

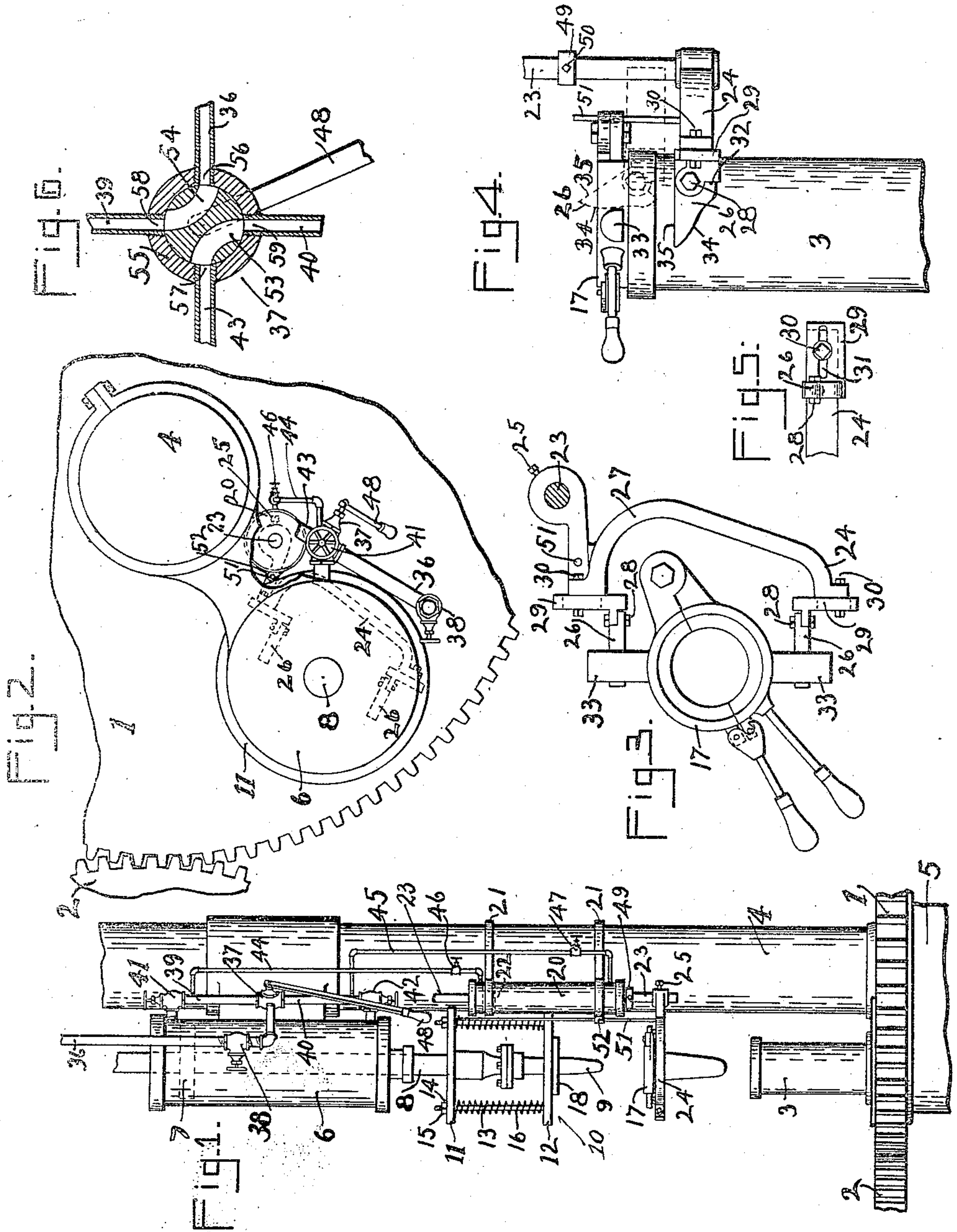
No. 855,344.

PATENTED MAY 28, 1907.

J. SCHIES.

APPARATUS FOR MANUFACTURING GLASSWARE.

APPLICATION FILED JUNE 4, 1906.



Witnesses.
Homer Bradford.
Cordelia O'Hearn.

Inventor.
John Schies,
by B. A. Heibel
his attorney.

UNITED STATES PATENT OFFICE.

JOHN SCHIES, OF ANDERSON, INDIANA.

APPARATUS FOR MANUFACTURING GLASSWARE.

No. 855,344.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed June 4, 1906. Serial No. 327,062.

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 apparatus for manufacturing glassware and is especially applicable to glass pressing and blowing machinery, for instance of the character shown and described in Patent No. 722,634, granted me March 10, 1903.

My invention relates to improvements in means for releasing the glass-blank from the press-mold after the glass parison has been acted on by the 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 side elevation of my improved device in connection with so much of a glass pressing or blowing machine as is advisable to show in connection therewith. Fig. 2 is a plan view of the same. Fig. 3 is a plan view of the lifting arm shown in relation to the neck-mold. Fig. 4 is an end elevation of the same showing the trip in lifting position in full lines, and in its position assumed in passing the neck-mold in dotted lines. Fig. 5 is a detail in side elevation of the trip-support; and, Fig. 6 is a cross-section of the operating valve.

1 represents a press-mold table and 2 a blow-mold table.

3 is a press-mold.

4 is a column extending upwardly from the machine-frame 5, the press-mold table being given intermittent rotary movement on said frame about said column, the blow-mold table acting in unison therewith in ordinary manner. A main cylinder 6 is secured to the column in suitable manner. This cylinder forms the plunger-cylinder. This cylinder contains a plunger-piston 7 from which a plunger-rod 8 depends, the plunger-rod carrying a plunger 9 at its lower end and supporting a plunger-head 10 of usual construction.

The plunger-head comprises an upper plate 11 which, as is usual, is rigidly secured with relation to the plunger-rod, and a lower plate 12, which is usually a yielding plate, being supported from the upper plate as by means of slide-rods 13 secured to the yielding plate

and sliding through apertures 14 in the upper plate, nuts 15 at the upper ends of said slide-rods limiting the normal distance between the plates. Springs 16 tend to press the yielding plate downwardly.

17 is a glass-support and is shown in the form of an ordinary neck-mold or neck-ring. It is adapted to be placed upon the press-mold after the glass parison has been deposited in the press-mold, the plunger then descending for pressing the parison into shape, by which action the glass is also pressed against the glass-support or neck-mold and forms hanging connection therewith. Thus, as is usual, a follow-ring 18 may make contact with the upper face of the neck-mold, the plunger taking through the follow-ring and making engagement with the glass parison, the follow-ring forming close connection with the plunger-shank and the neck-mold for retaining the glass in proper bounds. The hanging connection between the glass-blank and the neck-mold is formed for instance by the usual threads found for example at the neck of a fruit jar.

20 is an auxiliary cylinder supported from the column 4 on brackets 21. This cylinder forms the lift-out cylinder. It has a piston 22 therein from which a piston-rod 23 depends. A lift-out arm 24 is secured to the piston-rod. This connection is preferably adjustable so that the limit of descent of the arm may be regulated, as by permitting the arm to be set at desirable heights on the piston-rod 23 by means of a set-screw 25. Trips 26 are pivoted to the arm, the arm being preferably yoke-shaped, as shown at 27, for taking about the glass-support or neck-mold. The trips are arranged to take against the glass-support or neck-mold in the ascent of the arm for lifting the glass-support with its depending glass-blank out of the mold preparatory to transference to the blow-mold. The trips are preferably pivoted on pins 28 taking into slides 29 adjustably secured to the arm by bolts 30 taking through slots 31 in the slides and into the arm. The trips are respectively provided with heels 32 adapted to take against the slides for limiting the downward movement of the swinging ends of the trips. The glass-supports are preferably provided with ears 33 against which the tripping faces 34 of the trips are adapted to engage in the descent of the arm for shifting the trips on their pivots and per-

mitting the trips in their descent to pass the ears. When the trips have passed the ears they drop back into normal position and are then located under the ears so that their upper or lifting faces 35 may make contact with the under faces of the ears for lifting the glass-support with the arm in the ascent of the latter.

I prefer to operate the parts by means of compressed air or other pressure-fluid as follows: 36 is a supply-pipe having connection with an operating valve 37, a stop-cock 38 being in the supply pipe. Connection is made with the cylinder 6 to both sides of the piston therein from said operating valve for providing pressure supply and exhaust, as by means of the pipes 39 40 in which regulating valves 41 42 are located, an exhaust-pipe 43 being connected with the operating valve. Pipes 44 45, in which stop-cocks 46 47 are located, connect with either end of the cylinder 20 for operating the piston therein, the said pipes 44 45 respectively connecting with the pipes 39 40. The operating valve is operated by means of an operating lever 48. This construction permits the main and auxiliary pistons to be operated from a single valve, the pressures and exhausts for both the main and auxiliary cylinder being controlled by a single lever.

In operation the glass parison is placed in the press-mold and the neck-mold placed on the press-mold. The lever 48 is then manipulated for turning on the pressure above the main piston and also above the auxiliary piston, which causes the lifting arm to descend, the trips on the arm tripping upon the ears on the neck-mold for raising the swinging ends of the trip relatively to the arm, the trips falling under the ears upon the further descent of the arm. The plunger descends for pressing the glass parison and forming the glass-blank. Upon shifting of the lever 48 for conducting compressed air under the piston 7, the plunger will rise out of the glass and the head ascend. The same movement of the lever will admit compressed air under the piston 22 for raising the lift-out arm. The trips 26 will engage the ears 33 and raise the glass-support or neck-mold with them in the further movement of said last-named piston. This function being effected through an independent cylinder, whose duty is limited to the performance of that function, permits the degree of lift or the force of the lift applied by the lift-arm to be regulated with extreme nicety, so that detrimental pull or strain upon the glass-blank may be avoided.

For limiting the ascent of the lift-out arm the piston-rod 23 is provided with a collar 49 taking against the cylinder. The collar may be adjustable longitudinally of the rod by means of a set-screw 50. In order to position the lift-out arm radially of its piston-rod, I provide the lift-out arm with a slide-rod 51

sliding in aperture in a lug 52 of one of the brackets 21.

The operating valve 37 is a two-way valve having fluid passages 53 54 and turning in a valve-casing 55, the latter also having an inlet port 56, an outlet port 57; and fluid passages 58 59, the fluid-passages communicating respectively with the pipes leading to the respective ends of the main and auxiliary cylinders for providing independent operation to the plunger-head and the lift-out, having unitary controlling means, and thereby permitting the pressing and the lifting operations to be performed in proper sequence and providing means whereby the lifting force applied to the lift-out may be controlled.

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 an upright plunger, of pressed-glass lifting means, said pressed-glass lifting means comprising an upright independent cylinder therefor, a piston in said cylinder, a piston-rod therefor, a laterally extending arm secured to said piston-rod and extending toward the vertical plane of said upright plunger and trips pivoted to said arm to the side of said independent cylinder, substantially as described.

2. In apparatus for manufacturing glassware, the combination with a vertical plunger and plunger-cylinder, of a vertical lift-out and lift-out cylinder, the latter cylinder located in a different vertical plane from the former cylinder, the said lift-out comprising a piston in said lift-out cylinder, a vertical piston-rod depending therefrom, an arm extending laterally from said piston-rod and adjustably secured to said piston-rod, trips pivoted to said arm at both sides of the longitudinal axis of said plunger-cylinder and to the side of said lift-out cylinder, and an adjustable stop on said piston-rod for limiting the upward movement of said lift-out arm with relation to said plunger, substantially as described.

3. In apparatus for manufacturing glassware, the combination with a vertical plunger and plunger-cylinder, of a vertical lift-out and lift-out cylinder, the latter cylinder located in a different vertical plane from the former cylinder, the said lift-out comprising a piston in said lift-out cylinder, a vertical piston-rod secured thereto, an arm extending laterally from said piston-rod, and trips pivoted to said arm at both sides of the longitudinal axis of said plunger-cylinder and to the side of said lift-out cylinder, an operating valve, and pipes branching from the latter and from each other to the respective ends of both said cylinders, substantially as described.

4. In apparatus for manufacturing glass-

ware, the combination with a plunger and plunger-cylinder, of a lift-out and lift-out cylinder, the latter cylinder located in different vertical plane from the former cylinder, said cylinders extending up and down parallel to each other the said lift-out comprising trips located to the sides of the longitudinal axis of said plunger-cylinder and to the side of the longitudinal axis of said lift-out cylinder, and an arm extending laterally from the longitudinal axis of said lift-out cylinder, the said trips being pivoted to said arm, substantially as described.

5. In apparatus for manufacturing glassware, the combination with a vertical plunger and plunger-cylinder, of a vertical lift-out and lift-out cylinder, the latter cylinder located in different vertical plane from the former cylinder, the said lift-out comprising trips located to both sides of the longitudinal axis of said plunger-cylinder and to the side of the longitudinal axis of said lift-out cylinder, and an arm extending laterally from the longitudinal axis of said lift-out cylinder, the said trips being pivoted to said arm, and a stop for limiting the upward movement of the lift-out with relation to the plunger.

6. In apparatus for manufacturing glassware, the combination with a vertical pressing-plunger and operating means therefor, of

a lift-out mechanism for the glass-blank comprising an independent vertical cylinder and piston therefor located to the side of said pressing plunger and laterally extending means having connection with said piston for raising the glass-support.

7. In apparatus for manufacturing glassware, the combination with an upright pressing-plunger and plunger-cylinder, of a lift-out mechanism for the glass-blank comprising an independent upright cylinder and piston therefor located to the side of said pressing plunger and laterally extending means having connection with said piston for raising the glass-support, a valve, pipes respectively connecting with each end of each of said cylinders and having connection with said valve, a regulating valve in each of said pipes, and an operating-lever for said first named valve controlling the pressure-supply to both said cylinders, 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,
MARY SCHIES.