(No Model.) 2 Sheets—Sheet 1.

H. BROUSSEAU & G. PATTERSON.

ROTARY VALVE.

No. 465,917. Patented Dec. 29, 1891.

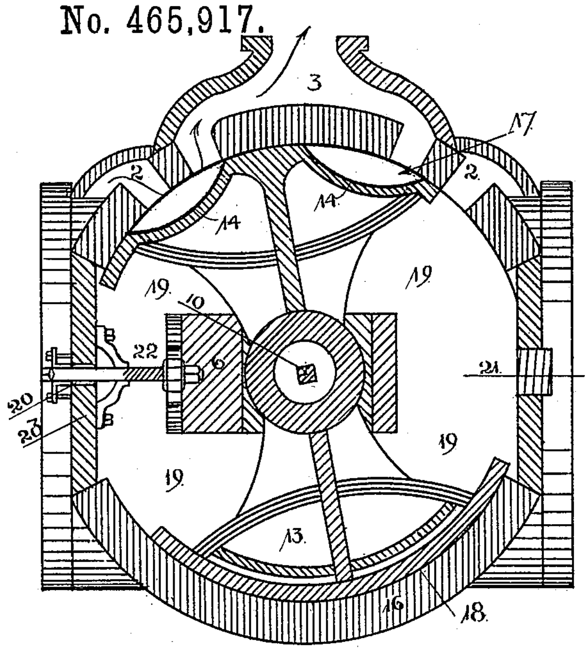

Figure. 1.

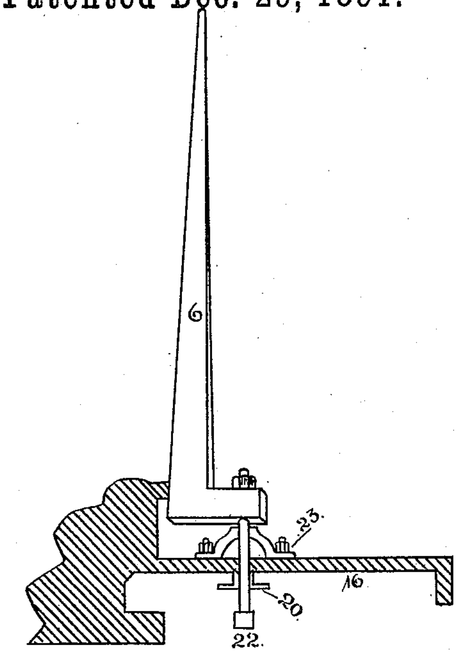

Figure. 2.

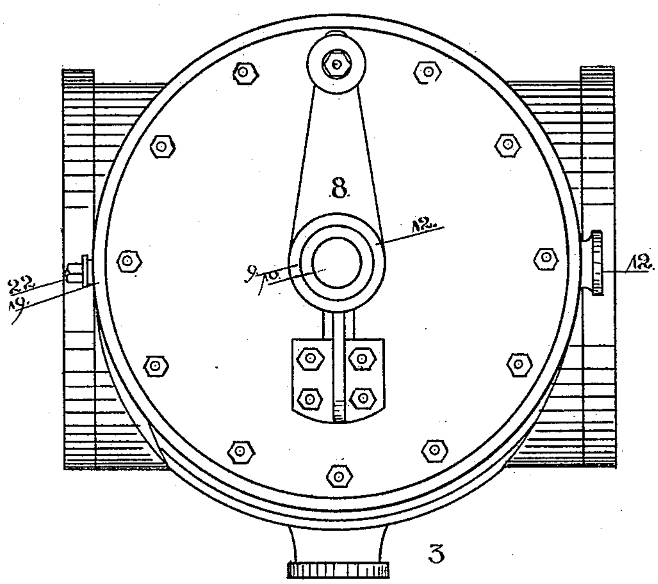

Figure. 3.

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(No Model.) 2 Sheets—Sheet 2.

H. BROUSSEAU & G. PATTERSON.

ROTARY VALVE.

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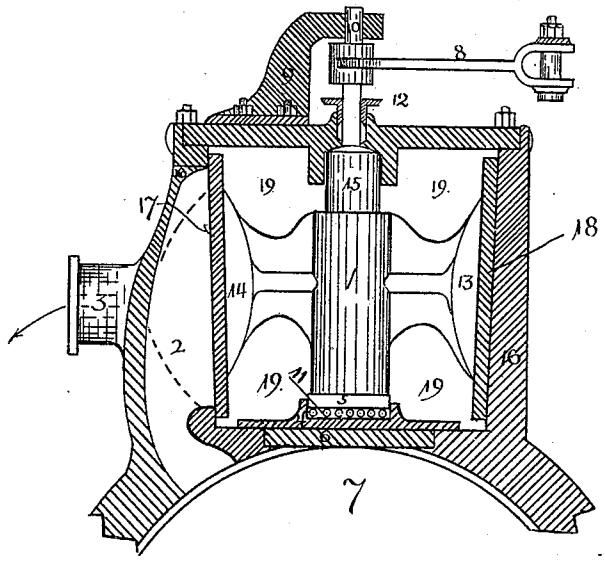
Figure 4



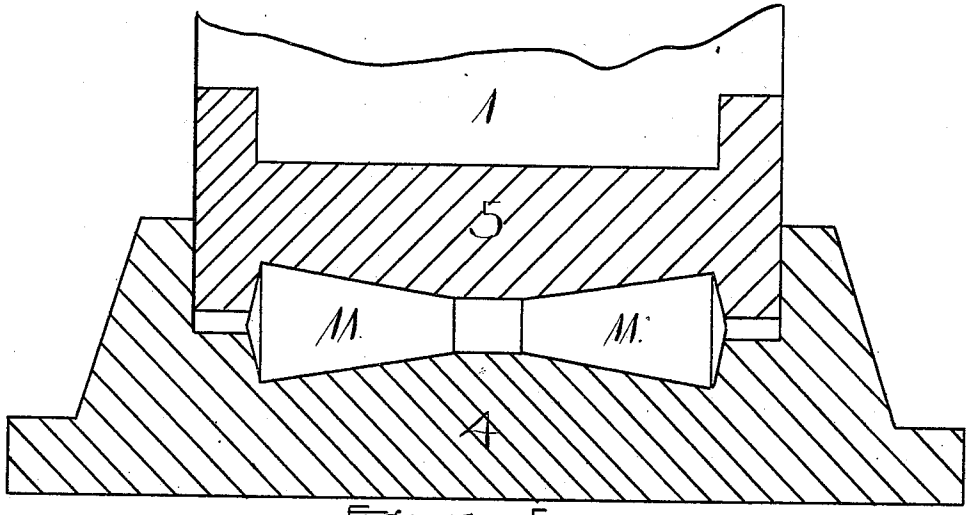


Figure 5.

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UNITED STATES PATENT OFFICE.

HARRY BROUSSEAU AND GILBERT PATTERSON, OF NEWBERRY, MICHIGAN.

ROTARY VALVE.

SPECIFICATION forming part of Letters Patent No. 465,917, dated December 29, 1891.

Application filed July 27, 1891. Serial No. 400,884. (No model.)

To all whom it may concern:

Be it known that we, HARRY BROUSSEAU and GILBERT PATTERSON, citizens of the United States, residing at Newberry, in the county of Luce and State of Michigan, have invented certain new and useful Improvements in Rotary Valves; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

Our invention relates to rotary valves, its object being to provide a valve that will always wear to the seat and be balanced and easily adjusted.

Figure 1 is a top view of the valve and steam-chest. Fig. 2 shows the adjusting-screw and wedge; Fig. 3, outside view of steam-chest and crank; Fig. 4, sectional view of valve and steam-chest; Fig. 5, sectional view of friction-rollers.

1 is the valve-post, having the case-hardened steel shoe 5 resting on case-hardened friction-rollers 11 in the foot-bearing 4.

2 2 is the live-steam port, and 3 3 the exhaust-port.

14 is the exhaust-cavity on one side of the valve-post; 13, the counter-balance; 18, the counterbalance-seat; 17, the valve-seat, and 16 the steam-chest.

15 is the upper journal with stuffing-box 12 and valve-spindle 10, onto which is connected the rock-arm 8.

9 is a bracket steadying the spindle 10.

19 19 is the inside of the steam-chest, and 21 the live-steam port.

6 is an adjusting-wedge. Its shape is shown in Fig. 2, with the adjusting-screw 22 and connections—viz., screw-holder 23, inside steam-chest, and stuffing-box 20. It is evident that by turning this screw the wedge may be forced in or out, thus adjusting the seat, and by loosening the crank-arm the valve may be adjusted without opening the chest.

Fig. 4 shows the construction of the valve-seat 17, and counterbalance-seat 18, being of smaller diameter at the bottom than the top. It is obvious as the parts wear they will wear together and always to the seat.

The friction-rollers 11 are made cone shape, as shown in Fig. 5. It is evident by this construction of bearing it cannot wear to a tight joint, and there being steam equally at the top and bottom of the valve-post there is little or no weight on the rollers. By having two exhaust-ports the cavities can be made smaller, thus throwing less weight on the opposite side as the engine exhausts.

We do not wish to confine ourselves to any special form of construction, and therefore any change that comes within ordinary mechanical skill may be made without departing from the principle of our invention.

What we claim as new, and desire to secure by Letters Patent, is—

1. A rotary balanced valve consisting of the valve-post 1, resting upon friction-rollers 11, the friction-rollers 11, the exhaust-cavities 14 14, the counter-balance 13, the steam-ports 2 2, the exhaust 3 3, valve-seat 17, and counterbalance-seat 18, built on an incline to each other from the top, substantially as specified.

2. An adjusting-wedge for rotary balanced valves having its upper face straight, its lower surface tapering from the head to the point, adapted to be inserted under the foot-bearing of the valve-post, and provided with the screw-bolt 22, screw-holder 23, and stuffing-box 20 for adjusting the wedge from the outside, substantially as described.

3. A rotary balanced valve consisting of the valve-post 1, the shoe 5, the friction-rollers 11, the foot-bearing 4, the exhaust-cavities 14 14, the steam-ports 2 2, exhaust 3 3, and valve-seat 17 and counterbalance-seat 18, built on an incline to each other from the top and provided with the adjusting-wedge 6 and screw-bolt 22, substantially as specified.

4. A rotary balanced valve provided with friction-rollers 11 under the valve-post, made cone shape, the apex of the cone being toward the center, thereby preventing the bearing wearing to a tight joint, substantially as described.

5. A rotary balanced valve consisting of the valve-post 1, having the foot-shoe 5, the friction-rollers 11 under the foot-shoe, the foot-bearing 4, the counter-balance 13, the valve-ports 14 14, live-steam ports 2 2, exhaust 3, the valve-seat 17 and counterbalance-seat 18, built on an incline to each other from the top, the live-steam cavities 19 19 inside the chest, the adjusting-wedge 6, the wedge-screw 22, the journal 15, valve-spindle 10, and rock-arm 8, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

HARRY BROUSSEAU.
GILBERT PATTERSON.

Witnesses:
C. H. BAILEY,
JAS. BAILEY.