

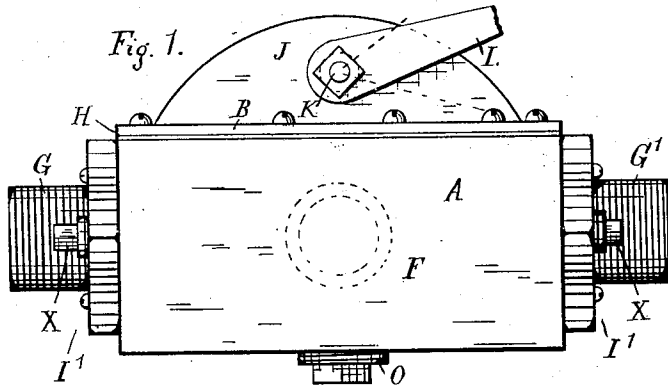
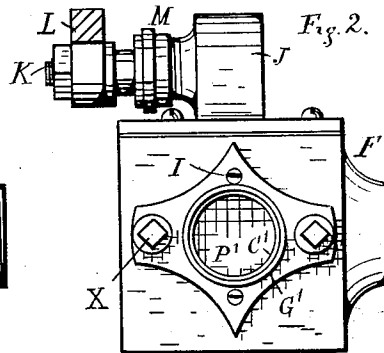
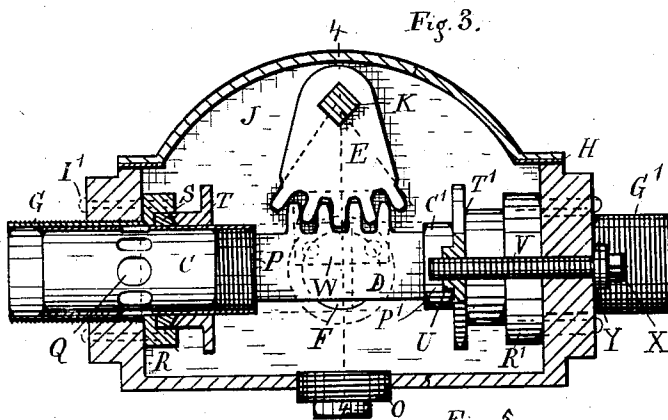
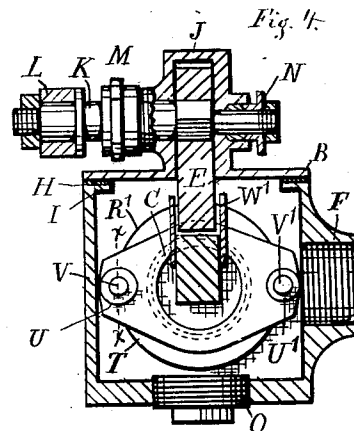
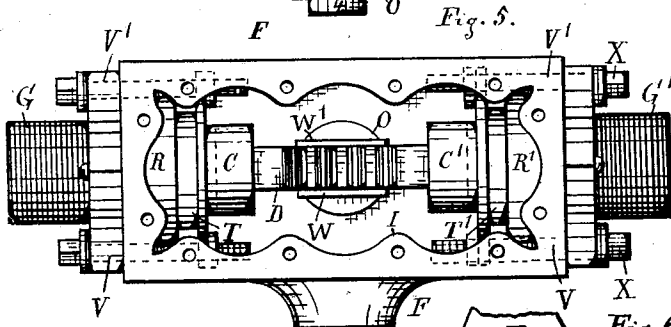
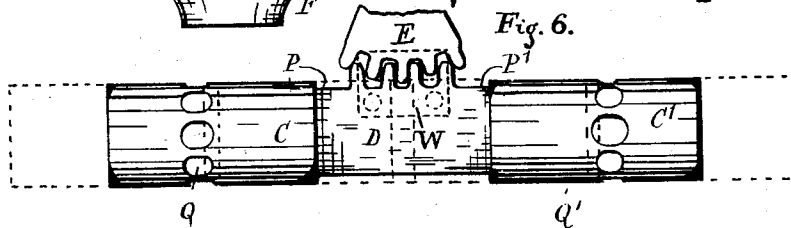
No. 637,010.

Patented Nov. 14, 1899.

G. A. MUMFORD.  
PISTON VALVE.

(Application filed Mar. 20, 1899.)

No Model.



Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE A. MUMFORD, OF ROCHESTER, NEW YORK.

## PISTON-VALVE.

SPECIFICATION forming part of Letters Patent No. 637,010, dated November 14, 1899.

Application filed March 20, 1899. Serial No. 709,767. (No model)

*To all whom it may concern:*

Be it known that I, GEORGE A. MUMFORD, a citizen of the United States, residing at Rochester, Monroe county, New York, have  
5 invented certain Improvements in Piston-Valves, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to certain improvements in piston-valves designed as a substitute for the usual three-way valve for any purpose for which the same may be used.

One of the principal features of my invention is to provide for repacking the piston-valve from the outside of the casing without disturbing the connecting-piping.

My improvements are fully described and illustrated in the following specification and the accompanying drawings, the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings, representing my improved piston-valve, Figure 1 is a side elevation. Fig. 2 is an end view. Fig. 3  
25 is a central longitudinal section. Fig. 4 is a transverse section on the line 4 4, Fig. 3, showing the parts to the left of such line. Fig. 5 is a plan view, the cover being removed. Fig. 6 represents the piston-valve, the toothed  
30 segment and rack detached. Fig. 7 represents a modification of the follower.

My improved valve consists, essentially, of a suitable casing A, provided with a removable cover B, the sliding piston-valves C C',  
35 connected together by the rack-bar D, and the toothed segment E, by which the valves are shifted to open or close the same.

My improved valve is capable of being used for water, steam, air, gas, or other fluids or  
40 liquids under pressure.

F represents the inlet, which may be made in either side of the bottom and to which any suitable supply-pipe is connected.

G G' are the outlets, to either of which the  
45 flow of the fluid or liquid is directed, according to the position of the valve. When the valve occupies the position indicated by the full lines in Figs. 3 and 6, there is no current through it; but when it is shifted to the  
50 right or left, as indicated by the dotted lines, the discharge will be directed to the corresponding outlet.

The cover B is secured to the body of the case A by screws or other suitable devices, the packing H being interposed, if desired, and suitable flanges I being formed around  
55 the opening in the case. The cover B is provided with a suitable hood J, in which the toothed segment swings.

K is a rock-shaft to which the toothed segment is attached. The rock-shaft projects outward through one side of the hood and is provided with a hand-lever L, by which the position of the valve is shifted. The rock-shaft is provided with a suitable stuffing-box  
65 M and, if it is made to extend through the hood, with a suitable gland N on the other end. The shaft in the construction shown is squared and fits a corresponding hole in the toothed segment.

O is a removable cleaning-plug threaded into the bottom of the casing. This plug serves to permit the discharge from the casing, or from any of the connecting-piping or any boiler or reservoir connected therewith,  
75 of any accumulation of sediment or other refuse matter.

The rack-bar is provided at either end with circular bosses P P', which are threaded into the pieces of piping forming the piston-valves C C', so that the rack-bar may be detached from either of the valves or either of them may be detached from the bar. The threads on the two bosses may be right or left hand. The valves C C' are provided with the ports  
85 or orifices Q Q', which in their aggregate area are preferably made equal to the area of the discharge-pipes. The outlets G and G' are threaded into the ends of the casing, being constructed so that they are screwed in from  
90 the inside outward, the outlets being provided with the collars R R', which abut against the interior of the ends of the case. The collars R R' are provided with a recess to receive the packing S and followers T T'.  
95

V V' are adjusting-screws for tightening the packing, which is done entirely from the outside without in any way interfering with the use or operation of the valve or in any way disturbing any of the connecting-piping.  
100 The followers T T' are provided with ears or lugs U U', which are threaded to receive the screws V V'. On the right-hand end of Fig. 3 the plane of section is taken through the

screw V on the line *x x*, Fig. 4. Outside the ends of the case the adjusting-screws V V' are provided with the heads X, adapted to be turned by a wrench, and the packing Y is inserted under these heads.

The operation of my improved valve will have been already understood from the preceding description. The valve being connected up by operating the lever L, the current through it may be entirely cut off or it may be directed in either direction.

Any suitable kind of packing may be used around the valves at S.

My improved valve is cheap and simple in construction, very convenient and durable in operation, and the packing can be made tight on either or both of the valves by turning the adjusting-screws V V', which may be done from the outside without in any way disturbing the connections or stopping the ordinary uses of the valve. It will also be understood that my improved valve may be built with a discharge-outlet in one direction only. It will also be understood that the follower, as indicated in Fig. 7, may be threaded into its gland, in which case the packing may be tightened on removing the cover, the outlets remaining closed. A screw or screws I' may be employed to prevent the unscrewing of the outlet G when a coupling or union is screwed onto it.

W W' represent plates attached to the rack-bar to keep the rack and segment in the proper engagement with each other.

I claim—

1. The combination, with the casing provided with the removable cover and the inlet, of the discharge-pipe, the piston-valve sliding therein and provided with a suitable discharge-port, the gland and packing surrounding the valve, the follower, and the adjusting-screws adapted to adjust the follower to tighten the packing from the outside of the case, as and for the purposes set forth.

2. The combination, with the casing provided with the removable cover and the inlet, of the two oppositely-located discharge-pipes, the piston-valves sliding therein and connected together by the bar, the discharge-ports in the valves, the glands and packings surrounding the valves, and means for adjusting the followers outward, as and for the purposes set forth.

3. The combination, with the casing provided with the removable cover and the inlet, of the two oppositely-located discharge-pipes, the piston-valves sliding therein and connected together by the bar, the discharge-ports in the valves, the glands and packings surrounding the valves, and means for adjusting the followers outward, and mechanism for shifting the valves simultaneously, as and for the purposes set forth.

4. The combination, with the casing, the removable cover, and suitable connecting-piping, of the discharge-pipe inserted through the casing from the interior and having the inside collar, the recess for packing in the collar, the follower, the sliding valve provided with a suitable port, the adjusting-screws arranged to adjust the follower from the outside of the casing, and means for shifting the valve, as and for the purposes set forth.

5. The combination with the casing provided with the inlet, the removable cover and the plug in its bottom, of the outlet-pipes at opposite ends of the casing, the valves sliding therein, the bar connecting the valves, the glands and packing surrounding the valves, and means for tightening the packing on either valve from the outside of the case, without disturbing the connecting-piping or the cover, as and for the purposes set forth.

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Witnesses:

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