F. M. STEVENS.
Rotary-Valve

No. 205,982. Patented July 16, 1878.

Fig- 1.

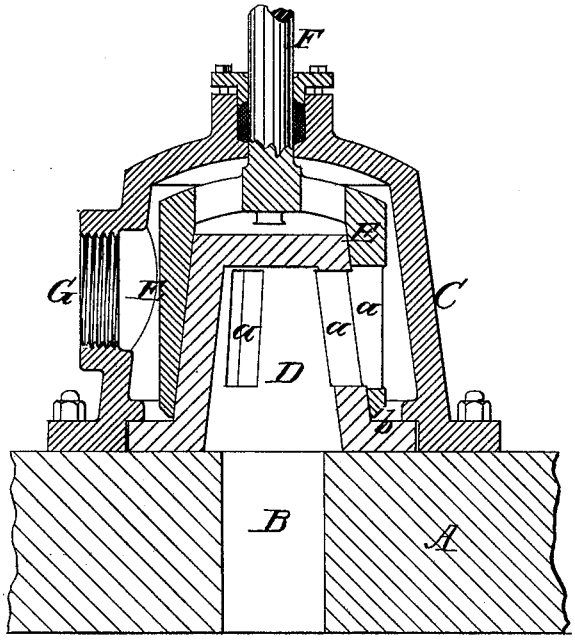


Fig 2.

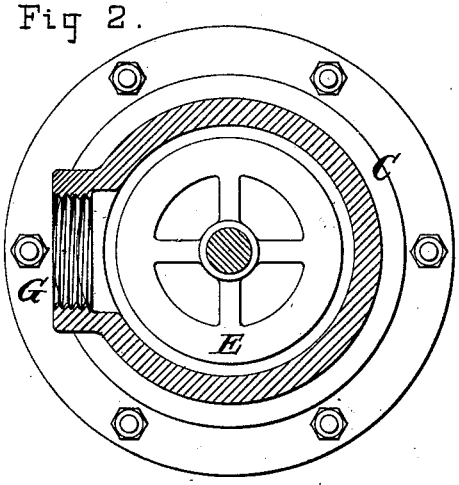
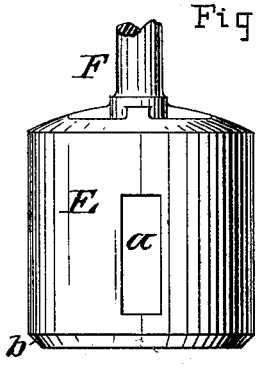


Fig- 3.



ATTEST,

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UNITED STATES PATENT OFFICE.

FRANK M. STEVENS, OF CONCORD, NEW HAMPSHIRE.

IMPROVEMENT IN ROTARY VALVES.

Specification forming part of Letters Patent No. **205,982,** dated July 16, 1878; application filed October 9, 1877.

To all whom it may concern:

Be it known that I, FRANK M. STEVENS, of Concord, in the county of Merrimack and State of New Hampshire, have invented certain Improvements in Valves for Engines, of which the following is a specification:

This invention relates to valves which rotate or oscillate in operative connection with fixed seats; and consists in various features of construction, which will be more particularly set forth hereinafter.

In the drawings, Figure 1 is a vertical mid-section through the valve, its seat, and its chamber. Fig. 2 is a plan of the valve with its chamber in section. Fig. 3 is a side elevation of the valve alone.

A represents the wall of an engine cylinder or chamber, to which steam, for instance, is to be admitted, and B is the port opening into the same and controlled by the valve. C is a chamber bolted to the cylinder, and arranged to receive the valve-seat D.

The chamber may be of any shape; but perhaps the best form is that shown, which coincides nearly with the contour of the valve-seat, and has a flange by which it is secured to the cylinder. The valve-seat is slightly conical, hollow, and provided with a flange, whereby it is bolted to the cylinder.

E is the valve, which may be cylindrical on the outside, but is slightly coned on the inside, and ground to fit the seat D. F is the stem of the valve, which passes through a gland in the chamber, as shown, and may be connected with any suitable valve-gear by which to rotate or oscillate the valve. G is the inlet or outlet pipe, as the case may be.

The valve and seat have slits or openings *a a*, which coincide when they stand in certain relations to each other, and thus open communications between the cylinder and the chamber.

To relieve the valve from undue pressure, the top may be left open or cut away, and the bottom is chamfered at *b*, so that the steam may have access to the under edge of the valve, and thus counterbalance the pressure from above.

The axis of rotation of the valve may be arranged vertically, horizontally, or at any angle, and the valve may be used for any purpose where the passage of elastic vapors or gases in or out is to be regulated.

I am aware that oscillating valves are in common use, and that the arrangement of ports in a valve-seat and a valve so that they will coincide in certain positions of the parts is not new; but

What I claim as new is—

1. The valve E, having a slightly-conical inner face, ground to fit a conical valve-seat, chamfered at *b*, made open at the top to admit the steam, and provided with a stem, F, and a slit or slits, *a*, all substantially as and for the purposes set forth.

2. The valve E, having a slightly-conical inner face, ground to fit a conical valve-seat, made open at the top to admit the steam, and provided with slits *a a* and a stem, F, and the whole inclosed within a chamber, C, having an outlet, G, and a space within the said chamber surrounding the valve E and communicating with the said outlet, all substantially as set forth.

3. A valve having a slightly-conical inner surface to fit a conical seat, an axial stem by which to rotate or oscillate it, and a chamfered bottom, as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRANK M. STEVENS.

Witnesses:
FRED. H. GOULD,
FRED. F. BROWN.