E. H. BROWN.

DEVICE FOR CLEANING WINDOWS.

APPLICATION FILED MAR. 3, 1909.

950,991.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.

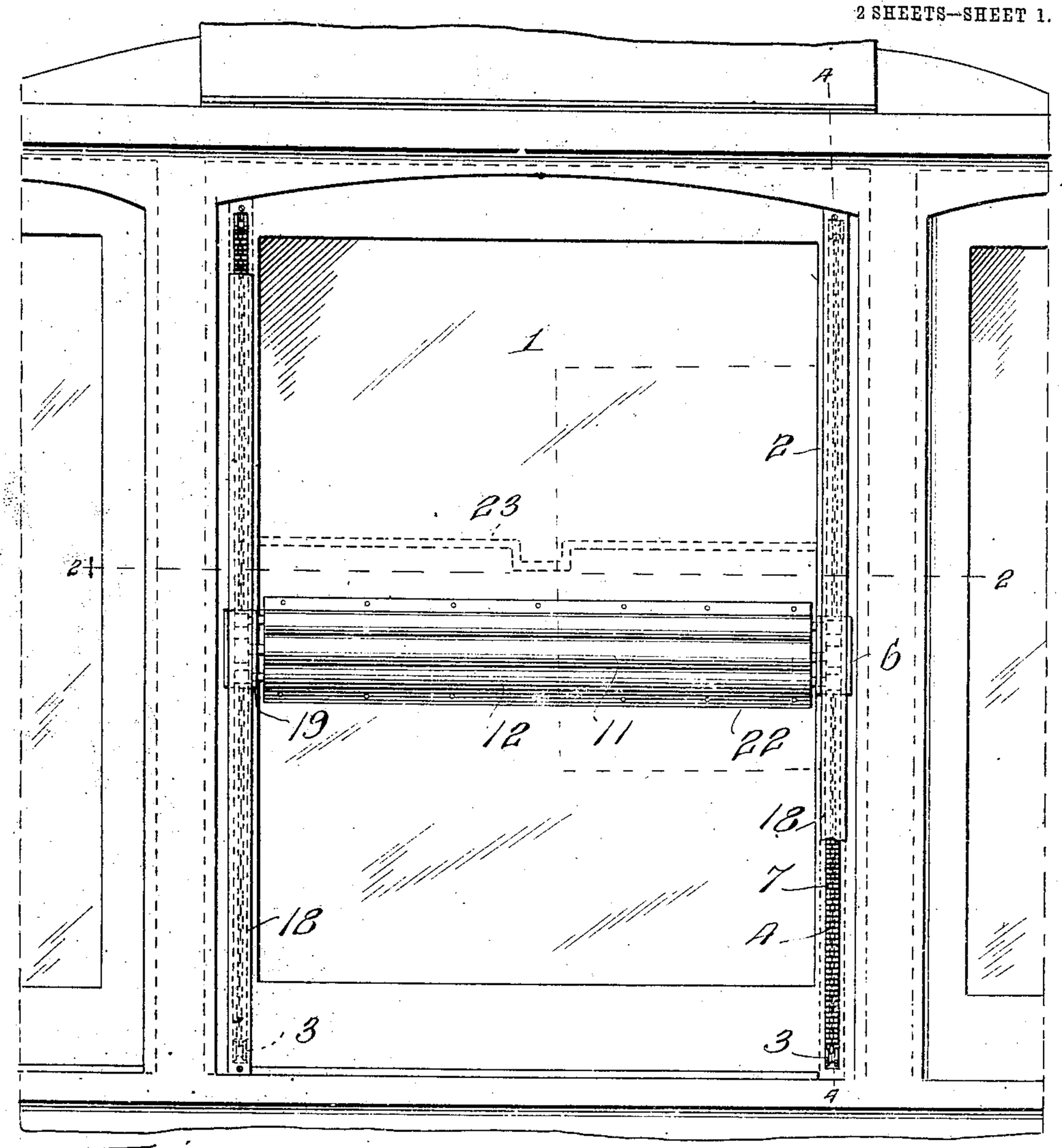
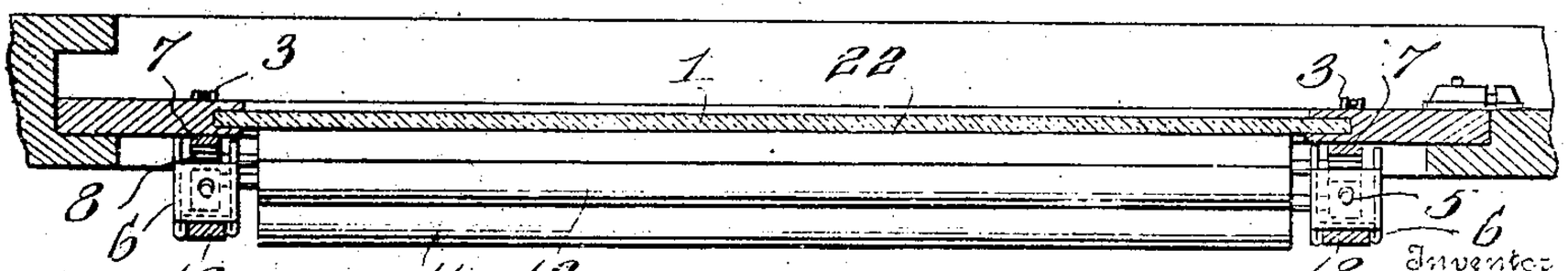


Fig. 2.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

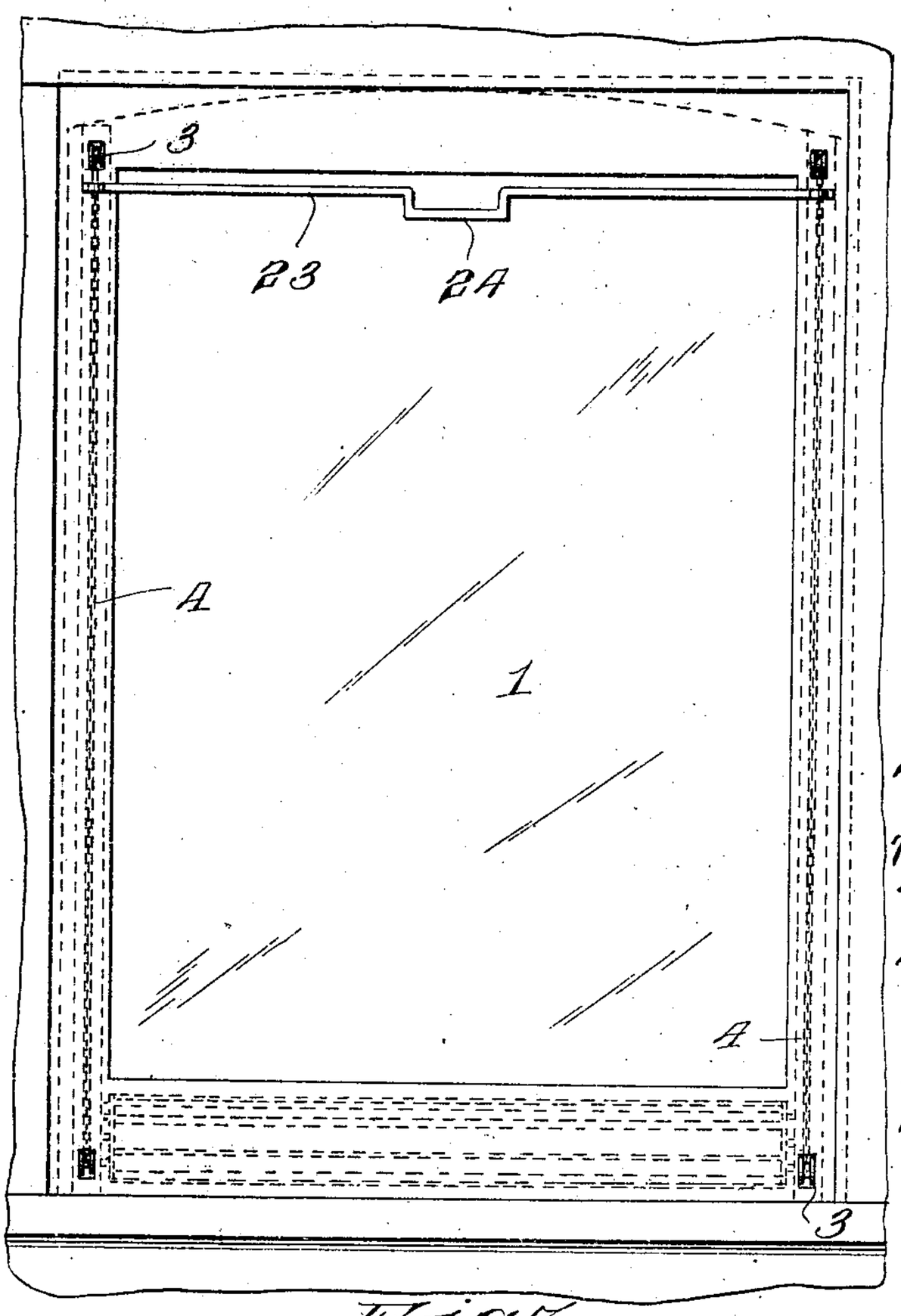


Fig. 7.

Fig. 4.

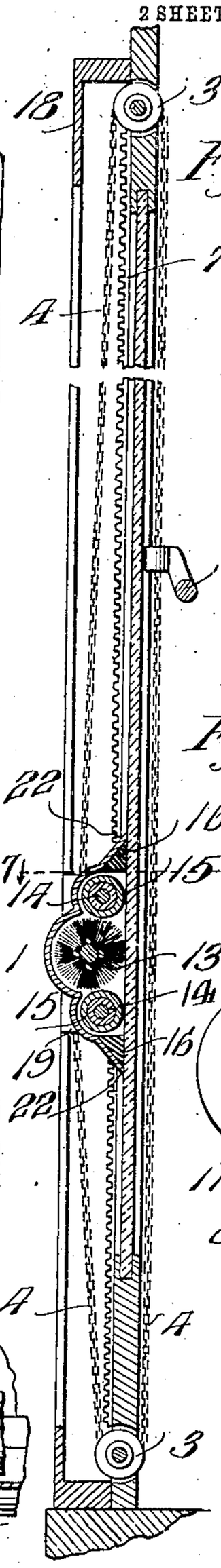
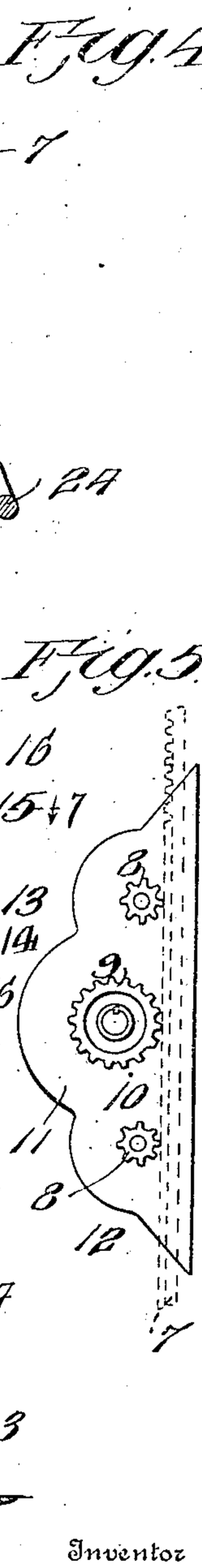


Fig. 5.



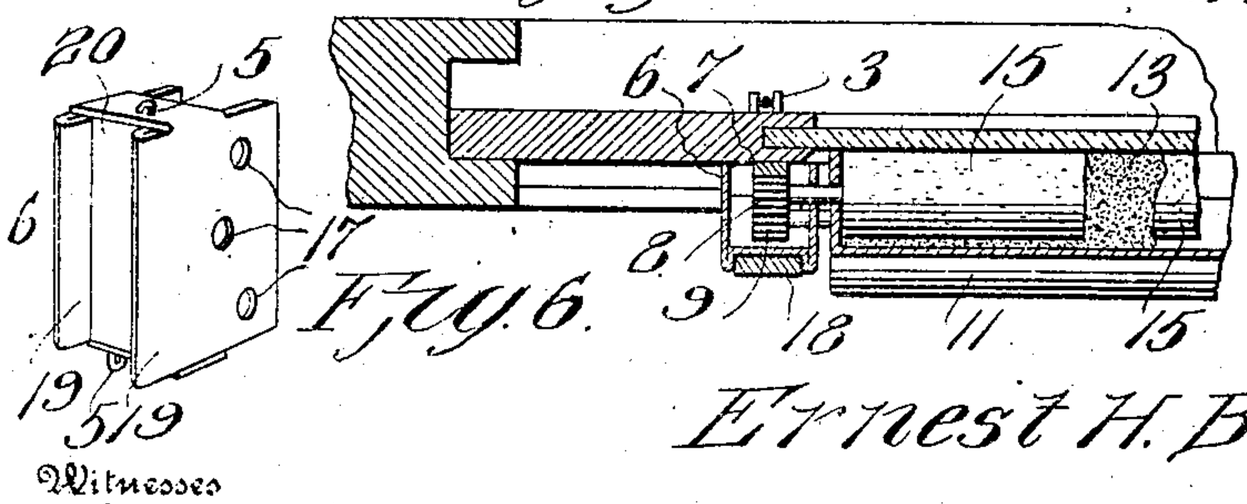


Fig. 6.

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UNITED STATES PATENT OFFICE.

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DEVICE FOR CLEANING WINDOWS.

950,991. Specification of Letters Patent. **Patented Mar. 1, 1910.**

Application filed March 3, 1909. Serial No. 481,058.

To all whom it may concern:

Be it known that I, ERNEST H. BROWN, a subject of Great Britain, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Devices for Cleaning Windows, of which the following is a specification.

This invention relates to cleaning devices for windows, and is primarily directed for use in connection with car windows employed in the vestibule of a traction car occupied by the driver or motorman, and the principal object of the invention is to provide a device of this character which may be easily operated by the said driver or motorman while the car is in motion without necessitating the driver's removal from his post or losing his control of the propelling mechanism of the car.

With the above and other objects in view, the invention resides in the novel construction and arrangement of parts whereby a driver or motorman of a car may readily remove the mist, snow, rain or sleet which may contact the window and obscure his view of the track which the car is to traverse.

In the accompanying drawings there has been illustrated a simple and approved design of the invention, and in which,

Figure 1 is a partial front elevation of a car provided with the improvements. Fig. 2 is a sectional view upon the line 2—2 of Fig. 1, slightly enlarged. Fig. 3 is an inner view of Fig. 1. Fig. 4 is an enlarged vertical sectional view upon the line 4—4 of Fig. 1. Fig. 5 is a side elevation of the carriage. Fig. 6 is a perspective view of the carriage guide. Fig. 7 is an enlarged sectional view upon the line 7—7 of Fig. 1.

In the accompanying drawings the numeral 1 designates a sliding sash usually employed in connection with the vestibules of cars, but it is to be understood that the apparatus, hereinafter to be described, is not limited to car windows as it may be effectively operated upon other window sashes if desired. The window 1 has its vertical stiles 2, each provided with suitable openings at their tops and bottoms within which are rotatably mounted suitable pulleys or sprocket wheels 3. The pulleys or sprockets 3 are each adapted for the reception of suitable chains or other flexible elements 4. The free ends of each of the chains or flexible members 4 are adapted to be received within suitable eyes carried by a carriage guide 6 plainly illustrated in detail in Fig. 6 of the drawings.

The outer faces of each of the vertical stiles are provided with suitable vertically arranged toothed racks 7, and these racks are adapted for engagement with toothed wheels 8, 9 and 10, carried upon the ends 11 of the carriage 12. This carriage 12 is adapted to serve as a housing for the central bushing member 13 carried by the central shaft upon which the toothed wheel 9 is positioned and the roller members 14 having their outer faces coated with cloth or rubber as designated by the numeral 15. These roller members 14 as well as the brush member 13 have their shafts extending a suitable distance away from the ends of the casing and are adapted for engagement with the openings 17 carried by the guide 6. When the shafts are positioned within the said guide the wheels 8, 9 and 10 are positioned thereon, thus allowing the casing 11 to extend the full width of the hinge, while the casing 6 may be positioned adjacent the said stiles 3 of the hinge and force the toothed wheels into engagement with the toothed racks 7 in a manner which will hereinafter be fully set forth.

By reference to Fig. 5 of the drawing it will be noted that the carriage 12 comprises a central curved portion within which the brush 13 is housed and extending from each side of this curved portion are small faces within which the rollers 14 are housed while projecting toward the end of the carriage are oppositely disposed inclined members each being provided with a substantially U-shaped rubbing element 16 composed of rubber or the like.

The guide 6 comprises a substantially rectangular member comprising a pair of spaced sides, one of which being provided with openings 17 and these sides have their edges inturned as at 19 so as to provide a guide way, which is adapted to contact with suitable frames hereinafter to be fully set forth. The guide members 6 are also provided at their tops and bottoms with suitable connecting elements upon which the eyes 5 are positioned, thus leaving a back open portion within which the wheels 8, 9 and 10 are housed.

The numeral 18 designates the guide of the device. This guide frame is preferably constructed of some suitable resilient material,

substantially rectangular in cross section and having its ends provided with offset feet whereby it is connected with the casing of the frame. The vertical arms of this member 18 are adapted to engage with the ways 20 provided between the projecting edges or ends 19 of the guide 6 and as these guides are connected through the medium of the shafts carrying the casing 11, the said resilient arms will exert an inward pressure causing the rollers and brush within the casing to tightly engage the glass of the sash and at the same time force the toothed wheels 8, 9 and 10 firmly into engagement with the teeth of the rack bar 7. Connected with each of the flexible elements 4 upon the interior of the vestibule of the car or like device to which the device is attached is a transverse rod 23. This rod is preferably provided with a centrally arranged downwardly extending offset or handle portion 24 as clearly illustrated in Fig. 2 of the drawing. With this arrangement it will be noted that the device may be operated from the interior of the car and that the driver or motorman may retain one hand upon the propelling mechanism and manipulate the cleaning apparatus with the other and without danger of losing control of the car.

Having thus fully described the invention what is claimed as new is:

1. A window sash having its vertical side rails provided with toothed bars, a cleaning device provided with toothed wheels engaging the toothed bars, said cleaning device comprising a casing carrying yieldable rollers and a rotatable brush member positioned intermediate of the rollers, and means connected with the cleaning device, whereby the same is forced resiliently into engagement with the toothed bars, and means for operating the device from the offset side of the sash.

2. In a window cleaning device, the combination with a window frame, a casing extending transversely of the glass of the frame, said casing having oppositely disposed inclined edges, flexible scraping members engaged within the inclined portions of the casing, yieldable rollers within the casing, a brush member intermediate of the rollers within the casing, shafts for these rollers and brush members, guide members having their sides provided with openings engaging the shafts, wheels upon the shafts within the guide members, said guide members having their outer faces provided with ways, toothed rack bars upon the frame, resilient guide members provided with vertical arms upon the casing of the frame, the vertical arms of the guide frames adapted to engage within the ways of the guide member, and flexible members secured to both the top and bottom of the guide and extending upon the opposite face of the sash, substantially as and for the purpose set forth.

3. The combination with a window frame having its vertical stiles provided with toothed racks, resilient guide frames also upon the side stiles and offset from the racks, said frame being provided with upper and lower rollers communicating with the opposite side of the frame and adjacent the ends of the toothed racks, a casing having oppositely inclined longitudinal edges extending transversely of the frame, a flexible element connecting the opposite sides of the rollers and extending upon the opposite face of the frame, said casing adapted for engagement with the resilient guide frames and being provided with rotary cleaning members and end stationary cleaning members, and an operating bar connected with the flexible elements upon the opposite side of the sash.

4. The combination with a sash having its vertical stiles provided with toothed racks and openings adjacent the ends of the racks adapted for the reception of pulleys, resilient offset guide frames upon the stiles, a casing having a plurality of toothed wheels provided upon axles extending longitudinally of the said casing, the casing being provided with oppositely disposed beveled longitudinally extending edges, stationary cleaning members upon the interior of the casing adjacent its inclined ends, rotary cleaning members upon the shafts of the casing, guide carriages engaging the said shafts and the guide frames of the sash and adapted to force the wheels of the casing into contact with the racks, and a flexible element connected with both the top and bottom of the guide carriage extending over the pulleys of the sash and provided with an offset connecting rod, substantially as and for the purpose set forth.

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

ERNEST H. BROWN.

Witnesses:
J. W. CURTS,
N. E. LINCOLN.