

UNITED STATES PATENT OFFICE.

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REGULATING-VALVE FOR DASH-POTS.

966,320.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHRISTIAN DORN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Regulating-Valves for Dash-Pots, of which the following is a specification.

The object of my invention is to provide means for regulating the action of the dash pots which are sometimes employed in connection with the valve-operating devices of steam engines or pumping machinery, an object which I attain in the manner herein-after set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of the dash pot with my improved regulating valve attached thereto; Fig. 2 is a sectional view on a larger scale of one form of said regulating valve; Figs. 3 and 4 are similar views showing other forms of regulating valve in accordance with my invention, and Figs. 5 and 6 are side elevations, on a reduced scale, illustrating regulating valve connections, other than that shown in Fig. 1.

While my invention is applicable to dash pots generally, I have selected for the purpose of illustrating my invention, a dash pot comprising a differential cylinder closed at the bottom with the exception of the contracted vent 15^a and open at the top, this cylinder having a lower member 1 and an upper member 2 of greater diameter than the lower member. Fitted to the cylinder is a differential piston whose lower member 3 is adapted to the contracted lower member 1 of the cylinder and whose upper and larger member 4 is adapted to the upper and larger member of said cylinder, as clearly shown in Fig. 1, a rod 5 being connected by a universal joint to said piston and having its upper end connected to the valve-operating mechanism. It is advisable that the action of the dash pot should be susceptible to regulation either as regards the suction, caused by the upward movement of the piston, or the compression caused by the downward movement of the same, or both, and it is the purpose of my invention to provide a simple and effective form of valve whereby such regulation can be effected.

The valve for effecting regulation of the suction caused by the upward movement of the piston is shown in Fig. 2 and comprises a chest 6 similar in most respects to that of

an ordinary globe valve, this chest having an inlet branch 7 containing a check valve 9, preferably of the ball type, and an outlet branch 10 containing a similar check valve 11, whose lift is restricted by a pin 12 crossing said outlet branch. The inlet check valve 9 is seated upon a bushing 9^a screwed into the lower end of the branch 7. The chest has two other branches 13 and 14, the branch 13 serving as a means for connecting the valve chest with a passage 15 formed in the central portion of the dash pot structure and communicating with the lower portion of the upper member 2 thereof beneath the upper member 4 of the piston therein, or the valve may, if desired, be connected to the vent passage 15^a in the bottom of the cylinder, as shown in Fig. 5, or to both of the passages 15 and 15^a, as shown in Fig. 6. The branch 14 has an internally threaded cap 16 for the reception of the threaded stem 17 of a tapered valve 19 which is adapted to a correspondingly tapered seat in the partition 20 of the valve chest. The air entering the upper member of the dash pot structure beneath the upper member 4 of the piston, on the rise of the latter, must, therefore, after passing the check valve 9, pass through the space between the valve 19 and its seat, and the capacity of this passage may be readily increased or diminished by adjustment of the valve 19, the size of the passage, when once properly fixed, being retained by tightening a lock nut 21 on the threaded stem of the valve, which also serves to draw the threads on said valve stem tightly against the threads in the cap 16, and renders unnecessary any packing for said stem.

The adjustment of the valve accurately governs the freedom of admission of air beneath either or both members of the dash pot piston and thereby determines the amount of suction caused by the lift of said piston, the descent of the piston being restricted only by the weight of the check valve 11 in the discharge member of the valve chest. If, on the other hand, it is desired to regulate the compression caused by the descent of the piston, the position of the partition 20 of the valve chest is reversed, as shown in Fig. 3, the valve 19 then regulating the freedom of discharge of air from the dash pot and the inlet of air being restricted only by the weight of the inlet check valve 9. If both the inlet and dis-

charge are to be regulable, the valve is constructed in the manner shown in Fig. 4, so as to restrict the freedom of inflow and outflow from the inner end of the passage within the branch 13 of the valve chest which communicates with the dash pot structure.

I claim:—

1. A differential dash pot with differential piston therein, in combination with a single valve for regulating flow into or from the chambers below both of said pistons.

2. A differential dash pot with differential piston therein, in combination with a single valve for regulating flow into and from the chambers below both of said pistons.

3. A regulating valve comprising a single chest for dash pots, said valve having inlet and outlet passages with check valves therein, and an intervening and adjustable regulating valve.

4. A regulating valve comprising a single

chest for dash pots, said valve having inlet and outlet branches with check valves therein, and an intervening and adjustable valve which regulates the flow into or from said dash pot.

5. A regulating valve for dash pots, said valve having inlet and outlet branches with check valves therein, and an intervening and adjustable valve which regulates the flow both into and from said dash pot.

6. The combination of the threaded valve stem engaging a threaded opening in the casing of the valve, with a lock nut for drawing the threads together and rendering packing unnecessary.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHRISTIAN DORN.

Witnesses:

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