No. 788,337. PATENTED APR. 25, 1905.

E. E. SLICK.

VALVE.

APPLICATION FILED AUG. 26, 1903.

2 SHEETS—SHEET 1.

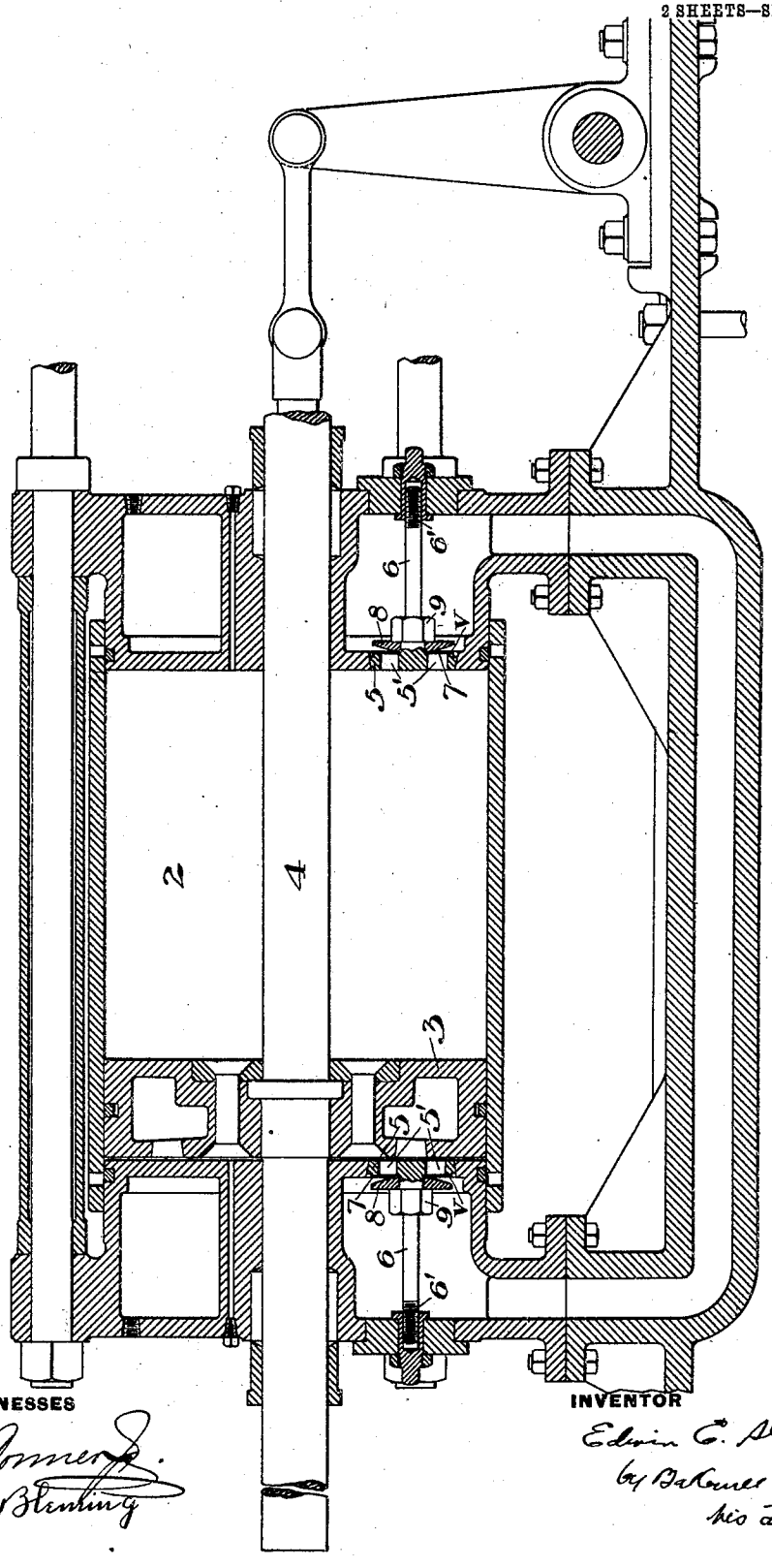


Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

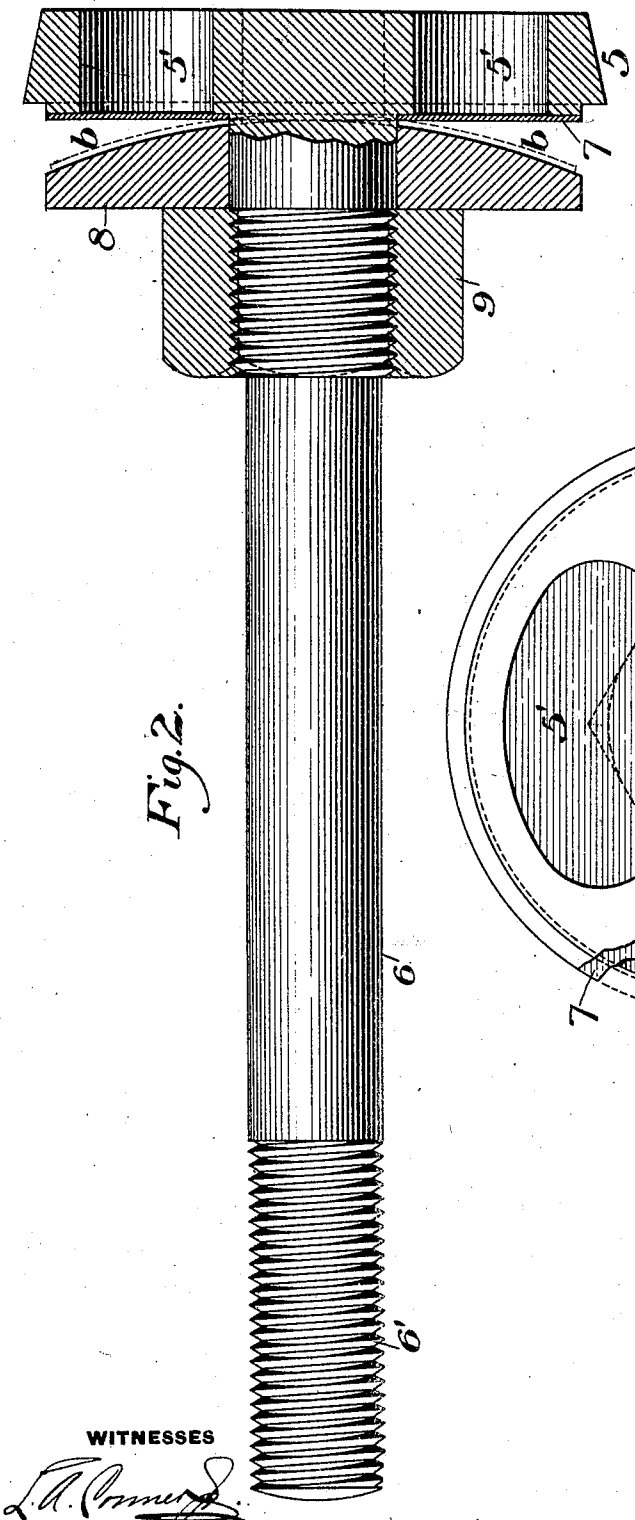


Fig. 2.

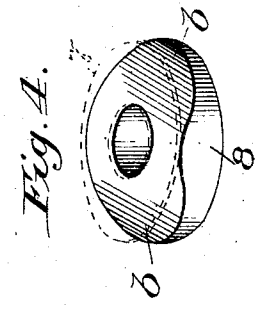


Fig. 4.

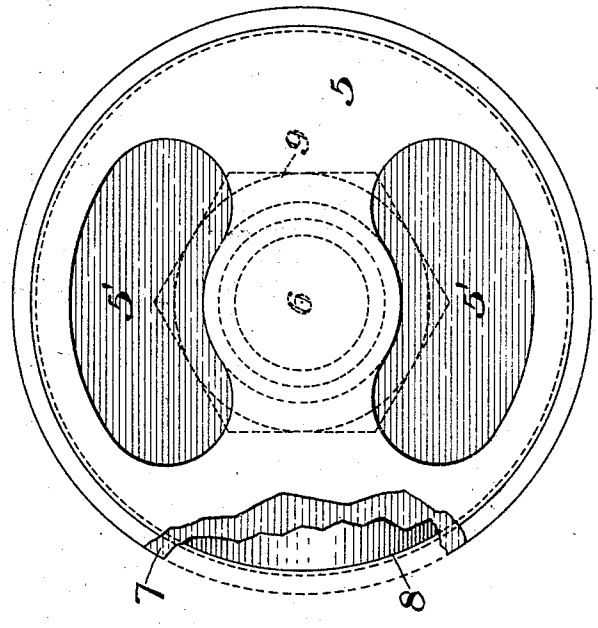


Fig. 3.

WITNESSES

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No. 788,337. Patented April 25, 1905.

UNITED STATES PATENT OFFICE.

EDWIN E. SLICK, OF PITTSBURG, PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 788,337, dated April 25, 1905.

Application filed August 26, 1903. Serial No. 170,821.

To all whom it may concern:

Be it known that I, EDWIN E. SLICK, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Valve, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of part of the cylinder of a blowing-engine provided with my improved valve. Fig. 2 is a sectional detail view of the valve on a larger scale. Fig. 3 is a plan view of the valve, partly broken away; and Fig. 4 is a perspective view showing the face of the back-stop.

The purpose of my invention is to provide a pump-valve adapted to be used successfully and economically on high-speed air-compressors, in which the liability of the valves to get out of order or to chatter when in use have hitherto constituted a very serious practical difficulty.

My invention is illustrated in the accompanying drawings, in which 2 is the cylinder of an air-compressor, which may be of any suitable type. 3 is the piston, and 4 the piston-rod. 5 is the valve-seat, formed with ports 5′ for the passage of the air. The seat is preferably made integral with or is fixed to a stem 6, which is secured by a screw-thread 6′ or otherwise to the head of the cylinder, so that the valve-seat may be removable. Around the stem 6 is the valve 7, composed of a disk of resilient metal, preferably steel, and this disk is secured at its center by a stop or backing piece 8, which encircles the stem 6 and is forced against the middle portion of the valve by a nut 9.

The inner face of the stop 8 is curved, preferably, so that its surface constitutes a segment of a cylinder, thus affording intermediate spaces *b b* for the outward bending of the valve.

In practical use of the invention the opposite portions of the valve 7 move back and forth from and to their seats over the ports, being opened by compression and closed by the spring action as soon as the compression is released. Being relatively light, it will operate very quickly, and as its momentum is small its motion produces no bad effect either on itself or on the valve-seat, and all objectionable chattering is avoided.

The curved face of the stop 8 prevents motion of the valve beyond its elastic limit and affords a solid backing which increases its life. The face of this stop, as above stated, is preferably curved in one direction only, as such curvature produces less strain upon the valve and enables a one-piece valve-plate to be used.

If desired, the resilient metal piece 7 may be faced with leather, rubber, or other material.

I claim—

1. A blowing-engine or compressor having a cylinder with a stationary head provided with an outlet-valve, said valve containing a thin resilient sheet-metal disk clamped at its center and arranged to bend backwardly on both sides in opening, and a curved stop back of the disk having a substantially cylindrical surface arranged to contact therewith, substantially as described.

2. In a blowing-engine or compressor a cylinder having a stationary chambered head with ports at its inner end, a valve controlling said ports and containing a sheet-metal disk clamped at its center, a removable valve-seat containing the ports, a stem for said seat extending through the sheet-metal valve and secured by an external device, and a back-stop for the valve having a substantially cylindrical surface; substantially as described.

3. A blowing-engine or compressor having a stationary head, a removable seat therein with through-ports, said seat having a stem extending outwardly through a chamber in the head and provided with an external securing device, a valve containing a thin sheet-metal disk clamped at the center around the stem, and a back-stop surrounding the stem in the rear of the valve and having a substantially cylindrical surface arranged to prevent breaking of the valve in opening; substantially as described.

In testimony whereof I have hereunto set my hand.

EDWIN E. SLICK.

Witnesses:

GEO. B. BLEMING,

L. A. CONNER, Jr.