W. M. FOLBERTH.

ACTUATING DEVICE FOR WINDSHIELD CLEANERS.

APPLICATION FILED DEC. 13, 1919.

1,387,598. Patented Aug. 16, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

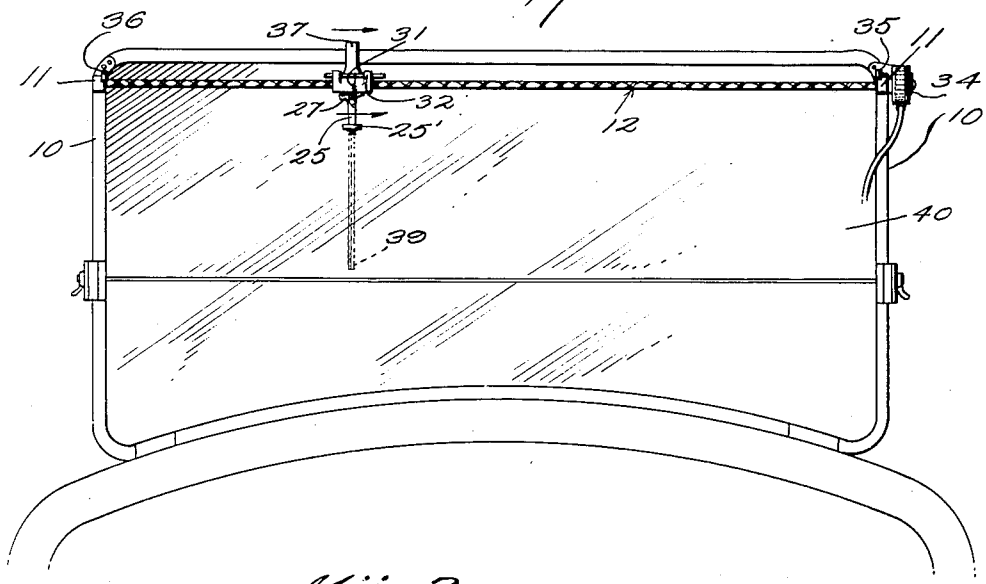


Fig. 2.

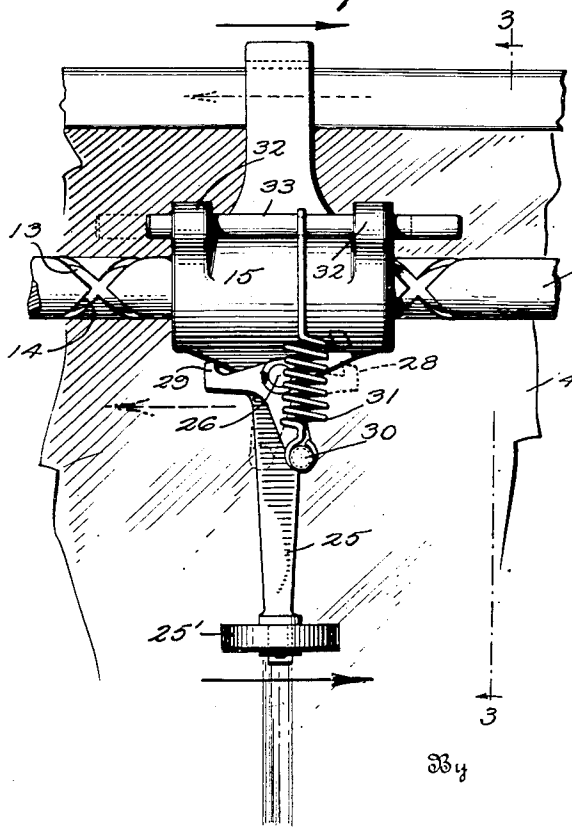
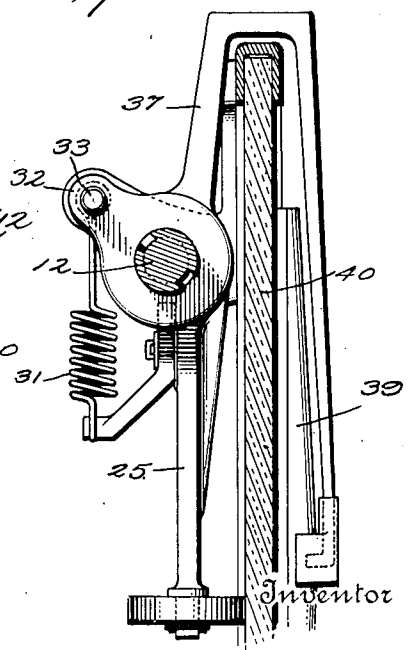


Fig. 3.



Inventor

WILLIAM M. FOLBERTH,

By C. L. Parker

Attorney

W. M. FOLBERTH.

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2 SHEETS—SHEET 2.

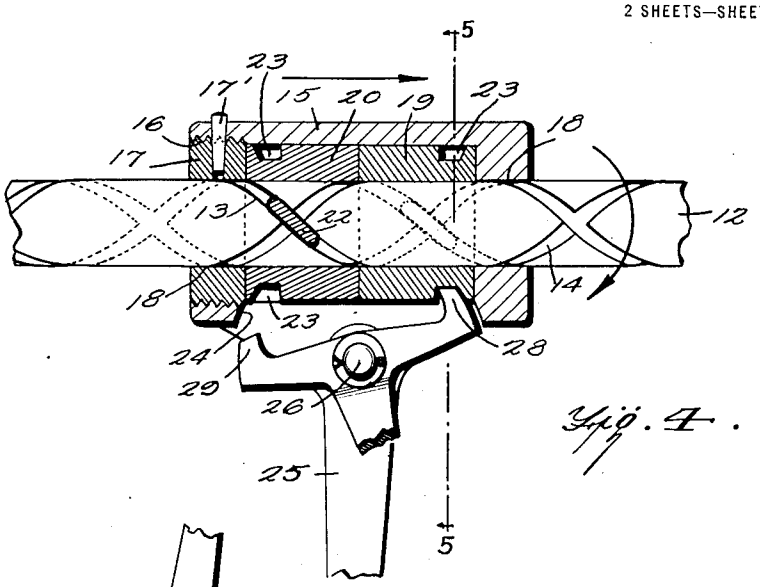


Fig. 4.

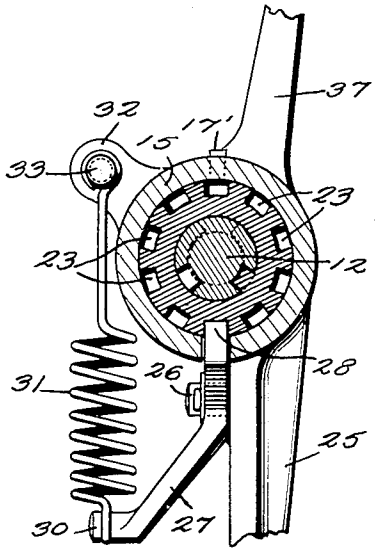
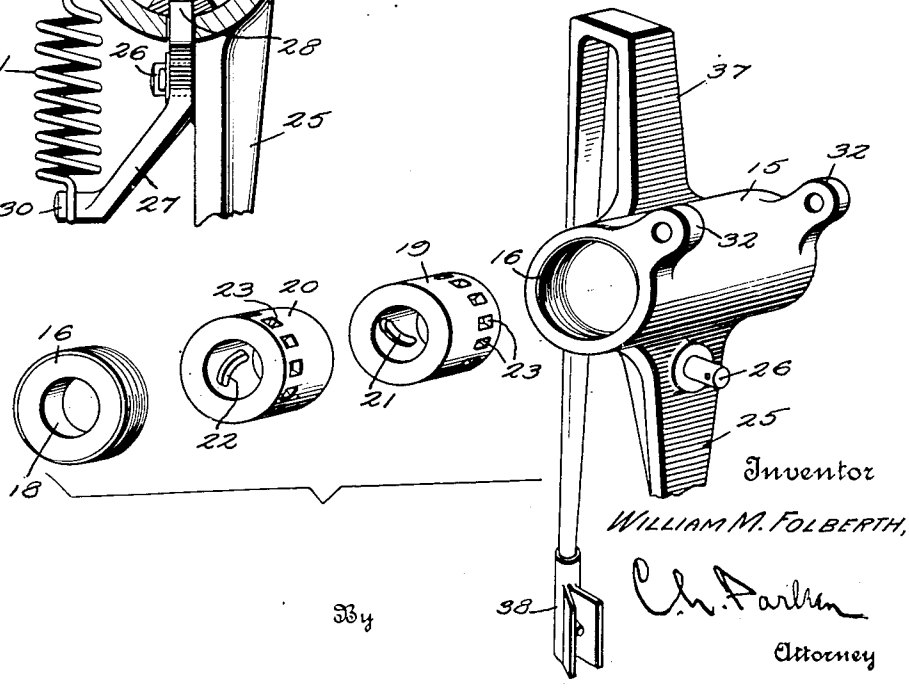


Fig. 5.

Fig. 6.



Inventor

WILLIAM M. FOLBERTH,

By Ch. Parker

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM M. FOLBERTH, OF CLEVELAND, OHIO.

ACTUATING DEVICE FOR WINDSHIELD-CLEANERS.

1,387,598. Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed December 13, 1919. Serial No. 344,628.

To all whom it may concern:

Be it known that I, WILLIAM M. FOLBERTH, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Actuating devices for Windshield-Cleaners, of which the following is a specification.

This invention relates to improvements in windshield cleaners and the like.

An important object of the invention is to provide a cleaner which will operate across the entire width of the windshield and thus clean the entire surface.

A further object of the invention is to provide a windshield cleaner of the above mentioned character, which is continuous in operation and which automatically reverses its motion at the completion of each stroke.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same—

Figure 1 is a front elevation of a windshield having attached thereto a cleaner, constructed in accordance with my invention,

Fig. 2 is an enlarged fragmentary front elevation of a cleaner embodying my invention,

Fig. 3 is a section taken on line 3—3 of Fig. 2.

Fig. 4 is a section taken through the operating mechanism for the cleaner.

Fig. 5 is a section taken on line 5—5 of Fig. 4, and,

Fig 6 is a combined perspective showing the interior construction of the operating mechanism.

Referring now more particularly to the drawings, the numeral 10 indicates a windshield as a whole; having attached thereto at opposite sides thereof, adjacent its upper portion, a pair of journals 11 in which is rotatably mounted a shaft 12.

The shaft 12 is provided throughout its length with a right-hand spiral groove 13 and a left-hand spiral groove 14. Slidably mounted upon the shaft 12 is a cylinder 15, having one end open and internally screw-threaded as at 16. This open end is adapted to receive and retain a plug 17, held in position by a pin 17′, extending through the wall of the cylinder 15 and the plug 17. The plug 17 and the opposite end wall of the cylinder 15 are provided with apertures 18 having a sliding fit with the shaft 12.

Mounted upon the shaft 12 within the cylinder 15 are sleeves 19 and 20. The sleeve 20 is provided with an internal lug 22, which enters the right-hand spiral groove 13 of the shaft 12, and the sleeve 19 is provided with a similar lug 21, which enters the left-hand spiral groove 14.

It will be obvious that if the shaft 12 is rotated and either of the sleeves 19 or 20 is locked against rotation with the shaft, that the cylinder 15 will travel either to the right or to the left, dependent upon which sleeve is locked against rotation.

The sleeves 19 and 20 are provided with circumferentially spaced recesses 23. In the bottom of the cylinder 15 is formed a slot 24, which exposes the plugs and the recesses 23 thereof. The cylinder is provided adjacent the recess with a downwardly extending portion 25, to which is pivotally connected, as at 26, a T-shaped member 27. The T-shaped member is provided upon the ends of the head thereof with upwardly extending latch lugs 28 and 29. When the T-shaped member is shifted upon its pivot, the latch lug 28 engages in the recesses 23 of the sleeve 19, or the latch lug 29 engages in the recesses 23 of the sleeve 20.

The lower arm of the T-shaped member 27 is provided with an outstanding portion 30, grooved to receive the looped end of a tension spring 31. Formed upon the upper side of the cylinder 15, and at opposite ends thereof, are ears 32, which are provided with apertures adapted to slidably receive a trigger 33. The upper end of the spring 31 is looped about the groove formed centrally of the trigger 33. The right-hand journal 11 is provided with a stop member 35, and the left-hand journal 11 is provided with a stop member 36.

The operation of my device is as follows:

Means for rotating the shaft continuously in one direction is provided, being shown in the present instance as a suction operated turbine motor 34. This motor causes the shaft to rotate in the direction of the curved arrow upon Fig. 4. Now, assuming the lug 28 to be engaged in one of the recesses 23 of the sleeve 19, the cylinder 15 travels toward

the right. Arriving at the right-hand end of the shaft 12, the trigger 33 comes into engagement with the stop member 35 and is moved to the left, as indicated by the dotted lines upon Fig. 2. The line between the center of the points of attachment of the spring 31 is thus shifted so that it lies upon the opposite side of the pivotal point of the T-shaped member 27. The tension spring will accordingly snap the T-shaped member to the position shown by the dotted lines in Fig. 2, causing the latch lug 29 to engage in the recesses 23 of the sleeve 20, and locking this sleeve against rotation. This causes the cylinder 20 to move to the left and upon its arrival at the opposite end of the shaft 12, the above operation is repeated with the exception of the fact that the trigger 33 is shifted to the left, and the sleeve 19 locked against rotation.

The cleaner member proper is carried by an arm 37, formed integrally with or attached to the cylinder 15, as may be desired, which extends upwardly and over the top of the windshield and downwardly to a point approximately centrally of the windshield. At its lower end, the arm 37 is provided with a cleaner member holder 38, of the type shown and described in my co-pending application Serial No. 328,560, filed October 4, 1919. The cleaner member holder 38 carries a cleaning element 39, which automatically alines with the glass 40 of the windshield 10. To insure the cleaner member 39 being held in firm engagement with the windshield glass 40, I provide, upon the lower end of the downwardly extending portion 25, a roller 25′, which contacts the windshield glass upon the opposite side thereof.

It is to be understood that the form of my 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.

What I claim is:

1. In a motor for windshield cleaners and the like, a rotatably mounted shaft provided with a pair of oppositely disposed spirals, a supporting member slidably mounted on said shaft, a driven element secured to said supporting member, a pair of sleeves mounted in said supporting member, a substantially T-shaped lever pivotally mounted on said supporting member, said T-shaped lever being adapted to alternately engage said sleeves and lock them against rotation, each of said sleeves being provided with a lug engaging one of said spirals, a longitudinally shiftable bar connected to said T-shaped member and adapted to move it on its pivot to disengage one of said sleeves and to engage the other of said sleeves, and means for moving said bar to operate said T-shaped member.

2. In a motor for windshield cleaners and the like, a rotatably mounted shaft provided with a pair of oppositely disposed spirals, a supporting member slidably mounted on said shaft, a driven element secured to said supporting member, a pair of sleeves mounted in said supporting member, each of said sleeves being provided with a plurality of recesses, a substantially T-shaped lever pivotally mounted on said supporting member, said T-shaped lever being adapted to alternately enter a recess in one of said sleeves and lock the sleeve against rotation, each of said sleeves being provided with a lug engaging one of said spirals, a longitudinally shiftable bar connected to said T-member and adapted to move it on its pivot to disengage it from one of said sleeves and engage it with the other of said sleeves, and means for moving said bar to operate said T-shaped member.

3. In a motor for windshield cleaners and the like, a rotatably mounted shaft provided with a pair of oppositely disposed spirals, a supporting member slidably mounted on said shaft, a driven element secured to said supporting member, a pair of sleeves mounted in said supporting member, a substantially T-shaped lever pivotally mounted on said supporting member, said T-shaped lever being adapted to alternately engage said sleeves to lock them against rotation, each of said sleeves being provided with a lug engaging one of said spirals, and means for moving said T-shaped member on its pivot to disengage one of said sleeves and to engage the other of said sleeves.

4. In a motor for windshield cleaners and the like, a rotatably mounted shaft provided with a pair of oppositely disposed spirals, a supporting member slidably mounted on said shaft, a driven element secured to said supporting member, a pair of sleeves mounted in said supporting member, each of said sleeves being provided with a plurality of recesses, a substantially T-shaped lever pivotally mounted on said supporting member, said T-shaped lever being adapted to alternately enter a recess in one of said sleeves and lock the sleeve against rotation, each of said sleeves being provided with a lug engaging one of said spirals, and means for moving said T-shaped member on its pivot to disengage it from one of said sleeves and engage it with the other of said sleeves.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM M. FOLBERTH.

Witnesses:
MAXWELL F. FOURNIER,
ERWIN HENRY EHLERS.