

No. 666,125.

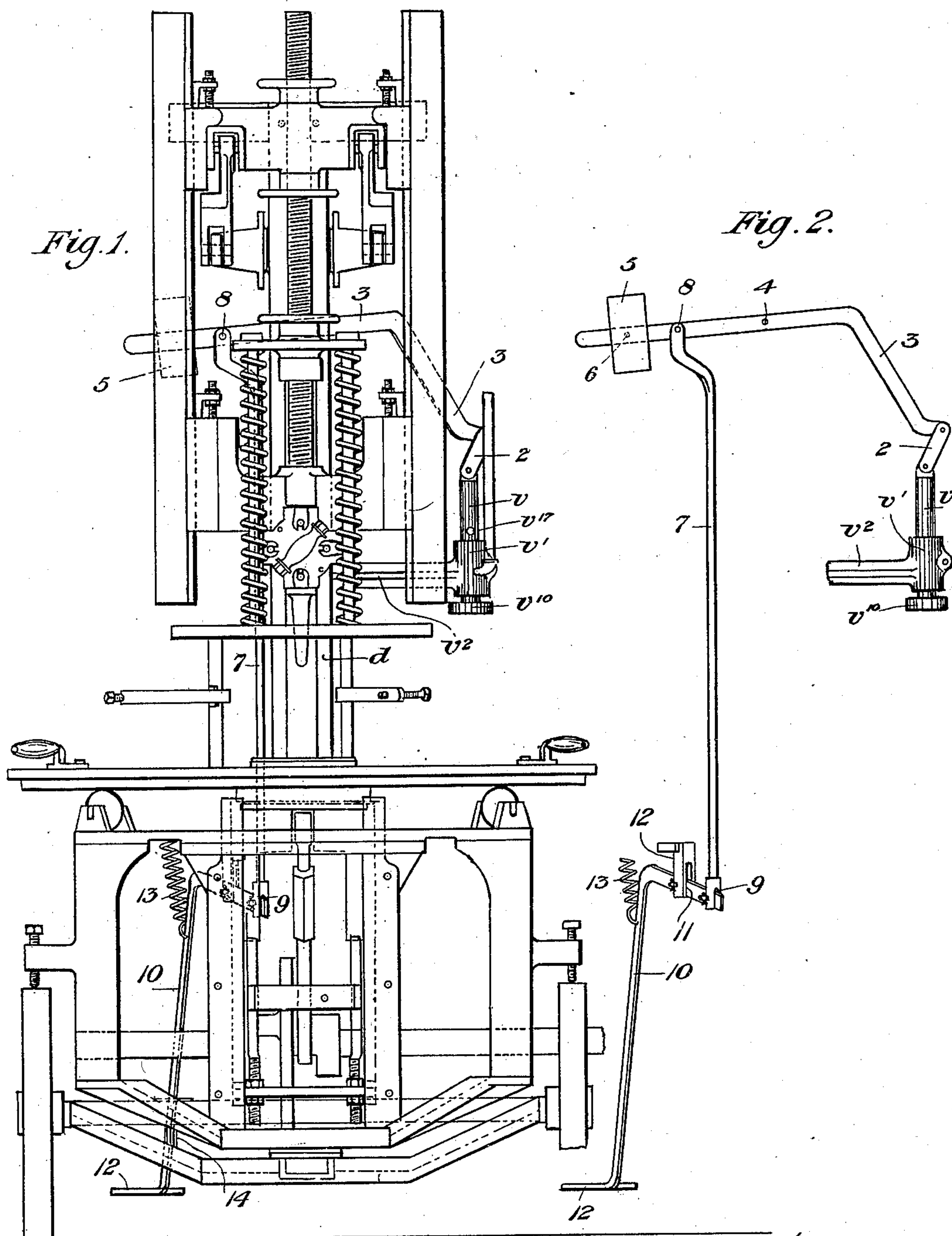
Patented Jan. 15, 1901.

J. A. ARNOLD.
GLASS BLOWING MACHINERY.

(Application filed Aug. 1, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

J. H. More.
R. H. Jayman

Inventor:

James A. Arnold
by C. M. Clarke
his Attorney.

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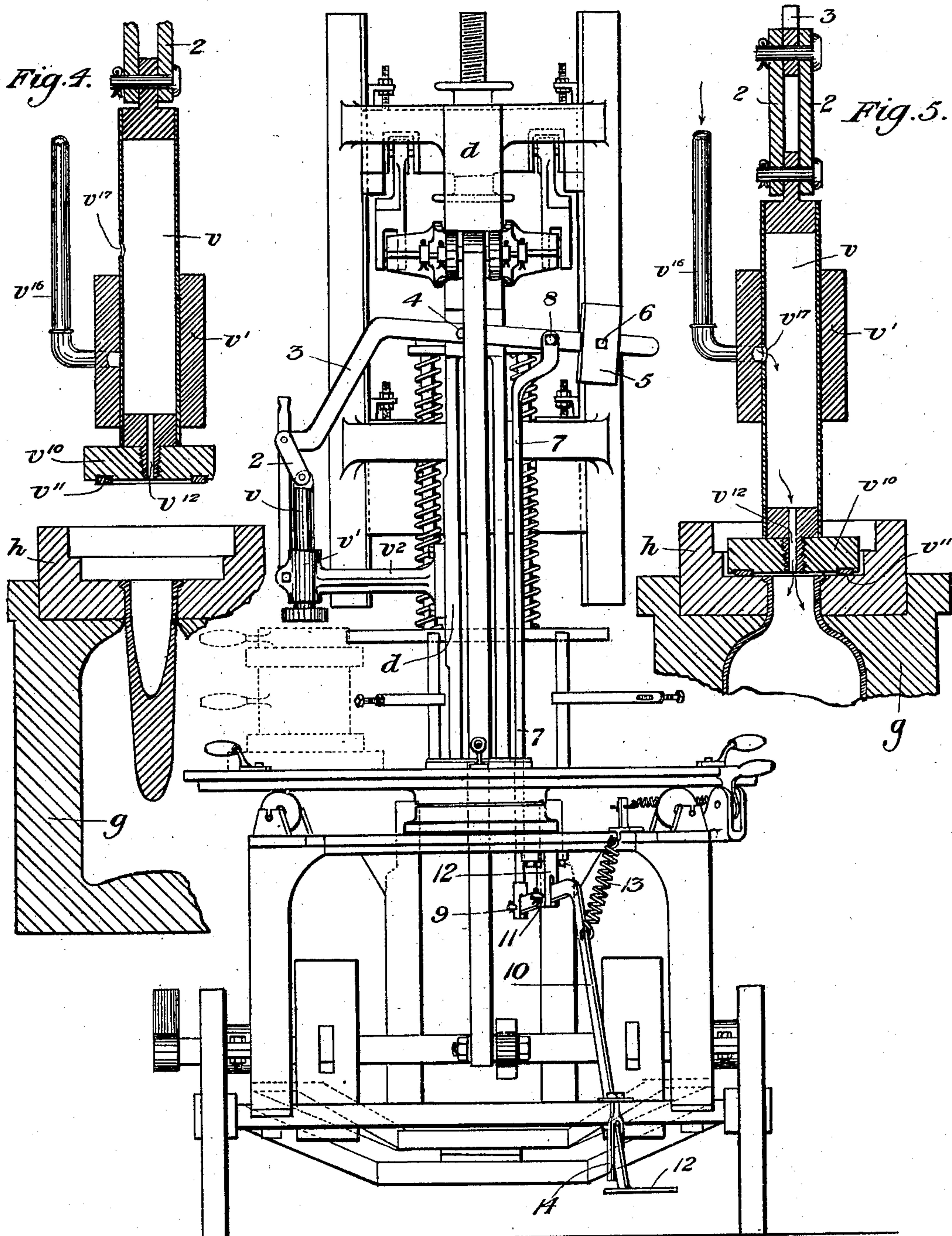
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2 Sheets—Sheet 2.



Witnesses:

J. H. Moore
R. H. Johnson

Fig. 3.

Inventor:

James A. Arnold
by *C. M. Clarke*
his Attorney.

UNITED STATES PATENT OFFICE.

JAMES A. ARNOLD, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO JOHN JACKSON, OF SAME PLACE.

GLASS-BLOWING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 666,125, dated January 15, 1901.

Application filed August 1, 1900. Serial No. 25,486. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. ARNOLD, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Glass-Blowing Machinery, of which the following is a specification, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a view in front elevation of a glass-machine provided with my improved air-valve and its operating parts. Fig. 2 is a detached detail view showing these parts in elevation. Fig. 3 is a view similar to Fig. 1 from the opposite side. Fig. 4 is a detail sectional view, on an enlarged scale, with the air-valve in its raised position with relation to the blowing-mold. Fig. 5 is a similar view showing the valve lowered upon the neck-mold and in operative position.

My invention relates to improvements in apparatus for forming glass articles, and has particular reference to that class of machinery wherein the finishing operations are made by means of air-pressure introduced to the interior of the mold and adapted to expand and partially finish the blank therein to the finished interior of the mold.

While my invention is applicable generally to the usual class of pressing and blowing machinery wherein the finishing operations are made by means of air-pressure, I have shown it as adapted to a certain machine for making articles of glassware, for which Letters Patent were issued to John J. Power February 14, 1899, No. 619,694. In this patent the blowing operation for finishing the article is secured through the valve mechanism particularly illustrated in Fig. 6, wherein the tapered hollow valve is adapted to be seated upon the neck-mold by means of a handle, which construction, while being quite efficient, requires the use of the operator's hand. This is objectionable, as it entails loss of time in the operation of the machine, limiting its output. My present invention is designed to avoid such necessary manipulation by hand and to provide a convenient and suitable means for operating the air-valve through a foot-lever, while at the same time

providing a better and more efficient construction of the valve proper.

Referring now to the drawings, *d* is the standard of the machine, to which is secured an arm *v*², terminating at the outer end in a cylinder or hollow guiding-head *v'*, which is preferably divided at one side to admit of accurate adjustment by means of a bolt fastened through flanges on either side of the divided cylinder. Within this cylinder or guiding-head *v'* is mounted an air-pipe *v*, which is hollow throughout its interior and to the lower end of which is secured in any suitable manner a head or disk *v*¹⁰, in the lower face of which is inserted a ring *v*¹¹, of packing material, as asbestos, adapted to form an air-tight contact with the upper face of the neck-mold *h* when the valve is lowered. Through the central interior of the disk is an opening or port *v*¹², communicating with the interior of the hollow pipe *v*, so that when the valve is lowered upon the neck-mold communication will be established between it and such hollow pipe. Connected with the cylinder or guiding head *v'* and communicating with its interior is an air-supply pipe *v*¹⁶, while the wall of the pipe *v* is perforated by a port *v*¹⁷ at a point which in the raised position of the valve will correspond to the amount of downward travel thereof necessary to bring it into contact with the neck-mold in order to insure registering with the entering-port of the air-pipe. This port *v*¹² is placed in vertical alinement with such entering-port and is preferably made somewhat elongated, so as to insure communication. The upper end of the pipe *v* is connected by means of links 2 with the outer end of an operating-lever 3, pivoted at 4 to the standard *d*, extending outwardly beyond such pivoted point to the other side of the standard and provided with an outwardly and inwardly adjustable counterweight 5, provided with means for locking it in position, as a set or thumbscrew 6. A vertically-movable connecting-rod 7 is pivotally attached at its upper end to the lever 3 at 8 on the outer side of the pivotal connection 4, and the lower end of the connecting-rod 7 is pivotally connected at 9 to the inner end of a treadle-lever 10. This treadle-lever has a pivotal bearing at 11

in a support 12, secured to the under frame of the machine, the treadle being bent downwardly and forwardly, so as to terminate within suitable distance from the floor, and
 5 is provided with a foot-rest 12, projecting outwardly into a convenient position for manipulation of the lever by the foot of the operator. Connected at any suitable point on the lever is a tension-spring 13, also attached at
 10 its upper end in any suitable manner to the main frame, and the action of this spring tends to hold the lever 10 in a lifted position, lowering the connecting-rod 7 and holding the outer end of the lever 3 and the air-valve in
 15 a lifted position to permit the free movement of the mold under it in the rotation of the table of the machine. The outer end of the lever 10 is engaged by downwardly-projecting guides 14 of sufficient length to embrace it
 20 in either the raised or lowered position and to thus insure its proper alinement.

When the body-mold *g* and its corresponding neck-mold *h*, with the partially-finished blank, as illustrated in Fig. 4, are brought
 25 centrally below the air-valve, the operator depresses the treadle of the said lever 10, throwing up the connecting-rod 7 and forcing down the air-valve until the packing-ring *v*¹¹ comes into contact with the upper face of the neck-
 30 mold, at which point the port *v*¹⁷ will register with the opening from the air-pipe and the blowing operation within the body will be completed. Upon lifting the foot from treadle 12 the spring 13 will lift it up, and
 35 such action, in addition to the counteracting tendency of weight 5, will act to raise the air-valve from contact to its normal position, the same operation of raising cutting off the air-supply and leaving the machine free to rotate
 40 to bring the next mold into position, when the same operation is repeated.

The advantages of my invention will be appreciated by those who are familiar with the art of blowing glass mechanically, and while
 45 I have shown and described the invention as applied to and conforming with the construction of a machine provided with rotating table it is obvious that it may be applied to any construction of machine employing a
 50 blow-mold upon which the air-valve may be mounted so as to have a vertical range of travel above the mold.

Having described my invention, what I claim, and desire to secure by Letters Patent,
 55 is—

1. In a glass-machine the combination with a stationary blow-mold having an upper sealing-face, of a hollow guiding-head above the
 60 blow-mold, an inlet air-port communicating with the interior and provided with an air-supply pipe, a hollow stem vertically movable in the guiding-head provided with a port adapted to register with the inlet-port, a head on the lower end of such hollow stem, perforated by a port communicating with the interior and adapted to seat on the face of the

blow-mold, a pivoted lever connected with the hollow stem, a pivoted foot-lever, and a connecting-rod between the foot-lever and the operating-lever, substantially as set forth. 70

2. In a glass-machine, the combination with a stationary blow-mold having an upper sealing-face, of a hollow guiding-head above the
 75 blow-mold, an inlet air-port communicating with the interior and provided with an air-supply pipe, a hollow stem vertically movable in the guiding-head provided with a port adapted to register with the inlet-port, a head on the lower end of such hollow stem, perforated by a port communicating with the interior and adapted to seat on the face of the
 80 blow-mold, a pivoted lever connected with the hollow stem, and provided with an adjustable counterweight at its outer end, a pivoted foot-lever, and a connecting-rod between the foot-lever and the operating-lever, substantially
 85 as set forth.

3. In a glass-machine, the combination with a stationary blow-mold having an upper sealing-face, of a hollow guiding-head above the
 90 blow-mold, an inlet air-port communicating with the interior and provided with an air-supply pipe, a hollow stem vertically movable in the guiding-head provided with a port adapted to register with the inlet-port, a head
 95 on the lower side of such hollow stem, provided with an annular projecting packing-ring on its under side, perforated by a port communicating with the interior and adapted to seat on the face of the blow-mold, a pivoted
 100 lever connected with the hollow stem, a pivoted foot-lever, and a connecting-rod between the foot-lever and the operating-lever, substantially as set forth.

4. In a glass-machine, the combination with
 105 a stationary blow-mold having an upper sealing-face, of a hollow guiding-head above the blow-mold, an inlet air-port communicating with the interior and provided with an air-supply pipe, a hollow stem vertically movable
 110 in the guiding-head provided with a port adapted to register with the inlet-port, a head on the lower end of such hollow stem, provided with an annular projecting packing-ring on its under side, perforated by a port
 115 communicating with the interior and adapted to seat on the face of the blow-mold, links pivotally connected to the top of the hollow stem, a lever connected to the top of the links, pivoted at its middle portion, provided with
 120 an adjustable counterweight, at its outer end, a pivoted foot-lever, and a connecting-rod attached to the foot-lever and to the valve-operating lever beyond its pivoted bearing, substantially as set forth. 125

In testimony whereof I affix my signature in presence of two witnesses.

JAMES A. ARNOLD.

Witnesses:

O. M. CLARKE,
 JAS. J. MCAFEE.