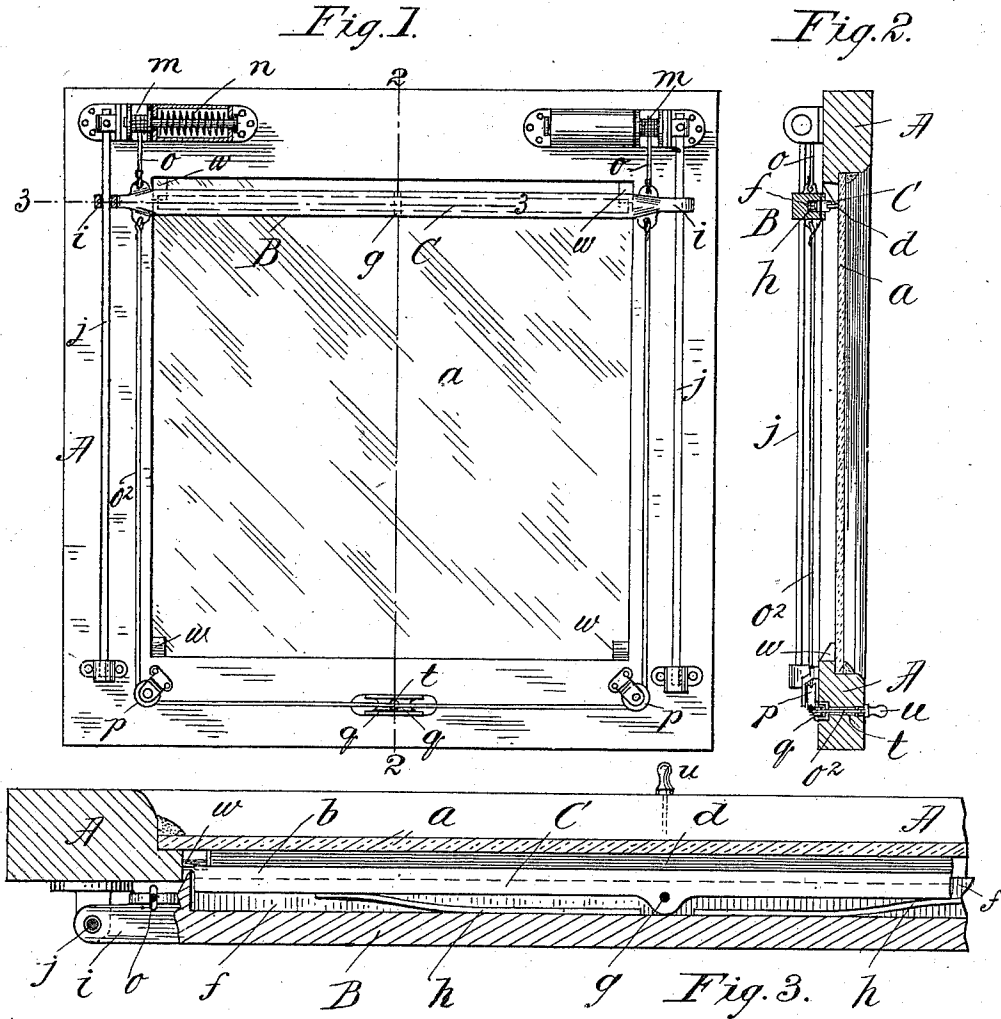


(No Model.)

G. EZEKIEL & E. E. STONE.
WINDOW CLEANING DEVICE.

No. 579,108.

Patented Mar. 16, 1897.



WITNESSES:
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INVENTORS,
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UNITED STATES PATENT OFFICE.

GEORGE EZEKIEL, OF PALMER, AND EVERETT E. STONE, OF SPRINGFIELD, MASSACHUSETTS; SAID STONE ASSIGNOR OF ONE-HALF HIS RIGHT TO CHESTER W. BLISS, OF SPRINGFIELD, MASSACHUSETTS.

WINDOW-CLEANING DEVICE.

SPECIFICATION forming part of Letters Patent No. 579,108, dated March 16, 1897.

Application filed May 9, 1896. Serial No. 590,930. (No model.)

To all whom it may concern:

Be it known that we, GEORGE EZEKIEL, a resident of Palmer, and EVERETT E. STONE, a resident of Springfield, in the county of Hampden, State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Window-Cleaning Devices, of which the following is a specification.

This invention relates to improvements in window-cleaning devices more particularly applicable for cleaning the window of a locomotive-cab, the object being to provide an improved cleaning device applicable on the outer side of the window and operative from the inside, whereby the window may be by the engineer or fireman cleaned or cleared of steam, rain, dust, or dirt quickly and conveniently.

The invention consists in the construction and combination of parts, substantially as will hereinafter fully appear, and be set forth in the claim.

The improved device is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the outer side of the window, showing window-cleaning appliances thereon, some parts being shown as in section for clearer illustration. Fig. 2 is a vertical cross-section as taken on line 2 2, Fig. 1. Fig. 3 is a horizontal section on a larger scale, as taken on line 3 3, Fig. 1.

Referring to Figs. 1, 2, and 3, A represents the sash of a window for a locomotive-cab or other structure, of which *a* is the pane.

B represents a holder or carrier for the cleaner C. The cleaner is shown as of an ordinary "squeegee" form, it having a wood body *b* and a rubber cleaning-blade *d*. The holder is shown grooved, as at *f*, within one edge, within which groove the body of the cleaner is located, it being pivoted at *g* and having the springs *h h* applied for forcing it for a continuous bearing against the pane.

The extremities *i* of the cleaner-holder B are perforated and have thereby guiding engagements up and down on the vertical rods *j j*, mounted on the outer opposite sides of the

sash. Above each end portion of the holder is mounted on the sash a spool or winding-drum *m*, having applied thereto a winding-up spring *n*, and a cord *o*, or like flexible connection having a winding engagement with the spool, also has a connection with the extremity of the cleaner-holder. Another cord *o*² has a connection with each end of the holder, thence running downward along the side of the sash around a guiding-sheave *p*, thence horizontally to a guiding-sheave *q*, near the center of the lower rail of the sash, and the approached ends of the two cords *o*² *o*² pass through a hole *t* in the sash, to the inner side thereof, where they are joined to the common handle *u*. By drawing on the handle the cords are drawn downwardly, causing the cleaner to traverse the glass, the cords unwinding from the spools against the springs applied on the latter, which on the rewinding, when the draft on the handle is released, serve to automatically carry the cleaner in its reverse direction.

w represents inclines applied at each corner of the window, so that as the cleaner-holder B is in its uppermost or its lowermost position the body of the cleaner will impinge there-against and be forced away from contact with the pane, whereby, as the parts are given their movement across the pane, the flexible blade of the cleaner may be so presented as to assume a slight rearward deflection, as common in squeegee cleaners, whereby a chattering effect is avoided.

We claim—

The combination with a window, of a cleaning device therefor movably mounted thereon, and having its position on the outer side thereof alongside the glass, and comprising the holder which has the longitudinal groove opening at its edge toward the glass, and a cleaner consisting of a rigid body and yielding blade, the body being intermediately pivoted within the groove of the holder, being by the pivot restrained against displacement from within said groove, a spring *h* in the base of the said groove behind and against

the rear edge of the body of the cleaner at each side of the said pivot, an operating-handle on the inside of the window, and connections between the handle and cleaner
5 whereby when the latter is moved the cleaner will be also moved for its action on and across the glass, substantially as described.

In testimony that we claim the foregoing

as our invention we have signed our names in presence of two witnesses.

GEORGE EZEKIEL.
EVERETT E. STONE.

Witnesses:

WM. S. BELLOWS,
N. M. BELLOWS.