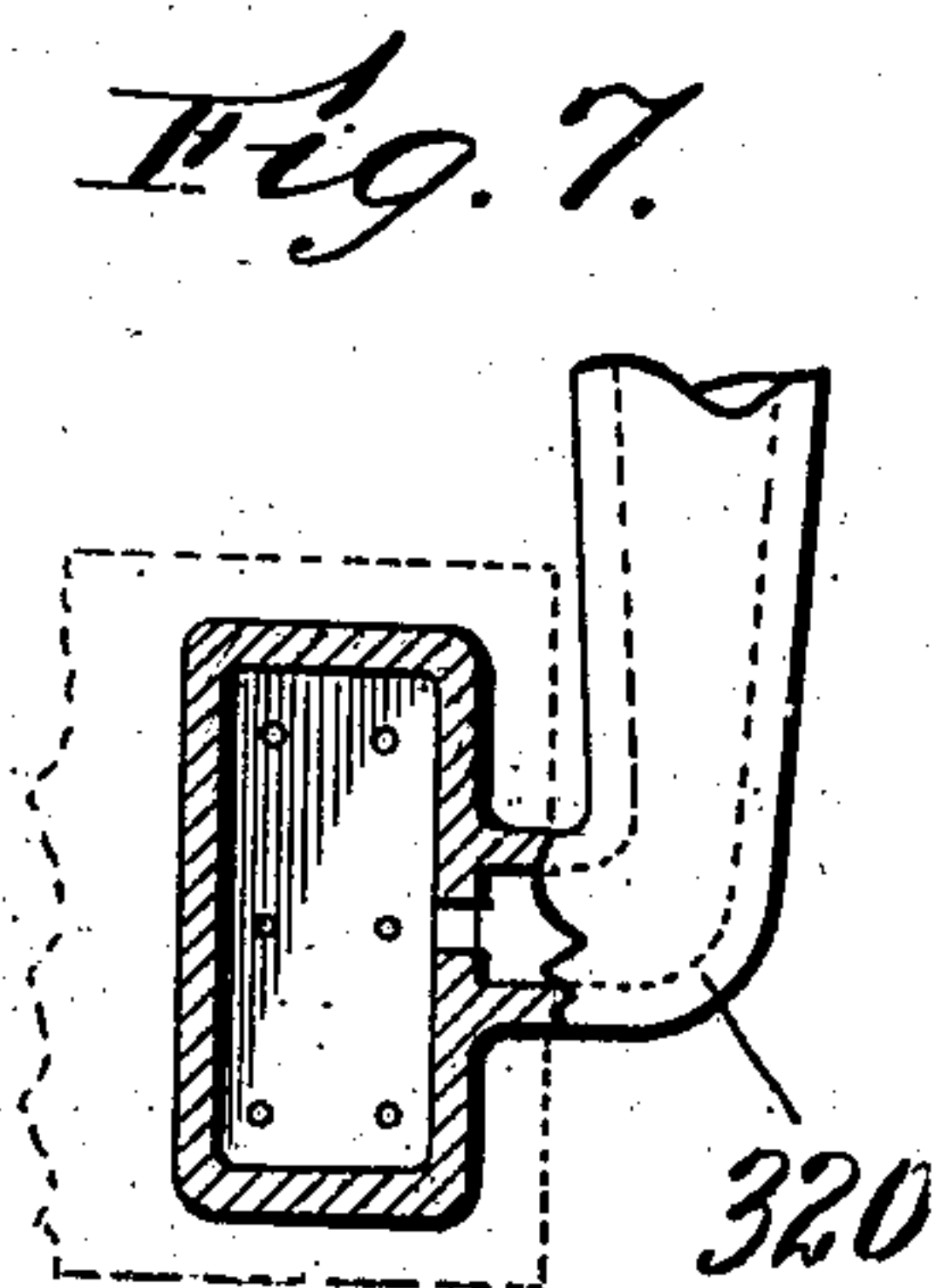


Fig. 7.

Witnesses:
G. F. Mason.
M. E. Regan.

Inventor:
N. Muslar.
By his Attorneys.

Luthig & Luthig

No. 824,569.

PATENTED JUNE 26, 1906.

N. MUSLAR.
BOTTLE LABELING MACHINE.

APPLICATION FILED OCT. 22, 1903.

6 SHEETS—SHEET 3.

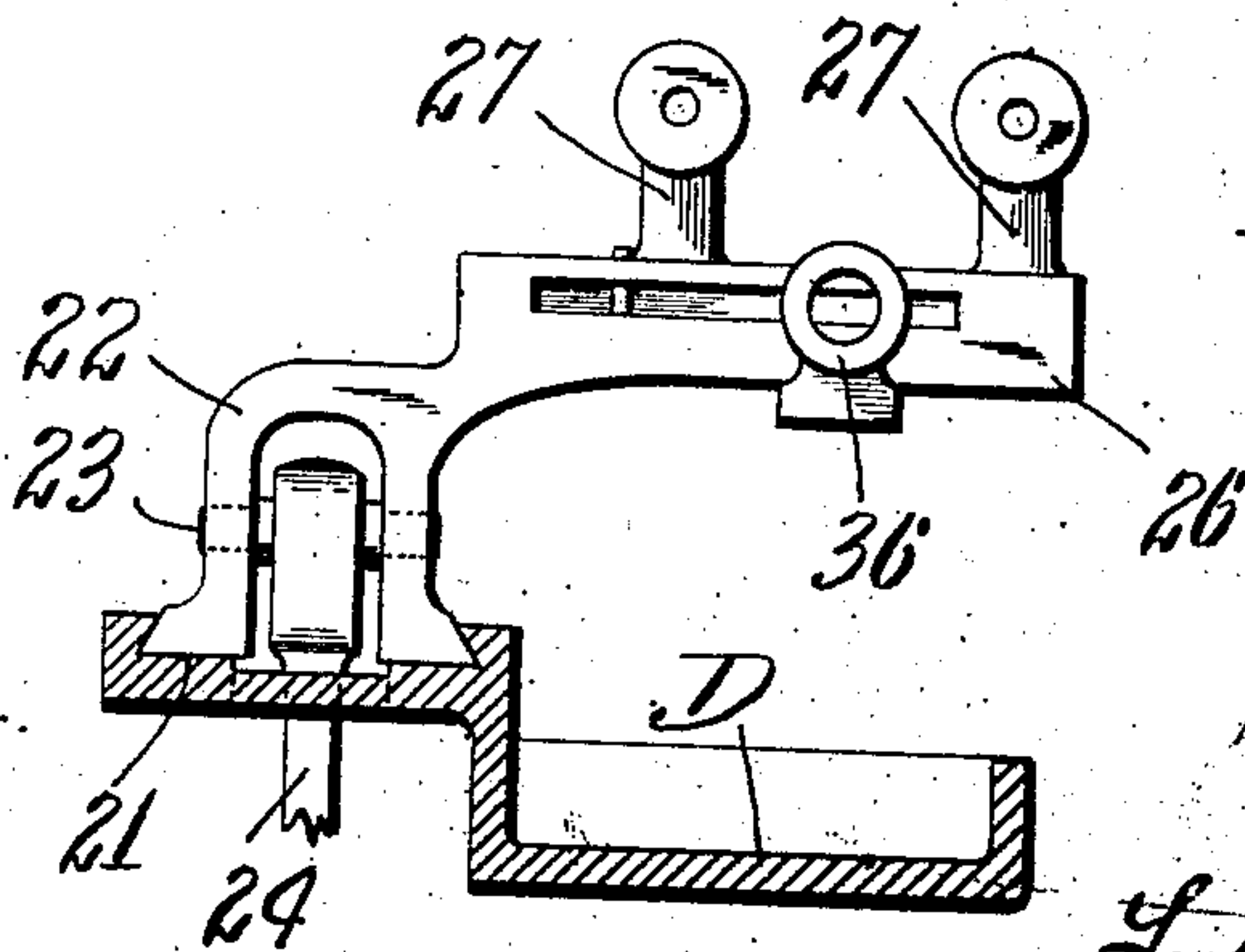
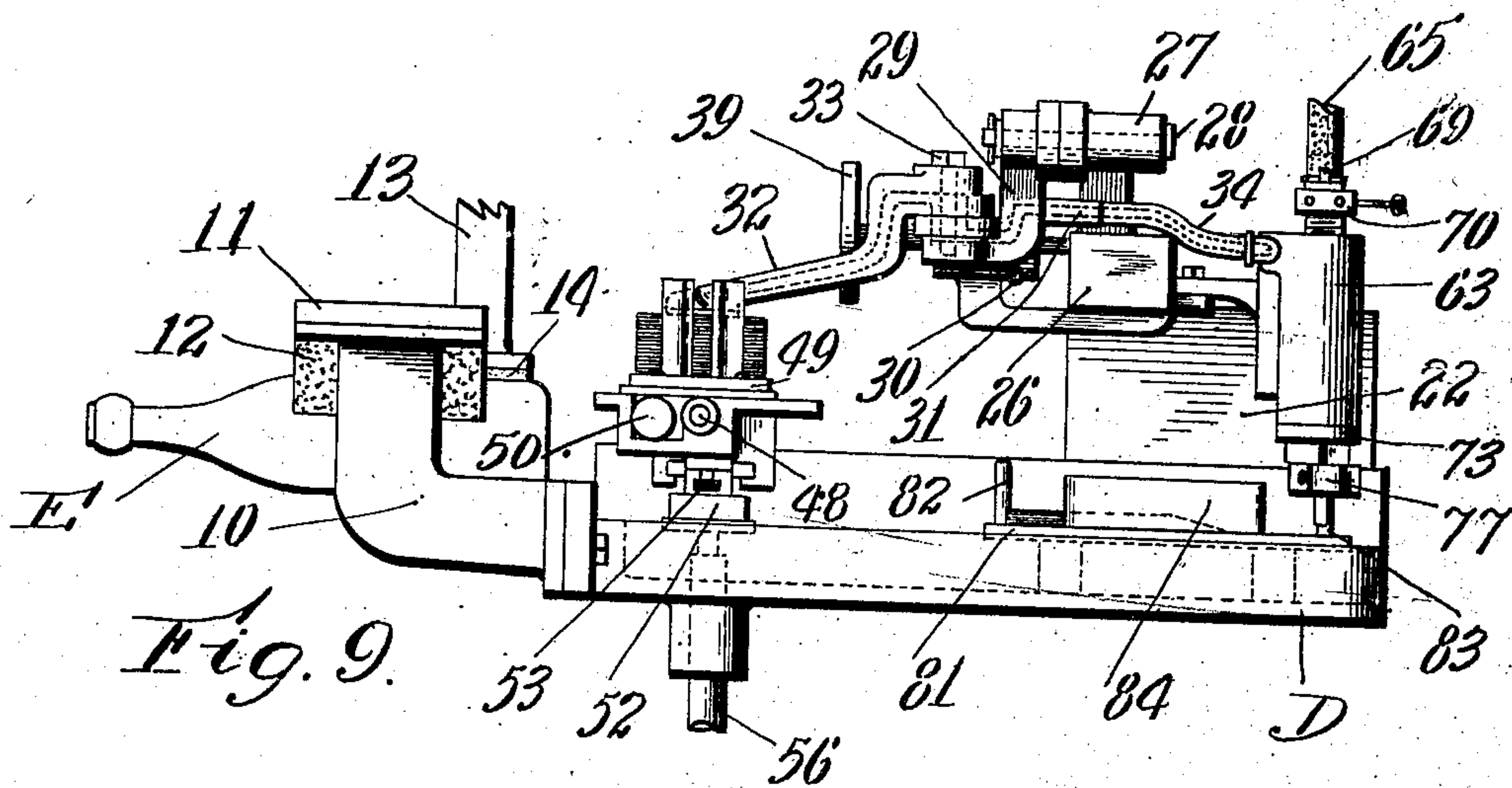
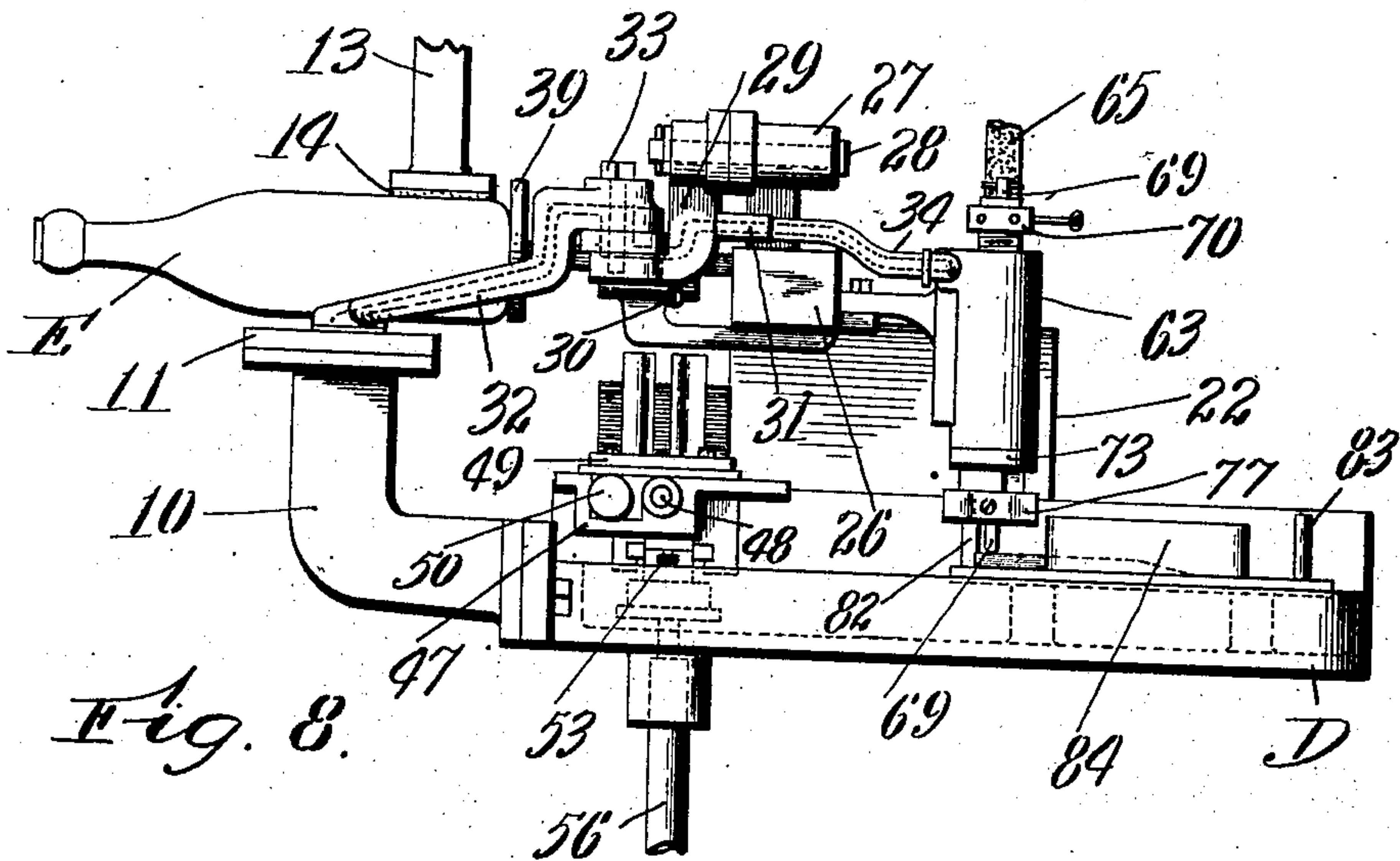


Fig. 10.

Witnesses:
C. F. Mason.
W. C. Ryan.

Inventor:
N. Muslar.
By his Attorneys.

Smith & Smith

No. 824,569.

PATENTED JUNE 26, 1906.

N. MUSLAR.
BOTTLE LABELING MACHINE.

APPLICATION FILED OCT. 22, 1903.

6 SHEETS—SHEET 4.

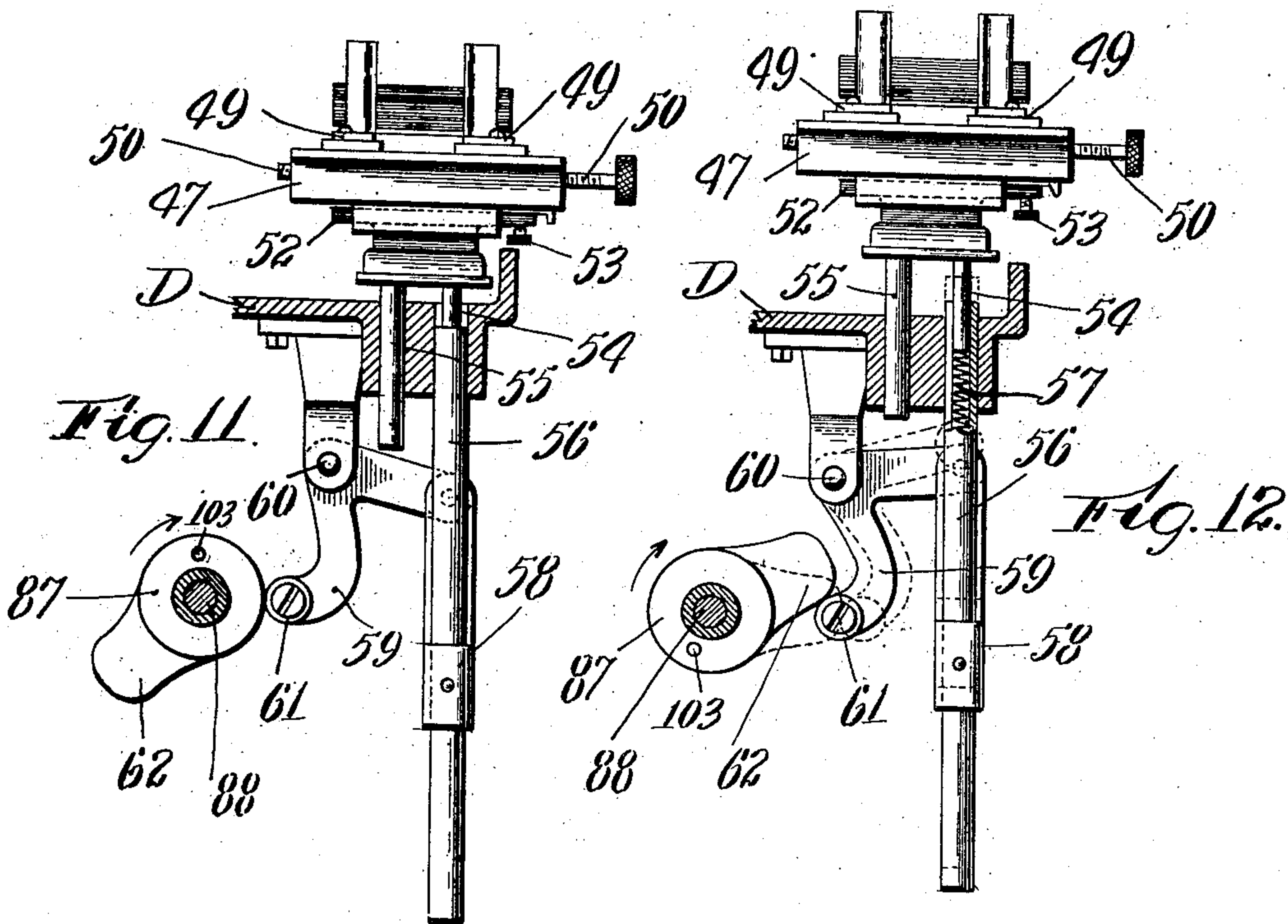
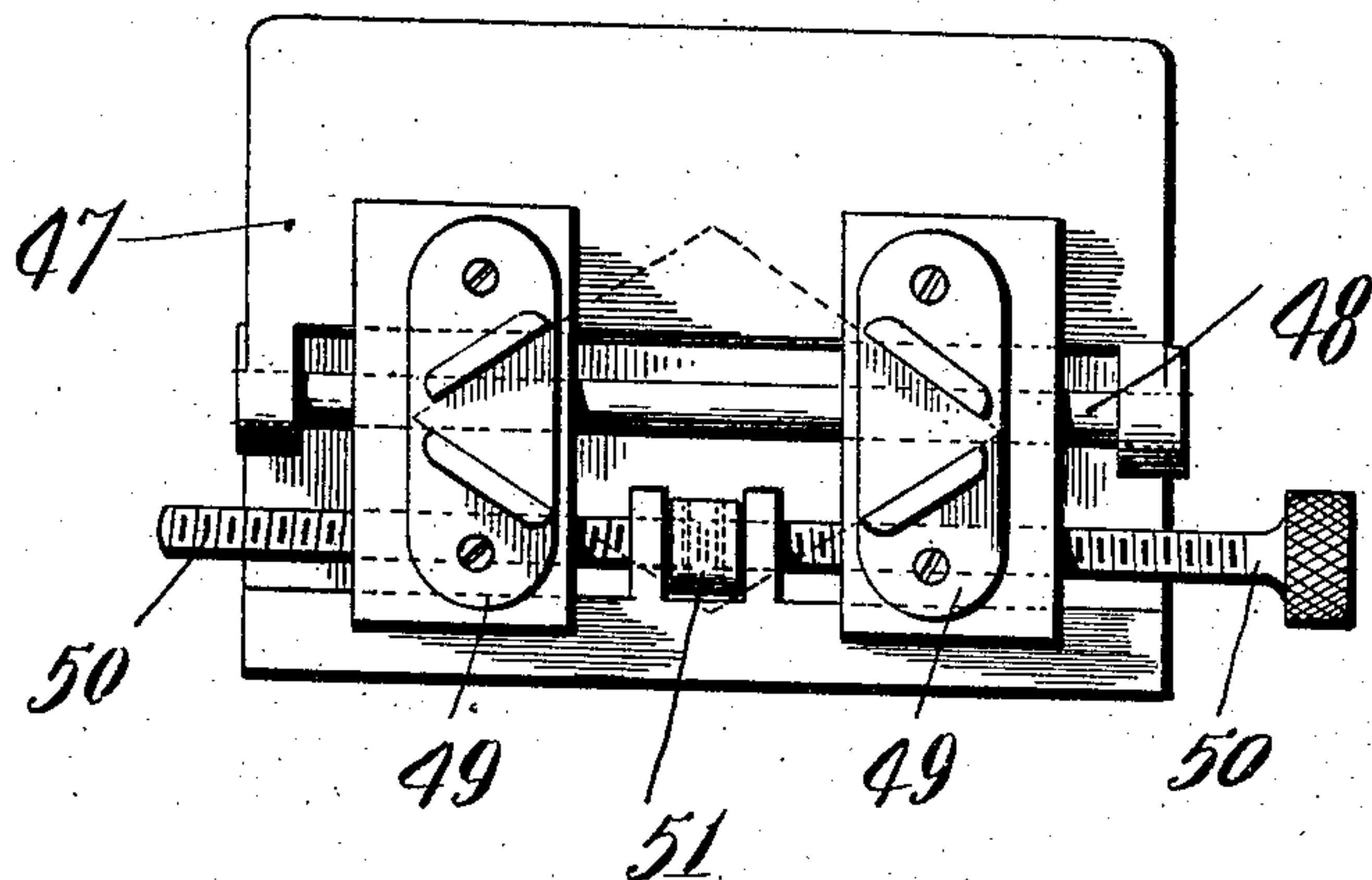


Fig. 13.



Witnesses:
C. F. Nasson,
M. E. Regan.

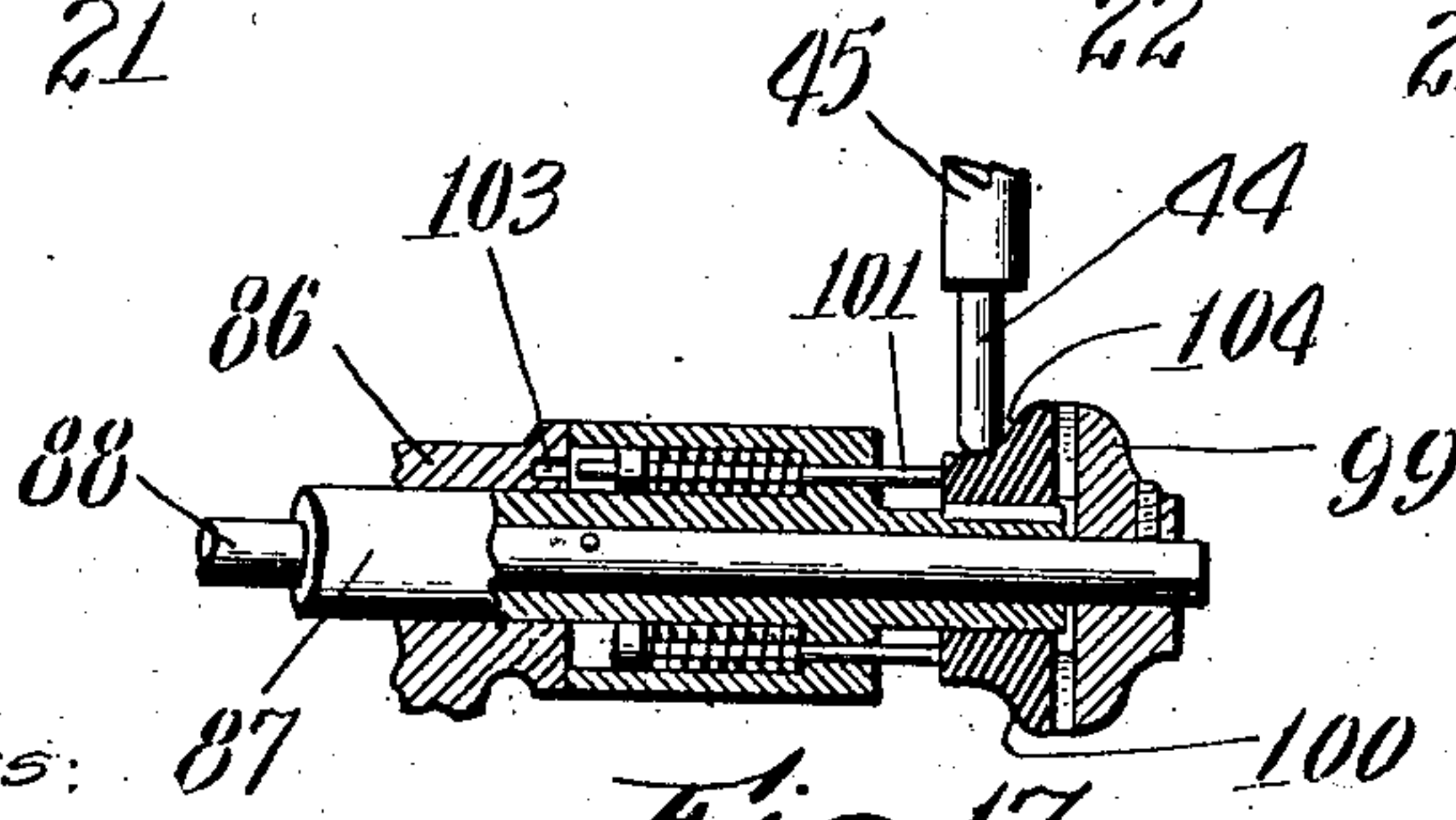
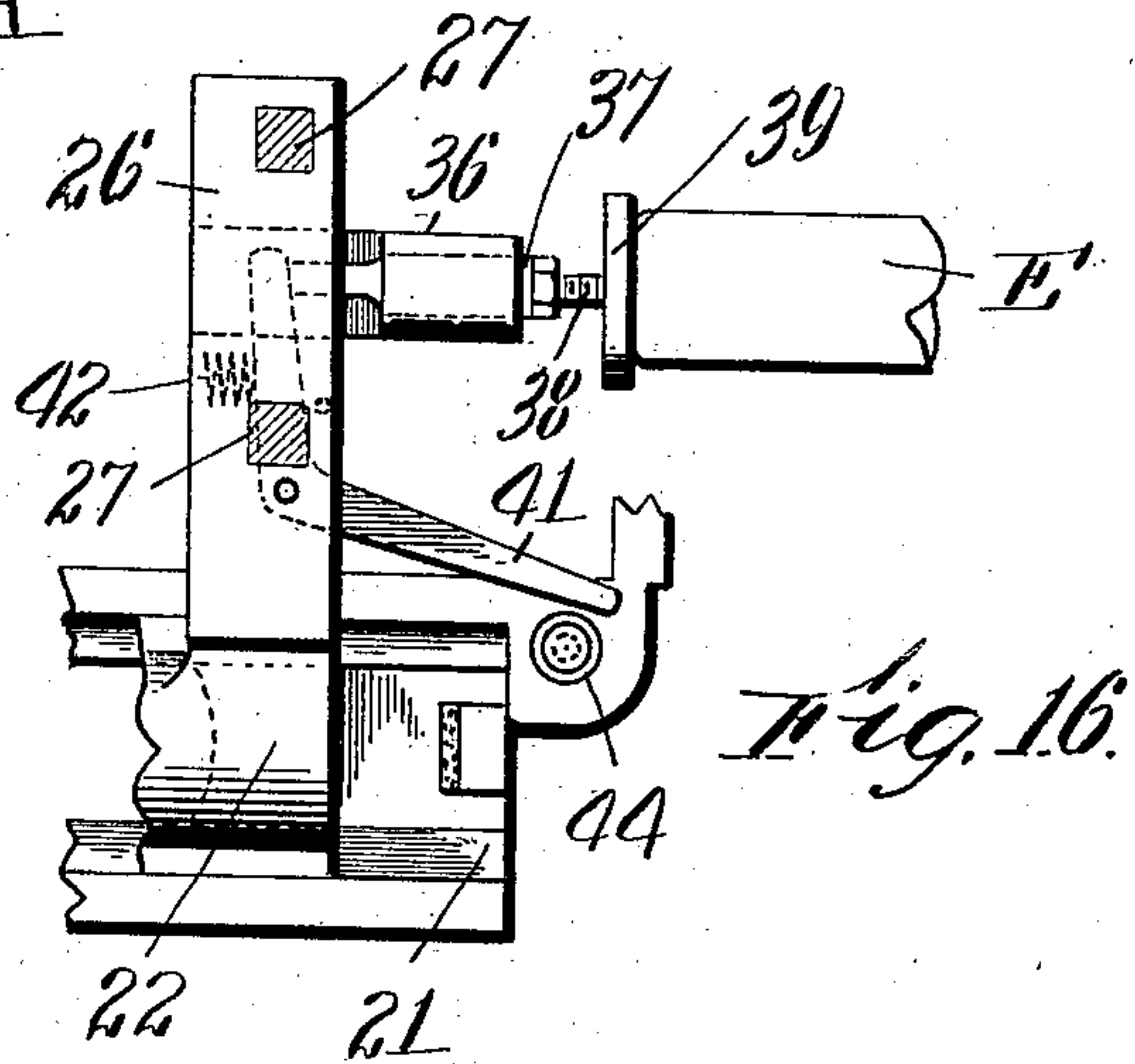
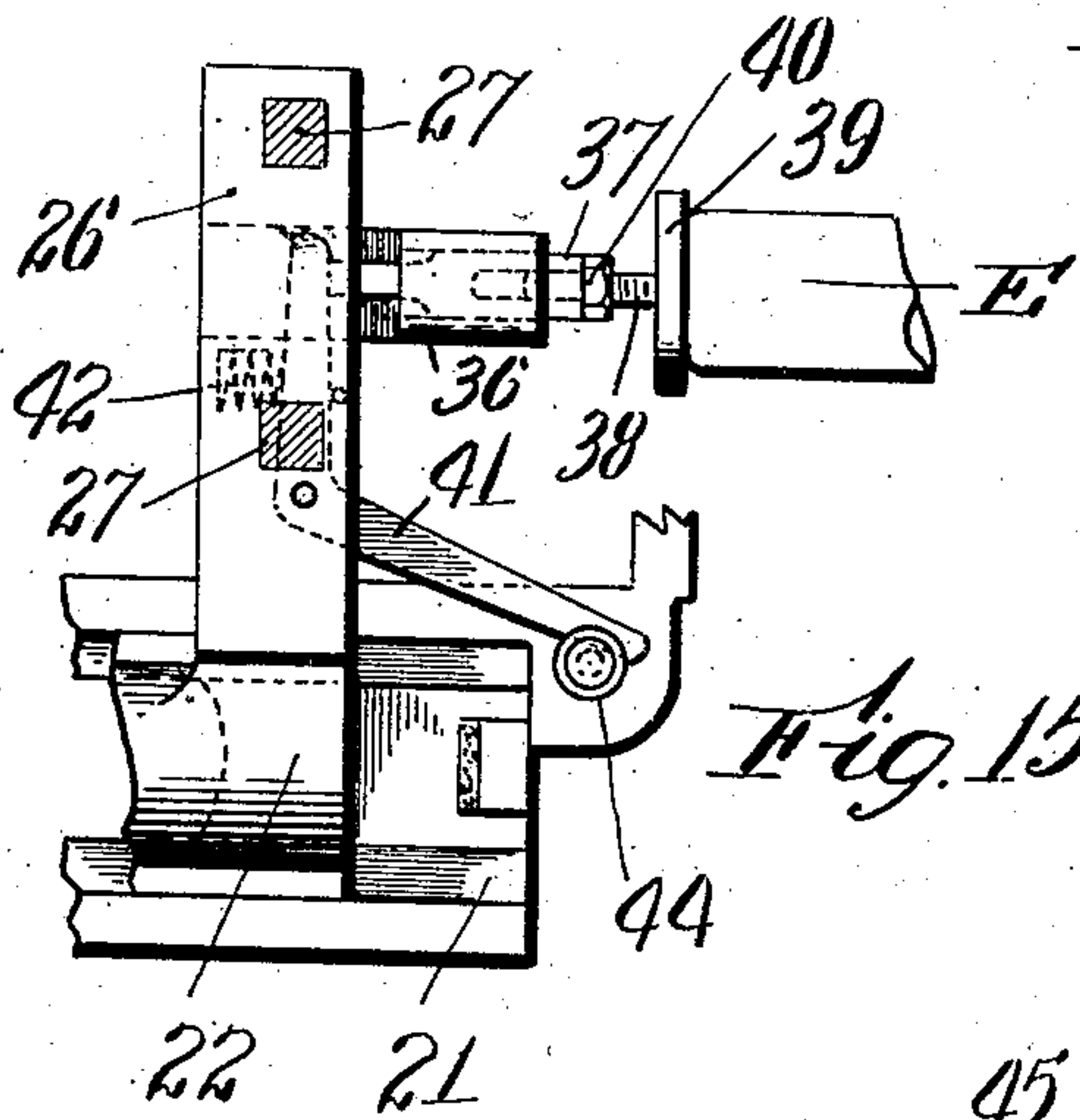
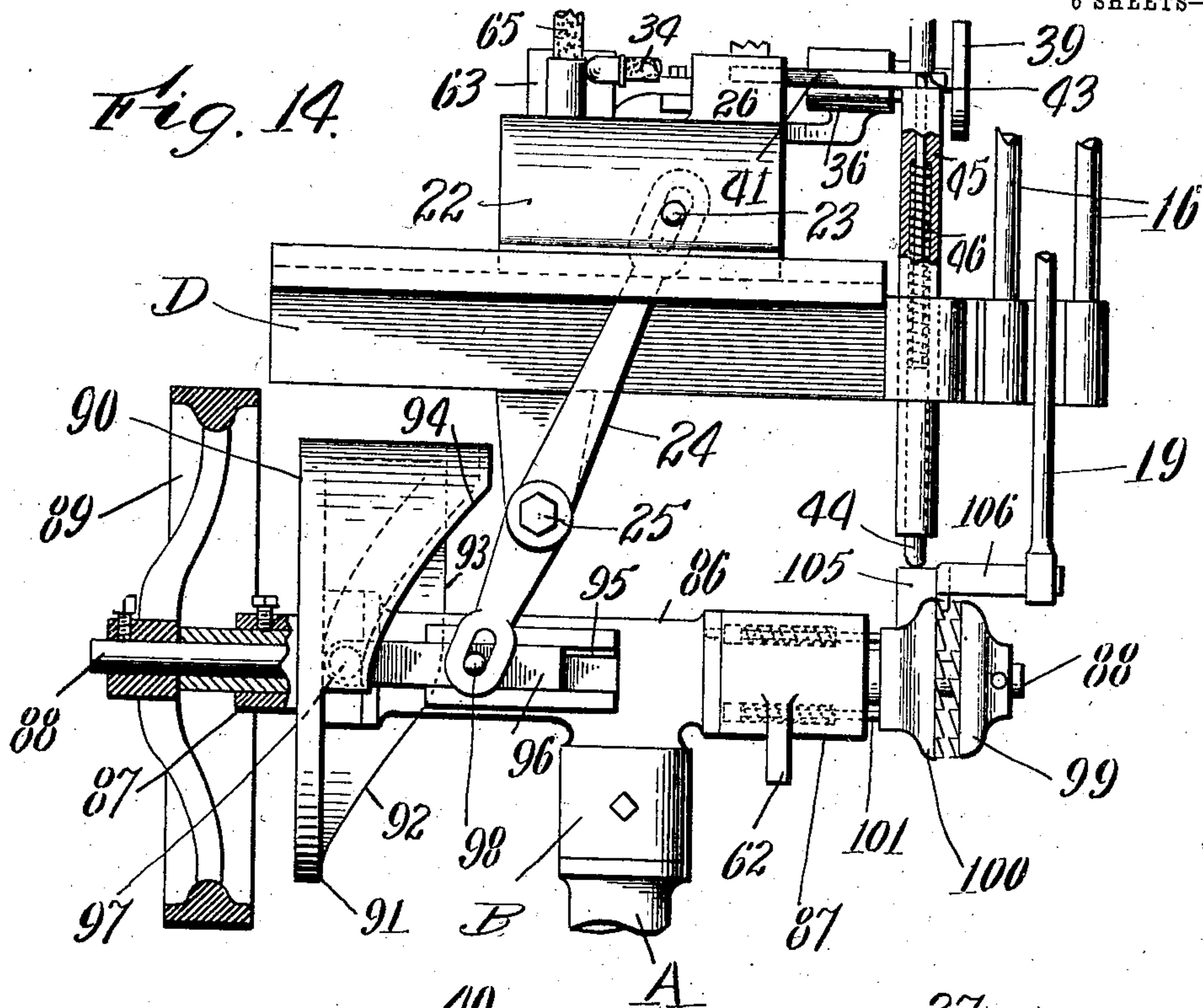
Inventor:
N. Muslar.
By his Attorneys,
Louthgale & Louthgale.

No. 824,569.

PATENTED JUNE 26, 1906.

N. MUSLAR.
BOTTLE LABELING MACHINE.
APPLICATION FILED OCT. 22, 1903.

6 SHEETS—SHEET 5.



Witnesses:
J. F. Wiersma.
M. E. Regan.

Inventor:
N. Muslar.
By his Attorneys.

Smithgate & Smithgate

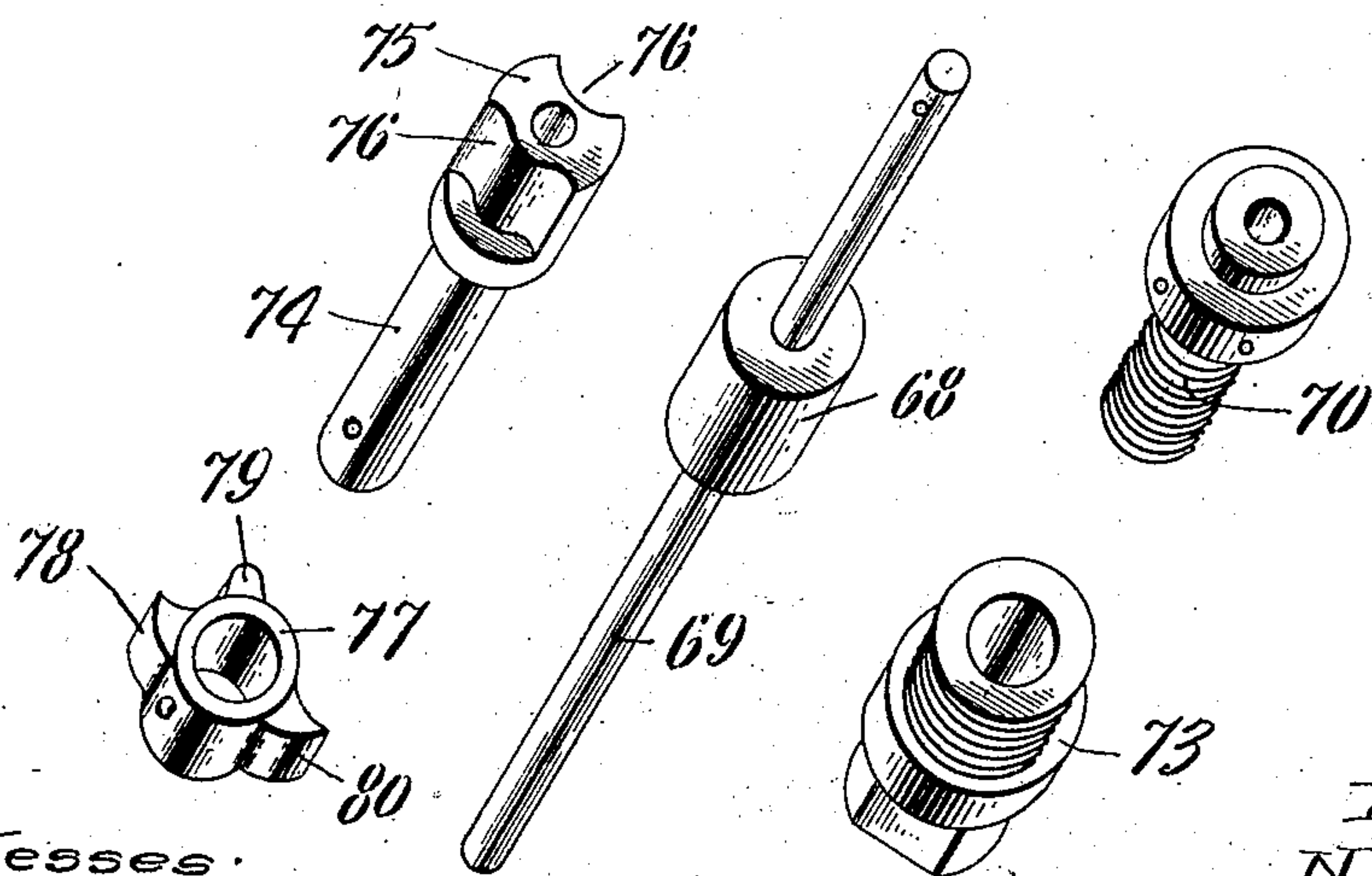
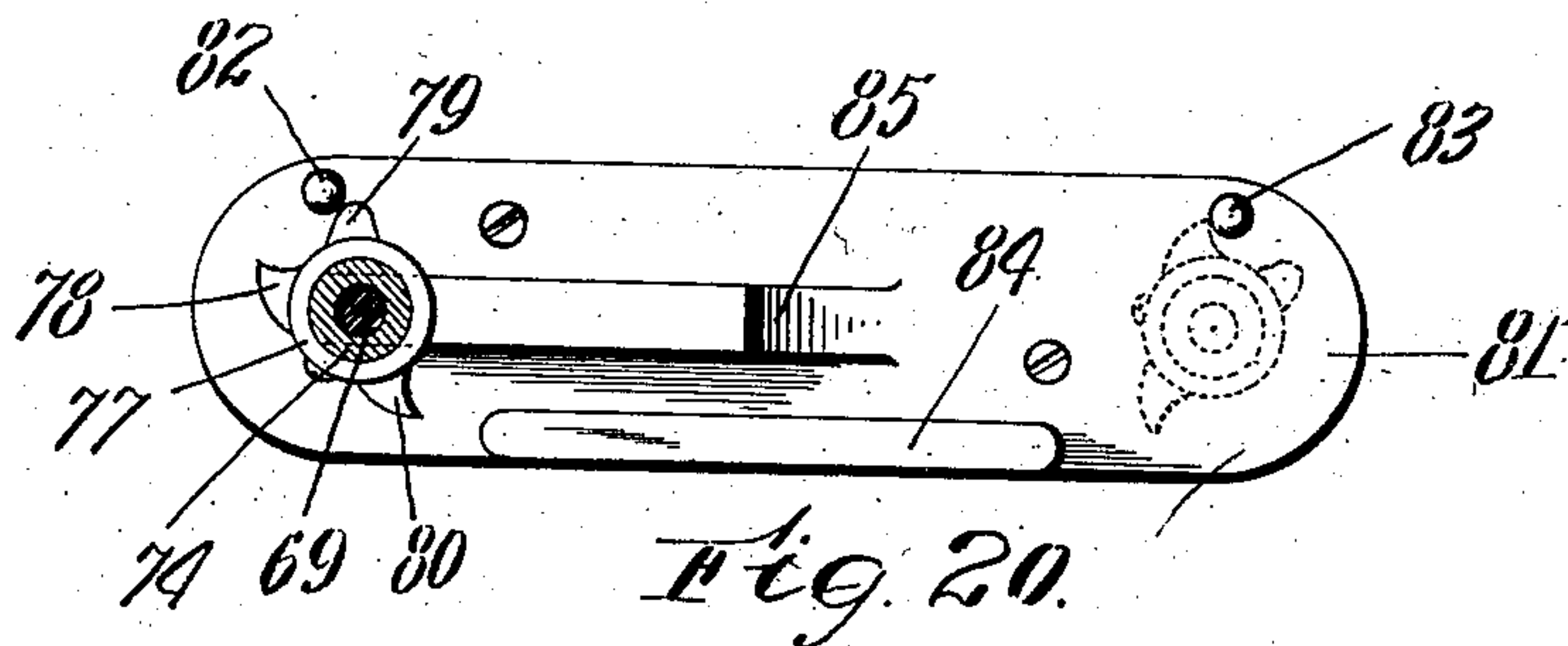
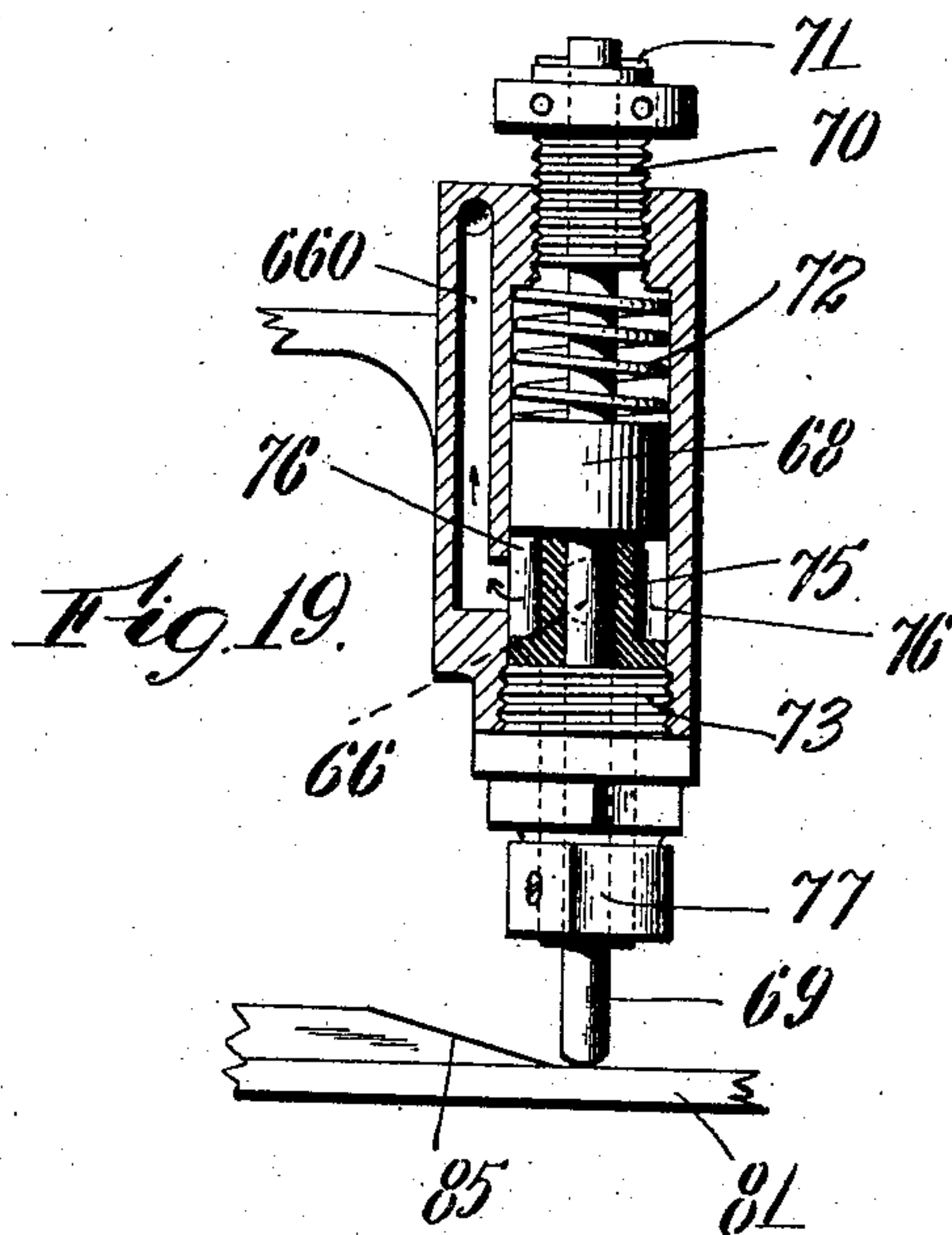
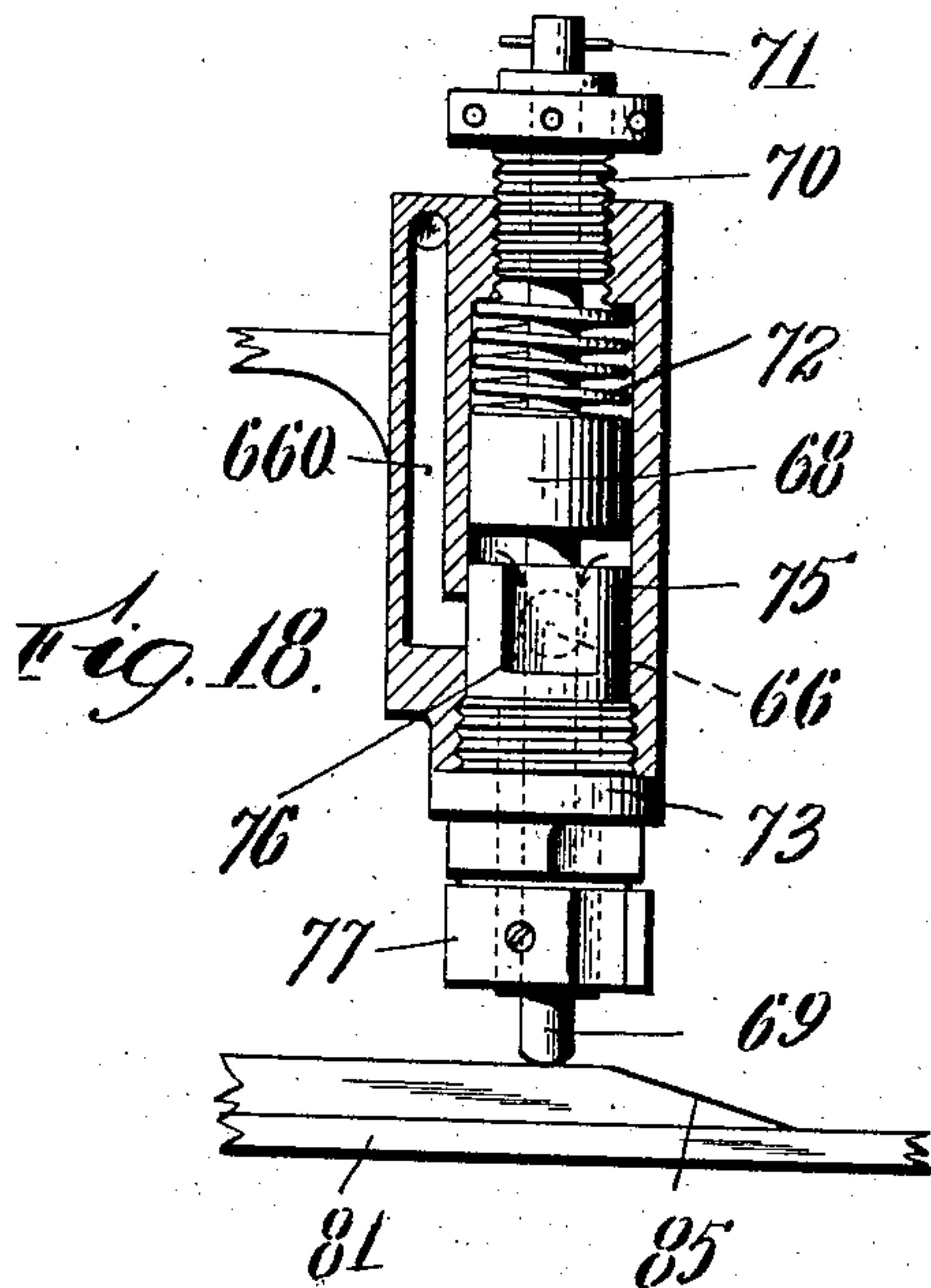
No. 824,569.

PATENTED JUNE 26, 1906.

N. MUSLAR.
BOTTLE LABELING MACHINE.

APPLICATION FILED OCT. 22, 1903.

6 SHEETS—SHEET 6.



Witnesses:

C. F. Nassau.
M. E. Regan.

Fig. 21.

Inventor:
N. Muslar.
By his Attorneys.

Smith & Smith

UNITED STATES PATENT OFFICE.

NELSON MUSLAR, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO STANDARD LABELING MACHINE COM-
PANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSA-
CHUSETTS.

BOTTLE-LABELING MACHINE.

No. 824,569.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed October 22, 1903. Serial No. 178,090.

To all whom it may concern:

Be it known that I, NELSON MUSLAR, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Bottle-Labeling Machine, of which the following is a specification.

The object of this invention is to provide a new and improved labeling-machine, especially adapted for applying labels to bottles.

The same consists in its essential features of pickers, to the interior of which paste or gum is supplied in any suitable way, as by a forcing device or pump. Said pickers are provided with fine holes in the faces thereof, which engage the labels to gum the labels. The forcing device is operated to cause the paste or gum to exude from the fine openings in the faces of the pickers, but not to drop therefrom. The pickers are then brought into contact with a pile of labels. By this arrangement as the pickers thus engage each label in turn a line or lines of paste will be applied thereto conforming to the shape of the faces of the pickers. By this construction a very simple and efficient paste-applying mechanism is provided, which does away with all extraneous rollers, distributing devices, or gumming mechanisms for the pickers. After the pickers engage a label in this way the same move to position over a label-applying device. This label-applying device consists of wipers and a mechanism for moving the bottle down against the gummed label, so as to force the bottle and gummed label through the wipers and to apply the label smoothly to the periphery of the bottle. Arranged in connection with the label-applying mechanism is a starting or tripping mechanism, constructed so that when the bottle is placed in position in the label-applying mechanism the machine will start in operation and go through the proper cycle to apply the label to said bottle and bring or stop the machine in readiness and position for the next operation.

In the accompanying six sheets of drawings is shown a mechanism which has been developed to carry out the principles of this invention.

Referring to said drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a

front elevation thereof. Figs. 3, 4, and 5 are enlarged front elevations of the label-applying device, showing the way the label is applied to the bottle. Figs. 6 and 7 are enlarged plan views showing the picker in two forms. Figs. 8 and 9 are side elevations illustrating the movement of the pickers to take a label and bring the same to the label-applying device. Fig. 10 is a front view of the picker-supports. Figs. 11 and 12 are sectional elevations illustrating the operation of the mechanism which carries the pile of labels. Fig. 13 is a plan view illustrating the adjusting mechanism on the table which carries the labels. Fig. 14 is an enlarged side elevation illustrating the driving mechanism for the various parts of the machine. Figs. 15 and 16 are side elevations, and Fig. 17 a sectional view, illustrating the operation of the starting or tripping devices. Figs. 18 and 19 are sectional views illustrating the pump or forcing device. Fig. 20 is a plan view illustrating the operating-cams for the pump, and Fig. 21 is a view showing the parts of the pump separately.

Referring to the drawings and in detail, A designates a suitable pedestal fitted on a hub, on the top of which is a frame B. Bolted to the side of the frame B is a bracket C, secured to the top of which is a table or base-piece D. Bolted or secured to the front of the table are brackets 10, secured to the top of which are holding-pieces 11, which hold the wipers 12. The wipers 12 are made out of strong flexible material, as rubber cloth or molded canvas and rubber. A bottle pushing or forcing arm 13, which has a cushioned or rubber face 14, is arranged to engage the bottle. The arm 13 is attached to a slide 15, fitted to vertical rods 16, projecting up from the table D. Connected to the slide is a pronged bracket 17, carrying a pin 18, to which is pivoted a link or pitman 19, operated from a crank-pin 20. Fitted to slide in ways 21, arranged at the side of the table D, is a hollow block 22, passing through which is a pin 23, engaging which is the slotted end of a lever 24, which is pivoted at 25 to a bracket depending from the table D and which is operated, as hereinafter described, to move said block 22 forward and backward. Projecting from the side of said block is an

arm 26, which carries hubs 27 for the pickers. Fitted in each hub 27 is a stud 28, hung on which is a bracket 29. The brackets 29 are pulled together by a spring 30, as shown in Fig. 4, and their motion is limited by nipples 31. The end of each of the brackets 29 is made flat, and fitted on the same are pickers 32. The joints between the pickers 32 and the brackets 29 lie in a horizontal plane, as shown. A bolt 33 is passed through each end of each picker and threaded into the end of the bracket which supports the same, whereby the picker can be adjusted on said bolt as a center and clamped in adjusted position. Flexible pipes 34 are connected to said nipples and to outlet or eduction passages of a pump, as hereinafter described. A passage-way extends from each nipple in through each bracket 29 and up out through the pickers 32, as indicated in dotted lines in Fig. 8. The passage-way between each bracket 29 and each picker 32 is made around the bolt 33, as shown. The face of each picker is provided with fine holes 35, through which the paste or gum can exude. These holes are arranged in proper position and line, so that the pickers will apply the desired line of paste to each label in turn. By this arrangement it will be seen that the pickers 32 are hung on the studs 28 as pivots, so as to be capable of an oscillating motion, and that they are spring-pressed toward each other. It will also be noted that the pickers can be adjusted on the bolts 33. By this construction the pickers can be very accurately set.

The pickers 32 (shown in the principal figures of the drawings) can be easily removed and other pickers substituted, depending on the particular shape of the label to be used. Thus, for example, in Fig. 7 a picker 320 is shown adapted for a square label.

Projecting from the under side of the arm 26 is a hub 36, fitted into which is a sliding piece 37. A screw 38 is threaded into this piece 37. A plate 39 is formed on the end of the screw 38, and a check-nut 40 is arranged on said screw. By this arrangement the plate can be adjusted relatively to the sliding piece 37. The plate 39 is shaped to engage the end of the bottle E. The sliding piece 37 engages a bell-crank lever 41, which is pivoted in the arm 26 and which has a spring 42 normally pushing the same to one position. The free end of the bell-crank lever 41 is adjusted to position to engage a notch 43, formed in a rod 44, fitted to slide in a hub or bearing piece 45, secured to the table D. This rod 44 is normally pushed down by a spring 46, fitted in said hub 45. The end of this rod 44 forms a connection to the starting or tripping mechanism, as hereinafter described.

47 designates a label-support, which is cut away, as shown in Fig. 13. A rod 48 is fitted

in said support. Label-supporting pieces 49 are fitted to the part 47 and to said rod 48. A double screw 50 is threaded to engage said supporting-pieces 49. The right-hand portion of the screw 50 is reversably threaded relatively to the left-hand portion. The double screw 50 has a joining-collar 51, which is fitted between lugs on the piece 47. By this arrangement the label-supporting pieces 49 can be adjusted to engage the label properly and the label still kept at the proper center. The tops of the pieces 49 can be removed and replaced by other pieces, so that the device can be used for different shapes of labels. The support 47 is fitted to slide on a block 52 and is held in adjusted position by a screw 53. The block 52 is arranged on a rod 54, and a guiding-rod 55 projects downwardly from the same through a hole cut in the table D. The rod 54 is fitted into a hollow rod or pipe 56, in which is fitted a spring 57, engaging the end of the rod 54. An adjustable bracket 58 is secured to the hollow rod 56, and engaging the same is a bell-crank lever 59, mounted on a pivot 60. The lever 59 has a roller 61 at its free end which engages a cam 62. By this arrangement when the pickers are brought over a pile of labels the labels will move upwardly, so as to bring the pile of labels into contact with the pickers, the spring 57 providing the lost motion necessary to get a forcible application of the labels to the pickers and for the lost motion necessary as the pile of labels diminishes. By this means a forcible and continued pressure is obtained to apply each label in turn to the pickers.

The forcing device or pump 63 is secured to a lug projecting from the arm 26. A paste or gum pot 64 is mounted on a bracket extending up from the table, as shown. This pot connects by a flexible pipe 65 to the induction-passage 66 of the pump. A valve 67 is usually arranged at the bottom of the paste-pot.

The details of the pump are shown in Figs. 18 to 20, inclusive. The pump in detail consists of a casing, fitted into which is a piston 68, mounted on a piston-rod 69. The upper portion of the piston-rod is fitted into a nut 70, which is threaded into the top of the casing. A pin 71 is secured in the upper end of the piston-rod to limit the downward movement thereof. The nut 70 is provided with a collar which has holes to receive a spanner-wrench or pin. By adjusting the nut the limit of the downward movement of the piston can be regulated. A strong spring 72 is arranged in the casing on top of the piston to push the piston down. Secured in the bottom part of the casing is a nut 73, fitted in which is the projecting hub 74 of a valve 75. The piston-rod 69 extends through this valve, as shown. The valve is made in the form of a cylinder having two flat or recessed por-

tions 76. The valve is arranged in position opposite the induction 66 of the pump. The two eduction-passages from the pump unite in a common passage-way 660, which extends
 5 down through a rib on the side of the casing to a position in the same horizontal plane with the induction-passage 66. When the valve is turned to the position shown in Fig. 18, the upward movement of the piston will draw
 10 paste or gum into the casing. Then if the valve is turned the induction will be cut off and the space between the piston and the valve will be connected with the eduction, so that a downward movement of the piston
 15 will then force paste out through the eduction-passage. A cam-piece 77 is secured on the valve-stem 69 to control the valve. This cam-piece is provided with three wings or projections 78, 79, and 80. A plate 81 is se-
 20 cured on hubs projecting up from the table. This plate has pins 82 and 83 and a projection 84 for operating the cam 77, and a cam 85, which engages the end of the piston-rod to operate the pump.

25 The pump is shown in normal position in Fig. 18. If now the sliding block 22 is moved toward the rear of the machine, the projection 80 on the cam-piece 77 will engage the rib 84 and turn the valve 75 to the position
 30 shown in Fig. 19, thus connecting the eduction of the pump with the casing. After the valve assumes this position the piston-rod will run down the end of the cam 85 and the spring 72 will force the piston down. This
 35 will force the proper quantity of paste or gum out through the eduction-passage 660 to the pickers. It will be noticed that as the pump moves toward the rear the action of the projection 80 on the rib 84 is a trailing action.

40 When the pump nearly reaches its extreme rearmost position, the projections 78 will engage the pin 83 and slightly turn the valve, as indicated in dotted lines in Fig. 20. When now the pump starts on its movement toward
 45 the front of the machine, the projection 80 will engage the rib 84 and will turn the valve from the position shown in Fig. 19 back to nearly the position shown in Fig. 18, so that as the pump-piston runs up the cam 85 the
 50 induction-passage will be connected to the casing, and the eduction-passage cut off so that a fresh charge of gum will be drawn into the casing, the projection 80 trailing on the rib 84. When the pump nearly reaches the ex-
 55 treme of its forward motion, the projection 79 will engage the pin 82 and slightly turn the valve to the original position, so that the projection 80 stands in position to engage the rib 84 when the pump is again moved to the
 60 rear. By this arrangement as the pickers travel to the rear of the machine a slight film of gum or paste will be caused to exude from their faces through the fine holes, so that the same will pick up the label with a freshly-
 65 gummed surface. The amount of the gum

supplied at each charge can be regulated by turning the nut 70.

The operating connections for these various mechanisms will now be described, reference being had to Figs. 14 to 17, inclusive. 70
 The top of the frame B is shaped to form a bearing 86. Journalled in this bearing is a sleeve 87, and fitted in the sleeve is a shaft 88, on the end of which is mounted a pulley 89. Secured on the sleeve 87 is a face-cam 75
 90, which has a flat or smooth portion 91, a lifting-wall 92, a flat or plane portion 93, and a double-walled returning portion 94. Formed on the side of the bearing 86 are ways 80
 95, fitted in which is a slide 96, which has a roller 97 engaging said cam 90. Said slide has a pin 98, which engages the lower slotted end of the pivoted lever 24. By this arrangement the hollow block 22, and hence the
 85 pickers and the pump, will be moved backward and forward at the proper times. The cam 62, hereinbefore referred to, for operating the label-support is formed on an enlargement of the sleeve 87 at the right of the
 90 bearing 86 in Fig. 14. On the right-hand end of the shaft 88 is secured one section 99 of a toothed clutch, and the other section 100 of the toothed clutch is fitted on the right-
 95 hand end of the sleeve 87. Rods 101 project from the clutch-section 100 and extend through holes bored in the enlargement of the sleeve 87. These rods have enlargements at
 100 their ends, and springs are arranged to engage said enlargements. One of said rods is extended beyond its enlargement in line to engage a hole 103, bored in the right-hand
 105 end of the bearing 86. The clutch-section 100 is cam-shaped, as at 104, where it is engaged by the rod 44, so that when the rod 44 springs down said clutch-section 100 will be
 110 moved to the right to engage the clutch-section 99. A partial peripheral cam 105 is also formed on said clutch 100, so that as the same revolves the rod 44 will be lifted and restored
 115 to normal position, so that it will be caught and held by lever 41. The cam 105 passes from beneath the rod 44 after the same is restored to normal position, so that the rod 44 normally stands in position to engage the
 120 cam 104 on its next downward movement. An irregular-shaped arm 106 extends from said clutch-section 100 and carries the crank-pin 20, which operates the bottle pushing or
 125 forcing arm 13. After the two clutch-sections are brought together by the rod 44 the sleeve will make one revolution, the projecting end of the rod 101 engaging the hole 103 to stop the motion after a complete revolution
 130 has been made.

The operation is as follows: Starting with 125
 the pile of labels in place and the device properly charged with gum, the machine is operated once by pushing in with the fingers on the plate 39. This will cause the pickers to
 130 gum and take up a label and bring the same

into position over the wipers, as shown in Fig. 3. A bottle is now taken and inserted under the bottle-pushing arm 13, the backs of the pickers forming a guide for this purpose. As the bottle is inserted properly in position in this way it will strike the plate 39. This will release the starting mechanism and will bring the machine into operation. The first motion of the machine will be a downward movement of the arm 13, which will force the bottle down between the pickers into contact with the gummed label. The pickers will swing out of the way, as shown in Fig. 4, leaving the label between the bottle and the wipers. The continued downward motion of the arm 13 will force the bottle down clear through or between the wipers and will nicely and evenly apply the label to the bottle, as shown in Fig. 5. The neck of the bottle is held in the hand of the operator, so that just as soon as the bottle is forced between the wipers it is taken out by the operator, and by the time the operator can lay that bottle down and take up a fresh bottle the machine is in position for the next operation. During the movement shown in Figs. 3 and 4 the flat portion 91 of the cam 90 engages the roller 97. Hence there is no movement of the hollow block 22; but so soon as the bottle is forced down between the wipers the lifting portion 92 of the cam comes into operation and causes the hollow block 22 to move backward. This by the mechanism previously described will bring the pickers over the labels and at the same time will operate the forcing device to cause a thin film of paste or gum to exude from the faces thereof. The flat portion of the cam 93 now engages the roller 97. This will cause the pickers to dwell over the pile of labels, and while this portion of said cam is in engagement with said roller the cam 62 comes into operation and lifts the pile of labels forcibly into contact with the gummed pickers and then allows the pile of labels to drop down. This action causes the top label to be left on the pickers. The double-walled portion 94 of the cam now comes into operation and returns the hollow block 22 and the various parts moving therewith to normal position with a freshly-gummed label in position over the wipers for the next operation.

An operator can become very expert with the machine, and bottles can be labeled as fast as the same can be inserted in position by the operator. Each time a bottle is inserted the machine is started and goes through its proper cycle of operation. The bottle is forced through the wipers, so as to be labeled, and a fresh label is picked up and brought into position, so that when the machine stops after one revolution of the sleeve the parts are in position for an immediate operation the next time. A further and important advantage of the construction resides

in the fact that the paste or gum is contained entirely within closed passages, or, in other words, is hermetically sealed.

When the machine is left standing for some time, all that is necessary is to put a piece of damp cloth between the pickers and the wipers. If this is done, the machine is ready for use at any time. When a labeling-machine constructed on the schemes of the prior art is not used for some time, it is necessary to clean up all the rolls, pickers, and distributing devices. This is usually a hard task. Moreover, the hardened paste or gum is difficult to get off, and if not properly cleaned the machine is apt to be crippled. All this is dispensed with by the improved construction of pickers and forcing device shown in this application for patent. As the term "forcing device" is used it is meant to include a device which operates by gravity or pressure as well as a pump, and where the term "means for operating the same" or equivalent wording is used is meant to include a device by which the flow of paste is caused or by which it is timed by the power used in operating the machine.

Various other mechanisms may be worked out and developed to carry out the broad principle of this invention as originally stated in this specification. The details and mechanisms may also be broadly varied and modified by a skilled mechanic without departing from the scope of this invention as expressed in the claims.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a labeling-machine, the combination of a hollow picker having an outlet in its label-engaging face, means for laterally moving the picker whereby the labels may be picked up and delivered to the point of application to the bottle, positively-operated regulable devices for forcing a predetermined quantity of paste out through the outlet in the picker-face after each delivery operation, for the purpose set forth.

2. In a labeling-machine, the combination of a label-applying device, pickers provided with holes in the faces thereof which engage the labels, a forcing device, means for operating the pickers to take labels from a pile and carry the same to the label-applying device, and means for operating the forcing device to cause gum or paste to exude from the pickers each time they engage a label.

3. In a labeling-machine, the combination of a label-applying device, pickers provided with holes in the faces thereof which engage the labels, a forcing device, means for operating the pickers to take labels from a pile and carry the same to a label-applying device, and means for operating the forcing device to cause gum or paste to exude from the pickers as they are on their return stroke

from the label-applying device to the pile of labels.

4. In a labeling-machine, the combination of a label-applying device, means for operating the same, pickers provided with holes in the faces thereof, which engage the labels, a forcing device for the paste connected to the pickers, and connections for operating the forcing device from the means which operates the label-applying device so that gum or paste will be caused to exude from the pickers only as the label-applying device is operated.

5. In a labeling-machine, the combination of a label-applying device, means for operating the same, pickers for engaging and carrying forward the labels, a paste-reservoir, a connection from the same to the pickers, a forcing device for the paste included in said connection, and means for operating the forcing device.

6. In a labeling-machine, the combination of label-supporting mechanism, label-applying mechanism, a reciprocating block, hollow pickers carried thereby and moving between said label-supporting mechanism and label-applying mechanism and having fine holes in the faces thereof which engage the labels, a forcing device for the gum or paste and means for operating the forcing device.

7. In a labeling-machine, the combination of label-supporting mechanism, label-applying mechanism, a block, hollow brackets pivoted thereto, interchangeable hollow pickers secured to said brackets and having holes in the faces thereof which engage the labels, a forcing device for the gum or paste connected to said brackets, and means for reciprocating said block between said label-supporting mechanism and label-applying mechanism.

8. In a labeling-machine, the combination of label-supporting mechanism, label-applying mechanism, a block, pickers carried thereby and having holes in the faces thereof which engage the labels, a forcing device for the paste connected to said pickers and carried by said block, means for moving said block to move the pickers between the label-supporting mechanism and label-applying mechanism, and means for operating the forcing device from said movement.

9. In a labeling-machine, the combination of pickers having holes in their label-engaging faces, means for laterally moving the pickers from the pile of labels to the point of application and back again, and positively-operated regulable pumping means for forcing the paste through the holes in the picker-faces after each delivery of a label, substantially as set forth.

10. In a labeling-machine, the combination of a reciprocating block carrying pickers, a pump for the paste or gum connected

thereto, a valve in said pump, and means for operating the valve and pump from the reciprocating movement of the block.

11. In a labeling-machine, the combination of label-supporting mechanism, label-applying mechanism, pickers having holes in the faces thereof which engage the labels, means for reciprocating the pickers between the label-supporting mechanism and label-applying mechanism, a forcing device for supplying paste or gum to the pickers, means for reciprocating the pickers and operating the forcing device, and a starting or tripping mechanism operated by the insertion of the bottle.

12. In a labeling-machine, the combination of label-supporting mechanism, label-applying mechanism, pickers having holes in the faces thereof which engage the labels, a forcing device for supplying gum or paste to the pickers, means for reciprocating the pickers, means for lifting the labels into contact with the pickers, means for operating the forcing device, and a starting and stopping mechanism operated by the insertion of the bottle and arranged to start the machine in operation, so that it will go through the proper cycle to apply the label to said bottle and stop the machine in readiness and position for the next operation.

13. In a labeling-machine, the combination of label-applying mechanism, pickers, means for operating the label-applying mechanism and the pickers consisting of a continuously-revolving shaft carrying one member of a clutch-section, a loose clutch-section connected to operate the parts, a spring-pressed rod for engaging said loose clutch-section, a lever for engaging said rod, connections therefrom arranged in position to be engaged by the bottle, and a cam on the clutch-section for restoring the rod to normal position.

14. In a labeling-machine, the combination of label-applying mechanism, pickers, a forcing device connected to the pickers, and means for operating the label-applying mechanism and reciprocating the pickers and forcing device consisting of a continuously-revolving shaft, a clutch-section thereon, a loose clutch-section, connections extending therefrom in position to be operated by the insertion of the bottle, connections from said loose clutch-section to the label-applying mechanism, and a cam connected to turn with said loose clutch-section to reciprocate said pickers and forcing device.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses

NELSON MUSLAR.

Witnesses.

LOUIS W. SOUTHGATE,
MARY E. REGAN.