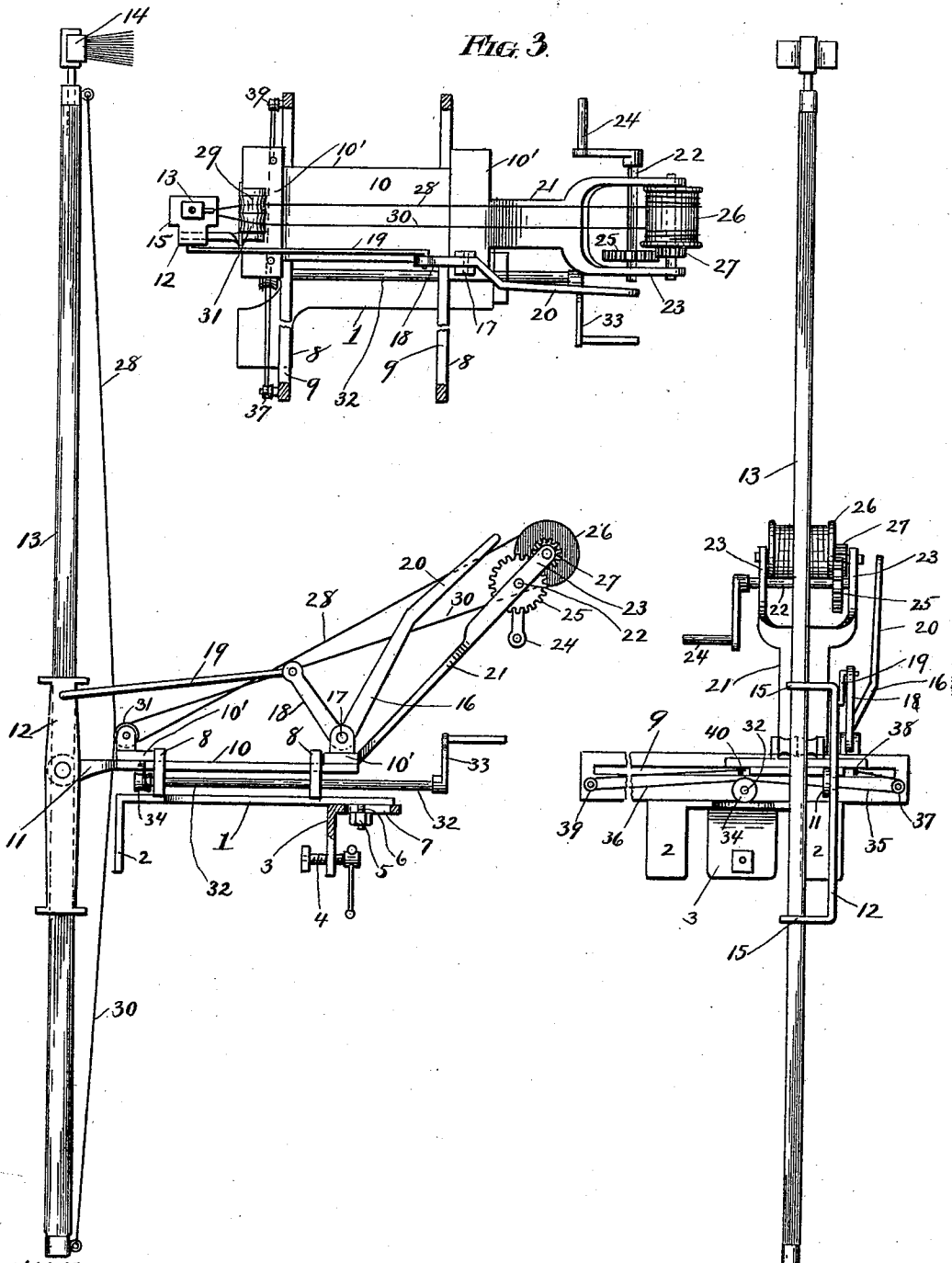


P. MULHERN.
WINDOW CLEANER.

Patented Feb. 4, 1896.

FIG. 2



Inventor:

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UNITED STATES PATENT OFFICE.

PATRICK MULHERN, OF CHICAGO, ILLINOIS.

WINDOW-CLEANER.

SPECIFICATION forming part of Letters Patent No. 554,077, dated February 4, 1896.

Application filed March 27, 1895. Serial No. 543,363. (No model.)

To all whom it may concern:

Be it known that I, PATRICK MULHERN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Window-Cleaners, of which the following is a specification, reference being had to the accompanying drawings, which are made a part hereof, and in which—

Figures 1 and 2 are elevations, viewed from different positions, of a window-cleaner embodying the invention. Fig. 3 is a plan view thereof.

The object of the present invention is to provide an improved device by which a person may stand inside of a building and wash the outside of the windows, and in accomplishing this object I have provided a device which comprises a base adapted to rest upon and to be secured to the window-sill, a carriage which is adapted to be moved upon the base in the direction of the length of the window-sill, a support for the wiper carried by the carriage and adapted to be oscillated upon a horizontal axis, and means carried by the carriage for moving the wiper.

The invention consists in the features of novelty that are particularly pointed out in the claims hereinafter, and in order that it may be fully understood I will describe it with reference to the drawings in which the base of the apparatus is shown at 1. It is provided with a clamp consisting of a depending arm 2 adapted to engage the window-sill on the outside, an adjustable arm 3, and a clamping-screw 4 fitting a threaded opening in the arm 3. It is the intention that the arms 2 and 3 shall be placed at such distance apart that they will easily admit the window-sill between them, and when so placed the arm 3 is secured by means of a nut 5 fitting upon a screw 6 that is fixed to the base and passes through a slot 7 in the bracket; but the invention is not limited to this particular means for adjustably securing the arm 3 to the base. When these arms are once adjusted to receive sills of a given width their adjustment is not again disturbed, the clamping being done by the screw 4.

The object of the base 1 is to support and guide the movable carriage by which the mechanism for operating the wiper is carried, and to this end it is provided with suitable tracks or ways for said carriage to move upon. As shown in the drawings, the tracks or ways consist of plates 8 each having a slot 9, through which slots passes the plate 10 which forms the foundation of the carriage. In order to confine the carriage to a rectilinear movement, plates 10' or their equivalents are secured to the plate 10 in positions to engage the sides of the ways 8. Carried by the carriage is an arm 11, to which is fulcrumed, so as to be capable of oscillating, a support 12 having provision for receiving the stem 13 of the wiper 14. As shown in the drawings, this support consists of a plate having at its ends laterally-projecting portions 15 provided with openings through which the stem 13 passes and is adapted to move freely endwise, and the wiper consists of a brush; but a sponge or any other cleaning device is included in the term "wiper" as used in this specification.

16 is a bell-crank lever fulcrumed to the carriage at 17. One of its arms 18 is connected by a link 19 with the oscillating support 12, and its other arm, 20, serves as a handle by which it may be moved upon its fulcrum. By moving this bell-crank lever in the appropriate direction the wiper 14 may be moved into or out of contact with the pane.

21 is an arm carried by the carriage, and 22 is a shaft journaled in the bifurcated portion 23 of this arm and having a crank-handle 24 and a pinion 25. Journaled in this bifurcated portion of the arm is also a drum 26, upon the shaft of which is a pinion 27, meshing with the pinion 25.

28 is a cord, cable, or other suitable device secured at one end to the drum 26, whence it passes under a pulley 29 and thence to the upper end of the stem 13, to which it is secured. 30 is a similar cord secured at one end to the drum 26, whence it passes over a pulley 31 and thence to the lower end of the stem 13, to which it is secured. These cords or cables are rove around the drum in opposite

directions, so that as one of them is wound upon it the other is unwound, and in this way, by simply turning the crank-shaft 22 one way or the other, the wiper may be moved up or down.

The gearing 25 27 is interposed between the crank-handle 24 and drum 26 for the purpose of multiplying the movement; but this same result can be accomplished by simply increasing the size of the drum.

If desired, the carriage may be moved from side to side of the window by simply exerting a pressure upon it with the hand; but I prefer to provide the apparatus with a mechanical appliance for accomplishing this result. To this end I journal in the base of the apparatus a shaft 32, having at one end a crank-handle 33 and at the other end a drum 34, and I connect this drum with the carriage by means of cords or cables 35 36, arranged similarly to the cords or cables 28 and 30. The cord 35 is secured at one end to the drum 34, whence it passes over a pulley 37, and thence to the carriage, to which it is secured at 38. The cord 36 is secured at one end to the drum, whence it passes over a pulley 39, and thence to the carriage, to which it is secured at 40. These cords are rove around the drum in opposite directions, so that as one is wound upon it the other is unwound, and hence by simply turning the crank-handle 33 in one direction and the other the carriage is moved from side to side of the window.

So far as I am aware I am the first to construct a device of this character in which the wiper is carried at the upper end of an upright stem that is capable of being moved endwise in order to move the wiper up and down over the surface to be cleaned.

I am aware that it has been proposed to construct a window-cleaner with an upright which extends from the window-still upward to the highest point to which it is desired that the wiper shall travel, and to mount upon this upright a movable carriage by which the wiper is supported; but this is not the equivalent of a wiper carried at the upper end of an endwise movable stem, such as I have shown and described. One advantage of the latter construction over the former is that the wiper and its stem can be lowered to or below the level of the open window and thus make it very much easier to either put the device in place or take it down.

Another advantage of my construction is that it is very much simpler and cheaper. I am also the first to construct a window-cleaner with horizontal ways and a carriage resting thereon and adapted to move from one side of the window to the other for the purpose of producing the sidewise movement of the wiper. I therefore desire to have it understood that in its broadest aspect my invention is not limited to the particular means shown in the drawings for producing the up-and-

down movements of the wiper-stem or the sidewise movements of the carriage by which said stem is supported.

The essential features of the invention are, first, means for moving the wiper up and down; secondly, means for moving it toward and from the window-pane, and, thirdly, means for moving it from side to side of the window-pane, these three movements being necessary in order that every part of the pane may be reached and cleaned. I prefer to construct the apparatus for producing these movements precisely as shown in the drawing; but it is manifest that to a skilled mechanic many different forms of mechanism for accomplishing the same result would readily suggest themselves.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a window-cleaner the combination with a wiper having a stem, of an oscillating support in which the stem is movable endwise, means for sustaining the support outside of the window, means for oscillating the support and means for moving the stem endwise in its support, substantially as set forth.
2. In a window-cleaner the combination of a wiper having a stem, a support in which the stem is movable endwise, a carriage carrying the support, means carried by the carriage for operating the wiper, and a base having ways upon which the carriage is movable, substantially as set forth.
3. In a window-cleaner the combination of a wiper having a stem, an oscillating support in which the stem is movable endwise, a carriage carrying the support, means carried by the carriage for moving the stem endwise in its support, means carried by the carriage for oscillating the support, and a base having ways upon which the carriage is movable substantially as set forth.
4. In a window-cleaner the combination of a wiper having a stem, a support for the stem, a carriage carrying the support, means carried by the carriage for moving the wiper through the medium of its stem, a base having ways upon which the carriage is adapted to move, and means carried by the base for moving the carriage upon the ways, substantially as set forth.
5. In a window-cleaner the combination of a wiper having a stem, a support for the stem, a carriage carrying the support, means carried by the carriage for moving the wiper through the medium of its stem, a base resting upon the sill and having horizontal ways upon which the carriage is adapted to move from side to side of the window, a drum journaled to the base, means for turning the drum, connections between the drum and carriage whereby the latter is moved when the drum is turned, substantially as set forth.
6. In a window-cleaner the combination of

a wiper having a stem, a support for the stem,
a carriage carrying the support, means car-
ried by the carriage for moving the wiper
through the medium of its stem, a base hav-
5 ing ways upon which the carriage is adapted
to move, a drum journaled to the base, means
for turning the drum, cords each secured at
one end to the carriage and at the other end

to the drum around which they are rove in
opposite directions, and pulleys, journaled to 10
the base, over which the cords are trained,
substantially as set forth.

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Witnesses:

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