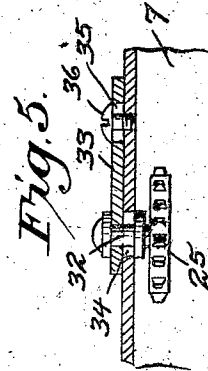
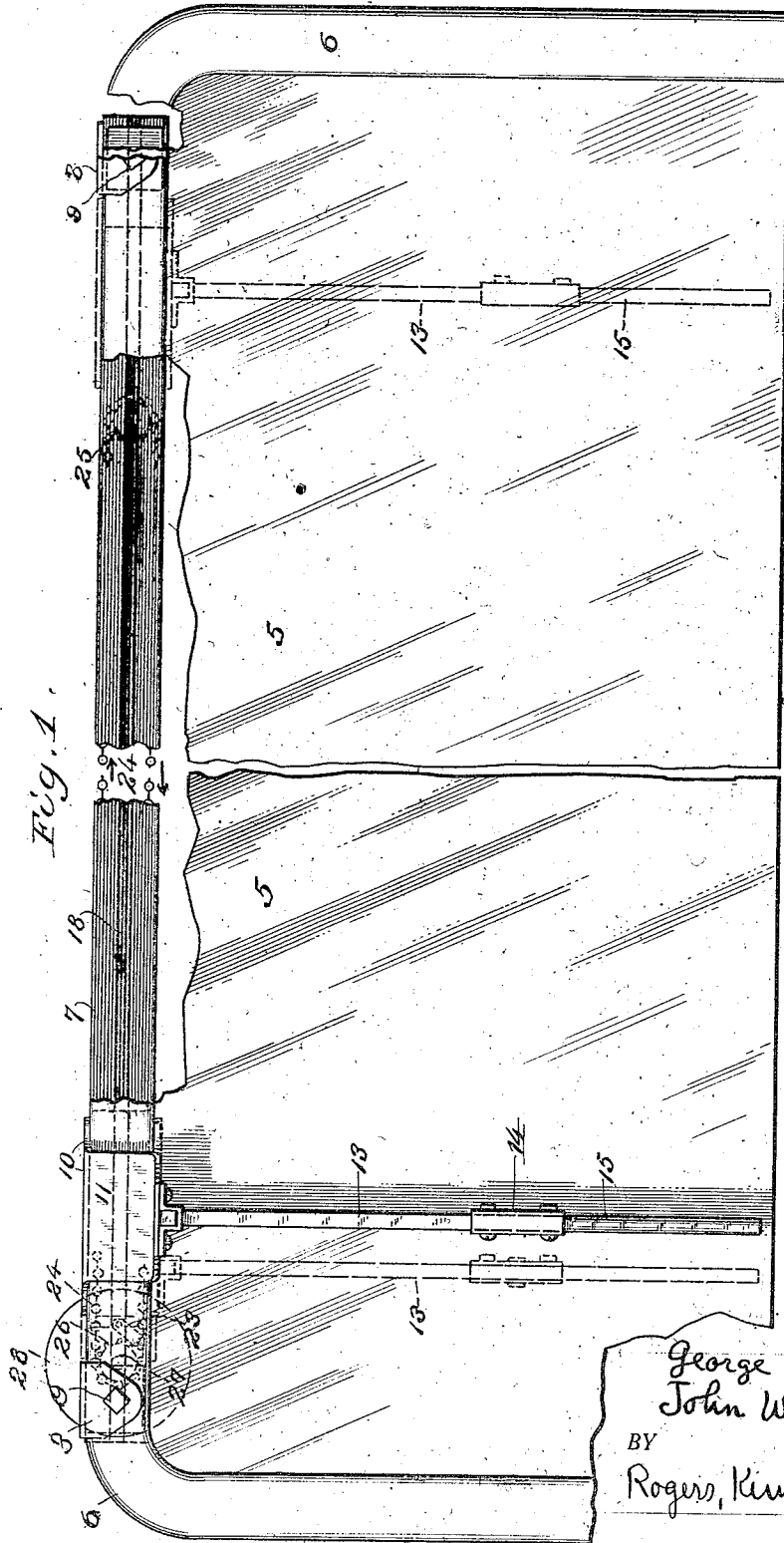


G. E. AND J. W. DOUGHTY.
 MECHANISM FOR CLEANING GLASS WINDSHIELDS OR ANALOGOUS SURFACES.
 APPLICATION FILED MAR. 29, 1920.

1,359,797.

Patented Nov. 23, 1920.

2 SHEETS—SHEET 1



Inventors:

George E. Doughty &
 John W. Doughty

BY

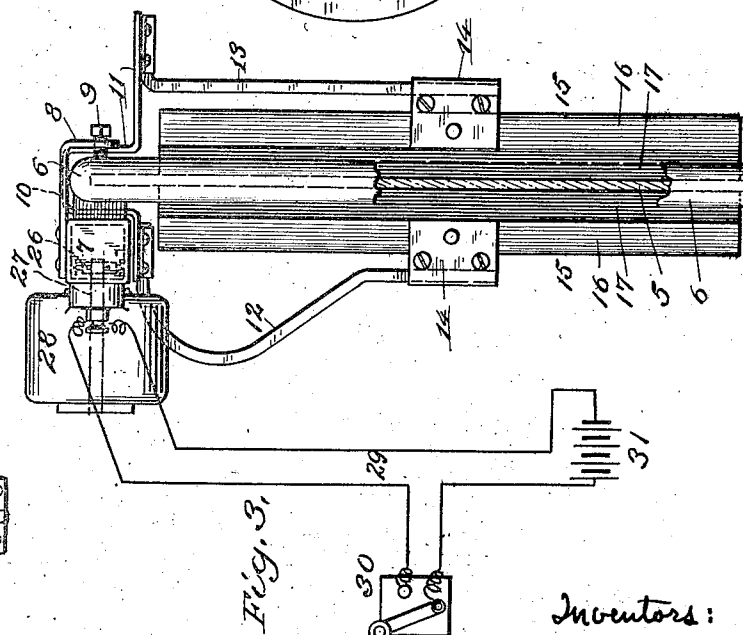
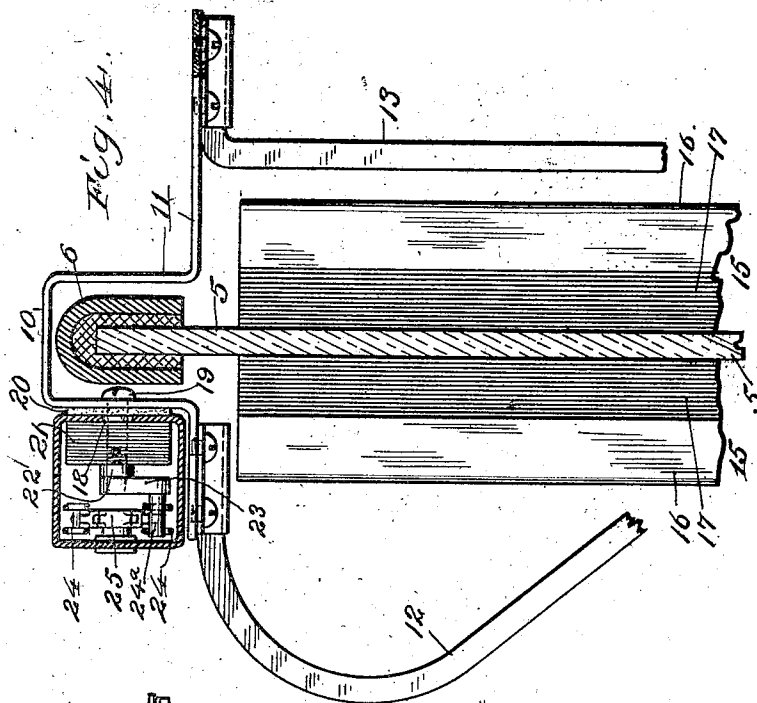
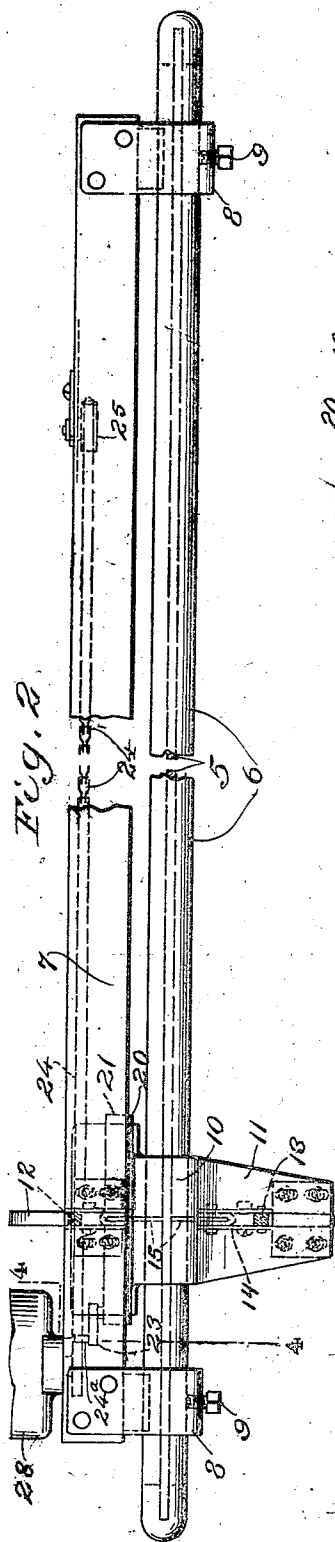
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UNITED STATES PATENT OFFICE.

GEORGE E. DOUGHTY AND JOHN W. DOUGHTY, OF BROOKLYN, NEW YORK.

MECHANISM FOR CLEANING GLASS WINDSHIELDS OR ANALOGOUS SURFACES.

1,359,797.

Specification of Letters Patent.

Patented Nov. 23, 1920.

Application filed March 29, 1920. Serial No. 369,812.

To all whom it may concern:

Be it known that we, GEORGE E. DOUGHTY and JOHN W. DOUGHTY, citizens of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Mechanism for Cleaning Glass Windshields or Analogous Surfaces, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention is a novel mechanism for cleaning glass wind shields or analogous surfaces such as the front windows of locomotives or airplanes, or various other surfaces subject to weather or other conditions requiring frequent rubbing or scraping to maintain the surface substantially clean.

The general object of the present invention is to afford a mechanism of the kind referred to which will be simple and inexpensive in structure, and at the same time effective and convenient in operation, durable and free from liability to get out of order. While hand power might in some cases be used as the motive power for driving the mechanism, it is a particular object hereof to afford a compact and efficient mechanism driven by electric motor; and especially such a motor which is stationary in position and requires neither reversing in action nor a reversible clutch, yet such as will cause the cleaner device to traverse the surface to be cleaned in alternate directions, thus constantly scraping or rubbing off from the surface rain, snow, ice, dirt or other obstructions. Further objects and advantages of the present invention will be elucidated in the following description of one convenient embodiment thereof, or will be apparent to those skilled in the art.

To the attainment of the objects and advantages referred to, the present invention consists in the novel mechanism and the novel features of combination, arrangement and details herein illustrated, described or claimed.

In the accompanying drawings, Figure 1 is a front elevation of an automobile wind shield having applied thereto a cleaning mechanism constituting a convenient embodiment for the purposes of illustrating the

principles of the present invention. This figure is partly broken away to show interior construction.

Fig. 2 is a top plan view of the mechanism seen in Fig. 1.

Fig. 3 is a left end elevation of the mechanism seen in Figs. 1 and 2.

Fig. 4 on an enlarged scale is a left elevation in section taken on the line 4-4 of Fig. 2.

Fig. 5 is a partial horizontal sectional view taken centrally through the adjustable sprocket wheel and its adjusting means.

The glass wind shield 5 is shown as held within an inclosing frame or rim 6. This may be of standard form, inasmuch as my invention is adapted to be detachably applied to any form of wind shield; and by changes in the clamps or mounting it can be analogously applied to locomotive windows, or any other situation where constant or frequent cleaning operations are desirable.

The main supporting member or frame, which supports the parts of the present invention, is shown in the form of a hollow case, box or housing 7, arranged transversely, in this case horizontally, across near the top edge of the wind shield. As seen in Figs. 2 and 3, the hollow support 7 is provided at each end with a clamping extension 8, in which engages a clamp screw 9, so that the mechanism of this invention can be attached at the opposite sides of the wind shield, or detached when not to be used.

The actual cleaning devices are supported by a movable carrier shown in the form of a slide or block 10. This carrier is fitted to traverse the width of the wind shield in alternate directions. Instead of having a cleaning device at only the outer or front side of the wind shield, there may be one at each side, and for this purpose the sliding carrier 10, which is shown as constituted of bent metal, is formed with an extension 11 passing over the top of the wind shield and down at the opposite side, as more fully seen in Fig. 4. At one side of the wind shield, beneath the hollow support 7, the carrier has secured to it an arm 12, which is shown of arched or curved form, to give spring action and enable a material contact pressure to be maintained upon the cleaners against the

glass. The extension 11 has an arm 13. The two arms 12 and 13 extend downwardly to a point about midway of the height of the wind shield, and there each is formed with a head 14, each head having pivoted to it a cleaner 15, which may consist simply of a vertical bar or stock 16, carrying a scraping or rubbing element 17 in the form of a rubber strip or the like. When the carrier is moved from one side to the other, the two scrapers or strips 17 pass across the wind shield glass in intimate contact and thoroughly clean it of dirt, moisture, snow, etc.

The carrier 10 may be slidingly mounted as follows. The hollow support 7 is shown as having a longitudinal slot 18, see Fig. 4. A bolt 19 passes through the carrier 10 and through the slot 18 into the interior of the support. A piece of friction material or fiber 20 is shown, interposed between the carrier and the support, and inside the support is a second piece of material or fiber 21. The bolt or screw 19 forms the connection for these elements, and at its inner end it is screw-threaded into the fiber block 21, which may be considered as part of the carrier.

For causing the back and forth movements of the carrier and cleaners, we prefer to employ an elongated actuator which extends transversely or crosswise in substantial parallelism with the surface to be cleaned, and adapted to be driven in a single direction by the motor or driving shaft. Together with such actuator, a suitable means connects it with the carrier such as to cause the carrier and the cleaner to travel alternately in opposite directions during the unidirectional motion of the actuator. This principle might be carried out in various ways. For example, there might be a transverse shaft extending across the wind shield, driven always in one direction by the motor, together with connections from such shaft or actuator to the carrier serving to automatically reverse the direction of travel of the carrier at the end of each stroke, thus causing it to travel in opposite directions during the unidirectional motion of the actuator. We do not specifically illustrate such embodiment of the principles hereof, as we prefer to illustrate what we consider the simpler and better form shown in the drawings and now to be described more in detail.

A simple link 23 is shown as constituting the connection from the actuator 24 to the carrier 10. It actually extends from a boss 22 on the fiber block 21 to a pin 24^a on the actuator. The illustrated actuator is simply an endless belt, by which we include chain or any other flexible element, extending transversely across and near to the surface to be cleaned. This endless belt 24 is actually shown as a sprocket chain located protectively within the hollow support 7, and at

its ends passing around two wheels, or sprockets 25 and 26, the former being longitudinally adjustable to take up slack, and the latter being mounted on a shaft 27, which is the driving shaft through which the actuator belt or chain is driven. An electric motor 28 is shown bolted to the support 7, and its shaft is a continuation of the shaft 27 carrying the driving sprocket wheel 26. Conductors 29 extend to a switch 30, and a source of current 31, which may be the storage battery of the automobile. The switch is shown set for an open circuit, but by reversing the switch the motor is rendered active for constant forward rotation, so that, when the invention is in use, the actuator or endless chain 24 travels always in a single direction.

The advantage of such an arrangement is that by attaching at any suitable point on the chain a member such as 24^a, this member, although always traveling in one direction with respect to the path of the chain, actually traverses the wind shield in opposite directions. It is, therefore, only necessary to provide an effective mechanical connection between the member 24^a and the carrier 10. This might consist of a simple slot formed in the carrier, or a suitable extension thereof, so that the pin 24^a can work upwardly and downwardly as it passes around the sprocket wheels, and yet always keep its engagement for producing the traveling movements of the carrier. We, however, have shown the connecting link arrangement before referred to. The link 23 serves effectively for this purpose. It will be noticed that the link is relatively short, so that at the end of its travel one extremity may pass around the wheel or sprocket to effectively reverse the direction of action, while the other end of the link, pivoted to the carrier, pauses for a moment until with the further advance of the chain, the link comes again into action to advance the carrier by a pulling action or traction. The link acts like a draw bar, first pulling the carrier across the wind shield in one direction, and then in the other direction.

It will thus be seen that we have described a mechanism for cleaning glass wind shields or analogous surfaces embodying the principles and attaining the objects of the present invention. Since many matters of combination, arrangement, design and detail may be variously modified without departing from the principles involved, it is not intended to limit the invention to such features except in so far as specified in the appended claim.

What is claimed is:

A mechanism for cleaning wind-shields or similar surfaces, the same comprising a carrier carrying a cleaner and adapted to traverse the surface in alternate directions,

with the cleaner in constant contact with the surface, and characterized by an endless actuating belt arranged with the plane of its orbit adjacent and substantially parallel to the surface to be cleaned, and passing
5 around guides, and one part of the belt connected to the carrier, so that while the belt

travels always in one direction the carrier and cleaner travel alternately in opposite directions across the surface to be cleaned. 10

In testimony whereof we have affixed our signatures hereto.

GEORGE E. DOUGHTY.

JOHN W. DOUGHTY.