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E. C. HORTON
WINDSHIELD CLEANING APPARATUS

2,594,437

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Fig. 1.

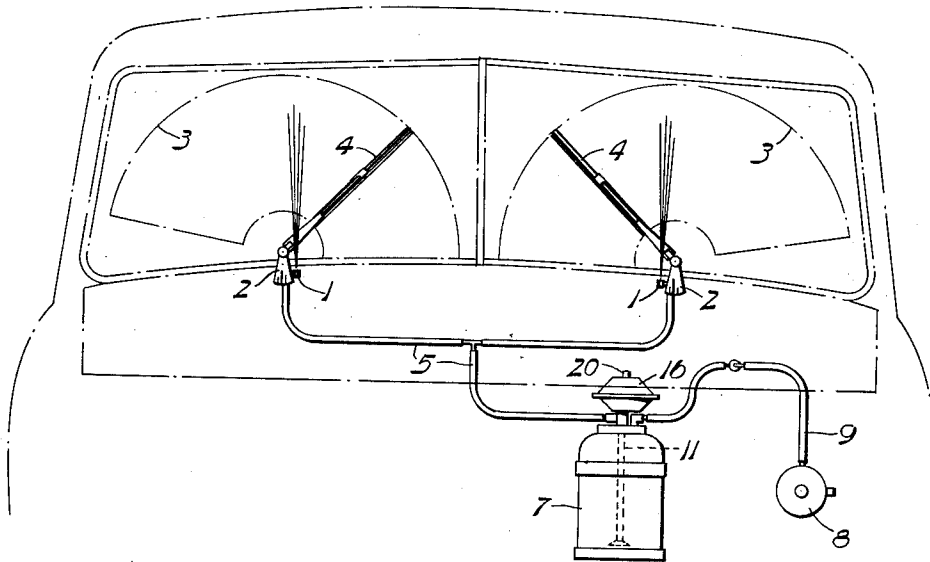


Fig. 2.

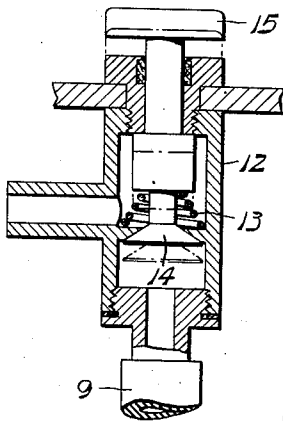
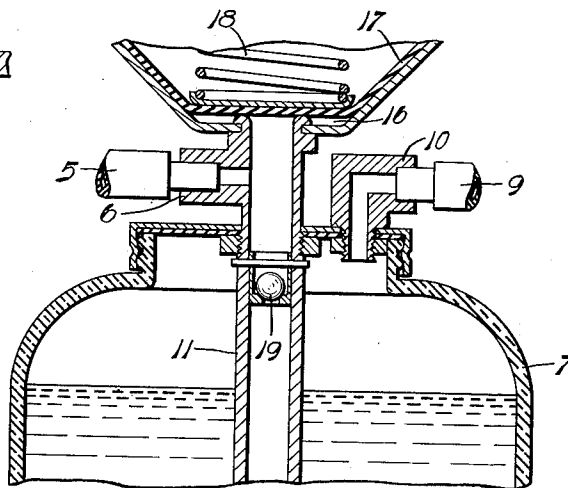


Fig. 3.



INVENTOR
Erwin C. Horton

BY
Beau, Brooks, Buckley & Beau.
ATTORNEYS

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WINDSHIELD CLEANING APPARATUS

Erwin C. Horton, Hamburg, N. Y., assignor to
Trico Products Corporation, Buffalo, N. Y.

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2 Claims. (Cl. 299—58)

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This invention relates to the window and windshield cleaning art and especially to that part in which water or other solvent is applied to the windshield glass for loosening matter thereon preliminary to removal of such vision obscuring matter by the usual wiper. It has heretofore been proposed to spray the liquid solvent onto the windshield for a brief interval of time only and if additional solvent is required to accomplish the intended purpose it was necessary to reactuate the spray means.

The primary object of this invention is to provide a windshield washer which will supply the solvent to the needed volume and at a given pressure to effect a practical and efficient performance.

Again, the invention resides in a novel arrangement and combination by which a supplemental quantity of solvent will follow the release of the manual control to insure a clean field of vision.

The foregoing and other objects will manifest themselves as this description progresses wherein reference is made to the accompanying drawing in which

Fig. 1 is a schematic view depicting the improved washer applied to an automobile;

Fig. 2 shows the control valve in longitudinal section; and

Fig. 3 is a fragmentary sectional view of the reservoir.

Referring more particularly to the drawing, the numerals 1 designate the jets or nozzles herein mounted on the wiper shaft housings 2 at the lower side of the windshield. Each jet is so disposed as to issue a solvent stream in an upwardly directed course to spray upon the windshield within the path 3 of the respective and usual wiper blade 4. The jets are connected by a hose 5 to the valved outlet 6 of a liquid-containing reservoir 7. A suitable source of fluid pressure, such as an air pump or rotary compressor 8, is joined by a conduit 9 to the inlet 10 of the reservoir and since the reservoir is airtight it becomes apparent that the delivered air pressure will depress the solvent within the reservoir and force it up the depending pipe 11, through the outlet 6 and out of the jets. The communication between the reservoir and the air under pressure is established by opening a valve 12 in which a spring 13 serves to hold the valve part 14 normally seated. By depressing the valve button 15 the solvent will be forcibly ejected from the jets onto the window and this spray will continue until the valve is released or the liquid supply is exhausted. The outlet valve will act to hold the liquid residue

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from the last discharge within the conduit 5 against drainage back into the reservoir.

In order to prolong the action of the water spray, a reserve chamber 16 is interposed in the water line 5, 11 to receive a portion of the expressed solvent in excess to the capacity of the small orifice in each jet. A wall 17 of the reserve chamber yields against the action of a backing spring 18 to enlarge the chamber capacity. After the control valve has closed, the spring 18 will act to depress the movable wall 17 and thereby continue the issuing jet for a definite period. An inlet valve 19 insures unidirectional flow of the solvent. The upper side of the movable wall will be opened to the atmosphere, as through a vent 20.

It is therefore apparent that the solvent spray will be forcibly ejected by the air pressure, as long as the air line communication is open, and thereafter by the spring 18. The air expressed stream will be indefinite while the spring propelled jet will be of uniform duration for a given air pressure. The motorist will hold the valve 14 depressed until the windshield is clear of its vision obscuring matter, or substantially so, and then release the valve following which the spring ejected spray will continue for a definite period before stopping. Thus, the supplemental charge of solvent will serve to flush the windshield clear. The reservoir has a closure 21 which normally is sealed airtight but adapted to be opened or removed for replenishing the solvent supply.

The foregoing description has been given in detail for clarity and without thought of limitation since the inventive principles are capable of assuming other physical embodiments without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. A window washer comprising a jet, an airtight liquid containing reservoir in open communication therewith for fluid flow to the jet, a source of air pressure in the form of a rotary compressor acting to supply a steady flow of air under a uniform pressure, means operable to connect the source to the reservoir for displacing liquid therefrom and through the jet, a reserve chamber comprising a yieldable wall backed by a spring to normally position the wall to close off the chamber, said wall yielding to the liquid pressure within the connection between said jet and said reservoir, said chamber joined by a branch passage to the connection between the jet and reservoir to momentarily receive liquid in excess of the jet capacity simultaneously with

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the emission of the liquid spray, said yieldable wall having a relatively larger area of displacement than the branch passage to expel the excess liquid in continuing the stream issuing from the jet after the first means becomes inoperative, and an outlet check valve for the reservoir interposed in the connection between the reservoir and the branch passage.

2. A window washer comprising a jet, an airtight liquid containing reservoir in open communication therewith for fluid flow to the jet, a source of air pressure in the form of a rotary compressor acting to supply a steady flow of air under a uniform pressure, means operable to connect the source to the reservoir for displacing liquid therefrom and through the jet, a reserve chamber comprising a yieldable wall backed by a spring to normally position the wall to close off the chamber, said wall yielding to the liquid pressure within the connection between said jet and said reservoir, said chamber joined by a branch passage to the connection between the jet and reservoir to automatically receive liquid in excess of the jet capacity, and an outlet check valve for the reservoir interposed in the connection between the reservoir and the branch passage, said yieldable wall having a relatively larger area of displacement than the branch passage for reced-

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ing as excess liquid enters, and said spring acting to return the wall for expressing the liquid in continuing the liquid spray following an interruption in the action of the connecting means.

ERWIN C. HORTON.

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