

No. 685,281.

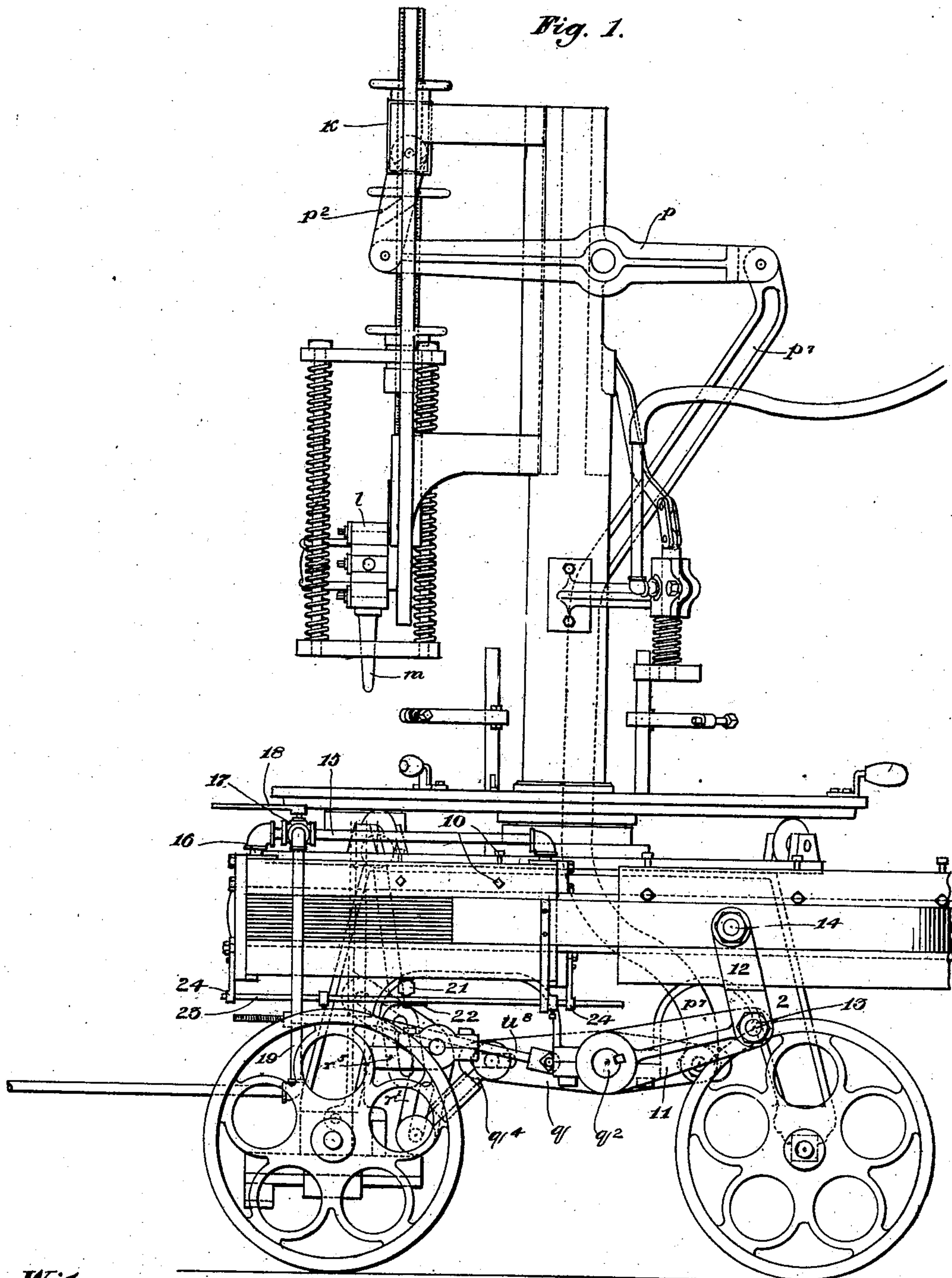
Patented Oct. 29, 1901.

J. JACKSON.
GLASS MACHINE.

(Application filed Jan. 29, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
Watson Large
R. H. Tynan.

Inventor:
John Jackson
by C. M. Clarke
his Attorney.

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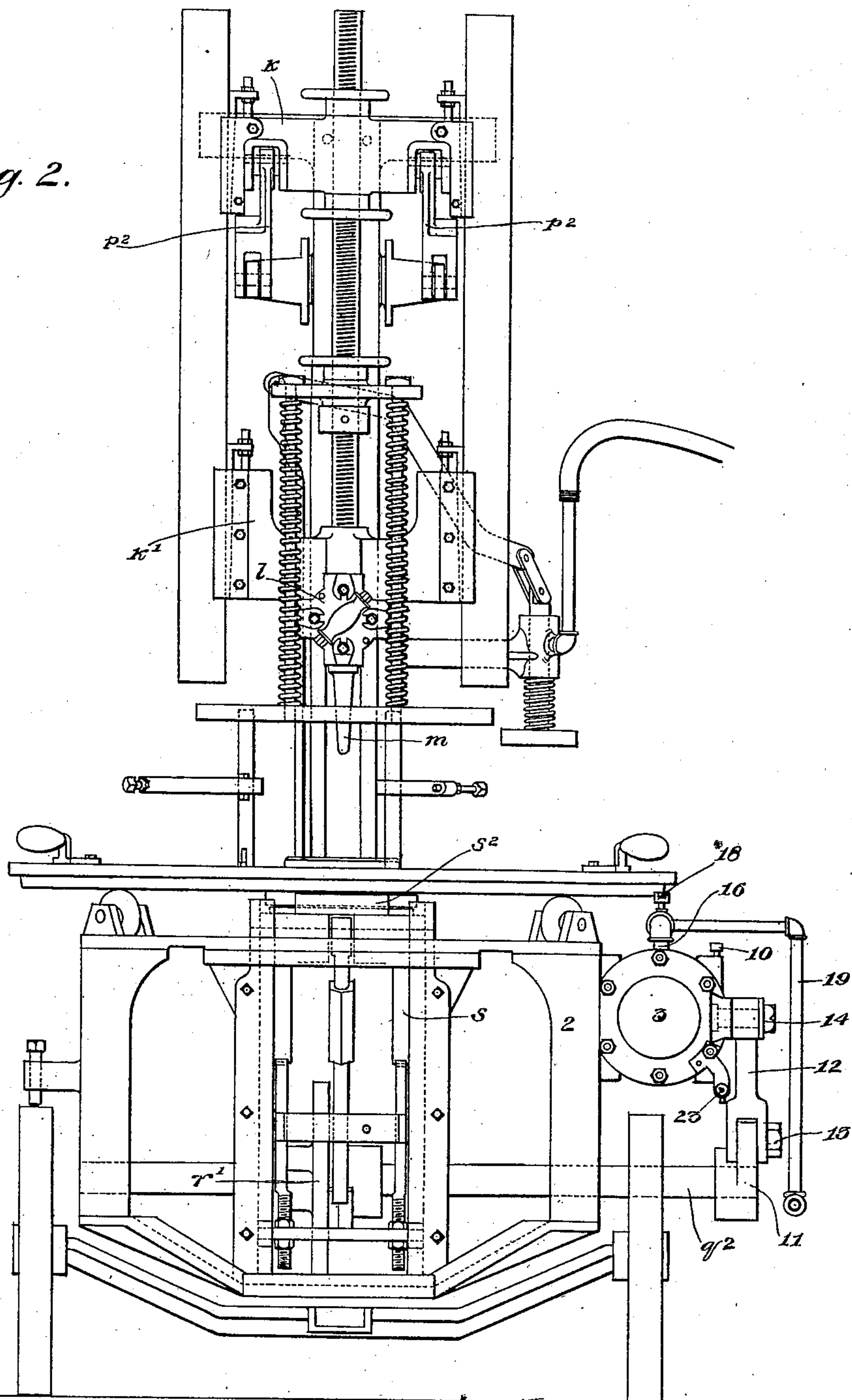
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Fig. 2.



Witnesses:

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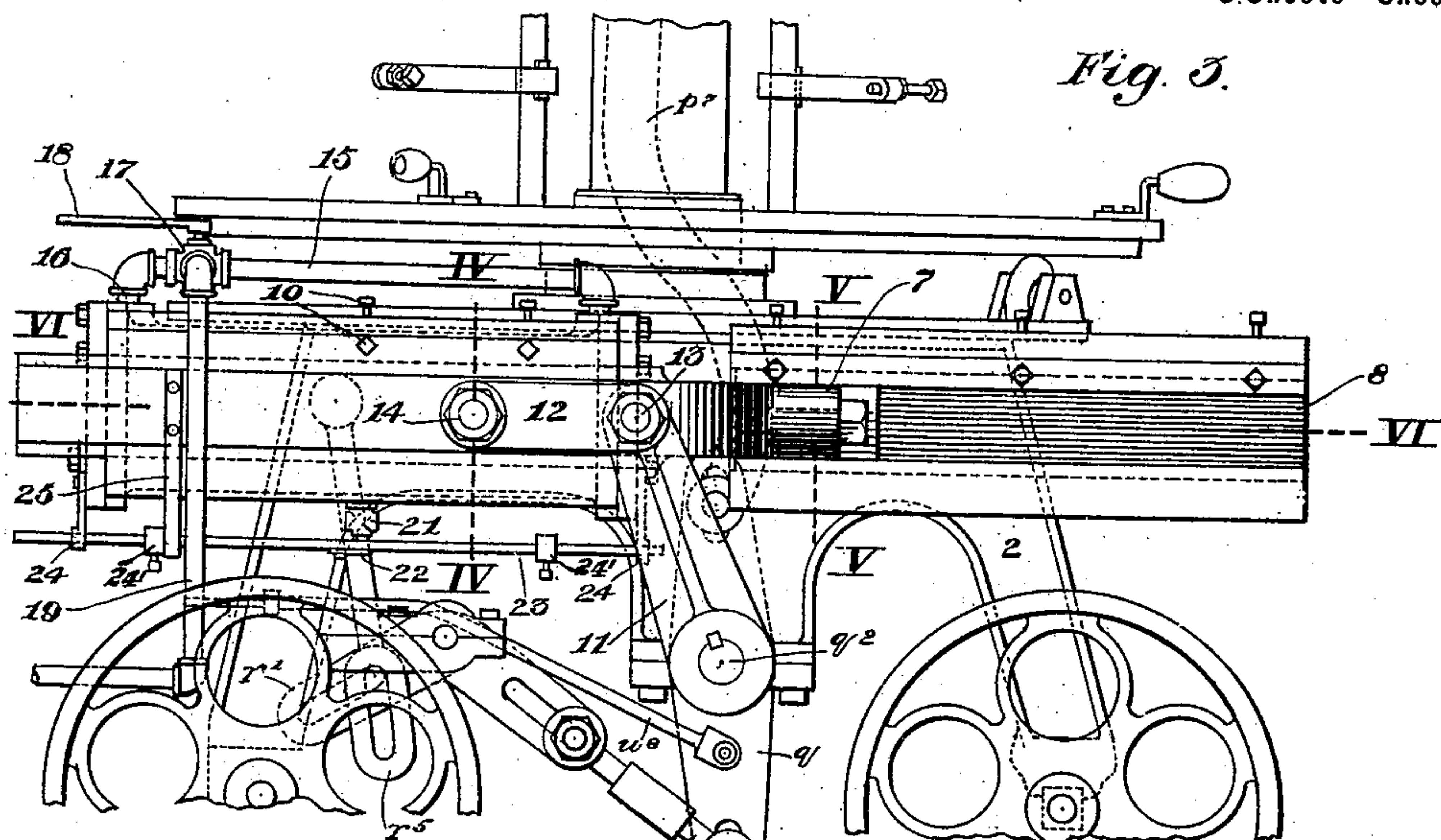


Fig. 3.

Fig. 4.

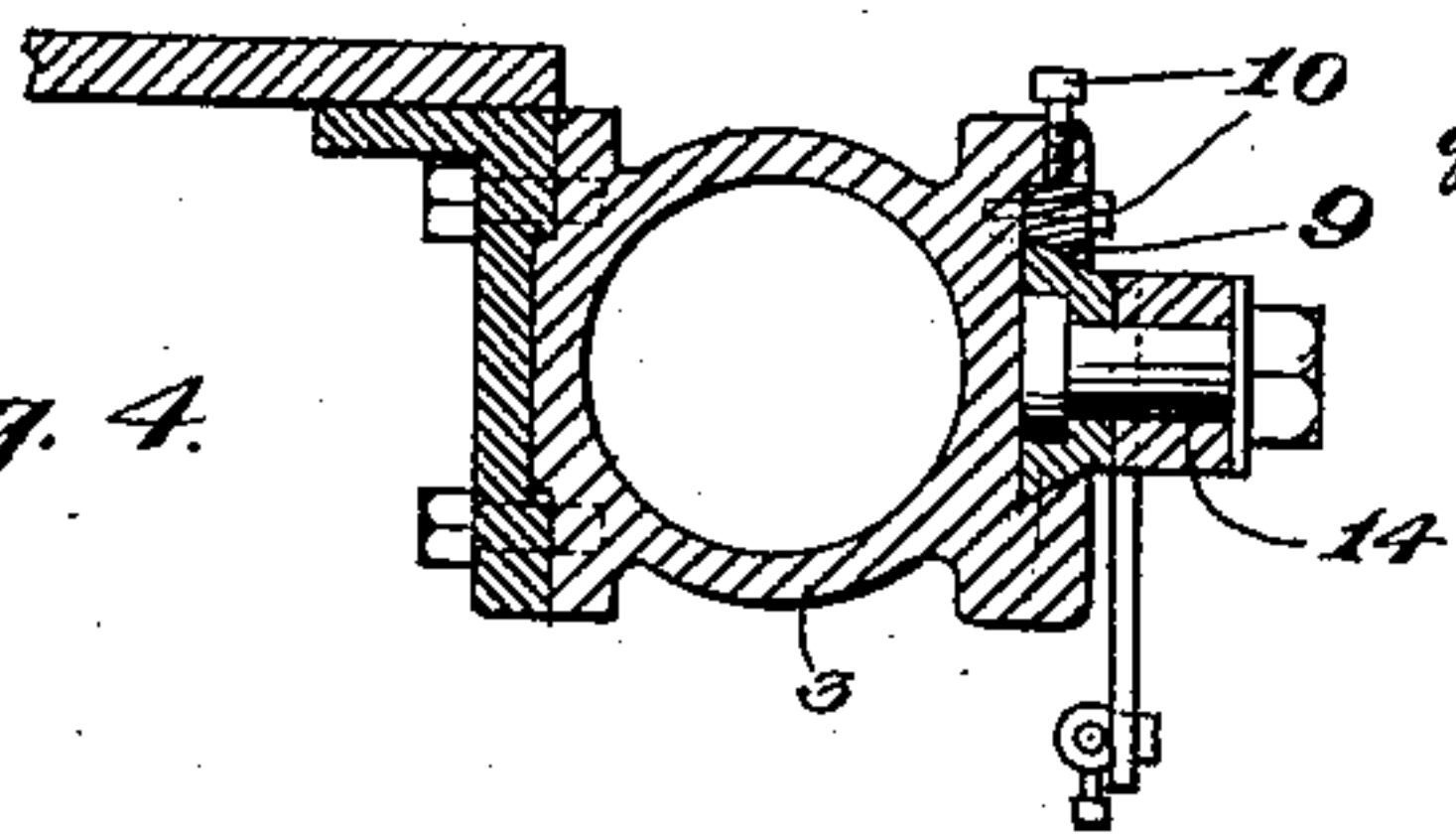


Fig. 5.

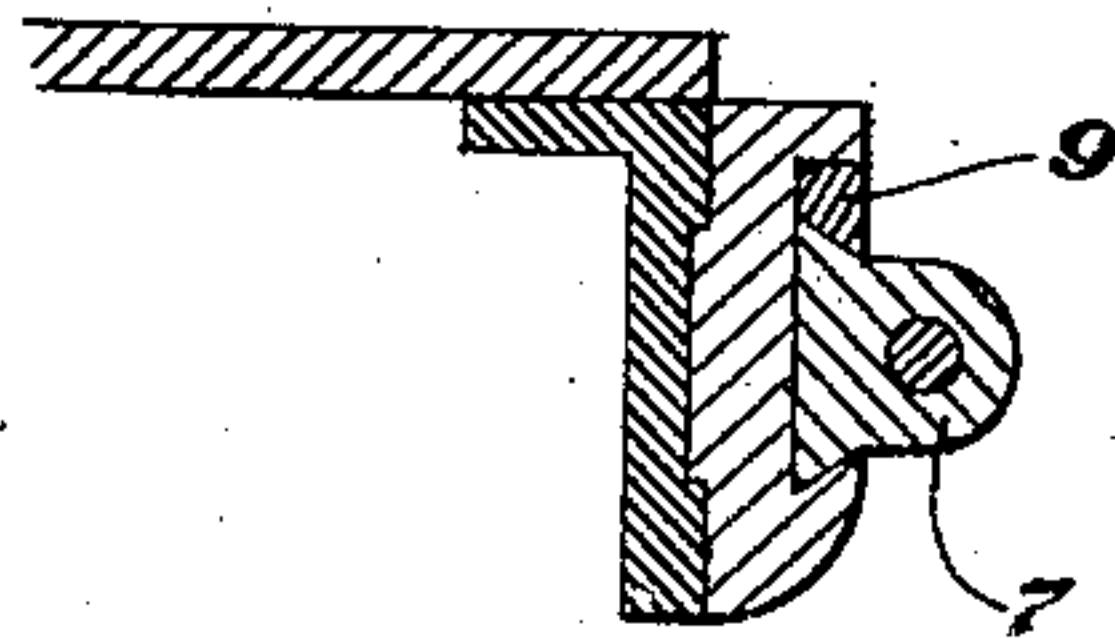


Fig. 6.

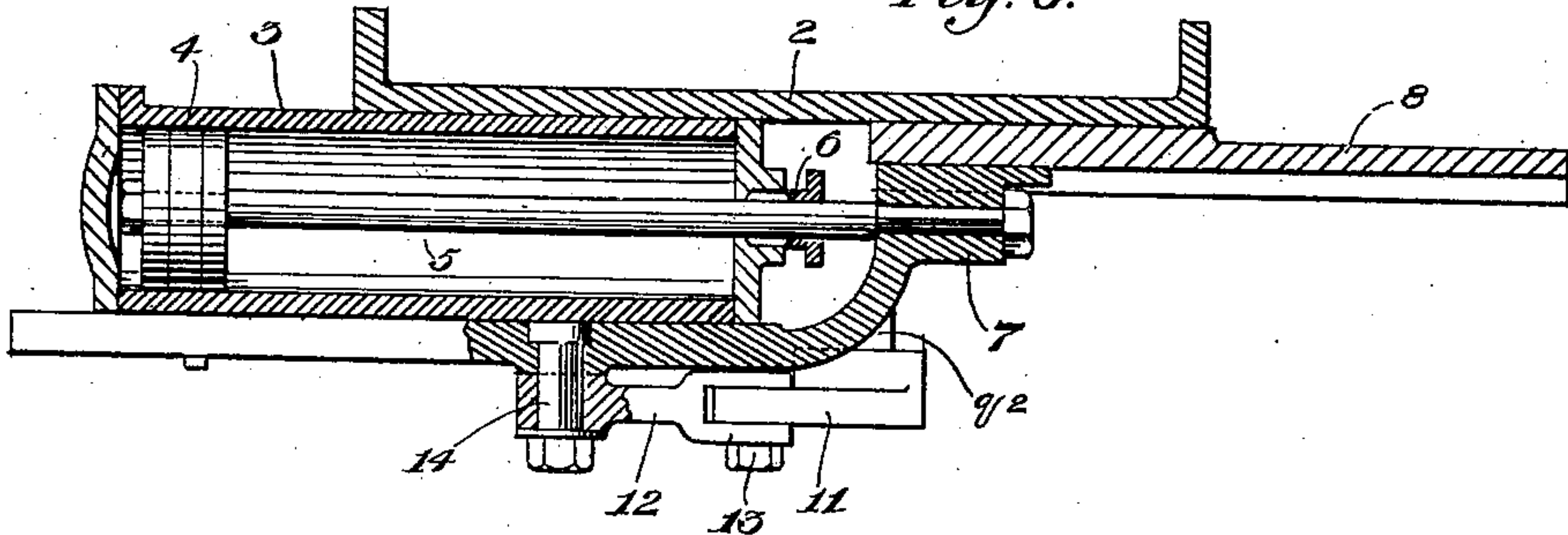


Fig. 7.

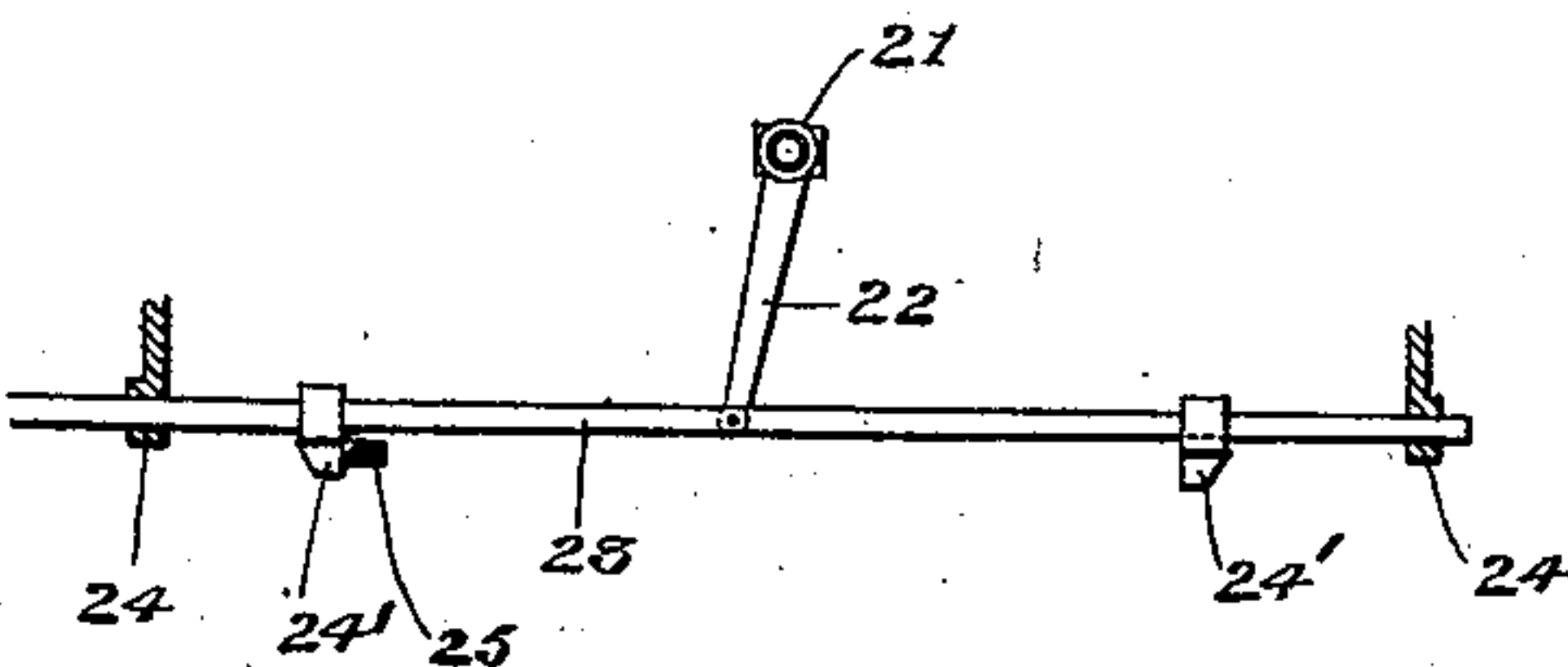
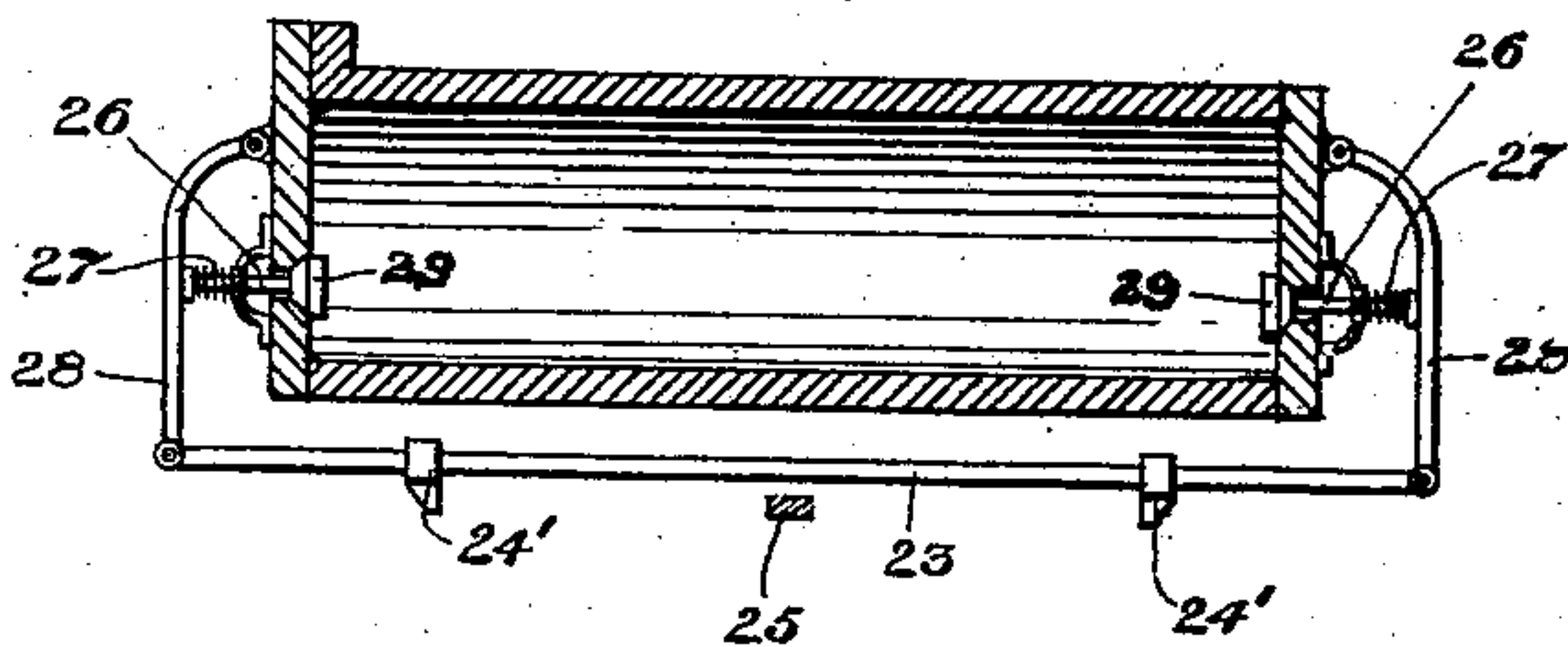


Fig. 8.



Witnesses:
Watson Large,
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Inventor:
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his Attorney

UNITED STATES PATENT OFFICE.

JOHN JACKSON, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO BIDDLE ARTHURS, OF PITTSBURG, PENNSYLVANIA.

GLASS-MACHINE.

SPECIFICATION forming part of Letters Patent No. 685,281, dated October 29, 1901.

Application filed January 29, 1900. Serial No. 3,115. (No model.)

To all whom it may concern:

Be it known that I, JOHN JACKSON, a citizen of the United States, residing at Benton avenue, Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered a new and useful Improvement in Glass-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in side elevation of a glass-pressing machine provided with my improved mechanism. Fig. 2 is a view in front elevation. Fig. 3 is a partial view, in side elevation, showing the parts in reversed position. Fig. 4 is a cross-sectional view taken on the line IV IV of Fig. 3. Fig. 5 is a similar view taken on the line V V of Fig. 3. Fig. 6 is a longitudinal sectional view taken on the line VI VI of Fig. 3. Fig. 7 is a detail plan view of the release-valve-operating device. Fig. 8 is a similar view showing a modified construction and illustrating the application thereof to the cylinder.

My invention relates to improvements in apparatus for forming glass articles, and has particular reference to that class of molding and pressing machinery wherein a number of movements and operations are performed successively or simultaneously, receiving their initial motion from the partial rotation of an actuating-shaft.

The present invention relates more particularly to improvements on a machine for making articles of glassware for which Letters Patent of the United States were issued to John J. Power February 14, 1899, No. 619,694, and has reference to means for imparting a partial rotary movement to the main shaft q^2 of said patent.

Heretofore the usual practice has been to operate the power-shaft by manual power exerted through a hand-lever secured to the shaft; but in the continuous operation of a glass-machine this work is laborious and exhaustive, while requiring considerable skill and entailing additional expense. I have utilized compressed air for this purpose, and to the side of the main frame 2 of the machine

is secured a cylinder 3 by bolts or in any suitable or convenient manner, within which cylinder is mounted a piston 4 on rod 5, passing through stuffing-box 6 and secured in a sliding cross-head 7. This cross-head, as will be seen, is of considerable length, giving rigidity and strength, and has a dovetail bearing in the outer face of the cylinder and in a slide 8 in advance of the cylinder, which, like it, is secured to the main frame of the machine. In this manner the cross-head 7 is kept in alinement, the slides being provided with adjustable gibs or bearing-strips 9, secured by screws 10. To the end of the shaft q^2 is keyed a crank-arm 11 in place of the usual operating-lever, and a link 12 pivotally connects the end of arm 11 to the sliding head 7, being attached to the arm by pin or bolt 13 and at the other end being journaled on a stud-bolt 14, projecting outwardly from the middle body portion of the sliding cross-head 7. In the position shown in Fig. 1, with the rod extended, the link 12 occupies a position adapted to the lowered position of the crank, while in the reversed position, (shown in Figs. 3 and 6,) wherein the crank is disposed in a position approximating a right angle to the center line of the cylinder, the link assumes a horizontal position. In this reversed position the operative portions of the machine are performing the final pressing actions requiring the maximum of power, and it will be observed that by my arrangement of the parts I secure a corresponding maximum of leverage. Air-pressure is applied to either end of the cylinder through pipes 15 16, leading from a controlling-valve 17, provided with a handle 18, located in convenient position for the operator, the valves being connected with supply-pipe 19.

For the purpose of providing an accurate means for limiting the stroke of the piston in either direction, so as to prevent excess travel of the cross-head and a consequent overpressure of the plunger, &c., I have provided a petcock 21, located about midway of the cylinder, preferably at its under portion, whereby it will drain the cylinder on either side of the piston. This cock has an

arm 22, pivotally connected with a sliding bar 23, mounted in bearings 24 of the cylinder, and provided with two adjustable stops 24' in the path of movement of a knocker-arm 25, secured upon the face of the cross-head. At each operation of the cross-head forward and back this knocker-arm will come into contact with one or the other of the stops 24', moving the bar 23 and arm 22, opening the valve 21, and releasing the pressure in the cylinder.

By setting the stops in or out the exact degree of exhaust required may be ascertained and secured with absolute certainty, thus relieving the operator from the necessity of great care in the operation of the valve and preventing excessive pressure or damage to any of the parts.

In Fig. 8 I have shown another arrangement for exhausting the cylinder, wherein I employ check-valves 29, provided with stems 26, projecting outwardly, moving springs 27 to hold the valves to their seats. The stems of the valves are operated alternately by pivoted arms 28, secured to each end of shifting bar 23. By setting the stops 24' it will be seen that the valves will be opened at the desired portion of the stroke in either direction to release the cylinder. In place of the disk *q* I have shown a double-ended crank-arm, to which is secured at the forward end the link *q*⁴, connecting with bell-crank lever *r*⁴, from which, through link *r*⁵, reciprocating motion is imparted to the cross-head *s*, bearing the receiver *s*² for the press-mold, and also the tripping-rod *w*⁸. At the other end of the crank is pivotally secured the lower end of connecting-rod *p*⁷, the upper end of which is joined to the forked lever *p*, by which the upper cross-head *k*, lower cross-head *k*¹, head or rotatable disk *l*, and plungers *m* are operated.

The advantage of my invention will be appreciated by those skilled in the art, as by its use the operation of those parts of the machine requiring the greatest power is rendered comparatively easy, while being at all times under complete control of the operator.

While I have shown my improvement as applied to the particular type of machine illustrated and described, it is obvious that it is likewise applicable to any design of machinery wherein the power for the various motions is furnished from a partially-rotating lever or shaft. It will be understood also that the design, proportions, and arrangement of parts may be varied by the skilled mechanic without departing from my invention, and I desire to include all such changes as within the scope of my invention and as covered by the following claims.

I claim—

1. In a machine for making glassware, mechanism for operating the same consisting of a cylinder, a piston therein, a piston-rod, a cross-head secured to the piston-rod and

having a portion adapted to slide in slideways in advance of the cylinder and on the frame of the machine and another portion adapted to slide in slideways on the side of the cylinder, and connections between the cross-head and the operative mechanism of the machine.

2. In a machine for making glassware, mechanism for operating the same, consisting of a cylinder, a valve for controlling the admission of the actuating fluid to the cylinder, a piston in the cylinder, a piston-rod, a cross-head secured to the piston-rod and having a portion adapted to slide in slideways in advance of the cylinder and on the frame of the machine and another portion adapted to slide in slideways on the side of cylinder, and connections between the cross-head and the operative mechanism of the machine.

3. In a machine for making glassware, mechanism for operating the same consisting of a cylinder, a valve for controlling the admission of the actuating fluid to the cylinder, an exhaust-valve and means by which the same is automatically operated, a piston in the cylinder, a piston-rod a cross-head secured to the piston-rod and having a portion adapted to slide in slideways in advance of the cylinder and on the frame of the machine and another portion adapted to slide in slideways on the side of the cylinder, and connections between the cross-head and the operative mechanism of the machine.

4. In a machine for making glassware, a rotating shaft and actuating-crank therefor, a cylinder mounted on the frame of the machine, a piston, a piston-rod, a cross-head secured to the rod, a slideway for a portion of the cross-head mounted on the frame of the machine in advance of the cylinder, a slideway on the side of the cylinder for another portion of the cross-head, and a link pivotally connected to the cross-head and to the shaft-actuating crank.

5. In a machine for making glassware, a rotating shaft and actuating-crank therefor, a cylinder mounted on the frame of the machine, a piston, a piston-rod, a cross-head secured to the rod, a slideway for a portion of the cross-head mounted on the frame of the machine in advance of the cylinder and a slideway on the side of the cylinder for another portion of the cross-head, both slideways being provided with adjustable bearings, and a link pivotally connected to the cross-head and to the shaft-actuating crank.

6. In a machine for making glassware, a rotating shaft and actuating-crank therefor, a cylinder mounted on the frame of the machine, a piston, a piston-rod, a cross-head secured to the rod, a slideway for a portion of the cross-head mounted on the frame of the machine in advance of the cylinder and a slideway on the side of the cylinder for another portion of the cross-head, adjustable bearings for said slideways, a link pivotally connected to the cross-head and to the shaft-

actuating crank, and a valve mounted on the cylinder and provided with an operating-handle for controlling the admission of the actuating fluid to the cylinder.

- 5 7. In a machine for making glassware, a fluid-actuated piston mounted in a cylinder, a piston-rod, a cross-head and connections therewith for transmitting motion to the mold and plunger operating mechanisms; a release-
10 valve located at each end of the cylinder; and

mechanism for operating the valves actuated by a movable abutment connected with the cross-head.

In testimony whereof I have hereunto set my hand.

JOHN JACKSON.

In presence of—

PETER J. EDWARDS,
C. M. CLARKE.