

No. 855,345.

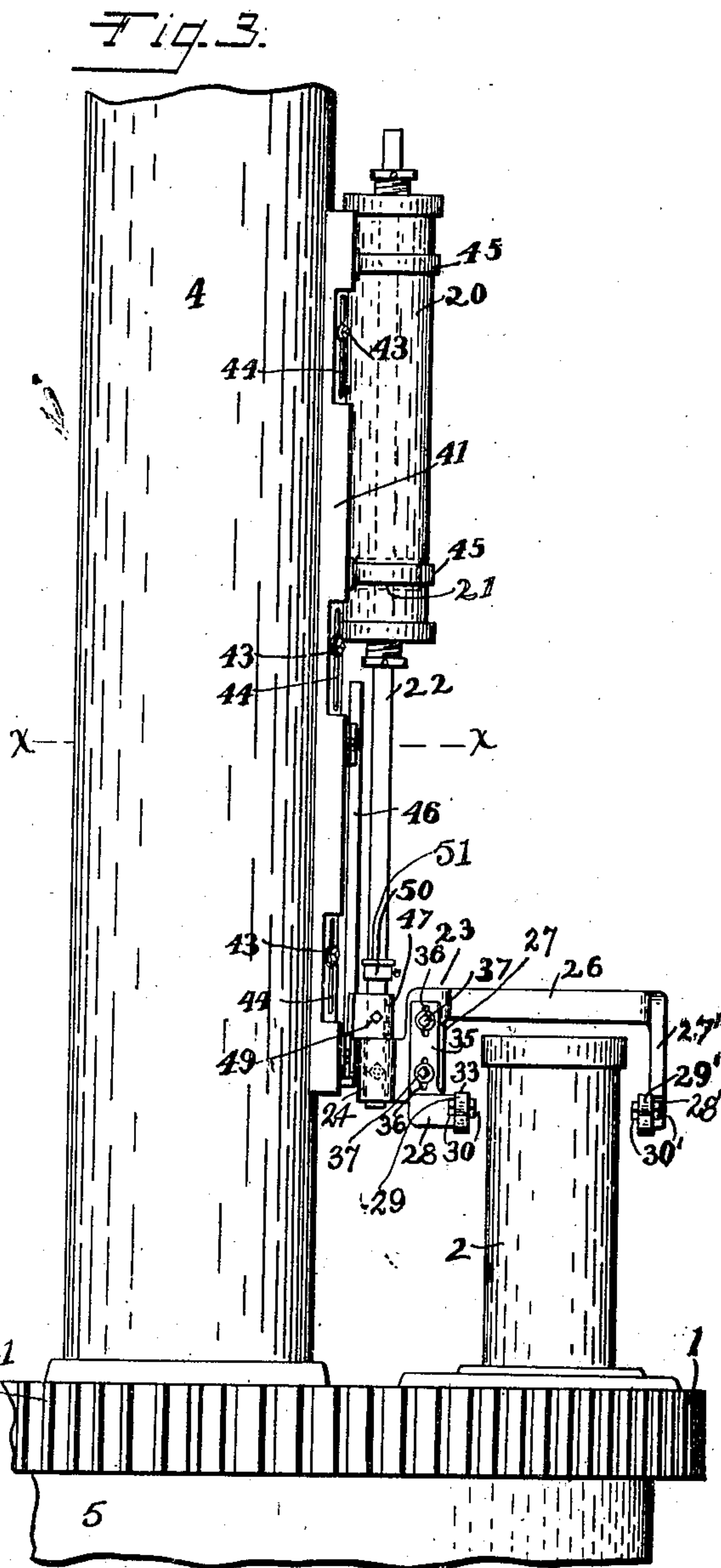
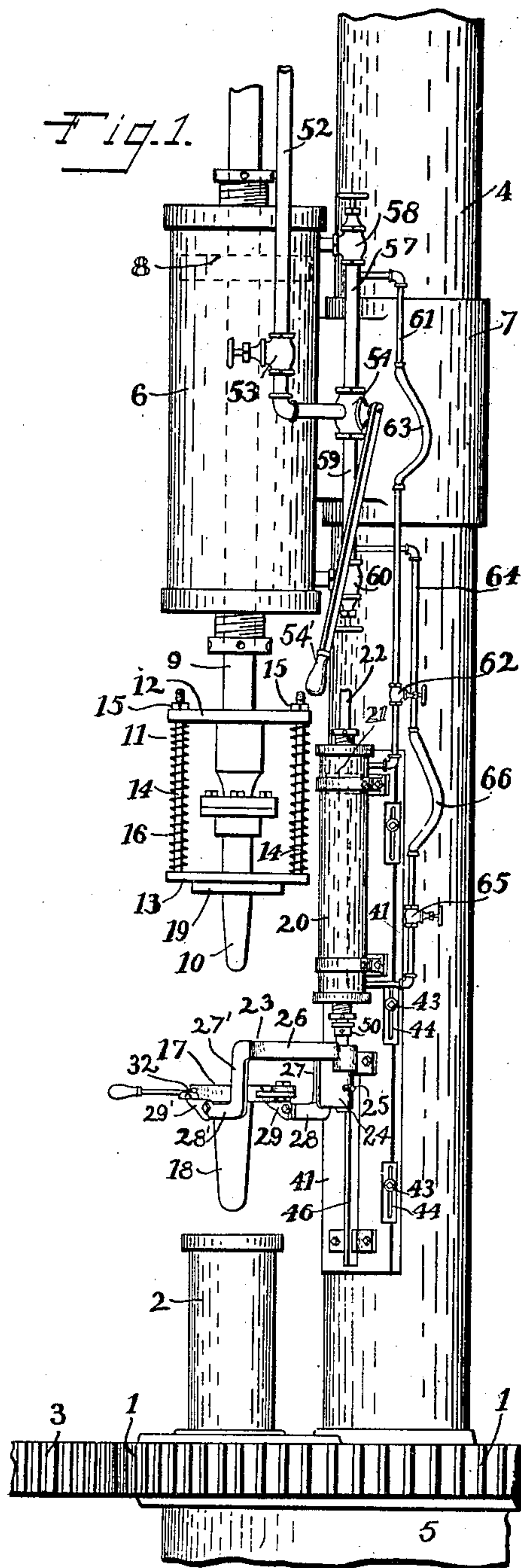
PATENTED MAY 28, 1907.

J. SCHIES.

APPARATUS FOR MANUFACTURING GLASSWARE.

APPLICATION FILED DEC. 7, 1906.

2 SHEETS—SHEET 1.



WITNESSES.  
Homer Bradford.  
Cordelia O'Hearn.

INVENTOR.  
John Schies,  
by R. F. Debsleb, His Attorney.

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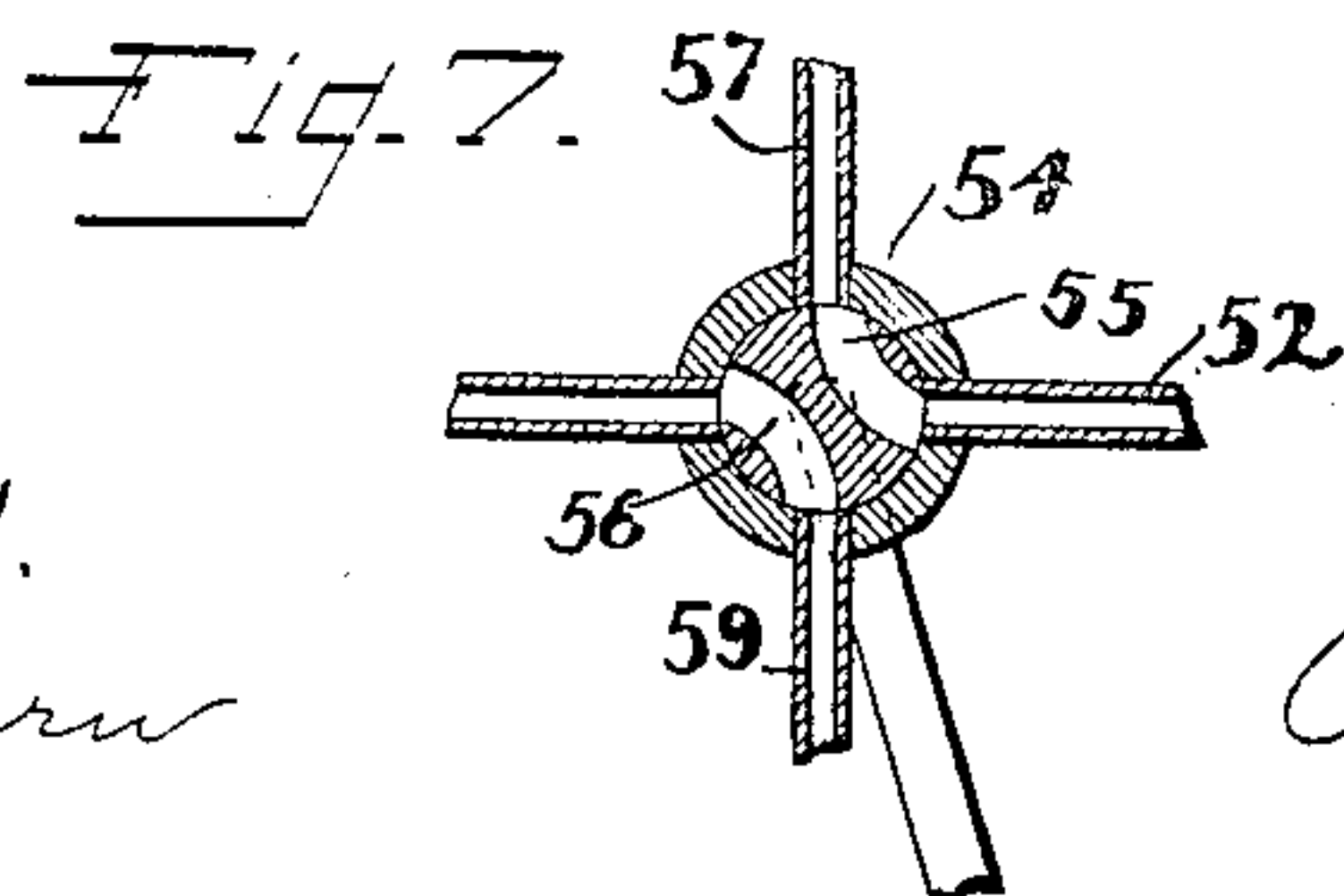
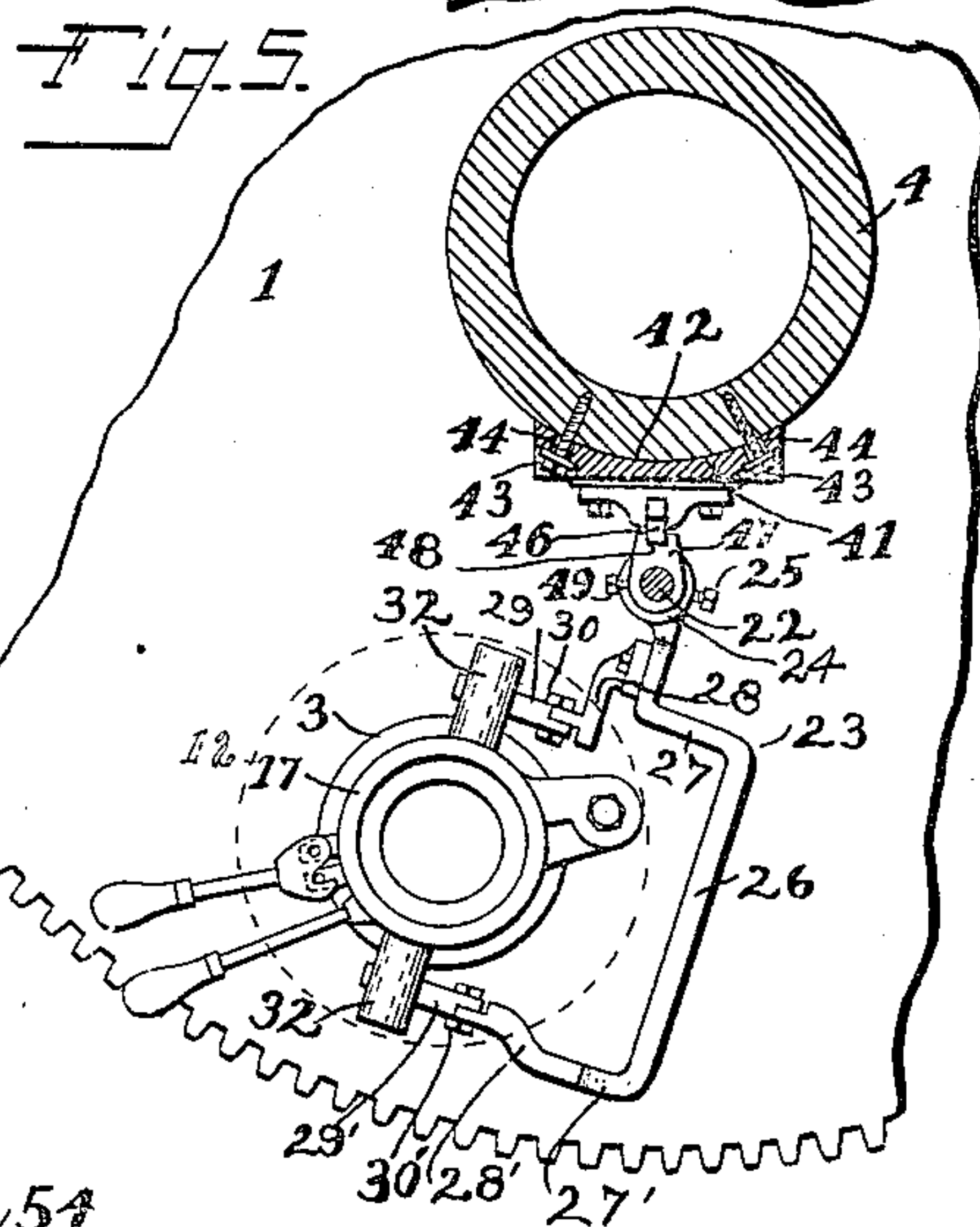
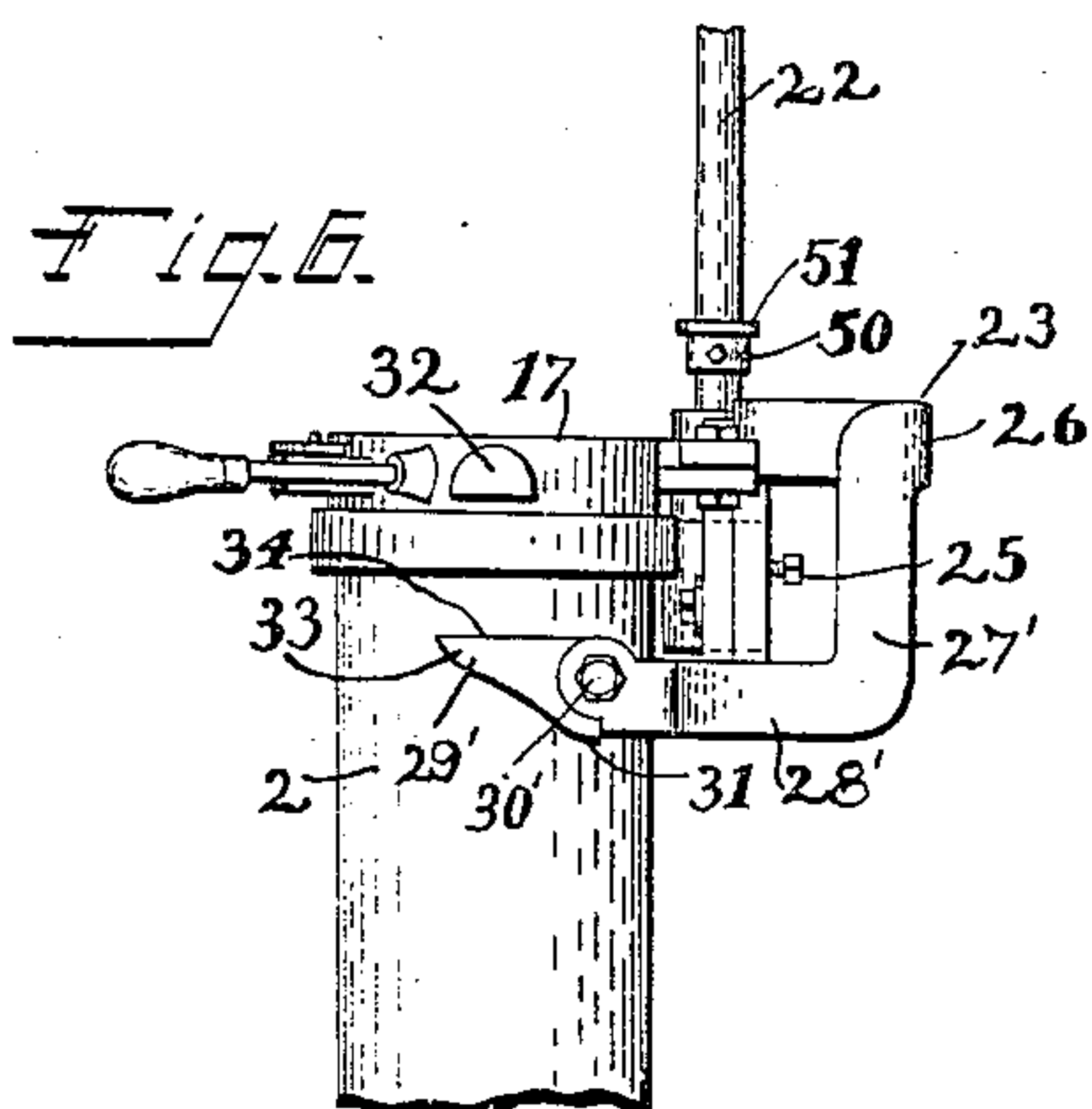
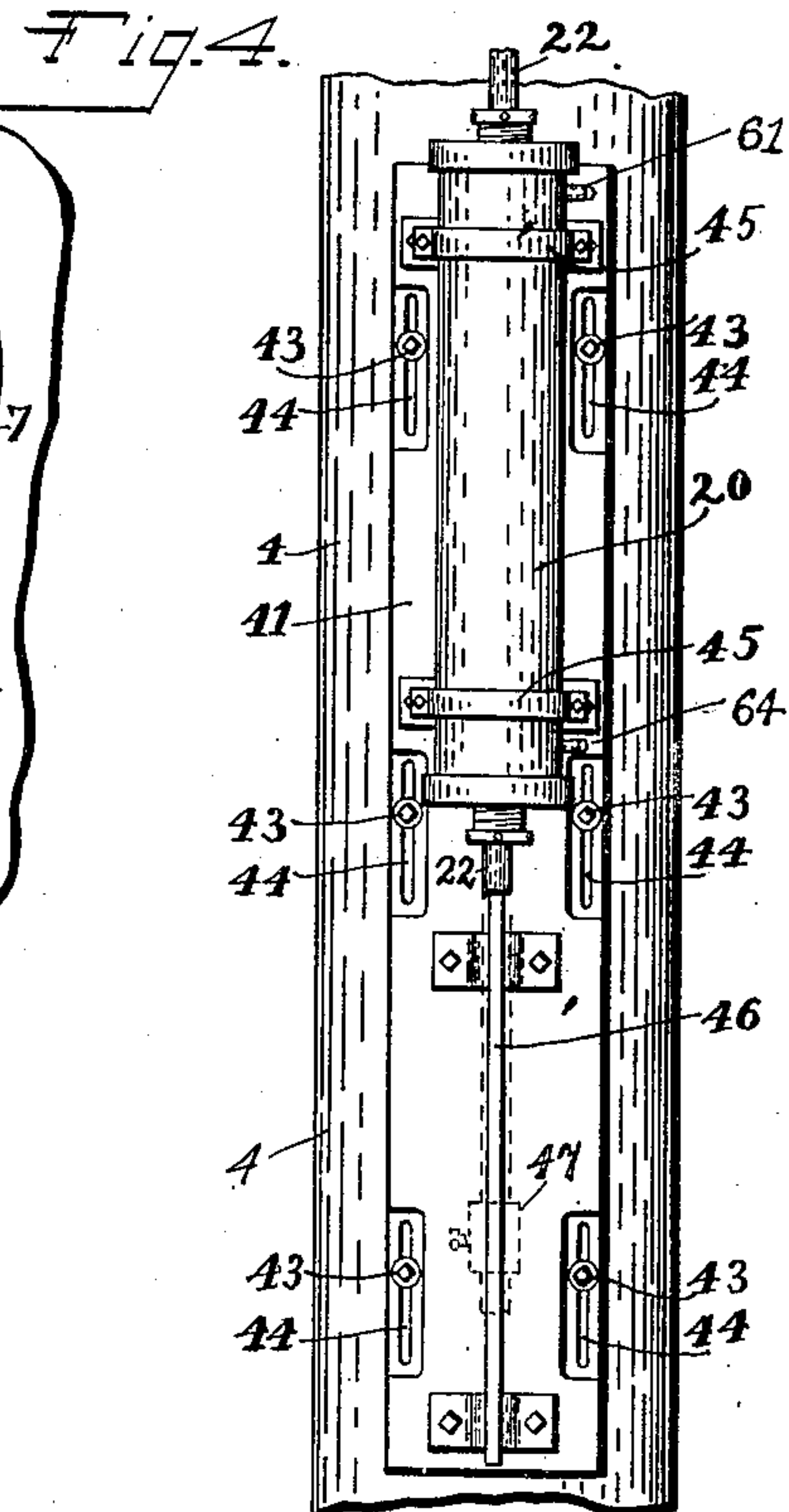
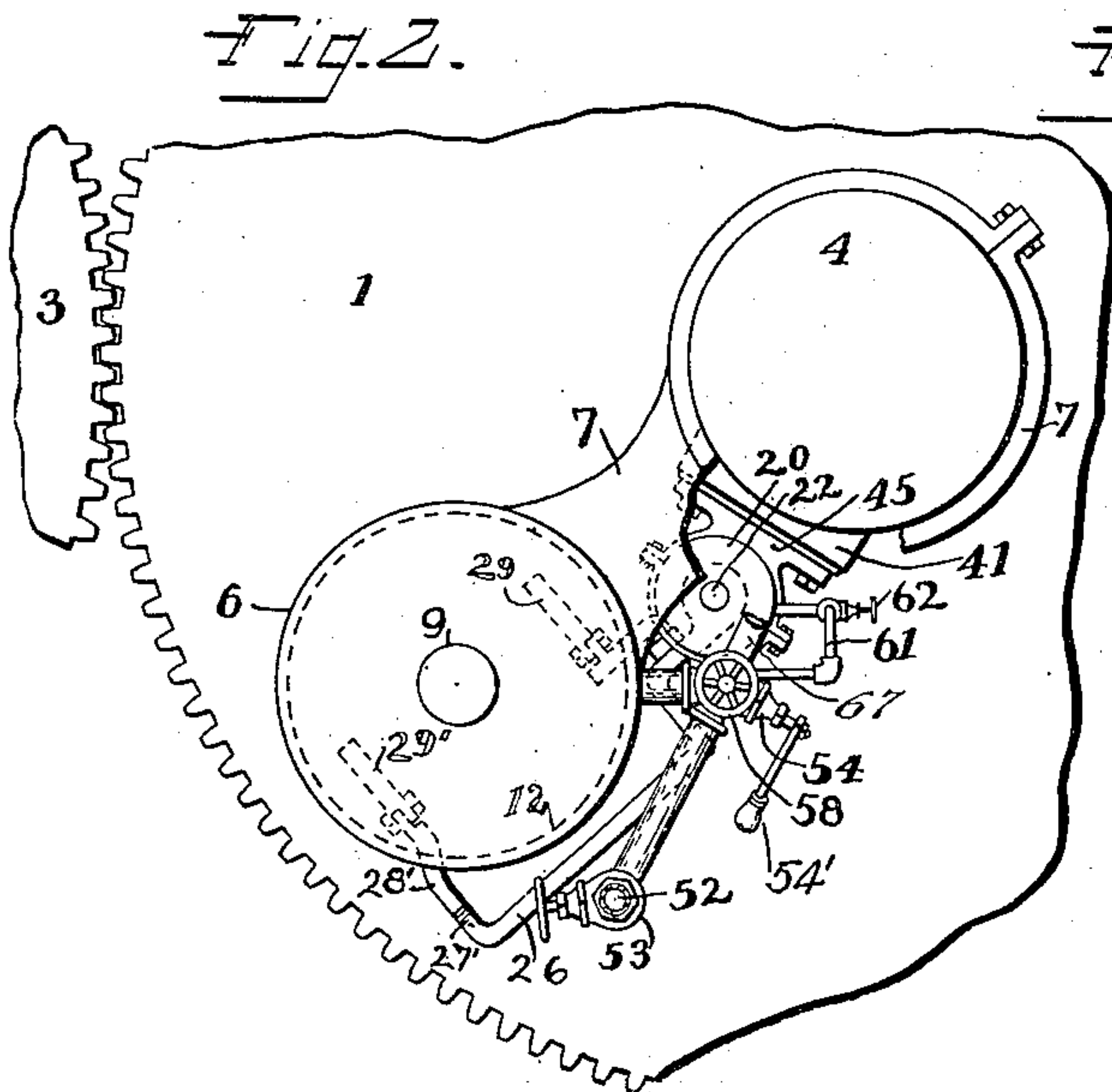
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2 SHEETS—SHEET 2.



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Homer Bradf. A.  
Gordelia O. Hearn

Inventor.  
John Schies,  
by B. F. Herbst, Attorney.



# UNITED STATES PATENT OFFICE.

JOHN SCHIES, OF ANDERSON, INDIANA.

## APPARATUS FOR MANUFACTURING GLASSWARE.

No. 855,345.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed December 7, 1906. Serial No. 346,778.

*To all whom it may concern:*

Be it known that I, JOHN SCHIES, a citizen of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Apparatus for Manufacturing Glassware, of which the following is a specification.

My invention relates to glass pressing or to glass pressing and blowing machinery and has for its object the providing of improved means for raising the glass blank out of the press mold after the same has been acted on by the pressing plunger, and the invention will be readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 represents a perspective view of my improved device in connection with so much of a glass pressing and blowing machine as is necessary to illustrate in connection therewith. Fig. 2 is a plan view of the same, partly broken away. Fig. 3 is a side elevation of the lifting mechanism showing the lifting-head in lowered position and the pressing plunger removed. Fig. 4 is a side elevation partly broken away showing the means for securing the lifting mechanism to the column of the machine. Fig. 5 is a horizontal cross-section on the line  $x-x$  of Fig. 3, and showing the lifting-head and neck-mold in plan elevation. Fig. 6 is an end elevation of the lifting-head shown in relation to the neck-mold; and, Fig. 7 is a vertical section of the controlling valve.

1 represents a table which is given intermittent rotary motion in a suitable manner, on which table are secured at suitable distances apart a series of press-molds, one of which I have shown at 2. A table 3 may be arranged to support a series of blow-molds suitable distances apart thereon and be operated from the table 1. These parts may be arranged and operated in a suitable manner, for instance, as shown and described in Patent No. 722,634, granted me March 10, 1903.

4 is a column extending upwardly from the machine frame 5.

6 is a plunger-cylinder suitably supported on a bracket 7 secured to the column. A piston 8 operates in manner hereinafter described in the plunger-cylinder and is secured to a plunger-rod 9, to the lower end of which a plunger 10 is attached.

11 is a plunger-head of usual construction

and comprises for instance an upper plate 12, a lower plate 13, rods 14 being secured to the lower plate and passing loosely through apertures in the upper plate, with nuts 15 screwing over the upper ends of said rods 14 for adjustably limiting downward movement of the lower plate, springs 16 pressing the lower plate downwardly.

A glass-support 17 is provided, usually in the form of an ordinary neck-mold, and in the operation of pressing the glass the glass parison being deposited in the mold, the glass-support is placed upon the press-mold in usual manner, the plunger descending for pressing the parison into the form of a glass-blank, which latter is shown at 18, this glass blank finding support from the glass-support. The lower plate 13 is provided with a follow-ring 19, which in the descent of the plunger-head forms connection with the upper face of the glass-support for confining the glass while being pressed. The connection between the glass-blank and glass-support may be made in any ordinary manner, as by the usual thread at the neck of a fruit or other jar when those articles are being blown, or by contact of the glass therewith.

20 is an auxiliary cylinder in which there is a piston 21, a piston-rod 22 being also provided and secured to said piston. This auxiliary cylinder with its piston and piston-rod is located to one side of the plunger-cylinder as shown in Fig. 2. The plunger-cylinder and the auxiliary cylinder with their rods extend up and down parallel with each other. A lifting-head 23 is secured to the piston-rod 22. This head is preferably adjustable on said rod as by means of a bearing 24 taking about the piston-rod, a bolt 25 securing the bearing on the rod. This lifting head is of peculiar construction. It has an upwardly extending yoke for forming a downwardly opening mouth for purposes hereinafter explained. Thus a cross-bar 26 has depending bars 27 27' which have at their lower ends forwardly extending arms 28 28' to which trips 29 29' are pivoted as on bolts 30 30'. The depending bars and forwardly extending arms form elbow-arms for reaching under and clearing the plunger head. The trips are respectively provided with heels 31 adapted to impinge the respective arms for limiting the downward movement of the swinging ends of the trips. The glass-supports are preferably provided with ears 32 against which the tripping faces 33 of the



trips are adapted to engage in the descent of the lifting-head for shifting the trips on their pivots and permitting the trips to pass the ears in their descent. When the trips have passed the ears they trip back into normal position and are then located under the ears so that their upper or lifting faces 34 may make contact with the under faces of the ears for lifting the glass-support with the lifting-head in the ascent of the latter. In order to provide adjustment between the trips, I provide the arm 28 with a plate 35 having slots 36, through which bolts 37 screw into the depending bar 27 for adjusting the trip 29 up and down relatively to the trip 29'. (See Fig. 3).

For permitting adjustment of the lift-out head up and down, for instance for serving molds of different heights or other purposes and adjusting the limits of movement of the lift-out head, I prefer to provide an adjusting plate 41 to which the lift-out cylinder is secured and which also preferably has a guide-way for the lift-out head in order to steady the same and insure that the piston-rod 22 shall work freely in line with its bearings in the lift-out cylinder. This adjusting plate is secured to the column 4, and for this purpose I prefer to provide the plate with a concave face 42 to fit the column 4, bolts 43 passing through slots 44 in the plate 41 being threaded into the column. The lift-out cylinder is secured to the plate as by means of securing rings 45 taking about the cylinder and bolted to the plate. The plate is also provided with a guide 46 shown in the form of a rib along which a slide 47 moves, the slide having sliding connection with the rib as by being provided with a groove 48 the walls of which hug the rib. The slide 47 is secured to the piston-rod 22 as by a bolt 49. In order to limit the upward movement of the lift-out head I provide a clamp 50 which is adjustably secured to the piston-rod 22, a resilient washer 51 of rubber or other suitable material being above the clamp for cushioning the lift-out arm in its ascent.

As will be noted from Fig. 3, the arch or yoke form of the lift-out head permits the press-molds to pass the lift-out head when the lift-out head is in lower most position for preventing striking of the lift-out head by the molds and insuring against accident, the neck-mold, in practice being placed on the press-mold at the plunger position after the table has come to rest. The forwardly extending arms 28 28' reach under the press-head (see Figs. 2 and 5) while the cross-bar 26 is located to the side of the press-head, in order to prevent interference between the press-head and lift-out head, the trips being placed at the ends of the arms in such manner as to take against and lift the neck-mold by contact with the ears thereon.

52 is a supply pipe for compressed air or

other compressible fluid. It has a valve 53 therein.

54 is a controlling valve preferably a two-way valve, having passages 55 56.

54' is an operating lever for the controlling valve.

57 is a pipe extending from the valve 54 and connects with the interior of the plunger-cylinder above the piston therein, there being a regulating valve 58 therein. A pipe 59 connects the controlling valve with the interior of the plunger-cylinder below the lowermost movement of the piston thereof, a regulating valve 60 being in said pipe. A pipe 61 branches from the pipe 57 and connects with the interior of the lift-out cylinder above the piston therein. A regulating valve 62 is located in this pipe. (See Fig. 1). Preferably a section 63 of said pipe is flexible for permitting adjustment up and down of the lift-out cylinder. A pipe 64 branches from the pipe 59 and connects with the interior of the lift-out cylinder below the piston therein. It has a regulating valve 65 therein, and also preferably a flexible section 66 also for permitting adjustment of the lift-out cylinder.

67 is an exhaust pipe for the controlling valve 54.

By means of my improved device, the operation of lifting the glass-blank or transferring it from the press-mold to the blow-mold is accomplished by independent means which may be regulated and adjusted for meeting the various conditions and requirements in the manufacture of glassware and further permits the adjustment to height of the lift-out mechanism with its operating means for accommodating pressed molds of various heights and conditions of work press-molds of various heights and conditions of work.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In apparatus for manufacturing glassware, the combination with a press-mold, a glass-support and a plunger and plunger-head in line with each other, of a lifting-head, said press-mold and lifting-head having relative lateral movement between them, said lifting-head having a downwardly opening yoke to the side of said plunger-head and forwardly extending lifting arms extending under said plunger-head, substantially as described.

2. In apparatus for manufacturing glassware, the combination with a press-mold, a glass-support and a plunger and plunger-head, of a lifting-head, said press-mold and lifting-head having relative lateral movement between them, said lifting-head having a downwardly opening yoke to the side of said plunger-head and forwardly extending lifting arms extending under said plunger-head, and trips at the outer ends of said arms ar-



ranged to engage said glass-support, substantially as described.

3. In apparatus for manufacturing glass-ware, the combination, with a press-mold, a glass-support, and a plunger and plunger-head, of a lifting-head for said glass-support, a column to the side of said plunger-head, a lifting-head cylinder located in a vertical plane to the side of said plunger-head and column, and an adjustable support on which said cylinder is mounted adjustably secured to said column.

4. In apparatus for manufacturing glass-ware, the combination, with a press-mold, a glass-support, and a plunger and plunger-head, of a lifting-head for said glass-support, a column to the side of said plunger-head, a lifting-head cylinder located in a vertical plane to the side of said plunger-head and column, a piston and piston-rod therefor, an adjustable support on which said cylinder is mounted having a guide-way for the piston-rod thereon, and means for securing said last-named support adjustably to said column.

5. In apparatus for manufacturing glass-ware, the combination with a press-head, a press-mold, and means for moving said mold laterally with relation to the press-head, of a lifting means for the glass-blank comprising a laterally extending lifting-head having a downwardly opening yoke for clearance for the press-mold and forwardly extending arms for clearance for the press-head, with means on said arms for connecting with the glass-support for lifting the latter from the press-mold, and means for reciprocating said head.

6. In apparatus for manufacturing glass, the combination with a press-head and plunger, a press-mold, and means for moving the press-mold laterally with relation to the plunger, of a lift-out head having a downwardly opening yoke through which the press-mold is adapted to move, the lower ends of the walls of which yoke merge into lateral extensions provided with means at their extremities for connecting with the glass-support for raising the latter with the head, said lateral extensions being provided for clearance by said press-head of said lift-out head, and means for operating said lift-out head up and down, substantially as described.

7. In apparatus for manufacturing glass-ware, the combination with a press-head and press-mold, a glass-support therefor, means for moving said press-mold laterally with relation to said press-head, and means for moving said press-head up and down, of a laterally extending lifting-head having down-

wardly extending side-walls between which the press-mold is adapted to pass when the lifting-head is in lowermost position, said side-walls having arms extending therefrom under said press-head for permitting relative movement and clearance between said press-head and lifting-head, means on said arms for forming connection with said glass-support for raising the same, and means for moving said lifting-head up and down, substantially as described.

8. In a machine for manufacturing glass-ware, the combination with a press-mold, a glass-support therefor, a plunger-head and plunger operating in conjunction with the press-mold, and means for moving said press-mold laterally, of a lifting-head comprising an upper cross-bar having depending shanks at the sides for forming clearance between the lifting-head and press-mold and forwardly extending arms projecting from said shanks at their bottoms and reaching under the press-head for making contact with the glass-support and forming clearance between the press-head and lifting head and permitting relative vertical movement between the same, actuating means located to the side of said press-head for reciprocating said lift-out head, and means for permitting adjusting of said actuating means up and down, substantially as described.

9. In a machine for manufacturing glass-ware, the combination with a press-mold, a glass-support therefor, a plunger-head and plunger operating in conjunction with the press-mold, and means for moving said press-mold laterally, of a lifting-head comprising a cross-bar having depending shanks at the sides for forming clearance between the lifting-head and press-mold and forwardly extending arms projecting from said shanks at their bottoms and reaching under the press-head for making contact with the glass-support and forming clearance between the press-head and lifting-head for permitting relative vertical movement between the same, a lifting-head cylinder, piston and piston-rod, a support for the same having a guide-way thereon, a guide for said piston-rod guided by said guide-way, and means permitting adjustment of said plate up and down with relation to the press-mold, substantially as described.

In testimony whereof, I have subscribed my name hereto in the presence of two subscribing witnesses.

JOHN SCHIES.

Witnesses:

G. F. McDONNELL,  
GERTRUDE SCHIES.