Oct. 2, 1951 F. G. HOLMES 2,569,635

AUTOMATIC WINDOW WASHER

Filed Jan. 31, 1946 2 Sheets-Sheet 1

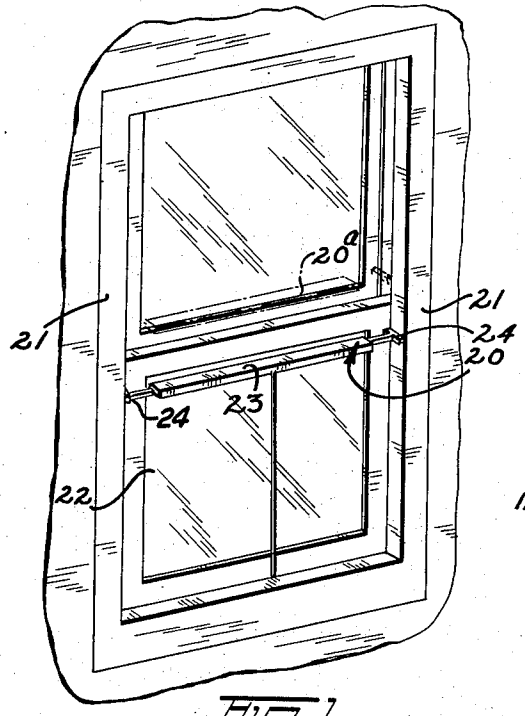


FIG. 1.

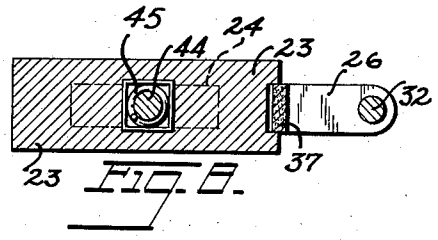


FIG. 8.

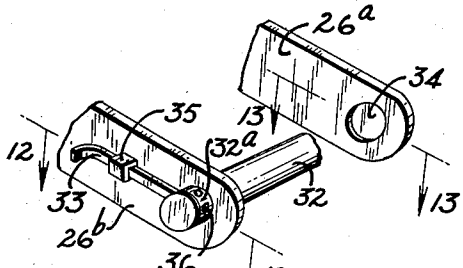


FIG. 11.

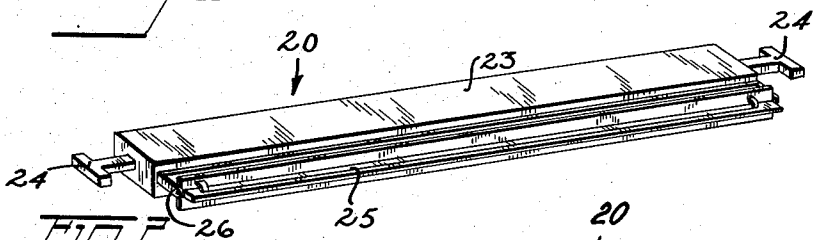


FIG. 2.

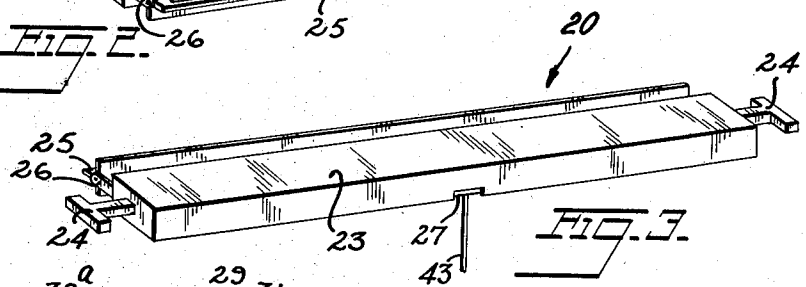


FIG. 3.

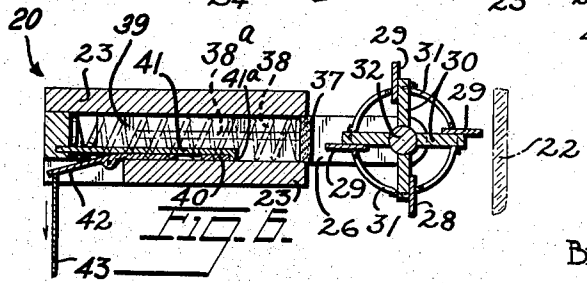


FIG. 6.

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AUTOMATIC WINDOW WASHER

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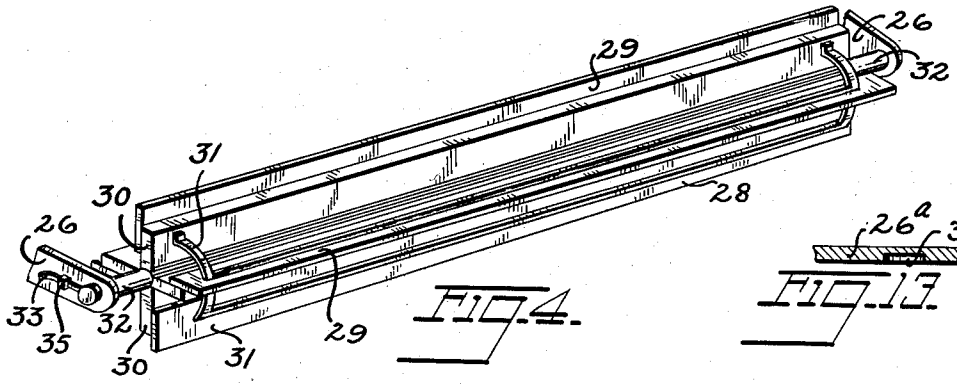


FIG. 4.

FIG. 13.

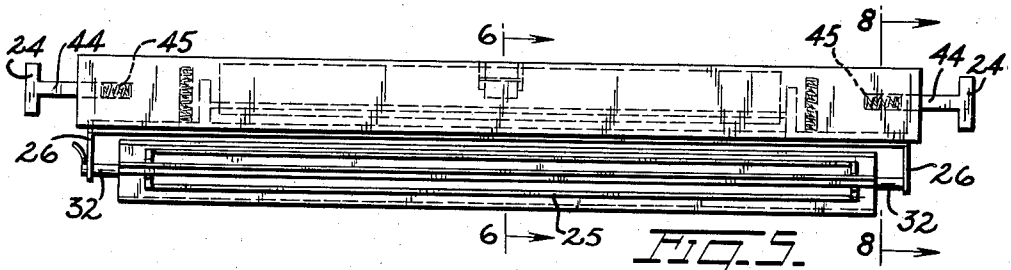


FIG. 5.

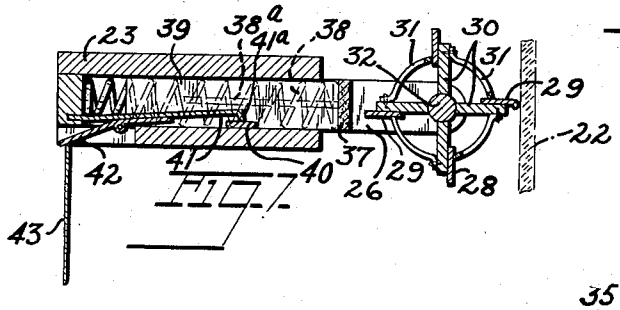


FIG. 7.

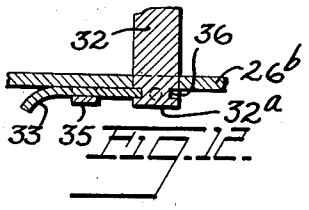


FIG. 12.

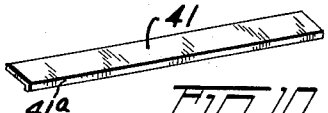


FIG. 10.

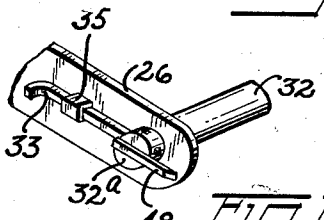


FIG. 14.

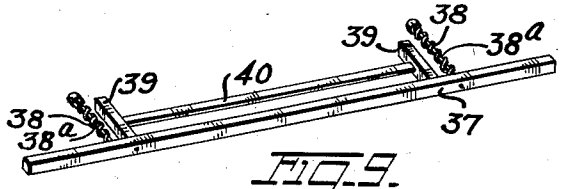


FIG. 9.

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Patented Oct. 2, 1951

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UNITED STATES PATENT OFFICE

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AUTOMATIC WINDOW WASHER

Frank Grooms Holmes, Philadelphia, Pa.

Application January 31, 1946, Serial No. 644,499

5 Claims. (Cl. 15—251)

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This invention relates in general to window washing equipment and in particular to an automatic window washer.

It is an object of the invention to provide an automatic window washer to remove dirt and the like from windows with a minimum of work.

It is another object of the invention to provide a window washer which is adapted to be secured adjacent to a window and which operates to clean the window easily and thoroughly.

It is a further object of the invention to provide a window washer comprising at least one moistening member and at least one cleaning member adapted to be operably positioned adjacent to a window surface.

Additional objects of the invention as well as its construction, use, and operation will in part be obvious and will in part become apparent from the following disclosure.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of a window with a window cleaner according to this invention positioned thereon.

Fig. 2 is a front perspective view of the window cleaner shown in Fig. 1.

Fig. 3 is a rear perspective view of the article shown in Fig. 2.

Fig. 4 is an enlarged perspective view of the blade members of the article shown in the previous figures.

Fig. 5 is a top plan view of the articles shown in Figs. 2 and 3.

Fig. 6 is a side cross section of the article shown in Fig. 5, taken along the line 6—6.

Fig. 7 is a similar view of the article in the released position.

Fig. 8 is a side cross section of the article shown in Fig. 5, taken along the line 8—8.

Fig. 9 is a perspective view of the release members of the article shown in the previous figures.

Fig. 10 is a perspective view of the release catch cooperating with the article shown in Fig. 9.

Fig. 11 is a perspective fragmentary view of the holding frame for the wiper members shown in Fig. 4.

Fig. 12 is a top cross section of the article shown in Fig. 11 taken along the line 12—12.

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Fig. 13 is a top cross section of the article shown in Fig. 11, taken along the line 13—13.

Fig. 14 is a variation of the structure of Fig. 12.

Referring to the figures in detail, there is shown in Fig. 1 an automatic window washer generally designated 20 mounted in a window frame 21, with a wiping member (shown in the following figures) bearing against the window pane 22. The window washer 20 is so positioned that the window is thoroughly and easily cleaned when the window is first raised and then lowered, causing the window pane to move relative to the wiping member.

The window washer 20 is shown in position for cleaning the lower window. In dot and dash lines 20^a in Fig. 1, a similar washer is shown in position to clean the upper window.

The window washer 20 shown in Figs. 2 and 3 comprises a frame or body 23 having a pair of laterally projecting T-shaped arms 24 with which it is mounted between the parallel surfaces of the window sash. The body 23 is generally elongated, extending substantially the width of a window pane, and is adapted to receive and mount the wiping members 25 which are positioned on a frame 26 mounted on body 23. A release mechanism 27 is mounted in the body 23 for retaining the wiping members in a retracted position with relation to the window pane.

The wiper members shown in Figs. 4, 6 and 7 comprise at least one squeegee member 28 and at least one moistening member 29 mounted on short wide arms 30 extending substantially across the body 23 of the washer 20 and projecting a short distance therefrom. The squeegee member 28 and the moistening member 29 are mounted on the arms by means of glue or similar adhesive, or alternatively by means of nails or the like, in either case optionally having a spring support 31 at either end to increase the strength of the mounting and to prevent undue bending of the members at their ends. This spring support 31 may satisfactorily be mounted on one arm 30 and positioned to bear against the member 28 or 29 on the adjacent arm.

The four arms 30 are positioned at right angles to one another. These arms are mounted on a rotatable rod or axle 32 which in turn is mounted in frame members 26 at either end of the device. On three of the arms are mounted felt strips or the like, which serve as moistening members 29. On the fourth arm is mounted a rubber strip or the like, which is the squeegee member 28.

In Figs. 11 to 13 is shown the mounting of the wiper member **25** in the frame **26**. At one end there is a frame member **26a** which has a recess **34** in its surface facing the wiper member **25**. Rod **32** is adapted to rotatably fit in the recess **34**. At the other end is a frame member **26b** having a hole or opening therein, through which rod **32** passes, extending slightly therebeyond. In the head **32a** of this rod there is a series of openings **36**, in line with the several arms **30** mounted on the rod. A sliding catch **33**, mounted in a projecting collar **35** on the outer surface of frame member **26b** is positioned to engage these holes **36**. Thus any one of the arms **30** may be brought into an operating position, and may be secured there by means of catch **33**.

Figs. 6 to 10 illustrate the operation of the release mechanism **27** by means of which the wiper members are retained out of engagement with the respective window pane. Frame members **26** are mounted on a cross bar **37** which is positioned along the front edge of body **23** and which is adapted to be slid away from the edge (see Fig. 5). A pair of coil springs **38** are mounted on cross bar **37** (see Fig. 9) and extend into the body **23**, bearing against the body and urging the cross bar away therefrom. If desired, a rod **38a** may be positioned within coil spring **38** to retain it in the proper direction.

Also mounted on the cross bar **37** and extending backwards therefrom are two posts **39** between which is mounted a catch bar **40**. This catch bar is positioned within the body **23** and is releasably secured therein retained in a retracted position by means of a catch member **41** (see Fig. 10), which comprises a plate having a hook **41a** along one edge. When catch member **41** releases catch bar **40**, springs **38** cause the cross bar **37**, and with it the wiper member **25**, to be extended from the body **23** to bear against the window pane **22** (refer to Figs. 6 and 7).

Figs. 6 and 7 show the operation of the release mechanism, and its positioning within the body **23** of the washer. Cross bar **37** is mounted along the front edge of the body **23**, with catch bar **40** positioned within the body and parallel therewith. Catch member **41** is mounted within the body **23** and releasably engages the catch bar **40**. Springs **38** exert a constant outward force against the cross bar. A release plate **42** is pivotally mounted within the body **23** with a release cord **43** or the like extending from one end thereof, out through the body. When this release cord is pulled, plate **42** is pivoted, and catch member **41** is raised. Accordingly, catch bar **40** is released and cross bar **37** is caused to move away from the body **23**. Fig. 6 shows the position of parts before release; Fig. 7 shows the position of parts after release with the moistening member **29** engaging the window pane **22**.

In Fig. 8 is shown the mounting of the T-shaped arms **24** which fix the body **23** in position in the window frame **21** (refer also to Fig. 5). Arm **24** is mounted across the end of a rod **44** which extends into the body **23** of the window washer **20**. A spring **45** is mounted at the end of rod **44** and cooperates with the body **23** to force the rod **44** and arm **24** outward. The arm **24** has at least its outer surface constructed of a friction material such as, for example, rubber or the like, and preferably is constructed entirely of that material, so that a long wearing surface may be formed.

It will be understood that numerous variations and modifications may be made in the design and construction of the device according to the invention without departing from the scope thereof, and that such variations will, in general, be obvious to those skilled in the art.

For example, in Fig. 14 there is shown a variation in the mounting of rod **32** on frame **26**, wherein a bar or handle **48** is positioned on the end or cap **32a** of the rod, whereby the rod is readily rotated to bring the desired member **28** or **29** into position adjacent to the window pane (refer to Fig. 7). Other variations in minor detail and in general design will likewise be apparent.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A window washing device comprising a hollow body for mounting in the frame of a window and having an open side to face the window pane, a frame for a window pane wiping member slidably positioned in said body and a portion projecting from the open side of said body, a window wiping member mounted on the portion of said frame which projects from the open side of said hollow body, resilient means within said body urging said frame into an extended position for engaging said wiping member with the window pane, a catch bar mounted on said frame within said body, and manually operable release mechanism engaging said catch bar for holding said frame retracted into said body against the action of said resilient means to retain said wiping member out of contact with the window pane, said release mechanism comprising a resilient catch member having one end fixedly mounted within said body, a hook formed on the other end of said catch member and engaging said catch bar, and means for flexing said catch member to disengage said hook from said catch bar freeing said frame to be extended by said resilient means.

2. A window washing device comprising a hollow body for mounting in the frame of a window and having an open side to face the window pane, a frame for a window pane wiping member slidably positioned in said body and a portion projecting from the open side of said body, a window wiping member mounted on the portion of said frame which projects from the open side of said hollow body, resilient means within said body urging said frame into an extended position for engaging said wiping member with the window pane, a catch bar mounted on said frame within said body, and manually operable release mechanism engaging said catch bar for holding said frame retracted into said body against the action of said resilient means to retain said wiping member out of contact with the window pane, said release mechanism comprising a resilient catch member having one end fixedly mounted within said body, a hook formed on the other end of said catch member and engaging said catch bar, and means for flexing said catch member to disengage said hook from said catch bar freeing said frame to be extended

by said resilient means, said flexing means comprising a plate pivotally mounted within said body and having one end engaging said catch member and its other end projected from said body, and a string attached to said other end of said plate to be pulled for pivoting said plate which in turn flexes said catch member.

3. A window washing device comprising a hollow body for mounting in the frame of a window and having an open side to face the window pane, a frame for a window pane wiping member slidably positioned in said body and a portion projecting from the open side of said body, a window wiping member mounted on the portion of said frame which projects from the open side of said hollow body, resilient means within said body urging said frame into an extended position for engaging said wiping member with the window pane, a catch bar mounted on said frame within said body, and manually operable release mechanism engaging said catch bar for holding said frame retracted into said body against the action of said resilient means to retain said wiping member out of contact with the window pane, said portion of said frame which projects from the open side of said body, comprising laterally spaced frame members, said wiping member comprising a rod rotatively mounted between said frame members, a plurality of arms projecting radially from said rod between said frame members and having cleaning members mounted on the outer ends thereof, and means for holding said wiping member in a desired rotative position relative to said frame members in which a desired cleaning member will be extended toward the window pane.

4. A window washing device comprising a hollow body for mounting in the frame of a window and having an open side to face the window pane, a frame for a window pane wiping member slidably positioned in said body and a portion projecting from the open side of said body, a window wiping member mounted on the portion of said frame which projects from the open side of said hollow body, resilient means within said body urging said frame into an extended position for engaging said wiping member with the window pane, a catch bar mounted on said frame within said body, and manually operable release mechanism engaging said catch bar for holding said frame retracted into said body against the action of said resilient means to retain said wiping member out of contact with the window pane, said portion of said frame which projects from the open side of said body, comprising laterally spaced frame members, said wiping member comprising a rod rotatively mounted between said frame members, a plurality of arms projecting radially from said rod between said frame members and having cleaning members mounted on the outer ends thereof, and means for holding said wiping member in a desired rotative position relative to said frame members in which a desired cleaning member

will be extended toward the window pane, said holding means comprising an enlarged head formed on one end of said rod and formed in its periphery with a plurality of openings spaced in agreement with the spacing of said arms, and a catch slidably mounted on the frame member adjacent the end of said rod formed with said head and selectively engageable with said openings holding said wiping member in a desired rotative position.

5. A window washing device comprising a hollow body for mounting in the frame of a window and having an open side to face the window pane, a frame for a window pane wiping member slidably positioned in said body and a portion projecting from the open side of said body, a window wiping member mounted on the portion of said frame which projects from the open side of said hollow body, resilient means within said body urging said frame into an extended position for engaging said wiping member with the window pane, a catch bar mounted on said frame within said body, and manually operable release mechanism engaging said catch bar for holding said frame retracted into said body against the action of said resilient means to retain said wiping member out of contact with the window pane, said portion of said frame which projects from the open side of said body, comprising laterally spaced frame members, said wiping member comprising a rod rotatively mounted between said frame members, a plurality of arms projecting radially from said rod between said frame members and having cleaning members mounted on the outer ends thereof, and means for holding said wiping member in a desired rotative position relative to said frame members in which a desired cleaning member will be extended toward the window pane, said holding means comprising an enlarged head formed on one end of said rod and formed in its periphery with a plurality of openings spaced in agreement with the spacing of said arms, and a catch slidably mounted on the frame member adjacent the end of said rod formed with said head and selectively engageable with said openings holding said wiping member in a desired rotative position, and a radially projecting handle formed on said head by which said rod can be turned when said catch is disengaged from the openings in said head.

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