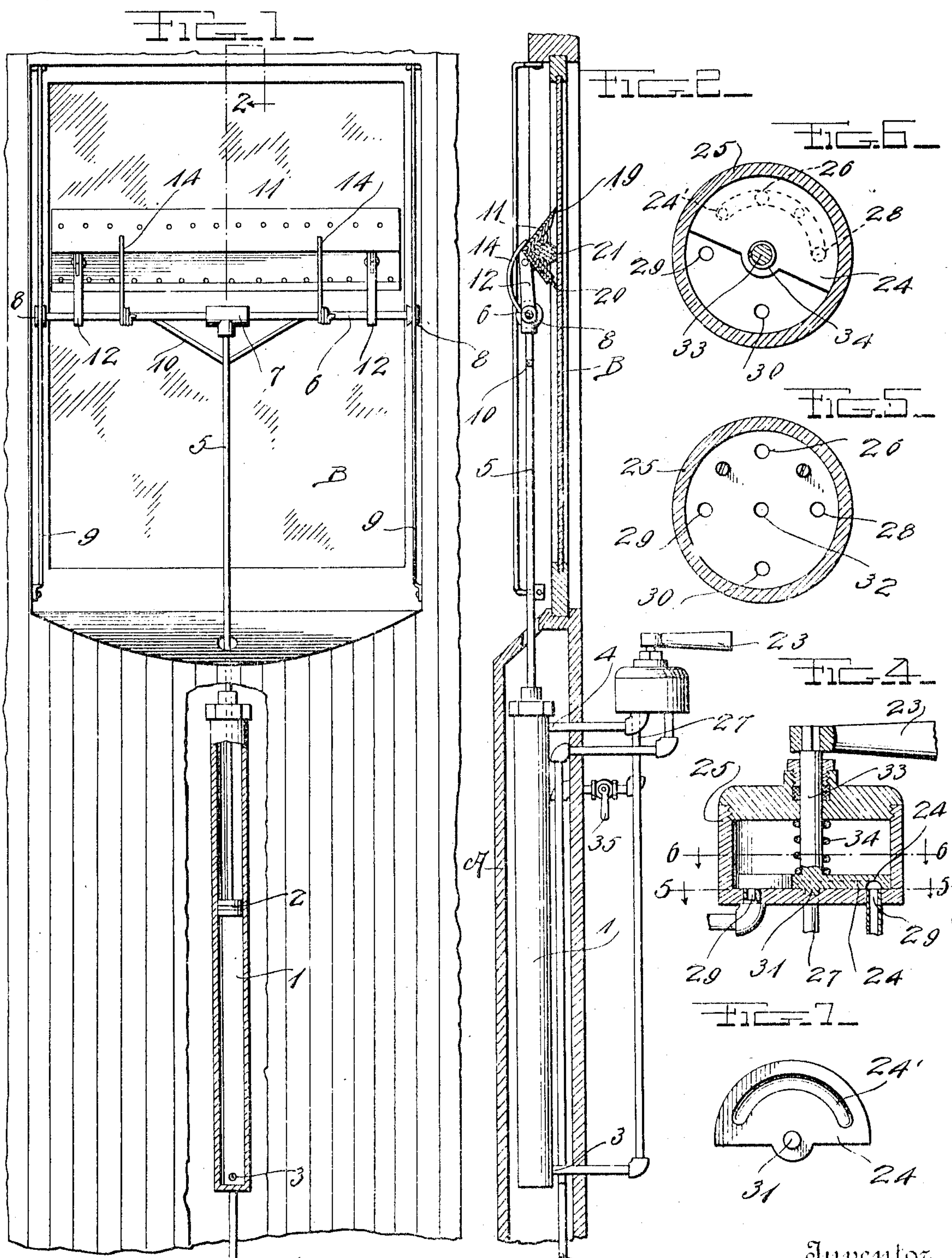
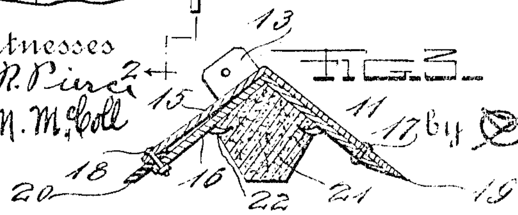
A. J. ADAMS.

WINDOW CLEANER.

APPLICATION FILED JAN. 4, 1911.

1,054,481. Patented Feb. 25, 1913.





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WINDOW-CLEANER.

1,054,481. Specification of Letters Patent. Patented Feb. 25, 1913.

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To all whom it may concern:

Be it known that I, ARTHUR J. ADAMS, of Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Window-Cleaners, of which the following is a specification.

This invention relates to improvements in window cleaners, and is especially designed for use in cleaning snow, ice, vapor or the like from the outside of engine cab, or street car windows.

The object of the invention is to provide a quickly and conveniently operated device of this character which is mounted to reciprocate over the outside of the window pane to be cleaned, and which is operable by fluid pressure under the control of the engineer or motorman on the inside of the car or cab without necessitating the opening of the window.

Another object is to provide simple, quickly operated and efficient means for controlling the operating fluid which actuates the cleaner proper.

With these 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 represents a front elevation of a portion of an engine cab equipped with this improved cleaner, parts being broken out for convenience in illustration; Fig. 2 is a vertical central section taken on the line 2—2 of Fig. 1; Fig. 3 is a transverse section through the cleaner head; Fig. 4 is a vertical section through the valve casing; Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 4; Fig. 6 is a similar view taken on the line 6—6 of Fig. 4; Fig. 7 is a bottom plan view of the valve.

In the embodiment illustrated, an engine cab A is shown, in the wall of which below the window B is disposed a cylinder 1 having a piston 2 slidable therein and said cylinder is provided with fluid connections 3 and 4 arranged near the bottom and top thereof respectively. A piston rod 5 is connected with the piston 2 and is slidable through the cylinder top, being provided with a suitable packing. The free end of the rod 5 is connected with a cross bar or rod 6 preferably by a T-coupling 7. This rod 6 extends the full width of the window and is provided at its opposite ends with grooved rollers 8 which travel on guides 9 in the form of vertically disposed rods secured to and offset from the window frame, said rollers operating between said rods and the window sash, as is shown clearly in Fig. 1. Suitable braces 10 preferably connect the cross rod 6 with the rod 5. A cleaner head 11 is movably connected with the rod 6 preferably by means of links 12 which are pivoted at one end to lugs 13 on the head 11 and at their other ends are engaged with the rod 6. Suitable springs 14 yieldably hold the head 11 in engagement with the window pane to be cleaned.

The cleaner head comprises two trough-shaped members 15 and 16 arranged one within the other, as shown clearly in Fig. 3, said members being substantially V-shaped in cross section and are connected by bolts 17 and 18 which extend transversely therethrough preferably adjacent the edges thereof. The edges of one side of said members 15 and 16 are arranged in close proximity and beveled to form a knife edge 19 for scraping snow and ice from the window pane. Arranged between the opposite edges of said members is a wiper 20 of soft rubber or any other suitable material which follows in the path of the scraper or knife when the knife is operated to cut off the snow or frost and thoroughly clean any remaining particles from the glass. From Fig. 2 it will be observed that this knife 19 operates only when the head is reciprocated in one direction, it being here shown operative on the upward movement of the head. It will be understood that the head may be reversed and the scraper operated on the downward stroke of the piston if desired. A solid member 21 of felt or any other suitable material is secured within the trough-shaped head by any suitable means, curved spurs 22 being here shown for this purpose. The free edge of this member 21 is arranged in alinement with the edges of the knife 19 and the wiper 20, as shown in Figs. 2 and 3, and bears against the pane during the movement of the head thereover and materially assists in cleaning the pane. The springs 14 yieldably hold this head in engagement with the pane, whereby all danger of the pane being broken by excessive pressure of the head is prevented.

The means for reciprocating the piston 2 in the cylinder 1 may be compressed air,

steam or other fluid and its admission to said cylinder 1 is controlled by means of a valve operable by a handle 23 disposed within easy reach of the engineer or motorman. This controlling valve 24 is arranged within a casing 25, the bottom of which is provided with a fluid inlet port 26 supplied by a pipe 27 leading to a suitable pressure tank (not shown). Two outlet ports 28 and 29 are also arranged in the bottom of said casing preferably at diametrically opposite points and the pipes 3 and 4 which supply the operating fluid to the cylinder 1 communicate therewith as is shown clearly in Figs. 2 and 4. The bottom of this casing is also provided with an exhaust port 30 with which one of the outlet ports 28 or 29 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 24 is shown in the form of a semi-circular plate having a segmental groove 24′ arranged in its lower face concentrically with the periphery of the plate. A stud 31 extends from the lower face of said valve preferably at the straight edge thereof and is adapted to revolubly engage a socket 32 formed in the bottom of the casing 25. A stem 33 extends at right angles from the upper face of the valve 24 preferably at a point opposite the stud 31 and as shown is made integral with said valve. This stem 33 extends through the top of the casing 25 and a suitable packing is arranged thereon to form a fluid tight connection between said top and stem. The handle 23 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. 4. A strong coiled spring 34 is arranged around the stem within the casing 25 and bears at one end against the upper or outer face of the valve 24 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 35 for controlling the supply of fluid through the inlet pipe 27 is preferably provided as is shown in Fig. 2 and may be used to turn or cut off the fluid when desired.

In the operation of the valve 24 for actuating the cleaner, the valve 35 having been turned to admit steam or compressed air through the supply port 26, the handle 23 is turned by the operator to bring said inlet port 26 into communication with either the outlet port 28 or 29 by means of the segmental groove 24′ in the lower face of said valve. When one of the ports 28 or 29 is in communication with the supply port 26, 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 30, as is clearly shown in Fig. 6, 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 motorman or engineer may quickly clean off the outside of his window pane by shifting the lever 23 in one direction or the other to cause the head 11 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.

I claim as my invention:

A window cleaner head V-shaped in cross section and provided on its free edges with a scraper blade and wiper strip respectively, and an auxiliary wiper secured to said head with its outer free edge arranged flush with the edges of the scraper blade and wiper strip, a rod, links pivotally connecting said head and rod, springs carried by said rod and engaging said head, and an operating rod attached to said first mentioned rod.

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