

(No Model.)

J. J. NORTON.  
WINDOW.

No. 431,279.

Patented July 1, 1890.

FIG. 1.

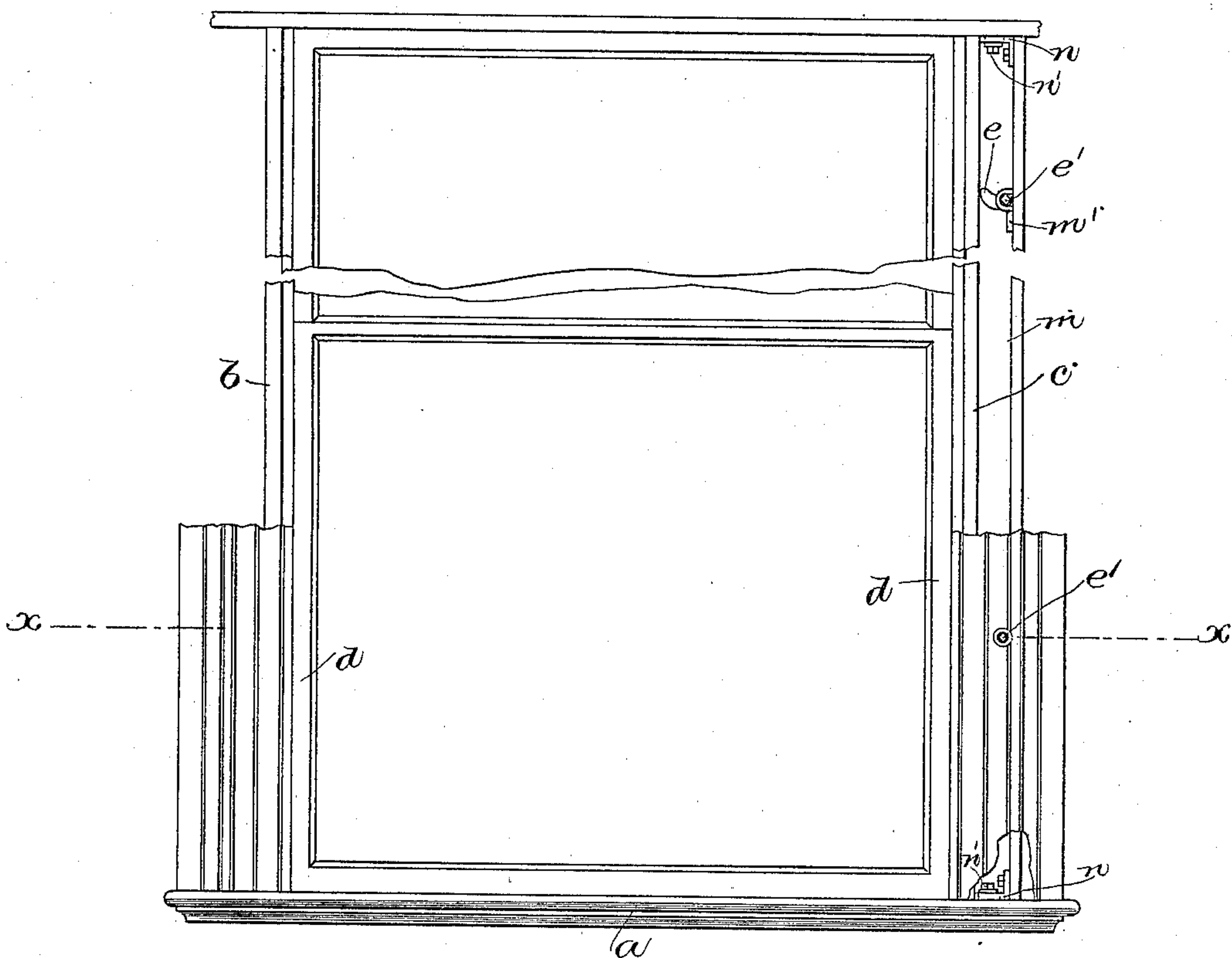


FIG. 2.

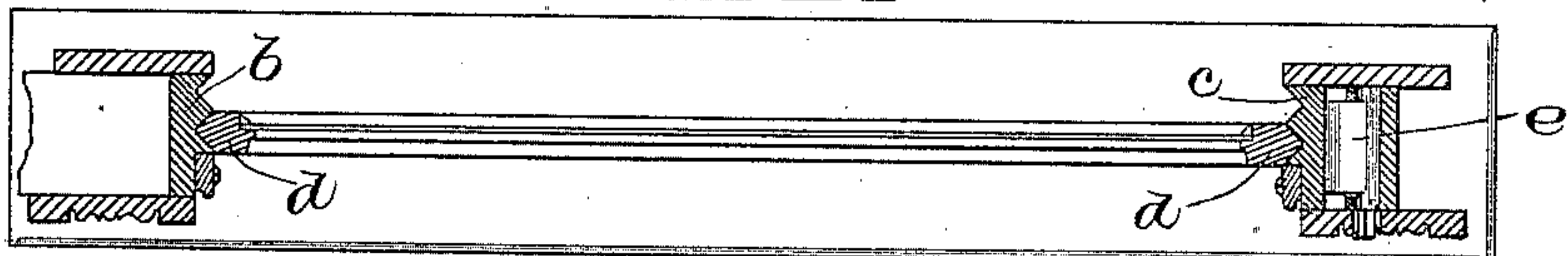


FIG. 3.

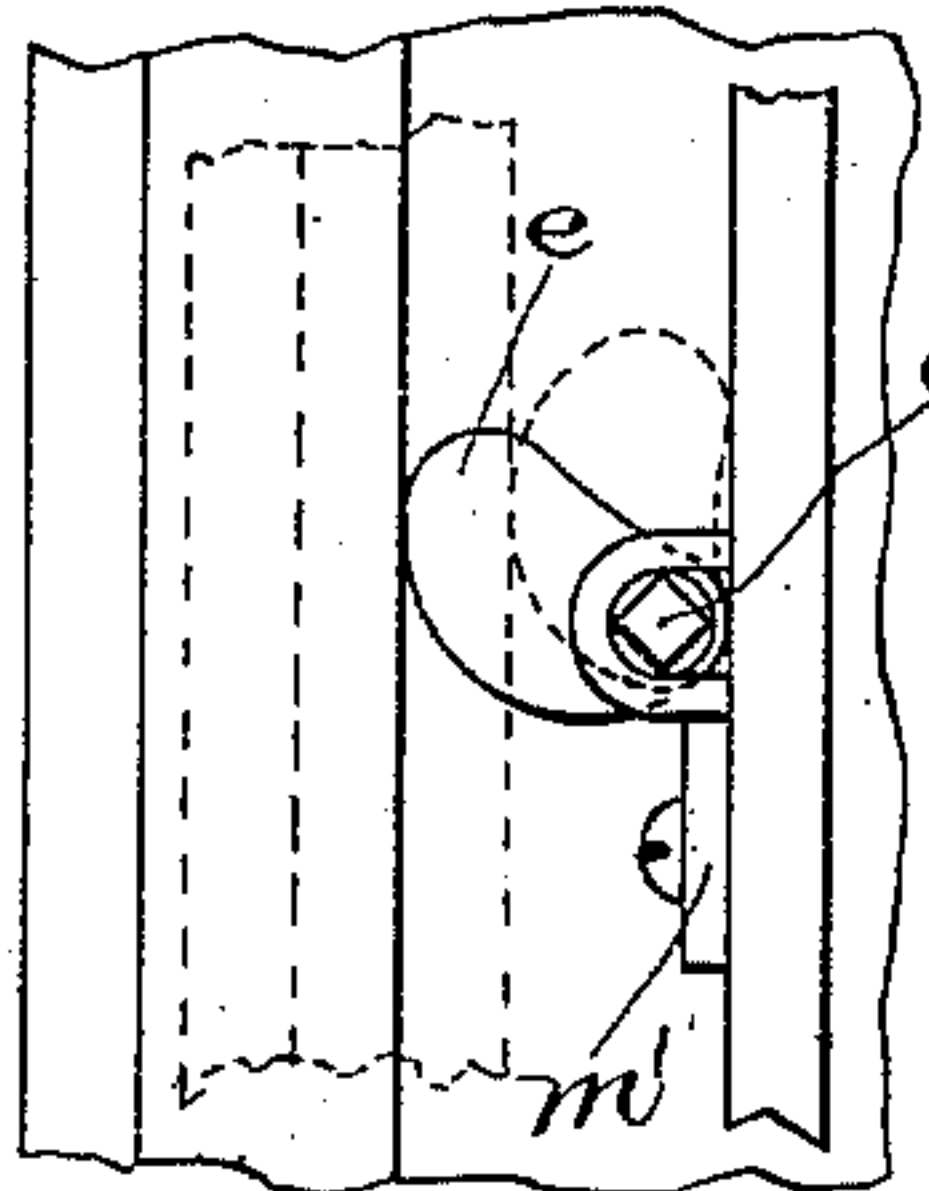


FIG. 4.

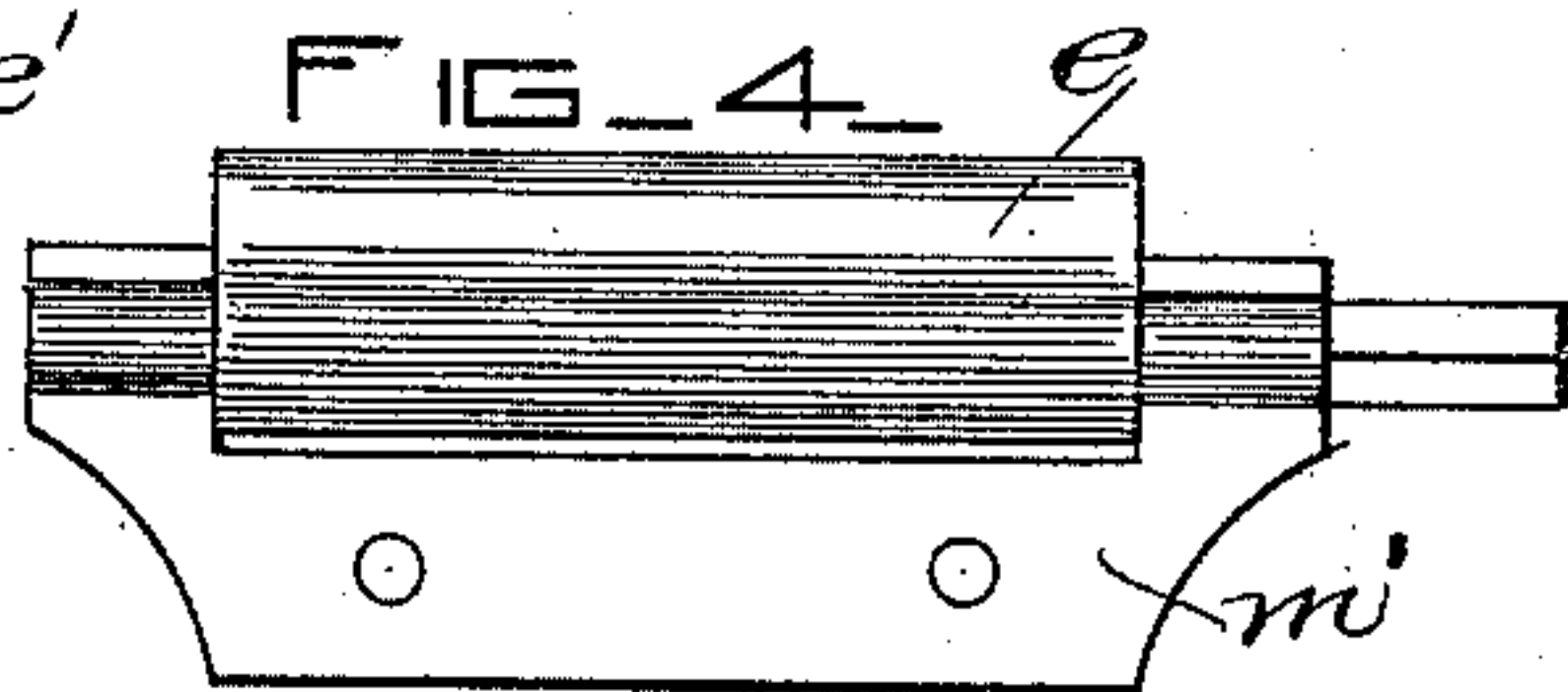


FIG. 5.

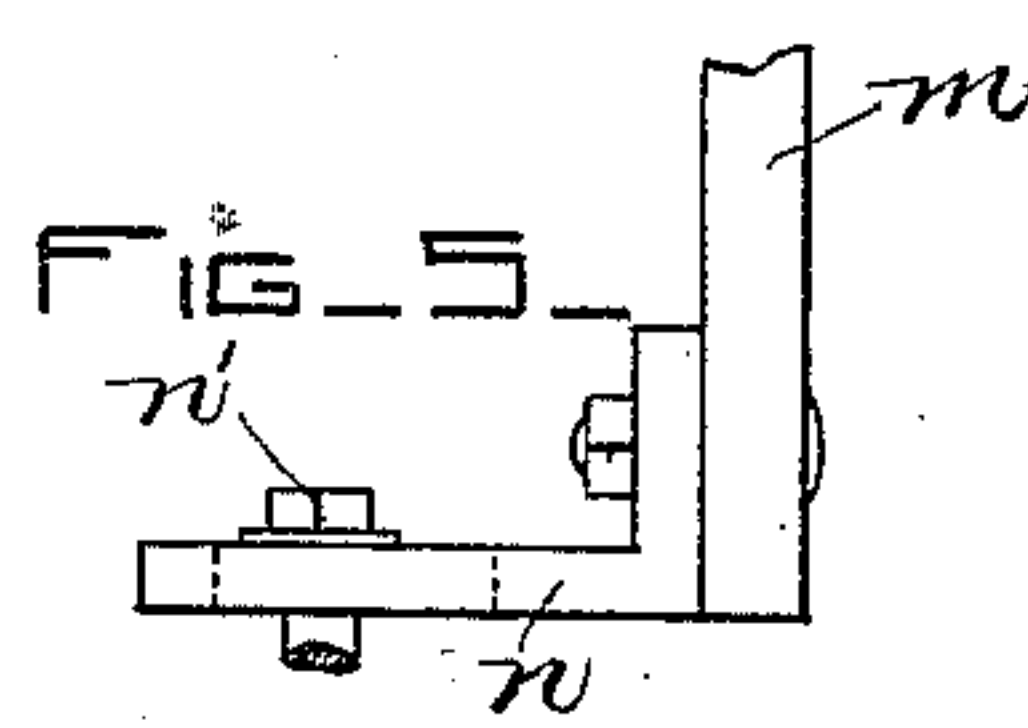
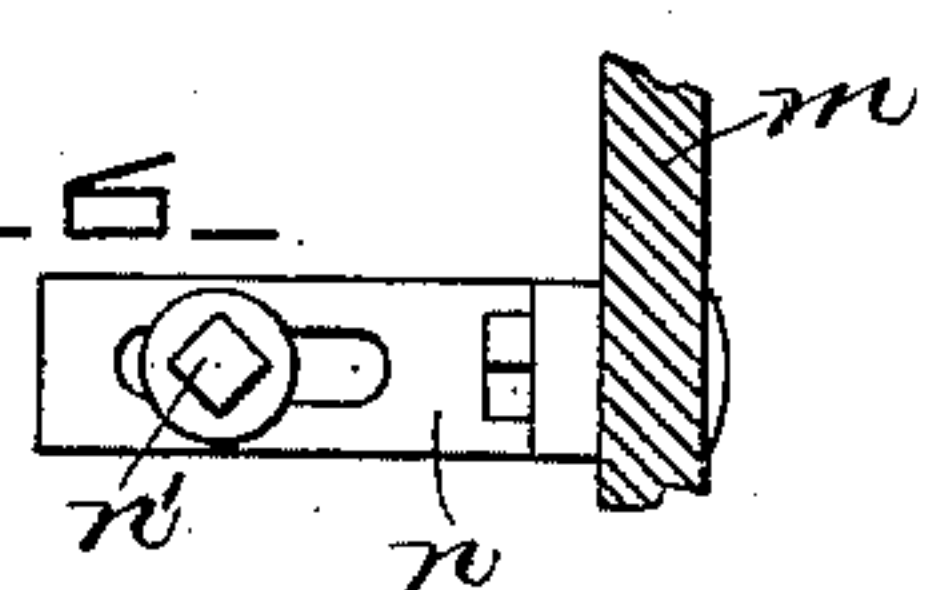


FIG. 6.



WITNESSES

*Edgar A. Goddard*  
*Admiral. Emery*

INVENTOR

*James J. Norton,*  
*by Leroy Strong*

# UNITED STATES PATENT OFFICE.

JAMES J. NORTON, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF SIXTY-FIVE ONE-HUNDREDTHS TO EDWARD W. KELLEY, OF SAME PLACE.

## WINDOW.

SPECIFICATION forming part of Letters Patent No. 431,279, dated July 1, 1890.

Application filed December 30, 1889. Serial No. 335,331. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES J. NORTON, of Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Windows, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to construct a window frame and sash wherein the sash may be readily removed when desired; and my invention consists in details of construction to be hereinafter pointed out.

Figure 1 shows in front view a window frame and sash embodying my invention; Fig. 2, a horizontal section of the window frame and sash shown in Fig. 1, taken on the dotted line *xx*; and Figs. 3, 4, 5, and 6 details to be referred to.

The window-frame contains a sill *a* and jambs *b c*. The jambs each have two V-shaped guide-grooves which receive correspondingly-shaped ribs formed on the sash *d*. One of the jambs, as *b*, is fixed in position, and the other jamb, as *c*, is movable.

Contained in a chamber or recess back of the removable jamb *c*, and attached to a yielding plate or bar *m*, are two or more cams, as *e*, fixed to spindles *e'*, having square ends or otherwise arranged or formed, by which they may be readily turned. The journals of the cams *e* have their bearings in frames *m'*, attached in any suitable manner to the plate or bar *m*. The said plate is preferably a wooden slat or bar, which slightly yields as the cams *e* are turned into position to move the jamb *c* against the sash to prevent the latter pressing so tightly against the sash as to bind. The cams may be of any desired shape in cross-section. The cams *e* are arranged, when in one position, to bear against the jamb *c* and press it into proper position to hold the sash firmly, yet permit it to slide freely, and when in its other position to permit the jamb *c* to be moved away from the sash, that the latter may be removed. The lateral movement required for the jamb

*c* will be but little to enable the sash *d* to be removed.

I have herein shown two cams—one near the upper end of the window-frame and the other near the lower end to act upon the opposite ends of the jamb *c*—yet it is obvious that any other number of cams may be employed.

I have herein represented the sash as held in its different positions by friction, yet it is obvious that any suitable catch or equivalent may be employed.

The plate or bar *m* yields slightly to compensate for any difference in thickness, and also to enable the cams to always bear against the jamb with equal pressure. The bar *m* is secured at its ends to angle-irons *n*, (see Figs. 5 and 6,) which are adjustably secured to the frame by screws *n'*, passing through slots in said irons. This adjustment at the top and bottom for the yielding plate or bar *m* is for the purpose of placing it in such a position that it may slightly yield as the cams are turned into a substantially horizontal position to enable them to operate properly and also to compensate for wear of the parts.

I claim—

1. The sash and window frame having a movable jamb *c* and cams, as *e*, for moving the jamb *c*, combined with a yielding plate or bar, as *m*, to which said cams are attached, substantially as described.

2. The sash and window frame having a movable jamb *c* and cams, as *e*, for moving the jamb *c*, combined with an adjustable plate or bar, as *m*, to which said cams are attached, and devices for said plate or bar, whereby it is held in adjusted position, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES J. NORTON.

Witnesses:

PHILIP J. FARLEY,  
CHAS. H. COSGROVE.