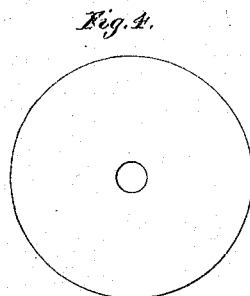
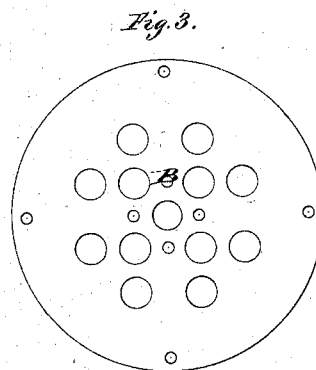
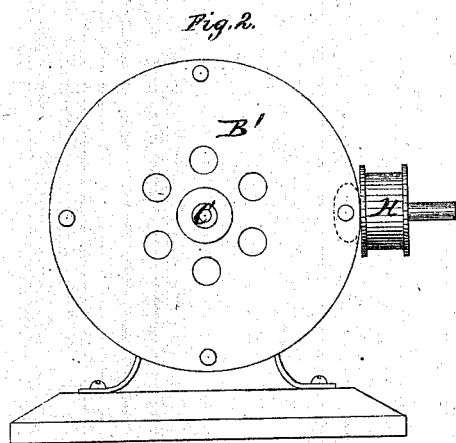
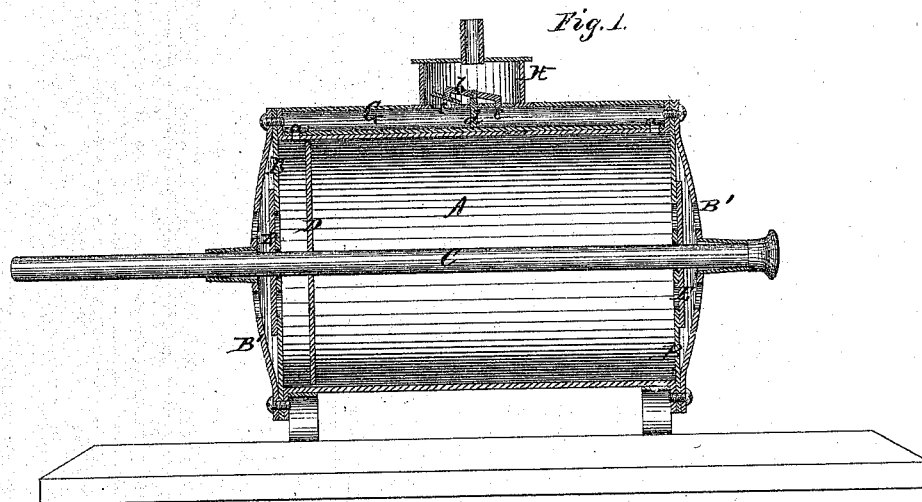


JAMES M. WILLIAMS.
Improvement in Blowing-Machines.

No. 115,259.

Patented May 23, 1871.



Witnesses
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JAMES M. WILLIAMS, OF CONNERSVILLE, INDIANA.

Letters Patent No. 115,259, dated May 23, 1871; antedated May 20, 1871.

IMPROVEMENT IN BLOWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JAMES M. WILLIAMS, of Connerville, in the county of Fayette and State of Indiana, have invented certain new and useful Improvements in Blowing-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a blowing-machine, as will be hereinafter fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal vertical section of my entire machine;

Figure 2 is an end view of the same;

Figure 3 is a view of the inside head of the cylinder; and

Figure 4 is a view of the valve in one of the heads.

A represents the cylinder, of any suitable dimensions, provided at each end with a head composed of two plates, B B'. The inner head or plate B is flat and perforated, as shown in fig. 3.

The outer plate B' is concavo-convex and perforated, as shown in fig. 2, the concave side facing the flat plate B.

Through the entire cylinder thus constructed extends a piston-rod, C, upon which is permanently affixed the piston-head D, and also loosely placed two valves, E E.

These valves are placed on the piston-rod, one within each head—that is, between the plates B B'—and are of such size that, when forced against the outer plates B, they entirely cover all the perforations in the same, thus shutting off the air.

The perforations in the inner plates B extend beyond the circumference of the valves, so that when the valves are drawn against the same the air will pass around it and be drawn into the cylinder by the action of the piston D.

Near each head of the cylinder A is an opening, *a*, leading into a chute, G, for the purpose of discharg-

ing the air into the air-chest H, situated half-way between the heads on the outside of the cylinder, the chute G extending the whole length of the cylinder and connecting with said air-chest.

Within the air-chest H is situated a pivoted double valve, *b*, covering alternately the openings *e e* leading from the chute to the air-chest.

This valve is acted upon by the motion of the piston-head D, and while it closes one of the openings *e* the other is open, so that it prevents the air forced out at one end of the cylinder from returning back again at the other end.

Within the chute G, immediately under and between the openings *e e*, and between the air-chest and cylinder, is a partition, *d*, which divides the chute and prevents the air from passing from one end of the cylinder to the other, but compels it to pass out through the air-chest H.

This machine may be geared to any power desired.

The piston-head D is to be packed similar to the piston-head of any engine, and also the valves E E where they surround the piston-rod.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The cylinder-head herein described, composed of the perforated flat plate B and the perforated concavo-convex plate B', arranged substantially as and for the purposes set forth.

2. In combination with the head B B', the valve E, playing upon the piston-rod C, substantially as and for the purposes herein set forth.

3. The combination of the cylinder A, double heads B B', rod C, piston-head D, valves E, chute G with openings *a e* and partition *d*, and the air-chest H with double-pivoted valve *b*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAMES M. WILLIAMS.

Witnesses:

W. J. PEPPER, M. D.,
THOMAS DOWNS.