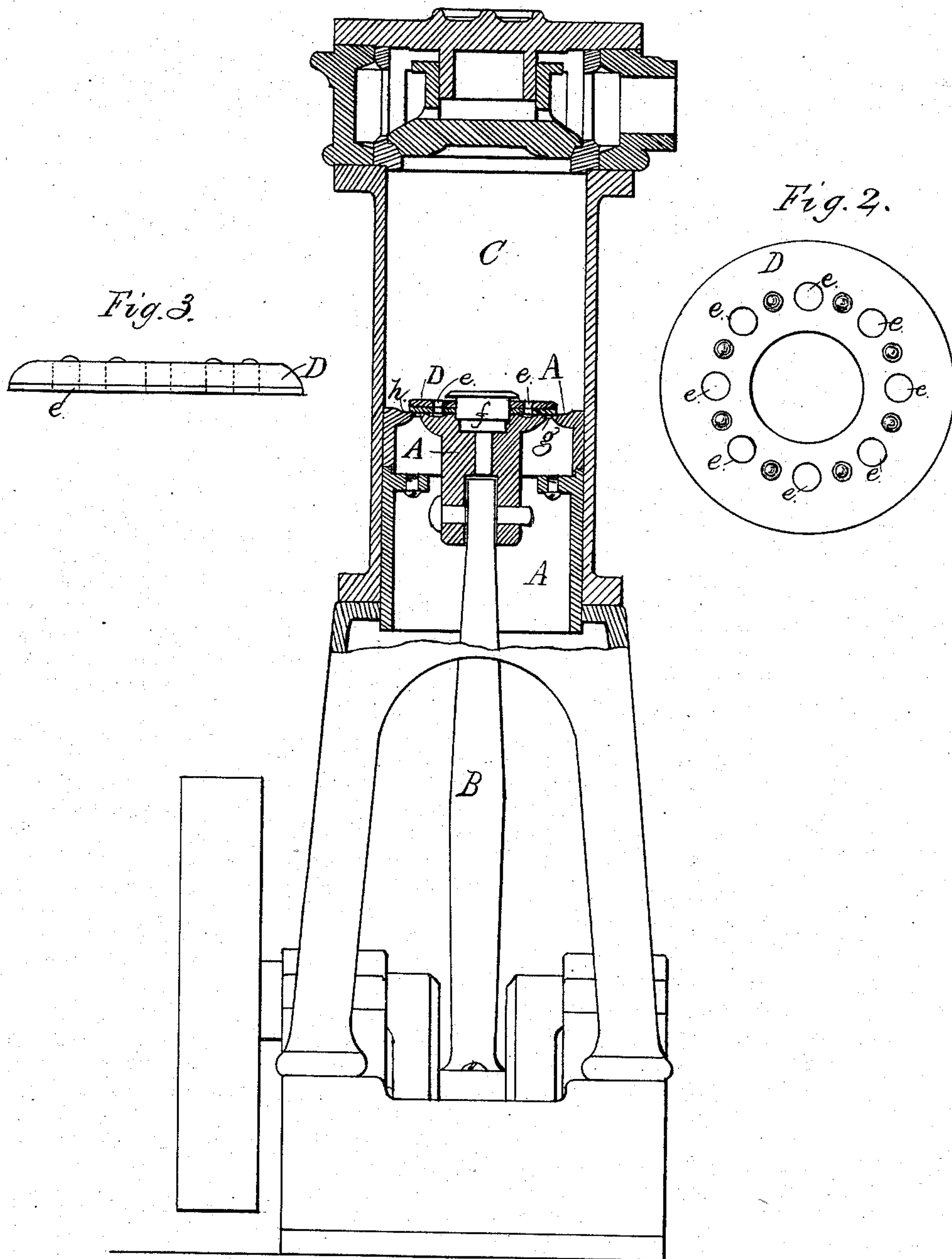


C. BURLEIGH.
Piston-Valves for Air-Pumps.

No. 156,873.

Patented Nov. 17, 1874.

Fig. 1.



Witnesses.

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per. John J. Halsted.
Atty

UNITED STATES PATENT OFFICE.

CHARLES BURLEIGH, OF FITCHBURG, MASSACHUSETTS.

IMPROVEMENT IN PISTON-VALVES FOR AIR-PUMPS.

Specification forming part of Letters Patent No. **156,873**, dated November 17, 1874; application filed September 8, 1874.

To all whom it may concern:

Be it known that I, CHARLES BURLEIGH, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented an Improved Piston-Valve for Air-Pumps; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My improvement consists in a special construction of the piston-valve, whereby, while allowing a given amount of air to pass through, it needs a reciprocating movement of only about one-half the distance ordinarily required, thus causing less wear of the parts.

Figure 1 is a vertical section of an air-pump embodying my invention. Fig. 2 is a plan of the piston-valve detached; and Fig. 3, an edge view of the same.

It is unnecessary to describe the well-known parts of the pump farther than to name that A is the piston; B, the pitman or crank, from which its reciprocating movements are received; and C, the cylinder. The valve of the piston is shown at D. It is a flat disk, having a circular series of holes, *e e*, through it, and it is secured to the piston by means of a central threaded bolt, *f*, the head of which allows a little play or movement of the valve to or from the piston to allow or prevent the passage of air during the movements of the piston.

When the piston descends the valve D rises and allows the air not only to pass, at all sides of it, through the space between it and the piston, but also permits it to pass through all of the perforations *e e* to any desired extent, dependent on the size and number of the holes, but readily to an extent equal or more than equal to the whole volume that could pass between the disk, valve, and the piston, if the holes were not in this valve.

When the piston rises, and the valve consequently closes against it, the air is prevented from passing through the holes by the solid part of the bed of the piston, which, at that period, serves to close the holes.

The ports in the piston are shown at *g*, and may be curved slots or a series of holes, as may be preferred, so long as they allow passage for a sufficient quantity of air. The valve should, as usual, have a proper packing, as shown at *h*.

I claim—

The combination of a piston, having perforations *g*, with the piston-valve D, having perforations *e*, substantially as and for the purpose set forth.

Executed this 5th day of August, A. D. 1874.

CHARLES BURLEIGH.

Witnesses:

M. W. FROTHINGHAM,
S. B. KIDDER.