

No. 874,201.

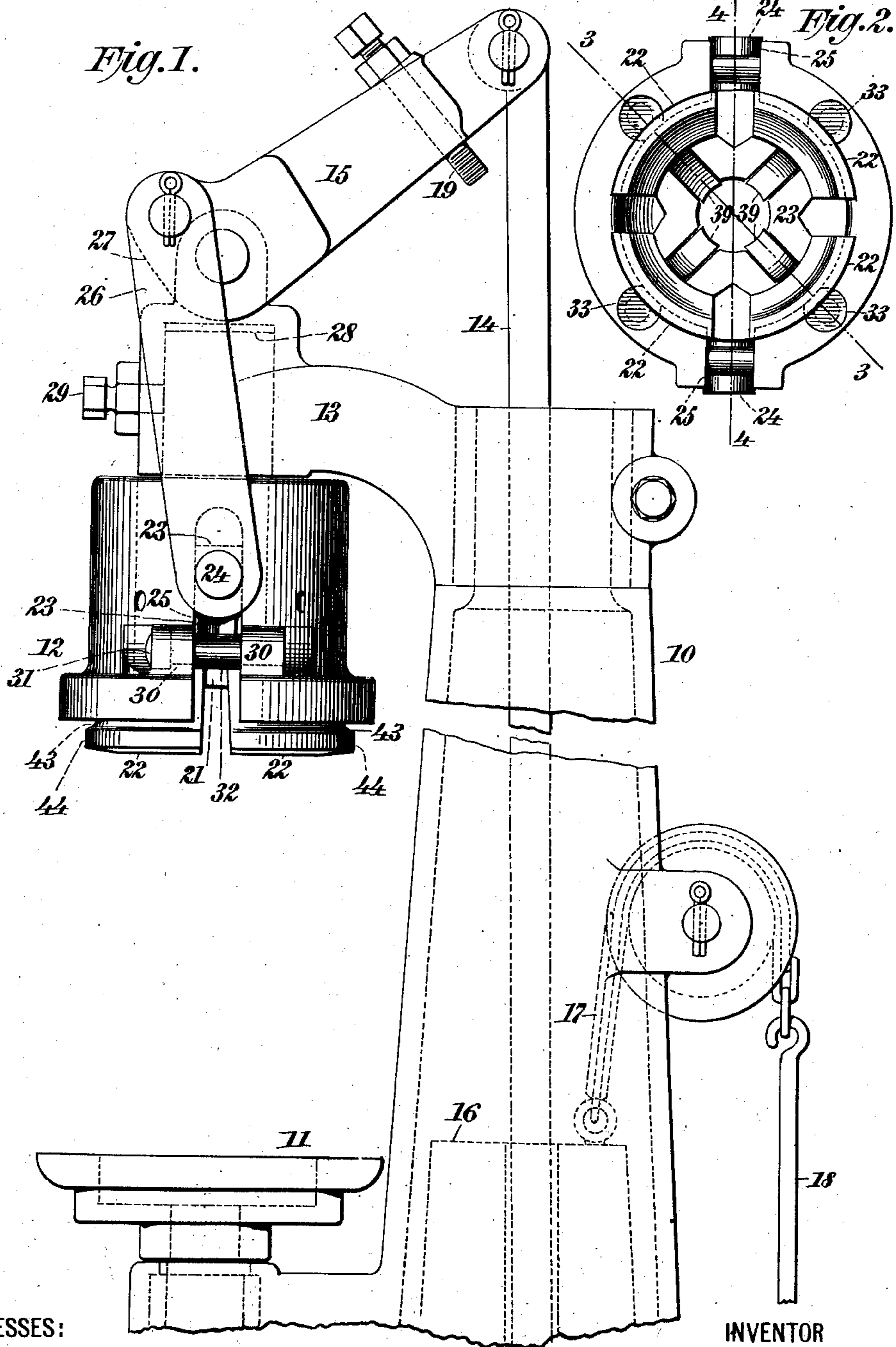
J. V. HULL.

PATENTED DEC. 17, 1907.

MACHINE FOR SEALING BOTTLES, JARS, AND OTHER RECEPTACLES.

APPLICATION FILED JAN. 15, 1906.

3 SHEETS—SHEET 1.



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Fig. 4.

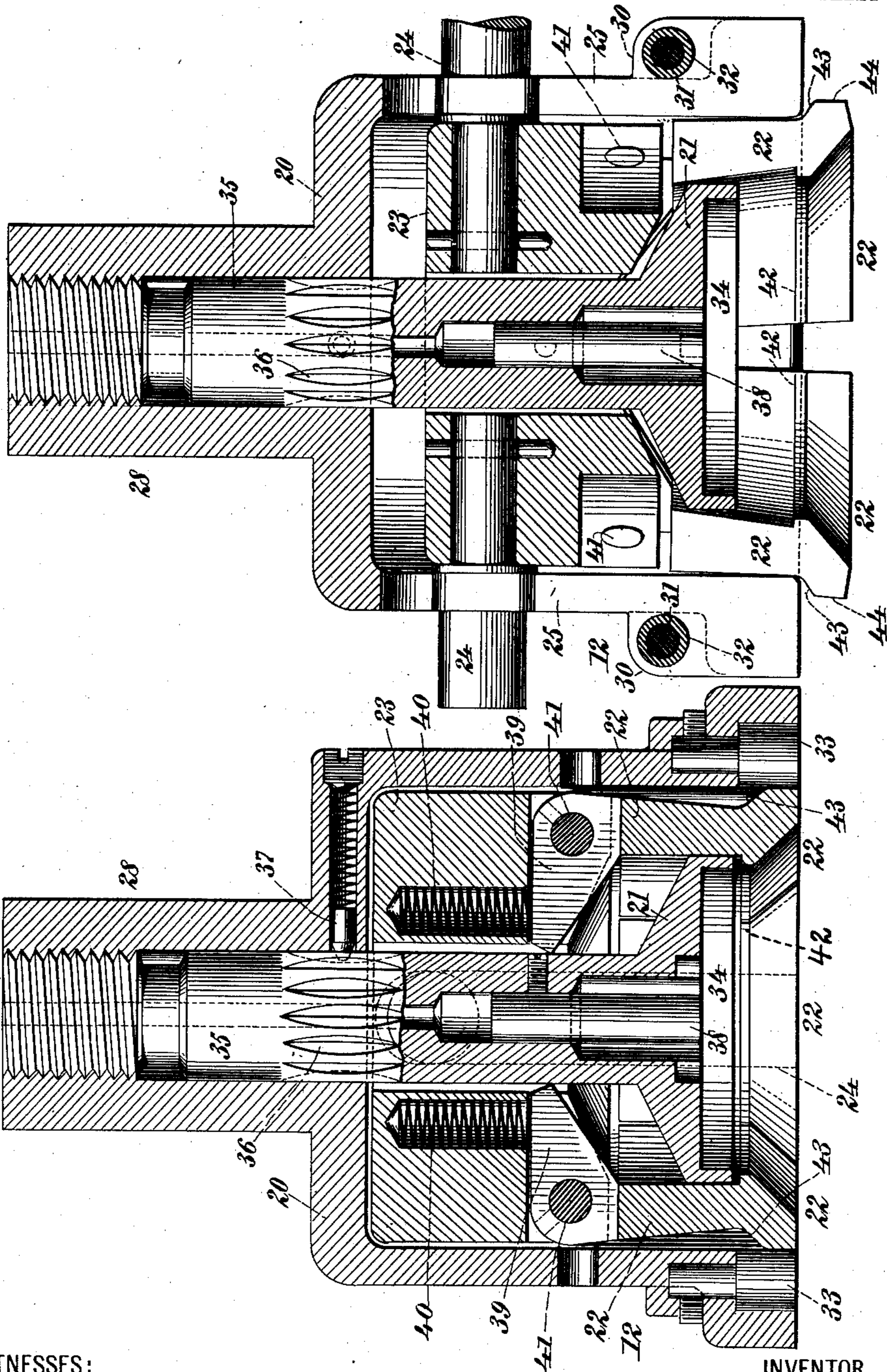
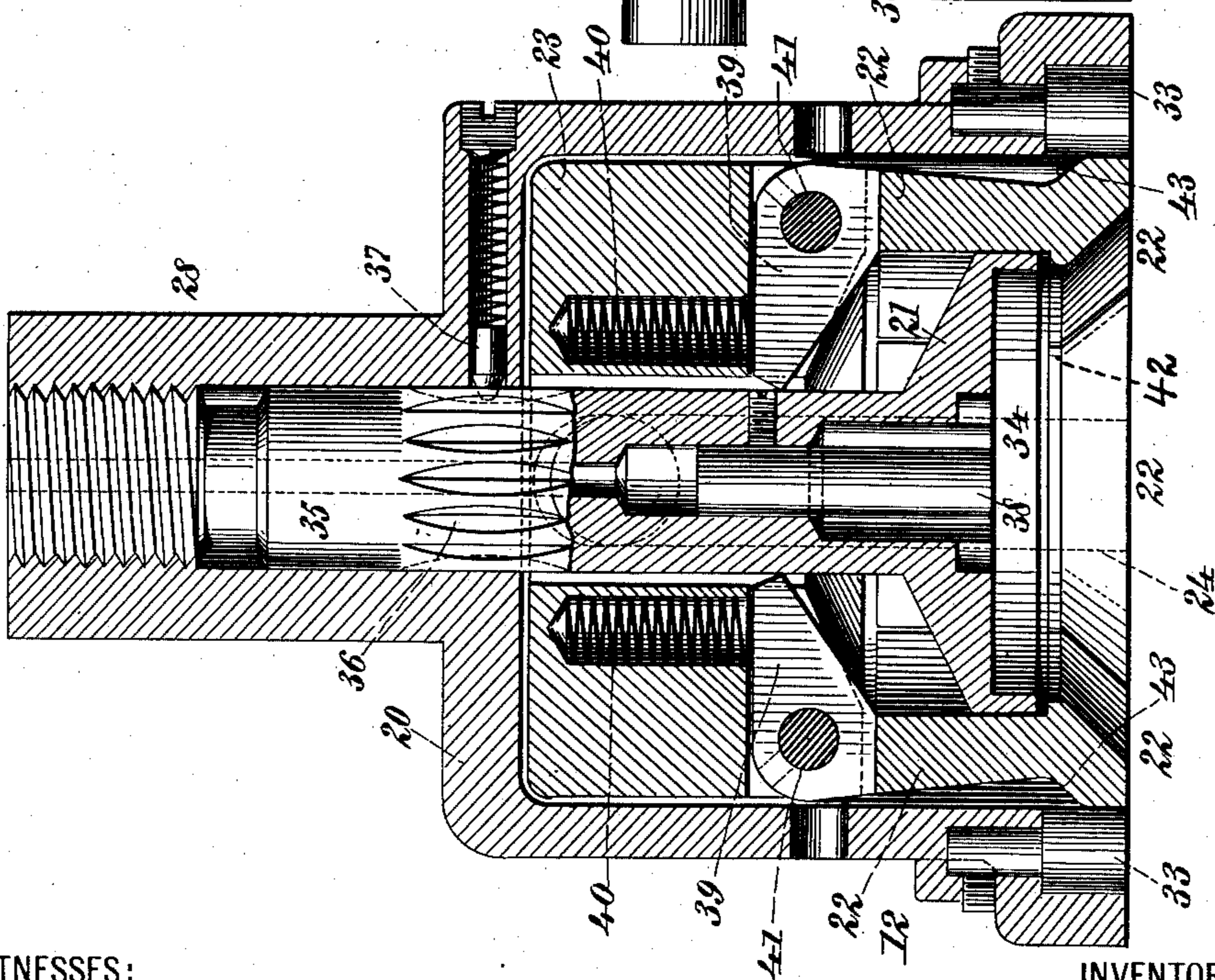


Fig. 3.



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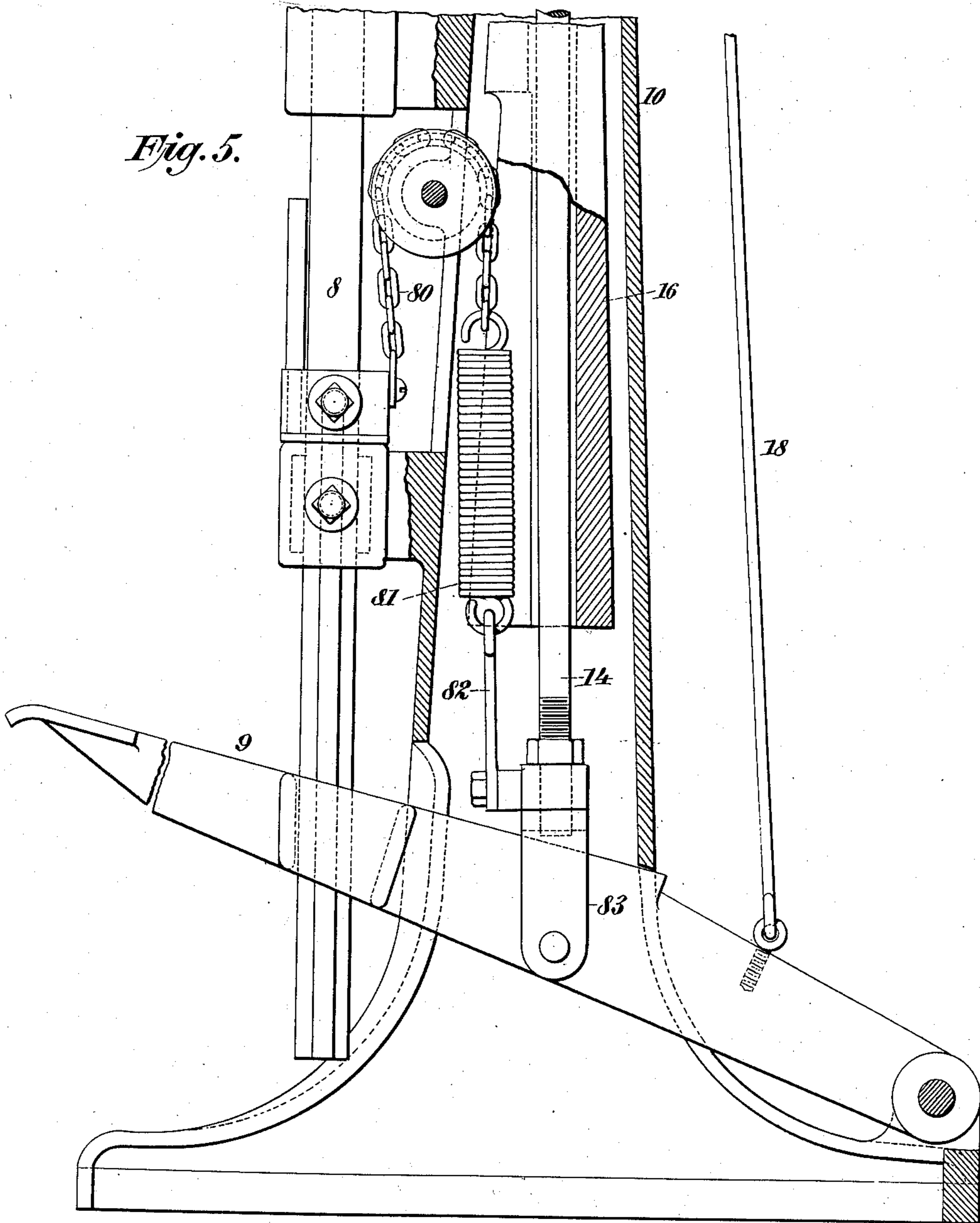
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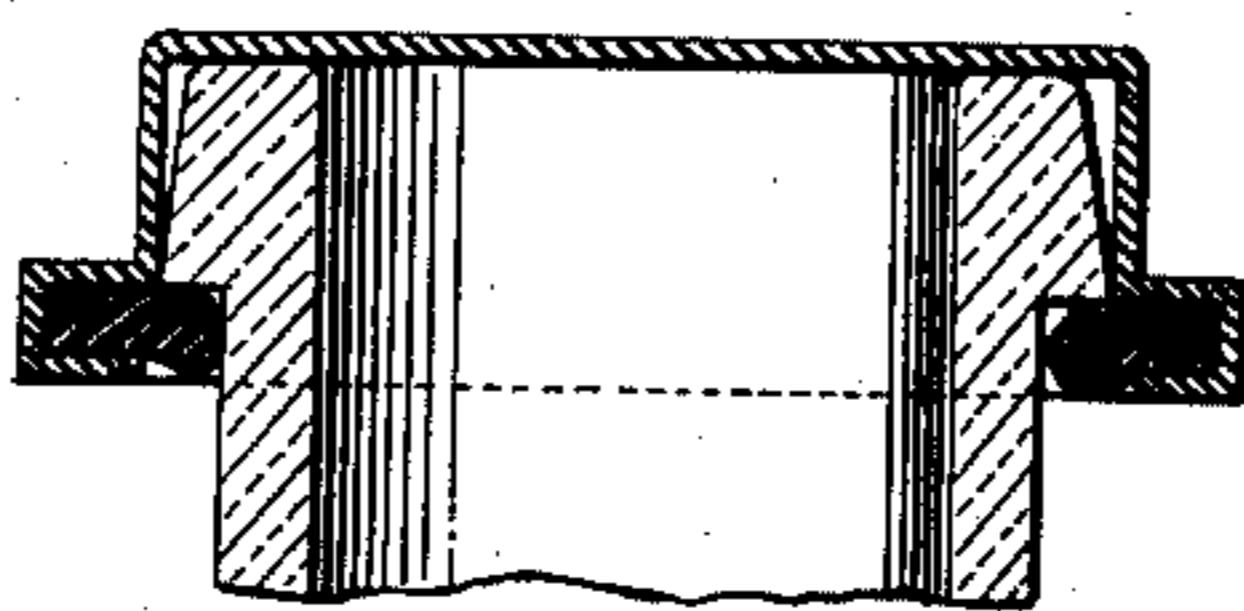
*Fig. 5.*



*Fig. 6.*

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# UNITED STATES PATENT OFFICE.

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MACHINE FOR SEALING BOTTLES, JARS, AND OTHER RECEPTACLES.

No. 874,201.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed January 15, 1906. Serial No. 296,052.

*To all whom it may concern:*

Be it known that I, JOSEPH V. HULL, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Sealing Bottles, Jars, and other Receptacles, of which the following is a specification.

10 The invention relates to improvements in machines for sealing bottles, jars and other receptacles provided with caps or like closures; and it consists in the novel features hereinafter described and particularly pointed out in the claims.

15 The machine of my invention has been produced more particularly for sealing jars and the like with closures or caps of the character shown in Figures 1, 2, 3 and 4 of Letters-Patent No. 770,751 granted September 27, 1904, said caps having at their lower edge an annular bead containing a packing ring and which bead is compressed vertically to squeeze a portion of the ring partly below an annular shoulder on the jar or bottle, whereby the cap becomes secured in position on the jar or bottle and seals the same.

20 The present invention comprises a machine having a novel chuck within which the bottle cap is placed and parts of which during the operation of the machine exert pressure in an upward vertical direction against the lower edge of the bead on the cap for squeezing outwardly from said bead a portion of the packing ring against the annular shoulder on the bottle neck.

25 The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

30 Fig. 1 is a side elevation, partly broken away, of the upper portion of a sealing machine constructed in accordance with and embodying my invention; Fig. 2 is a bottom view of the chuck, the cap centering head being omitted therefrom; Fig. 3 is a vertical section, on an enlarged scale, of the complete chuck, with the parts thereof shown in their operated position, the section being on the dotted line 3—3 of Fig. 2, Fig. 4 is a like section of the same on the dotted line 4—4 of Fig. 2, with the parts thereof shown in their normal inoperative position ready to receive the head of a bottle or jar with a cap thereon preparatory to said parts being

60 moved to the position in which they are shown in Fig. 3 for exerting pressure against the lower edge of the bead on the bottle cap; Fig. 5 is a side elevation partly in section of the lower part of the machine whose upper part is represented in Fig. 1, and Fig. 6 is a central vertical section through the upper end of a bottle equipped with a cap of the character applied with the use of the present invention.

65 In the drawings, 10 designates a portion of the general frame of the machine; 11 a vertically movable table to be moved upwardly by means of a foot treadle 9 (Fig. 5), as usual, against the lower end of the bottle or jar to be sealed; 12 the chuck as a whole; 13 a rigid arm supporting the chuck; 14 a rod pivotally connected at its upper end with a lever 15 which is fulcrumed on said arm; 16 a weight guided on the rod 14 and connected by a chain 17 and rod 18 with the aforesaid foot-treadle for normally keeping the latter tilted upwardly ready to be depressed by the foot of the operator, and 19 an adjustable stop carried by the lever 15 for preventing undue descent of the rod 14 when the foot treadle is depressed, said rod 14 being at its lower end connected with said treadle. The table 11 is secured upon the upper end of a slidable rod 8 which by means of a chain 80, spring 81 and link 82 is connected with a bracket 83 pivotally connected with the treadle 9 and which receives the lower end of the rod 14 and serves to connect the same with said treadle. When the treadle 9 is depressed it pulls downwardly on the spring 81 and chain 80 and effects an upward movement of the table 11.

95 The features of my invention are located at the upper end of the frame 10 and reside more particularly in the chuck 12.

100 The chuck 12 comprises an exterior inverted cup-shaped casing 20 containing a centering head 21 and a series of jaws 22, the latter being pivotally secured to and carried by a frame 23 located within the upper portion of the casing 20 and carrying trunnions 24 which project outwardly through vertical slots 25 formed in said casing and are engaged by the lower ends of links 26 pivotally secured to the crank-end 27 of the lever 15. The casing 20 and centering head 21 have no movement during the operation of the machine, but the frame 23 and jaws 22 are drawn upwardly, in such operation, from the position in which they are shown in Fig. 110

4 to that in which they are shown in Fig. 3 by the depression of the rod 14 and the upward movement imparted by the lever 15 at such time to the links 26.

5 The casing 20 is a casting and has an upwardly extending tubular shank 28 which fits within a vertical socket in the arm 13 and is there held by a screw 29. At opposite sides of the slots 25 in the casing 20 the latter is formed with lugs 30 through which bolts 31 pass, said bolts preventing any spreading of the lower walls of the casing and enabling said walls to be drawn slightly inwardly, due to the slots 25, to take up any wear upon their lower inner edges by the action of the jaws 22. Upon the bolts 31 will preferably be provided spacing sleeves 32 fitting between the walls of the slots 25. When the lower walls of the casing 20 are to be drawn inwardly, the sleeves 32 must be removed and shortened.

The lower edge of the casing 20 is thicker than the general wall of the casing, and in said edge are inserted plugs 33 of hardened metal, the inner edges of said plugs being flush with the inner vertical walls of the casing and said plugs being provided to prevent undue wear on the lower inner edges of said casing by the jaws 22.

30 The centering head 21 has in its lower face a recess surrounded by a flange 34, which recess snugly receives the closure cap, with the lower annular bead thereof directly below the lower edge of said flange, which edge operates as the anvil against which the bead on the cap is pressed by means of the jaws 22 when the latter are moved upwardly to the position in which they are shown in Fig. 3. The centering head 21 has an upwardly extending stem 35 which extends upwardly within the shank 28 of the casing 20 and is threaded at its upper portion to engage a thread formed in the interior of said shank. The centering head 21 may thus be adjusted vertically within the casing 20 and when adjusted remains stationary with said casing.

In order to lock the centering head 21 against accidental rotation I provide the stem 35 with a series of elongated tapered recesses 36 to be engaged by a spring-pressed stud 37 (Fig. 3), this stud permitting the rotation of the head 21 under the force of a tool applied thereto for that purpose but preventing any accidental rotation of said head.

55 Within the head 21 is formed a chamber within which is secured a magnet 38 which may or may not be used as preferred. If the cap is applied upon the neck of a bottle and both introduced to the chuck prior to the elevation of the table 11, the magnet 38 will be unnecessary, but if it is desired to first apply the cap to the head 21 and then elevate the bottle or jar to the cap by means of the table 11, the magnet 38 should be employed so that it may hold the cap within the head

21 in position to have the neck of the bottle or jar enter it when the table 11 is elevated. The stem 35 of the head 21 has a vertical hole through it, as indicated by dotted lines in Figs. 3 and 4 through which a rod may be inserted for driving the magnet 38 from said head when the latter is detached from the machine.

The jaws 22 are of segmental outline, as shown in Fig. 2, and at their upper portions are formed with the inwardly extending arms 39 whose inner ends are disposed below coiled springs 40 housed within the frame 23 and exerting a downward pressure upon the inner ends of said arms 39, whereby the lower portions of the jaws 22 have a normal tendency to spread outwardly from around the centering head 21. The arms 39 of the jaws 22 are pivotally hung, by means of pins 41, in slots formed in the lower edges of the frame 23, and the lower edges of said jaws flare outwardly and are formed with an inner shoulder 42 and an outer shoulder 43, below which shoulder 43 the jaws have plain vertical surfaces 44. When the jaws 22 are in their lower inoperated position, shown in Fig. 4, the shoulders 43 are below the lower inner edges of the casing 20, said jaws having been turned outwardly, upon their descent, to the position shown in Fig. 4 by the action of the springs 40. When the rod 14 of the machine is depressed and the lever 15 is caused to pull upwardly, through the links 26 and trunnions 24, upon the frame 23 and jaws 22, the shoulder 43 on said jaws rides inwardly against the lower inner edge of the casing 20, whereby said jaws become closed together and the shoulder 42 is carried upwardly directly below the lower edge of the flange 34 of the centering head 21, said shoulder 42 not contacting with the edge of said flange 34 but pressing the bead on the cap against said edge, whereby said bead becomes compressed and a part of the packing ring therein is squeezed against the bottle neck, as shown in Fig. 6. When the jaws 22 are in their upper position, shown in Fig. 3, their vertical surface 44 engages the inner vertical surface of the lower portion of the casing 20, whereby said jaws are prevented from spreading during the operation of pressing the bead on the cap against the edge of the flange 34, and the vertical segmental inner surface of the jaws lies close against the outer surface of the flange 34, whereby the bead on the bottle cap is prevented from spreading outwardly beyond the outer edge of the flange 34, the integrity of the beading being thus preserved and said beading being reduced in a vertical direction only enough to properly squeeze the packing ring and effect the sealing of the bottle. When the jaws 22 are in their upper position a three-sided recess is formed between the lower edge of the flange 34, upper edge of the shoulder 42 and inner edge of the jaws 22,

and it is within this recess that the bead on the bottle cap is compressed vertically.

The operation of the machine constituting my invention will be largely understood from the description hereinbefore presented. The normal inoperated position of the parts of the chuck 12 is represented in Fig. 4. The cap may be applied upon the bottle neck and therewith inserted into the centering head 21, the bead on the cap being placed immediately below the flange 34, and thereupon, by the depression of the treadle 9, the table 11 will be elevated and the rod 14 depressed, with the result that the table 11 will engage the lower end of the bottle and keep the cap thereon pressed up within the head 21 and that, through the lever 15 and links 26, the frame 23 and jaws 22 will be drawn upwardly within the casing 20, said jaws during their upward movement closing inwardly around the bottle neck and carrying the shoulder 42 upwardly below and against the bead on the bottle cap, said shoulder 42 during the latter portion of the upward movement of the jaws 22 compressing the said bead against the lower edge of the flange 34. The spring 81 enables the table 11 to yieldingly press the bottle against the head 21. After the bead on the bottle cap has been compressed, the operator will remove his foot from the treadle of the machine, and thereupon the table 11 will lower and the rod 14 will elevate, with the result of causing the jaws 22 to descend and spread free of the bottle and its cap and the table 11 to release the bottle from the centering head 21, whereupon the operator may remove the bottle from the machine and apply another bottle, to be sealed, thereto.

If it is desired to first apply the bottle-cap to the head 21 and elevate the bottle, by means of the table 11, to the cap, this method may be pursued, the magnet 38 being relied upon to retain the cap in the head 21 during the movement of the bottle toward said cap.

I do not limit the invention to all of the details of form and construction shown, but I illustrate in the drawings the most desirable form of the several parts known to me.

What I claim as my invention and desire to secure by Letters-Patent, is:—

1. In a machine of the character described, a chuck comprising a cap centering head having a recess to receive the body of the cap and a surrounding flange below said recess against which the laterally outwardly-extending bead on the cap may be disposed, combined with a series of segmental jaws encompassing said head and having a shoulder to engage the lower surface of said bead and side walls to confine the outer vertical edges of said bead, a vertically movable frame to which said jaws are pivotally secured, means for closing said jaws around said head and cap to carry their said shoulder

below said bead, and means for moving said frame and jaws upwardly to carry said shoulder against said bead, for compressing the same; substantially as set forth.

2. In a machine of the character described, the chuck comprising a cap centering head having a recess to receive the cap and a surrounding flange below which the bead on the cap may be disposed, combined with segmental jaws encompassing said head and having a shoulder to engage the lower edge of said bead, means for closing said jaws so as to carry said shoulder below said bead, and means for effecting a compression of said bead between said shoulder and the edge of said flange, said centering head having a magnet to retain the cap therein; substantially as set forth.

3. In a machine of the character described, the chuck comprising a cap centering head having a recess to receive the cap and a surrounding flange below which the bead on the cap may be disposed, combined with segmental jaws encompassing said head and having a shoulder to engage the lower edge of said bead, a vertically movable frame to which said jaws are pivotally secured, springs contained within said frame and engaging said jaws for normally spreading them outwardly from the entrance to said head, means for closing said jaws so as to carry said shoulder below said bead, and means for moving said frame and jaws upwardly to carry said shoulder against said bead, for compressing the same; substantially as set forth.

4. In a machine of the character described, the chuck comprising the exterior casing, the cap centering head therein having a recess to receive the cap and a surrounding flange below which the bead on the cap may be disposed, and the segmental jaws encompassing said head and having an inner shoulder to engage the lower edge of said bead and an outer shoulder to engage the lower edge of said casing during the upward movement of said jaws, whereby said jaws are closed inwardly to bring said inner shoulder below said bead, combined with means for effecting a compression of said bead between said inner shoulder and the edge of said flange; substantially as set forth.

5. In a machine of the character described, the chuck comprising the exterior casing, the cap centering head therein having a recess to receive the cap and a surrounding flange below which the bead on the cap may be disposed, and the segmental jaws encompassing said head and having an inner shoulder to engage the lower edge of said bead and an outer shoulder to engage the lower edge of said casing during the upward movement of said jaws, whereby said jaws are closed inwardly to bring said inner shoulder below said bead, combined with means for effecting a compression of said bead between said in-

ner shoulder and the edge of said flange, said casing having inserted within its lower edge the plugs of hardened metal for preventing undue wear of same; substantially as set forth.

6. In a machine of the character described, the chuck comprising the exterior casing, the cap centering head therein having a recess to receive the cap and a surrounding flange below which the bead on the cap may be disposed, and the segmental jaws encompassing said head and having an inner shoulder to engage the lower edge of said bead and an outer shoulder to engage the lower edge of said casing during the upward movement of said jaws, whereby said jaws are closed inwardly to bring said inner shoulder below said bead, combined with the frame within said casing and to which said jaws are pivoted, springs for normally spreading said jaws from the entrance to said head, and means for moving said frame and jaws upwardly to carry said shoulder against said bead, for compressing the latter; substantially as set forth.

7. In a machine of the character described, the chuck comprising the exterior casing, the

cap centering head therein having a recess to receive the cap and a surrounding flange below which the bead on the cap may be disposed, and the segmental jaws encompassing said head and having an inner shoulder to engage the lower edge of said bead and an outer shoulder to engage the lower edge of said casing during the upward movement of said jaws, whereby said jaws are closed inwardly to bring said inner shoulder below said bead, combined with the frame within said casing and within slots in which said jaws are pivoted, springs housed within said frame and engaging inwardly extending arms on said jaws for normally spreading said jaws from the entrance to said head, and means for moving said frame and jaws upwardly to carry said shoulder against said bead, for compressing the latter; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 12th day of January A. D. 1906.

JOSEPH V. HULL.

Witnesses:

CHAS. C. GILL,  
ARTHUR MARION.