July 28, 1931. L. HACHENBERG 1,816,370

WINDOW CLEANING DEVICE

Filed March 19, 1929

Fig. 1.

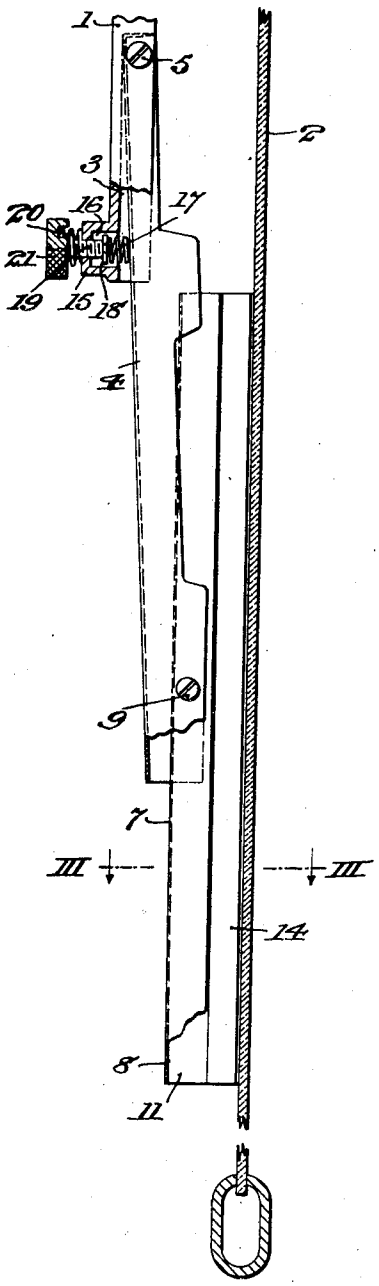


Fig. 2.

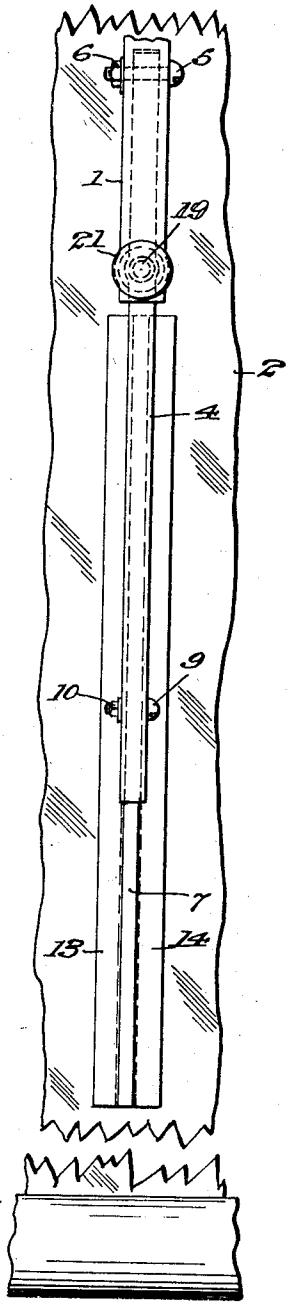


Fig. 3.

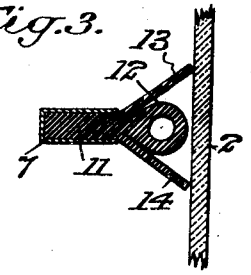


Fig. 4.

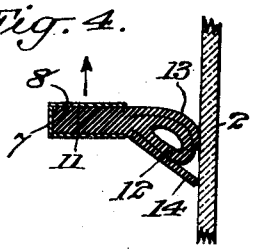


Fig. 5.

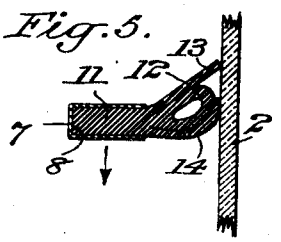
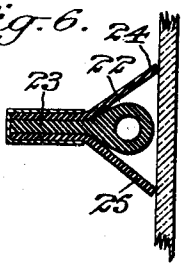


Fig. 6.



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UNITED STATES PATENT OFFICE

LOUIS HACHENBERG, OF THROGG'S NECK, NEW YORK, ASSIGNOR OF ONE-HALF TO WILLIAM BRADY, OF OSSINING, NEW YORK

WINDOW CLEANING DEVICE

Application filed March 19, 1929. Serial No. 348,251.

This invention relates to an improvement in window cleaning devices, and more particularly to a cleaning element which contacts with the window glass and is moved forward and backward to remove rain, sleet or snow from the surface thereof.

It has for its object to provide a device which is simple in construction, economical in the manufacture and efficient in operation.

Another object is to provide a device having a resilient wiper composed of a longitudinal flat strip having one edge divided into three longitudinal contact surfaces spaced apart, two of which surfaces alternately coact to form a squeegee to remove a heavy collected matter formed on the window glass and the other surface serving as a following wiper.

Another object is to provide a device having a resilient wiper composed of a longitudinal flat strip developed into a tubular portion and two flat strips radiating from the flat portion on opposite sides of the tubular portion, whereby the tubular portion acts as a squeegee to remove light collected matter from the window glass and the radiating strips function as additional wipers.

Another object is to provide certain improvements in the form, construction and arrangement of the parts whereby the above named and other objects may be effectively attained.

A practical embodiment of my invention is represented in the accompanying drawings in which,

Fig. 1 represents a detail side elevation of my improved device, partly in section, applied to a portion of a window, also in section.

Fig. 2 represents a front elevation of the same.

Fig. 3 represents a horizontal section taken in the plane of the line III—III of Fig. 1 looking in the direction of the arrows.

Fig. 4 represents a similar view with the parts in the position they assume when being moved in the direction indicated by the arrow.

Fig. 5 represents a similar view with the parts in another position, and

Fig. 6 represents a similar view of a modified form of resilient wiper.

The removable arm of the device is denoted by 1, and is moved forward and backward in the plane parallel to the window glass 2, by any well known or approved mechanism.

The free end of the arm has a longitudinal recess 3 therein which is arranged to receive and hold one end of an intermediate member 4 by means of a bolt 5 and nut 6, which bolt acts as a pivot on which the member 4 oscillates. The lower end of the member 4 is arranged to receive a carrier 7 having a longitudinal channel 8. This carrier 7 is secured to the member 4 by means of a bolt 9 and nut 10, and is arranged to rock thereon.

The wiper of resilient material, such as rubber or other similar material which is impervious to moisture comprises a longitudinal flat strip 11 having one of its edges developed into a tubular portion 12 and two relatively thin flat strips 13, 14, which normally radiate on opposite sides of the tubular portion 12. The strip 11 is secured in the longitudinal channel 8 of the carrier 7, so that the radiating strips 13, 14 will normally rest upon the window glass 2, as shown in Fig. 3. The carrier 7 is free to rock on its pivot 9, so that the resilient wiper will substantially conform to the angle of the window glass as well as compensate for any inequality or irregularity in the window glass.

In order to bring the wiper into close contact with the window glass, I provide the arm 1 with a projection 15 having a recess 16 arranged to house a coil spring 17, one end of which rests on the back of the intermediate member 4 while the other end abuts a washer 18 carried by a thumb screw 19, which has a screw threaded engagement with the projection 15 on the arm 1. A coil spring 20 is interposed between the head 21 of the thumb screw 19 and the projection 15 on the arm to prevent unintentional movement of the thumb screw. By

adjusting the thumb screw 19 in the projection 15, the longitudinal member 4 will be moved on its pivot bolt 5 by the tension of the spring 17, which movement will cause the carrier 7 to be moved toward or away from the window glass through its pivot bolt 9 and thereby increase or diminish the pressure of the resilient wiper on the window glass.

The device may be adjusted so that the strips 13, 14 will lightly press upon the glass and wipe any fine rain or mist from the window glass, as shown in Fig. 3, while further adjustment may be made so that the longitudinal strips 13, 14 will be brought alternately into coaction with the tubular portion 12 so as to clean the window of heavy rain, snow or sleet, which position is shown in Figs. 4 and 5.

In Figs. 4 and 5 it will be seen that as the wiper is moved in the direction of the arrows the longitudinal strip in advance of the tubular portion 12 will wrap itself partly around the tubular portion and serve to push the rain or snow ahead of it while the companion longitudinal strip, which follows, will clean any moisture from the window glass that may not have been removed by the coacting tubular portion and longitudinal strip.

Thus by reason of the flexing and rolling movement of the two longitudinal strips around the tubular portion 12 the wiper will be maintained in a pliable condition and thereby efficiently perform the desired result.

It is also to be pointed out that by the construction and operation of the resilient wiper, the arm 1 and its adjacent mechanism may be moved forward and backward with a minimum amount of power.

In Fig. 6 I have shown a modified form of resilient wiper having a longitudinal tubular portion 22 formed integral with a flat strip 23, while upon opposite sides of which strip and tubular portion are disposed relatively thin longitudinal strips 24, 25, the outer edges of which are also inclined outwardly in opposite directions. In this form it will be seen that the longitudinal strips 24, 25 may be readily replaced if worn or destroyed.

It is obvious that various changes may be resorted to in the form, construction and arrangement of the several parts without departing from the spirit and scope of my invention; and hence, I do not intend to be limited to the details herein shown and described, except as they may be included in the claims.

What I claim is:

1. A window cleaning device comprising, a movable carrier, a resilient wiper secured therein, said wiper including two longitudinally disposed flexible members projecting beyond said carrier and a flexible tubular member interposed between said first named members, the free edges of the members being normally spaced apart, and means for bringing at least two of the members into contact with the window glass.

2. A window cleaning device comprising, a movable carrier, a resilient wiper secured therein, said wiper including two longitudinally disposed flexible members projecting beyond said carrier and a flexible tubular member interposed between said first named members, the free edges of the members being normally spaced apart, and means for bringing at least two of the members into contact with the window glass, said means being adjustable for regulating the frictional contact of the members with the glass.

3. A window cleaning device comprising, a movable carrier, a resilient wiper secured therein, said wiper including a longitudinal strip having one of its edges formed with two longitudinally disposed flat strip members spaced apart at their free edges and having a flexible tubular member interposed between said free edges, and means for bringing at least two of said members into contact with the window glass.

4. A wiper for window cleaners comprising, a carrier, two longitudinally disposed flexible flat strips secured in and projecting from said carrier with their outer edges spaced apart and a flexible tubular member interposed between the spaced outer edges of the strips.

In testimony, that I claim the foregoing as my invention, I have signed my name this 6th day of March, 1929.

LOUIS HACHENBERG.