(No Model.)

W. E. MICHAEL.

WINDOW SASH AND FRAME.

No. 333,654. Patented Jan. 5, 1886.

Fig. 1.

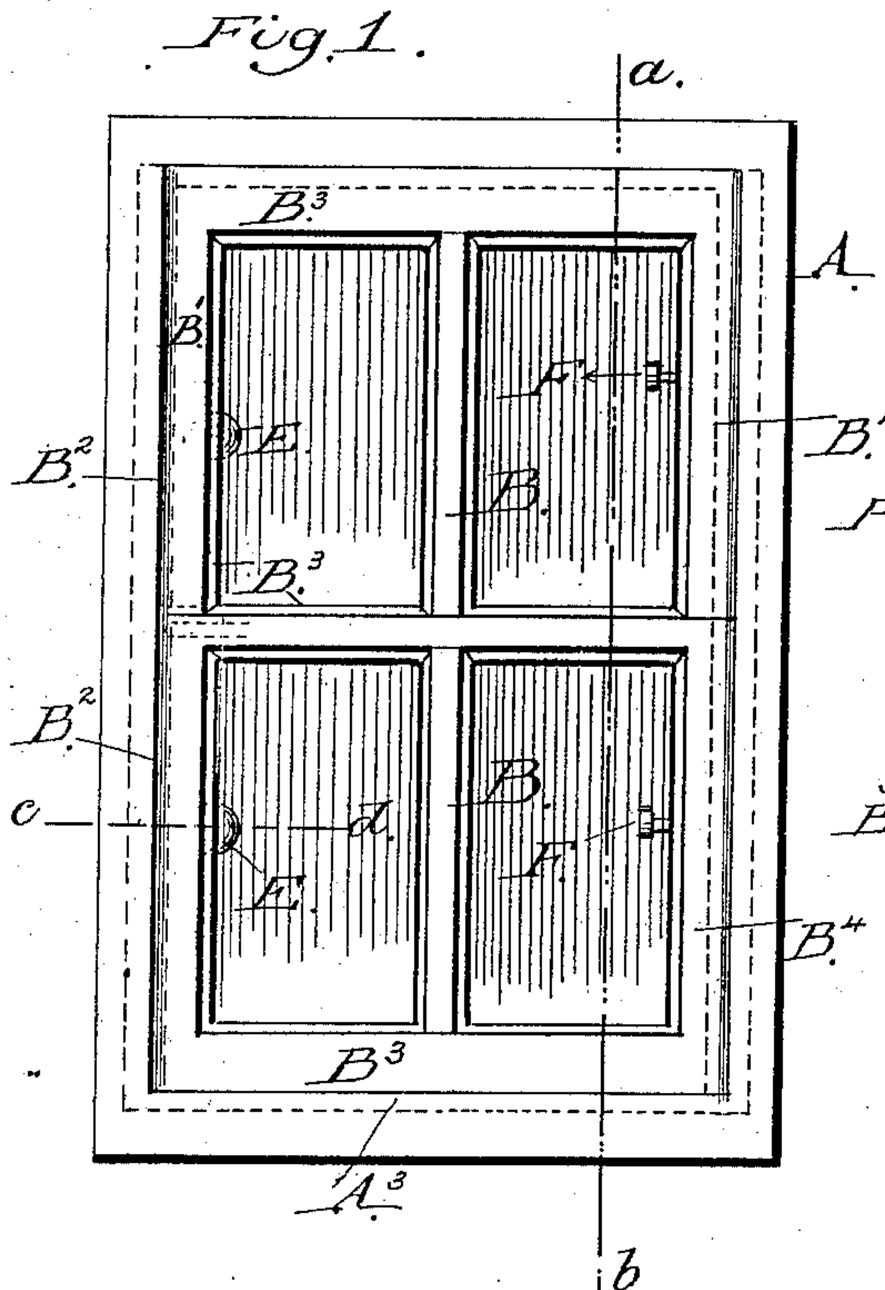


Fig. 2.

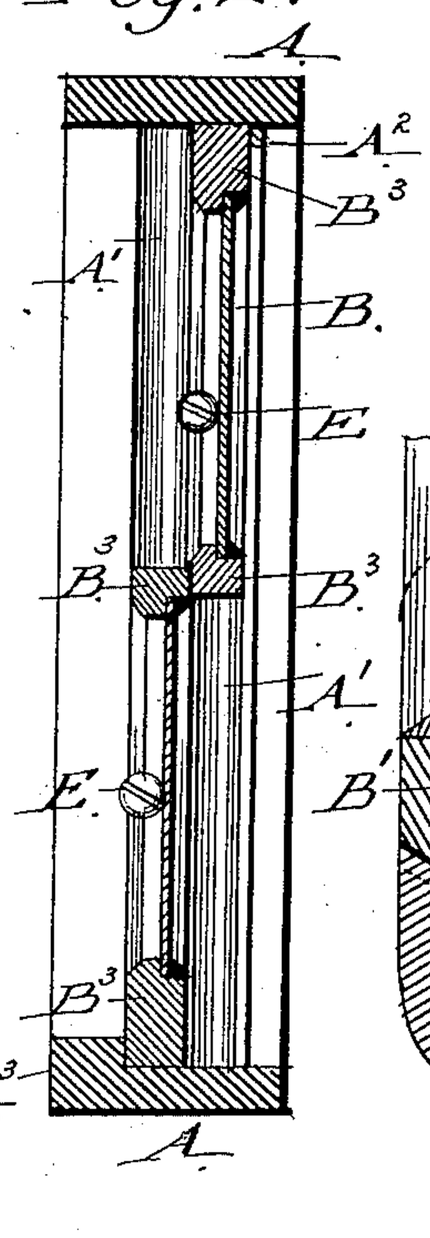


Fig. 8.

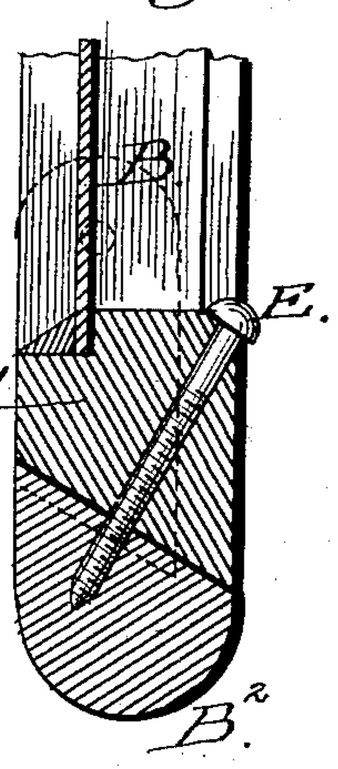


Fig. 9.

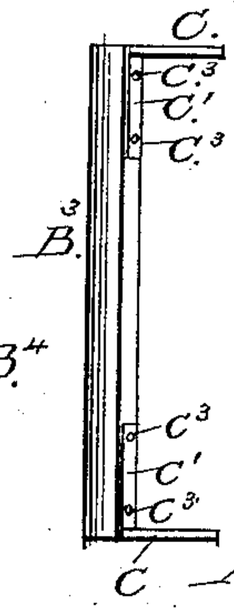


Fig. 3.

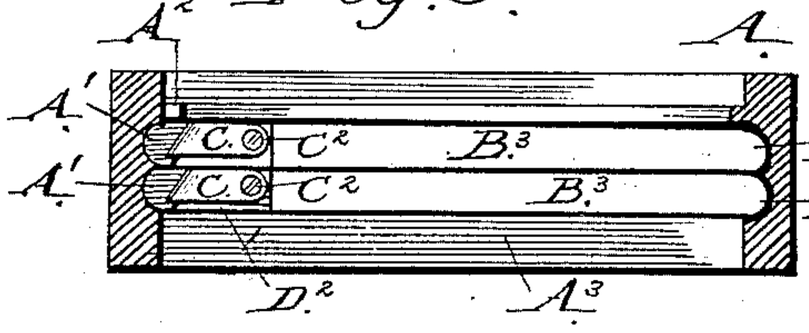


Fig. 4.

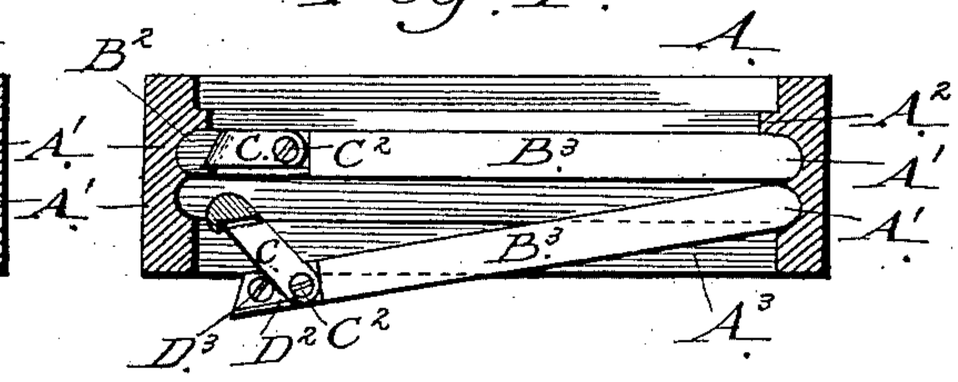


Fig 5

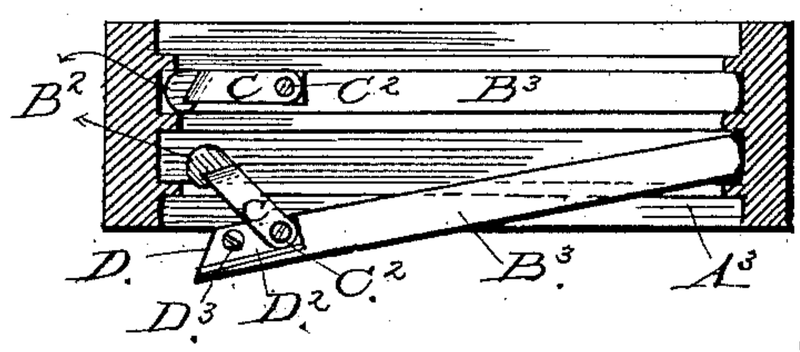


Fig. 6.

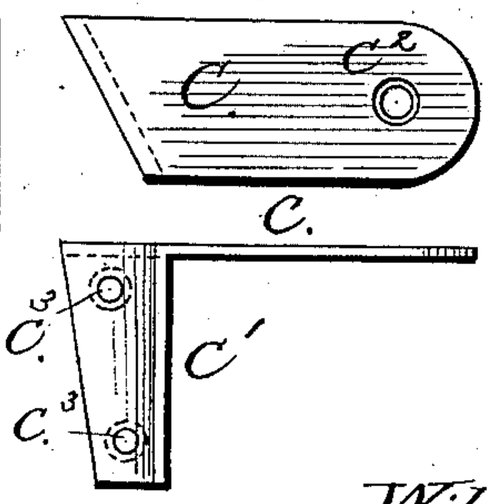
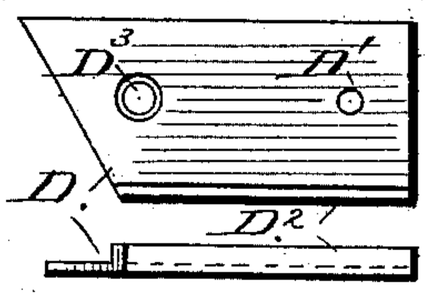


Fig. 7.



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UNITED STATES PATENT OFFICE.

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WINDOW SASH AND FRAME.

SPECIFICATION forming part of Letters Patent No. 333,654, dated January 5, 1886.

Application filed November 12, 1885. Serial No. 182,528. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. MICHAEL, a citizen of the United States, residing at the city of Reading, county of Berks, State of Pennsylvania, have invented a new and useful Improvement in Window Sashes and Frames, of which the following is a specification.

This invention relates more particularly to sash secured in frames unprovided with weight-boxes, any of the ordinary sash-stops being applied to the same to lock them in positive closure or as opened to various heights. To this portion of the improvement I make no claim.

The object of the improvement is to so construct and arrange a sash in combination with its frame that it may be readily removed for the purpose of repair, painting, and cleaning without the preliminary removal of retaining or parting strips, the simple unscrewing of one or two ordinary wood-screws (according to the height of the sash) permitting the instantaneous removal of the same.

The accompanying drawings, forming a part of this specification, and in which like letters of reference indicate like parts, very clearly set forth the nature of my improvement, in which—

Figure 1 represents in front elevation a window-frame and set of sash provided with my improvement. Fig. 2 is a vertical section on the line *a b* of Fig. 1. Fig. 3 is a plan on the line of the top of the lower sash with the top sash drawn down to the same level, showing the frame in section with the sash in place; Fig. 4, the same plan with the lower sash in the act of removal from the frame, the latter in accordance with my improvement of double parallel sash-grooves. Fig. 5 shows the application of my improvement to the ordinary sash and frame, with the lower sash in the act of removal from or introduction within the frame; Fig. 6, a detached plan and side elevation, upon an enlarged scale, of the stile-hinge and its arm for securing the divided stile in swinging contact with the sash; Fig. 7, a detached plan and side elevation of the rail, hinge-seat, and stop; Fig. 8, a cross-section of the divided stile, showing the screw for retention and release of the sash from the frame; Fig. 9, a front elevation of the divided stile-strip with its hinges attached.

A represents the window-frame, which, when it is constructed in accordance with my invention, has two semicircular parallel grooves or rabbets, A′, formed in the sides of the same, as shown in section in Figs. 3 and 4, for the reception of the sash. A parting-strip is not used. A stop-bead, A^2, is secured to the frame in front of the upper sash and extends the whole height of the frame. The usual re-enforce, A^3, is made part of the sill upon the inside of the frame.

B represents both the upper and lower sash, the stiles B′ of which are divided vertically at an angle of about thirty degrees, forming swinging strips B^2, which are secured at both ends, in contact with B′ by arms C′ of hinges C, having fulcrum-points C^2 upon the rails B^3, said hinges resting upon hinge-plates D, provided with a corresponding fulcrum-point, D′, and a stop flange or ledge, D^2, with a securing-screw, D^3. The plates D are sunk within the face of the rails B^3, of such depth that when the hinge C is in contact therewith the face of C and the rail B^3 shall be level with each other. The arm C′ is let into the divided stile-strip B^2 until its face is even with the face of the strip, and is secured to the same by screws C^3. Both stiles of the sash are made convex, to fit the grooves A′ in the frame. The hinge and its seat are set with their outer edges flush with the outer faces of the sash rail. The flange D^2 permits an inward, but prevents an outward, movement of the sash, and the releasably locking screw E when in place prevents any displacement of the sash from the outside of the building.

The hinge and seat may be made of any suitable metal. I prefer to stamp them out of sheet-brass, and subsequently drill and bend them to form.

This improvement is applicable to the ordinary sash and frame, as shown in Fig. 5. It is only necessary to round off the outer corners of the stiles and increase the depth of the bead-stop and parting-strip, dividing the stile at an angle, as before, so that the division shall fall outside of the stop-bead. The improvement may also be applied to the weight-box-balanced sash-frames. In this case the cord would be attached to the stiles B^4 in the usual manner, and to the stile-strip B^2 by a bore-hole in the same with a counterbore for

the knot in the inner face, and a sub-groove would be sunk in the face of the frame for the cord to lie in, so as not to interfere with the movement of the sash. I prefer, however, to apply the improvement to the ordinary frame without sash-weights to balance the sash, depending upon stops F, placed conveniently upon or within the same, to hold the sash in a raised position and to retain it in a closed position.

This improvement will be of value to both builders and housekeepers, as it does away with all risk of life in cleaning the glass, and will cheapen the cost of house-cleaning by the saving in time to do the work, while the first cost of construction will be less than with the present frame and sash. The grooves in the frame will be run in under the planer, and the outer edges of the stiles will be done in the planing-mill under suitable machinery.

To use the device, after the sash has been provided with the stile-strip, and the same has been hinged thereto, as described, the sash is taken in hand and the stile B^4 inserted in the groove A′, or between the parting-strip and inside stop-bead of the old-style frame, as shown in Figs. 4 and 5. The stile-strip B^2 is then swung inward, and as the stile B′ is pressed into place the stile-strip B^2 is guided into its groove or recess, and the hinge contacts with the ledge or flange D^2, and the sash is in place. The retaining-screw E is then screwed home, and the sash may then be used as any ordinary sash. To remove the sash, the screw E is released from the piece B^2, and the sash pulled toward the operator, when it immediately assumes the position shown in Figs. 4 and 5, and is lifted to one side.

Having shown the construction, use, and advantages of my improved sash and frame, I desire to claim as follows:

1. As an improved construction of window-frames, the parallel semicircular grooves A′, sunk within the same, in combination with sash having convex-edged, divided, and hinged stiles, whereby stops and parting-strips are dispensed with, substantially as and for the purpose set forth.

2. In removable window-sash, the convex-edged stiles with an angular vertical division of one of the same, said divided stile-strip held by suitable hinge-arms at each end thereof, the plates of said hinges fulcrumed upon flanged seats sunk flush within the top and bottom rails of said sash, the stile-strip in its normal state in contact upon the line of division and removably secured in such position by a screw, E, in combination with a suitable frame, as described, whereby said sash is readily removed and replaced, as and for the purpose specified.

3. As a new article of manufacture, hinge-plates C, provided with arms C′, pivoted aperture C^2, and securing-holes C^3, combined with hinge-seat D, its ledge D^2, pivotal hole D′, and securing-hole D^3, substantially as shown, described, and for the purpose set forth.

4. As an improvement in window sash and frames, the combination, essentially, of the following elements: a frame, A, with parallel vertical grooves A′, bead-stop A^2, sash B, with divided stile B^2, hinges C C′, and plates D D^2, fulcrumed at C^2, and securing-screw E, all arranged and combined to make a readily removable and replaced sash, as shown, specified, and for the purpose set forth.

WILLIAM E. MICHAEL.

Witnesses:
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