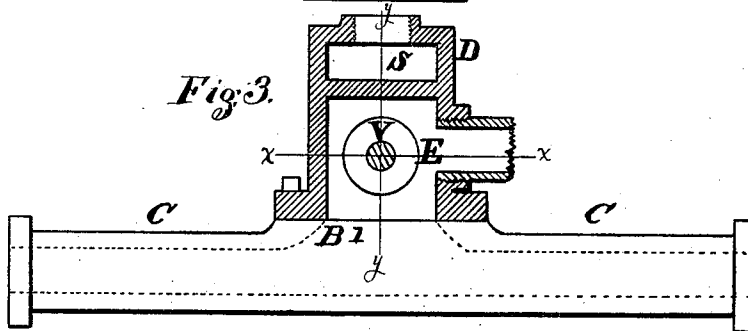
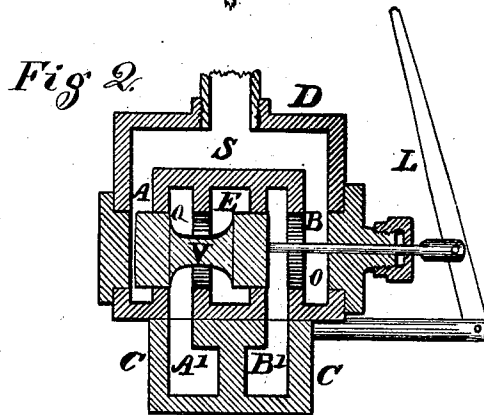
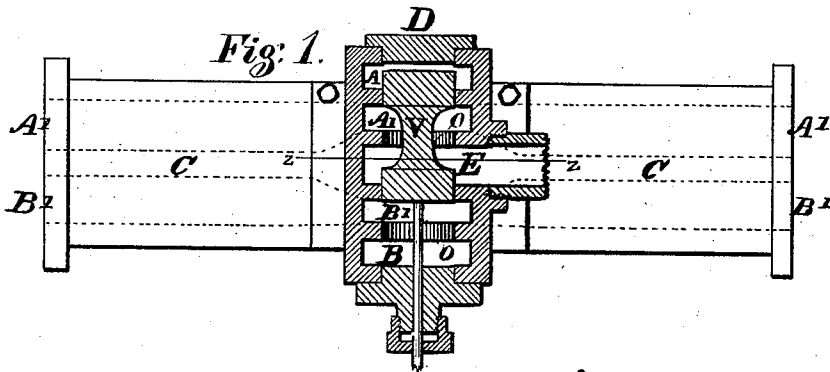


F. MURGATROYD.

REVERSIBLE VALVES FOR STEAM-ENGINES.

No. 178,870.

Patented June 20, 1876.



Witnesses

Geo. Mahon
H. B. Gibbitts

By

Frank Murgatroyd Inventor

Geo. W. Gibbitts

Attorneys

UNITED STATES PATENT OFFICE.

FRANK MURGATROYD, OF CLEVELAND, OHIO.

IMPROVEMENT IN REVERSIBLE VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **178,870**, dated June 20, 1876; application filed March 24, 1876.

To all whom it may concern:

Be it known that I, FRANK MURGATROYD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new Reversing Steam-Valve, of which the following is a specification:

This invention relates to reversing-valves for steam-engines; and consists of a piston-valve arranged within a valve-case, having peculiar chambers and ports, and connected by a double pipe or pipes with the ordinary inlet and exhaust ports of valve-chests of two ordinary steam-engines, combined and operating as hereinafter described and claimed.

To enable others to fully understand my invention, I will proceed to describe the same in detail, with the aid of the accompanying drawing, in which—

Figure 1 is a top or plan view, having the valve-case cut on line *xx* of Fig. 3. Fig. 2 is a vertical section of the valve and case on line *yy* of Fig. 3. Fig. 3 is a side elevation, having the valve-case cut on the vertical section-line *zz* of Fig. 1.

C C represent a double pipe or pipes, designed, as shown in the drawing, as a connection between the steam-chests of two engines. Midway between the ends of said pipes is attached a valve-case, D, in which are chambers A B S E, formed by partitions, through which are made openings O O, in which the

valve V is operated by means of the lever L. S is a chamber in the top of the case D, where the steam is admitted, and open to the chambers A B. A' B' are passages leading to the pipes C C. The passage A' leads to the inlet-ports of the valve-chests of the engines, and the passage B' to the exhaust-ports of the same. E is the exhaust-chamber and passage in the case D.

The operation of this device is as follows: With the valve V in the position seen in the drawing, steam would pass into passage B' through the chamber B, thus leading to one side of the engine-valves. By changing the valve V to the other end of the case, the steam is directed into passage A', leading to opposite side of engine-valves, thus reversing said engines.

Having described my invention, I claim—

The valve-casing D, having partitions therein, forming the inlet-chamber S, chambers A B, and exhaust-chamber E, intercommunicating by means of openings O, and combined with the valve V, working in said openings, the passages A' B', double pipe C, and steam-chests of two engines, substantially as and for the purpose described.

F. MURGATROYD.

Witnesses:

GEO. W. TIBBITTS,
F. W. CADWELL.