

1,017,661.

C. H. FOSTER.
CLEANING DEVICE.
APPLICATION FILED FEB. 14, 1910.

Patented Feb. 20, 1912.

2 SHEETS—SHEET 1.

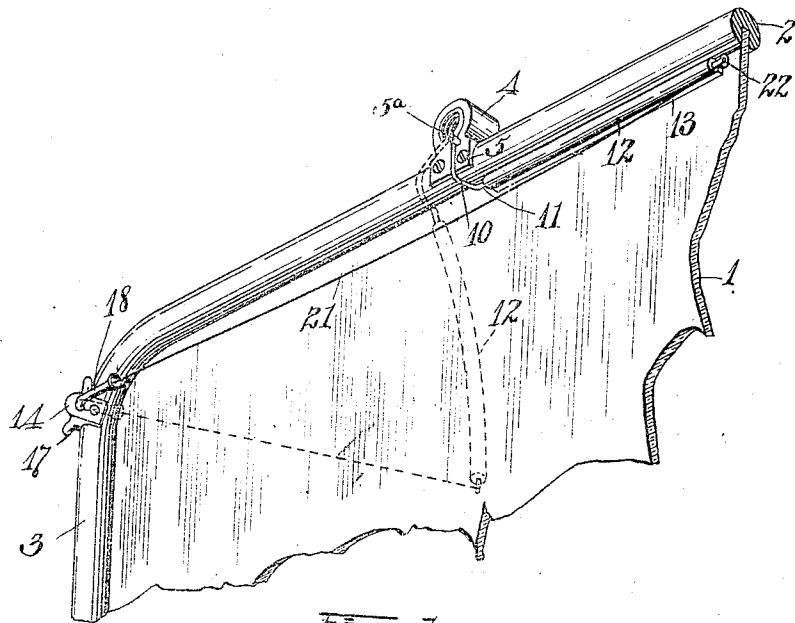


Fig 1

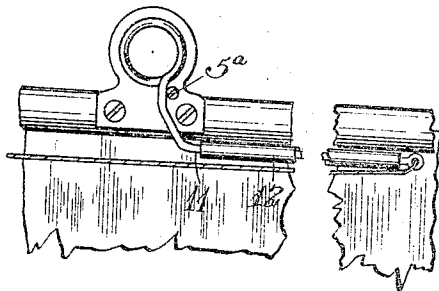


Fig 2

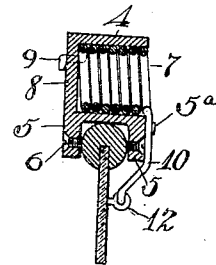


Fig 3



Fig 4

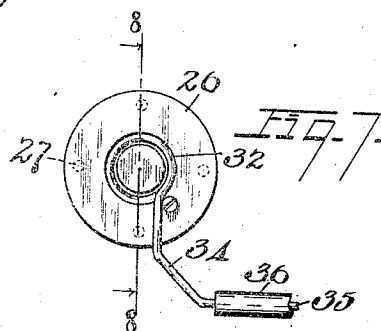
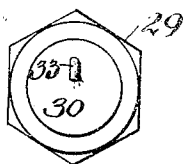
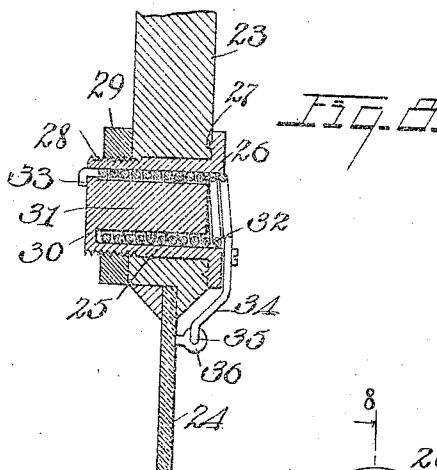
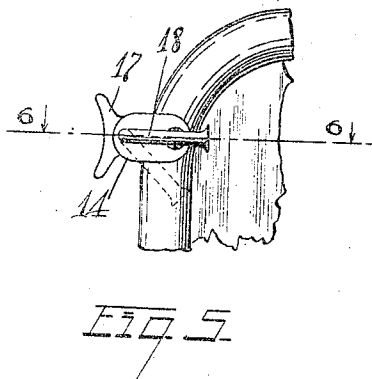
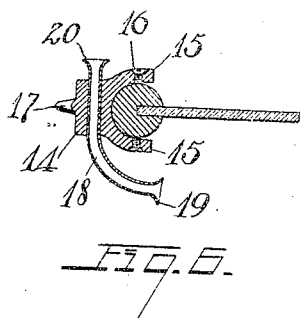
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By Bates, Fouts & Hull
Attys

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UNITED STATES PATENT OFFICE.

CLAUD H. FOSTER, OF CLEVELAND, OHIO.

CLEANING DEVICE.

1,917,331.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed February 14, 1910. Serial No. 543,733.

To all whom it may concern:

Be it known that I, CLAUD H. FOSTER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Cleaning Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to devices for cleaning windows, wind shields of automobiles, and like surfaces which are liable to become obstructed or obscured.

My invention is applicable, among other objects, to observation windows for locomotives, to windows of cars, and to wind shields for automobiles on which material, such as sleet, snow, mud, etc., is apt to accumulate, thus interfering with the view of the operator.

The object of the invention is to provide a cleaning device of this kind which may be conveniently and quickly operated without requiring the expenditure of any material amount of time or attention on the part of the operator, thus avoiding the liability of distracting his attention from other and more important objects.

The general object of my invention is to provide a cleaner of this kind which shall be efficient in operation, economical of production and which is adapted for easy application to the objects with which it is to cooperate.

Still further and generally speaking, the invention may be defined as consisting of the combinations of elements embodied in the claims hereto annexed and illustrated in the drawings forming a part hereof, wherein—

Figure 1 represents a perspective view of a portion of an automobile wind shield showing a cleaning device constructed in accordance with my invention applied thereto; Fig. 2 a detail in side elevation of the devices shown in the preceding figure; Fig. 3 represents a sectional detail through the top of the wind shield and through the spring barrel used with my appliance; Fig. 4 a sectional detail of the cleaning member of the appliance; Figs. 5 and 6 details in elevation and section, respectively, of the means for supporting and guiding the cord by means of which the cleaning member is operated; Fig. 7 a detail in elevation and Fig. 8 a detail in section of a form of spring barrel

which is particularly adapted for use with the wooden frames of windows, and Fig. 9 an elevation of the rear or reverse end of the barrel from that shown in Fig. 7.

The embodiment of my invention disclosed herein comprises a coiled spring, the spring being provided with an extension having a cleaner applied thereto, with a flexible device, as a cord, operatively secured to the cleaner and extending to a second device from which the flexible member may be operated and to which it may be secured.

Describing the parts by reference characters and with particular reference to the embodiment of the invention shown in Figs. 1 to 6 inclusive, 1 denotes the transparent member or pane of an automobile wind shield and 2 the top and 3 one side of the stiffening bar or frame to which the outer edge of the said member is secured. To the upper portion 2 of this frame a barrel 4 is secured in any convenient manner, as by means of the integral flanges 5 and set screw 6 shown herein. Within this barrel there is coiled a spring 7, one end of which is shown as projecting through the closed head 8 of said barrel and this end of the spring is secured to the head and the spring is prevented from being withdrawn from the barrel by bending the end 9 against the head 8. The other end of the spring is bent around the adjacent flange 5 and beneath the frame 2, as shown at 10, and forms a resilient arm which is adapted, under ordinary or normal conditions, to extend parallel with the lower surface of the frame and in substantial contact therewith. This extension 11 of the spring has applied thereto the cleaning member 12. This cleaning member is conveniently formed of rubber and is sleeved upon the extension 11 and is provided with a lip 13, substantially co-extensive in length with the body of said member and bearing against the transparent member 1.

14 denotes a supporting member provided with a pair of flanges 15 adapted to receive the wind-shield frame, to which the member 14 may be conveniently secured, as by means of the set screws 16. The member 14 is provided with a cleat 17 and with a transverse bore in which there is rotatably mounted a tube 18.

For convenience of description, that surface of the transparent member 1 which faces the direction of travel of the automo-

bile will be called the "front" surface and the opposite surface, which is toward the driver or chauffeur, will be called the "rear" surface.

- 5 The cleaning member 12 will bear against the front surface of the transparent member and one end of the tube 18 will project substantially parallel with such front surface and will be provided with a flared end, as shown at 19. The opposite end of the tube will not be deflected, but will project rearwardly toward the chauffeur or driver and will be also provided with a flared end 20. This tube 18 is for the reception of a flexible operating device 21, preferably a cord. One end of this cord is shown as secured to an eye 22 on the end of the spring extension 11 that carries the cleaning member 12. The cord extends through the tube 20 18 and is in convenient position to be operated by the chauffeur.

- In operation, suppose the surface of the wind shield should become obscured, as by snow, rain, dirt, or other obstruction. The chauffeur merely pulls quickly upon the cord 21; this sweeps the cleaning member 12 in contact with the front surface of the transparent member of the wind shield. Owing to the flexibility of the spring extension 11, the member 12 and the spring extension will generally assume the curved form shown in dotted lines, Fig. 1. The swiveling of the tube 18 enables the latter to accommodate itself to the various positions of the outer end of the spring extension 11, and this with the provision of the flared ends of the tube, avoids cutting the cord. When the operator releases the cord, the spring restores the member 12 to the position, shown in Fig. 1. As this member returns to its initial position, the front surface of the transparent wind shield member is not only again cleaned, but the material tending to accumulate upon the member 12 is largely "whipped" off by centrifugal action, this whipping action being accentuated by the stop projection 5^a, which the projection 10 is adapted to engage.

- It will be observed that the end 22 of the spring extension 11 is off-set from the axis of the coil 7. This, together with the location of the supporting member 14, gives a proper lead to the cord to enable the latter to operate efficiently upon the cleaning member. Furthermore, when not in operation, the cord 21 will lie mainly beneath the top portion 2 of the frame. The cleat 17 which is carried by the supporting member 14 affords convenient means for securing the operating cord when not in use.

- In Figs. 7, 8 and 9 there is illustrated a modification of the form of a spring barrel which is particularly well adapted for use with windows having wooden frames,—for instance windows of locomotives, observa-

tion cars, electric cars, etc. In this embodiment of my invention, 23 denotes the frame and 24 the transparent member of such a window. The spring barrel used with this frame comprises an outer casing 25 open at one end and having at such end an outwardly projecting flange 26 having a plurality of sharp projections 27 adapted to engage the frame. The opposite end of the barrel is provided with an external thread 28 for the reception of a nut 29, by means of which the barrel may be clamped securely in place and the projections 27 embedded in the frame. The end of the barrel opposite the flange 26 is provided with a head 30 carrying an integral central stud 31 which projects nearly through the barrel. Between this stud and the inner surface of the barrel there is provided an annular space for the reception of the coiled spring 32, one end 33 of which projects through the head 30 and is bent against the same and the other end of which is bent downwardly under the frame 23, as shown at 34, and is provided with an extension 35 carrying the cleaner 36.

While I have described my invention as specifically adapted for application to automobiles, windows of locomotives; electric cars and the like, it will be apparent that other uses of the same may occur, and I do not propose that my invention shall be limited in use to the objects specifically enumerated.

Having thus described my invention, what I claim is:

1. The combination, with a frame for a pane, of a coiled spring supported by said frame, said spring being provided with an extension, and a cleaning member carried by said extension and arranged to be moved in an arc across a portion of the surface of said pane.

2. The combination, with a frame for a pane, of a resilient arm supported at one end by said frame and having a cleaning member adapted to engage the pane, a pivoted tube carried by said frame, a spring arranged to resist the movement of said arm in one direction, and a flexible operating device connected with said arm and extending through said tube, said tube having a portion extending substantially parallel with said pane.

3. The combination, with a frame for a pane, said frame comprising a pair of angularly disposed members, a resilient arm supported at one end by one of the frame members, a cleaning member carried by said resilient arm, a flexible device connected with said arm for moving the same in an arc, and a tube pivotally supported by the other member of the frame and extending substantially parallel with the pane and through which tube the flexible device extends.

4. The combination, with a frame for a pane, of a barrel carried by said frame, a coiled spring within said barrel, said spring being provided with an extension which is offset from the center of such coil, and a cleaning member carried by said extension, said member being arranged so as to swing in an arc adjacent to the surface of the pane.

5. The combination, with a frame for a pane, of a barrel carried by said frame, a coiled spring within said barrel, said spring being provided with an extension which is offset from the center of such coil, a cleaning member carried by said extension, said member being arranged so as to swing in an arc adjacent to the surface of the pane, a cord operatively secured to said arm, and a swiveled tube through which said cord extends, said tube having a branch extending substantially parallel with the pane.

6. In a device of the character set forth, the combination of a frame, a barrel carried by a portion of said frame, a coiled spring in said barrel, said spring being provided with an extension, a cleaning member carried by said extension, a supporting member carried by another portion of said frame, a swiveled tube carried thereby, and a flexible operating device extending through said tube and operatively connected to said extension.

7. The combination, with a frame for a pane, of a barrel secured to a portion of said frame, a coiled spring within said barrel and provided with an offset extension normally lying parallel with the adjacent portion of the frame, a cleaning member connected to said extension, and a flexible operating device connected with said extension.

8. The combination, with a frame for a pane, of a resilient arm yieldingly sup-

ported at one end, a cleaning member connected thereto, means connected to the portion of said arm which is remote from its support for moving the same and the cleaning member across a portion of said pane, and a stop arranged to be engaged by said arm when it reaches its normal position to clear the cleaning member by inertia.

9. The combination, with a frame for a pane, of a coiled spring supported by said frame, an arm forming an extension of said spring and arranged to be swung in an arc across a portion of the surface of said pane against the resistance of said spring, a cleaning member connected to said arm, and a stop arranged to be engaged by said arm when the latter reaches its normal position.

10. In a device of the character set forth, the combination of a resilient arm, means for supporting the same at one end adjacent to a pane, a cleaning member connected to said arm, and a flexible operating device connected to the outer or free portion of said arm, the arm being of such resiliency as to be flexed by the operating device.

11. In a device of the character set forth, the combination of a resilient arm, means for supporting the same at one end adjacent to a pane, a cleaning member connected to said arm, a flexible operating device connected to the outer or free portion of said arm, the arm being of such resiliency as to be flexed by the operating device, and a stop arranged to be engaged by said arm when it reaches its normal position.

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

CLAUD H. FOSTER.

Witnesses:

IDA E. DUNHAM,
HUGH B. MCGILL.