

No. 607,328.

Patented July 12, 1898.

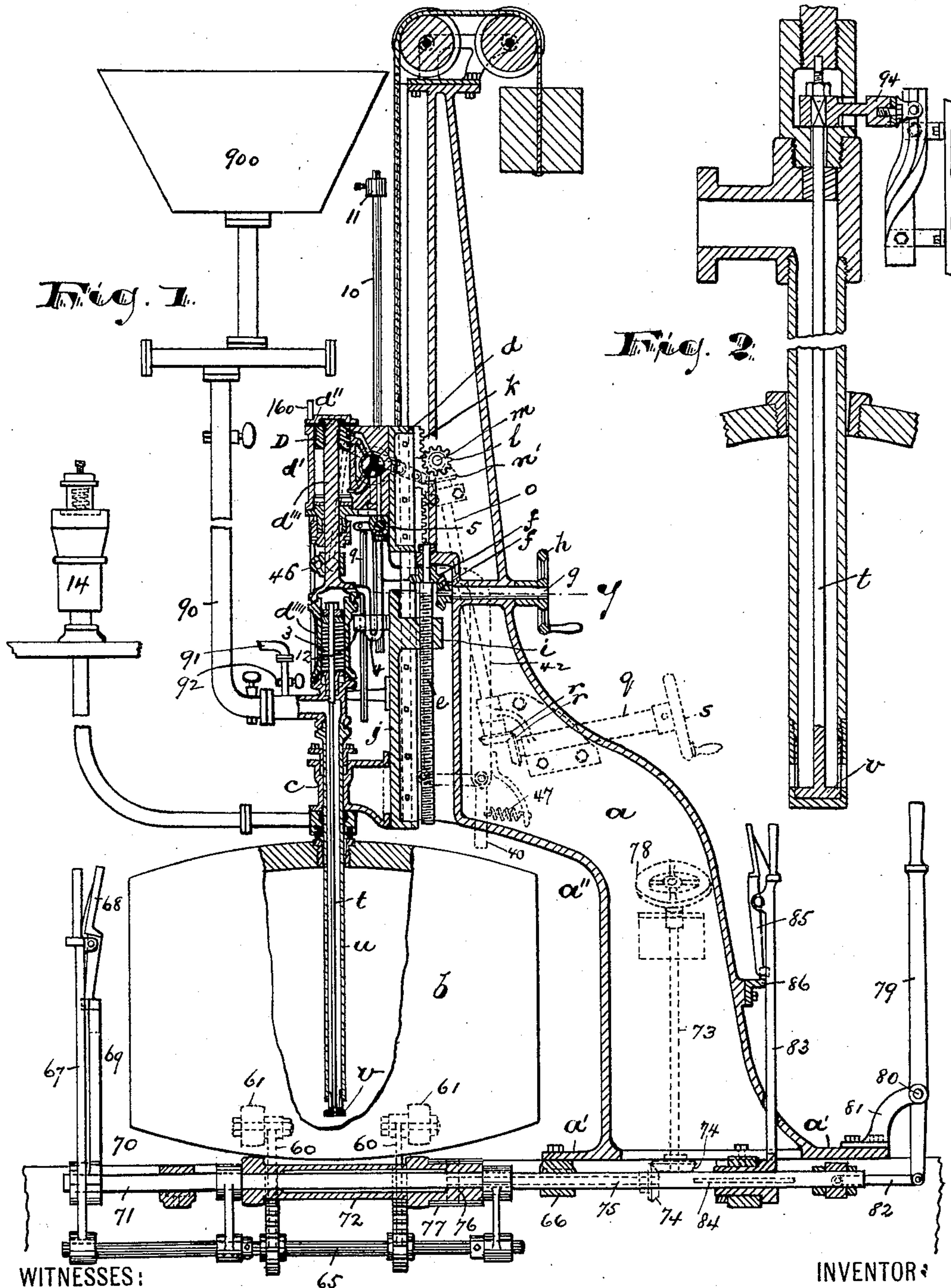
D. BEEBE.

RACKING OR BARREL FILLING APPARATUS.

(Application filed Sept. 15, 1897.)

(No Model.)

6 Sheets—Sheet 1.



WITNESSES:

A. R. Krouse.  
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ATTORNEYS.

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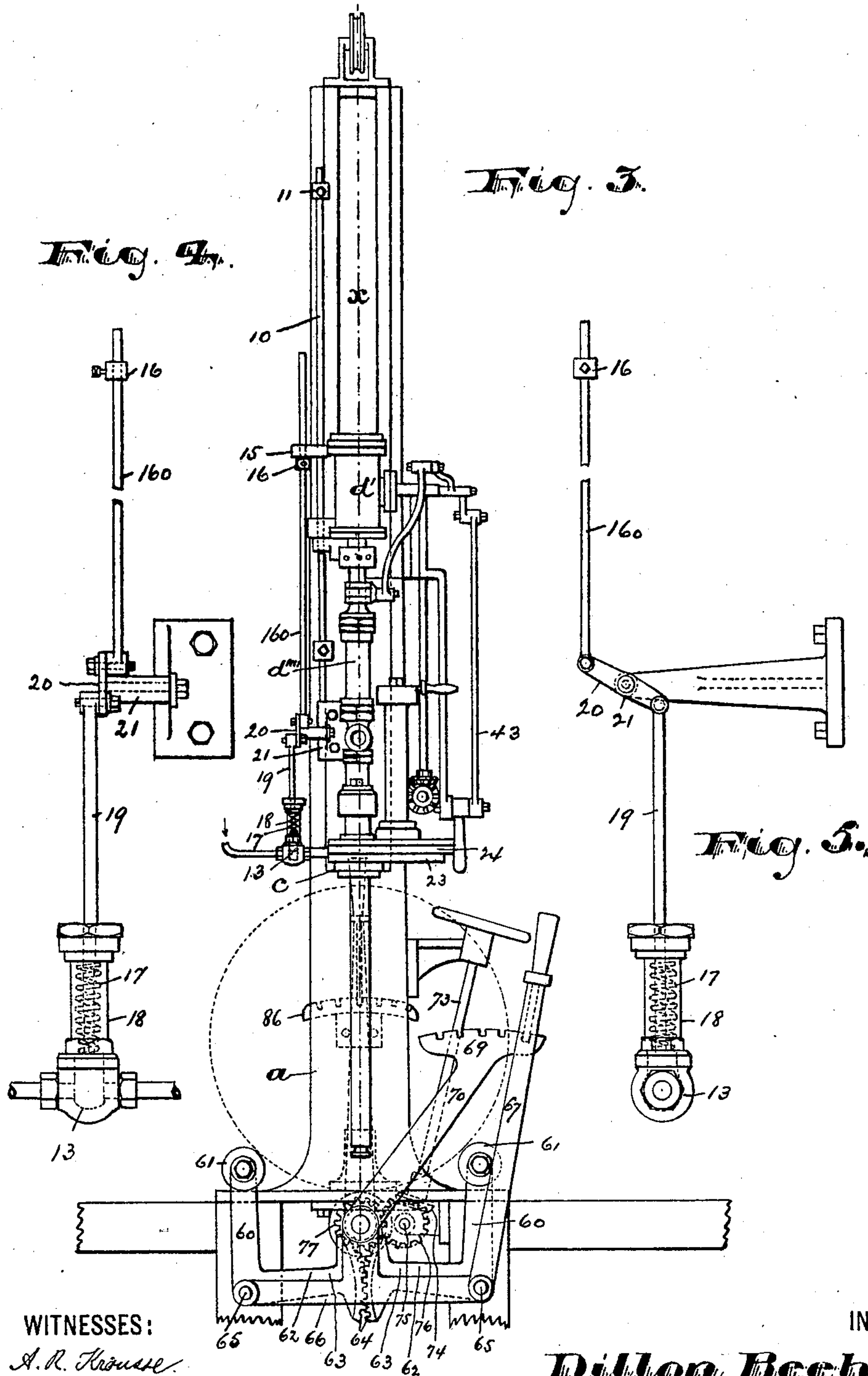
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6 Sheets—Sheet 2.



WITNESSES:

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6 Sheets—Sheet 3.

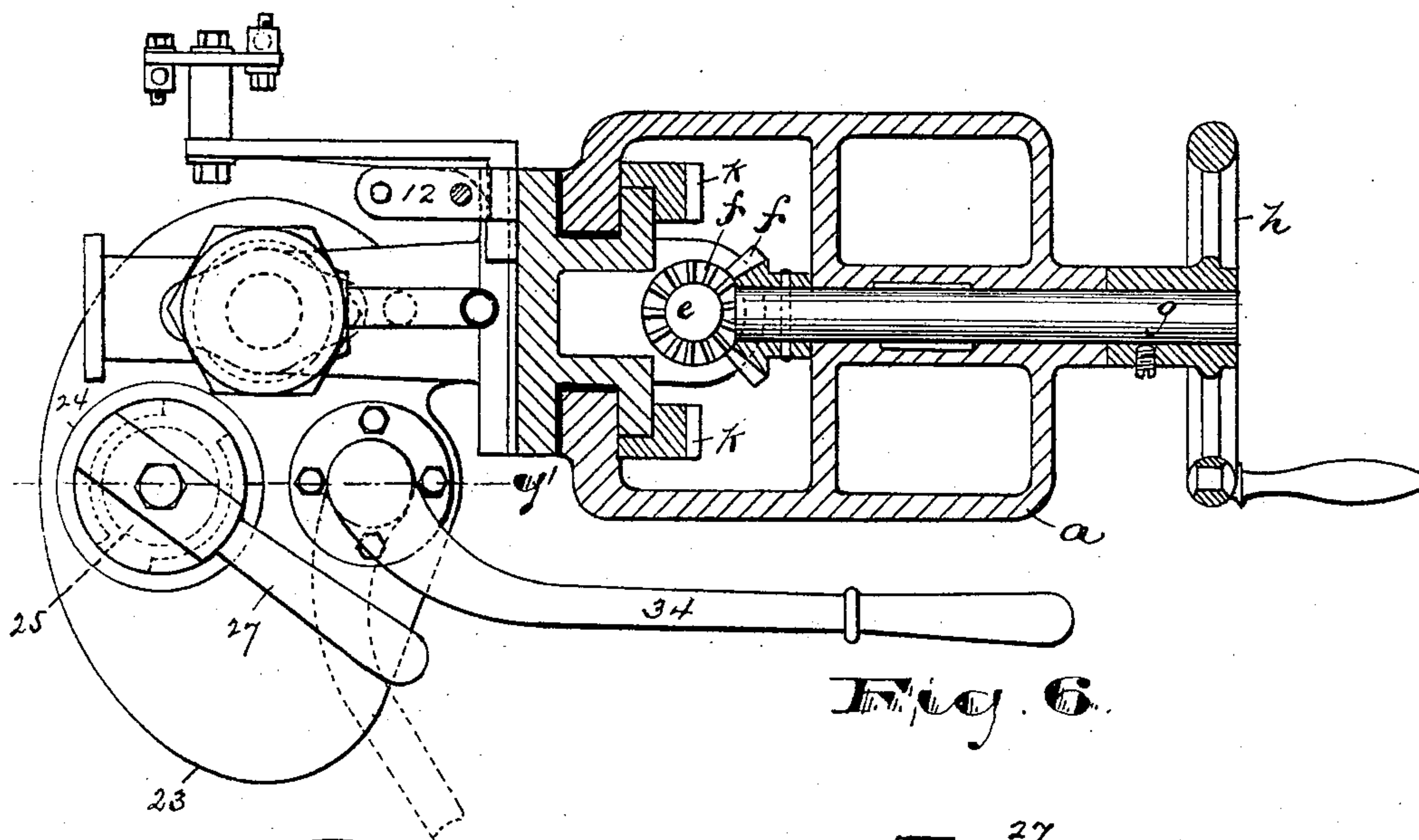


Fig. 6.

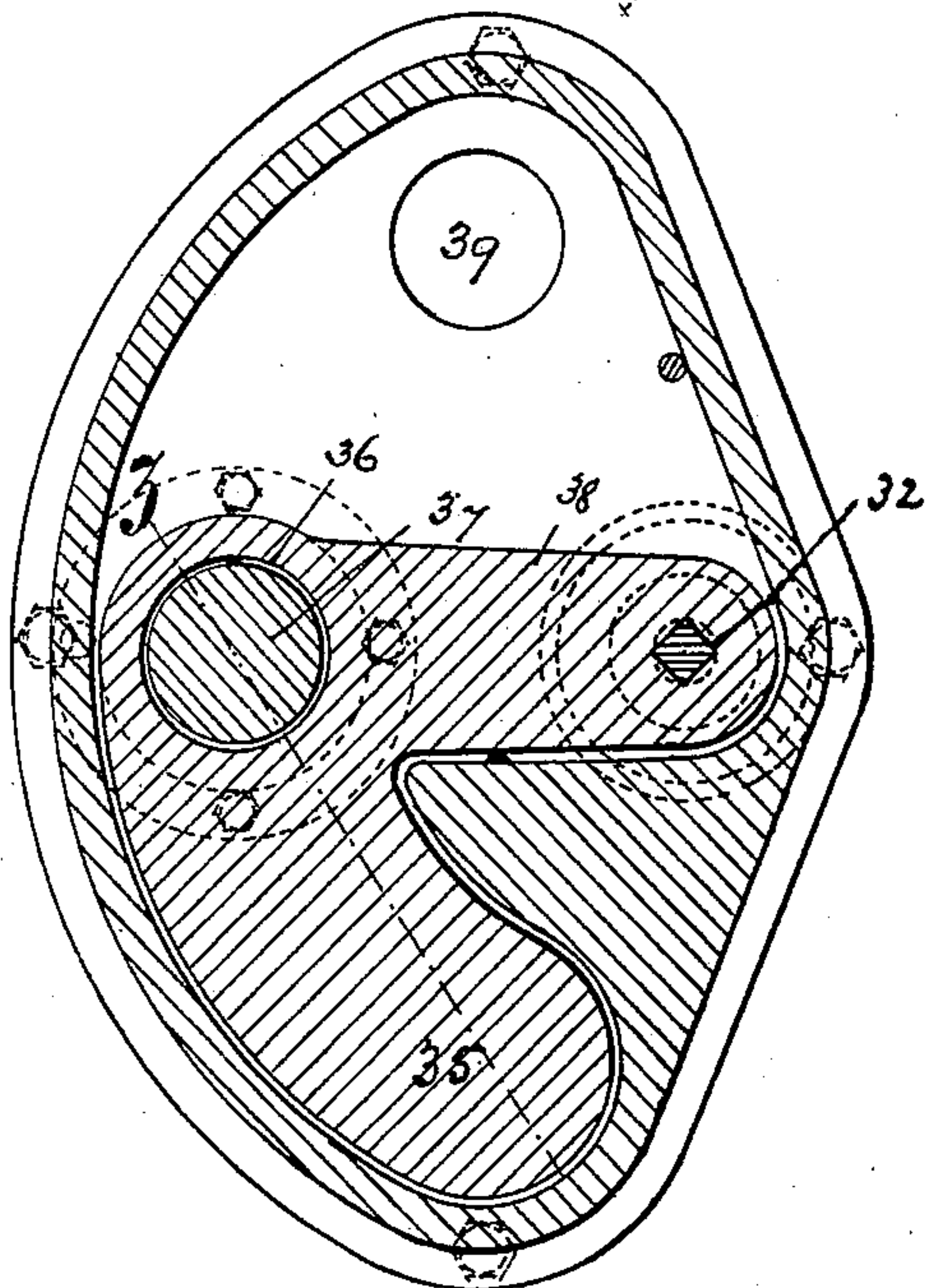


Fig. 8.

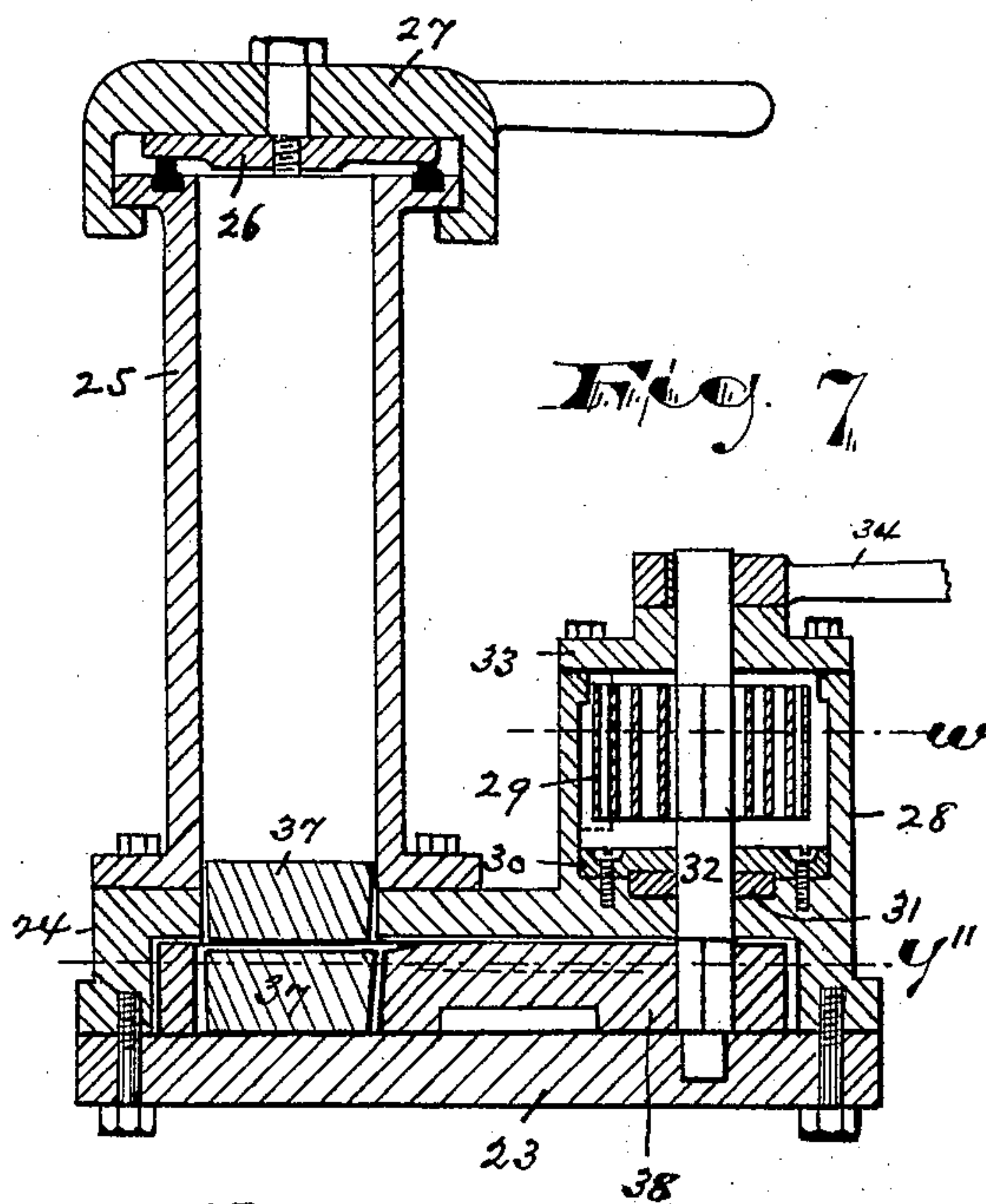


Fig. 7.

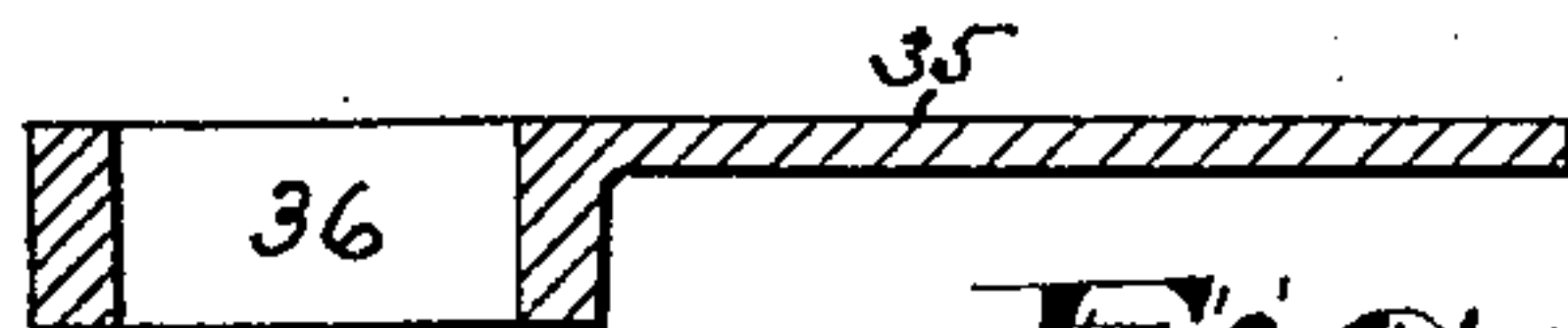


Fig. 9.

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6 Sheets—Sheet 4.

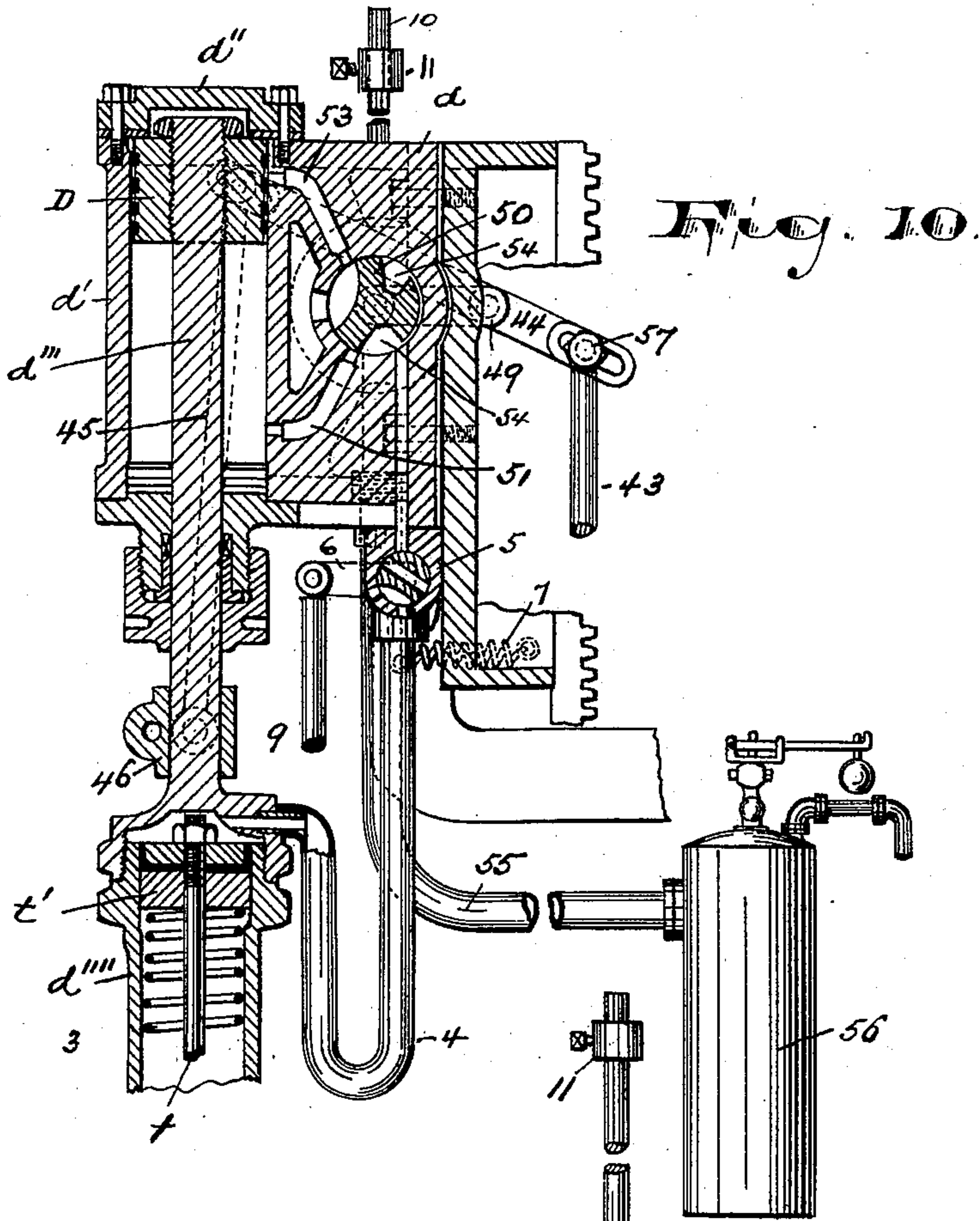


Fig. 10.

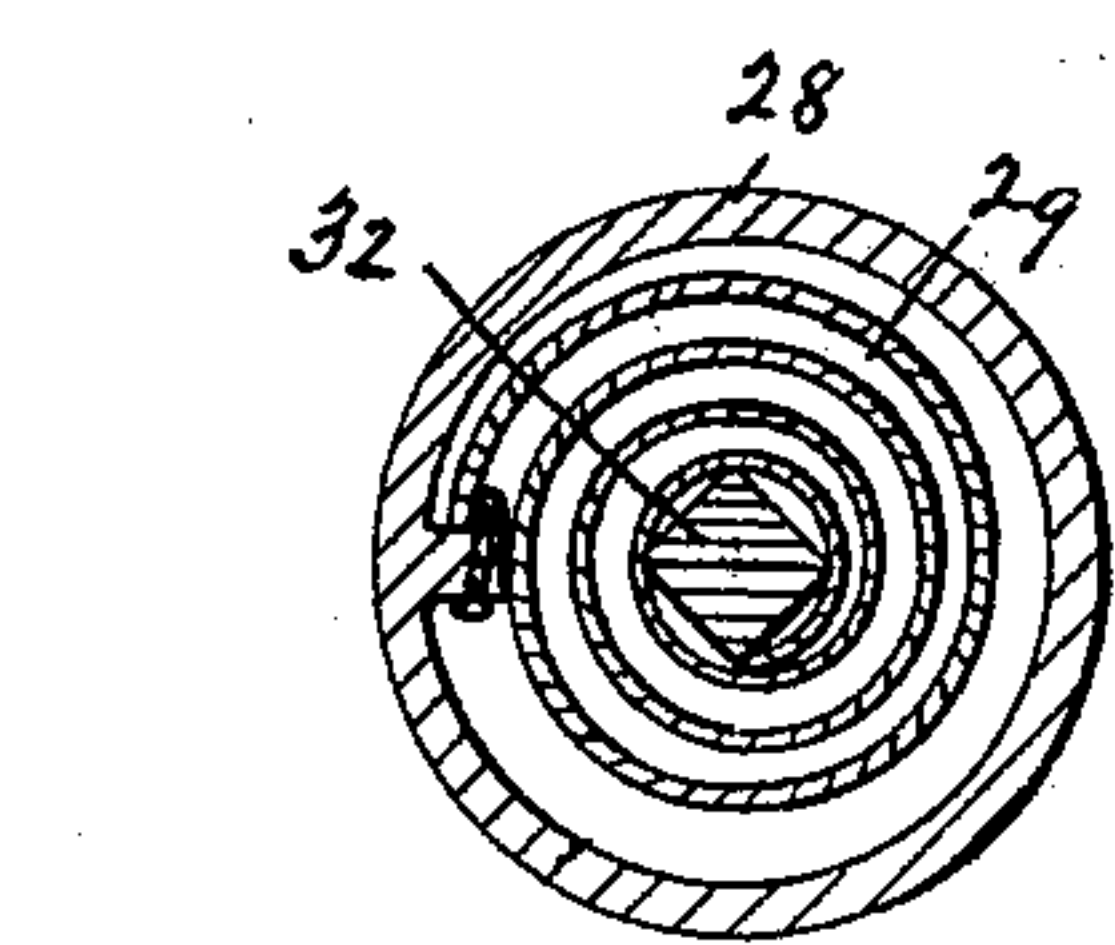


Fig. 12.

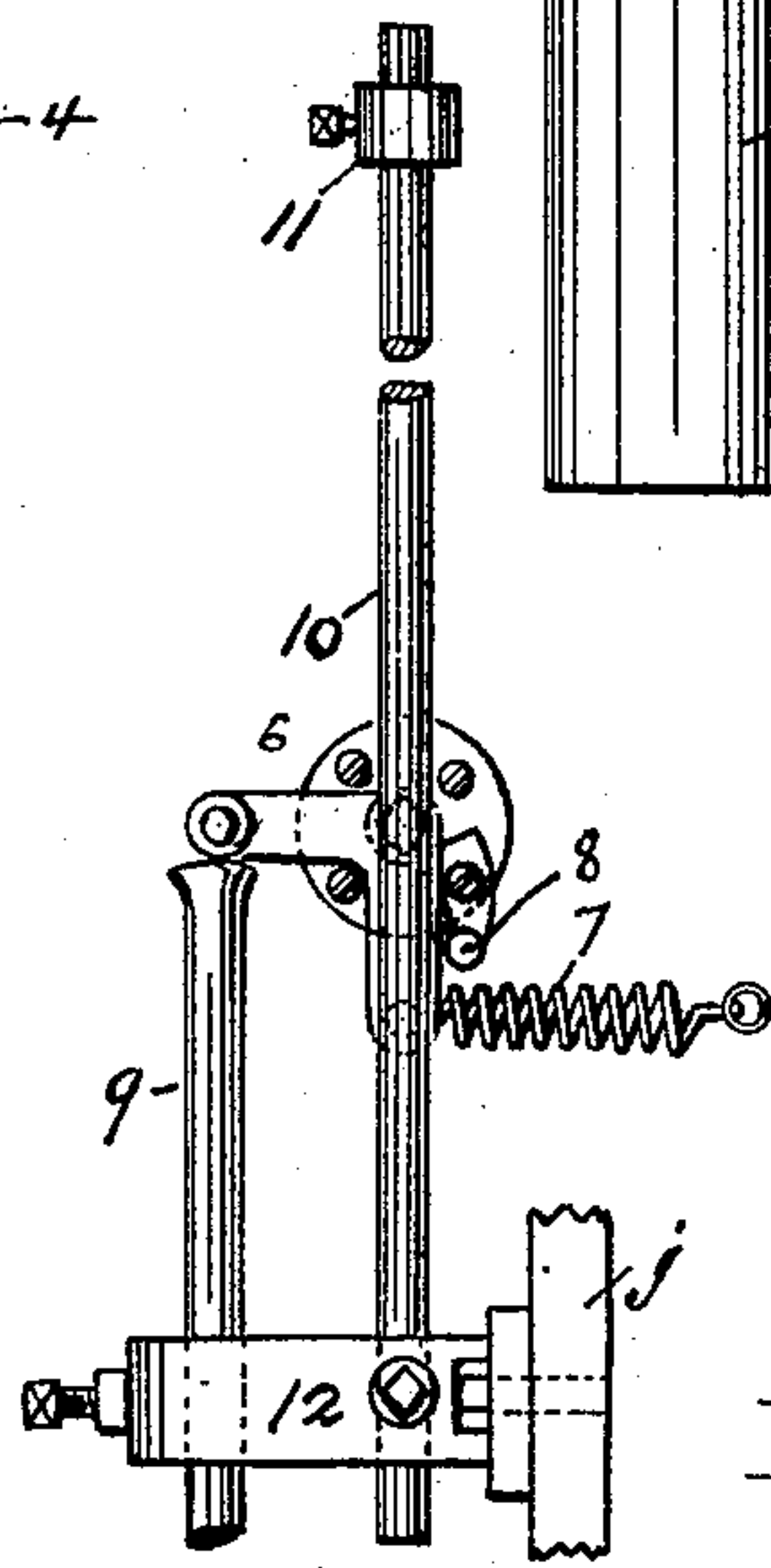


Fig. 11.

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**Patented July 12, 1898.**

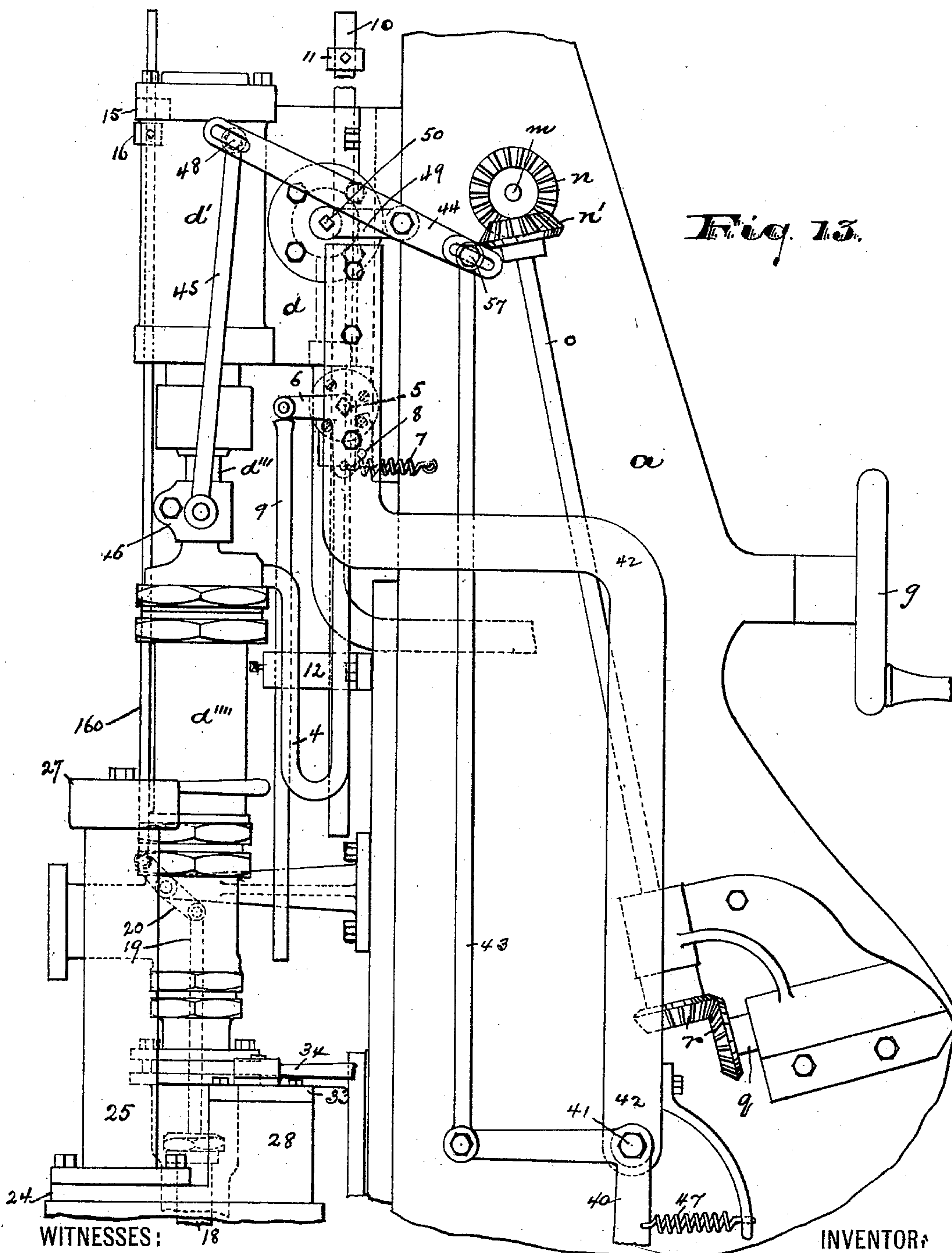
**D. BEEBE.**

### RACKING OR BARREL FILLING APPARATUS.

(Application filed Sept. 15, 1897.)

(No Model.)

**6 Sheets—Sheet 5.**



**WITNESSES:**

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No. 607,328.

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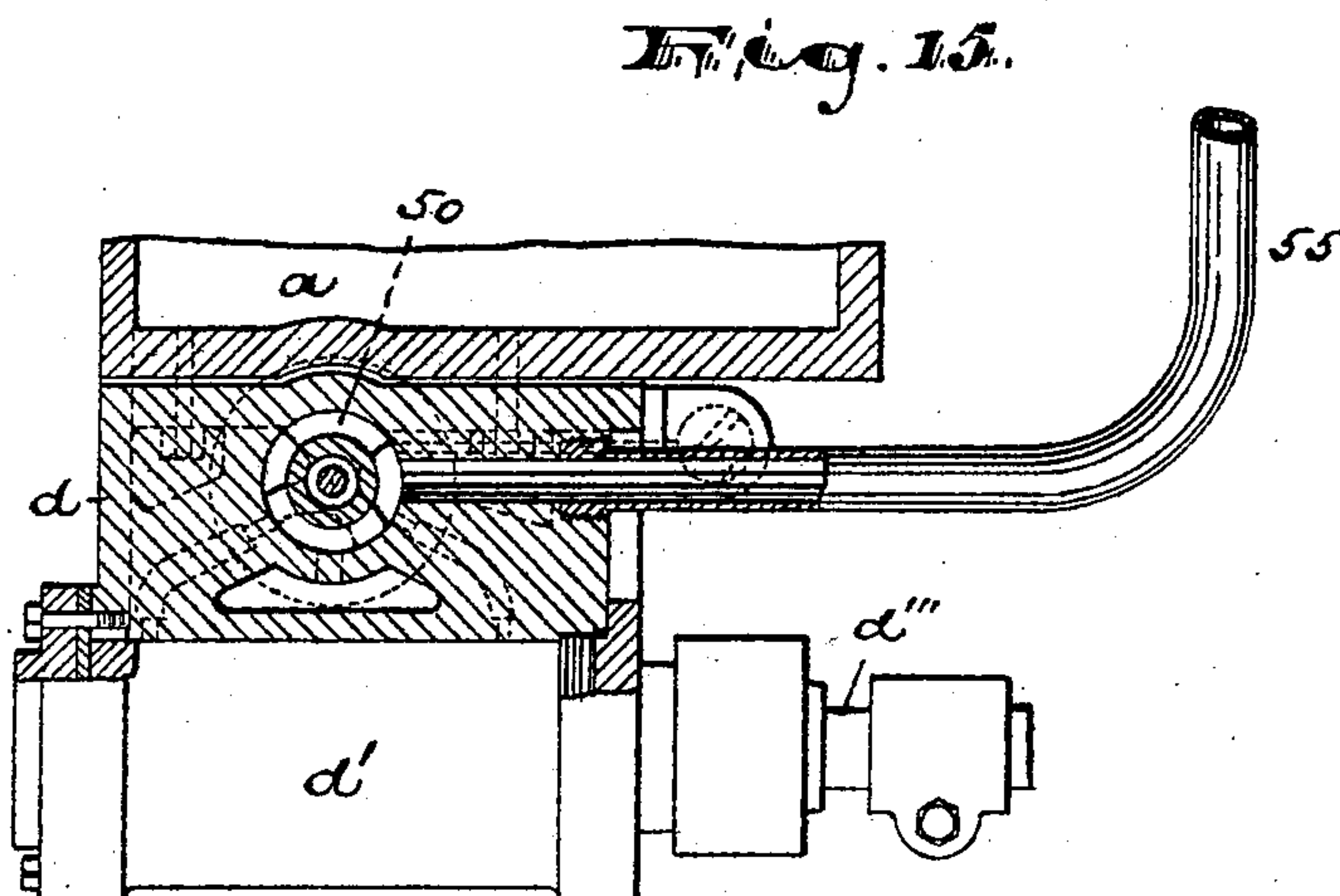
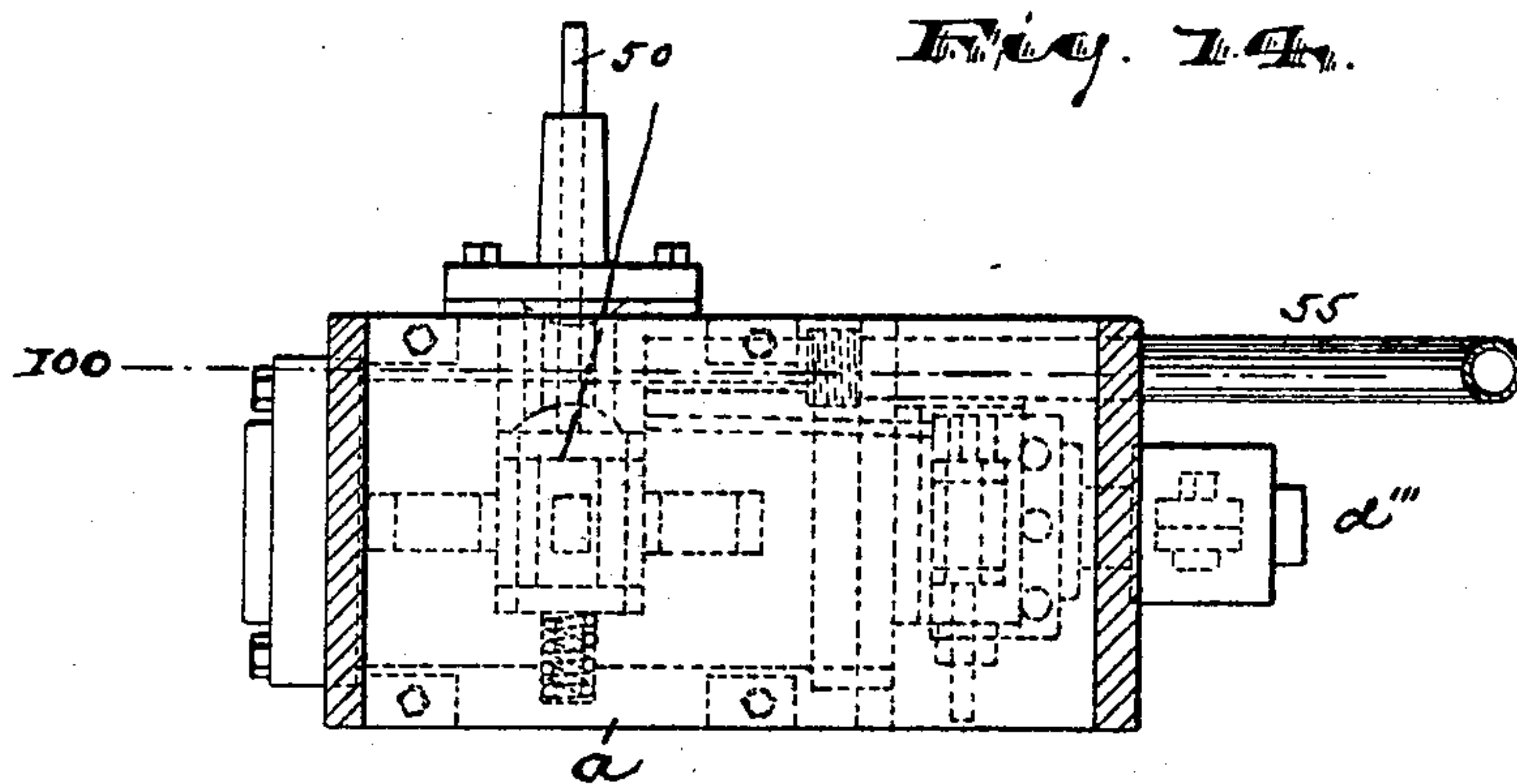
D. BEEBE.

RACKING OR BARREL FILLING APPARATUS.

(Application filed Sept. 15, 1897.)

(No Model.)

6 Sheets—Sheet 6.



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INVENTOR:

*Dillon Beebe,*

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# UNITED STATES PATENT OFFICE.

DILLON BEEBE, OF NEWARK, NEW JERSEY.

## RACKING OR BARREL-FILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 607,328, dated July 12, 1898.

Application filed September 15, 1897. Serial No. 651,730. (No model.)

*To all whom it may concern:*

Be it known that I, DILLON BEEBE, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Racking or Barrel-Filling Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in that class of racking or barrel-filling machines represented by the one shown in my previous application, filed April 20, 1897, Serial No. 632,990, the objects of the present improvements being to secure a greater rapidity in the barrel-filling operations and in arranging the barrel preliminary thereto, to render the various hand operations more easy and to avoid to a great degree the hand labor heretofore necessary, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved racking or barrel-filling machine and in the arrangements and combinations of parts, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters and figures indicate corresponding parts in each of the views, Figure 1 is a vertical section on line *x*, Fig. 3, showing the relation of the parts to one another. Fig. 2 is a detail view of a filling-tube, showing a modification of construction. Fig. 3 is a front view of the machine. Figs. 4 and 5 are detail views, in front and side elevations, showing the construction of means for automatically opening and closing a certain gas escape and pressure valve. Fig. 6 is a sectional detail, taken at line *y* in Fig. 1, showing means for raising and lowering the packing-head connections and also showing in plan a certain bung-feed. Figs. 7 and 8 are horizontal and vertical sectional views of said bung-feed, taken on lines *y'* and *y''*. Fig. 9 is a sectional view of a bung-

slide on line *z*. Fig. 10 is an enlarged sectional detail, also taken on line *x*, of the pneumatic devices for operating the gas-valve and driving and filling tube. Fig. 11 is a detail showing a device for automatically opening or closing the air-pressure valve; and Fig. 12 is a section on line *w*, Fig. 7, showing the construction of a spring and connections controlling the bung-feed. Fig. 13 is an elevation on a large scale of parts of the upper end of the machine to show the operating mechanisms more clearly. Figs. 14 and 15 are sectional details showing more clearly the connection of a certain compressed-air-supply pipe with its valve in connection with the cylinder containing a piston or plunger for operating the filling-tube, the section in Fig. 15 being taken on line 100 of Fig. 14.

In said drawings, *a* indicates the standard or frame, upon which are attached the working parts. This is similar in general construction to the one shown in my prior application above referred to. Said frame has at its lower end suitable flanges, ears, or lugs *a'*, by means of which it may be firmly bolted or otherwise secured upon a flooring or foundation. At a point—say three feet—above said foundation said frame extends forward, as shown, forming a recess *a''*, Fig. 1, to permit a convenient adjustment of the package *b* in its relation to the frame and the filling mechanisms or devices working thereon preliminary to the filling operation. Above the offset formed by the recess *a''* are arranged vertical slideways, one of which provides bearings for a packing-head *c*, the other for a filling-tube head *d*. The packing-head is given its vertical sliding movement by a screw *e*, operated by bevel-gears *f* and a crank-shaft *g*, arranged in a box or bearing formed on the said frame, having at its outer extremity a hand-wheel *h*. By turning said hand-wheel and its crank-shaft motion is imparted to one of said bevel gear-wheels on the opposite end of said crank-shaft from the hand-wheel, which transmits its motion to the second bevel gear-wheel, arranged on the screw-shaft, said screw-shaft being thus rotated, and because of said screw-shaft passing through threaded bearings *i* in the packing-head or carrier *j* therefor said packing-head can be raised or lowered from or to the package, as will be un-



derstood. Above the said packing-head *c* and its carrier *j* is arranged the said filling-tube head *d*, which slides vertically on a second vertical slideway. Said filling-tube head *d* is given its vertical movement by means of a rack *k*, attached to said filling-tube head. Said rack is engaged by a pinion *l*, arranged on a shaft *m*, having bearings in the frame and having at its outer end a bevel-gear *n*, which is engaged by a second bevel-gear *n'*, Fig. 13, on a shaft *o*, to which rotary motion is imparted by a crank-shaft *q* through bevel gear-wheels *r*. By turning the crank-shaft *q* by means of the hand-wheel *s* motion is transmitted through the bevel gear-wheels *r*, shaft *o*, bevel gear-wheels *n n'*, shaft *m*, and pinion *l* to the rack *k*, by means of which the said rack and the parts attached thereto are raised or lowered. These parts serve to elevate or lower the filling-tube from and into the said barrel. The parts thus described are very similar in general arrangement to the parts already described by me in the application above referred to.

In connection with the filling-tube head *d* I have provided means for forcing the bungs into the bung-hole of the barrel prior to removing the packing-head from impervious relation to the said barrel. In my prior application these means were purely mechanical and were operated entirely by hand, the force of the hand and arm being required to effect the bung-driving operation. In the present device I employ compressed air, and thus relieve the operator of the great exertion before required. To this end the said filling-tube head is provided with a cylinder *d'*, having a head *d''* at its upper end and suitable ports entering at the upper and lower ends of the cylinder, which alternately serve as exhausts and compressed-air-entrance ports. Within said cylinder is arranged a piston-rod *d'''*, having a suitable piston-head *D* at its upper end. At the lower end said piston-rod *d'''* is coupled to a second cylinder *d''''*, in which works the upper end of a valve-controlling rod *t*. Said rod extends downward through the filling-tube *u* to the valve *v* at the lower extremity of said filling-tube. The said cylinder *d''''* is open to receive from a suitable reservoir compressed air, which serves to force the valve-rod *t* downward to open the valve, the said valve-rod *t* being suitably provided at its upper extremity with a piston-head *t'*, Fig. 10, to receive the pressure of the compressed air, and with a spring 3, by means of which the said valve *v* is normally kept closed. The compressed air is conducted to the said cylinder *d''''* by means of a tube 4, and the compressed air is controlled by a valve 5, which provides an open passage from said cylinder *d''''* to a suitable compressed-air reservoir 56, Fig. 10, and also provides an exhaust-passage by means of which the compressed air is exhausted from the cylinder *d''''*. The said valve 5 is controlled by a bell-crank 6, suitably fastened

on the outer end of the valve-body, one arm of which bell-crank receives a spring 7, by which said arm is held in normal position against a suitable stop 8, Fig. 11. The other end of the bell-crank is adapted to receive or engage an adjustable rod 9, the parts being so related that the engagement of the bell-crank and rod 9 will take place when the filling-tube is lowered to near its lowest position, so that as said lowering operation is about being completed the said arm of the bell-crank will be turned with the valve 5, because of its engagement with the said rod 9, to close the exhaust and open the compressed-air passages, so that there will be free communication of the compressed air with the valve-rod cylinder *d''''*, whereby the compressed air will enter said cylinder and lower said valve-rod *t*, so that the valve *v* is opened and the fluid contained in said filling-tube will be allowed full outflow passage into the package. When the package thus being filled is completely full and it is desired to cut off the supply of fluid, I simply raise the filling-tube head *d'* and its connections by turning the hand-wheel *s*. This operation raises the free arm of the bell-crank from the rod 9, so that the spring 7 is free to act on the said bell-crank to turn the body of the valve 5 and to automatically open the exhaust and close the compressed-air passage. The opening of the exhaust allows an outflow of compressed air from the cylinder *d''''*, which in turn permits the spring 3 to raise the valve-rod *t* and close the valve *v*, the operation being thus automatic and incident to the operation of raising the filling-tube out of the package. This raising operation of the filling-tube head *d* and its attachments is continued until stopped by the engagement of the said filling-tube head with a stop-collar 11, formed on the shaft or arm 10, fastened adjustably upon an arm or bracket 12 on or of the packing-head carrier *j*, at which engagement the valve *v* of the said filling-tube will be raised four inches, more or less, above the bung-hole or bushing of the package, which permits of the insertion of the bung between said valve and the bushing of the barrel, as will be hereinafter described.

Coincident with the raising of the filling-tube, and preferably coincident with the starting of said raising operation, I close the gas-escape and counter-pressure valve 13 and close communication between the package and the gas-receiving cylinder 14.

Upon the raising of the filling-tube and its head an arm 15, Fig. 3, attached to or formed on said head or upon the compressed-air cylinder forming a part of said head, passes from holding engagement with an adjustable stop-collar 16 on a rod 160, so that a spring 17 within a cylinder 18 of the valve 13 is allowed to operate automatically to close the said valve. Said valve is attached to the packing-head so as to move therewith, and is operated by a valve-rod 19, which extends up-



ward into connection with a walking-beam lever 20, pivoted upon a bracket 21, which is also attached to the said packing-head. The end of said walking-beam opposite that receiving the valve-rod 19 is attached to the rod 160, which extends upward and is provided with the stop-collar 10 above referred to. The gas-receiving cylinder 14 may be of any construction, preferably of glass. Its construction and operation are more particularly described in my prior application above referred to, and said cylinder does not form in itself a special feature of the present improvements.

Upon the packing-head *c* is formed a laterally-projecting plate 23, which supports a hollow case-plate 24, the two plates being bolted together, the joint between being impervious to air. The upper case-plate 24 supports a bung-storage cylinder or receptacle 25, which is bolted to said case-plate or otherwise imperviously attached thereto. The upper end of said storage-cylinder is provided with a cap or cover 26, which is held removably upon said cylinder 25 by means of a hand-clamp 27 of any suitable construction, the said cap or cover being packed at its edges, so as to form an impervious joint with the said cylinder. At one side, a little way from the cylinder, upon the case-plate 24 is formed a box 28 for a spring 29, Figs. 7 and 12, the said box at its bottom being provided with a gland 30, beneath which is packing 31 for closing imperviously the joint in the perforation in said case-plate around the shaft 32, on which the spring 29 is coiled. The top of the said box is closed by a plate 33, which provides centrally a bearing for the shaft 32, and above said plate 33 the said shaft 32 receives a hand-lever 34, by which said shaft may be turned. At the inner end of said shaft 32, within the chamber of the case-plate 24, is arranged a sliding bung-feed 35. (Shown in Figs. 7, 8, and 9.) This comprises a segmental plate, having at one end a bung-receiving perforation 36, into which the bungs 37 may drop from the cylinder 25 when the said perforation is brought into coincidence with the lower open end of said cylinder, as will be understood by a reference to Figs. 6 and 7. Adjacent to said perforation 36 the segmental plate is provided with an arm 38, which extends into engagement with the shaft 32, the said arm being provided with an angular perforation adapted to receive the angular end of said shaft and the parts fitting nicely, so that when said shaft is turned by means of the hand-lever 34 said segmental plate will be oscillated within the chamber of the casing. By means thus described I secure an oscillation of the feeding-plate within the inclosed chamber back and forth from the bung-feed opening to the filling-tube opening or passage, and thus a single opening or receptacle in the oscillating plate is only necessary to secure the desired quickness of operation, and I am enabled to

dispense with a plurality of openings, such as would be required were a rotary plate employed. The single receptacle or opening involves a further advantage in that it forms less open space within the plate-chamber and reduces the quantity of fluid entering the plate-chamber, such as might afterward pass into the barrel after the barrel has once been filled; thus overfilling said barrel, so that the fluid enters the bung-hole and prevents a proper bunting operation. The said cylinder or receptacle 25 for the bungs is in open communication with the package and passages leading thereto, so that the compressed air within the package is free to enter; but, because of the impervious joints above referred to, there is no possibility of the said compressed air escaping. The spring 29 serves to hold the shaft 32 and the segmental plate in connection therewith in a normal position, in which the bung-receiving perforation 36 is in coincidence with the bung-receiving cylinder 25. When the segmental plate is turned by the hand, the said perforation 36 is brought into coincidence with a filling-tube and bung-passage 39 in the plates 23 and 24, which coincides with or forms a part of the passage in the packing-head *c*, through which the filling-tube *u* passes, the passage 39 in the lower plate 23 being sufficiently large to allow the bungs to drop freely therethrough into the bung-hole or bushing of the barrel after the withdrawal of the filling-tube before referred to. Thus when the perforation 36 is turned into coincidence with the passage 39 the unperforated body of the segmental plate 35 slides under the cylinder 25 and prevents the bungs therein from prematurely dropping, the said body maintaining the bungs in their elevated position within the said cylinder until the perforation 36 is again brought into proper coincidence by the automatic action of the spring 29, the filling-tube being withdrawn from the barrel, as above described, to a point above the plane of the sliding bung-feed. The bung having been loosely fitted into the bung-hole, I next proceed to drive said bung firmly and securely into said bung-hole. This is done by applying the filling-tube as a driver by means of the pneumatic devices. To effect the driving of the bung, I first operate the bell-crank lever 40, fulcrumed at 41 upon an arm 42, depending from the filling-tube head, to which it is attached in any suitable manner, so as to travel therewith, as indicated in Fig. 13. The hand crank-lever 40 is pivoted to a rod 43, which extends upward to a lever 44, fulcrumed at its end opposite that having connection with the rod 43 to a connecting-rod 45, the said lever 44 being slotted at its points of pivotal connection with the rods 43 and 45. The rod 45 is pivoted upon a collar 46, fixed upon the piston-rod *d'''* of the cylinder of the filling-tube head.

The normal position of the piston-head *D* of the piston-rod *d'''* or the position assumed



by it when the filling-tube is raised, as before described, preliminary to driving the bung is shown in Fig. 1, the said piston-head being shown at the upper end of the said cylinder.

5 When I desire to drive the bung, I throw the hand-lever 40 against the tension of the spring 47, Fig. 13, and thus throw the rod 43 upward and with it the connecting end of the lever 44, said lever by such action turning on fulcrum  
10 48. This action tends to turn the connecting-rod 49 and with it the valve 50, which opens the lower part of the cylinder to the exhaust-passage 51, Fig. 10, and at the same time establishes a communication of the up-  
15 per part of the cylinder through the passages 53 and 54 with the compressed-air-supply pipe 55 in connection with the compressed-air reservoir 56, Fig. 10, which reservoir may be of any ordinary construction and be in con-  
20 nection with a suitable air-compressor. (Not shown.)

The opening of the compressed-air passages to the upper part of the cylinder *d'* permits an inflow of compressed air to the upper side  
25 of the piston-head and causes a rapid or sudden descent of the same, so that the filling-tube *u* engages the bung beneath, lying in the bung-hole of the barrel, with great force, resembling the blow of a hammer, so that  
30 said bung is driven into final position with the necessary firmness and security. The descent of the piston-rod causes a downward movement of the connecting-rod 45, attached thereto by means of the collar 46, so that the  
35 lever 44 is turned, the pivotal pin or connection 57 now serving as the fulcrum for said lever. As said lever turns the valve 50 is also turned, so that the lower passage 51, which before acted as an exhaust-passage,  
40 will be opened to the compressed air, and said compressed air will be allowed to flow into the lower end of the cylinder *d'* and form an air-cushion, preventing the further descent of the piston and the hammering of said pis-  
45 ton-head against the lower end of the cylinder. Immediately upon the striking of the blow the operator releases his hands from the hand-lever 40 and permits the spring 47 to act to turn the said lever 40 back to its nor-  
50 mal position to draw the rod 43 downward. This action causes the valve 50 to continue the movement due to the lever 40 caused by the descending piston, so that said valve is brought to a position in which the compressed  
55 air is free to enter the under side of the piston and the upper side is open to the exhaust, so that said piston is forced upward to its normal relation to the cylinder ready to effect another blow.

60 The system of levers and connecting-rods thus described being entirely carried by the driving-tube head rises and falls therewith in the operations of raising and lowering the filling-tube, as will be understood.

65 At a point beneath the filling-tube and the cooperating parts I arrange what may be termed a "barrel" receiver or holder, adapt-

ed to be adjusted to receive barrels or pack-  
ages of various sizes and bring the bung-holes  
thereof into proper alinement with the filling-  
tube and packing-head. Said barrel-receiver  
70 consists of four arms 60, (shown in Figs. 1 and 2,) which are adjustable in their relation to one another and adapted to be raised or  
lowered pivotally to accommodate said arms  
75 to barrels of large or small sizes and be brought together or separated lengthwise of the barrel to suit barrels of varying lengths and means for operating said arms. Said  
80 arms 60 are preferably provided at their upper extremities with rollers 61 to facilitate the turning of the barrel axially in bringing the bung-hole into line with the filling-tube after said barrel has been moved lengthwise  
85 to its proper position. Said arms are parts of bell-crank levers 62, the lower arms 63 of which are at their extremities provided with  
toothed segments 64, which intermesh, as  
shown in Fig. 3, the intermeshing segments  
being adjacent to bell-crank levers. Two  
90 pairs of such arms are provided, one for each end of the barrel. Said bell-crank levers are fulcrumed upon shafts 65 of a frame 66, which shafts are turned by means of a hand-  
95 lever 67, having hand-catches 68, which engage notched segments 69, formed on an arm 70, attached rigidly to a central shaft 71, forming a part of the frame 66. By turning  
said hand-lever 67 one of the shafts 65 is also  
turned and with it the intermeshing segmental  
100 arms and the second of the shafts 65, the four arms being operated simultaneously and together, so that the barrel will simply be raised or lowered without throwing the bung-hole out of alinement with the filling-tube.  
105

Upon the shaft 71 is arranged a sleeve or roller 72, upon which the barrel is adapted to rest at its lower side between the rollers 61, the rollers 61 being rather guides or stays for  
110 holding the package centrally upon said rollers 72. This said sleeve or roller 72 is adapted to be rotated upon its shaft 71, so as to turn the package for the purpose of bringing the bung-hole vertically in line with the fill-  
115 ing-tube. The rotation of said sleeve 72 is effected by means of a hand-shaft 73, bevel-gears 74, a shaft 75, and a pinion 76, which last intermeshes with a cogged extremity 77 of said sleeve 72. Thus by turning the hand-  
120 wheel 78 of said hand-shaft 73 and transmitting rotary motion to the cogged extremity 77 the desired rotation of the sleeve or roller 72 is effected.

To move the barrel longitudinally for the purpose of bringing the bung-hole into proper  
125 alinement, I move the shaft 71 and the parts rigidly attached thereto and the sleeve 72 thereon lengthwise of said shaft 71 by means of a hand-lever 79, fulcrumed at 80 upon a  
suitable fixture 81 and extending downward  
130 near to the end of the shaft 71, to which latter it is connected by a suitable link 82, the parts being so arranged that by pressing the handle of said lever the said shaft and con-



nections and the barrel or package carried thereby will be all moved in their bearings lengthwise of the barrel, all as will be understood by an examination of Fig. 1.

5 To enable the arms 60 for staying the barrel to be oscillated with the shaft 71 and the rollers 61, lowered at one side of the package and raised at the other, and to permit the said package to be rolled onto the receiver or away  
10 therefrom onto the skids, I have provided another lever 83, which is keyed to the shaft 71 by means of a spline 84, which latter permits of the longitudinal movement of the shaft above referred to. The said lever 83 is pro-  
15 vided with a hand-catch 85, adapted to engage a notched segment 86, so that the shaft may be turned and held temporarily at any desired position. Thus in arranging the barrel upon the receiver the same is rolled thereto  
20 from one side of the machine, the rollers 61 at that side being lowered to permit of the barrel being easily rolled onto said receiver and the rollers on the opposite side being correspondingly raised to limit the movement of  
25 the barrel. After the barrel is in its proper position centrally beneath the filling-tube the four arms are brought to a level and engage the periphery of the barrel, so as to hold the latter firmly in position. After the filling  
30 operation is completed the opposite pair of rollers to those first described are lowered, and the barrel is thus free to be rolled away from the opposite side of the machine.

In connection with the feed-pipe 90 of the  
35 fluid-supply tank 900 I employ a compressed-gas duct or pipe 91, which may be in connection with any suitable carbonic-acid-gas-generating device or reservoir. This is furnished with a cock 92, by means of which the said  
40 gas can be turned off or the flow thereof regulated to suit any condition desired for the purpose of enlivening the beer or fluid, if found necessary or desirable. The gas passing down the filling-tube with the liquid becomes thor-  
45 oughly impregnated therewith prior to issuing from said tube.

While I have described the construction preferred to secure the results referred to, I am aware that various modifications and  
50 changes may be employed without departing from the spirit or scope of the invention, and consequently I do not wish to be understood as limiting myself by the positive descriptive terms employed herein. For example, in lieu  
55 of the valve *v*, movable in the axial line of the filling-tube, as shown in Fig. 1, I may employ a rotary valve, as indicated in Fig. 2, in which case the valve-rod *t* is provided at its upper end with an outwardly or radially ex-  
60 tending arm 94, which is adapted to engage a spirally-formed protuberance 95, formed on or secured to the frame of the machine in any suitable manner, so that as the filling-tube head is lowered the said arm 94 will be caused  
65 to turn, and with it the rod *t*, to open the valve-ports to secure the desired outflow. A

return action effects a reverse movement of the valve, as will be understood.

Having thus described the invention, what I claim as new is—

70 1. In a racking or barrel-filling machine, the bung-feed herein described comprising a projecting plate 23, fastened to the packing-head of said barrel-filling machine a cap-like plate 24, imperviously secured to said plate 75 23, a bung-storage receptacle 25, and means for imperviously closing the same, and an oscillating plate 35, arranged between said plates 23 and 24, and having a bung-receptacle adapted to be oscillated from the storage-re- 80 ceptacle to the filling-tube passage 39, a crank-shaft 32, for thus turning said oscillating plate, and a spring 29, for normally holding the said plate away from said filling-tube passage 39, substantially as set forth. 85

2. In a barrel-filling and bung-driving apparatus or machine, the combination with the filling-tube and its vertically-sliding head, valve and independently-moving valve-rod, a cylinder and piston in connection with said 90 vertically-sliding head and means for conducting compressed air to said cylinder to drive the said head and filling-tube, helped by gravity against said bungs, whereby the bung is driven by an unobstructed hammer- 95 like action as distinguished from a mere mechanical pushing, and means for operating said valve-rod, substantially as set forth.

3. In a barrel filling or racking and bung-driving machine, the combination with the 100 filling-tube and its vertically-sliding head, valve and valve-rod, a cylinder and piston for driving said filling-tube, means for supplying said cylinder with compressed air, and an inclosed bung-feed device having a pas- 105 sage for said filling-tube, the feeding-plate having an oscillating motion to and from said filling-tube passage and a spring for holding said plate in normal position, substantially as set forth. 110

4. The combination in a barrel-filling machine of plates 23 and 24, bung-storage re- 115 ceptacle 25, spring-chamber 28, segmental plate 35, having a bung-receptacle 36, an arm 38, a shaft 32, for turning said segmental plate, a spring 29, a handle 34, and a cover imperviously closing the bung-receptacle, all said parts being arranged and combined, sub- 120 stantially as set forth.

5. In a barrel-filling machine, the combina- 120 tion with a suitable frame, a filling-tube, its valve and valve-rod duct for supplying said filling-tube with liquid, means for raising and lowering the filling-tube, pneumatic devices for raising and lowering the valve-rod, of 125 pneumatic devices fastened to or arranged in connection with the filling-tube head and means for supplying said pneumatic devices with compressed air and regulating and controlling the flow thereof to effect a driving 130 of said filling-tube against the bung, all substantially as set forth.



6. The combination in a racking-machine, with the frame thereof, of a vertically-sliding filling-tube head and its filling-tube and means for raising and lowering the same to bring  
5 the said filling-tube into proper relation with the barrel, of a cylinder, a piston arranged in said cylinder at its upper end provided with a piston-head and at its lower end supporting a second cylinder to which latter the  
10 filling-tube is attached, said second cylinder having a piston-head to which the valve-rod of the filling-tube is attached, and compressed-air ducts and valves controlling the flow of air therethrough, substantially as set forth.

15 7. The combination in a racking or barrel-filling machine with the frame thereof having vertical slideways, of a filling-tube head and a packing-head arranged on said slideways and means adapted to be operated by hand  
20 for raising said packing-head and said filling-tube head from the barrel, the filling-tube head being provided with a cylinder having a piston-head, which supports the filling-tube, a piston-rod attached to said piston-head and  
25 having a lower cylinder and piston-head, a valve-rod attached to the second piston-head and extending through the filling-tube, and means for supplying said cylinders with compressed air and for regulating and controlling  
30 the flow of said compressed air to said cylinders, substantially as set forth.

8. The combination in a racking or barrel-filling machine, with the frame having vertical slideways and means for raising and lowering the packing-head and filling-tube head,  
35 of said packing-head and filling-tube head arranged on said slideways, the packing-head being adapted to be raised and lowered from and to impervious relation to the barrel at the bung-hole thereof, and having a passage  
40 therethrough for the filling-tube and said filling-tube carried by a piston arranged within a cylinder forming a part of the filling-tube head, and compressed-air ducts and valves  
45 controlling the flow of the compressed air therethrough, substantially as set forth.

9. In a barrel-filling machine, the combination with the filling-tube head, its cylinder and piston having a second cylinder attached  
50 thereto and movable therewith, the said second cylinder containing a spring and a piston-head to which a valve-rod is attached, the said piston-head being seated upon said spring and held normally in a position to  
55 close the valve of the filling-tube, a valve at the lower end of the filling-tube controlled by said rod, and a duct for supplying said cylinder with compressed air for forcing the said valve-rod and its piston-head downward  
60 against the power of the said spring to open the said filling-tube valve all said parts being arranged and combined substantially as set forth.

10. In a racking apparatus, the combination with the frame having vertical slideways, of a packing-head, and means for raising

ing and lowering the same, and a filling-tube head and a rack and pinion and means for rotating the pinion for raising and lowering  
70 said filling-tube head from and into the barrel, said filling-tube head having a cylinder  $d'$ , a piston working in said cylinder and carrying a second cylinder  $d''$ , having a spring therein, a piston-head within said second cylinder seated on said spring, a filling-tube, attached to said second cylinder and extending  
75 downward through said packing-head and at its lower end provided with a valve, a valve-rod for operating said valve attached to said piston-head of the second cylinder, and means  
80 for furnishing said cylinders with fluid under abnormal pressure substantially as set forth.

11. In a racking apparatus, the combination with the frame having slideways, of a packing-head and means for raising and lowering the same, a filling-tube head and its  
85 valved filling-tube, and a valve-rod extending through the filling-tube, from the valve in said tube, and mechanical means for raising and lowering heads, pneumatic means for  
90 operating the filling-tube valve-rod to open and close the said valve and for operating the filling-tube as a bung-driver, and means for adjusting the barrel beneath the filling-tube, substantially as set forth.  
95

12. In a racking or barrel-filling apparatus, the combination with the frame,  $a$ , having vertical slideways, of a packing-head and filling-tube head working independently on  
100 said slideways and means for raising and lowering said heads on said slideways, a filling-tube and a valve at the lower end of said filling-tube, a valve-rod extending upward through said filling-tube, and pneumatic  
105 means adapted to be operated automatically to open and close said valve, substantially as set forth.

13. In a racking or barrel-filling apparatus, the combination with a frame having vertical slideways, of a packing-head and filling-tube head, each working independently of  
110 the other on said vertical slideways, and means for raising and lowering the same, the filling-tube head carrying pneumatic cylinders and pistons for driving the filling-tube against the barrel-bung and for operating the  
115 valve-rod, and means for controlling the movements of said piston, a valved filling-tube in connection with the filling-tube head and said valve-rod, all substantially as set  
120 forth.

14. In combination, the frame  $a$ , head  $d$ , a rack  $k$ , pinion  $m$  and train of devices for operating said pinion and raising said head, a  
125 packing-head having a filling-tube passage, means for raising and lowering said packing-head, a cylinder  $d'$ , on said filling-head a piston working therein and carrying a second cylinder, a filling-tube attached to said second cylinder, a valve at the lower end of said  
130 second cylinder, a valve-rod for operating said valve and a piston in connection with



said valve-rod, working in said second cylinder and means for operating said pistons, substantially as set forth.

15. In combination with the frame *a*, filling-tube head *d*, a rack *k*, pinion *m* and a train of devices for operating said pinion, a cylinder *d'*, piston *D*, piston-rod *d'''*, cylinder *d''''*, filling-tube having a valve at its lower end, a valve-rod having a piston-head working in the cylinder *d''''*, a spring 3, bearing upon the last-said piston-head, a valve 50, and ducts leading thereto and therefrom to the cylinder *d'*, ducts leading to the cylinder *d''''*, a collar 46, rod 45, lever 44, connecting-rod 49, operating-valve 50, a rod 43, and hand-lever 40, all arranged and operating, substantially as set forth.

16. The combination with the filling-tube head, in a barrel-filling machine, having a cylinder and a piston carrying the filling-tube, of a valve 50, lever 44, connected to said valve to open and close the same, one arm of said lever being in connection with said piston and the opposite end being connected to a hand-lever, all substantially as set forth.

17. In a barrel-filling machine, the combination with the frame *a*, filling-tube head, its valved filling-tube, head and tube to force the bung fast in its seat, of a compressed-air reservoir 56, duct or tube 55, valve 5, bell-crank 6, a spring 7, stop 8, adjustable rod 9, a cylinder and piston and exhaust and supply passages controlled by the valve 5, whereby in the descent of the filling-tube, in the driving operation, the filling-tube valve will be opened, substantially as set forth.

18. In a barrel-filling machine, the combination with the frame *a*, filling-tube head, having a cylinder and a piston carrying a second cylinder having a valved filling-tube attached, and a piston having a rod connecting with the filling-tube valve, compressed-air ducts leading to said cylinders and a valve 5, adapted to be operated automatically in the descent of the filling-tube and connections to occasion a flow of compressed air into the second cylinder to operate the valve-rod, substantially as set forth.

19. In a barrel-machine, the combination with the frame *a*, a filling-tube head having an arm 15, attached to or formed on said head, a cylinder *d'*, and means for supplying the same with compressed fluid, valves for controlling the flow of said fluid, a piston operating in said cylinder *d'*, and carrying a second cylinder *d''''*, a filling-tube attached to said second cylinder, a piston working in said second cylinder, a valve for closing the lower end of the filling-tube, a valve-rod extending from said valves to the piston of the second cylinder and operated thereby, a counter-pressure duct, and valve 13, a cylinder 18, spring 17, rod 19, lever 20, and rod 160, having an adjustable stop 16, adapted to engage the arm 15, substantially as set forth.

20. In a barrel-machine, the combination with the frame *a*, filling-tube head and means

for raising and lowering the same to effect a lowering of the filling-tube to and a withdrawal of the same from the barrel, independent means for driving the filling-tube to seat the bung, a filling-tube having a valve, at its lower end, means for holding said valve normally closed and means for opening said valve when the tube is lowered within the barrel, substantially as set forth.

21. In a barrel-machine, the combination with the frame *a*, a filling-tube head and means for raising and lowering the same, a valved filling-tube attached to said head, independent means for driving said head and filling-tube to effect a seating of the bung within the bung-hole, means for holding the valve normally closed, means for opening said valve when the filling-tube is lowered to its low position in the barrel, a counter-pressure cylinder duct and valve, and means for operating said valve to open the same upon the descent of the filling-tube, substantially as set forth.

22. In a barrel-filling machine, the combination with the packing-head, of the plate 25, hollow case-plate 24, imperviously fastened to said plate 25, a bung storage-cylinder 25, attached to said case-plate and having a cap or cover 26, removably and imperviously clamped to said cylinder, a box 28, formed upon the case-plate, a spring in said box, a hand-lever 34, shaft 32, and a sliding-bung-feed oscillated by said shaft and having a bung-receptacle adapted to be turned from coincidence with the cylinder to a position to be driven into the bung-hole, substantially as set forth.

23. In a barrel-filling machine, the combination with the packing-head and filling-tube and means for operating the same, of an airtight case, attached to said packing-head and having a passage for the filling-tube, and a bung storage-receptacle, a segmental bung-feed having a receptacle 36, for a bung, adapted to be turned from coincidence with said storage-receptacle to the filling-tube passage and having an arm 38, a shaft 32, a handle 34, and a spring 29, adapted to hold the receptacle 36, normally in coincidence with the storage-receptacle, substantially as set forth.

24. In a barrel-filling machine, the combination with the packing-head and filling-tube, their connections, and means for operating the same to raise or lower them from and to the barrel, of a bell-crank lever 40, fulcrumed upon an arm 42, attached to the filling-tube connections, a spring 47, rod 43, slotted lever 44, connecting-rod 45, collar 46, piston *D* and its rod *d'''*, a cylinder attached to the filling-tube connections and compressed-air ducts, a valve 50, and connecting-rod 49, all arranged and operating, substantially as set forth.

25. In a barrel-machine, the combination with the filling-tube and means for operating the same, of a barrel-receiver having four arms 60, adjustable in relation to one another



and adapted to be raised or lowered and be brought toward one another or separated, and means for operating the said arms, substantially as set forth.

5 26. In a barrel-machine, the combination with the filling-tube and means for operating the same, of bell-crank levers 62, having toothed segments, intermeshing as described, shafts 65, and a hand-lever for turning one  
10 of said shafts and transmitting motion therefrom to the bell-crank levers thereon and those in gear therewith whereby the barrel-engaging arms of said bell-cranks are raised or lowered, substantially as set forth.

15 27. In a barrel-machine, the barrel-receiver, comprising a frame, intermeshing toothed, segmental bell-crank levers fulcrumed on shafts 65, 65, a hand-lever for operating said bell-cranks simultaneously, a shaft 71, a  
20 cogged sleeve 72, a hand-shaft, bevel gear-wheels 74, a shaft 75, and a pinion 76, all arranged and combined, substantially as set forth.

28. In a barrel-filling machine, the barrel-  
25 receiver comprising a frame, shafts 65, 65, arranged therein, intermeshing toothed segmental levers having arms to engage and support the barrel, said arms being furnished with wheels or rollers, a hand-lever for op-  
30 erating said bell-crank levers, a shaft 71, a sleeve, means for rotating said sleeve and means for oscillating said bell-crank levers whereby when one pair of arms are raised another will be lowered, substantially as set  
35 forth.

29. In a barrel-filling machine, the barrel-receiver, comprising a frame, shafts 65, 65, arranged therein, intermeshing toothed seg-

mental levers having arms to engage the barrel and means for oscillating said arms where- 40  
by when one pair at one side of the barrel center is raised the other pair will be lowered, substantially as set forth.

30. In a barrel-filling machine, the combination with the barrel-filling apparatus, of 45  
a barrel-receiver having arms for steadying the barrel, a rotary sleeve for turning said barrel on its axis and means for moving said arms in the direction of the longitudinal axis of the barrel, and means for turning said 50  
sleeve, substantially as set forth.

31. In a barrel-filling machine, the combination with the filling apparatus, of a barrel-  
receiver disposed beneath said filling apparatus, comprising a frame having shafts 65, 65, 55  
71, pairs of segmental bell-crank levers, the teeth of which intermesh to secure a simultaneous movement in opposite directions in opposite pairs of barrel-supporting arms, means for turning said bell-crank levers on 60  
said shafts 65, 65, a sleeve 72, having teeth, a pinion intermeshing with said teeth, a shaft carrying said pinion, bevel gear-wheels 74, and a hand-shaft, a lever 79, for moving the shaft 71, and the parts connected therewith 65  
longitudinally and a lever 83, for oscillating the said shaft 71, and connections, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of 70  
August, 1897.

DILLON BEEBE.

Witnesses:

CHARLES H. PELL,  
C. B. PITNEY.