S. H. BEVINS, J. WEIS & W. H. PHILLIPS.

VALVES FOR REVERSING ENGINES.

No. 182,152. Patented Sept. 12, 1876.

Fig. 2.

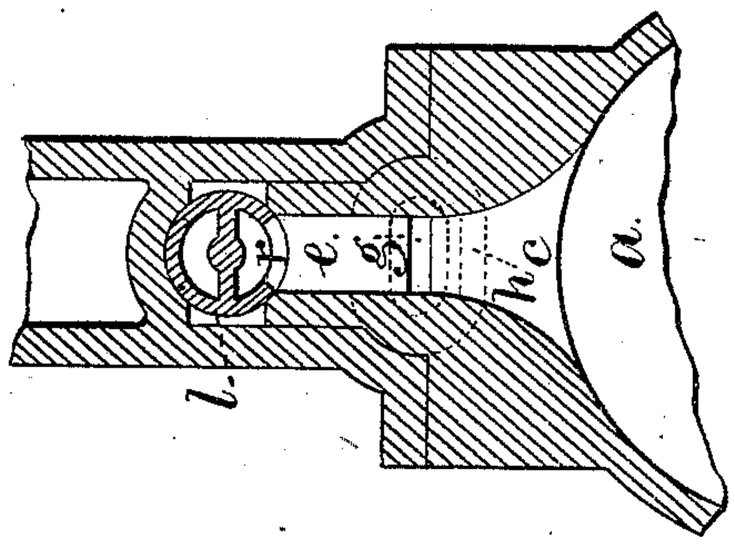


Fig. 3.

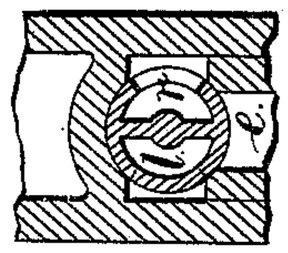


Fig. 4.

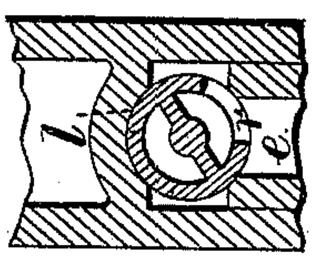
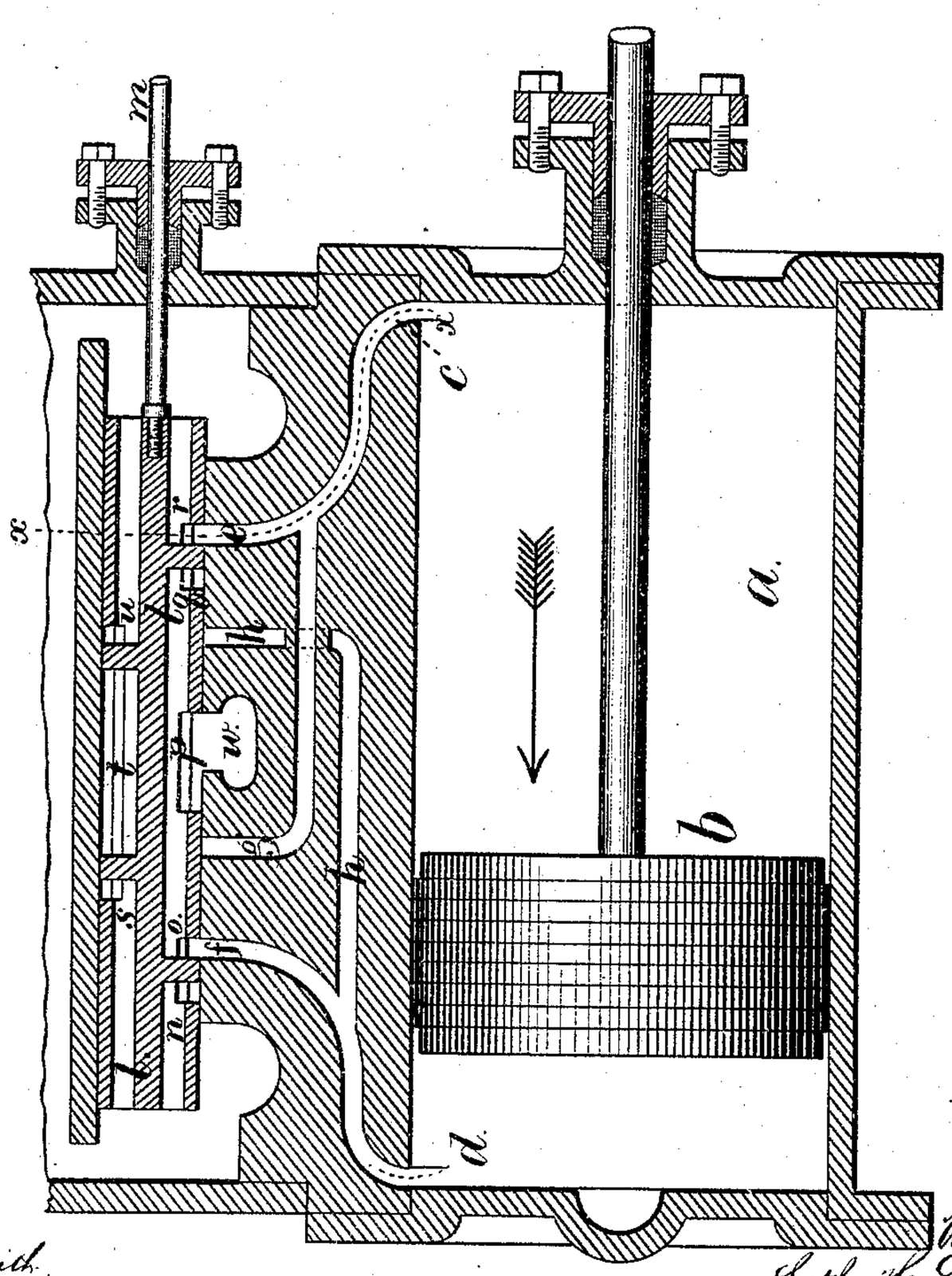


Fig. 1.



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UNITED STATES PATENT OFFICE.

SETH H. BEVINS, OF NEW YORK, N. Y., JOSEPH WEIS, OF JERSEY CITY, NEW JERSEY, AND WILLIAM H. PHILLIPS, OF NEW YORK, N. Y.

IMPROVEMENT IN VALVES FOR REVERSING ENGINES.

Specification forming part of Letters Patent No. **182,152**, dated September 12, 1876; application filed May 18, 1876.

To all whom it may concern:

Be it known that we, SETH H. BEVINS, of the city and State of New York, and JOSEPH WEIS, of Jersey City, in the State of New Jersey, and WILLIAM H. PHILLIPS, of the city and State of New York, have invented an Improvement in Reversible Engines, of which the following is a specification:

The object of this invention is to drive the engine in either direction without change of eccentric, and to entirely or partially cut off the supply of steam for stopping the engine or lessening its speed. To effect these objects we make use of the ordinary steam and exhaust ports, and also of auxiliary ports crossing each other, and combine with them a cylindrical hollow valve that has ports at opposite sides and is divided by a central septum and partitions, and the said valve is upon a rod that is connected to the eccentric or other moving device of the engine, and the same is mounted upon a shaft, so that it can be revolved to turn the valve as well as moved endwise, whereby the ports on either side of the cylindrical valve are brought into action, or the ports closed, or partially so, by the blank portion of the cylinder.

In the drawing, Figure 1 is a section of the valve and ports, and Fig. 2 is a cross-section at the line *x x*.

The cylinder *a* and piston *b* are of ordinary character, and the ports *c d* are at the ends of the cylinder as usual, and they extend to the ports *e f* at the valve-chest; there are also cross-ports *g h*, the port *g* passing over to the port *c*, and the port *h* passing to the port *d*.

The exhaust-port *w* is in the center. The steam-valve *l* is cylindrical, and occupies a circular opening in the steam-chest, the steam having free access to the ends of the valve. It is not necessary that the valve be placed in a circular opening, as it is only necessary that the valve have a semicircular seat.

The valve *l* is provided with a rod, *m*, passing through a gland or stuffing-box, and connected, by a neck and collar, or similar means, to the eccentric or other portion of the engine that moves the same; and this valve-rod is also made with a handle or other device by means of which the valve may be given a partial or complete revolution without disconnecting it from the eccentric-rod.

The cylindrical valve *l* is hollow, and there is a central partition, as seen in Fig. 2. The ports *n* and *r* open to the ends of the valve, so that steam may enter and pass through the ports *e c* or *f d*, and the engine will then run in the ordinary manner, the exhaust steam passing by the ports *o* or *q* to the opening *p* leading to the exhaust *w*.

If a quarter-revolution is given to the cylindrical valve the ports will be entirely closed and the engine stopped, as seen in Fig. 3; or if the valve is partially rotated the steam will be more or less cut off, as denoted in Fig. 4.

If this cylindrical valve is given a half rotation the ports *s t u* are brought to the valve-seat, and the port *s* admits steam through *g c*, while the exhaust passes from *d*, *h*, and *t* to the exhaust-port *w*, or the port *u* admits steam through *h d* while the exhaust is through *c*, *g*, and *t* to the port *w*.

By this arrangement the engine can be stopped, slowed, or reversed by simply revolving the cylindrical slide-valve more or less.

We claim as our invention—

The reciprocating rod and cylindrical slide-valve having ports on opposite sides, and capable of being partially rotated, in combination with an engine having two sets of ports, one of which is direct and the other cross, substantially as set forth.

Signed by us this 12th day of May, A. D. 1876.

SETH H. BEVINS.
JOSEPH WEIS.
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Witnesses:
GEO. T. PINCKNEY,
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