Oct. 2, 1934. L. KOUKAL 1,975,585

WINDOW GLASS CLEANING IMPLEMENT

Filed Sept. 11, 1933 2 Sheets-Sheet 1

Fig. 1.

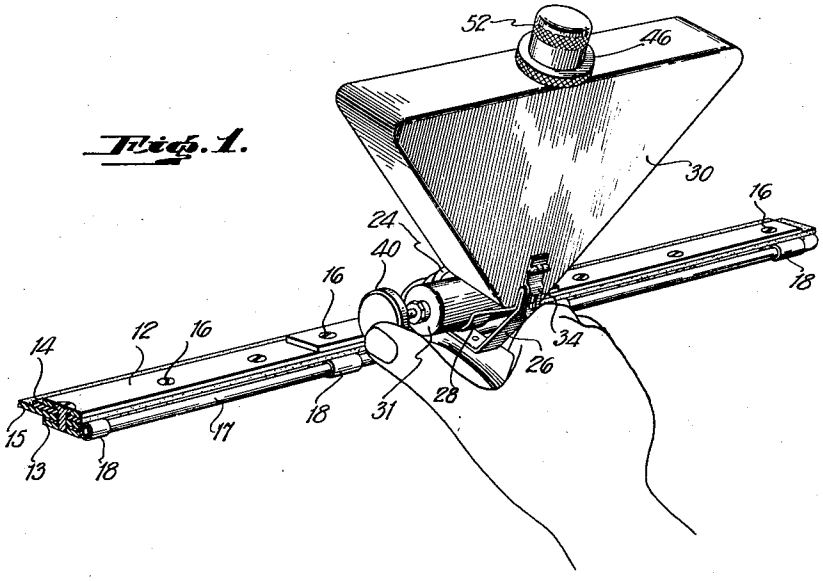


Fig. 2.

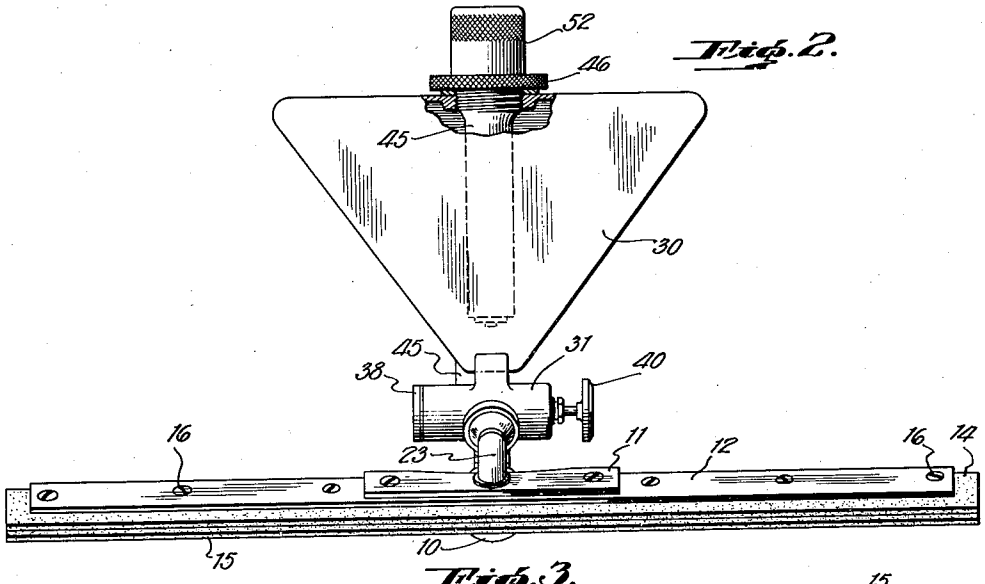
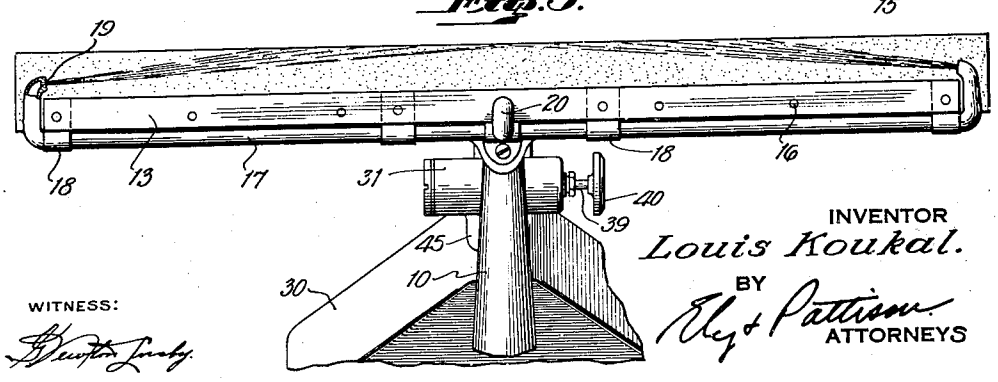


Fig. 3.



INVENTOR
Louis Koukal.
BY
Fleg & Pattison
ATTORNEYS

WITNESS:

Oct. 2, 1934. L. KOUKAL 1,975,585

WINDOW GLASS CLEANING IMPLEMENT

Filed Sept. 11, 1933 2 Sheets-Sheet 2

Fig. 4.

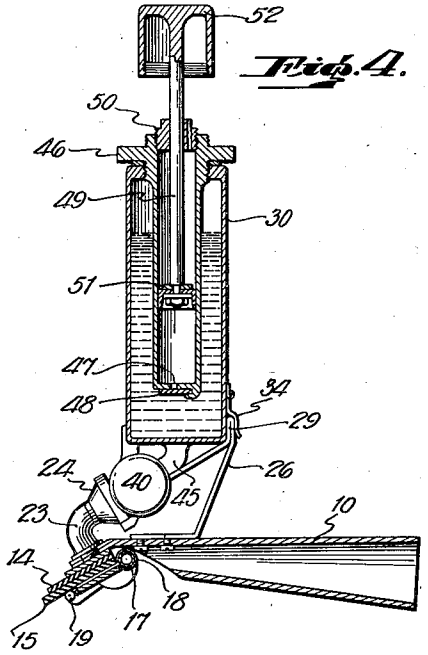


Fig. 5.

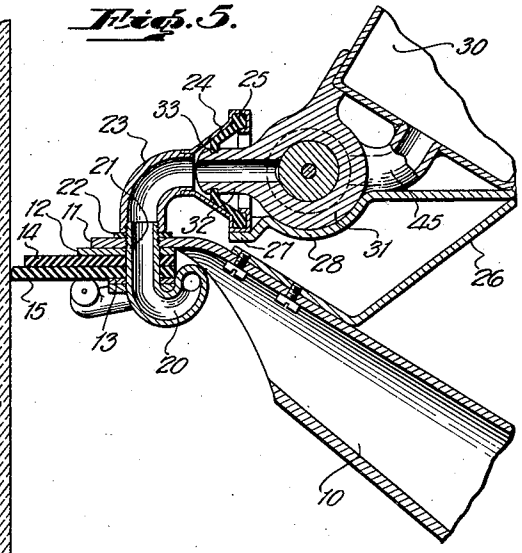


Fig. 6.

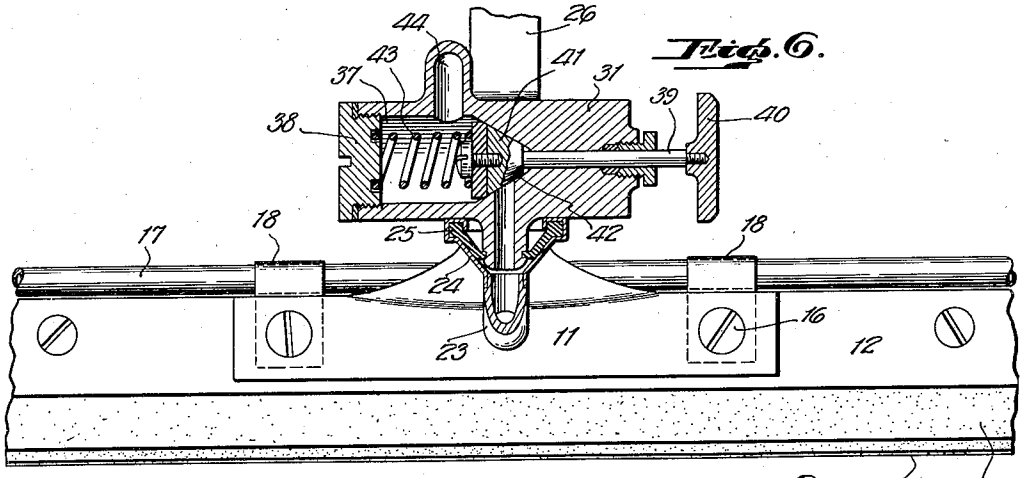


Fig. 7.

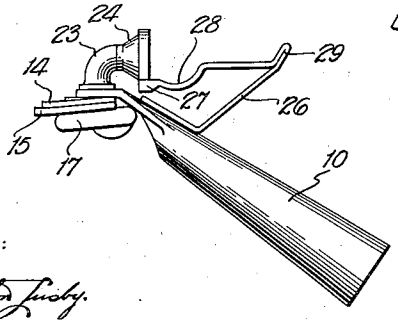
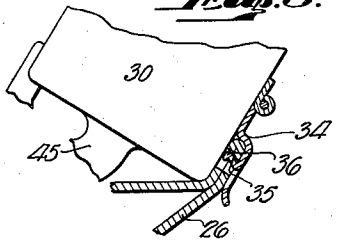


Fig. 8.



WITNESS:

INVENTOR

Louis Koukal.

BY

Ely & Pattison

ATTORNEYS

Patented Oct. 2, 1934 1,975,585

UNITED STATES PATENT OFFICE

1,975,585

WINDOW GLASS CLEANING IMPLEMENT

Louis Koukal, New York, N. Y.

Application September 11, 1933, Serial No. 688,943

9 Claims. (Cl. 15—126)

This invention relates to improvements in window glass cleaning implements.

The primary object of the invention resides in a hand cleaning implement of the squeegee type by which water may be applied to the surface of the glass to be cleaned to loosen any dirt thereon, and the moistened surface wiped dry and clean, all by the use of the single implement.

Another feature of the invention is the provision of a squeegee having a water tank mounted thereon, and valve means operable by the thumb of the hand grasping the handle of the implement to control the flow of water to the wiping blade, thus requiring but a single hand to operate and eliminating the usual practice of first moistening the surface to be cleaned with a damp cloth or sponge and then wiping the same dry with a squeegee blade.

A further object aims to provide a window glass cleaning implement in which the water for moistening the surface to be cleaned is discharged under air pressure to extend the length of the applicator or scraping blade, whereby a surface within the length of the blade may be moistened during the moistening or wiping operation.

A further object is to provide a moistening and cleaning implement in which the water supply tank is so positioned as to properly balance the implement to avoid undue tiring of the hand when held therein by an operator during use.

A still further object is the provision of a cleaning implement having the above features wherein the water supply tank is removably associated with the squeegee element to facilitate removal of the same for packing and storing purposes, or for occasional filling of the tank and cleaning of the parts when necessary.

A still further object of the invention aims to provide a window glass cleaning implement embodying the above features which is simple and inexpensive of construction, easy to manipulate when in use, and quick and efficient of operation.

With these and other objects in view, the invention resides in the certain novel construction, combination and arrangement of parts, the essential features of which are hereinafter fully described, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of the invention with parts of the wiping blade in cross section and illustrating the manner in which the device is held for use.

Figure 2 is a front elevational view with part of the water tank broken away and shown in section.

Figure 3 is a fragmentary bottom plan view.

Figure 4 is a vertical transverse sectional view.

Figure 5 is an enlarged transverse sectional view.

Figure 6 is a horizontal sectional view through the valve structure.

Figure 7 is a side elevational view of the device with the water tank removed.

Figure 8 is an enlarged detail sectional elevational view illustrating the manner in which the water tank is removably clamped in position.

Referring to the drawings by reference characters, the numeral 10 designates a relatively short tubular handle, one end of which is provided with a transversely and angularly disposed attaching plate 11 to which the squeegee blade now to be described is fixedly attached. The squeegee blade comprises a pair of spaced metal plates 12 and 13, the attaching plate 11 of the handle overlying the plate 12, and which plate 12 is of a width greater than the width of the plate 13. Interposed between the plates 12 and 13 are rubber wiping strips 14 and 15, the wiping edge of the strip 15 extending beyond the adjacent edge of the strip 14, and the strip 14 is constructed of a rubber slightly stiffer than the flexibility of the rubber strip 15. The wiping strips and plates 12, 13, and 11, are all secured together by screws 16.

Extending lengthwise of the squeegee element is a pipe or tube 17, the same being secured along the back edge of the squeegee element by hangers or clips 18, the said hangers being clamped between the plate 13, and the wiping strip 15. The ends of the pipe 17 are bent angularly and are disposed beneath the underside of the squeegee element as best seen in Figure 3, the ends of the pipe having a restricted spray opening 19 directed inwardly and forwardly as shown in the above mentioned figures. A branch pipe 20 connects with the pipe 17 midway between its ends, and which branch pipe is bent into substantially U-shape configuration as shown in Figure 5 to provide a nipple 21 which passes transversely through the squeegee member and through the plate 11, while a nut 22 is threaded to the extreme threaded end of the branch pipe 20 and clamped against the plate 11. Also threaded to the extreme end of the branch pipe 20 is an elbow 23 which curves in a rearward direction and terminates in an enlarged conical shaped mouth 24 in which a rubber coupling gasket 25 is mounted. The parts 24 and 25 are similar to the

construction of a faucet adapter and act to provide a water tight coupling between the elbow 23 and a source of water supply now to be described.

Fixedly secured to the handle 10 is a water tank support 26 bent from a single piece of metal to provide a lip 27 at the extreme free end thereof which engages beneath the funnel shaped mouth 24, while a concaved seat 28 is formed adjacent the lip 27. The supporting saddle 26 also is formed with an angularly disposed flange or finger 29. The saddle 26 removably supports a triangular shaped water supply tank 30, the apex end of the tank constituting the bottom and resting upon the top of the sadde 26 while extending from the bottom of the tank is a cylindrical valve casing 31 which seats in the concaved seat 28. The outlet side of the valve casing 31 is provided with a nipple 32, the outer periphery of which is channeled or grooved as at 33 to receive the flanges or walls of the opening provided in the rubber coupling gasket 25. The tank is locked in position by means of a pivoted catch 34 carried by the rear side wall of the tank and which catch has a resilient finger 35 for engagement with the wall of an opening 36 provided in the finger or flange 29 of the supporting saddle.

The cylindrical valve casing 31 is provided with a chamber 37 which opens through one end of the casing but which is normally closed by a threaded cap 38. Slidably mounted in the opposite end of the casing 31 is a plunger rod 39, the outer end of which carries a manipulating button 40, while the inner end carries a conical shaped valve member 41 for sealing engagement with a conical shaped seat 42. A spring 43 is interposed between the cap 38 and the valve member 41 and tends to normally maintain the valve member in seated position. The discharge outlet from the valve chamber 37 enters the chamber through one of the walls of the beveled seat 42, and passes through the outlet nipple 32. The inlet 44 to the valve chamber 37 is offset with respect to the outlet therefrom and is in the form of an elbow 47 welded or fixedly secured to the apex end of the triangular shaped tank 30. Thus it will be seen that by pushing inwardly upon the button 40 against the action of the spring 43, the valve member 41 may be unseated to establish communication between the inlet and outlet sides of the valve casing. The release of the button 40 will permit the spring 43 to return the valve member 41 to closed position, thus shutting off the flow through the valve. By providing a sliding valve and positioning the same as shown in the drawings, the thumb of the hand of an operator grasping the handle 10 may be placed upon the push button 40 to control the actuation of the control valve.

Due to the fact that the tank 30 may be held side wise or inverted during the manipulation of the implement and also that a projected stream is desired from the jets 19, I provide a pump for the purpose of pumping air into the tank to act against the contents thereof to discharge the same under pressure. The pump is in the nature of an ordinary hand operated air pump and includes a cylinder 45, the upper end of which is threaded into the top of the tank 30 so that the lower end of the cylinder extends within the tank. The upper end of the cylinder 45 is provided with a knurled flange 46 to facilitate the screwing and unscrewing of the cylinder to the tank 30 as the cylinder also acts as a closure for the filling opening, and through which opening water or other cleaning fluid is placed into the tank. The lower end of the cylinder 45 is provided with an opening 47 normally closed by a check or flap valve 48. A plunger rod 49 is slidably mounted in a bushing 50 threaded in the outer end of the cylinder 45 and the inner end of the plunger rod carries a plunger head 51 while the outer end carries a manipulating head 52 in the form of a cap which is capable of threading engagement with the upper end of the cylinder 45 when the plunger is moved to the limit of its inward movement. It will thus be seen that by reciprocation of the plunger, atmospheric air may be pumped under pressure into the tank 30, and which pressure acts against the contents of the tank to force the same through the restricted jets 19 when a control valve is in open position. By reason of the shape of the tank 30, the contents of the tank will always tend to flow by gravity to the discharge or outlet provided at the apex end thereof.

The implement just described is used in a manner quite similar to the well known window cleaning squeegee, that is, the same is held in the hand of an operator who grasps the handle 10 as shown in Figure 1 of the drawings, while the wiping edge of the squeegee blade is placed against the surface of the glass to be cleaned. By reason of the wrist movement of the hand of the operator, the flexible wiping strip 15 passes over the surface of the glass to be cleaned, and by the manipulation of the control valve sufficient water may be discharged from the jets 19 along the length of the blade to moisten the surface within the path of the wiping strip. After the surface to be cleaned has been wet or moistened in this way, the valve is shut off and the wiping strip 15 is again passed over the surface to wipe the same clean and dry of any moisture. The use of an implement of this construction will eliminate the present practice of first moistening the surface to be cleaned with a rag or sponge, and then wiping the same dry by the use of an ordinary window squeegee. Thus considerable time and labor will be saved by the use of this improved implement. In cases where the surface to be cleaned is not too dirty, the one operation will suffice for moistening and cleaning the same, that is, the surface will be wet and moistened and immediately dried by the wiping strip.

It is unnecessary to detach the tank from the squeegee element when desired to fill the tank, but by removably connecting the two parts together, the same may be separated for cleaning and for convenience in packing and storing.

While I have shown and described what I deem to be the most desirable embodiment of my invention, I wish it to be understood that such changes as come within the scope of the appended claims may be resorted to if desired.

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

1. A window cleaning implement comprising a wiping blade having a handle extending therefrom, a water supply tank supported thereby, pipe means for conveying water from said water supply tank and directing it inwardly from opposite ends of said blade, and valve means for regulating the flow of water through said pipe means.

2. A window cleaning implement comprising a wiping blade having a handle extending therefrom, a water supply tank supported thereby, pipe means for conveying water from said water

supply tank and directing it inwardly from opposite ends of said blade, pump means within said tank for pumping air under pressure thereinto, and valve means for regulating the flow of water through said pipe means.

3. A window cleaning implement comprising a wiping element having a handle, a water supply tank having an outlet, means for removably supporting said tank upon said handle, a water supply pipe having its discharge ends extending inwardly at opposite ends and at one side of said wiping element, and a coupling between said outlet and said water supply pipe and valve means manually operable by the thumb of an operator while grasping said handle for regulating the flow of water from said water supply tank.

4. A window cleaning implement comprising an elongated wiping element, a rigid handle connected thereto, a water supply tank mounted on said handle having an outlet, a water supply pipe extending lengthwise of said wiping element and having its ends turned inwardly toward each other on one side of said wiping element, and coupling means between the outlet of said tank and said pipe for establishing communication therebetween.

5. A window cleaning implement comprising an elongated wiping element, a rigid handle connected thereto, a water supply tank mounted on said handle having an outlet, a water supply pipe extending lengthwise of said wiping element and having its ends turned inwardly toward each other on one side of said wiping element, coupling means between the outlet of said tank and said pipe for establishing communication therebetween, and valve means for manually controlling the flow of water from said tank to said pipe.

6. In a window cleaning implement of the character described, an elongated wiping element, and means for directing streams of water inwardly toward each other from opposite ends and from one side of said wiping element.

7. A window cleaning implement comprising in combination, an elongated wiping element having a handle extending therefrom, a water supply tank having an outlet, a water supply pipe extending lengthwise of said wiping element and having its ends turned inwardly toward each other and disposed on one side of said wiping element, and coupling means between the outlet of said tank and said pipe for establishing communication therebetween.

8. In a window cleaning implement, an elongated wiping element, and water jets supported by and facing inwardly at opposite ends of said wiping element and disposed on one side thereof.

9. In a window cleaning implement, an elongated wiping element, and a water supply pipe extending lengthwise of said wiping element and having its opposite ends open and turned inwardly toward each other and disposed on one side of said wiping element.

LOUIS KOUKAL.