

Nov. 11, 1958

J. HIRSCH

2,859,463

WINDOW CLEANING IMPLEMENT

Filed Feb. 13, 1956

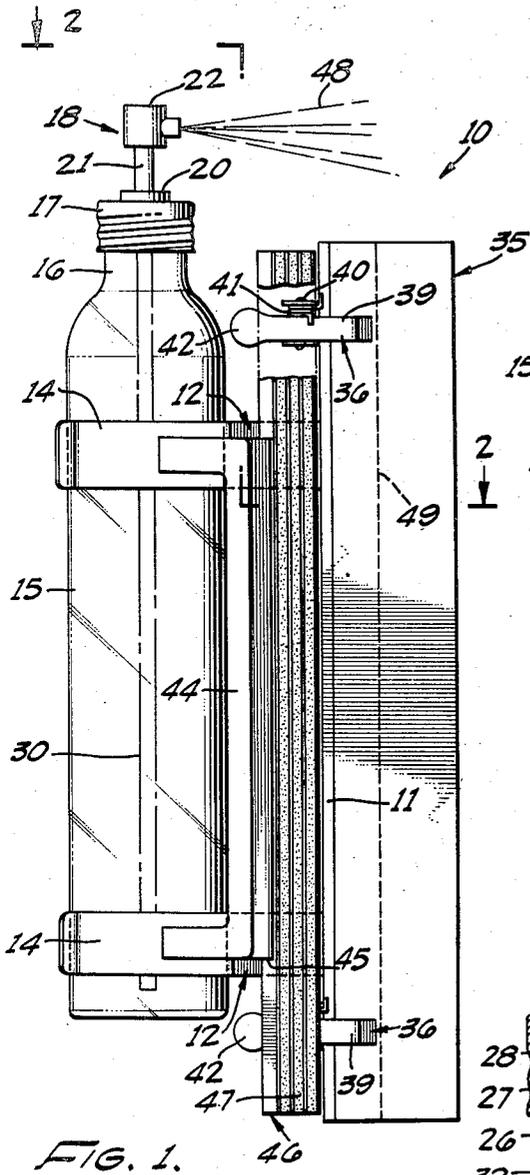


FIG. 1.

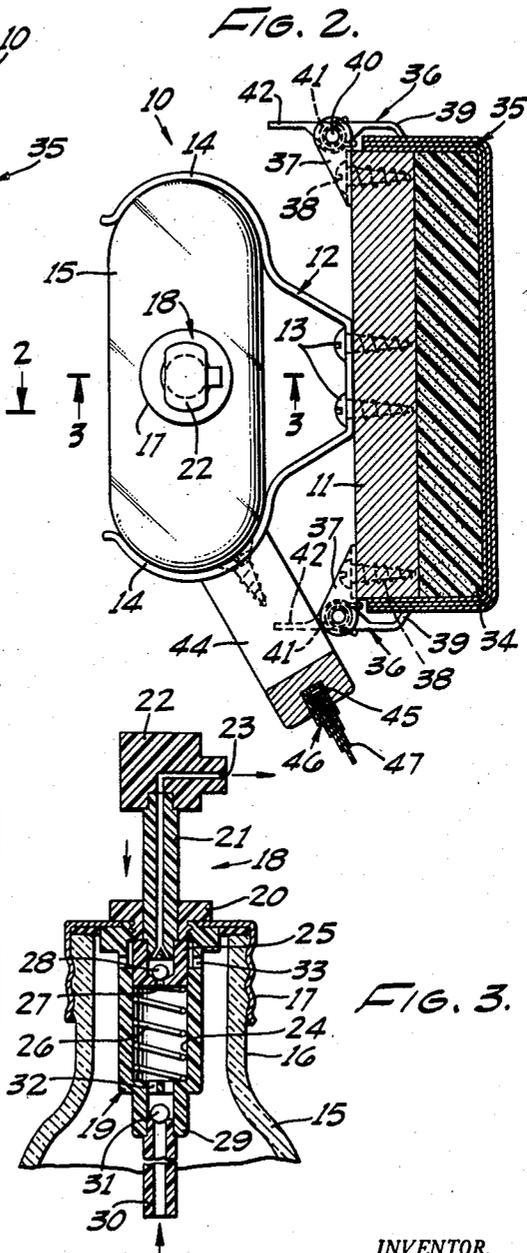


FIG. 2.

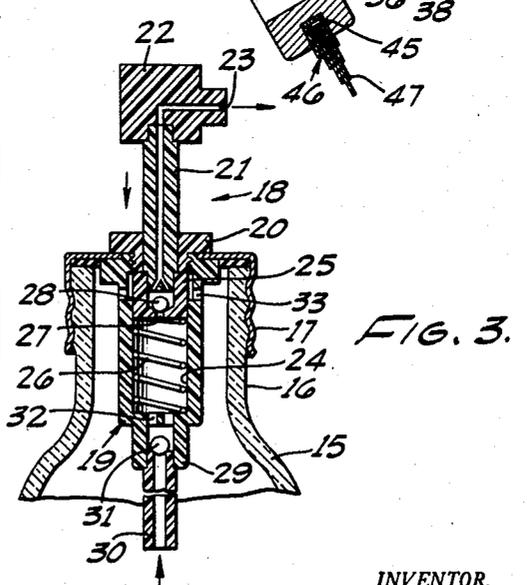


FIG. 3.

INVENTOR.
JOSEPH HIRSCH
BY *[Signature]*
ATTORNEY

1

2,859,463

WINDOW CLEANING IMPLEMENT

Joseph Hirsch, Pacific Palisades, Calif.

Application February 13, 1956, Serial No. 565,096

6 Claims. (Cl. 15—126)

This invention relates to glass cleaning implements and more particularly to a liquid dispensing device in combination with several glass cleaning and polishing devices which can be employed selectively to perform all operations essential to thorough glass cleaning.

Self-contained window cleaning devices have been proposed heretofore but these are subject to certain disadvantages which are circumvented by the present invention. For example, certain of these prior devices dispense a dirt solvent into a sponge-like cleaning pad with the object of spreading the solvent and thereafter removing the loosened dirt film. Usually the user cannot observe the quantity of solvent being dispensed nor the glass area actually supplied with solvent. Additionally, the sponge pad is likely to become saturated with the solvent before the user can observe this undesirable condition rendering the sponge ineffective for wiping purposes and requiring the use of a separate polishing cloth. And of particular significance is the fact that it is quite impractical to spread the solvent and remove the dirt with the same pad.

Other prior devices require the use of a liquid container supported independently of the cleaner device, for example, from the belt, or the clothing of the user, or on the floor near the window being cleaned, and connected by a hose with the cleaning device. While this arrangement has certain advantages, it is subject to the definite disadvantages attending the use of a flexible hose and the support of the liquid container on the person of the user.

Additionally, in units in which the fluid is at a distance from the cleaner device and is connected to it by a hose the problem of moving the fluid through the hose, sometimes lifting it, is also present.

The present invention seeks to obviate the numerous disadvantages of prior devices by providing a unitary assembly adapted to be carried in the user's hand and comprising means for performing selectively a plurality of window cleaning functions in an easy and highly efficient manner.

Accordingly, it is a primary object of this invention to provide a self-contained glass cleaning implement adapted to be carried and manipulated by one hand to dispense a dirt-loosening agent, or to remove the agent and dirt simultaneously from a glass, or to polish the cleaned glass.

Still another object of the invention is to provide a glass cleaning implement having a supply of a chemical cleaning agent within its handle, a plurality of cleaning devices detachably supported along the sides of the handle, and means for directing a readily-viewed spray of the agent onto a glass surface being cleaned.

Yet another object of the invention is to provide a multiple-function self-contained glass cleaning implement adapted to be carried in the user's hand in which the parts are so arranged as to make it readily manipulatable to dispense a liquid solvent, remove loosened dirt, and polish the glass being cleaned in a continuous operation.

A further object of the invention is to provide a new and improved window cleaning implement having a common support detachably holding in place thereon a liquid solvent dispenser, a pad of individually removable wiping tissues, and a squeegee, the several parts being so arranged that each can be used selectively without relaxing the grasp of a common supporting handle.

These and other more specific objects will appear upon reading the following specification and claims and upon

2

considering in connection therewith the attached drawing to which they relate.

Referring now to the drawing in which a preferred embodiment of the invention is illustrated:

5 Figure 1 is a side view of the glass cleaning implement showing the dispensing plunger depressed to discharge a spray of the cleaning solvent toward the working surface;

10 Figure 2 is a cross-sectional view on the broken line 2—2 of Figure 1; and

15 Figure 3 is a fragmentary sectional view on line 3—3 of Figure 2.

Again referring to the drawing, it will be seen that the glass cleaning implement constituting the present invention, generally designated 10 includes a rectangularly-shaped base member 11 to the rear face of which a spaced pair of stiff spring clips 12, 12 are rigidly secured as by screws 13. The side legs of each clip 12 are biased toward each other and their outer ends 14 are shaped to embrace and firmly clasp the opposite sides of a liquid container such as a glass bottle 15. The latter has a threaded filling neck 16 closed by a cap 17 supporting an atomizing-type liquid dispenser, generally designated 18. Dispenser 18 includes a barrel 19 held assembled to a central opening in cap 17 by a bushing 20. Reciprocally supported within bushing 20 is a hollow plunger member 21 having a head 22, the latter being provided with a small bore 23 communicating at one end with the passage in plunger 21 and discharging laterally of the container across the end of base 11. Slidably supported within the bore 24 of barrel 19 is a hollow piston 25 rigidly attached to the lower end of tube 21 and urged outwardly by a compression spring 26. The small opening 27 through the end of piston 25 is normally closed by ball valve 28 held captive between opening 27 and the oppositely spaced end of plunger tube 21. Connected to the end of a hollow boss 29 projecting from the inner end of barrel 19 is an intake tube 30 terminating closely adjacent the bottom of container 15. A second ball valve 31 is normally seated against the end of the bore in tube 30 and is held captive within boss 29 by tube 30 and the perforated end wall 32 of barrel 19. The outer end of barrel 19 is also provided with one or more radial ports 33 to permit liquid flowing past piston 25 to return to container 15.

45 Secured to the front face of base 11 is a resilient pad 34 of sponge rubber or synthetic elastomer providing a resilient backing for a pad 35 formed of a plurality of sheets of soft wiping tissues secured together along one of their longitudinal edges and preferably provided with perforations 49 to facilitate the removal of a soiled tissue sheet. Thus, pad 35 will be understood to comprise multiple layers of soft liquid-absorbent material covering the exposed bottom and side faces of resilient pad 34 and held firmly clamped thereagainst by pairs of spring clip devices 50 36 in the manner best illustrated in Figures 1 and 2. These clips may be of any suitable type, those illustrated having a supporting bracket 37 secured to base 11 by a screw 38. The movable clip finger 39 pivots about a pin 40 and is urged into clamping position against the pad 35 by a spring 41. A new pad can be inserted upon pressing against ends 42 of the fingers in a direction to pivot them from the sides of base 11. With the fingers so displaced the new pad can be positioned and is clamped in place upon the release of the fingers.

55 Suitably supported from the legs of clips 12 adjacent one side edge of base 11 is a U-shaped bracket 44 having a channel 45 extending along its outer edge, which is positioned beyond the side of base 11, and which firmly seats a squeegee 46. Squeegee 46 may be of any well known type, that here shown comprising multiple parallel rubber strips 47 secured in a mounting channel and having their exterior longitudinal edges arranged in echelon. The resilient wiping strips 47 are preferably spaced well

back of the plane of the cleaning surface of tissue pad 35 in a position such that the user can, by properly tilting the unit, selectively bring either the pad or the squeegee into contact with a glass surface being cleaned.

Container 15 may be filled with any suitable liquid useful in loosening dirt and films from the surfaces of glass. For example, the liquid may comprise water, or water mixed with ammonia, soap or any of the various synthetic detergents, as well as any of the various commercial chemical cleaning mixtures adapted to be sprayed and particularly suitable for glass cleaning.

To use the cleaning implement, the user grasps the body of container 15 in the right hand in such manner that the thumb is close to head 22 of the plunger 21 in order that the plunger may be depressed at will to dispense an atomized spray of the cleaning agent against the glass without need for changing the grasp of container 15. Since the spray 48 issuing from the dispensing head 22 is directed across the end of the implement nearest the user's thumb, the area being sprayed is exposed to view and the spray can be distributed over the surface evenly and in proper quantity required for best results. In dispensing the liquid, it will be understood that the user depresses plunger 21 in opposition to spring 26 causing liquid entrapped in barrel 19 to elevate ball valve 28 from its seat and pass upwardly through tube 21 and through the small bore 23 of the atomizing head 22. As the user releases the pressure on head 22, the spring elevates piston 25 to draw by suction a new supply of liquid up tube 30 past valve 31 to refill barrel 19. Any liquid by-passing piston 25 escapes back into the container through ports 33 as the piston moves upwardly. The barrel 19 is in this manner refilled during each upward stroke of piston 25 and the liquid entrapped by the seating of lower check valve 31.

Once the surface to be cleaned has been sprayed with the solvent, the user tilts the implement to apply the edges 47 of squeegee 46 to the glass surface in the manner customary in the use of a squeegee to remove the solvent along with the loosened dirt, the dirt adhering to the squeegee usually being wiped away after each stroke across the glass surface. During the wiping operation, polishing pad 35 is tilted away from the glass surface to the extent necessary to bring the squeegee into its proper operating relationship. After the solvent and loosened dirt have been removed by the squeegee, the glass is finished-cleaned and polished by application of the soft and absorbent tissues of pad 35 as the implement is moved to and fro under slight pressure until all streaks left by the squeegee have been removed and the surface exhibits a high sheen characteristic of clean, polished glass. If the outer cleaning tissue becomes soiled during this operation it may be removed by depressing ends 42 of the clips along one side of the implement to free the outer layer of tissue and permit it to be detached from the opposite side of the pad along perforations 49. A fresh polishing tissue is then exposed. During the polishing operation the resilient pad 34 provides a uniform and soft backing for the tissues which reduces premature failure of the fragile tissues and also serves to bring the tissues into firm contact with the glass despite depressions and uneven conditions in its surface.

It will be understood that container 15 can be of any suitable shape other than that shown, a cylindrical shape being preferred by some users and a concave central section by others. Various other changes in the several parts and their relative dispositions may also be adopted without departing from the principles of this invention. For example, head 22 and plunger tube 21 may be provided with an actuating member extending along the side of the container enabling the user to depress the plunger by finger pressure applied closer to the hand grip area of the container.

While the cleaning implement herein shown and described in detail is fully capable of attaining the objects

and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the preferred embodiment of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

I claim:

1. A self-contained window cleaning implement comprising, a base member having a resilient pad secured to one face thereof, resilient clip means secured to the opposite face of said base, a squeegee-type resilient glass wiping device extending along one longitudinal edge of said base member, said wiping device being spaced outwardly from the edge of said base member and rearwardly from the exterior surface of said resilient pad, a combined implement handle and liquid cleaning agent container detachably supported in said spring clip means and having an axis spaced from said base member, liquid dispensing means supported in one end of said cleaning agent container and manipulatable by the hand while gripping said cleaning implement therewithin, said resilient pad and said wiping device being selectively engageable with a window surface by tilting said device through a small angle about the axis of said handle.

2. A self-contained window cleaning implement as defined in claim 1 including means for securing a plurality of layers of absorbent cleaning tissues across the surface of said resilient pad whereby a soiled tissue may be removed to expose an underlying clean tissue.

3. A self-contained window cleaning implement as defined in claim 1 including a pad of cleaning tissues, and means along opposite edges of said base member for holding said tissues stretched across the surface of said resilient pad.

4. A self-contained window cleaning implement adapted to be supported in the user's hand and readily manipulatable to perform multiple window cleaning operations, said implement comprising, backing means supporting a pad of soft polishing tissues superimposed upon one another and holding said tissues stretched flat, a hollow handle secured to the back side of said backing means for said pad of tissues and adapted to be charged with a liquid dirt solvent, said handle having a filling opening, and a liquid spraying means mounted in said filling opening having a member movable to dispense a spray of liquid from said handle as the implement is gripped in the hand and moved transversely of the glass surface to be cleaned.

5. A self-contained window cleaning implement as defined in claim 4 including backing means for quickly detaching said handle from said backing means for said pad whereby said handle may be replaced by a similar handle charged with a supply of liquid solvent.

6. A self-contained window cleaning implement as defined in claim 4 including a squeegee device supported along one edge of said pad of tissues and in spaced relation thereto, said squeegee having resilient glass-wiping means thereon lying rearwardly of the glass contacting surface of said pad and adapted to contact the glass surface as the implement is tilted.

References Cited in the file of this patent

UNITED STATES PATENTS

1,946,321	Hunter	Feb. 6, 1934
2,147,769	Epstein	Feb. 21, 1939
2,171,721	Bingell	Sept. 5, 1939
2,285,412	Caldwell	June 9, 1942
2,334,796	Steinmetz	Nov. 23, 1943
2,625,700	Baldwin	Jan. 20, 1953
2,702,915	Anderson	Mar. 1, 1955
2,707,292	Lustbader	May 3, 1955
2,722,701	Blum et al.	Nov. 8, 1955
2,741,786	Bressler	Apr. 17, 1956
2,741,789	Ray	Apr. 17, 1956
2,747,209	Johnson	May 29, 1956

FOREIGN PATENTS

17,214	Great Britain	of 1907
--------	---------------	---------