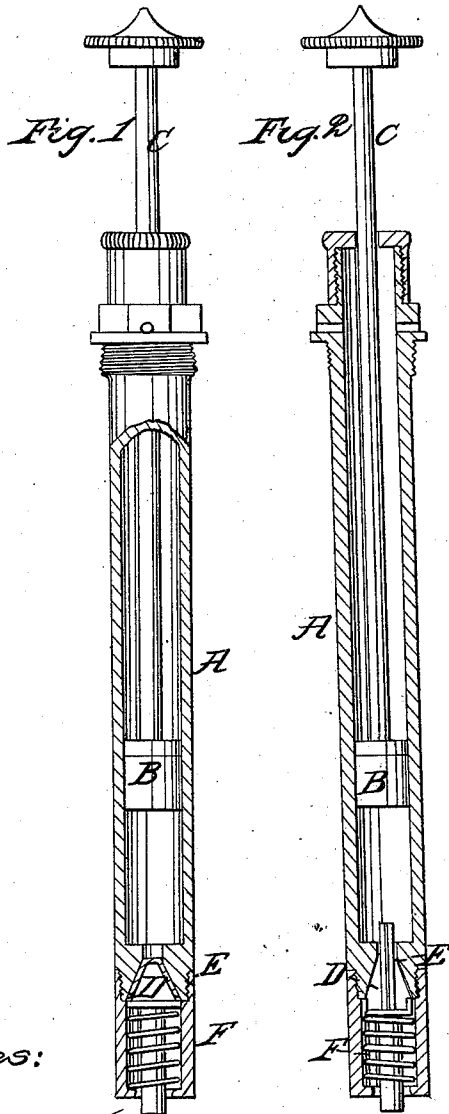


H. H. Hendrick,
Pump Valve,
No. 2,437, Patented Apr. 19, 1864.



Witnesses:

Wm. H. Douglas
D. Robertson

Inventor:

H. H. Hendrick

UNITED STATES PATENT OFFICE.

H. H. HENDRICK, OF CINCINNATI, OHIO, ASSIGNOR TO HIMSELF AND J. J. RIDDLE, OF SAME PLACE.

IMPROVEMENT IN AIR-PUMPS.

Specification forming part of Letters Patent No. 42,437, dated April 19, 1864.

To all whom it may concern:

Be it known that I, H. H. HENDRICK, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Valves for Air-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal central section of my invention. Fig. 2 is a similar section of a modification of the same.

Similar letters of reference in both views indicate corresponding parts.

This invention consists in the application of a cone-valve made of or covered with india-rubber, leather, or other flexible material, in combination with a common hard-metal valve-seat, and with a reciprocating piston, in such a manner that any impurities—such as hairs or fiber—which may detach themselves from the packing of the piston and lodge between the valve and its seat, do not prevent the valve from closing down air-tight, and the operation of the pump is not interrupted.

A modification of my invention consists in the application of an india rubber or leather valve-seat or metal valve-seat, covered with leather or other flexible materials, in combination with a cone-valve made of india-rubber or hard metal and with a reciprocating piston in such a manner that the valve is enabled to close down tight notwithstanding hairs, fibers, or other small impurities may lodge between it and its seat.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

A represents the barrel or cylinder of an ordinary air-pump, made of brass or other

suitable material and provided with a piston, B, to which a reciprocating motion is imparted by a handle, C.

D is a cone-valve which closes in its seat E, being held in place by a spring, F. If the piston moves toward the valve, it closes, or ought to close, air-tight in order to insure a correct operation of the pump.

If the valve and its seat are both made of hard metal, and ground up carefully, said valve will close air-tight, provided no impurities get between it and its seat; but in working the piston hairs or fibers or other small particles are liable to detach themselves and to lodge on the valve-seat and the operation of the pump is interrupted. In order to avoid this difficulty, I use a valve of india-rubber, (such as shown in Fig. 2,) or instead of india-rubber, leather, or other flexible material. By these means the valve is enabled to close down perfectly tight in its seat, even if hairs, fibers, or other small particles lodge on the latter and the operation of the pump is rendered much more certain than it is with valves or valve-seats of the ordinary construction.

I am aware that it is common to construct pumps of various descriptions with yielding valves or valve-seats, and therefore do not claim novelty in this principle; but

I do claim as new and desire to secure by Letters Patent—

In an air-pump of the construction specified, the combination of the elastic valve D with the seat E, spring F, cylinder A, and piston B, all arranged and operating as described.

H. H. HENDRICK.

Witnesses:

THOS. S. J. DOUGLAS,
D. ROBERTSON.