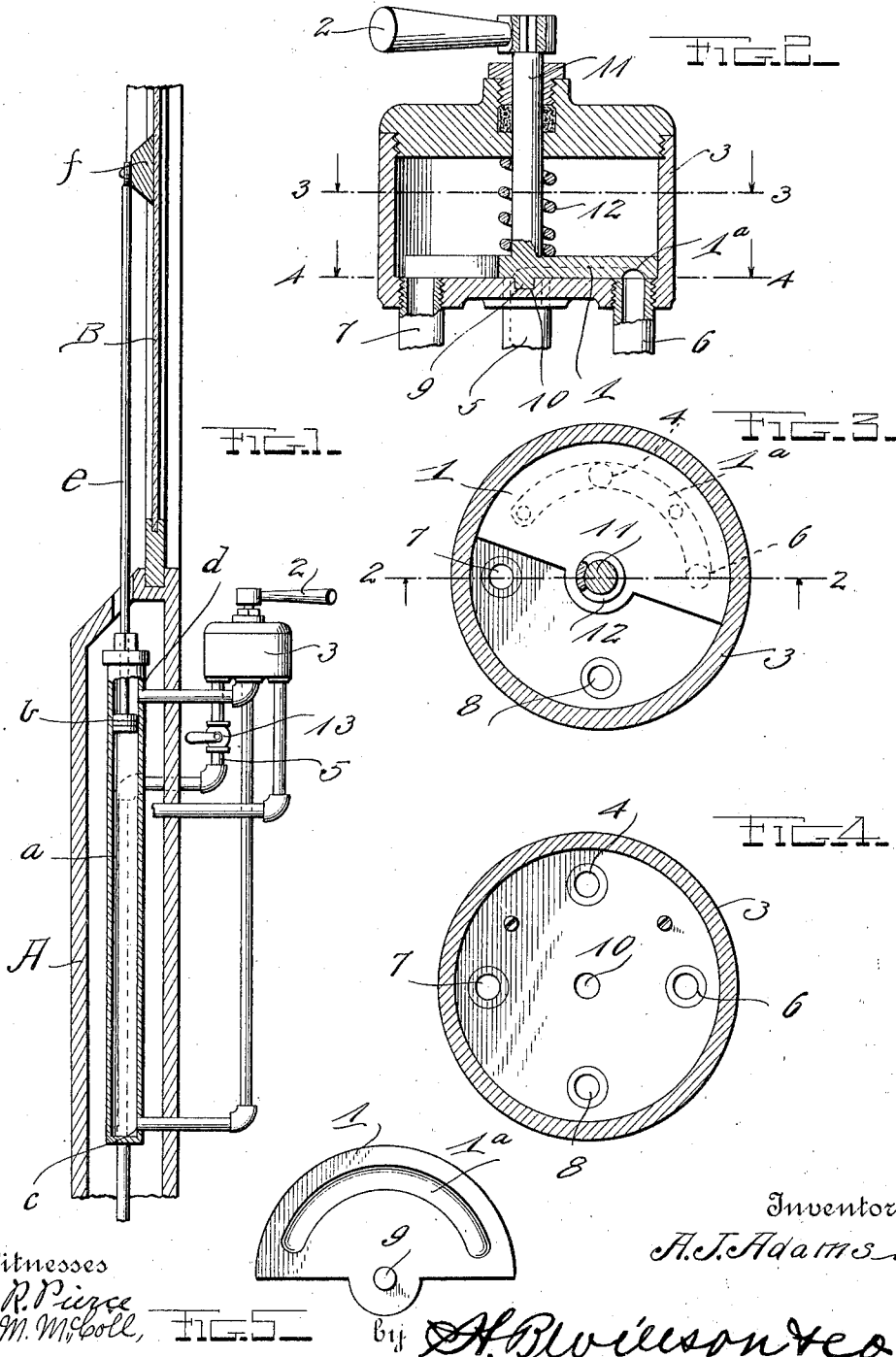


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VALVE.

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1,067,232.

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# UNITED STATES PATENT OFFICE.

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## VALVE.

1,067,232.

Specification of Letters Patent.

Patented July 15, 1913.

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*To all whom it may concern:*

Be it known that I, ARTHUR J. ADAMS, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Valves; and I 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.

This invention relates to improvements in valves especially designed for use in controlling the operating fluid of a window cleaner.

The object of the invention is to provide a quickly and conveniently operated device of this character for reliably controlling an actuating fluid.

With this and other objects in view, the invention consists of certain novel details of construction, and the combination and arrangement of parts as will be more specifically described and claimed.

In the accompanying drawings:—Figure 1 is a vertical central section of a portion of an engine cab and window showing this improved valve applied to a cab window cleaner; Fig. 2 is a vertical section through the valve casing; Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2; Fig. 4 is a similar view taken on the line 4—4 of Fig. 2; Fig. 5 is a bottom plan view of the valve.

In the embodiment illustrated, a portion of an engine cab A is shown, in the wall of which below the window B is disposed a cylinder *a* having a piston *b* slidable therein and said cylinder is provided with fluid connections *c* and *d* arranged near the bottom and top thereof respectively. A piston rod *e* is connected with the piston *b* and is slidable through the cylinder top, being provided with a suitable packing. The free end of the rod *e* is connected with a window cleaner of any desired construction.

The means for reciprocating the piston *b* in the cylinder *a* may be compressed air, steam or other fluid and its admission to said cylinder *a* is controlled by means of a valve 1 operable by a handle 2 disposed within easy reach of the engineer or motor-man. This controlling valve 1 is arranged within a casing 3 the bottom of which is provided with a fluid inlet port 4 supplied by a pipe 5 leading to a suitable pressure

tank (not shown). Two outlet ports 6 and 7 are also arranged in the bottom of said casing preferably at diametrically opposite points and the pipes *c* and *d* which supply the operating fluid to the cylinder *a* communicate therewith as is shown clearly in Figs. 1 and 2. The bottom of this casing is also provided with an exhaust port 8 with which one of the outlet ports 6 and 7 is designed to be placed alternately in communication during the operation of the cleaner to permit the exhaust of the compressed fluid from the cylinder in the path of the advancing piston and thereby prevent any resistance being offered the piston when actuated in the desired direction.

The valve 1 is shown in the form of a semi-circular plate having a segmental groove 1<sup>a</sup> arranged in its lower face concentrically with the periphery of the plate. A stud 9 extends from the lower face of said valve preferably at the straight edge thereof and is adapted to revolvably engage a socket 10 formed in the bottom of the casing 3. A stem 11 extends at right angles from the upper face of the valve 1 preferably at a point opposite the stud 9 and as shown is made integral with said valve. This stem 11 extends through the top of the casing 3 and a suitable packing is arranged thereon to form a fluid tight connection between said top and stem. The handle 2 is fixed to the free end of the stem by any suitable means being here shown provided with an angular opening which is engaged with a correspondingly shaped end of the stem, see Fig. 2.

A strong coiled spring 12 is arranged around the stem within the casing 3 and bears at one end against the upper or outer face of the valve 1 and at its other end against the inner face of the top of the casing and exerts its tension to hold said valve seated on the casing bottom against the pressure of the actuating fluid.

A valve cock 13 for controlling the supply of fluid through the inlet pipe 5 is preferably provided as is shown in Fig. 1 and may be used to turn on or cut off the fluid when desired.

In the operation of the valve 1 for actuating the cleaner, the valve or cock 13 having been turned to admit steam or compressed air through the supply port 4 the handle 2 is turned by the operator to bring said inlet port 4 into communication with either the outlet port 6 or 7 by means of the

segmental groove 1<sup>a</sup> in the lower face of said valve 1. When one of the ports 6 or 7 is in communication with the supply port 4 the other outlet port communicates with the interior of the casing and permits the compressed fluid from the opposite end of the cylinder to pass out through the exhaust port 8 as is clearly shown in Fig. 3 one of said ports being always in communication with the exhaust and the other with the inlet, whereby the piston is reciprocated within the cylinder, as will be readily understood. It will thus be seen that the morman or engineer may quickly clean off the outside of his window pane by shifting the lever or handle 2 in one direction or the other to cause the head *f* to move over the pane and if necessary it may be moved several times, one reciprocation, however, being usually sufficient to remove the obstructing matter.

What I claim is:—

In combination with a valve casing hav-

ing in its bottom two outlet ports diametrically positioned, and an inlet and an exhaust port likewise positioned between the first named ports, a semi-circular valve plate operable over said ports having a segmental groove in its lower face and adapted to alternately connect the outlet ports with the fluid inlet and exhaust ports, a stem forming a part of the plate and projecting through the top of the casing, an operating handle secured to the projecting end of the stem, and a coiled spring disposed between the top of the casing and plate, whereby the latter is held in yielding and movable contact with the bottom of the casing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR J. ADAMS.

Witnesses:

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R. H. ROBERTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."