Jan. 4, 1938. L. KOUKAL 2,104,161

WINDOW GLASS CLEANING IMPLEMENT

Filed Dec. 18, 1934 2 Sheets-Sheet 1

FIG. 1.

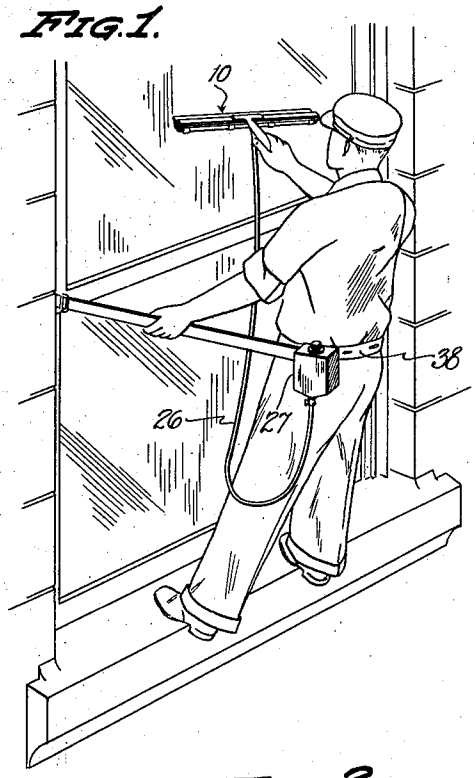


FIG. 2.

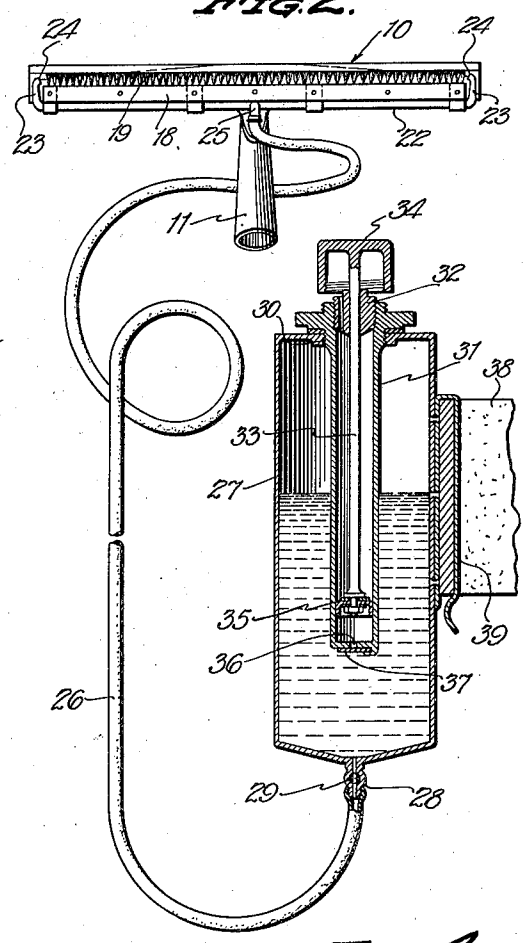


FIG. 3.

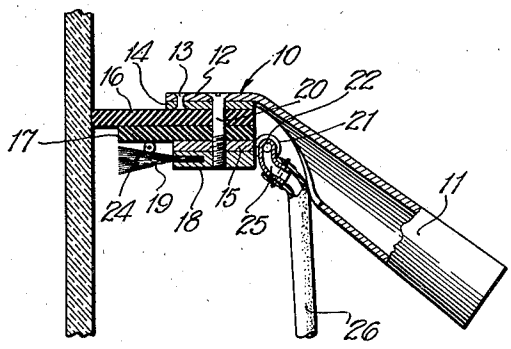


FIG. 4.

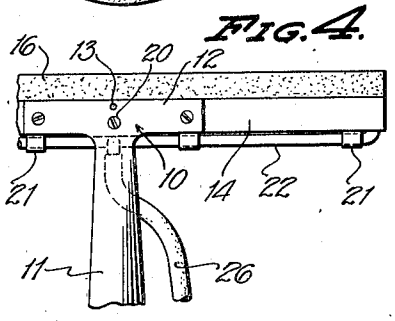
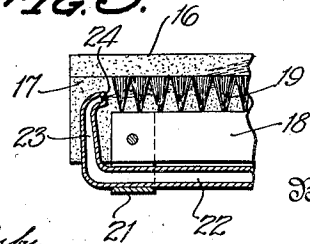


FIG. 5.



Inventor
LOUIS KOUKAL.

WITNESS:
S. Newton Pusby.

By his Attorneys
Ely & Pattison

Jan. 4, 1938. L. KOUKAL 2,104,161

WINDOW GLASS CLEANING IMPLEMENT

Filed Dec. 18, 1934 2 Sheets-Sheet 2

FIG. 6.

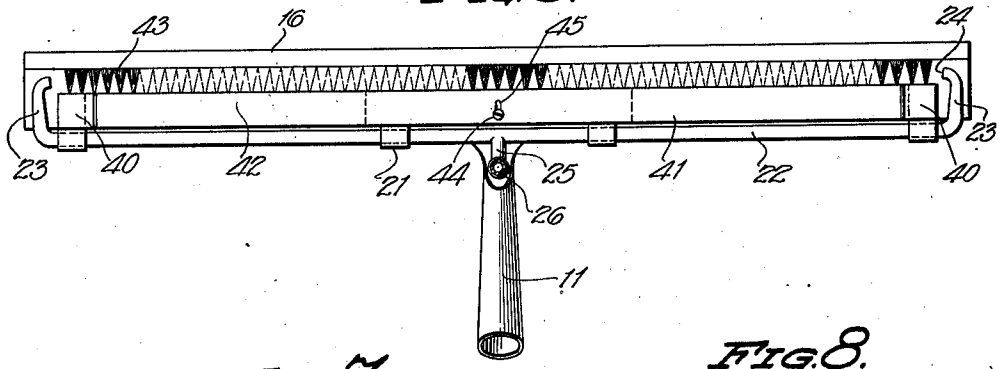


FIG. 7.

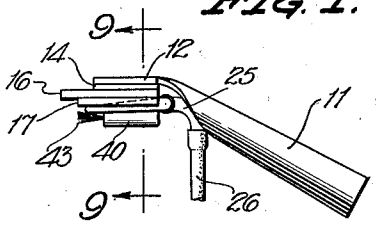


FIG. 8.

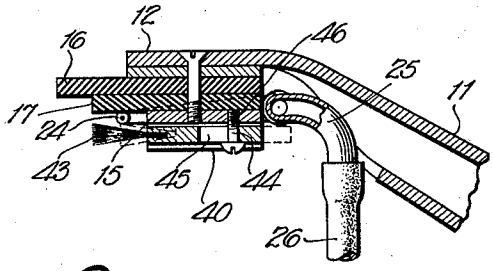


FIG. 9.

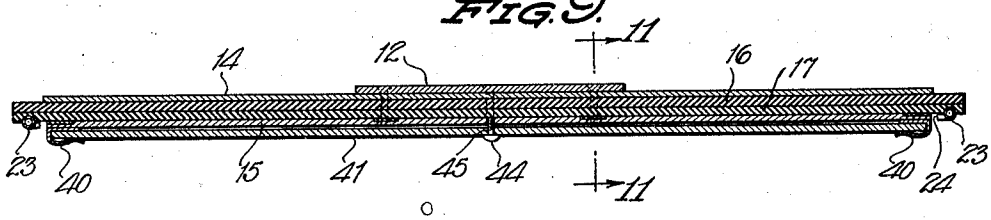


FIG. 10.

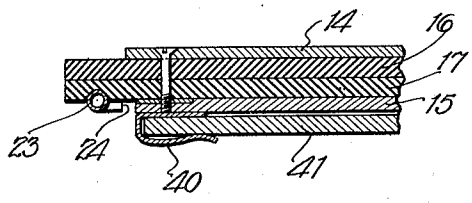
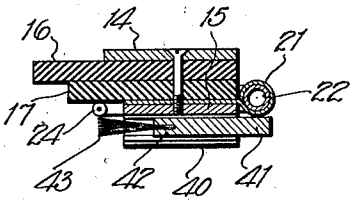


FIG. 11.



Inventor
LOUIS KOUKAL.

WITNESS:
G. Newton Lusby.

By His Attorneys
Ely & Pattison

Patented Jan. 4, 1938 2,104,161

UNITED STATES PATENT OFFICE

2,104,161

WINDOW GLASS CLEANING IMPLEMENT

Louis Koukal, New York, N. Y.

Application December 18, 1934, Serial No. 757,988

4 Claims. (Cl. 15—123)

This invention relates to improvements in window glass cleaning implements and more particularly to the kind set forth in my U. S. Letters Patent No. 1,975,585, dated October 2, 1934.

In my prior patent above referred to, I provided a water tank upon the handle of a squeegee and provided a novel means of feeding water under pressure along the length of the squeegee as needed during use of the same. Although such arrangement of parts produced certain advantages, the capacity of the water supply tank was limited due to tiring effects which would result on the hand of a user if a tank of larger capacity were provided. Furthermore, the weight of the tank and water, and the swishing of the water in the tank during use of the device has a tendency to throw the device off balance when held in the hand of a user. Therefore, one of the main features of the invention is to eliminate the above objections by supporting the water supply tank upon the window cleaner's belt and connecting the same with the fountain squeegee by means of a flexible hose, thus lessening the weight of the squeegee and affording the user of an untiring sweep of the instrument during steady use. thereof.

Another feature of the invention resides in a fountain window cleaning implement in which an elongated brush is mounted in juxtaposition with respect to the rubber squeegee blade and which may be brought into use in conjunction with the squeegee blade by reason of the angular position at which the implement is held in the hand of an operator. Contact of the brush with the glass pane to be cleaned will effect a scrubbing of the surface to be cleaned, after which the trailing edge of the squeegee blade will wipe the surface clear and dry. Any surface dirt is wiped from the glass by the brush to avoid smearing and prevent accumulation of dirt upon the wiping squeegee.

A further object of the invention is to provide a window pane cleaning implement of the above construction in which the scrubbing brush may be moved to an inoperative position in the event that use of the same is not desired in conjunction with the squeegee wiping blade.

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 illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view illustrating the invention in use.

Figure 2 is an elevational view with the water supply tank shown in section.

Figure 3 is a vertical transverse sectional view through the window cleaning implement with the squeegee blade in contact with a glass surface to be cleaned.

Figure 4 is a fragmentary top plan view.

Figure 5 is a fragmentary horizontal sectional view taken on the plane of the water supply pipe and looking upward.

Figure 6 is a bottom plan view of a modified form of my invention.

Figure 7 is an end elevational view thereof.

Figure 8 is an enlarged vertical transverse sectional view.

Figure 9 is a vertical longitudinal sectional view on the line 9—9 of Figure 7.

Figure 10 is an enlarged detail vertical longitudinal sectional view through one end of the instrument.

Figure 11 is an enlarged vertical transverse sectional view on the line 11—11 of Figure 9.

Referring to the drawings by reference characters, the numeral 10 designates my improved hand cleaning implement in its entirety, and which includes a hand-grip 11, one end of which is formed with a flat attaching plate 12, the same extending transversely of the handle 11. Riveted as at 13 to the under side of the plate 12 is an elongated clamping head or plate 14 and cooperating with the fixed clamping plate 14 is a removable elongated clamping plate 15 of a length equal to the length of the plate 14. Held clamped between the plates 14 and 15 are rubber strips 16 and 17, both strips being of a width greater than the plates 14 and 15 but the strip 16 being wider than the strip 17 so that the working edge of the strip 16 overhangs the working edge of the strip 17 as clearly shown in Figure 3 of the drawings.

Fitting against the under side of the plate 15 is the rigid brush back 18 of a brush 19, the bristles of the brush 19 terminating on a plane substantially even with the working edge of the flexible rubber strip 17. The brush 19 extends the length of the plate 18 as shown in Figure 2 of the drawings.

The rubber strips 16 and 17 and the brush 19 are secured together by screws or other like fastening elements 20, the threaded ends of the screws having screwing engagement with the plate 18 and removable brush 19.

Clamped between the rubber strip 17 and the

clamping plate 15 at spaced distances along the length thereof are supporting eyes or hangers 21, the eye portion extending outwardly beyond the rear edges of the strip 17 and plate 18 for supporting a water supply pipe 22. The pipe 22 extends the length of the brush and the clamping plate and has its ends bent inwardly as at 23 and which ends terminate in jets or nozzles 24 which are intended to direct streams toward opposite ends of the instrument, as illustrated in dot and dash lines in Figure 2 of the drawings. The jets 24 terminate on a plane intermediate the bristles of the brush 19 and the rubber strip 17 as best seen in Figure 3 of the drawings whereby to supply water or moisture to the brush and toward the working surfaces of the rubber squeegee strips 16 and 17.

The water supply pipe 22 centrally thereof is provided with an attaching nipple 25 to which one end of a length of flexible hose or tubing 26 is fixedly connected, the other end of the hose or tubing being connected in a manner now to be explained.

For the purpose of supplying water to the instrument 10, I provide a water supply tank 27, the bottom wall of which is provided with a nipple 28 in which a control valve 29 is provided, the hose or tubing 26 being joined to the nipple 28 as illustrated in Figure 2. The top of the tank 27 is provided with a filling opening 30 which is closed by a cylinder 31 which threads into the opening 30 and which depends into the tank 27. The top end of the cylinder 31 is closed by a screw plug 32 and slidably mounted in the plug 32 is a plunger rod 33, the outer end of which is provided with a manipulating knob 34, while the inner end of the rod 33 carries a plunger head or piston 35. The inner end of the cylinder 31 terminates short of the bottom of the tank 27 and is provided with an opening 36 normally closed by a flap type check valve 37. The purpose of the plunger is to enable air to be pumped into the tank 27 above the level of liquid contained therein for building a pressure upon the liquid sufficient to force the liquid contents of the tank to flow through the hose 26 to the instrument 10. The water supply tank 27 is adapted to be supported upon the safety belt 38 of a window cleaner as illustrated in Figure 1 and for the purpose of supporting the tank, I provide a spring clip 39 upon one side of the tank, the open end of the clip facing downwardly to enable the clip to be snapped over the top edge of the belt as shown in Figure 2.

In Figure 1 of the drawings, the device is shown in use, and it will be noted that the operator may grasp the handle 11 of the instrument 10 in one hand and with the other hand, control the flow of water from the tank to the instrument 10 by manipulating the valve 29 with his other hand. If the window glass to be cleaned happens to be exceptionally dirty, the surface dirt may be washed therefrom by bringing the bristles of the brush 19 and the free working edge of the squeegee strips 16 and 17 into contact with the surface to be cleaned. The bristles of the brush and squeegee strips are brought into working engagement with the surface by holding the handle 11 at a particular angle and slightly flexing the squeegee strip 16, and by changing the angularity and pressure, the working surface of the squeegee strip 16 alone may be brought into working contact with the glass. Thus any moisture within the path of the wiping blade may be wiped free of the glass in the manner of an ordinary squeegee. It will of course be understood that after the surface of the glass has once been moistened, the valve 29 may be shut off and also that as the pressure within the tank 27 becomes lowered, the same may be increased by the reason of the operator grasping the knob 34 and imparting reciprocation thereto.

In Figures 6 to 11 inclusive, I have illustrated a slightly modified form wherein the cleaning brush is adjustably supported to enable movement of the same to operative and inoperative positions. In this form, I provide U-shaped clips or channels 40 at opposite ends of the clamping plate 15, the said clips or channels being fixedly secured to the clamping plate and the open mouth ends of the clips facing inwardly. These clips slidably receive the brush back 41 of an elongated brush 42, the bristles being designated at 43. The opposite ends of the brush back 41 are respectively received in the clips 40 and the friction between the clips and the brush back is sufficient to prevent shifting movement of the brush but in order to assure the holding of the brush in an adjusted position, I provide a clamping screw 44 which passes through an elongated slot 45 extending transversely of the brush back 41 centrally thereof, the said screw having threading engagement in a threaded hole 46 provided in the clamping plate 15. By reference to Figure 8 it will be noted that by tightening up upon the screw 44, the brush 42 may be held against sliding movement. This construction permits movement of the bristle side of the brush to be moved clear of the plane of the working surfaces of the rubber squeegee strips 16 and 17 to prevent any possible smearing contact of the bristles of the brush with the surface to be cleaned in cases where practically no surface dirt is present.

While I have shown and described what I consider to be the most practical embodiment of my invention, I wish it to be understood that such other 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. In a surface washing implement, in combination, a hand squeegee having a flexible wiping blade, an elongated brush mounted at one side of said wiping blade in spaced relation thereto with its bristle ends disposed inwardly of the plane of the wiping edge thereof, whereby flexing of said wiping blade against a surface to be washed will cause said brush to simultaneously engage such surface, and means for supplying a washing fluid between said wiping blade and brush.

2. In a window cleaning implement, in combination, a hand squeegee having an elongated head, a handle extending angularly from said head, and a flexible wiping blade carried by said head, a brush mounted on said head parallel to and in spaced relation to the inner side of said wiping blade, the bristles of said brush being disposed inwardly of the plane of the wiping edge of said wiping blade so that the wiping blade trails said brush during use of the implement with both said brush and wiping blade in simultaneous contact with the surface being cleaned, and means for supplying predetermined quantities of cleaning fluid between said brush and wiping blade and which fluid is confined therebetween when the implement is in use.

3. In a hand window cleaning implement, in combination, an elongated head having a handle

extending angularly therefrom, spring clips at opposite ends of said head, and a brush having its ends engaged by said spring clips for supporting said brush parallel to said elongated head.

4. In a window cleaning implement, in combination, an elongated head having a handle extending angularly therefrom, an elongated brush, means at opposite ends of said elongated head for slidably supporting said brush for adjustable movement laterally thereof, and fastening means for securing said brush in an adjusted position against movement.

LOUIS KOUKAL.