No. 744,013. PATENTED NOV. 10, 1903.

S. C. LAWLOR.

WINDOW WASHING APPARATUS.

APPLICATION FILED MAY 15, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

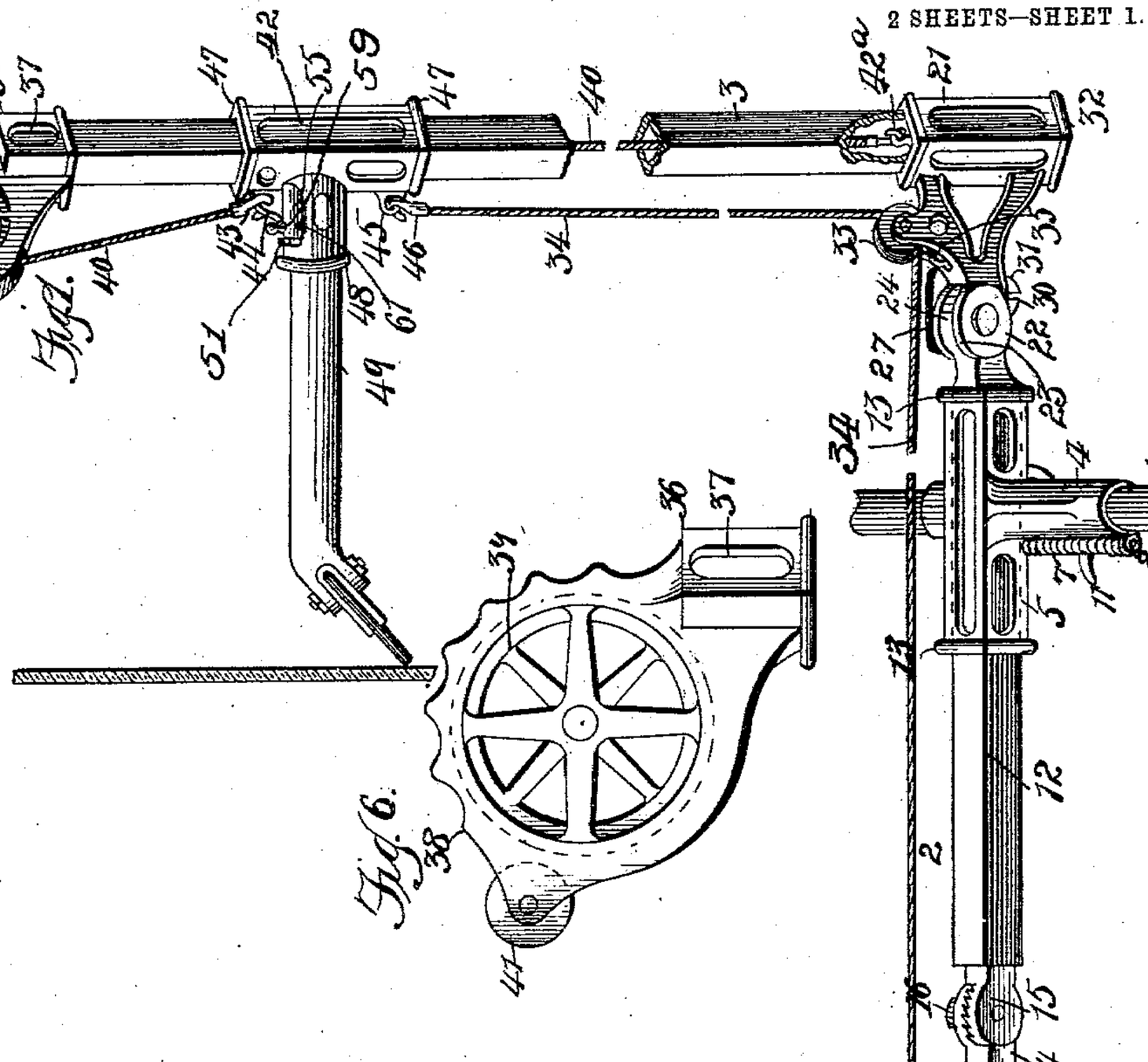

Fig. 1.

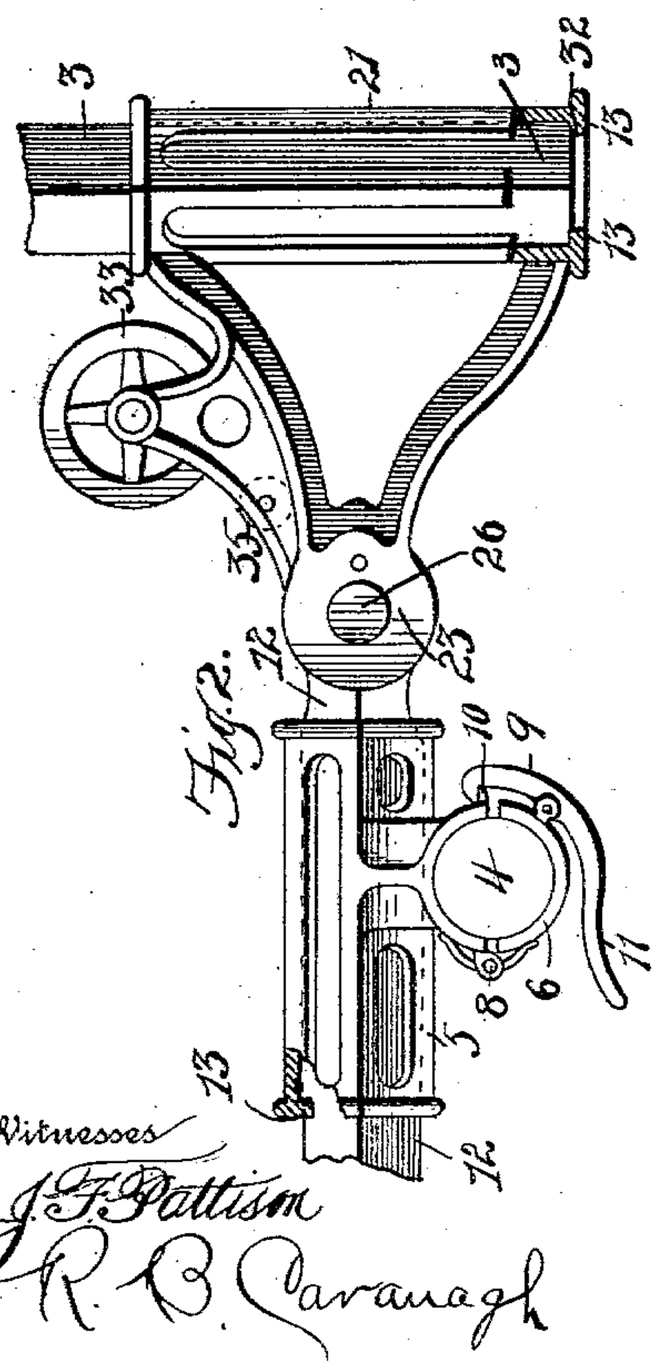

Fig. 2.

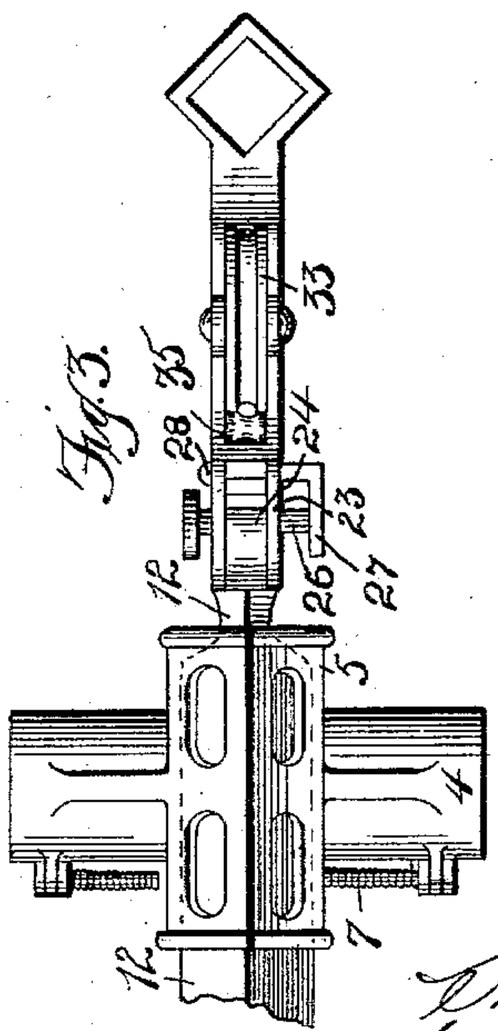

Fig. 3.

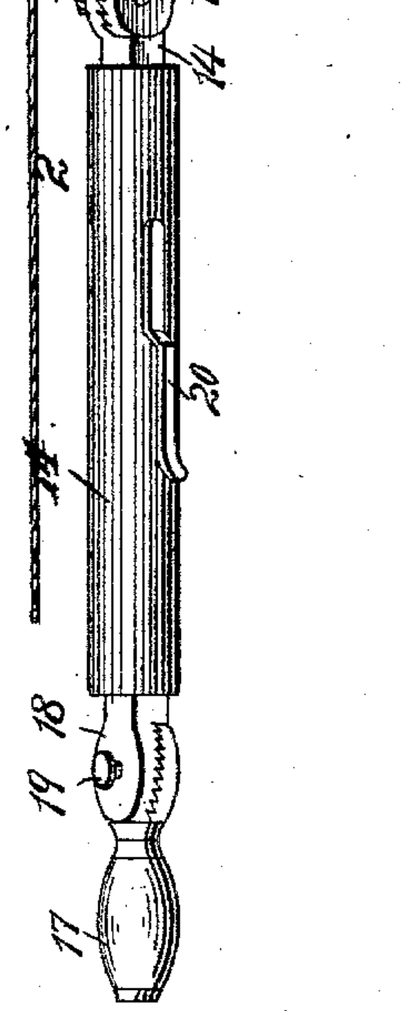

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Fig. 4

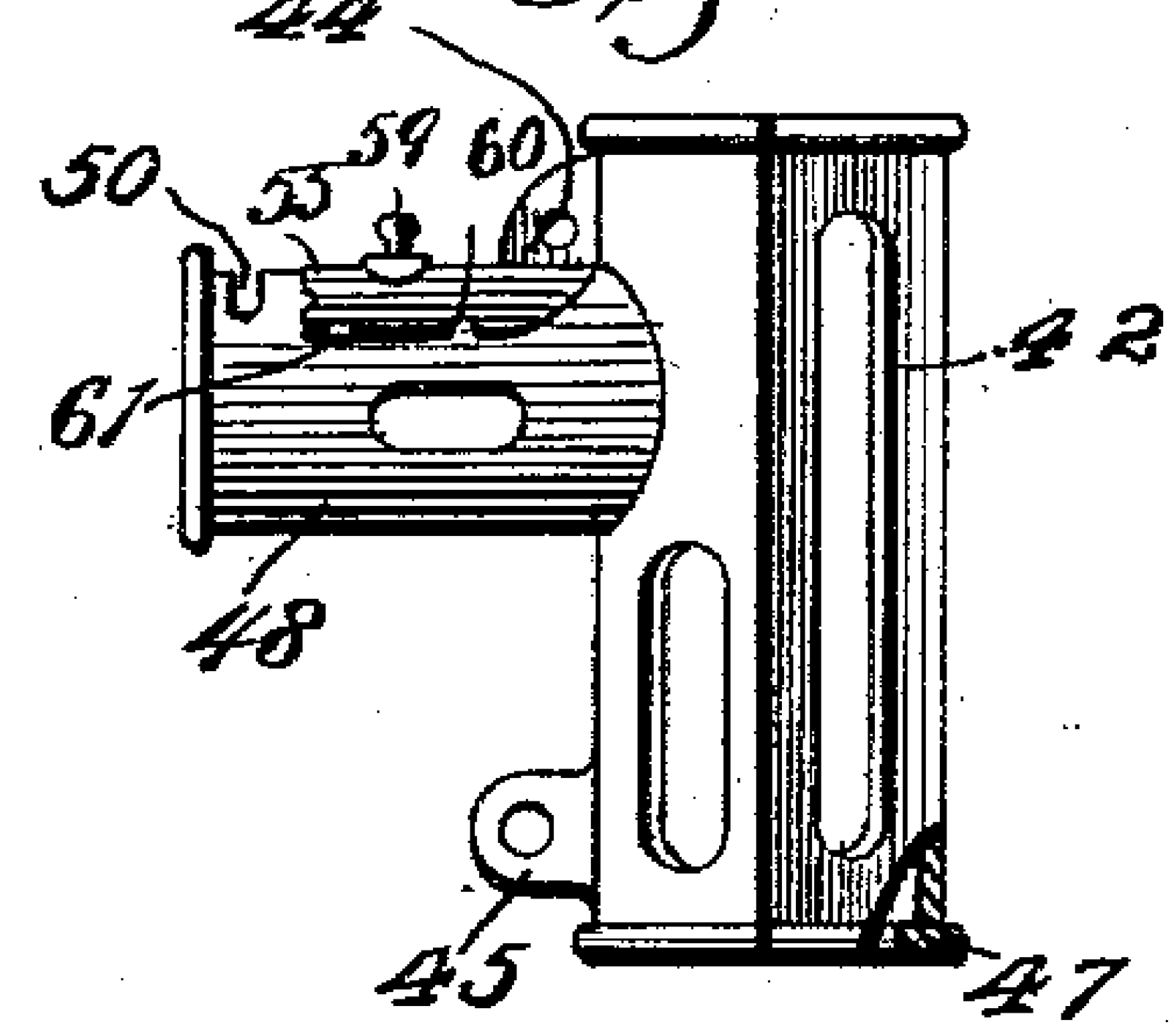


Fig. 5.

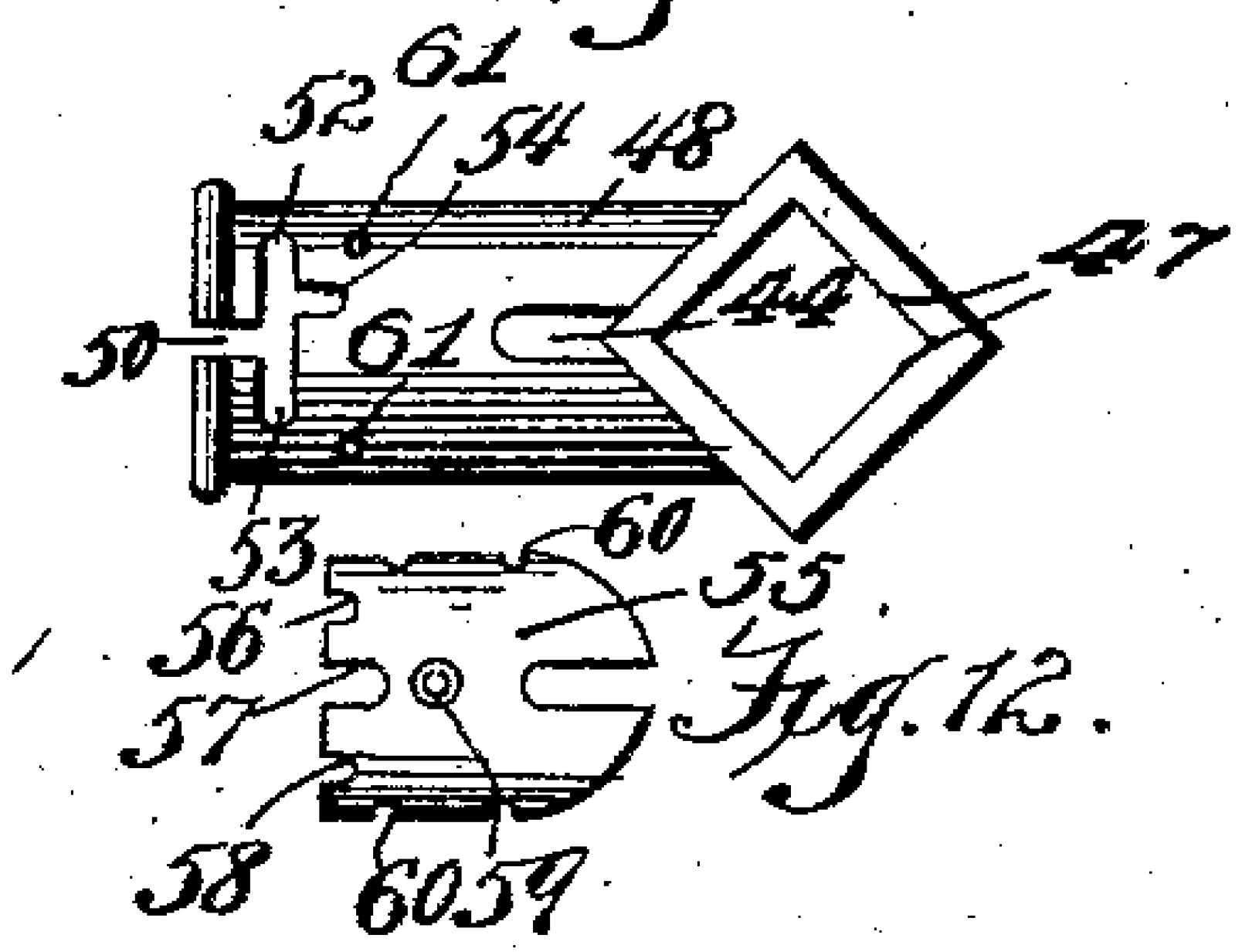


Fig. 7.

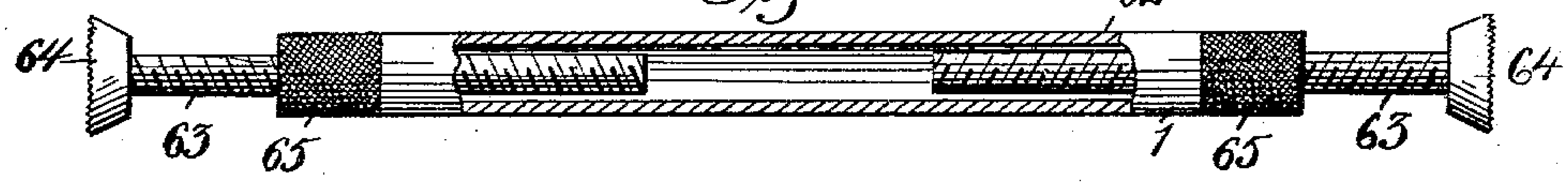


Fig. 8.

Fig. 12.

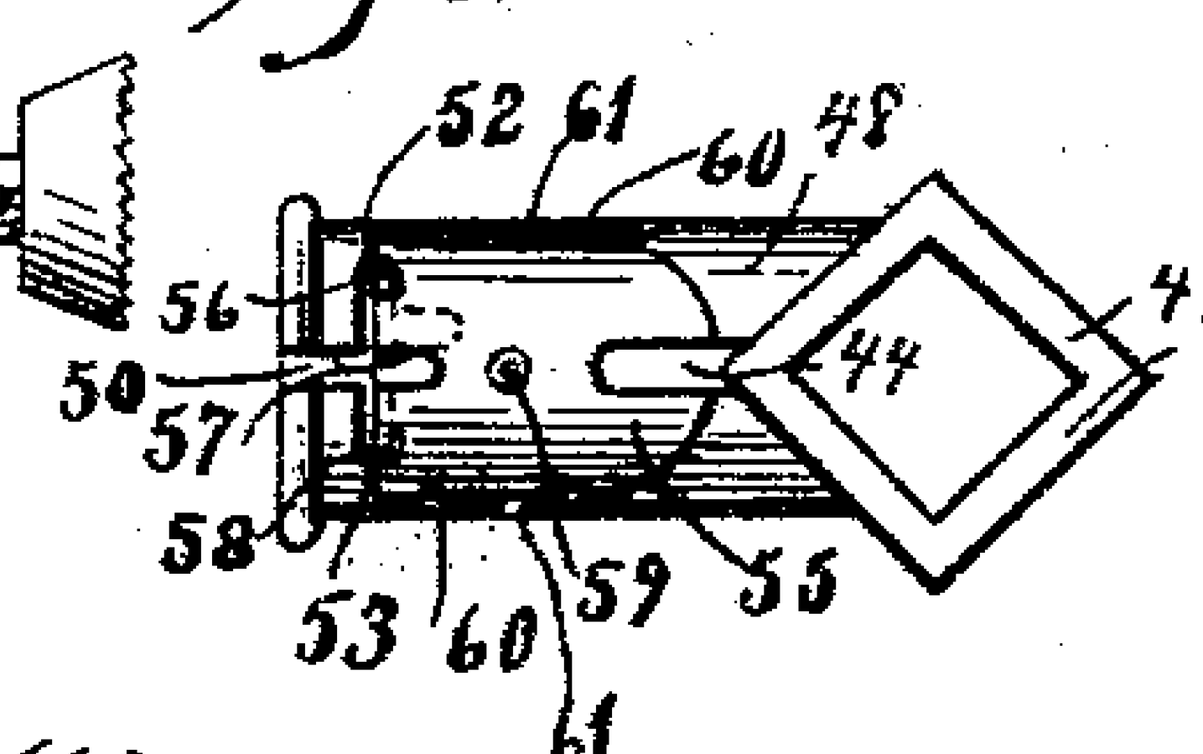


Fig. 9.

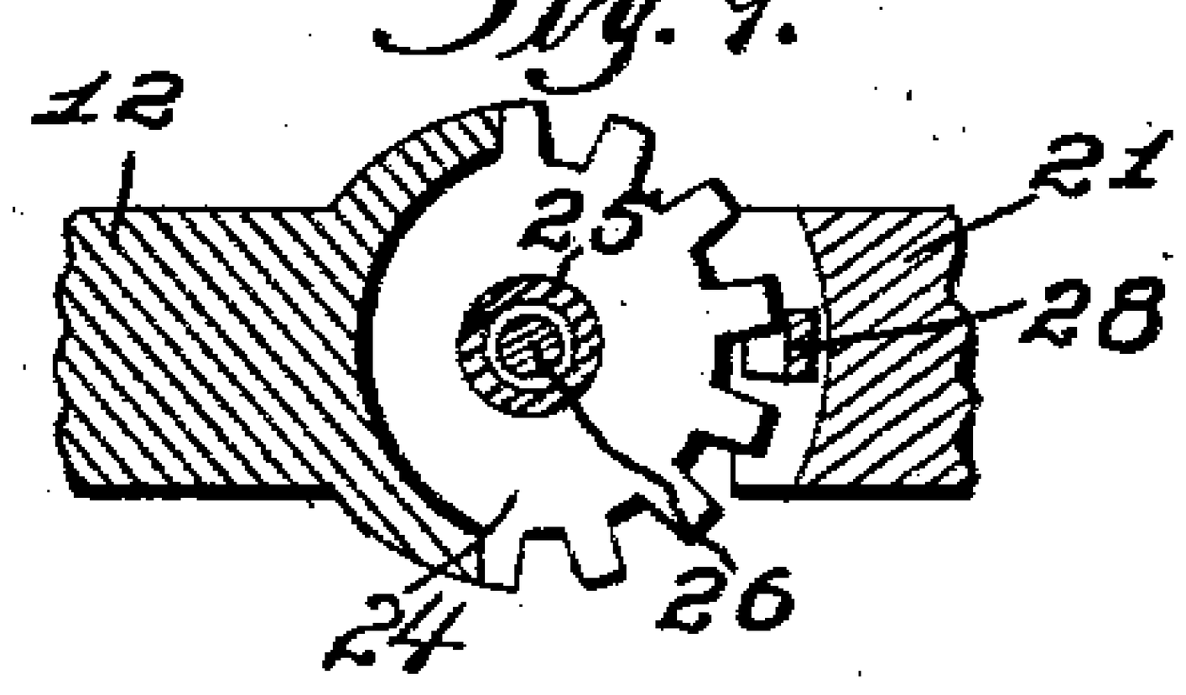


Fig. 10.

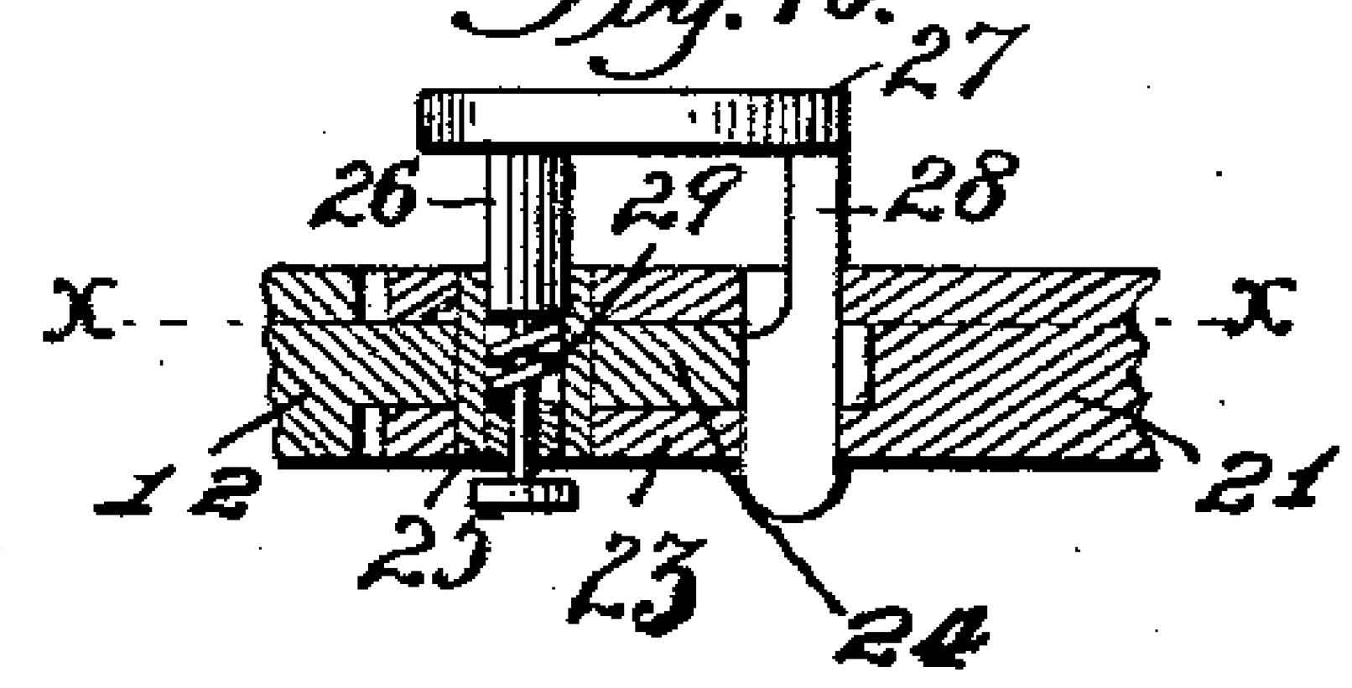
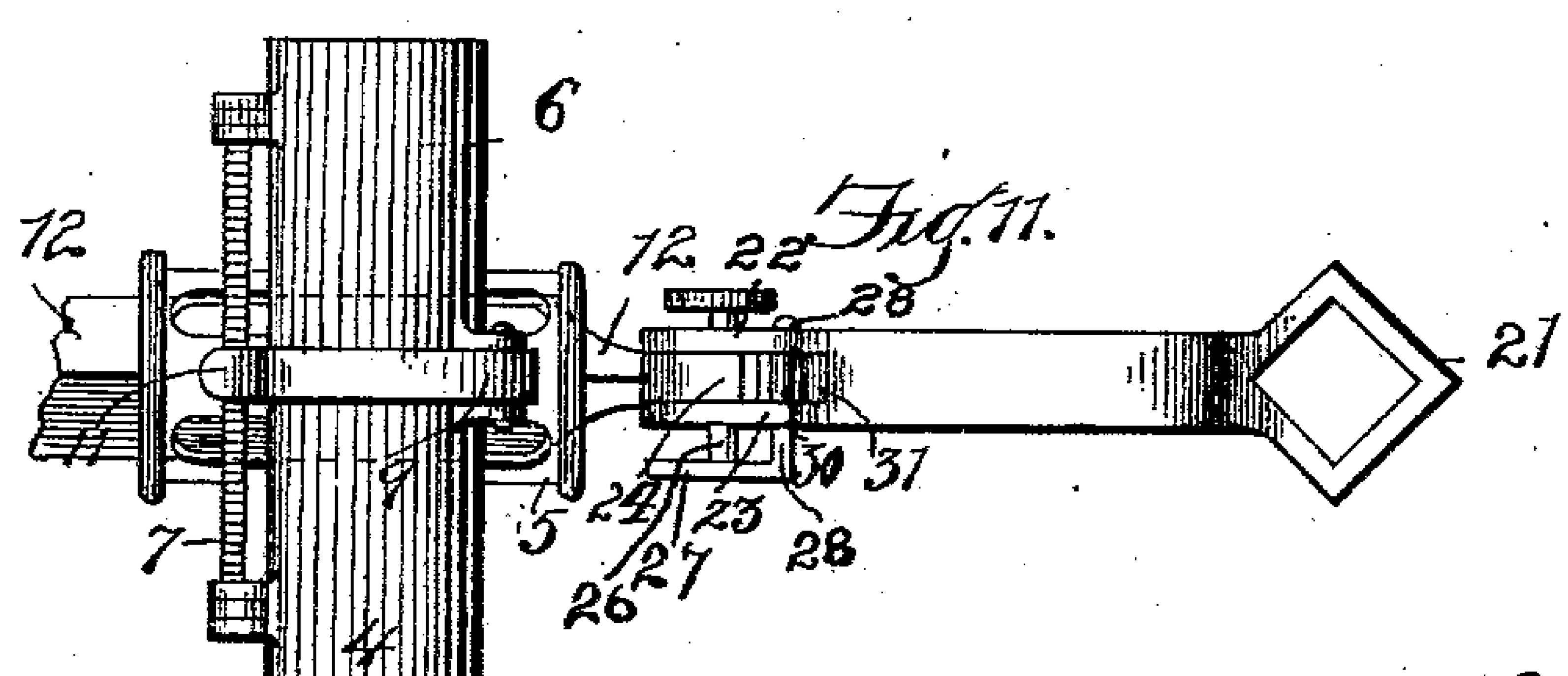


Fig. 11.



Witnesses
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No. 744,013. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

SIMEON C. LAWLOR, OF DULUTH, MINNESOTA.

WINDOW-WASHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 744,013, dated November 10, 1903.

Application filed May 15, 1901. Serial No. 60,379. (No model.)

To all whom it may concern:

Be it known that I, SIMEON C. LAWLOR, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Window-Washing Apparatus; and I do hereby 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.

My invention relates to improvements in mechanism for washing windows, and particularly that form which is adapted to be used for washing the outsides of windows from the inside of the building.

It consists in a handle, a fixed member or bar, a sliding member or bar extending across the same and movably supported thereon, a vertical member or bar extending upwardly from the outer end of the handle member, the said vertical member and handle member being removably secured to the fixed member, and the said handle member being provided with suitable joints whereby it may be bent to various angles to accommodate the operator of the device.

It further consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of the specification, Figure 1 is a perspective view of my improved window-washer, a portion of the horizontal supporting-rod and of the vertical movable bar being broken away. Fig. 2 is an enlarged side elevation of the sleeve for carrying the handle-bar and securing the mechanism to the horizontal supporting-rod and also showing the foot-socket of the vertical bar. Fig. 3 is a top plan view of the same. Fig. 4 is a side elevation of the movable sleeve which runs upon the vertical bar. Fig. 5 is a top plan view of the same. Fig. 6 is an enlarged side elevation of the cap or housing of the vertical bar which carries the upper pulley of the mechanism. Fig. 7 is a side elevation of the horizontal supporting-rod, a portion of the same being broken away to show the interior thereof. Fig. 8 is a detail longitudinal section through one end of an extension-bar. Fig. 9 is a horizontal section through one of the adjustable joints upon the handle-bar. Fig. 10 is a vertical section through the same, the latch thereof being shown in side elevation. Fig. 11 is a bottom plan view of the connecting socket member for movably securing the handle-bar of the window-washer upon the supporting-bar. Fig. 12 is a top plan view of the socket shown in Fig. 5, showing the slide for locking the stem of a brush or window-washer in an intermediate position.

My improved window-washing mechanism is so constructed as to supply a safe device for accomplishing the washing or cleansing of windows on the outside in buildings where the windows are a considerable distance from the ground and where a great risk is attendant upon sitting in the window for washing the outside thereof.

In constructing my improved window-washing mechanism I arrange an adjustable horizontal supporting-bar, as 1, in the frame of a window and movably secure thereon a handle-bar 2, which projects beyond the supporting-bar outside the window and carries an upright bar, as 3, upon which the window-washing mechanism may be secured. The handle-bar is preferably movably carried upon the supporting-rod 1 by means of a divisible clamp-sleeve, as 4, one member of which is secured to the sleeve 5, through which the handle-bar 2 is adapted to move back and forth. The lower jaw 6 of the clamp-sleeve is hinged to the upper jaw thereof and is normally forced into its closed position by means of a spring 7, which is arranged on a pintle 8, which joins the hinged section to the clamp-sleeve. The lower jaw of the sleeve is held in its closed position by means of a latch 9, which is arranged to engage a lug 10, formed on the upper jaw of the said sleeve. The said latch 9 is fulcrumed on the lower jaw 6 and is provided with a comparatively long handle, as 11, which extends beneath the clamp-sleeve and inwardly therefrom, so that it may be readily grasped by the operator of the mechanism for opening the clamp-sleeve. The clamp-sleeve is made of sufficient length to obtain a good bearing upon the supporting-rod 1 and is secured to the same loosely enough to permit of its being easily slid back and forth upon the rod. The sleeve 5, car-

ried by the clamp-sleeve, is arranged at right angles thereto and is preferably square in cross-section and is adapted to receive a square section 12 of the handle-bar 2. The said sleeve 5 is preferably lightened by having elongated slots formed therein and is provided at its ends with bearing-flanges, as 13 13, which extend inwardly a sufficient distance to prevent the square section 12 of the handle-bar from engaging the inner surface of the sleeve from end to end. A considerable amount of friction is thus obviated, and yet a good bearing is provided for the movement of the handle back and forth over the supporting bar or rod 1. The handle 2 is formed with an inner section 14, which is pivotally connected by a suitable joint 15 with the inner end of the square section 12. The joint which connects the two sections is preferably formed with lapping jaws which are provided with teeth or serrations upon their meeting faces adapted to engage each other, the said jaws being held in their different adjusted positions by means of a set screw, as 16. The handle-section 14 may thus be clamped in position at various angles with respect to the square section 12.

To the inner end of the handle-bar section 14 is secured a handle or handhold, as 17, which is also pivotally connected by means of a joint 18 with the said handle-bar section 14. The joint 18 is preferably made exactly like the joint 15, having jaws formed with corrugations on their meeting faces and being provided with a set-screw, as 19, for clamping the handle 17 in various positions with respect to the handle-bar. The handle-bar section 14 is also provided with a spring-clip, as 20, which may be used to engage the operating-rope of the window-washer for holding it in various positions.

The outer end of the handle bar 2 is adapted to carry a pivoted socket, as 21, which is connected with the end of the squared handle-bar section 12, by means of a joint 22, so that the said socket may be set at different angles with respect to the handle-bar. The joint 22 preferably comprises a bifurcated member, as 23, secured to the inner portion of the socket 21 and adapted to receive within it a toothed or notched member 24, which is fastened upon the end of the handle-bar section 12. The jaws of the said joint are pivotally connected by means of the sleeve or bushing 25, which is preferably made hollow and receives the stud 26 of a latch-piece 27, the said latch-piece having a broad finger-engaging portion outside the said joint and carrying a latch-bar 28, which is adapted to engage the teeth of the notched member 24. A spring 29 normally forces the stud 26 outwardly, and thus forces the latch-bar 28 into such position that its broadest portion is presented beneath the teeth of the notched member 24. By pressing upon the latch-piece 27 it may be forced inwardly, a thin or reduced portion of the latch-bar 28 being thus brought opposite the toothed section of the joint, and thus permitting of its turning upon the pivotal sleeve or bushing 25. This forms a simple joint, which may be quickly set to hold the foot-socket 21 in different positions. It is usually not desirable to permit the socket 21 to drop below a horizontal position on its pivot-point, and I therefore preferably form lugs, as 30 and 31, on the adjustable portions of the members of the joint 22, the said lugs being so arranged that they will engage each other when the socket is in its normal and lowered position. This will tend to relieve strain which would otherwise be brought to bear upon the latch 27.

The socket member 21 is formed with an elongated sleeve portion constructed in a similar manner to the sleeve 5 and adapted to receive and support the lower end of the vertical rod 3. This sleeve is also squared to conform to the squared shape of the bar 3. At the lower end of the said sleeve the flanges 32 thereof are extended inwardly a sufficient distance to support the end of the said bar 3. Upon the framing of the socket member 21 is arranged a pulley 33, about which the operating-cord 34 of the washing mechanism runs. An idler roller or pulley 35 is also arranged upon the said framing to lift the cord above the joint 22 and prevent it from rubbing over any rough parts.

The vertical bar 3 is preferably made hollow and carries at its upper end a cap-piece 36, which is formed with a socketed portion 37, adapted to receive the upper end of the said bar 3, and also an inclosing housing 38, in which is mounted a pulley 35, over which an elastic cord 40 is guided. The said housing 38 is also provided at its forward edge with a buffer-roller 41, preferably of rubber, which is pivoted in a bifurcated portion on the said housing and is in such a position as to prevent any of the metal portions of the mechanism from striking the glass of the window should the vertical bar be tipped forward. The elastic cable 40 is secured in the lower end of the hollow bar 3 in any suitable manner—as, for instance, by means of a hook and eye, as at 42^a. The elastic cord thus passes upwardly through the hollow vertical bar 3 and then over the pulley 39. Thence it extends downward to a movable sleeve 42, which slides upon the said vertical bar 3. The outer end of the elastic cord 40 is provided at its lower end with a hook 43, which engages a perforated lug 44, formed on the said sleeve 42. The said sleeve 42 is also provided with a lug 45, which is engaged by a hook 46, which is secured to the outer end of the operating-cord 34. The sleeve 42 is of course squared in cross-section to fit upon the squared rod 3 and is provided at its upper and lower edges with inwardly-extending flanges 47 47, which form bearing-surfaces to engage the said bar 3, upon which it slides. The cord 34 is made of sufficient length to reach inwardly to a point near the handle 17, so that

the operator can grasp the end of the said operating-cord and pull it in and out. Upon pulling upon the inner end of the cord the sleeve 42 will be slid down the vertical rod 3. When the cord 34 is released, the elastic cord 40, operating over the pulley 39, will draw the sleeve 42 upwardly again on the said bar 3. The movable sleeve 42 carries a lateral projecting socket, as 48, which is open at its outer end and adapted to receive the shank or stem, as 49, of one or more window-washing implements—such, for instance, as a brush, rubber, sponge, or other like devices. The socket 48 is formed with a slot 50, extending inwardly from the outer edge thereof, which is adapted to receive a stud or projection, as 51, on the stem of the washing implement. This slot 50 is formed with laterally-extending offset portions, as at 52 and 53, and with an inwardly-projecting offset portion, as 54. A sliding latch-plate, as 55, is movably secured upon the upper side of the said socket 48 and is formed with notches, as 56, 57, and 58, which extend inwardly from the forward edge of the said plate. The latch or lock plate 55 is preferably of comparatively thin material, capable of bowing or springing upwardly, and is provided with a small handle or stud, as 59, by which it can be slipped back and forth. The edges of the said latch-plate are also formed with shallow recesses, as 60, which engage the lugs 61 on the socket 48 sufficiently to hold the said lock-plate in its adjusted position against accidental movement, but so that the slide can, however, be easily pushed by hand in either direction. The tool inserted in the socket may be turned so as to bring this stud into engagement with either of the lateral offset portions 52 or 53 of the slot 50, or may be brought into engagement with the offset portion 54 of said slot. The lock-plate can then be slid forward, so that its notches 56, 57, or 58 will embrace the said stud and prevent its escaping from the slot 50. The lateral offset portions 52 and 53 are very often needed when using a rubber for cleaning the window and the window is formed with a curved frame. The said rubber may be set at any angle of the vertical bar 3, so that it may be moved vertically and laterally for following the curved frame of the window and yet thoroughly rub every portion thereof. The slot offset 54 will hold the implement normally in a horizontal position.

The supporting-rod 1 may be of any suitable construction; but I have illustrated a desirable form for the same, as shown in Fig. 7 of the drawings, in which the said support is formed with a tubular body portion, as 62, into the ends of which extend screw-rods, as 63 63, provided with frame-engaging feet, as 64. The said feet 64 may be serrated on their outer surfaces, so as to more firmly engage the framing of the window. Adjusting-nuts, as 65 65, are threaded upon the rods 63 and engage the ends of the tube 62 for limiting the depth to which the said rods are permitted to enter the tube. By turning these nuts 65 the rods 63 and their frame-engaging feet 64 may be forced outwardly and brought in firm contact with the window-frame. The supporting-bar 1 will thus be held rigidly in position in the window-frame, and the handle-bar, with its clamp-sleeve 4, may be moved back and forth, so as to bring the implement-carrying vertical bar opposite various portions of the window being operated upon. In order to make the bar 1 capable of fitting windows of various sizes, I contemplate using extension-sections, as seen at 66 in Fig. 8 of the drawings. The said extension-section 66 is formed with a reduced end portion, as at 67, which will fit into the end of the central hollow tube 62 of the said support. The extension 66 is made hollow a suitable distance from its outer end, so as to receive the screw 63, the nut 65 bearing upon the outer end of the said section.

It will be evident from the above description that my window-washer is simple in construction and is capable of easy manipulation and that window washing and drying implements may be moved back and forth on the outside of a window-frame from the inside of of a room and that every portion of the said window can be thoroughly cleansed from within and be controlled by the operator from the inside.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A window-washing apparatus comprising a supporting-bar, a handle-bar arranged across the same and at right angles thereto, a sleeve for holding the handle-bar in position upon the supporting-bar, an adjustable clamping-sleeve having a hinged member for opening and closing the sleeve, the said sleeve being adapted to fit upon the supporting-rod so as to be movable back and forth thereon, an implement standard or bar attached to the outer end of the handle-bar so as to extend upwardly outside a window, and means for moving the implements employed up and down upon the said vertical bar, substantially as described.

2. In a window-washing apparatus, the combination with a handle-bar, and a supporting-bar, provided with means to secure it in place in a window-frame, of a sliding sleeve having a rectangular bearing for receiving the handle-bar, a hinged clamping-sleeve on said sliding sleeve for engaging the supporting-bar, and an implement-standard connected with said bar, substantially as described.

3. In a window-washing apparatus the combination with a supporting-bar and a handle-bar of a sleeve-connecting member having an elongated bearing at right angles to the supporting-bar, the said sleeve having inwardly-extending flanges at each end forming the bearing-surfaces for contact with the movable handle-bar passing through the same, a clamping-sleeve arranged below the bearing-sleeve

and formed with an elongated smooth inner bearing-surface adapted to engage the supporting bar or rod, and a hinged jaw on the clamping-sleeve for holding the said sleeve in position upon the said bar, substantially as described.

4. In a window-washing apparatus the combination with a supporting-rod of a movable handle-bar mounted thereon, a sleeve member connecting the two comprising an elongated bearing for receiving the handle-bar, and a clamping-sleeve arranged beneath the same formed with an upper jaw and a lower hinged jaw, a lug or projection on the upper jaw, a spring-actuated hinge connecting the said movable jaw to the fixed jaw, a latch-lever journaled on the movable jaw and engaging the lug or projection of the other jaw, and means for supporting an implement-standard upon the said handle-bar, substantially as described.

5. In a window-washing apparatus the combination with a supporting-bar and a handle-bar movably mounted thereon, of a foot-socket pivoted to the outer end of the said handle-bar, a joint connecting the socket with the handle-bar comprising a bifurcated member and a member having a notched periphery adapted to fit therein, a hollow pin for pivotally connecting the said members, and a spring-actuated latch for engaging the notched periphery of the inner member, the structure being such that when the latch is forced inwardly against the spring the joint may be set at different angles, the spring action of the latch tending to always hold the joint in a locked condition, substantially as described.

6. In a window-washing apparatus the combination with a supporting-bar and a handle-bar movably mounted thereon of a socket adjustably secured to the end of the handle-bar, a vertically-arranged rectangular standard resting in the said socket, the said socket also being rectangular to fit upon the same, a head-housing having a socket fitting upon the upper end of the said standard, a pulley mounted in the said housing, an elastic cord passing over the pulley and downwardly through the hollow standard in which it is secured, a sleeve fitting upon the rectangular standard but free to slip thereon, the said sleeve having bearing-flanges projecting inwardly at its ends so that the whole of the sleeve will not rub upon the bar, the said sleeve being connected with the elastic cord by which it is raised, an operating-cord also secured to the said sleeve, a pulley on the socket around which the said operating-cord passes, an idler for guiding the said cord around the said pulley and means for securing the implement to the moving sleeve, substantially as described.

7. In a window-washing apparatus the combination with a handle-bar of a vertical standard operatively connected therewith, a sleeve movable thereon and means for moving the sleeve up and down, the said sleeve having a socket projecting laterally therefrom, the said socket being formed with a slot having recesses extending in different directions, the said slot being adapted to receive a stem or shank of a window implement, a stud carried by the said shank and adapted to be brought into engagement with one of the recesses of the said slot according to the position in which it is desired to hold the implement, and means for locking the said stud in said slot, substantially as described.

8. In a window-washing mechanism the combination with a handle-bar and an implement-standard operatively connected therewith, of a sleeve movably mounted on the said standard having a lateral socket formed thereon, the said socket being provided with a slot extending inwardly from its outer edge and having lateral recesses and a longitudinal recess formed therein adapted to receive the stem or shank of a window-engaging implement, a stud on such a shank for engaging the recesses of the slot, a sliding plate mounted on the socket and provided with recesses for inclosing the stud of the implement-shank, the structure being such that an implement may be secured in the socket at one angle or another according to the work which is desired to be accomplished, substantially as described.

9. In a window-washing apparatus the combination with a supporting-bar of a handle-bar movably mounted thereon, an implement-bar pivotally connected to the outer end thereof, an adjustable joint connecting the implement-bar with the handle-bar, and lugs arranged upon the members of the said joint for holding the members of the joint at their extreme adjustment when the implement-bar is vertical, the structure being such that undue strain will be removed from the adjusting mechanism of the said joint, substantially as described.

In witness whereof I hereunto affix my signature in presence of two witnesses.

SIMEON C. LAWLOR.

Witnesses:

JAMES T. WATSON,

PHINEAS AYER.