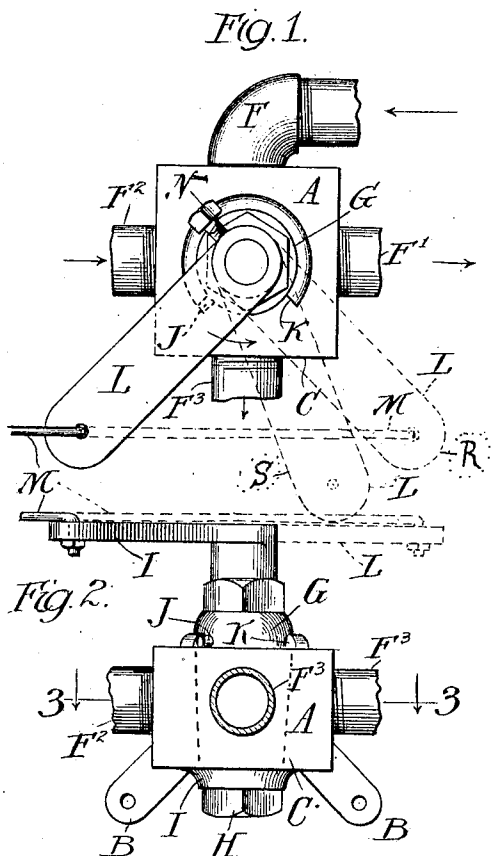
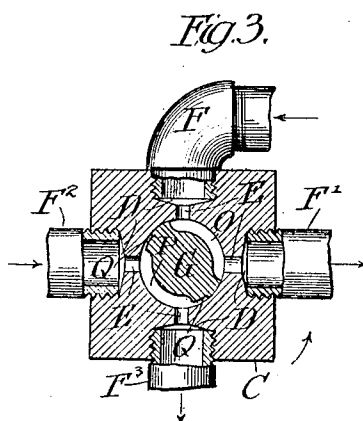
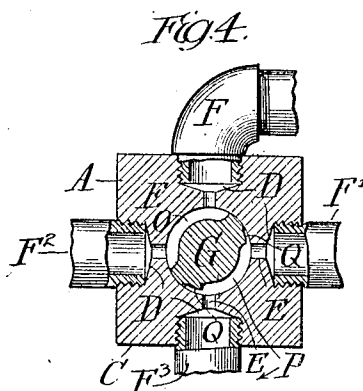
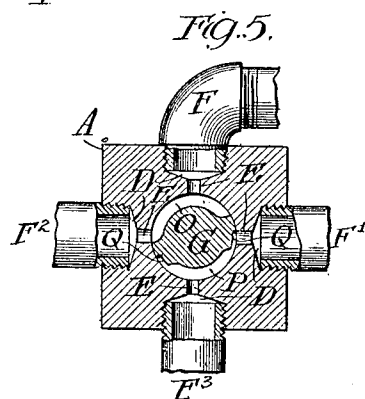


J. E. NOESEN.
 PLUG VALVE.
 APPLICATION FILED APR. 4, 1908.

910,013.

Patented Jan. 19, 1909.



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UNITED STATES PATENT OFFICE.

JOHN E. NOESEN, OF CHICAGO, ILLINOIS.

PLUG-VALVE.

No. 910,013.

Specification of Letters Patent.

Patented Jan. 19, 1909.

Application filed April 4, 1908. Serial No. 425,272.

To all whom it may concern:

Be it known that I, JOHN E. NOESEN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Plug-Valves, of which the following is a specification.

The object of my invention is to provide a cheap, simple plug valve adapted to control the admission and emission of fluid into and from cylinders for the movement of the pistons therein, whereby the ordinary mechanism connected therewith is operated for the purpose of opening and closing doors in elevators, cars and other structures, and operating air brakes. A valve which can be used in connection with suitable cylinders whenever it is desirable to reverse the flow of fluid or liquid through the valve automatically and to so check the reverse flow as to form a cushion and thereby prevent concussion of operating parts.

The manner in which I accomplish my object is described in the following specification and illustrated in the accompanying drawings in which:

Figure 1 is a top plan of the valve with its connections. Fig. 2, is a side elevation; Fig. 3 is a horizontal central section on the line 3—3 Fig. 2; Fig. 4 is the same section as Fig. 3, except the plug is changed to reverse the flow of fluid through the valve from the direction shown in Fig. 3; Fig. 5 is the same section as in Figs. 3 and 4, showing a change in position of the plug, adapted to check the exhaust.

In the drawings, A indicates the body of the valve which is provided with wings B, by which the valve may be secured to a wall or other part of a structure to which the valve is required to be attached. Through this body is a taper barrel C indicated by the dotted lines in Fig. 2.

Extending into the body A at right angles to the axis of the barrel C are four threaded apertures D, and extending from each of these apertures into the barrel C are fluidways E. In each of the apertures D are pipe extensions F, F¹, F² and F³. In the barrel C is a taper plug G, secured by a nut H, and washer I in the ordinary way. This plug is provided with a stop pin J, adapted to engage the stops K on the body A. On the head of the plug is a lever L and rod connection M, as shown in Figs. 1 and 2. The lever L is secured in the de-

sired position on the plug by the set screw N. In the face of the plug G are two horizontal grooves O and P. These grooves are adapted to register with the fluid ways E when the plug is rotated. At each end of the groove P is a shallow recess Q forming an extension of that groove, the purpose of which is hereinafter explained.

When the valve is constructed as described and illustrated, and is connected by the pipes F¹ and F² to the front and back ends of a cylinder containing a slidable piston, the piston rod thereof extending through the cylinder head, the operation is as follows: When the lever L is in the position shown in Fig. 1, the plug and grooves therein are in the position shown in section in Fig. 3. In that position the groove O registers with the ways E extending through the body A from the feed pipe F and the front intake pipe F¹, and the groove P registers with the ways E from the back intake pipe F² and exhaust pipe F³, thereby permitting the free passage of fluid from the feed pipe through the valve and pipe F¹ into the front end of a cylinder connected with the pipe F¹ and the fluid in the back end of the cylinder to escape through the pipe F², groove P and exhaust pipe F³ as the piston is moved in the cylinder by the pressure of the fluid from the feed pipe F. When the lever L is moved from the position indicated by the solid lines in Fig. 1 to the position shown by the dotted lines indicated by the reference letter R, the plug is then in the position shown in Fig. 4. The groove O then registers with the ways E extending through the body A from the feed pipe F and from the back intake pipe F²; and the groove P registers with the ways E from the front intake pipe F¹, and to the exhaust F³, thereby permitting the fluid to pass from the feed pipe through the back intake pipe F² into the back end of the cylinder, and the fluid to escape from the front end of the cylinder through the exhaust as the piston is moved by the pressure of fluid from the feed pipe, thus reversing the flow of fluid through the valve and thereby reversing the movement of the piston.

To produce a cushion in the cylinder by checking the exhaust, the lever L is moved to the left from the dotted position R to the dotted position S, thereby changing the position of the plug from that shown in Fig. 4 to that shown in Fig. 5; this movement

brings the recess Q at one end of the groove P over the way E, thereby reducing the passage way for the exhaust from the full limit shown in Fig. 4 to the small space shown in Fig. 5. This reduction of the fluid way is produced as quickly or slowly as the lever and plug is moved; and is adapted to so check the escape of fluid from the cylinder as to form the cushion as desired in the cylinder. The same limited movement of the lever to the right from the position shown by the solid lines in Fig. 1, brings the recess Q in the opposite end of the groove P over the way E from the pipe F², providing the cushion in exactly the same way as before explained in the opposite end of the cylinder.

It is obvious that the pipes F, F¹, F² and F³ can be connected with a source of supply of fluid, cylinder or cylinders, and exhaust at any desired point, and that with the rod M or other means of connection with the lever L, the valve can be operated by hand or automatically by suitable means.

What I claim and desire to secure by Letters Patent is:

A valve consisting of a main body having a barrel therethrough and four passageways extending from said barrel through said body, a plug supported in said barrel and adapted to be partly rotated therein, said plug being grooved on opposite sides, said grooves being adapted to register alternatively with the passageways in said body, and having two shallow recesses one at each end of one of said grooves forming extensions thereof said recesses being adapted to register alternatively with the two passageways in said body adapted to admit and emit fluid to and from cylinders connected therewith, whereby the exhaust from said cylinders through said body is alternatively regulated as described.

JOHN E. NOESEN.

Witnesses:

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