

No. 881,477.

PATENTED MAR. 10, 1908.

A. K. LOVELL.
WINDOW OR SHUTTER OPERATING DEVICE.

APPLICATION FILED DEC. 17, 1903.

2 SHEETS—SHEET 2.

Fig. 6.

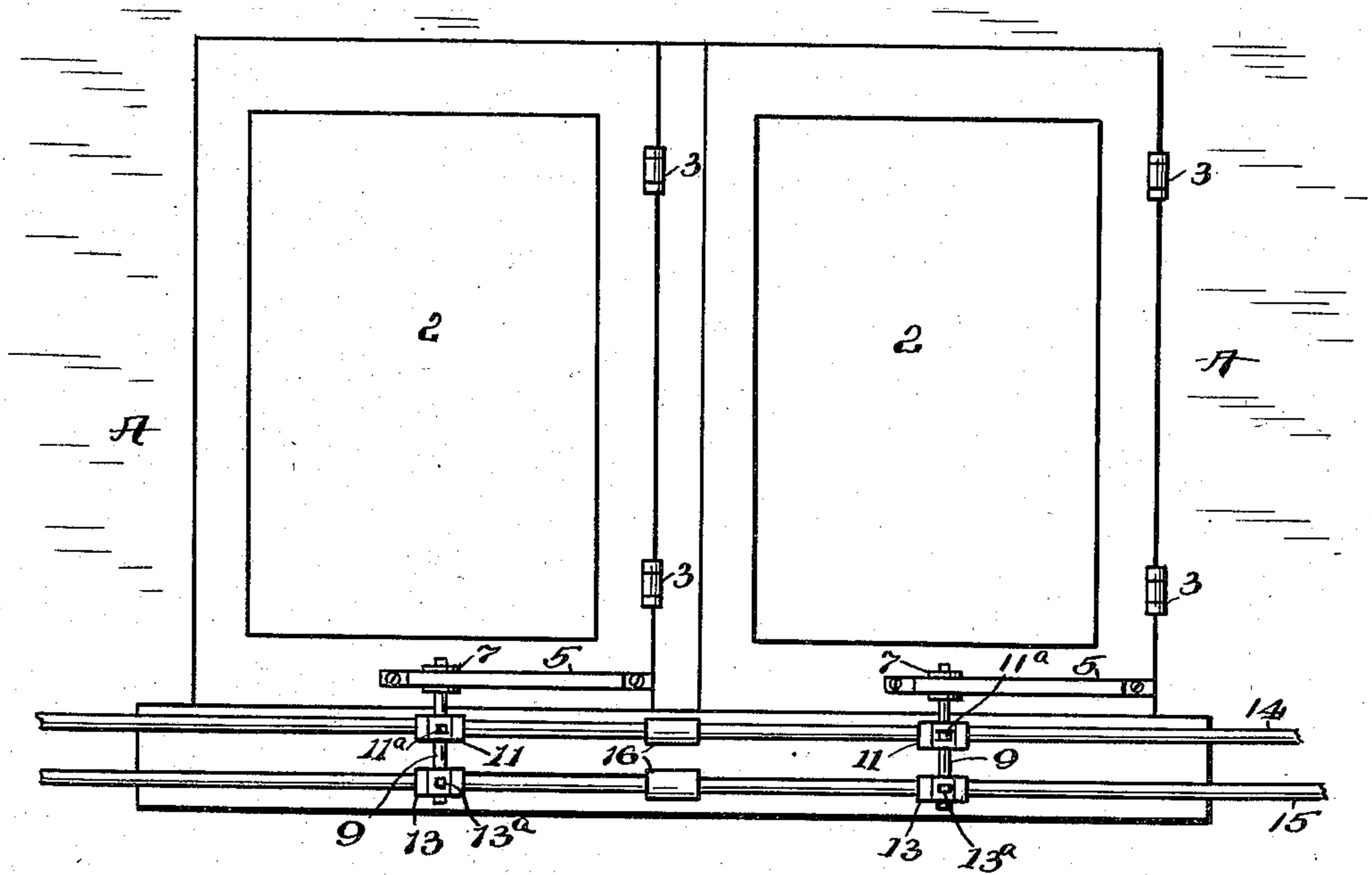


Fig. 7.

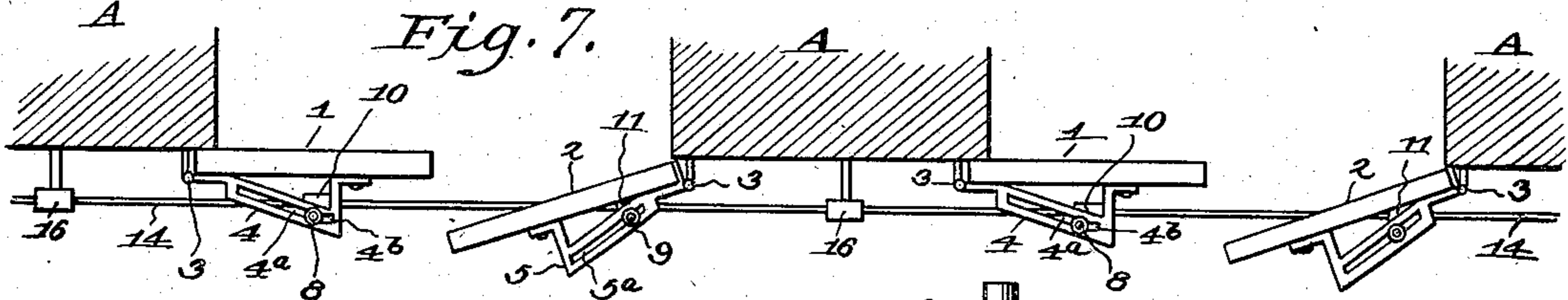


Fig. 4.

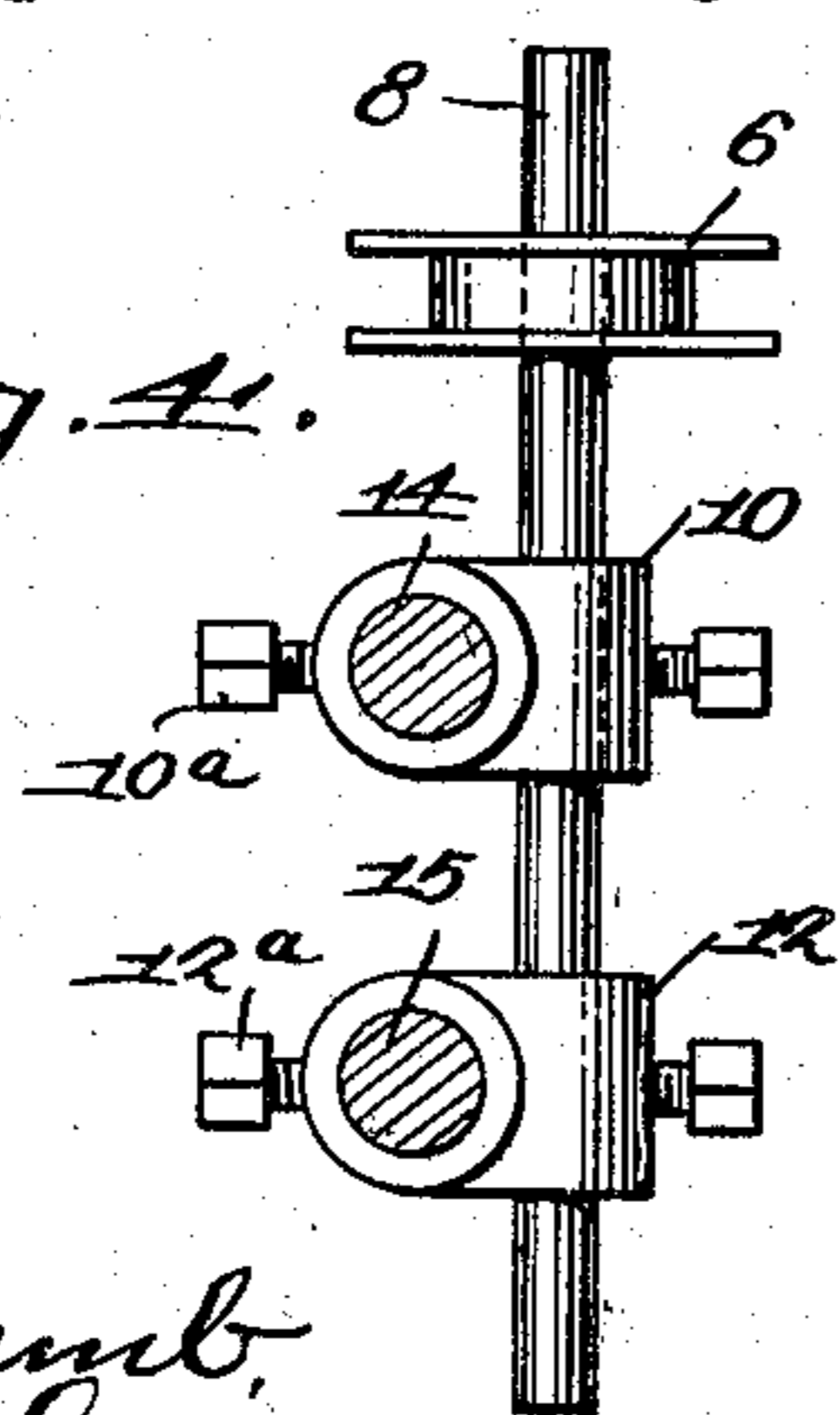
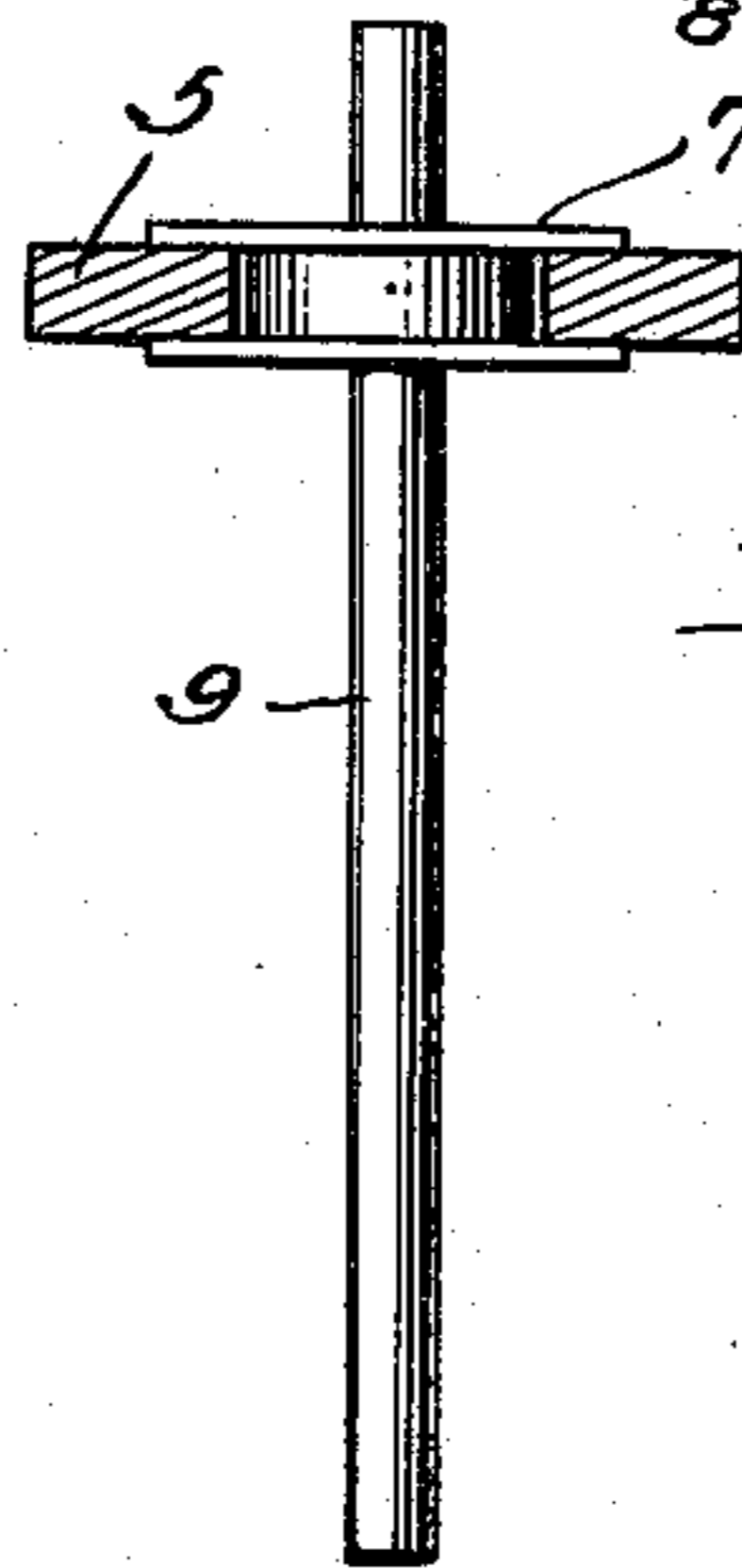


Fig. 5.



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2 SHEETS—SHEET 1.

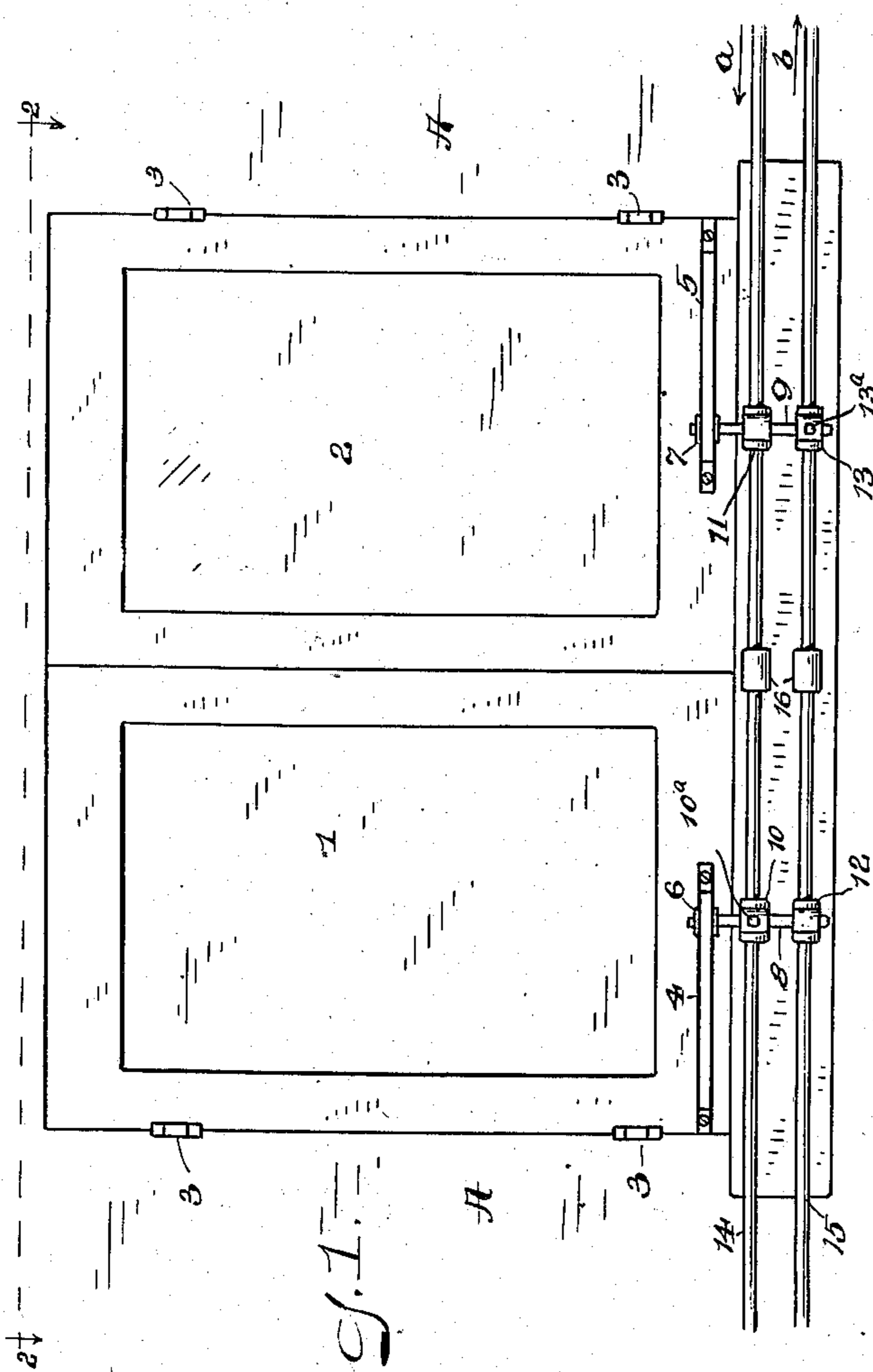


Fig. 1.

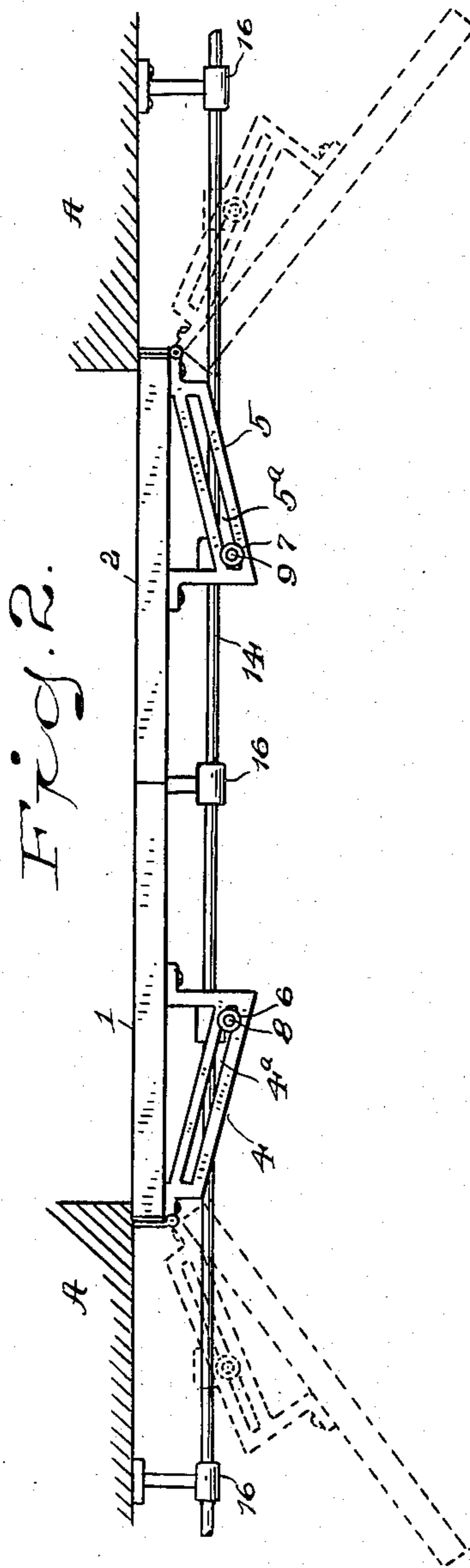


Fig. 2.

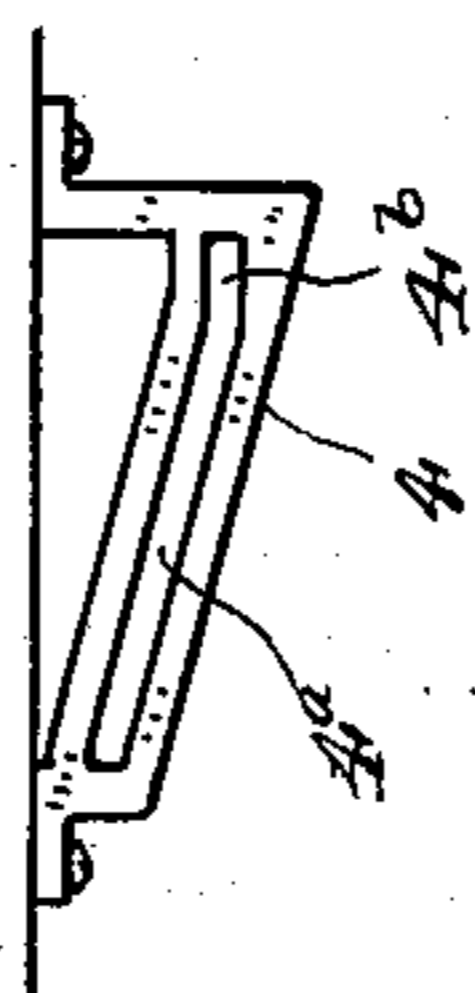


Fig. 3.

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UNITED STATES PATENT OFFICE.

ALBERT K. LOVELL, OF NEW YORK, N. Y.

WINDOW OR SHUTTER OPERATING DEVICE.

No. 881,477.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed December 17, 1903. Serial No. 185,554.

To all whom it may concern:

Be it known that I, ALBERT K. LOVELL, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Window or Shutter Operating Devices, of which the following is a specification.

My invention relates to window or shutter operating devices, and it consists in certain details of construction to be more fully set forth in the following specification, and the features believed to be new and novel will be set forth in the claims.

To enable others to understand my invention, reference is had to the accompanying drawings in which:

Figure 1 represents an elevation of closed windows or shutters, as the case may be, and a broken view of their operating-rods; Fig. 2 is a sectional view of the wall and top view of the windows on line 2 of Fig. 1, a broken view of the operating-rods, and a view in dotted lines of the partially open windows; Fig. 3 is a detail plan view of one of the window-brackets adapted for use when the windows or shutters are to be lapped one over the other against the building; Fig. 4 is a view of one of the driver pins and a sectional view of the operating-rods mounted in collars adjustably secured to said pin; Fig. 5 is a detail view of one of the driver-pins and a sectional view of one of the window-brackets; Fig. 6 is an elevation of closed windows adapted to be opened or closed in the same direction; Fig. 7 is a reduced view of a series of windows arranged to move one in advance of the other, also broken view of the operating-rods, and broken sectional view of the wall.

The construction and operation of my device are as follows: 1 and 2, Figs. 1 and 2, represent windows adapted to swing laterally on the hinges 3. Brackets 4 and 5 are secured to the bottom of the sashes. These brackets are provided with the inclined slots 4^a and 5^a. In these slots are loosely fitted the grooved rollers 6 and 7, shown more clearly at Figs. 4 and 5, 8 and 9 being drive-pins on which these rollers are freely mounted. These drive-pins are adjustably secured to the collars 10, 11, 12 and 13. 14 and 15 are the window operating rods, and 16 are supports in which these rods are adapted to move freely.

The apparatus is intended for use in con-

nection with a long series or line of windows or shutters. As it is thus applicable to either windows or shutters, and to avoid a repetition of terms, I will, in future, designate them as "windows." The operating-rods 14 and 15 are actuated to move in opposite directions, as indicated by the arrows *a b*—Fig. 1, where the windows are to be moved in opposite directions and by mechanism, not shown, located at any desired position on the line.

The operating-rods are free to move in each alternate collar, for instance, Figs. 1 and 4 the upper rod 14 is adjustably secured to the collar 10 by means of the screw 10^a, but is allowed to run free in the collar 11, while the lower rod 15 runs free in the collar 12 and is adjustably secured to the collar 13 by the set-screw 13^a. By this arrangement, the operating-rods are allowed to move in opposite directions to open the windows in opposite directions, and means is provided for maintaining the drive-pins in a vertical position. But when all the windows are intended to be moved in the same direction, especially when the windows are very heavy, the set screws 11^a and 13^a, Fig. 6 may secure the collars 11 and 13 to the operating rods, which rods will then both be moved in the same direction. But when the windows are light, the set screws 11^a can be loosened so that the upper rod can move freely in the collars 11.

In operating the device, shown at Figs. 1 and 2, to open the windows, the rods are actuated, as before mentioned, in the direction of the arrows *a b*. This will force the grooved rolls 6 and 7 of the drive-pins against the outer edges of the inclined slots 4^a and 5^a of the window brackets, which operation will cause the windows 1 and 2 to swing open. The control of the windows by means of the operating mechanism is such that the windows may be firmly held in any position from the closed position to the extreme open position, as shown by dotted lines in Fig. 2.

To fold windows that are set close together one over the other against the wall, I make the upper ends of the slots in the window-brackets of each alternate window straight or parallel with the window, as shown at 4^b, Figs. 3 and 7. Owing to this it is apparent that the windows 2 will start to open or swing outward on the slightest movement of the operating-rods, but while the drive-

pins 8 are traveling along the straight portion 4^b of the brackets 4 the windows 1 will remain stationary. This will enable the windows 2 to get a sufficient start of the windows 1 so that when the windows 2 are brought against the wall or building A, the slower moving windows 1 will be folded against them.

It will be understood that the construction above described can be used for opening one or more windows from the inside or from the outside of a building.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A window operating device adapted to operate a plurality of windows in opposite directions, comprising a bracket secured to each window, operating-rods parallel with each other and located adjacent to the windows and adapted to move in opposite directions, said brackets having slots angularly inclined with respect to said rods and windows and oppositely inclined with respect to each other, supports for said rods, a collar on each of said rods in front of each window, said collars being in vertical alinement with each other, a drive-pin carried by each pair of collars and projecting within said slots, for the purpose set forth.

2. A window operating device adapted to operate a plurality of windows in opposite directions, comprising a bracket secured to each window, operating-rods parallel with each other and located adjacent to the win-

dows and adapted to move in opposite directions, said brackets having slots angularly inclined with respect to said rods and oppositely inclined with respect to each other, collars on each of said rods arranged in pairs and in vertical alinement with each other, a drive-pin carried by each pair of collars and projecting within the bracket-slots, the outer end of the bracket-slots in each alternate window being provided with a straight portion substantially parallel with the operating-rods so as to cause the windows thus equipped to stand still while the windows having bracket-slots without said straight portions will start to open first, for the purpose set forth.

3. A window operating device adapted to operate a plurality of windows, comprising a bracket secured to each window, operating-rods parallel with each other and located adjacent to the windows, a support for said rods, said brackets having slots angularly inclined with respect to said rods, collars on said rods arranged in pairs and in vertical alinement with each other, a drive-pin carried by each pair of collars and projecting within the bracket slots, for the purpose set forth.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 20th day of Nov. A. D. 1903.

ALBERT K. LOVELL.

Witnesses:

G. DROUVÉ,
H. A. LAMB.