

J. J. PETERSON.
WINDOW CLEANING DEVICE.

APPLICATION FILED OCT. 17, 1919. RENEWED OCT. 1, 1920.

1,383,018.

Patented June 28, 1921.

2 SHEETS—SHEET 1.

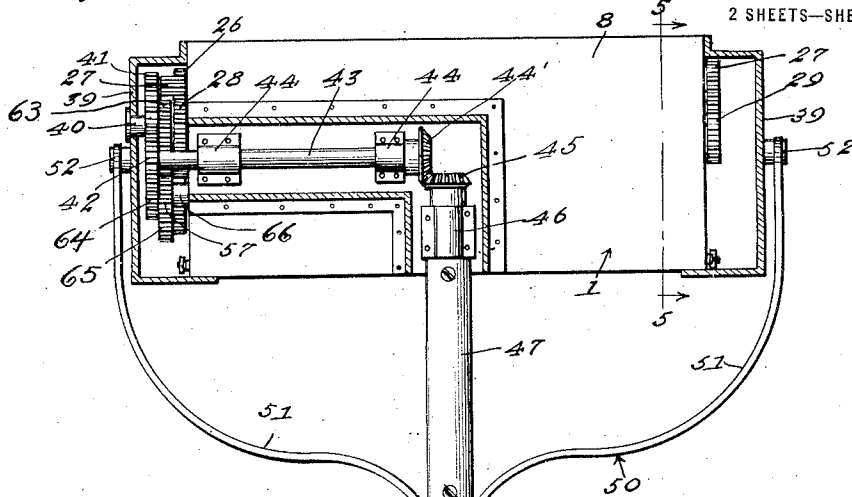


Fig. 1.

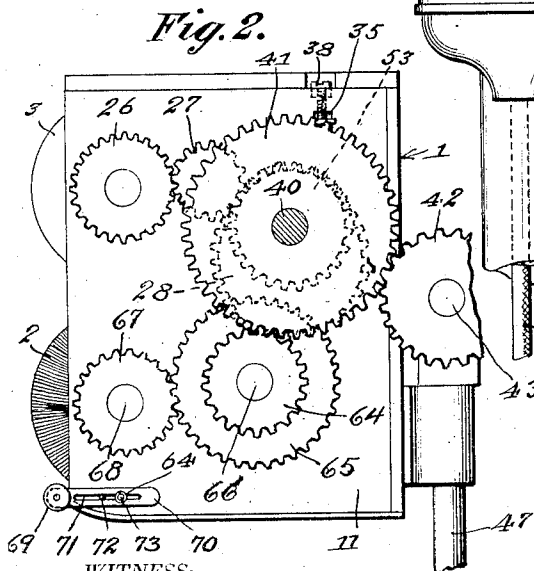


Fig. 2.

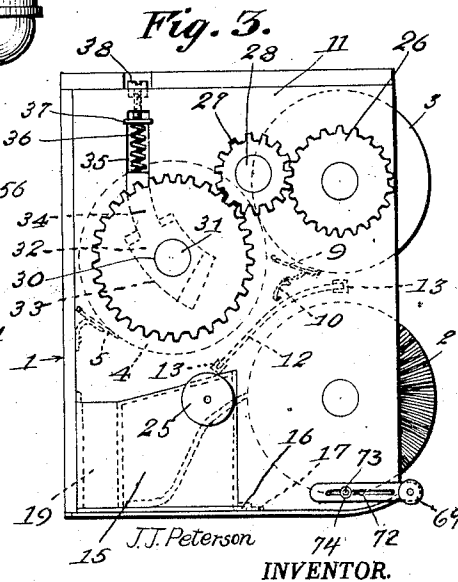


Fig. 3.

WITNESS:

R. G. Thomas

BY

Victor J. Evans
ATTORNEY.

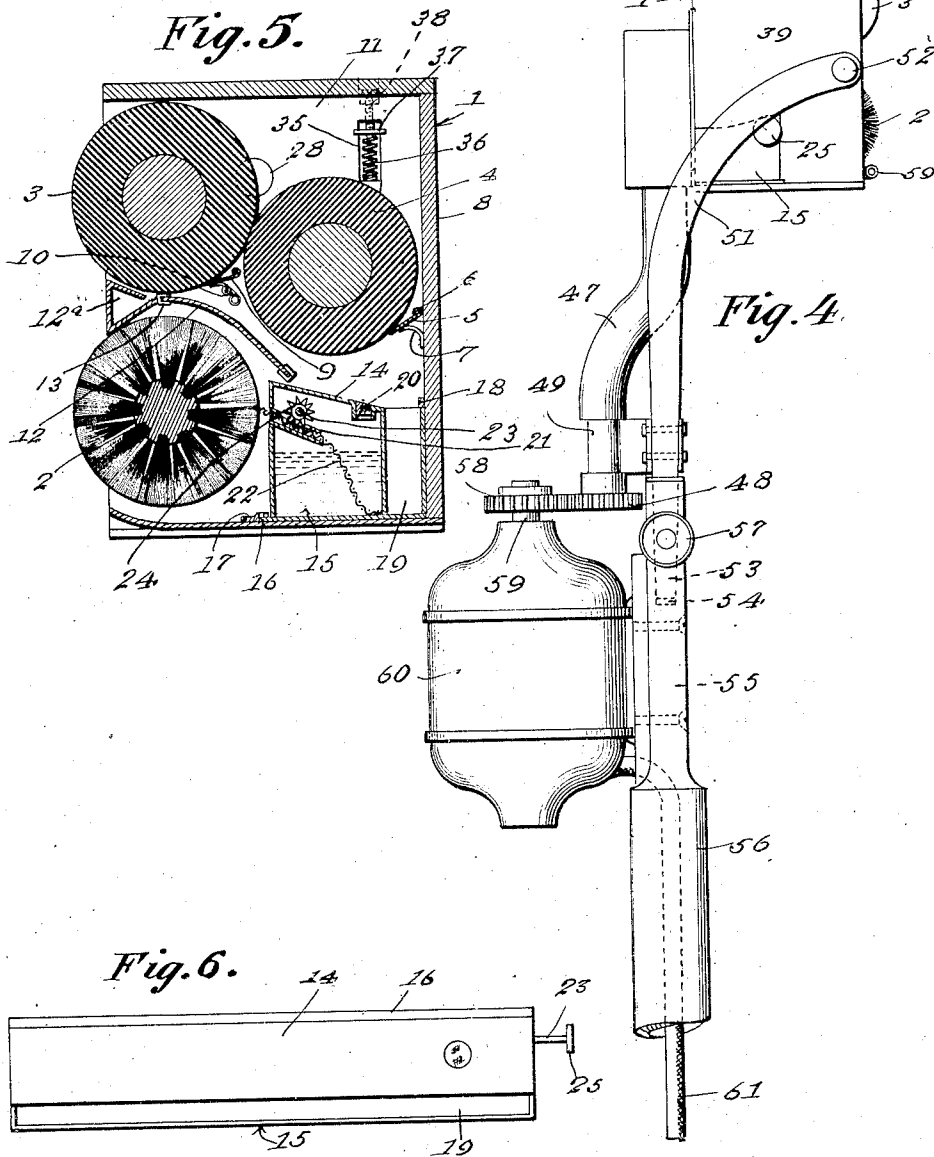
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UNITED STATES PATENT OFFICE.

JOHN J. PETERSON, OF STEUBENVILLE, OHIO.

WINDOW-CLEANING DEVICE.

1,383,018.

Specification of Letters Patent. Patented June 28, 1921.

Application filed October 17, 1919, Serial No. 331,350. Renewed October 1, 1920. Serial No. 414,142.

To all whom it may concern:

Be it known that I, JOHN J. PETERSON, a citizen of the United States, residing at Steubenville, in the county of Jefferson and State of Ohio, have invented new and useful Improvements in Window-Cleaning Devices, of which the following is a specification.

This invention relates to cleaning devices, and more particularly to a device specially adapted for cleaning windows and for similar purposes.

One of the main objects of the invention is to provide a power driven device of simple construction and operation by means of which windows may be quickly and easily cleaned. A further object is to provide a device by means of which the window may be effectively washed and dried by a single operation. A further object is to provide a device having a removable head and driving means therefor so constructed that, when the head is in operative position, it is connected to the driving means so as to be operated therefrom. Further objects will appear from the detailed description.

In the drawings:—

Figure 1 is a back view of a cleaning device constructed in accordance with my invention, partly in section.

Fig. 2 is an end view of the head with the gear cover removed.

Fig. 3 is a similar view taken from the opposite end to Fig. 2.

Fig. 4 is a side view.

Fig. 5 is a section taken substantially on line 5—5 of Fig. 1.

Fig. 6 is a detail plan view of the washing solution container and drip receiving pan.

In constructing the cleaner, I provide a substantial rectangular or box like casing designated generally by 1. A brush 2 is rotatably mounted in this casing longitudinally thereof and projects beyond the open front of the casing. This brush is positioned below a drying and polishing roller 3 of rubber or other suitable material which is rotatably supported in the upper portion of the casing and also projects beyond the forward edge thereof. A rubber roller 4 is rotatably supported at the rear of the casing and presses against roller 3 so as to remove moisture therefrom. A sheet metal scraper 5 is pivotally supported at its upper end on a rod 6 and is held in engagement with the roller 4 by leaf springs 7 secured to back

wall 8 of casing 1. A similar scraper 8 is held against roller 3 by wire springs 10 mounted on the inner faces of the ends 11 of the casing. A sheet metal deflector 12 extends longitudinally of the casing between roller 3 and brush 2. This deflector is inclined downwardly and rearwardly of the casing and is supported at each end by substantially U-shaped members 13 projecting inwardly from the ends 11. This deflector serves to receive the moisture removed from roller 3 by scraper 9 and to direct this moisture onto the downwardly and rearwardly inclined top wall 14 of a sheet metal container or tank 15 which extends longitudinally of the casing 1 adjacent the brush 2. This tank is slidable through an opening provided in one end of the casing and has the forward portion of its bottom wall extended to provide a flange 16 which engages beneath an angular guide strip 17 secured to the bottom of the casing. A guide strip 18 is secured to back wall 8 and co-operates with strip 17 to hold the tank in position. The tank is formed with an integral drip pan 19 the top of which is open, which is positioned to receive the moisture removed from the pressure roller 4 by scraper 5. In this manner, the drying and polishing roller 3 is kept free from moisture and this moisture is collected within the pan 19.

The tank 15 is provided with an opening through its top wall 14 which is normally closed by a plug or stopper 20 so as to permit a suitable washing solution to be poured into the tank. The tank is further provided with an opening through its front wall which communicates with a wick tube 21 in which operates a wick 22 of suitable type, this wick being submerged in the solution in the tank and projecting so as to rest against the bristles of the brush 2 and feed the solution thereto by capillarity. The wick is operated in tube 21 by means of a rod 23 and star wheels 24 secured thereon and projecting through slots in the top wall of the tube in the known manner. This rod projects beyond one end of casing 1 and is provided with a finger wheel or grip 25 secured thereon to permit the wick to be adjusted to suit circumstances.

The shaft of roller 3 is reduced at each end and projects through the end 11 of the casing to receive a spur gear 26 secured thereon. This gear meshes with a pinion 27 secured on a stub shaft 28 projecting from

the end of the casing, which pinion meshes with a gear 29 secured on the end of the shaft of roller 14, this shaft being also reduced at each end and extended through the ends 11 of the casing for receiving the gears. The reduced end portion 30 of the shaft 21 of roller 4 is mounted in a block 32 slidable in opening 33 through end wall 11 of the casing, this opening being concentric with pinion 27. The block 32 is provided with a reduced neck 34 slidable in a slot 35 through end wall 11, this slot communicating at its lower end with opening 33. An expansion coil spring 36 is mounted in the upper portion of the slot and is confined between the upper end of the neck 34 and a plate 37 slidable in the slot and forced downwardly therein by a pressure screw 38 threaded through the upper portion of end wall 11. By means of the pressure screws 38 and the parts associated therewith, the roller 4 may be held in tight contact with roller 3 so as to be forced against the same with any desired degree of pressure.

At each end of the casing, I provide a gear housing 39 which is adapted to fit over the gearing so as to effectually protect the same. One of the gear housings carries an inwardly projecting stub shaft 40 upon which is rotatably mounted a spur gear 41 which meshes with a drive pinion 42 secured upon the outer end of a shaft 43 rotatably mounted in bracket 44 secured to the back wall 8 of casing 1. At its inner end, shaft 43 is provided with a bevel gear 44 secured thereon which meshes with a bevel gear 45 rotatably supported by bracket 46 secured to the back of the casing. Bevel gear 45 is connected by a flexible shaft 47 to a spur gear 48 rotatably supported by a bracket 49 secured to a yoke 50 for supporting the casing 1. This yoke is formed of two arcuate elements 51 which are pivotally secured at their upper ends to the gear housings or casings 39, at 52, and are secured together at their lower ends to form a downwardly tapering member 53 which fits snugly into a corresponding socket 54 formed in the upper end of a flattened element 55 of a tubular handle 56 which is preferably, though not necessarily, of sectional construction. The member 53 is releasably secured in socket 54 by a binding screw 57 or in any other suitable manner. When the yoke 50 is thus attached to handle 56, gear 48 meshes with a drive gear 58 secured on the armature shaft 59 of an electric motor 60 of suitable type which is secured to the flattened member 55, a cord 61 being passed through the tubular handle 56 by means of which the motor may be readily connected to a suitable source of supply of electrical energy. By this means, when the head of the cleaning device, composed of the casing 1 and associated parts and the yoke 50, is secured to handle 56

driving connections are established between the motor 60 and shaft 43.

Gear 41 is provided with an inwardly projecting pinion 63 which meshes with pinion 27, it being understood that gear 28 which also meshes with pinion 27 is positioned below or inside of pinion 63, as in Fig. 1. Gear 41 also meshes with a spur pinion 64 which projects from the outer face of a spur gear 65 rotatably mounted on a stub shaft 66 projecting from end 11 of the casing. Gear 65 meshes with a pinion 67 secured upon one end of the shaft 68 of brush 2, the shaft of the brush being reduced at one end and extending through the end of the casing for this purpose.

A spacing roller 69 is provided at each end of the casing 1, this roller being mounted upon the forward end of an arm 70 which is slidably mounted transversely of the casing, this arm being provided with a longitudinally extending slot 71 which receives a pin 72 secured in the end of the casing and a screw 73 spaced relative to the pin and adapted to receive a binding nut 74 by means of which the arm may be secured in longitudinal adjustment. These rollers may be adjusted toward or away from the front of the casing and are adapted to engage the glass of the window for holding the casing in proper spaced relation thereto at its lower edge.

As will be noted more clearly from Fig. 4, the arms 51 of yoke 50 are arched rearwardly so as to provide clearance when washing windows having relatively broad or deep sills or frames.

When using the washing and cleaning device, the head is moved downwardly over the window glass, the brush 2 and roller 3 being rotated. During this movement of the head, brush 2 serves to effectually moisten and wash the surface of the glass, roller 3 serving to remove the moisture from the glass surface so as to dry and polish the same. The moisture which adheres to roller 3, together with particles of dust and other foreign material, is scraped from the roller by means of the scraper 9 and deposited upon the deflector 12. Roller 4 serves to effectually dry roller 3, and the moisture is removed from roller 4 by scraper 5 from which it flows into the drip receiving pan 19 of shank 15, the moisture originally removed from roller 4 being directed by deflector 12 and the inclined top wall 14 of the tank into the drip pan. By this means, a window may be quickly and easily cleaned at a minimum of time and expense.

As will be noted more clearly from Fig. 5, the deflector 12 is bent at its forward portion to provide a supplemental drip receiving pan 12^a positioned between roller 3 and brush 2. This pan is provided with an inwardly directed relative narrow opening to

receive drippings from the deflector. The supplemental drip pan is intended to catch mixture drained from the deflector when the device is used under conditions where it is necessary to tilt the casing 1 at a downward and forward inclination, which often occurs in practice.

While I have illustrated and described the brush 2 as being of a bristle construction, it will be readily understood that this brush can be of rubber or any other suitable construction preferred. Also, it may be found advisable in practice to resort to slight variations in details of construction and arrangement of the different parts of the invention, and I intend to include all such variations, as fall within the scope of the appended claims, in this application in which a preferred form only of my invention is disclosed.

What I claim is:

1. In a window cleaning device, a casing, a brush rotatably mounted therein and projecting beyond the casing, a roller rotatably mounted in the casing above and substantially in the plane of the brush, means for rotating said roller and brush, means for supplying a washing solution to the brush, means in contact with said roller for removing moisture therefrom, a second roller mounted in the casing, means for holding said second roller in contact with the first mentioned roller, and means for removing moisture from the second mentioned roller.

2. In a window cleaning device, a head including a casing, and a yoke supporting the same, window washing and drying means carried by said casing, a gear rotatably mounted on the casing, a gear rotatably mounted on said yoke and operatively connected to the gear on the casing, driving connections between the gear on said casing and said washing and drying means, a handle, a driven gear rotatably mounted thereon, and means for attaching said head to the handle, said driven gear being positioned so as to mesh with the gear carried by the yoke when the head is attached to said handle.

3. In a window washing and cleaning device, a casing, a brush rotatably supported by the casing adjacent the bottom thereof, a roller rotatably supported by the casing above said brush, the roller and brush projecting beyond the front of the casing, means for supplying a washing solution to the brush, means for rotating said roller and the brush, means for removing moisture from the roller, a yoke comprising upwardly diverging arms pivotally secured at their upper ends to the ends of the casing, and spacing rollers adjustably secured to the casing adjacent the bottom thereof and projecting forwardly of the same.

4. In a window cleaning device, a casing, a brush rotatably mounted therein and projecting beyond the casing, a drying roller mounted above and in the plane of said brush, a drip receiving pan mounted in rear of and below the brush, a deflector positioned between said roller and brush for directing moisture into said pan, said deflector being provided at its forward portion with a supplemental drip pan, and means for removing moisture from the roller and depositing it upon said deflector.

5. In a window cleaning device, a casing, a brush rotatably mounted therein and projecting beyond the casing, a drying roller mounted above and in the plane of said brush, a washing solution tank positioned below and in rear of the brush, means for supplying solution from said tank to the brush, said tank being provided with a drip receiving pan and the top wall of the tank being inclined downwardly to direct moisture deposited thereon into said drip pan, an inclined deflector positioned between said roller and the brush and having its lower edge positioned over the inclined top wall of the tank, said deflector being provided at its forward edge with a supplemental drip pan, and means for removing moisture from the roller and depositing it upon the deflector.

In testimony whereof I affix my signature.

JOHN J. PETERSON.