Sept. 24, 1963 L. PRESSER 3,104,411

WINDOW CLEANING DEVICE

Filed April 25, 1962 2 Sheets-Sheet 1

FIG. 1.

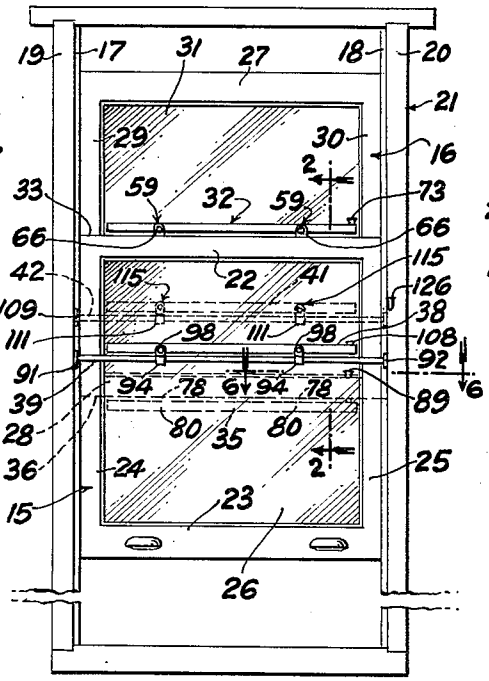


FIG. 2.

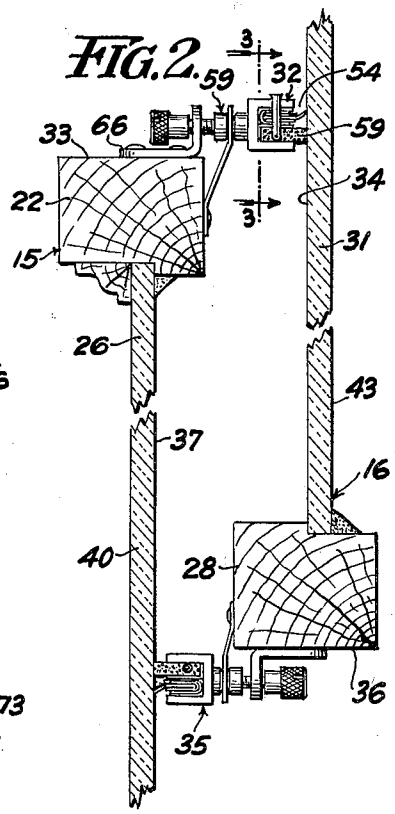


FIG. 3.

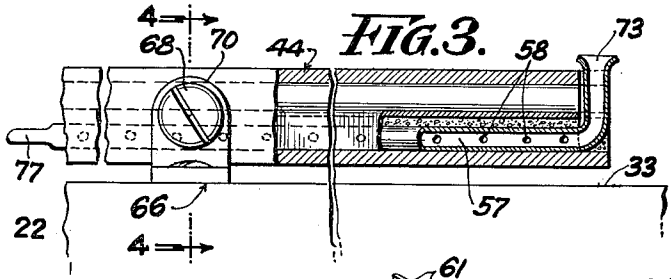
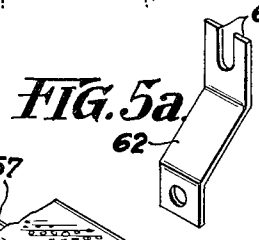


FIG. 5a.



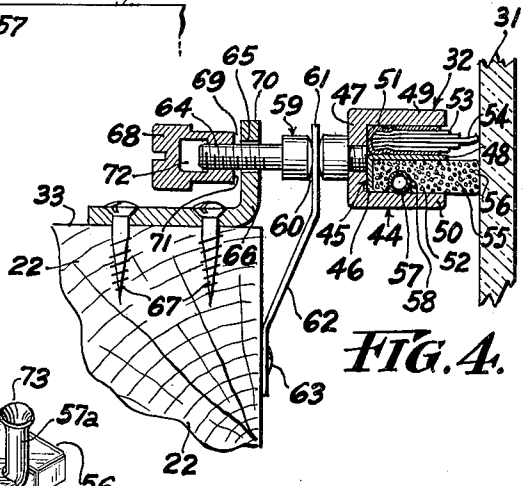


FIG. 4.

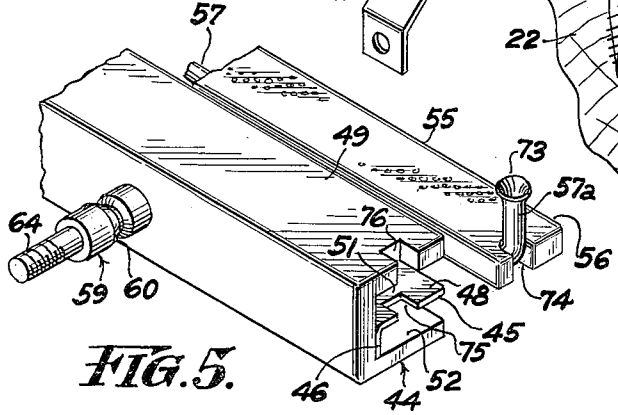


FIG. 5.

INVENTOR
LEISER PRESSER
BY E. T. Pomack
ATTORNEY

Sept. 24, 1963 L. PRESSER 3,104,411

WINDOW CLEANING DEVICE

Filed April 25, 1962 2 Sheets-Sheet 2

FIG. 6.

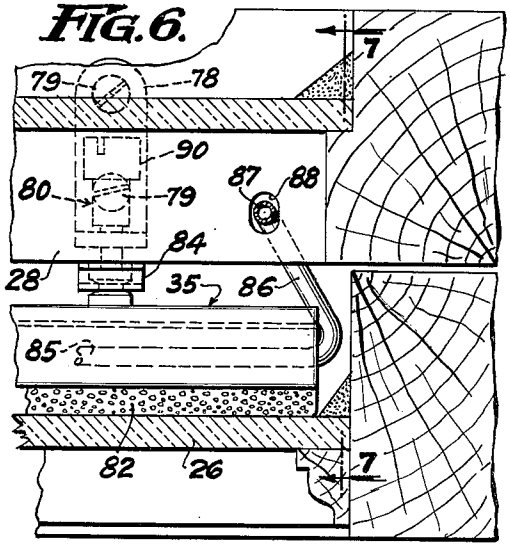


FIG. 7.

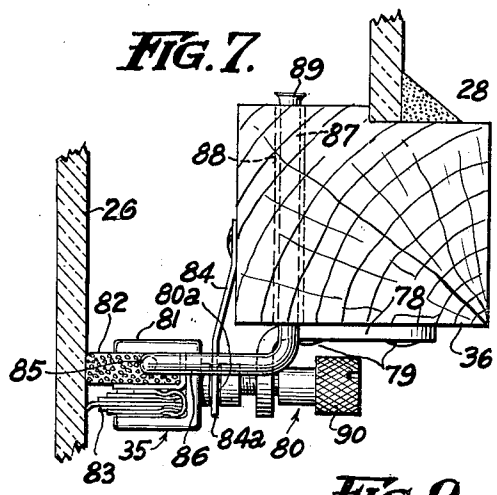


FIG. 8.

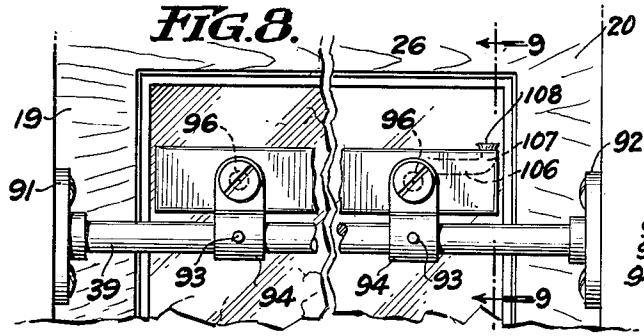


FIG. 9.

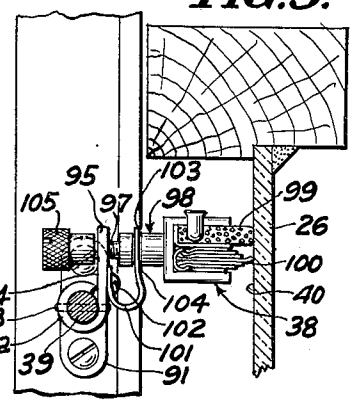


FIG. 10.

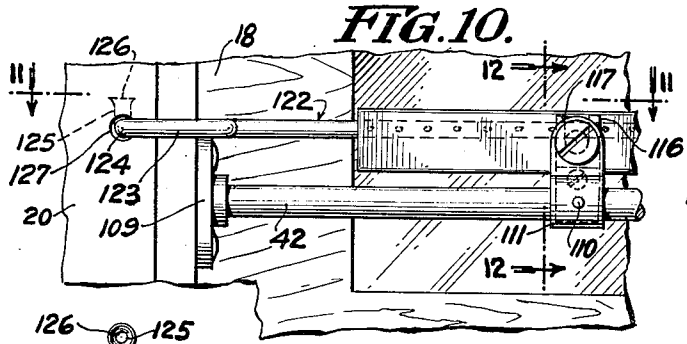


FIG. 12.

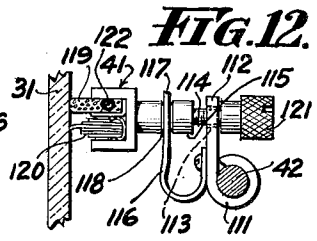
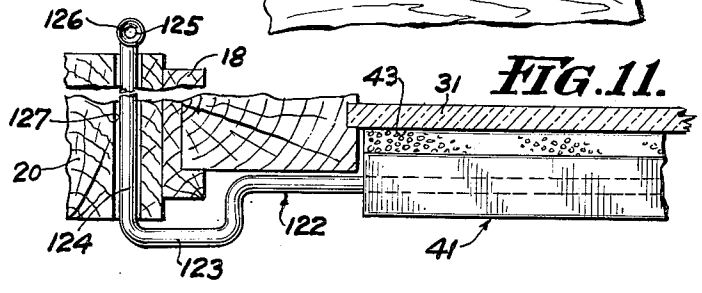


FIG. 11.



INVENTOR
LEISER PRESSER
BY
E. L. Sonnack
ATTORNEY

United States Patent Office 3,104,411 Patented Sept. 24, 1963

3,104,411

WINDOW CLEANING DEVICE

Leiser Presser, 1367 46th St., Brooklyn, N.Y.

Filed Apr. 25, 1962, Ser. No. 190,127
4 Claims. (Cl. 15—250.03)

This invention relates to window cleaning devices, and is particularly directed to devices of this category as applied to double-hinge windows.

It is an object of my invention to present a window cleaning device that will enable both sides of the inner and outer panes of a window structure to be cleaned by the simple operations of opening and closing the windows. And it is my further object to eliminate the use of automatic cleaning devices and water storage reservoirs, as well as to obviate all need to reach outside of the window for any cleaning operation. In connection with said last-mentioned aspect of my invention, it is my objective to enable all water necessary for the cleaning operation to be supplied from a position interiorly of the window.

My further objective is to present a device having the aforesaid features which is simple of construction, and which can readily be installed without the use of special skills.

Other objects, features and advantages will appear from the drawings and the description hereinafter given.

Referring to the drawings,

FIG. 1 is a front view of a window structure employing my invention, the inner and outer window members being shown in partly open positions, details of the wiper members not being shown.

FIG. 2 is an enlarged fragmentary section of FIG. 1 taken along line 2——2.

FIG. 3 is a further enlarged fragmentary section of FIG. 2 taken along line 3—3, portions being broken away for clarity.

FIG. 4 is a fragmentary section of FIG. 3 taken along line 4—4.

FIG. 5 is a fragmentary disassembled perspective view of the wiper holding member and moistening strip, the wiper blade not being shown.

FIG. 5*a* is a perspective view of a spring clip used in my invention for yieldably urging the wiper member into operative engagement with the window pane.

FIG. 6 is an enlarged fragmentary section of FIG. 1 taken substantially along line 6—6.

FIG. 7 is a fragmentary section of FIG. 6 taken along line 7—7.

FIG. 8 is a fragmentary enlarged front view of a portion of FIG. 1.

FIG. 9 is a fragmentary section of FIG. 8 taken along line 9—9.

FIG. 10 is an enlarged fragmentary rear view of a portion of the window structure of FIG. 1.

FIG. 11 is a fragmentary section of FIG. 10 taken along line 11—11.

FIG. 12 is a fragmentary section of FIG. 10 taken along line 12—12.

In the particular embodiment of my invention illustrated, the inner window member 15 and outer window member 16 are operatively slidable along rails 17 and 18 of the lateral sides 19 and 20 of the stationary window framework 21, in conventional manner. The said inner window member 15 is normally closed when it is in its lowermost position, and the outer window member 16 is closed when it is in its uppermost position. Each window has a peripheral frame or sash supporting a pane of glass. The inner window member 15 has the respective upper and lower sash sections 22 and 23 and the lateral sash sections 24 and 25 supporting the window pane 26; and the outer window 16 has the respective upper and lower

sash sections 27 and 28, and the lateral sections 29 and 30 supporting the window pane 31.

The structure has four window wiper members operatively engageable with the said panes, each of the members being proportioned operatively to engage the full width of the exposed areas of the respective panes. The upper movable wiper member generally designated 32 is mounted on the top surface 33 of the upper sash section 22 of the inner window member 15, said wiper member being slidably engageable with the inner surface 34 of the outer window pane 31. The lower movable window wiper 35 is attached to the under-surface 36 of the said lower sash section 28 of the outer window member 16, the latter being slidably engageable with the outer surface 37 of the inner window pane 26. The inner stationary wiper member 38 is operatively mounted, in a manner hereinbelow described, on the inner bar 39 supported by the interior portions of the opposite lateral sides 19 and 20 of the window structure 21, said wiper member 38 being operatively engageable with the inside surface 40 of the inner pane 26. The outer stationary wiper member 41 is operatively mounted on the outside bar 42 supported by the exterior portions of said lateral sides 19 and 20 of said window structure, said last-mentioned wiper member being operatively engageable with the outer surface 43 of the outer pane 31.

As will be seen from FIGS. 1 to 5, the wiper member 32 comprises the longitudinal channel-like holder 44 having along the interior thereof the partition member 45 comprising a vertical wall 46 resting against the base 47 of the channel and a horizontal wall 48 disposed intermediate the legs 49 and 50 of said channel. The arrangement is such as to divide said holder 44 into an upper compartment 51 and a lower compartment 52. Disposed longitudinally within said upper compartment is the blade member 53 of conventional construction, said latter member having a flexible wiping element 54 extending out of the holder and operatively engageable with the adjacent pane in known manner. Disposed longitudinally within said lower compartment is the sponge-like, water-absorbent moistener strip 55 the operative edge 56 thereof being adapted for slidable engagement with the surface of the adjacent pane. Disposed longitudinally within the said compartment 52 of holder 44 is the water-supply pipe 57 having along a side thereof a plurality of apertures 58. In the preferred form illustrated, the said water-absorbent strip 55 has a portion thereof compressed between the pipe 57 and the partition member 45, the said apertures 58 of the pipe being in facing relation to the pane being cleaned.

Attached to the base 47 of said holder 44 are two spaced supporting studs 59, each having an annular recessed body portion 60 straddled by the bifurcated ends 61 of the spring clip 62, the latter being so proportioned and positioned as to urge the stud 59 and the attached wiper components towards the pane 31, so that said flexible blade element 54 and the water-absorbent strip 55 are normally in pressing yieldable engagement with the said pane. Each of said studs 59 has a threaded shank portion 64 extending through the apertured portion 65 of the bracket 66 attached by fasteners 67 to the top surface 33 of the sash section 22. In threaded engagement with the said shank 64 of each of said studs is the retracting nut 68, there being a space 69 between said nut and the upright arm 70 of the adjacent bracket 66 when the wiper member is in its operative position against the said pane 31. The arrangement is such that there is sufficient play between each of said nuts 68 and the adjacent arm 70 to permit operative wiping action of the wiper 32 even over a slightly irregular glass surface or a surface containing accumulated dirt portions. If it

is desired to retract the wiper member from operative engagement with the pane, each of said nuts **68** is operatively turned clockwise until the end **71** thereof comes into engagement with the adjacent upright arm **70** of the corresponding bracket **66**, a continued turning of each of said nuts causing the supporting studs **59** and the wiper assembly carried thereby to be retracted from the pane as the threaded shank **64** is operatively caused to move inwardly into the central cavity **72** of each of said nuts **68**.

As clearly appears from FIGS. 1, 3 and 5, the said water supply pipe **57** is connected at one end thereof to the upwardly extending water inlet portion **57***a* with a flared upper water-receiving terminal **73**. In the form illustrated, there are notches **74**, **75** and **76** in the respective corresponding ends of the water-absorbent strip **55**, the horizontal wall **48** of the partition member **45** and the upper leg **49** of the channel member **44**, respectively, to accommodate said upwardly extending portion **57***a*. The end of the pipe **57** opposite its connection to the water inlet section **57***a* is closed, as indicated by the closed end **77** shown in FIG. 3.

The arrangement is such that when water is introduced through the inlet **73**—by means of a hose, water-ejecting bulb or other suitable source—it will be absorbed by strip **55**, a sufficient amount of water being introduced to enable the strip to serve as a window moistener. When the inner window is raised or the outer window lowered from their respective normally closed positions, the strip **55** will be slidably engaged with the inner surface **34** of pane **31**, depositing a film of water thereupon by virtue of the compressive action upon the strip **55**. For full cleaning, the moving window is brought to its fully open position so that the deposited film of moisture will extend along the entire area of the pane engaged by the strip **55**. Upon the return movement of the moving window to its normally closed position, the blade element **54** will flex slightly upwardly, as indicated in FIGS. 2 and 4, engaging the previously moistened portion of the pane, and wiping and cleaning it. If, for example, it will be assumed that the inner window member **15** is moved downwardly from its fully opened position, the said blade element **54** will follow the sponge-like strip **55**, wiping off all moisture deposited by the latter, so that when the window reaches its bottom normally closed position, the pane will have been fully cleaned without any danger of water seeping upwardly past the blade element **54**.

The wiper member **35** is constructed substantially like wiper member **32** above described (see FIGS. 1, 2, 6, 7), there being two brackets **78** attached by fasteners **79** to the underside **36** of the sash section **28**, each of said brackets operatively carrying the respective supporting studs **80**. The channel-shaped holders **81**, the sponge-like strips **82** and wiper blades **83** are substantially like the form first above described, the spring clips **84**, each attached to the sash section **28** and each having a bifurcated lower terminal **84***a* engaging the annular recessed portion **80***a* of adjacent stud **80**, urging the wiper member towards the pane **26**. It will be noted that the water supply pipe **85** is joined to a rearwardly extending portion **86** and an upwardly extending water inlet portion **87**, the latter extending through the passageway **88** in the said lower sash section **28** of the outer window member **16**, the upper terminal **89** of said upper portion being flared in the manner and for the purpose aforesaid. It will be further observed that the said passageway **88** is elongated in a forwardly and rearwardly direction, thereby to permit an operative forward and rearward movement of the wiper member **35** under the action of spring **84** or the retracting nut **90**.

The said wiper member **38** (see FIGS. 1, 8, 9) is, as aforesaid, operatively supported by the transverse bar **39**, the latter being secured in place by the brackets **91** and **92** attached to the lateral sides **19** and **20** of the window framework. The said bar **39** is so positioned that the wiper member **38** will be adjacent the upper sash section

22 of the inner window member **15** when the latter is in its lowermost position. Fixedly mounted by pins **93** upon said transverse bar **39** are the brackets **94**, each having a portion **94***a* embracing the bar **39** and an upwardly extending portion **95** with an aperture **96** therein through which extends the threaded shank **97** of the adjacent supporting stud **98**. The wiper member **38** is substantially like the wiper members above described, containing the sponge-like member **99** and wiper blade **100**. There are spring clips **101** attached by fasteners **102** to the said upwardly extending portions **95** of each bracket **94**, the upper bifurcated portion **103** (like the bifurcated springs above described) embracing the recessed portion **104**, in the manner aforesaid, thereby yieldably urging the wiper member **38** towards the pane **26**. The retracting nut **105** operates substantially in the manner above described, and a description thereof is accordingly not deemed necessary. The water-supply pipe **106** is joined to an upwardly extending water inlet portion **107** with a flared inlet **108** adapted to receive a water supply therethrough for the sponge-rubber strip **99**.

The outermost wiper member **41** is, as aforesaid, mounted on the rear transverse bar **42**, the latter being supported by brackets **109** mounted on the outside portions of the lateral sides **19** and **20** of the window framework. Affixed to said bar **42** by the pins **110** are the two brackets **111**, said brackets each having an upwardly extending portion **112** through the aperture **113** of which the threaded shank **114** of the adjacent supporting stud **115** extends. Each of the brackets **111** supports a spring clip **116** with a bifurcated upper terminal **117** in engagement with the recessed portion **118** of the supporting stud **115**, in the manner aforesaid, the spring engaging the wiper member **41** and urging its sponge strip **119** and blade element **120** into yieldable engagement with the outer pane **31**. The retracting nut **121** operates like the corresponding nuts of the forms above described. The water supply pipe **122**, contained in the wiper member **41**, has an offset branch **123** joined to a forwardly extending water inlet portion **124** extending through passageway **127** in the lateral side **20** of the stationary window structure, said portion **114** being joined to an inner upwardly extending branch **125** having a flared water-receiving mouth **126**.

From the above description it is apparent that the upper member **32** is adapted to clean the inner surface **34** of the outer pane **31** when either the inner window member **15** or outer member **16** is opened and closed. The wiper member **35** is in similar manner adapted to clean the outer surface **37** of the inside window pane **26** when either of said inner or outer window members is opened and closed. The wiper member **38**, being operatively mounted on the stationary inner bar **39**, is adapted to clean the inside surface **40** of the inner pane **26**, the upward movement of the inner window **15** causing the sponge member **99** to moisten said inside surface, and the downward movement of the window causing the flexible blade element **100** to engage the moist surface of the window and wipe it dry. It will be observed that when the said inner window **15** is in its closed position, with the wiper member **38** adjacent the top of pane **36**, the said blade element **100**, being positioned below the sponge element **99**, seals off any water drippings therefrom that might otherwise flow downwardly along the window surfaces. The outer wiper member **41**, being mounted on the stationary bar **42** positioned at the outside of the window, will operatively clean the outer surface of the outer window pane **31** upon a down and up movement of the outer window member **16**, in the manner aforesaid.

It will be observed that water can be supplied to all the wiper members from the inside of the window structure, making it unnecessary to reach outside of the window for replenishing the water supply, and also making it unnecessary to keep any reservoirs of water either on the outside or inside of the window structure. No complicated mechanisms are required to effect the cleaning operation.

All that need be done is to move the inner window upwardly and downwardly, and the outer window upwardly and downwardly, and both inner and outer surfaces of both panes will be operatively moistened, wiped dry and cleaned. The movable wiper members 32 and 35, being mounted on the respective upper and lower sash sections of the window members 15 and 16, do not obstruct vision for ordinary viewing through the lower window member; and the stationary wiper members 38 and 41, being mounted on transverse bars which are also positioned in the regions of said respective sash sections 22 and 28, are similarly non-obstructive.

It is apparent that the entire device can readily be installed completely ready for use with a few hand tools and without the need of any special technical skills.

In the above description, the invention has been disclosed merely by way of example and in preferred manner; but obviously many variations and modifications may be made therein. It is to be understood, therefore, that the invention is not limited to any form or manner of practicing same, except insofar as such limitations are specified in the appended claims.

I claim:

1. In a window cleaning device for operative use with a window structure comprising a framework and inner and outer window members slidably movable vertically relative to the sides of said framework, said members each having one upper, one lower and two lateral sash sections supporting a pane of glass, the combination of a transverse bar attached to the opposite sides of said framework and positioned interiorly of said inner window member and in the region of its said upper sash section when said inner window member is in its bottommost closed position, a wiper member mounted on said bar and comprising a holder, a wiper blade, a strip of water-absorbing material adjacent said blade, both said blade and strip being supported by said holder and having exterior portions extending from said holder and positioned for engagement with the pane of said inner window member, a water-supply pipe supported by said holder and having apertured portions in engagement with said strip, a water inlet pipe portion communicating with said pipe and extending upwardly through said holder, the uppermost portion thereof having an exposed terminal, and yieldable means in engagement with said holder for yieldably urging said blade and strip against said last-mentioned pane, said blade being disposed below said strip, whereby said blade will prevent downward water seepage from said strip when said inner window is in its said bottommost closed position.

2. In a window cleaning device for operative use with a window structure having a framework and a window member supporting a pane of glass and slidably movable relative to the sides of said framework, the combination of a wiper member comprising a channel-shaped holder, a partition member within the holder and dividing the latter into two parallel compartments one above the other, a wiper blade within one of said compartments, a strip of water-absorbing material in the other of said compartments, both said blade and strip having exterior portions extending from said compartments and positioned for engagement with said pane, a water-supply pipe positioned within the compartment containing said strip and having apertured portions in engagement with said strip, and a water-inlet pipe portion communicating with said pipe and extending upwardly, the uppermost portion of said water-inlet portion having an exposed terminal, an apertured bracket, a stud support attached to said holder, said support having an annular recessed portion and a threaded shank, a bifurcated spring clip in straddling engagement with said annular recessed portion and yieldably urging said holder towards said pane and said blade and strip in pressing engagement therewith, said shank extending through said apertured bracket, a retracting nut in threaded engagement with said shank and engageable with said bracket for operatively retracting said stud support and the attached holder, and means to support said bracket and spring clip.

3. In a window cleaning device for operative use with a window structure comprising a framework and inner and outer window members slidably movable vertically relative to the sides of said framework, said members each having one upper, one lower and two lateral sash sections supporting a pane of glass, the combination of a transverse bar attached to the opposite sides of said framework adjacent the middle of its vertical height and positioned adjacent one of said window members, a wiper member mounted on said bar and comprising a holder, a wiper blade, a strip of water-absorbing material adjacent said blade, both said blade and strip being supported by said holder and having exterior portions extending from said holder and positioned for engagement with the pane of said adjacent window member, a water-supply pipe supported by said holder and having apertured portions in engagement with said strip, a water inlet pipe portion communicating with said pipe and extending upwardly through said holder, the uppermost portion thereof having an exposed terminal, and yieldable means in engagement with said holder for yieldably urging said blade and strip against said last-mentioned pane, said blade being disposed below said strip, whereby said blade will prevent downward water seepage from said strip.

4. In a window cleaning device for operative use with a window structure having a framework and a window member supporting a pane of glass and slidably movable relative to the sides of said framework, the combination of a wiper member comprising a channel-shaped holder, a wiper blade in one portion of said holder and a strip of water-absorbing material in an adjacent portion of the holder, both said blade and strip having exterior portions extending from said holder and positioned for engagement with said pane, a water-supply pipe positioned within the portion of said holder containing said strip and having apertured portions in engagement with said strip, and a water-inlet pipe portion communicating with said pipe and extending upwardly, the uppermost portion of said water-inlet portion having an exposed terminal, an apertured bracket, a stud support attached to said holder, said support having an annular recessed portion and a threaded shank, a spring member in engagement with said annular recessed portion and yieldably urging said holder towards said pane and said blade and strip in pressing engagement therewith, said shank extending through said apertured bracket, a retracting nut in threaded engagement with said shank and engageable with said bracket for operatively retracting said stud support and the attached holder, and means to support said bracket and spring member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,120,094	Shipley	Dec. 8, 1914
1,151,758	Bottenstein	Aug. 31, 1915
1,924,922	Gehrig	Aug. 29, 1933
1,977,483	Koukal	Oct. 16, 1934
2,569,635	Holmes	Oct. 2, 1951