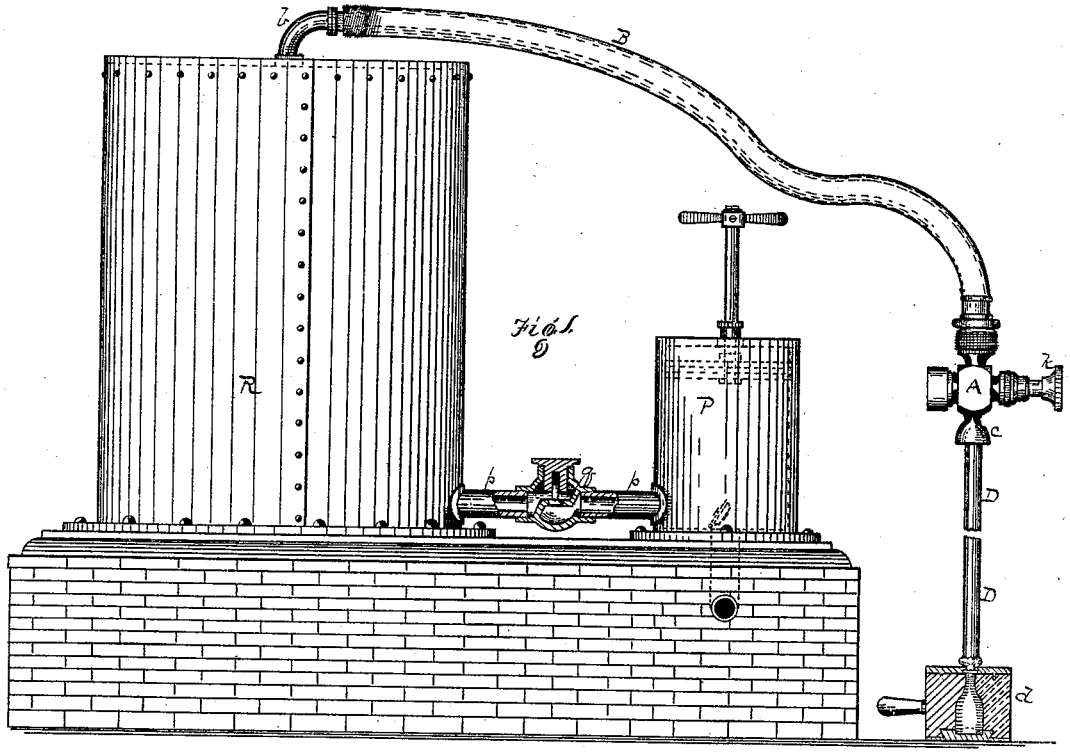
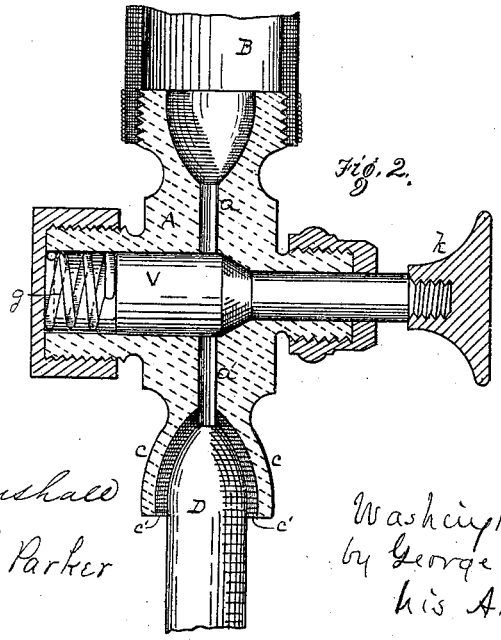
W. BECK.

GLASS BLOWING APPARATUS.

No. 180,451. Patented Aug. 1, 1876.





WITNESSES.

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UNITED STATES PATENT OFFICE.

WASHINGTON BECK, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN GLASS-BLOWING APPARATUS.

Specification forming part of Letters Patent No. **180,451**, dated August 1, 1876; application filed June 9, 1876.

To all whom it may concern:

Be it known that I, WASHINGTON BECK, of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented or discovered a new and useful Glass-Blowing Apparatus; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—like letters indicating like parts—

Figure 1 illustrates by a side elevation, partly in section, the construction of an apparatus suitable for use in carrying out my invention; and Fig. 2 shows, in section, a cock or valve and connections for regulating the flow of air in the use of the apparatus.

My invention relates to the use of compressed air, or other elastic compressible fluid, in the blowing of glassware. The work of blowing by lung-power is known to be difficult and laborious, and a mechanical means to do such work, or some part thereof, is highly desirable.

At P I have represented an air-pump, which may be of any suitable construction, and worked by any known motor, for pumping and compressing air into a close receiver, R, through a pipe, *p*, in which is a check-valve, *p*, of any convenient construction. Any desired degree of air-pressure may be stored up in the receiver R, and such pressure may be indicated by a pressure-gage attached thereto in the usual way. By a coupling-piece or union, *b*, the flexible hose B receives air from the receiver, and conducts it to the place of use. At the opposite or free end of the hose B I attach a cock, A, the detailed construction of which is more fully represented by an enlarged sectional view of Fig. 2. The cock-case has an air-port, *a*, leading from the hose B into a valve-chamber, which is occupied by the valve V, and another air-port, *a'*, leads to a conically-shaped socket, *c*, where connection is made with the blow-pipe D. The valve V, as represented, is a piston-valve, and it is held so as to close communication between the ports *a a'* (when the through-flow of air is not desired) by means of a spring, *g*, and it is moved or worked in the opposite direction, so as to uncover the ports *a a'*, whenever desired, by the hand or finger of the operator pressing on the knob *k*. The socket *c* is lined with an elastic yielding packing, *c'*, of india-rubber, or other suitable material, and the end of the blow-pipe D is so shaped as to fit nearly into said socket, and bring its orifice, when so inserted, into line with the air-port *a'*.

In Fig. 1 I have represented my improvement as adapted for use in blowing glass bottles in an ordinary two-part mold, *d*, from which its use in blowing other articles of glassware in other suitable molds will be readily understood.

The operator gathers the proper quantity of glass on the end of his blow-pipe D, and, in the usual way, partly blows and shapes the article. He then, at the proper time, takes the cock A in his hand, preferably with one finger passing over the knob *k*, places the socket *c* onto the upper end of the blow-pipe D, incloses the partly-made glass article, which still hangs to the blow-pipe, in the mold-cavity, after which he depresses the knob *k*, so as to let a blast of compressed air through the ports *a a'*, along through the blow-pipe into the glass article, so as to complete the blowing operation. The packing *c'* secures a sufficiently close joint, and the socket *c* is so easily placed on and removed from the pipe that little or no time is lost in making the connection. Ordinarily, the cock A will be suspended over the mold, or in other convenient place, for use.

I do not limit myself in the use of this or like apparatus to giving an article of glassware a final blast, but employ it for glass-blowing purposes generally whenever the conditions are favorable for its use. Nor do I limit myself in the combination of devices to the specific form of valve shown and described for controlling the flow of air, since any suitable valve or cock may be employed which can be readily, quickly, and with certainty opened and closed by the operator; also, a long line or coil of pipe having a considerable capacity, and provided with a check-valve, may be substituted for the receiver as the mechanical equivalent thereof.

I claim herein as my invention—

1. In an apparatus for blowing glassware, an air-pump, air-receiver, interposed check-valve, a flexible hose for conveying the air to

any desired place for blowing, and a cock connected with such hose, with a packed surface suitable for the convenient placement and removal of the blow-pipe, substantially as set forth.

2. In combination with a glass-blower's blow-pipe, a receiver, flexible hose, and cock, substantially as set forth.

3. In combination with the flexible hose B, a cock, A, having a port, *a*, leading therefrom, a valve, V, operated one way by mechanical pressure, and in the reverse direction by the operator, a port, *a'*, leading to a packed socket, *c*, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand.

WASHINGTON BECK.

Witnesses:
J. J. McCORMICK,
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