(No Model.)

W. MILLER.

REVERSING VALVE.

No. 480,604. Patented Aug. 9, 1892.

Fig. 1.

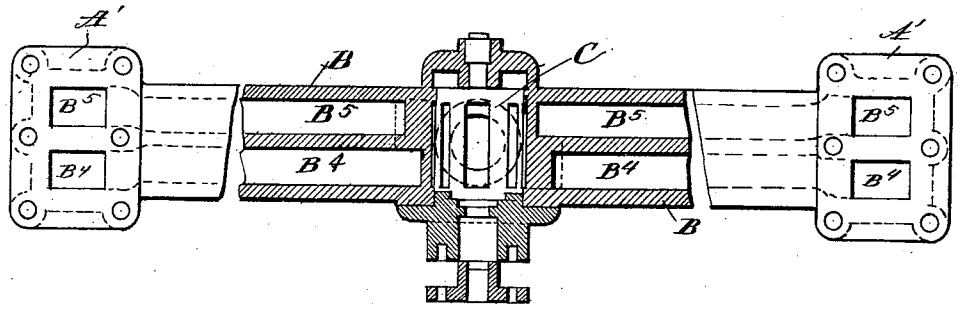


Fig. 2.

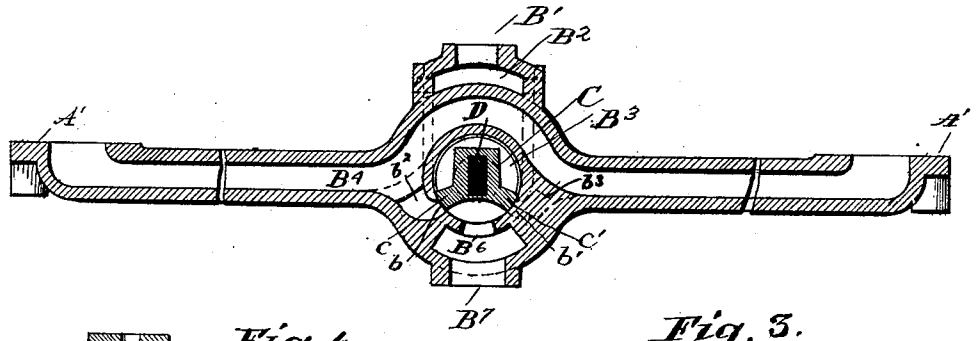


Fig. 4.

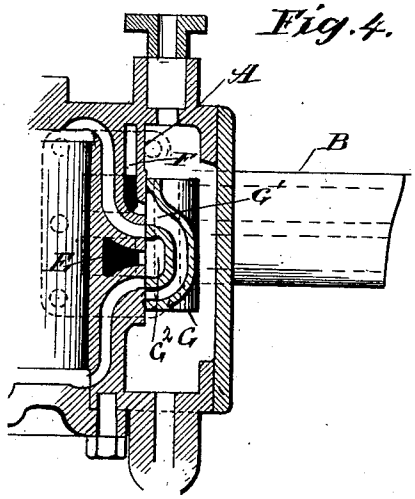
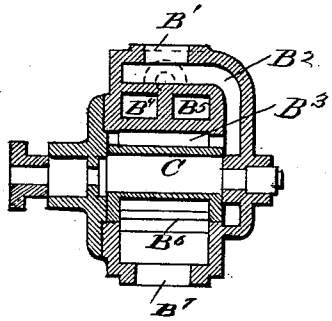


Fig. 3.



Witnesses
F. A. Hoon
E. C. Green

Inventor
Walter Miller
by Wm. M. Hoon
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WALTER MILLER, OF CLEVELAND, OHIO.

REVERSING-VALVE.

SPECIFICATION forming part of Letters Patent No. 480,604, dated August 9, 1892.

Application filed April 13, 1892. Serial No. 429,064. (No model.)

To all whom it may concern:

Be it known that I, WALTER MILLER, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Reversing-Valves, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in reversing-valves for duplicate engines; and its object is to provide a simple, durable, and efficient form of valve for this purpose with suitable connections with the live and exhaust steam ports of the cylinders.

My invention consists in the semi-rotary valve centrally located in a conveying-pipe between two cylinders, and in the arrangement and combination of steam-passages and construction of details, as hereinafter described, shown in the accompanying drawings, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a plan of the connecting-pipe, showing the valve and adjacent parts in horizontal section with valve-stem removed. Fig. 2 is a vertical central section. Fig. 3 is a vertical transverse section. Fig. 4 is a longitudinal section of cylinder, showing the connection of the passages for live and exhaust steam.

In the drawings, A represents the steam-chest of an engine. B is a pipe connecting these chests and provided with continuous passages B^4 and B^5, connecting two chests with the central valve C.

A′ are the extremities of the pipe B, fitted for attachment. Admission for live steam is seen to be at the top of the valve-casing at B′, where it is admitted within the chamber B″, extending to the back of the valve-casing.

B^3 is a cylindrical chamber, within which the valve rotates and open at the rear, connecting with the chamber B″.

D is the valve-stem, omitted in all the figures except Fig. 2. The valve and stem are both omitted from Fig. 1.

The valve *c* within the chamber B^3 is provided with two wings *c c′*, which normally cover at their bearing-surfaces the openings of the two ports *b* and *b′*, which connect with passages B^4 B^5, which, curving around the valve-chamber, pass from end to end pipe B. Between the wings *c* and *c′* of the valve is placed the exhaust-opening B^6, which discharges into the outlet-nozzle B^7. It will be seen that the bearing for the valve is formed in the cylinder by solid extremities thereto, thus inclosing a space at one side of the valve. It will be seen that when the steam has entered the inlet-nozzle B′ it passes through the back chamber B″ and valve-chamber B^3, and when the valve is turned either way it enters one or the other of the passages *b* or *b′*, thence through short passages b^2 b^3, and thence traverses the pipe B in both directions from the valve into the steam-chests, whereas, on the other hand, the opposite passage *b* or *b′* is opened into the exhaust-passage B^6 and the exhaust-steam flows from both directions into the valve from the steam-chests.

Fig. 4 shows the arrangement of steam-ports to accommodate the transverse passages B^4 and B^5, one of which opens directly into the exhaust-passage E, and a separate passage F connects the live-steam port with the passage B^5 through the elongated port G′ in the cut-off valve G. The usual passage G″ in this valve serves to connect the exhaust-ports on the cylinder.

There will be seen to be no especial change of construction in the valve G, except that there is no lap or lead and the movement either way is the width of the port.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a reversing-valve for duplicate engines, the combination of a pipe B, provided with continuous passages B^4 and B^5, connecting, respectively, the live and exhaust steam passages of the engines, a cylindrical central chamber B^3, arranged transversely of the pipe B and opening at one extremity into the live-steam-admission chamber B^2, live-steam ports *b* and *b′*, piercing the lower wall of the chamber and registering with the passages B^4 and B^5, into which, respectively, they open by upwardly-turned passages, and a centrally-lo-

cated exhaust-port B^6 between the ports *b* and *b'*, with a valve composed of a central body, and two wings so arranged as to connect alternately one of the live-steam passages with the exhaust-port, the said connecting-space being inclosed at either end, substantially as described.

2. The combination, with a pipe provided with duplicate passages connecting the live and exhaust steam ports of duplicate engines, of a central cylindrical chamber opening at one end into a live-steam passage and provided with three port-openings at its lower side, one being central for the purpose described, with a valve located in said chamber, provided with wings and end bearings and adapted to connect the central port with either of the other ports when rotated, substantially as described.

WALTER MILLER.

Witnesses:
WM. M. MONROE,
FRANKLIN A. MOORE.