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SELF-CONTAINED WINDOW CLEANING IMPLEMENT

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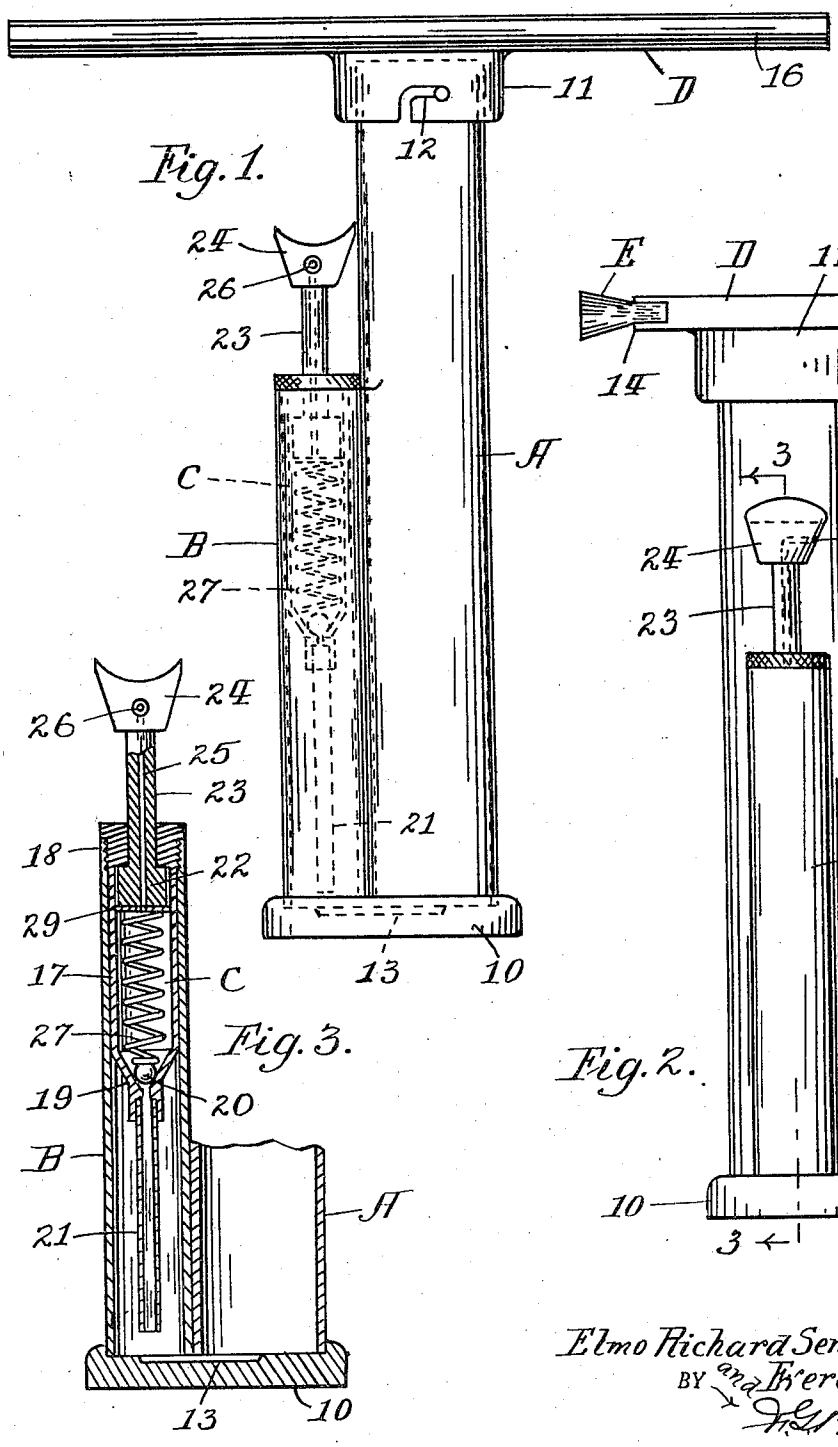


Fig. 1.

Fig. 3.

Fig. 2.

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SELF-CONTAINED WINDOW CLEANING IMPLEMENT

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1 Claim. (Cl. 15—126)

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Our invention relates to improvements in cleaning implements and more particularly to a self-contained cleaning implement assembly of that type which is employed for simultaneously washing, scrubbing and wiping panes of glass and other surfaces. The primary object of our improvement is the production of a hand operative self-contained unit by the use of which window panes and other surfaces can be thoroughly cleaned in a quick and less laborious manner than heretofore and with little or no waste of water or other liquid which is used for cleaning. Among further objects is the production of a device of its kind which assures a more thorough job of cleaning by the use of a minimum amount of water or other cleaning liquid. A still further object is the production of a self-contained article of its kind which is simple and strong in construction and the parts of which can be easily and quickly disassembled for packing and storage or quickly reassembled for use, without the use of tools.

To these ends our invention comprises the features of construction and combination of parts hereinafter described and claimed.

In the accompanying drawing forming part of this specification, Fig. 1 is a side elevation of our improved cleaning implement when the parts are assembled; Fig. 2 is another side elevation taken at right angle to the position from which the view in Fig. 1 is depicted; and Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2.

In the drawing, A is a vertical tubular liquid supply container which acts as a reservoir for holding washing liquid and as a handle for the entire device so that the latter can be easily manipulated by one hand of an operator in use. The lower end of this container is seated permanently in a stability base 10 and its upper end is sealed closed by an adapter 11 which is removably attached by a bayonet lock joint 12. The stability base is of sufficient area to sustain the container A in vertical position on any suitable support whenever desired.

The liquid supply container is provided on its side with an integral vertical pump cylinder B, the lower end of which is seated in the base 10 and connected by the passage 13 with the lower end of said liquid supply container. The pump cylinder has a suitable reciprocable pump unit C, to be hereinafter described, by which washing liquid such as water or any other suitable liquid supplied by the container is sprayed by the operator in the manner hereinafter described upon the surface which is being cleaned by the device.

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The stability base 10 serves to retain the cleaning implement assembly in upright position when placed on any suitable support.

A suitable combined brush and wiper holder D is mounted as an integral part of the adapter 11 on the liquid supply container A. This brush and wiper holder as shown resembles a comparatively thin horizontal rectangular plate having a pair of opposite longitudinal parallel edges 14 and 15. Suitable bristles of a brush E are seated and secured in the edge 14 and the inner edge of a flexible wiper F is seated and secured in the edge 15. The brush may be of any suitable form and composed of any suitable material for scrubbing the surface to be cleaned and the wiper may be of any suitable form and composed of a strip of rubber or any suitable flexible material having a straight edge such as the bead 16 for effectively wiping and thus drying window panes or other surfaces which are cleaned.

The pump by which cleaning liquid supplied by container A is sprayed upon the surface which is being cleaned has an inner cylindrical casing 17, which is inserted and held by a threaded connection 18 in the upper portion of the pump cylinder. The lower end of the inner casing tapers inwardly and downwardly to form a valve seat 19 which is normally closed by the ball check valve 20. The lower extremity of the tapering end below the valve seat is connected downwardly with the lower end of the pump cylinder by the tube 21. A plunger 22 is reciprocably disposed in the upper portion of the cylindrical casing and has a stem 23 of suitable length upon the upper end of which is a finger or thumb engaging actuator 24. The lower end of the plunger is connected by the duct 25 with the pump chamber. This duct extends upwardly through the stem and terminates in an orifice 26 in the side of the actuator 24, through which atomized liquid is sprayed laterally by the pump when the plunger is forced downwardly. The size of duct 25 is small as compared with the size of the passage upwardly through the tube 21 so that when the plunger is reciprocated upwardly liquid is drawn by negative pressure into the pump chamber within the cylindrical casing 17. Also a small amount of air is drawn downwardly through orifice 26 into the pump chamber when the plunger is reciprocated downwardly, which tends to atomize and mix with the liquid and form a spray which is ejected from the orifice when the plunger is depressed. A helical expansion spring 27 which is interposed between the lower end of the plunger 22 and the check valve 20 serves the double func-

tion of tending to retain the check valve 20 closed upon its seat and of returning the plunger to the upper end of its suction stroke automatically. A flexible washer 29 which is retained by the spring 27 on the lower end of the plunger serves to assist in producing a leakproof reciprocable joint between the plunger and wall of the cylindrical casing 17.

In this manner the spray orifice 26 is situated immediately below and in close proximity to the brush and wiper so that as the brush or wiper is reciprocably applied to the surfaces which are being cleaned, cleaning liquid may be sprayed by the manual operation of the pump upon surfaces which are being cleaned. The plunger is freely revoluble in the pump chamber so that the actuator may be directed with its orifice either ahead of the brush or ahead of the wiper while these elements are applied to panes or other surfaces which are being cleaned. The entire device constitutes a self-contained assembly which enables highly effective operation of the device for cleaning window panes and other surfaces wherever and whenever desired. The device is adapted to be charged with cleaning liquid such as water or other fluid by disconnecting the adapter 11 from the tubular supply container A. Disconnection of the combined brush and wiper holder D enables the device to be conveniently disassembled and stored in a minimum of space until used. The plunger is freely revoluble in the pump chamber so that the actuator may be directed with its orifice either ahead of the brush or ahead of the wiper as desired while these elements are applied to panes or other surfaces which are being cleaned.

In accordance with the patent statutes, we have described the principles of operation of our invention together with the construction thereof which we now consider to represent the best embodiment thereof, but we desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the spirit thereof and within the scope of the following claim.

We claim:

In a self-contained cleaning implement, having a reservoir, a cleaning element fixed on said reservoir, a pumping element connected with said reservoir having a tubular plunger and a manually engageable actuator, said actuator having an orifice connected with said plunger in close proximity to said cleaning element and said plunger being freely rotatable in said pumping element to permit directing a spray from said orifice on a surface to which the cleaning element is simultaneously applied.

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