

J. E. Thorpe,
Rotary Steam Valve.
No. 47,072. Patented Mar. 28, 1865

Fig. 1

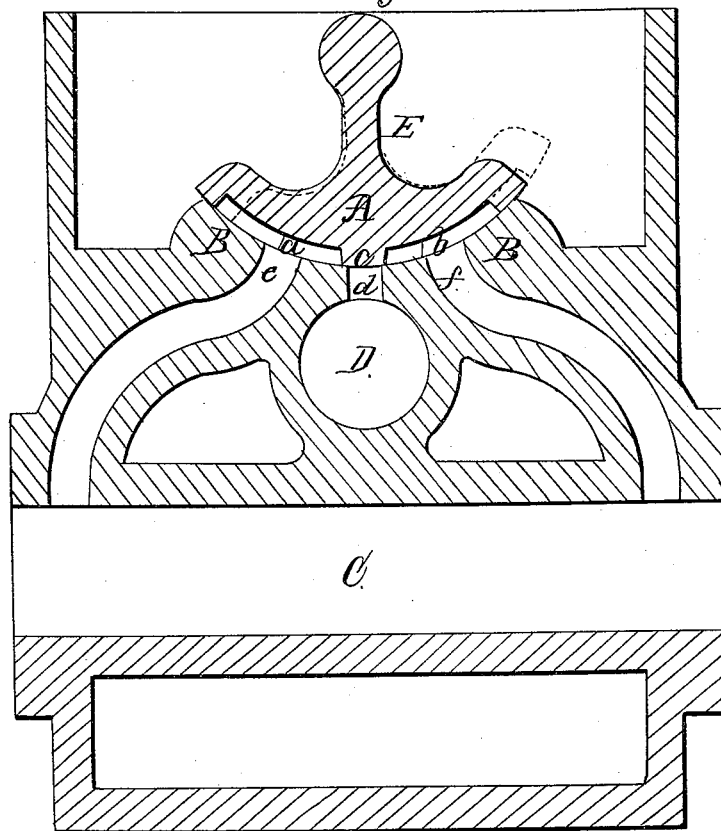
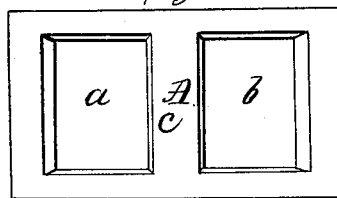


Fig. 2



Witnesses:
Frederick Curtis
J. P. Hale, Jr.

Inventor:
James E. Thorpe
by his attorney
R. H. Condy

UNITED STATES PATENT OFFICE.

JAMES E. THORPE, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO HIMSELF, AND FRANCIS D. KIDDER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. 47,072, dated March 28, 1865.

To all whom it may concern:

Be it known that I, JAMES E. THORPE, of the city and county of Providence, and State of Rhode Island, have invented an Improved Duplex-Chambered Valve for Double-Acting Engine or Pump Cylinders; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a longitudinal section of such valve, its chest, seat, cylinder, and ports or connecting-passages thereof. Fig. 2 is an under side view of the valve.

The working-face of my valve, as well as that of its seat, is an arc of a cylinder whose center or axis is the center of motion of the valve. The valve shown at A in Fig. 1 has two chambers, *a b*, separated from one another by a partition, *c*, which is of more than sufficient size to cover the eduction or middle port of the valve-seat B, such seat having three passages or ports, *d e f*, two of which, viz.—*e f*—communicate with the ends of the cylinder or pump-barrel C, while the other, *d*, leads into the eduction-chamber D.

When the chamber *a* is directly over the ends of both passages *e d*, the passage *e*, leading to the bore of the cylinder, will be in communication with the eduction-conduit D. At the same time the passage *f*, leading to the said bore, will open into the chamber *b*, which also will open into the induction-chamber E, in which the valve is situated, it being understood that when in use the said chamber E is a closed chamber, except in having communication with the generator or boiler from which it is to receive steam. So when by a movement of the valve the chamber *b* is carried directly over the ends of the passages *d* and *f*, the passage *f* will be in communication with the eduction-conduit D. At the same time the passage *e* will open into the chamber *a*, and such chamber *a* will open into the chamber E.

By means of the two chambers *a b* and the partition *c*, (the latter being of greater width or area than the middle port, *d*,) there never can be any connection of the three ports *e d f*

with each other so as to affect or destroy the vacuum of the cylinder.

It is well known that with a single-chambered oscillating valve having its seat and bearing-surface curved to the arc of a circle, it is very difficult, if not impossible, to make the chamber so as to prevent, when the valve is in its central position, a communication of the three ports, particularly after the valve or its seat may have become slightly worn, but with the central partition and the two chambers, made and arranged with respect to the ports, as described, there is always such an overlap of the partition as will prevent any communication of the three ports, so as to materially affect, if not destroy, the vacuum of the cylinder.

The vibratory movements of the valve are to be effected by a suitable mechanism, such movements being properly regulated or timed to the movements of the piston of the barrel or cylinder.

I do not claim a vibratory or oscillatory valve made with a curved bearing and seat and a single chamber to operate with three ports of the seat; nor do I herein claim the valve made with two chambers and two plane-surfaced seats arranged at an obtuse angle, (as shown in the United States Patent No. 15,134, granted June 17, 1836, to J. C. King,) this latter valve, by reason of its peculiar construction and mode of operation, being continually liable to affect or destroy the vacuum of the cylinder.

What I claim as my invention or improvement consists—

In providing the valve with a single curved seat and a single corresponding bearing therefor, and with two chambers and a partition arranged in the valve as described, and three ports leading from the seat, and with the area or width of the bearing surface of the partition greater than that of the mouth of the central port, the whole being substantially as hereinbefore described.

Witnesses: JAMES E. THORPE.

R. H. EDDY,
F. P. HALE, Jr.