Dec. 18, 1928. 1,695,326

F. G. FOLBERTH ET AL

WINDSHIELD CLEANER

Filed March 29, 1924

Fig. 1.

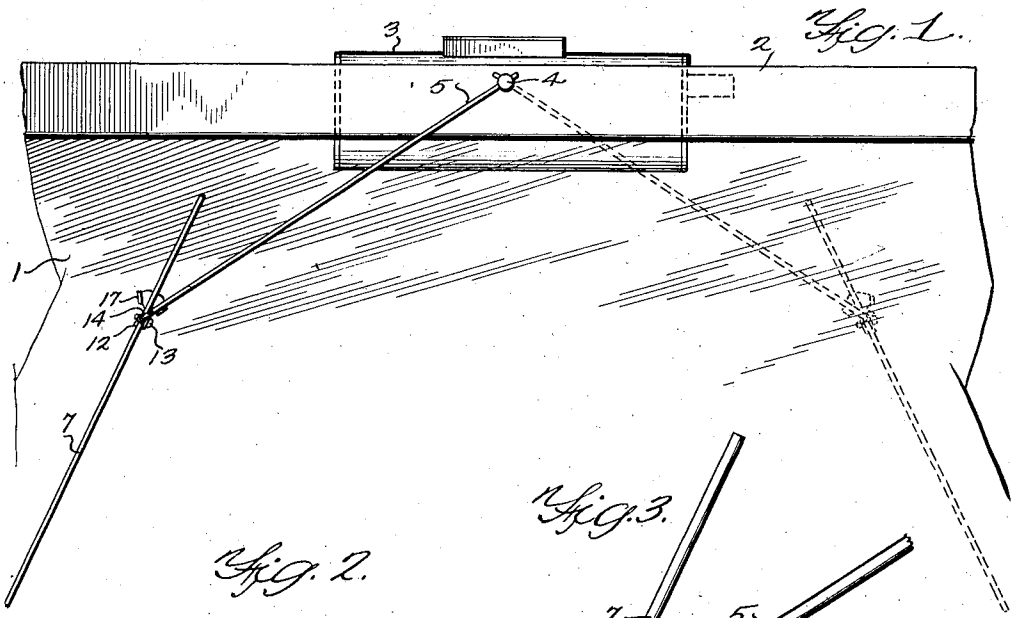


Fig. 2.

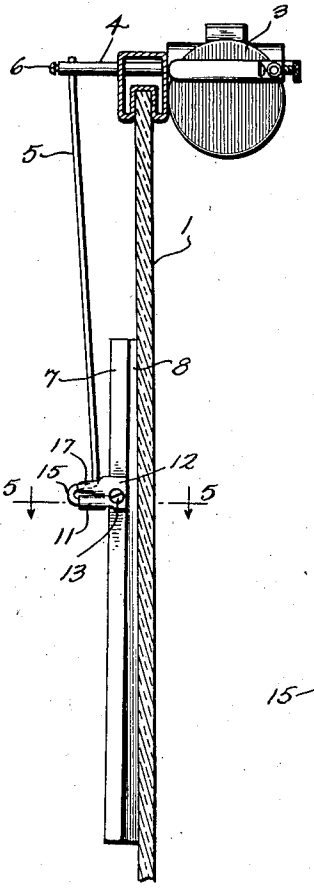


Fig. 3.

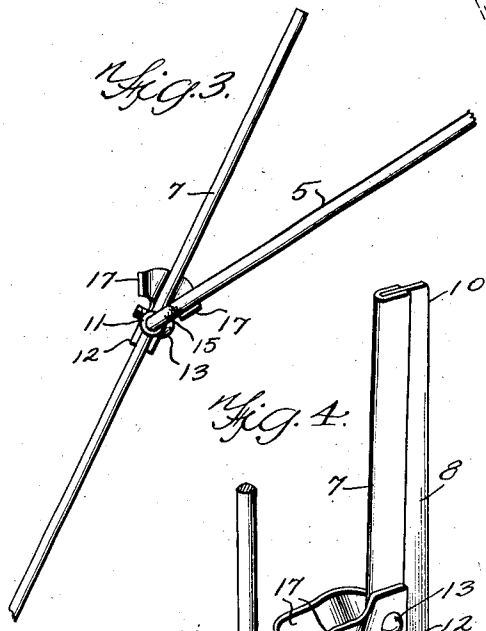


Fig. 4.

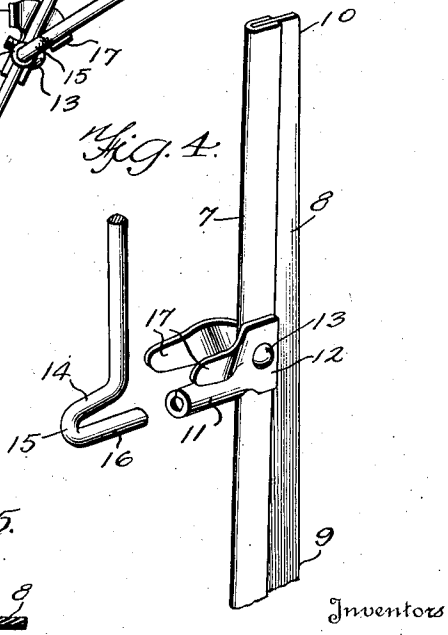
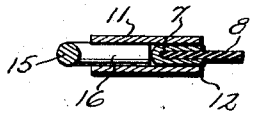


Fig. 5.



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UNITED STATES PATENT OFFICE.

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WINDSHIELD CLEANER.

Application filed March 29, 1924. Serial No. 702,872.

This invention relates to windshield cleaners, and more particularly to means for connecting a cleaner element to an oscillating cleaner arm.

In the type of windshield cleaner shown in the prior patent to William M. Folberth, Reissue No. 15,502, granted December 5, 1922, there is provided a cleaner motor having an oscillating shaft, a cleaner arm connected to the shaft to oscillate therewith and a cleaner element adapted to travel over the surface of the windshield to be cleaned and connected to the cleaner arm to swing therewith through an arc of a circle having as its center, the cleaner shaft on which the arm is mounted.

An object of the invention is the provision of means for increasing the amount of surface over which the cleaner element travels.

More specifically, an object of the invention is to provide means for changing the angle of the cleaner element to the cleaner arm whereby the space covered by the cleaner element more closely approximates a rectangle.

In the accompanying drawings, we have shown one embodiment of the invention. In this showing:

Figure 1 is a front elevation of a portion of a windshield showing the invention applied,

Figure 2 is a vertical sectional view of a windshield showing the cleaner in side elevation,

Figure 3 is a front elevation of a portion of the cleaner arm, and the cleaner element,

Figure 4 is a perspective view showing the cleaner arm and cleaner element disconnected, and,

Figure 5 is a detail sectional view on line 5—5 of Figure 2.

Referring to the drawings, the reference numeral 1 designates a windshield of ordinary construction mounted in the usual windshield frame 2. The windshield cleaner consists of a motor casing 3 which is preferably arranged on the inner side of the windshield, as shown. This motor casing is provided with a suitable actuating member (not shown) adapted to be actuated by differential pressure and is further provided with a transverse power shaft 4 connected to the actuating member by suitable means (not shown) and extending to the opposite side of the windshield. A cleaner arm 5 is mounted in a transverse bore in the shaft and the end of the shaft is provided with a longitudinal bore adapted to receive a set screw 6 to retain the cleaner arm in position.

The improvement forming the subject matter of the present invention consists of means for connecting a cleaner element to the cleaner arm 5. As shown, we provide a cleaner element consisting of a backing strip 7 of metal or other rigid material and a flexible strip 8 of rubber or other suitable material adapted to contact with the surface of the windshield to clean it. As shown, (see Figures 2 and 4) the lower portion 9 of the rubber strip is of greater width than the upper portion 10. A holder 11 is arranged on the backing strip. This holder comprises a sleeve arranged laterally of the backing strip and extending from the rear thereof and the sleeve is provided with a pair of spaced extensions 12 arranged on opposite sides of the backing strip. A bolt 13 passes through openings in the extensions 12 and the backing strip to secure the cleaner element in the holder. The lower end of the cleaner arm is extended away from the cleaner element, as at 14, and is then provided with a loop 15, the terminal 16 extending toward the cleaner element and being adapted to be received in the sleeve 11. Above the sleeve, the holder is provided with a pair of guides or stops 17.

The operation of the device is as follows:

The cleaner arm oscillates through an arc of a circle from the full line position shown at the left in Figure 1 of the drawings to the dotted line position shown at the right. By providing the connection between the cleaner arm and the cleaner element, which permits rotation of the cleaner element about the end of the cleaner arm as an axis, and widening the lower portion 9 of the rubber strip, the upper end of the cleaner element is caused to swing outwardly upon each stroke of the cleaner arm to a position beyond the cleaner arm, as shown in Figure 1 of the drawings, and the outer end is swung inwardly from the position which it would occupy if rigidly secured to the cleaner arm. The provision of the stops 17, which engage the cleaner arm as shown in Figures 1 and 2 of the drawings, limits the swinging movement of the cleaner arm about the end of the cleaner shaft as an axis. This movement may be varied by in-

creasing or decreasing the space between the stops.

The construction shown is particularly adapted for use on narrow, high windshields and on street car windows wherein the lower end of the blade would tend to travel beyond the sides of the windshield or window when a device of the ordinary construction is employed and an extremely long cleaner arm is used.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

We claim:

1. A windshield cleaner comprising a cleaner arm having a U-shaped extension vertical to said arm, a cleaner element, a holder for said cleaner element mounted near one end thereof and comprising a sleeve for receiving one leg of said U-shaped extension and projecting between the legs of the latter, and spaced limit stops extending from the holder and coacting with the other leg of said extension for limiting the swing movement of the cleaning element.

2. In a windshield cleaner, a cleaner arm pivoted to swing in an arc, and a cleaner element pivotally mounted adjacent its inner end on said arm for swinging in the plane of the windshield glass, said cleaner element comprising a backing strip of rigid material and a cleaning strip of flexible material adapted to contact with the surface of the windshield to be cleaned, said cleaning strip gradually increasing in width from its inner end toward its outer end whereby its widest end will engage the windshield glass at the outer side of the path of said cleaner element.

3. A windshield cleaner comprising a cleaner arm mounted for oscillation and having its outer end provided with an angularly extending terminal, a cleaner element consisting of a flexible wiper strip and a rigid backing strip, a holder secured to the backing strip and comprising a sleeve extending substantially perpendicularly from the rear edge of the cleaner element for pivotally receiving said terminal, and spaced stops extending from the cleaner element on opposite sides of the cleaner arm for coacting therewith in defining the extent of relative pivotal movement between the arm and cleaner element.

4. A windshield cleaner comprising a cleaner arm mounted for oscillation and having its outer end provided with an angularly extending terminal, a cleaner element consisting of a flexible wiper strip and a rigid backing strip, a holder secured to the backing strip and comprising a sleeve extending substantially perpendicularly from the rear edge of the cleaner element for pivotally receiving said terminal, and spaced stops extending from the cleaner element on opposite sides of the cleaner arm for coacting therewith in defining the extent of relative pivotal movement between the arm and cleaner element, said stops and said sleeve being stamped and formed from a single piece of sheet metal and secured to the cleaner element by a common point of securement.

In testimony whereof, we affix our signatures.

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