

(No Model.)

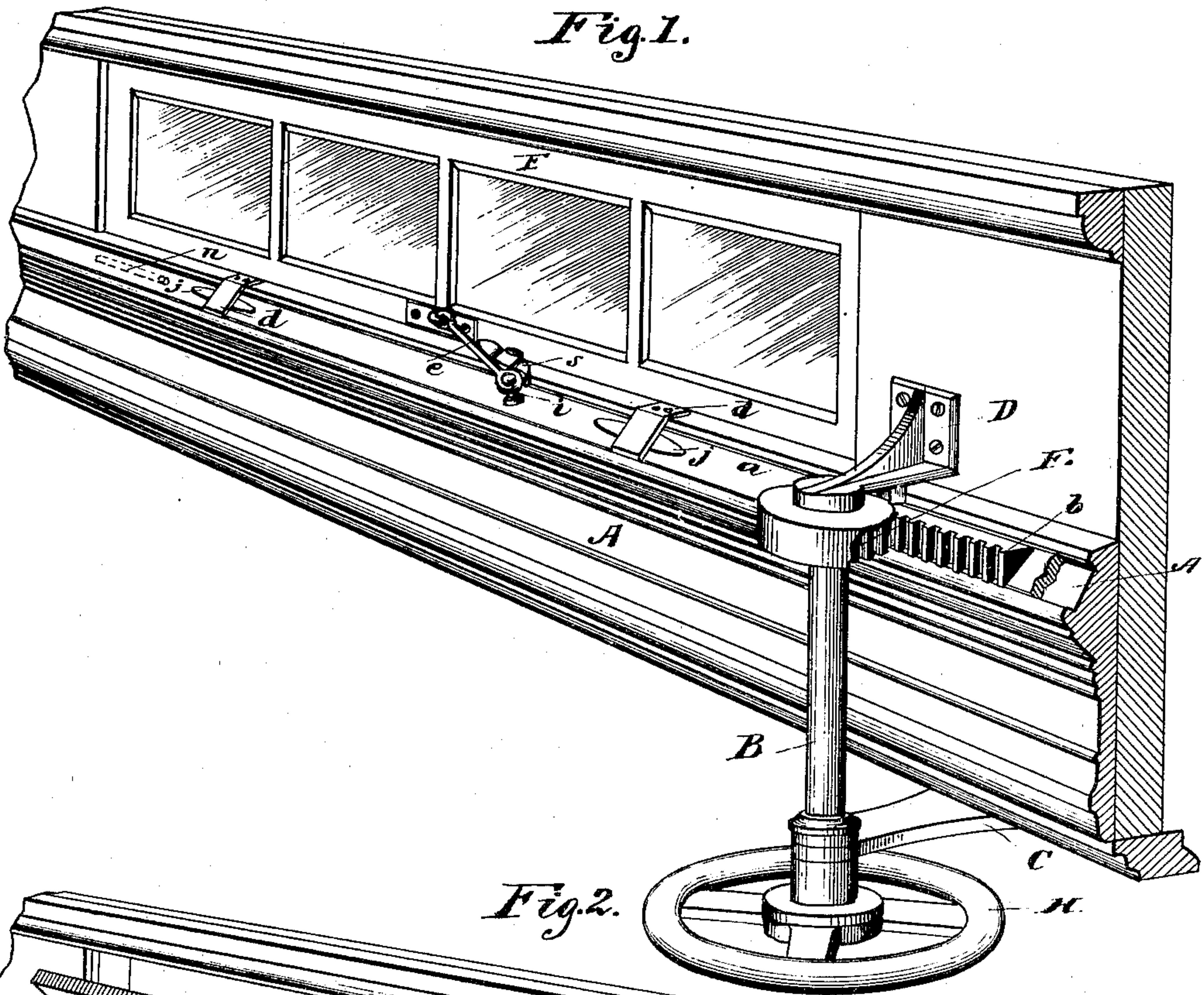
A. RAPP.

WINDOW OPENER AND CLOSER.

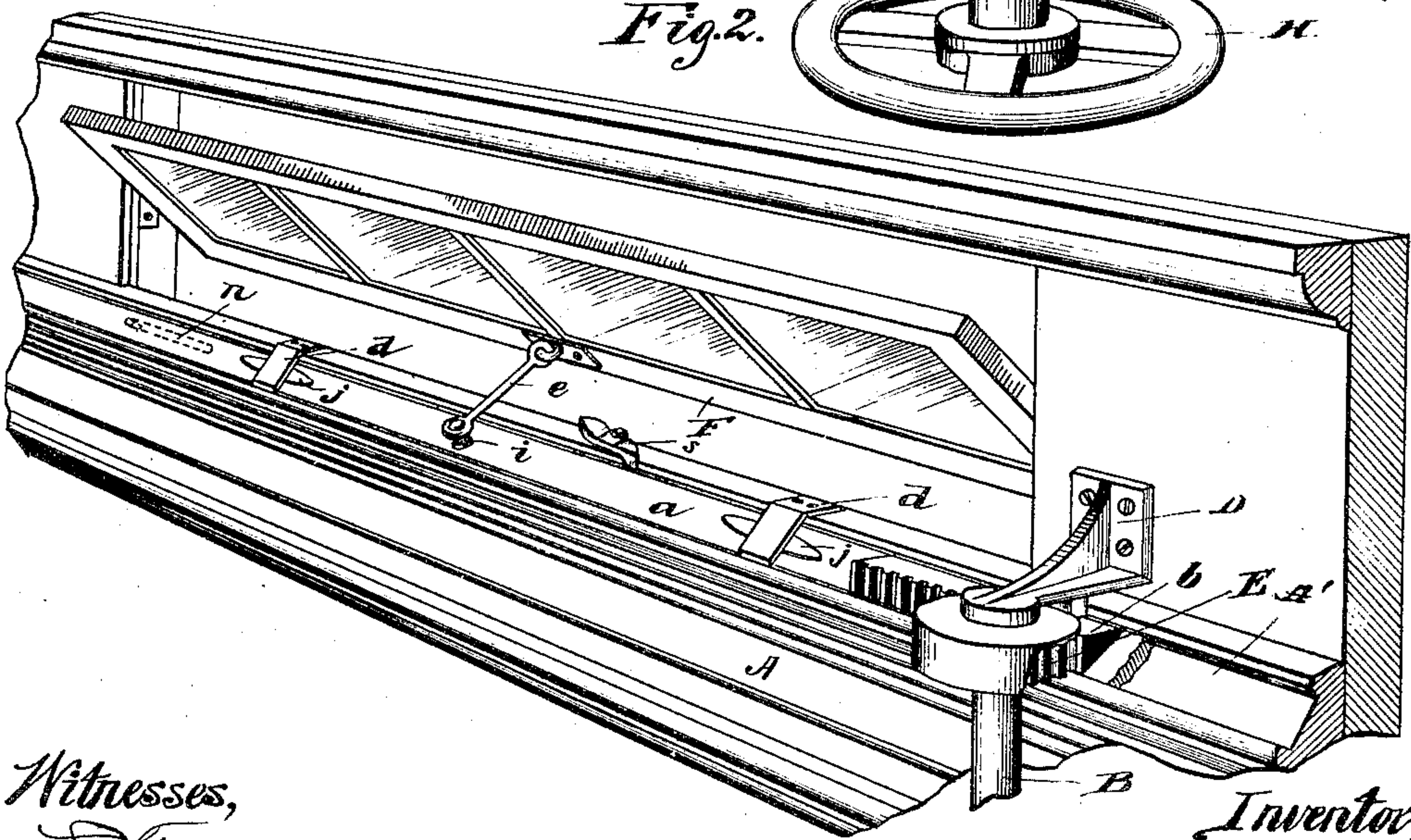
No. 396,599.

Patented Jan. 22, 1889.

*Fig. 1.*



*Fig. 2.*



Witnesses,  
L. J. Mann,  
Frederick Goodwin

Inventor,  
August Rapp  
By, Offield & Son, Attys,



# UNITED STATES PATENT OFFICE.

AUGUST RAPP, OF PULLMAN, ASSIGNOR TO THE PULLMAN'S PALACE CAR COMPANY, OF CHICAGO, ILLINOIS.

## WINDOW OPENER AND CLOSER.

SPECIFICATION forming part of Letters Patent No. 396,599, dated January 22, 1889.

Application filed September 17, 1887. Renewed July 30, 1888. Serial No. 281,423. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST RAPP, a citizen of the United States, residing at the village of Pullman, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Mechanism for Opening, Closing, and Securing Clear-Story Windows, of which the following is a specification.

My invention relates to appliances for opening or closing the ventilation-windows of railroad-cars. As usually constructed, these windows must be opened and closed singly, and, as they are beyond the reach of persons standing upon the floor, they are commonly opened and closed by means of a rod with a hook, in connection with some appliance to the window.

My invention is designed to obviate this tedious and greatly inconvenient operation or series of operations. I provide for opening or closing a sash containing all the lights of the clear-story windows on one side of the car, or the sash may be divided into sections, if preferred. With my appliances the angle of the sash may be nicely adjusted in opening the windows and retained in such position while desirable. When closed with my invention, the sash is firmly secured by an automatically-operating fastening. I also thus obviate the unpleasant features incident to separate opening of the windows, in which some of the passengers are often exposed to excessive currents of air, while others are deprived of a desirable quantity.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective showing a section of a car and a window-sash, the latter being closed. Fig. 2 is also a perspective showing the sash open, a portion shown in Fig. 1 being broken away.

A suitable molding or bracket formation, A, beneath the window-sash serves as a foundation for applying the sash opening and closing mechanism. Within a channel, A', in the molding, suited to the purpose, is placed a bar, a, adapted to slide to and fro within proper limits in the direction of its length. The plane in cross-section of bar a is inclined from the vertical toward the window for the better accommodation of the connection between said

bar and the sash. Near the end of bar a, upon the latter, or as a part thereof, is a rack, b, having its teeth in a vertical plane. A vertical shaft, B, is supported by bracket-arms C and D, the latter of which is provided at its outer end with a hood or cap, within which and mounted upon shaft B is a pinion, E, adapted to engage with rack b, thus providing for longitudinal movement to and fro of bar a. The window F is centrally pivoted at its ends. Connection between the window and the bar a is provided in the rod e, one end of which latter is connected with a stud, i, upon bar a by a ball-and-socket joint or other joint permitting both lateral and vertical movement of the rod. The other end of rod e is secured to the window-sash by an eye or loop connection that will permit of lateral movement of the rod and the necessary movement of the window in opening and closing. To properly secure bar a in its channel in a manner suited to its function of sliding, angular plates d d are provided. The latter are secured by screws on the upper surface of molding A and extend closely over the bar. Spring-extensions j, secured to the plates, rest against said bar, and thereby afford a flexibility of bearing that, while it serves the purpose of keeping the bar in position, permits an easy movement of the latter.

For automatically fastening the window when closed a rocking plate, s, is secured by a central pivotal fastening on the upper surface of molding A. The contour of the outer edge or face of the rocking plate is that of a double curve, against which the end of rod e attached to bar a engages when in position, as shown in Fig. 1, in which the window is closed. The pivot of the rocking plate is in such position that when rod e is retracted to its limit in closing the window the end of the rod passes said pivot in close proximity to the plate, and so bears against the outer end with relation to the rod of said plate as to force the inner end of the plate tightly against the rod, thus securing the latter and the window firmly. An opposite movement of the bar and rod in opening the window causes a sliding contact of the end of the rod with plate s, in which the former,



by receding from the outer end of said plate, is released, and its movement turns the inner end of said plate out of its path.

A slot in the bar *a* and a stud on molding *A* are indicated at *n*, whereby the movement of said bar is limited.

A hand-wheel, *H*, is provided on the lower end of shaft *B*, by means of which the pinion is operated to actuate bar *a*, whereby the rod *e* is forced in a direction to open the sash or retracted to close it.

Having thus described my invention, what I claim is—

1. In a railroad-car, and in combination with a clear-story window-sash pivotally supported, a sliding bar, *a*, a rod, *e*, connected at one of its ends with said bar by a joint admitting of vertical and lateral movements and at the other end hinged to the window-sash, a rack, *b*, connected with bar *a*, a pinion, *E*, for actuating said rack, a shaft, *B*, upon which said

pinion is mounted, which shaft is provided with a hand wheel or crank, *H*, and plates *d*, provided with spring-extensions *j*, for retaining bar *a* in position, substantially as set forth.

2. In a railroad-car, the combination, with a clear-story window the sash of which is pivotally supported, of a sliding bar, *a*, a rod, *e*, hinged or pivotally attached at its ends, respectively, to the bar and window, and a rocking plate, *s*, with which rod *e* engages, and so pivoted that the end of said rod in closing the window passes the pivotal point of the rocking plate, whereby a bearing is effected against the outer end of said plate *s*, and the inner end of the plate is brought into contact with the rod *e* to secure the latter and the window, substantially as set forth.

AUGUST RAPP.

Witnesses:

JOSEPH RIDGE,  
H. S. TOWLE.