

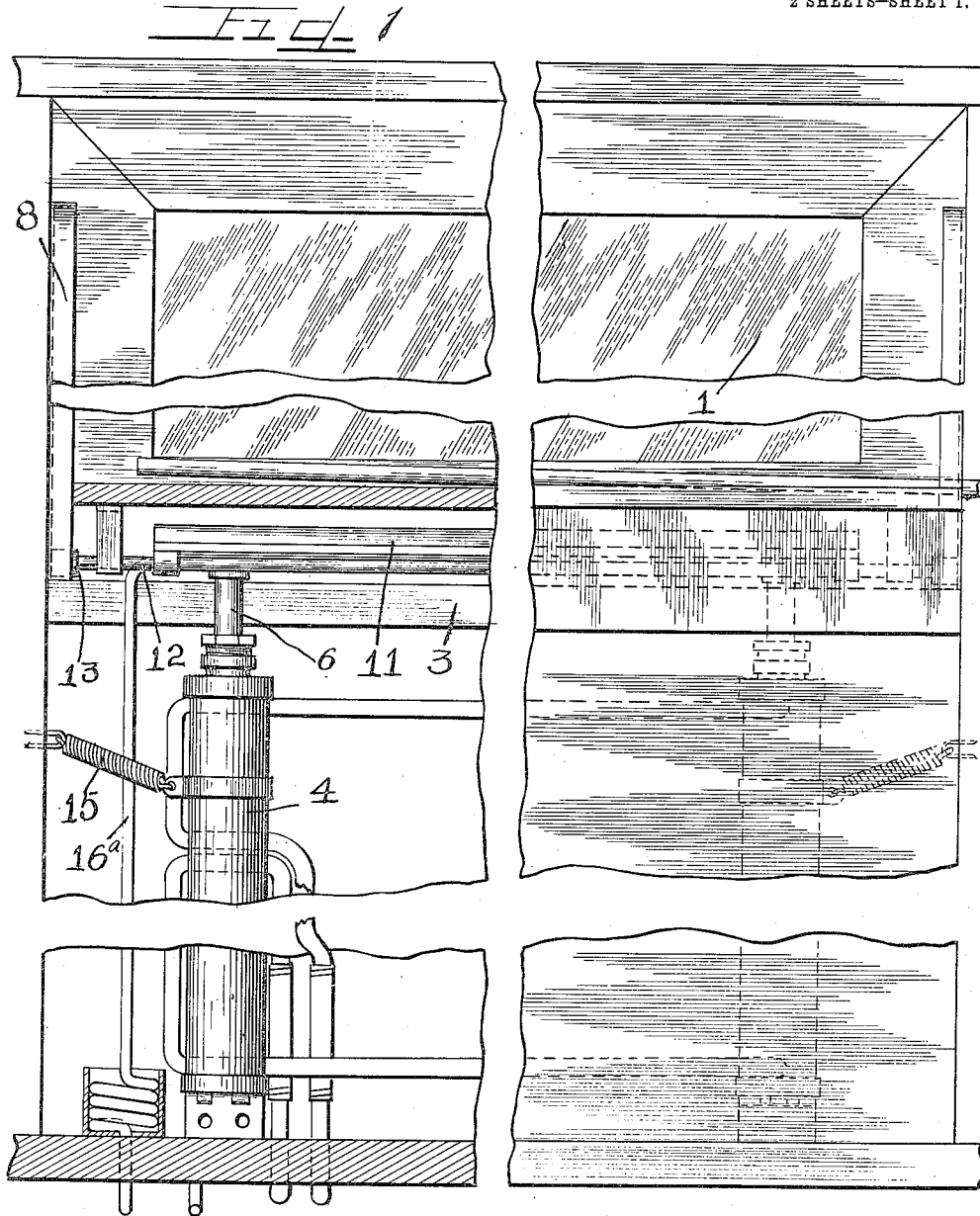
H. C. WOODSTROM & C. T. HASTEDT.
WINDOW CLEANING DEVICE.

APPLICATION FILED JULY 30, 1910.

1,052,637.

Patented Feb. 11, 1913.

2 SHEETS—SHEET 1.



WITNESSES
J. H. Angell
Charles W. Hill

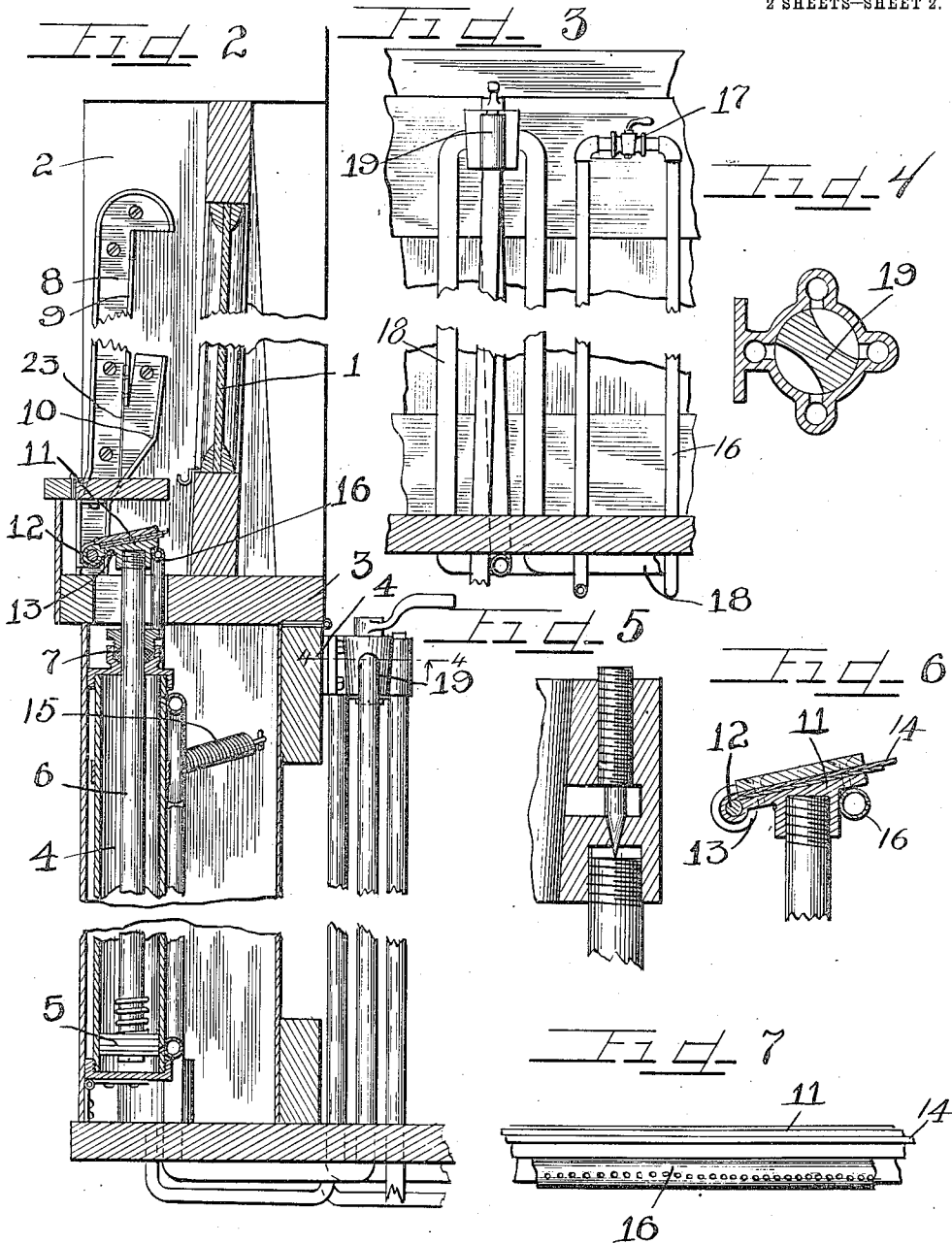
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J. G. Angell.
 Charles Wilcox

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UNITED STATES PATENT OFFICE.

HERBERT C. WOODSTROM AND CLIFFORD T. HASTEDT, OF CHICAGO, ILLINOIS.

WINDOW-CLEANING DEVICE.

1,052,637.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed July 30, 1910. Serial No. 574,821.

To all whom it may concern:

Be it known that we, HERBERT C. WOODSTROM and CLIFFORD T. HASTEDT, citizens of the United States, and residents of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Window-Cleaning Devices; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numbers of reference marked thereon, which form a part of this specification.

In stormy weather the rain or snow adhering to the wind shield or front window of an automobile, a locomotive cab or the motorman's window of a street or suburban car frequently so obscures the view as to greatly increase the danger of accident and the utmost care is necessary in such condition in operation or else it is necessary to frequently and repeatedly clear the window of the adherent snow and moisture to permit an unobstructed view. Frequently on the inside of such windows moisture also gathers and it is as important to remove the moisture from the inside as from the outside of the glass.

The object of this invention is to provide a window cleaning or clearing device adapted to be quickly and simply operated and which acts to effectually clear the window from any moisture on the side on which the device operates.

It is also an object of the invention to afford a construction in which the mechanism when not in use is almost wholly concealed from view and in which pneumatically operated means actuate a squeegee for the purpose set forth.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a front elevation partly broken and partly in section of a device embodying our invention. Fig. 2 is a fragmentary vertical section thereof. Fig. 3 is a fragmentary view of the air connections both for operating the device and for applying heated air to the window. Fig. 4 is a section taken on line 4-4 of Fig. 2. Fig. 5 is an enlarged longitudinal section of one of the valves. Fig. 6 is an enlarged transverse section of the squeegee head. Fig. 7 is a view in front elevation thereof.

As shown in said drawings: 1, indicates

the window to be operated upon, which may be either in a vehicle or a building and in the construction shown, is supported between jambs 2, and upon an apron or sill 3, beneath which is provided a chamber or compartment containing a pneumatic cylinder 4, having a piston 5, therein, the piston rod 6, of which extends upwardly through a gland 7, and through an opening near each end of said window sill 3. Secured on each of the jambs of the window, and as shown, on either the outer side thereof or on both sides, as preferred, are guide channels 8, which at their upper ends incline slightly toward the sash and are curved forwardly and open downwardly between the window and the inner side 9, of the guide channel. Beginning at a point near the bottom of the window a downwardly and outwardly inclined guide flange 10, is secured to the jamb and opens into the main guide channel 8. A spring 23, forms a part of the inner wall of the guide channel adjacent the flange 10 and permits of the rollers on the end of the shaft 12 entering the channel at the end of each downward stroke, but retains the rollers therein during the upward movement. Secured on the upper end of the piston rod 6, is the squeegee head. This, as shown, comprises a suitable metallic or other base 11, which at its rear edge or that remote from the window is provided with apertured knuckles through which extends a shaft 12, which at each extremity is provided with a roller 13, which fits in the guide channels on opposite sides of the frame. Sheet rubber or other suitable material 14, is secured on the squeegee head by means of screws shown in Fig. 6, extending therethrough and into the head 11. The lower end or head of said cylinder is hinged in said compartment to permit the cylinder to swing inwardly and secured on each cylinder and at the end walls of the compartment are strong pulling springs 15, which at all times tend to tilt the cylinder toward the window. A flexible vertically extensible pipe 16^a, is engaged beneath the engaging edge of the squeegee and a horizontal apertured extension 16, is connected with the upper end of the same and extends beneath the edge of the squeegee to deliver hot air and steam upon the window to be cleaned. A valve 17, adapted to regulate the delivery of hot air and steam through

said pipe is conveniently placed with reference to the operator and connections are provided to deliver hot air from any convenient source through said apertured pipe 5 against the window. For this purpose, when used on locomotives and steam or internal combustion automobiles, the source of heat may be the furnace or it may be a small portion of the spent gases in the exhaust or 10 air drawn or forced by the cooling fan around the cylinders of the engine and thence led upwardly to the window. Any suitable connections are also provided, as, for instance, the pipe 18, provided with a 15 four way valve 19, and suitably connected in said cylinder whereby the adjustment of the valve 19, in one position delivers air under pressure into the lower end of the cylinder, forcing the piston upwardly while 20 the tension of the spring 15, draws against the same so that when the squeegee head arrives at the upper end of the guide channel it is swung inwardly and downwardly against the window and the valve at that 25 moment being shifted, the air is then exhausted from the lower end of the cylinder 5, and delivered into the upper end thereof above the piston, thus forcing the piston downwardly while the squeegee is firmly 30 held against the window first by the action of said springs and second by the flange 9, against which the head of the squeegee bears.

Of course, the squeegee may be operated 35 very rapidly and as many times as desired, dependent upon the supply of pressure and such a device may be installed to operate one for the inner and the other for the outer side of the window. Any suitable

type of valve may be employed. A convenient valve for controlling the delivery of 40 hot air or gas against the window is shown in Fig. 5, in which a familiar type of needle valve is shown.

Many details of construction may be varied, and we do not purpose limiting this 45 application for patent otherwise than necessitated by the prior art.

We claim as our invention:

1. A window cleaning device embracing a pneumatic cylinder, a squeegee operated 50 thereby, rollers at the ends of said squeegee, channel guides therefor comprising a member extending vertically upward at the base, a second member offset from the first and inclined thereto, a third member extending a 55 short distance upward inclined to said second member and connected thereto at said offset, and a spring partition secured between said second and third members.

2. In a device of the class described a 60 cylinder, a piston therein, a squeegee connected thereto, rollers thereon, guides for the same comprising a flat plate composed of a plurality of integral members, the one normally vertical, the others offset there- 65 from and inclined thereto, flanges on the edges of said members, and a spring partition between the said inclined members.

In testimony whereof we have hereunto 70 subscribed our names in the presence of two subscribing witnesses.

HERBERT C. WOODSTROM.
CLIFFORD T. HASTEDT.

Witnesses:

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