April 9, 1968 G. J. W. LEESON 3,377,123

CLEANING DEVICE

Filed Feb. 3, 1966 2 Sheets-Sheet 1

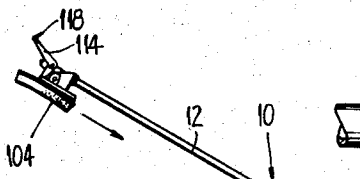


FIG. 1.

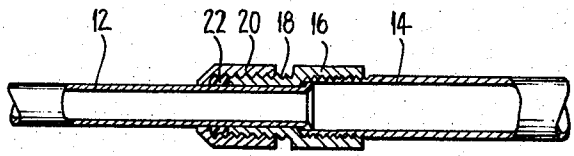
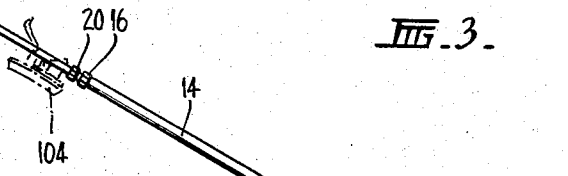


FIG. 3.



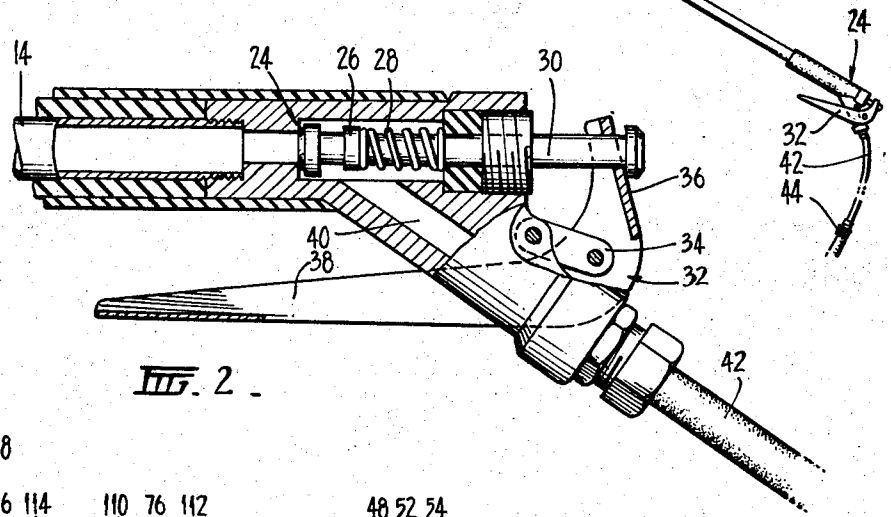


FIG. 2.

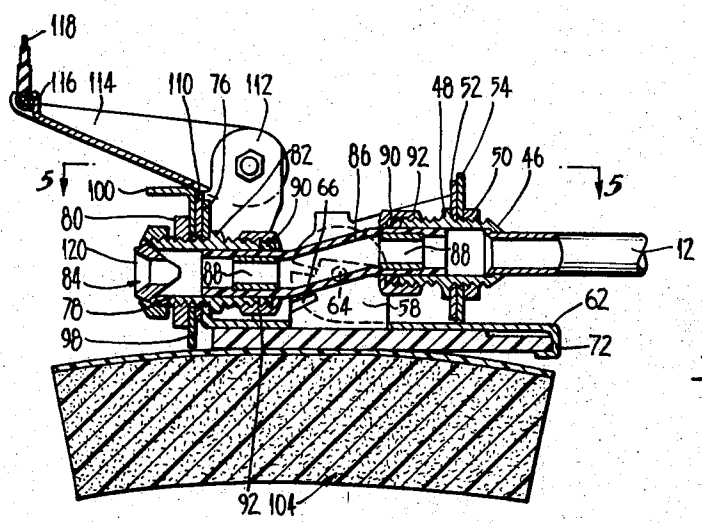


FIG. 4.

April 9, 1968 G. J. W. LEESON 3,377,123

CLEANING DEVICE

Filed Feb. 3, 1966 2 Sheets-Sheet 2

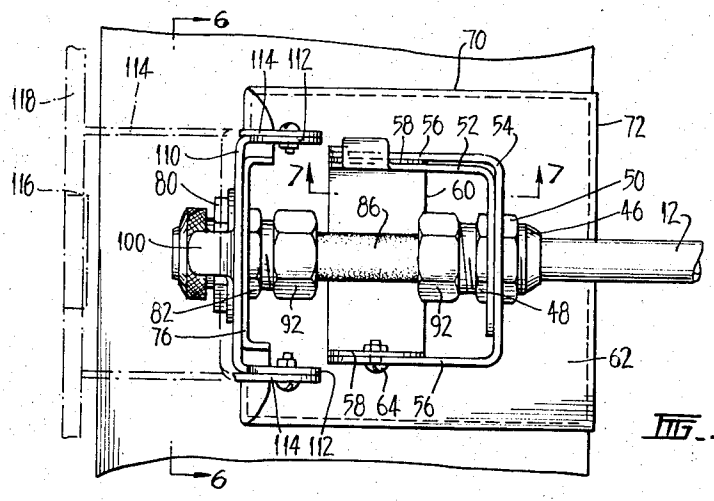


FIG. 5.

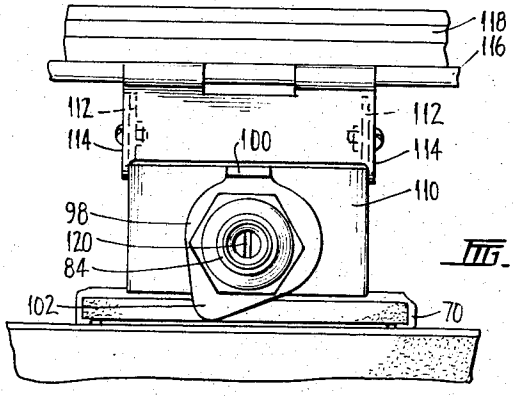
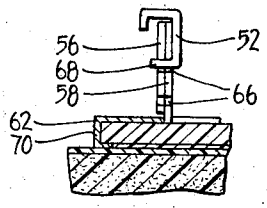


FIG. 6.

FIG. 8.



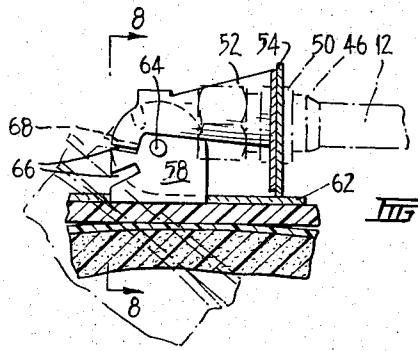


FIG. 7.

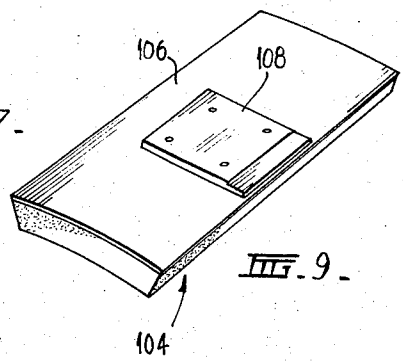


FIG. 9.

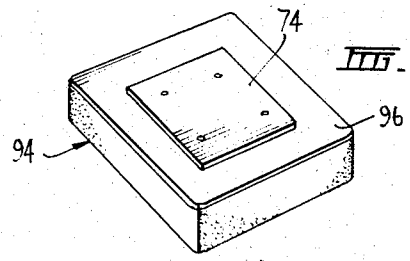


FIG. 10.

United States Patent Office 3,377,123
Patented Apr. 9, 1968

3,377,123

CLEANING DEVICE

George Joseph William Leeson, 86 Caroline St., South Yarra, Victoria, Australia

Filed Feb. 3, 1966, Ser. No. 524,722
Claims priority, application Australia, Mar. 12, 1965, 56,269/65
3 Claims. (Cl. 401—139)

ABSTRACT OF THE DISCLOSURE

A cleaning device suitable for cleaning motor vehicles, windows and similar surfaces comprises a telescoping hollow handle through which water is fed from a valve controlled hose connection at one end of the handle to a discharge nozzle located at the other end. The nozzle is mounted on a retaining plate for a cleaning pad and water is discharged from the nozzle generally parallel with the cleaning pad and laterally thereof so that a detergent may be applied to the pad without being rinsed off by the water discharged from the nozzle. The retaining plate is pivotally mounted so that the pad and nozzle can be adjusted to lie generally parallel with the axis of the handle or at an angle thereto. A squeegee blade is also pivotally mounted on the retaining plate.

This invention relates to a cleaning device, and more particularly to a device suitable for cleaning motor vehicles, windows of dwellings, and similar surfaces.

There are many cleaning devices presently available for the above purposes, but these suffer from various disadvantages.

For example, they are not equipped with sufficiently long handles so that in cleaning a motor vehicle it is necessary to drag a hose across the surface of the vehicle or to take great pains to ensure that the hose will not scratch the vehicle. When such devices are used for washing the windows of dwellings it is necessary to employ a ladder or similar means to enable the whole of the window surface to be reached.

Again such devices in general supply water to the surface to be cleaned by causing it to percolate through a brush, cleaning pad, or similar means. This is unsatisfactory, firstly because it does not permit a broad section of the surface to be sprayed, and secondly because it continuously washes away any detergent being used with the cleaning device.

These prior art devices are also unsatisfactory in that a film of water remains on the windows which eventually evaporates and leaves behind stains giving the windows an appearance of still being dirty.

Again prior art cleaning devices usually have a cleaning pad which has a fixed angular relationship to a handle making them awkward to use and lacking in adaptability to the surfaces to be cleaned.

It is an object of this invention to overcome the disadvantages of prior art cleaning devices, and to this end there is provided a cleaning device comprising a tubular handle adapted for connection at one end to a water supply and having a cleaning pad pivotally attached to its other end in such manner that it may be located in a plane generally parallel to the axis of the handle, or in a plane at an angle to said axis. Preferably there is provided a squeegee blade adapted to move in unison with said cleaning pad between its operative positions.

Further according to the invention there is provided a cleaning device comprising a tubular handle adapted for connection at one end to a water supply and having a water discharge orifice at its other end, the orifice being pivotally mounted in such manner that it may direct a

stream of water generally parallel to the axis of said handle or at an angle to said axis. Preferably the orifice is of the type having an outlet in the form of a slot and it is preferably connected to the tubular handle by means of a short length of plastic or other flexible tubing to accommodate the relative pivotal movement.

Again the invention provides a cleaning device comprising a tubular handle adapted for connection to a water supply at one end, and having a water discharge orifice and a cleaning pad attached to its other end, the arrangement being such that water discharged through said orifice does not pass through the cleaning pad in order to reach a surface to be cleaned.

In each of the forms of the invention above described the handle is preferably telescopic and may be provided at its first-mentioned end with a valve to control the flow of water. A length of small diameter flexible plastic tubing may be attached to said end to provide a light weight connection between the cleaning device and a water hose.

In order that the invention may be more readily understood it will now be described by way of example with reference to a particular embodiment illustrated in the accompanying drawings wherein:

FIGURE 1 is a general view of the cleaning device with one of its cleaning heads attached;

FIGURE 2 is a cross-sectional view of one end of the device showing the details of the valve;

FIGURE 3 is a cross-sectional view of an intermediate portion of the device showing the telescopic connection of the two parts of the handle;

FIGURE 4 is a cross-sectional view of the other end of the device;

FIGURE 5 is a cross-sectional view taken on line **5**—**5** of FIGURE 4;

FIGURE 6 is a view taken on line **6**—**6** of FIGURE 5;

FIGURE 7 is a detail view taken on line **7**—**7** of FIGURE 5;

FIGURE 8 is a detail view taken on line **8**—**8** of FIGURE 7;

FIGURE 9 is a perspective view of one form of cleaning pad suitable for use with the device, and

FIGURE 10 is a perspective view of a second form of cleaning pad suitable for use with the device.

The cleaning device of this embodiment comprises a tubular handle **10** made from two lengths **12** and **14** of aluminium tubing one of which the distal (in relation to the used of the device) length **12** is a sliding fit within the proximal length **14**. A nut **16** screwed to the end of length **14** has a projecting externally screw threaded boss **18**, the internal diameter of which is a neat sliding fit on length **12**.

A gland nut **20** engages boss **18** to compress a resilient annular ring **22** for the purposes of holding the length **12** in a selected position in relation to length **14** and to seal the joint against leakage of water. The inner end of the smaller-diameter tube **12** is expanded to prevent its withdrawal through the gland nut **20**.

To the other end of the larger-diameter tube section **14** there is screw-threadedly attached a valve, generally indicated at **24**, to control the flow of water. Valve member **26** within valve **24** is biased towards its closed position by means of a spring **28** and has a stem **30** projecting from the valve body for engagement with an operating handle **32**.

The handle **32** is pivoted to the valve body by means of a pair of links **34** and is of L-shape, having a valve-stem engaging portion **36** and a portion **38** which extends forwardly in generally parallel relationship to the body of valve **24** for engagement by the fingers of a person using the device.

The valve body has an integrally cast inlet passage **40** to which is connected a length (approximately 6 ft.) of small bore plastic tubing **42**, which, at its free end, has a

fitting **44** for attachment to the normal end fitting on a garden hose. Fitting **44** preferably provides a swivel connection to facilitate screwing it onto the end fitting of the hose.

The free end of the smaller diameter handle section **12** is expanded into a bell-mouth to retain an externally screw-threaded bush **46** having a central annular shoulder **48**. A lock-nut **50** on the proximal end of bush **46** clamps the spring detent **52** and a U-shaped bracket **54** against shoulder **48** (see FIGURE 4).

Bracket **54** is made of flat sheet metal and has two arms **56** projecting forwardly. Towards the outer end of each arm **56** there is provided a drilled hole for co-operation with a similar hole in a respective arm **58** of a U-shaped bracket **60** fixed to a cleaning pad retaining plate **62**, screws or bolts **64** being passed through the respective pairs of holes to form a pivotal connection.

One arm **58** is provided with two or more slots **66** adapted to co-operate with a detent finger **68** projecting from L-shaped detent spring **52**, to locate the cleaning pad retaining plate **62**, either in a position parallel to the axis of the handle **10** as shown in full lines in FIGURE 7, or in a position at an angle to said axis as shown in dotted lines in FIGURE 7.

The side edges **70** and the rear edges **72** of the cleaning pad retaining plate **62** are rolled under as can be seen in FIGURES 4 and 6 to form a pocket into which a cleaning pad backing plate **74** is adapted to slide. The forward end of the cleaning pad retaining plate **62** is bent upwardly at right angles as shown in FIGURE 4 to provide a bracket **76** which is formed with a central circular hole in which an externally screw threaded bush **78**, similar to bush **46**, is mounted by means of a lock-nut **80** which clamps bracket **76** against shoulder **82**.

A nozzle **84** is mounted in the distal end of bush **78**. The proximal end of bush **78** is connected to the distal end of bush **46** by means of a short length of small bore plastic tubing **86**, the connection at each end of the tubing having an internal rigid bush **88**, a rubber ring **90** surrounding tube **86** and bush **88**, and a gland nut **92** to compress ring **90** and cause it to clamp tubing **86** against the bush **88**.

The cleaning pad may take either of the forms shown in FIGURES 9 and 10. That shown in FIGURE 10 is particularly adapted for cleaning motor vehicles. This cleaning pad **94** is approximately 4" square and 2" thick and is made of foamed plastic. To the rear surface of the pad there is attached, as by gluing, a stiffening plate **96** of very thin celluloid of similar non-scratching material. The stiffening plate **96** has dimensions slightly smaller than those of the cleaning pad **94** and its purpose is to prevent excessive deflection of the pad in the plane parallel to the surface to be cleaned.

The backing plate **74**, of a size adapted to slide neatly into the pocket in retaining plate **62**, is either glued to the stiffening plate or is made integral therewith.

A latch **98** pivotally mounted on lock-nut **80** is adapted to be rotated to a position in which it prevents withdrawal of the cleaning pad backing plate from the pocket, and for this purpose it is provided with a turned-over portion **100** adapted to be manually grasped and a retaining finger **102**. These integers are best seen in FIGURE 6 wherein the latch is shown in the position in which it prevents withdrawal of the cleaning pad backing plate.

The form of cleaning pad shown in FIGURE 9 is particularly adapted to the washing of windows of dwellings. It is also made from foamed plastic and has dimensions of approximately 8" by 3" and a thickness of 1". The back of this pad **104** is provided with a stiffening plate **106** and a backing plate **108**.

The stiffening plate **106** is preferably curved as shown in FIGURE 9 since this improves the scrubbing action of the pad and also assists in preventing deflection of its lateral edges when pressure is applied during use.

A U-shaped bracket **110** having a pair of rearwardly and upwardly extending arms **112** is clamped between lock-nut **80** and bracket **76**. The arms **112** pivotally support a U-shaped bracket having a pair of arms **114** and at the outer end of the bracket there is formed a holder **116** adapted to receive and grip a squeegee **118** which may be a standard windscreen wiper blade.

The squeegee is shown in its operative position in FIGURE 4 but may be rotated about its pivotal connection to bracket **110** when not required for use to a position in which it lies against handle **10**.

The nozzle **84** is arranged with its orifice slot **120** (see FIGURE 6) in a plane at right angles to the surface of the cleaning pad so that the stream of water which it emits is in a plane generally parallel to the surface of the pad. As will be obvious from the construction described the nozzle and the pad move in unison about the pivotal connection to the U-shaped bracket.

In the use of the device for washing a motor vehicle the handle will generally be in its retracted condition as shown by the dotted line position of the pad in FIGURE 1. The cleaing pad will be in its position parallel to the axis of the handle when the roof and other upper surfaces of the vehicle are being cleaned, and will be rotated through an angle of approximately 30° when the vertical surfaces of the vehicle are being cleaned. The surface is first made wet by spraying water onto it through the nozzle. A few drops of detergent are then placed on the cleaning pad and the latter is used to wash the vehicle thoroughly all over. A further high velocity jet of water is then sprayed onto the vehicle through the nozzle to clean off the detergent. If so desired the vehicle may then be dried by means of a chamois or soft cloth.

It should be noted that with the present invention water is used only when it is required, and that during the shampooing operation the flow of water is discontinued in order to avoid washing away the detergent.

Further advantages of the invention reside in the fact that the pad adapts itself readily to the contour of the surfaces on which it is being used, and the provision of the length of small bore plastic tubing to connect the device to a hose makes it unnecessary to support a heavy and relatively stiff hose during the washing operation.

The use of the device for washing the windows of a dwelling is generally similar to the above in that the surface is first made wet, then detergent is applied to the cleaning pad for the washing operation, followed by removal of the detergent by means of further application of water. During these operations the cleaning pad will generally be in the position wherein it is rotated through an angle of approximately 30° from the position wherein its surface is parallel to the axis of the handle.

At the conclusion of the above operations the cleaning pad is returned to the position wherein it is parallel to the axis of the handle and the squeegee is used to remove excess water from the surface. Thus no film is left on the windows when they dry.

I claim:

1. A cleaning device comprising a tubular handle adapted for connection at one end thereof to a water supply hose through a control valve mounted on the handle, a retaining plate, said retaining plate including a pocket in the under surface thereof to receive the backing plate of a cleaning pad, a first U-shaped bracket secured to and upstanding upon the upper surface of said retaining plate, a second U-shaped bracket having the legs thereof pivotally connected with the legs of said first U-shaped bracket, a first bush extending through and secured to said second U-shaped bracket in the part joining the legs thereof, means securing the opposite end of said tubular handle to one end of said first bush, a length of flexible tubing having one end thereof coupled to the other end of said first bush, means providing an upstanding bracket on said retaining plate forwardly of said U-shaped brackets and which is provided with an opening receiving a second bush, a nozzle connected to the forward end of said second bush, said nozzle delivering a spray in a direction

generally parallel with but laterally of said cleaning pad, means coupling the other end of said flexible tubing to the rearward end of said second bush, and means for adjusting the angular position of said retaining plate and hence said cleaning pad and nozzle relative to said opposite end of said tubular handle at the pivotal connection between said first and second U-shaped brackets.

2. A cleaning device as defined in claim 1 and which further includes a squeegee blade and means pivotally mounting said blade on said retaining plate so as to enable the blade to be moved into and out of its operable position.

3. A cleaning device as defined in claim 1 wherein a length of small diameter flexible hose is interposed between said control valve and water supply hose for imparting added flexibility to the control valve end of said handle.

References Cited

UNITED STATES PATENTS

1,093,114	4/1914	Corbett	15—531 X
1,498,246	6/1924	Spencer	15—531 X
1,598,742	9/1926	Parker	15—567
2,609,557	9/1952	Reed	15—544 X
2,731,656	1/1956	Payne	15—588
2,816,306	12/1957	Davis	15—544 X
3,023,971	3/1962	Milhous	15—544 X

FOREIGN PATENTS

1,230,835	4/1960	France.
406,264	11/1943	Italy.

CHARLES A. WILLMUTH, *Primary Examiner.*

EDWARD L. ROBERTS, *Examiner.*