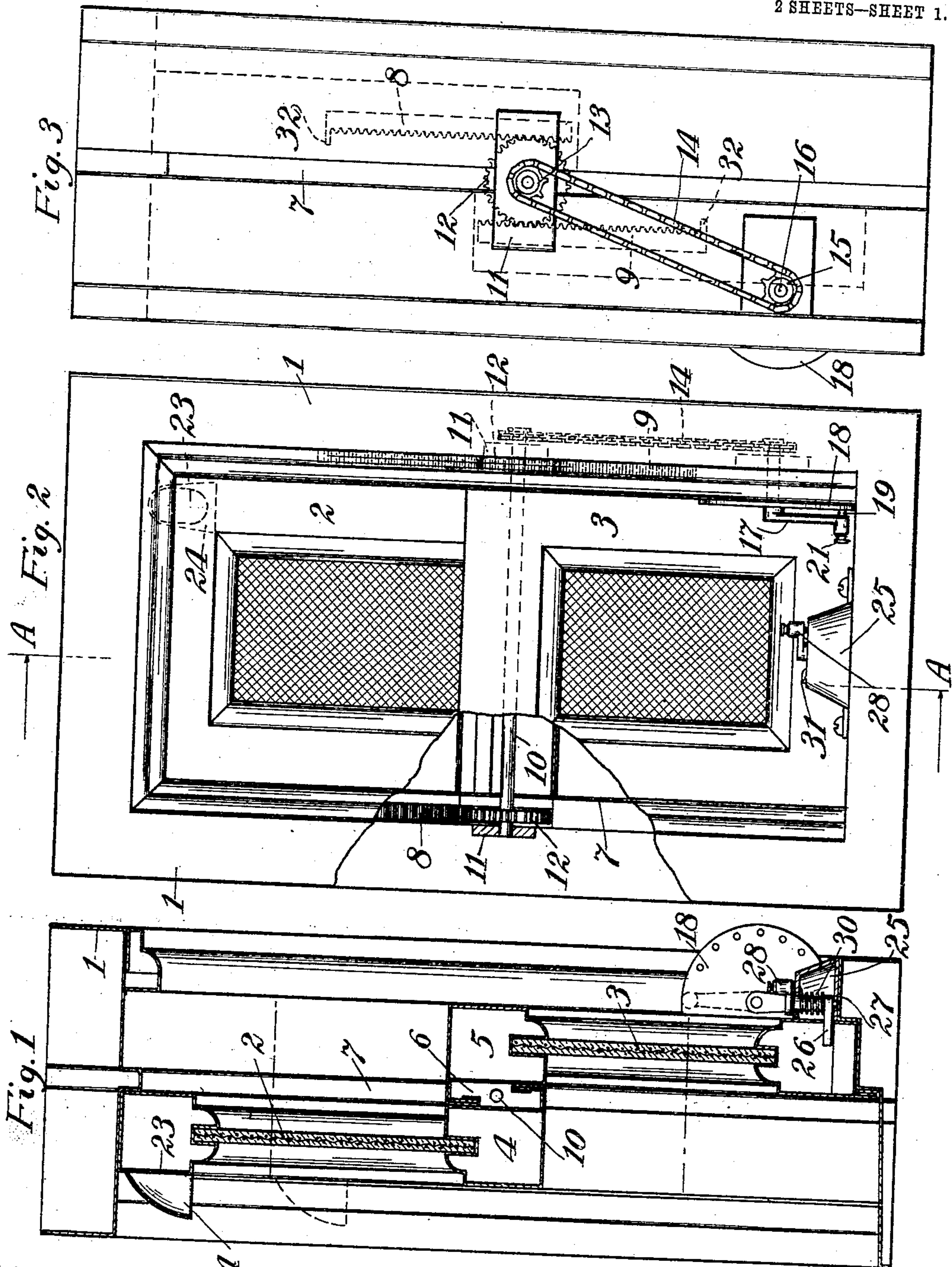


O. J. RAMSHAW.  
WINDOW.  
APPLICATION FILED MAR. 19, 1909.

930,226.

Patented Aug. 3, 1909.  
2 SHEETS—SHEET 1.



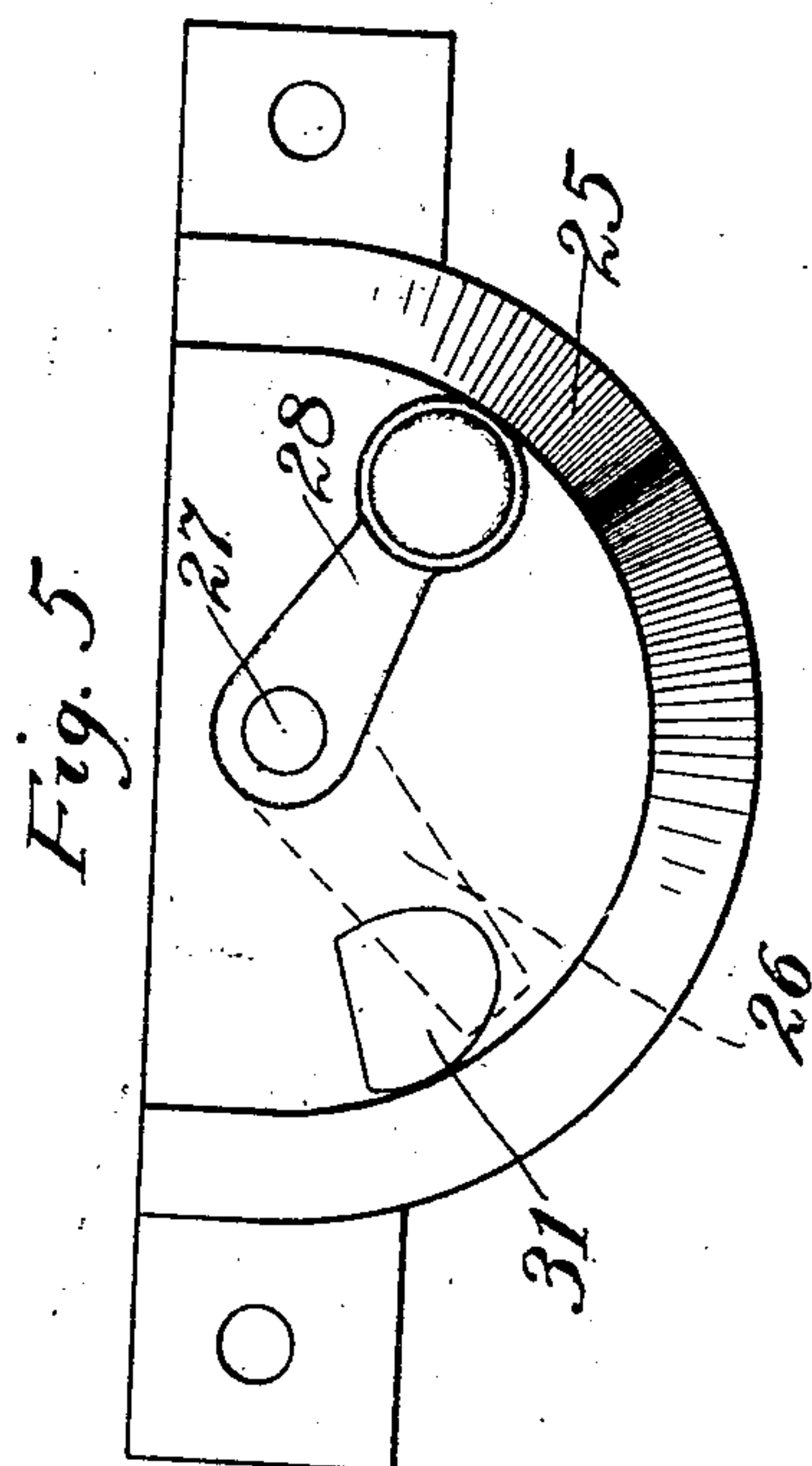
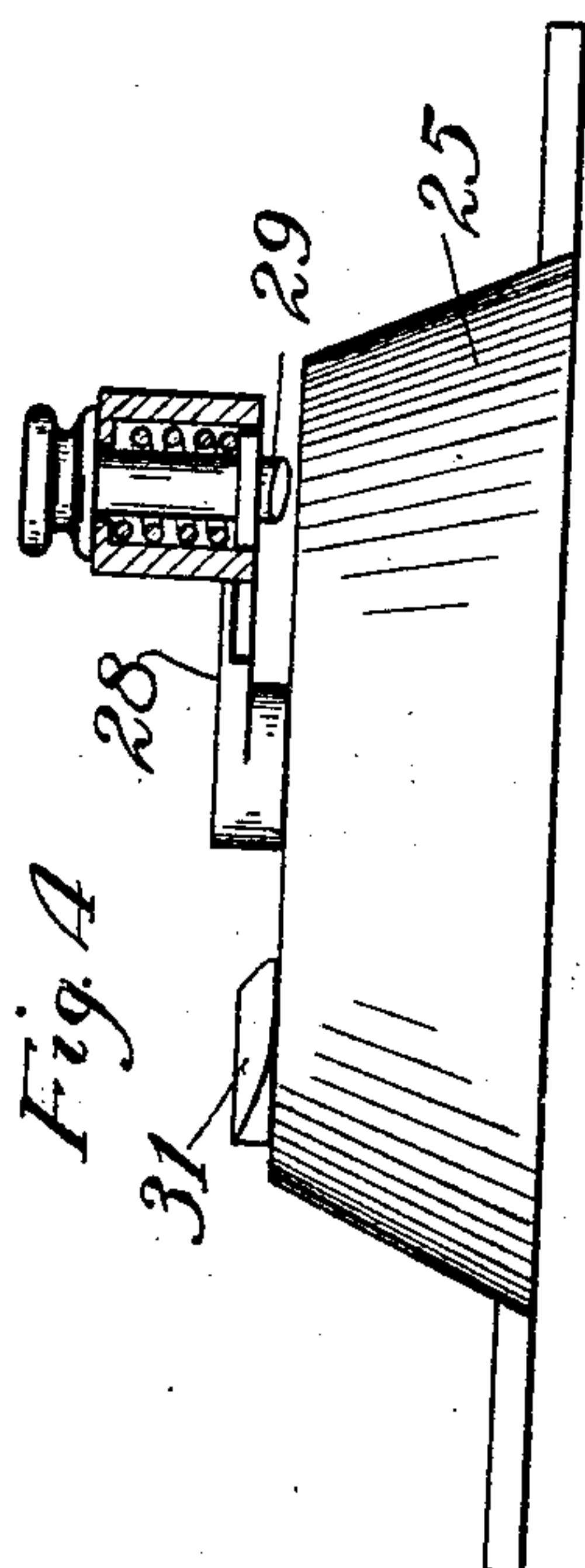
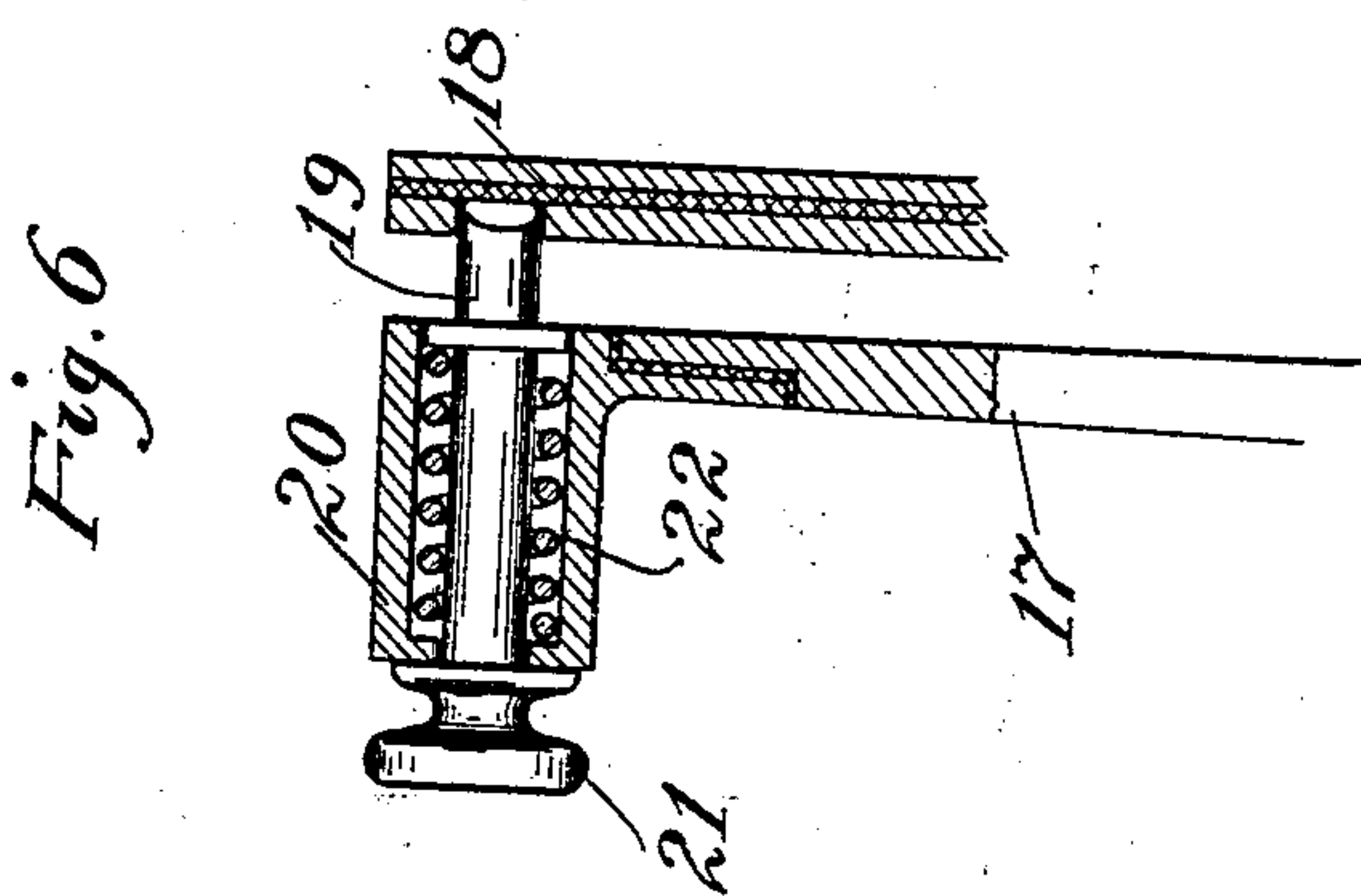
Witnesses:  
Edwin Phelps  
Mary M. Sullivan

Inventor:  
Othello J. Ramshaw,  
By *Rummler & Rummler*  
Attorneys!

930,226.

O. J. RAMSHAW.  
WINDOW.  
APPLICATION FILED MAR. 19, 1909.

Patented Aug. 3, 1909.  
2 SHEETS—SHEET 2.



Witnesses:

Edwin Phelps  
Mary M. Hillman

Othello J. Ramshaw, Inventor:

By Sumner & Sumner  
Attorneys.



# UNITED STATES PATENT OFFICE.

OTHELLO J. RAMSHAW, OF CHICAGO, ILLINOIS.

## WINDOW.

No. 930,226.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed March 19, 1909. Serial No. 484,346.

*To all whom it may concern:*

Be it known that I, OTHELLO J. RAMSHAW, a citizen of the United States of America, and a resident of Chicago, Cook county, State of Illinois, have invented certain new and useful Improvements in Windows, of which the following is a specification.

The main objects of this invention are to provide an improved form of fire-proof window which will automatically close when exposed to the heat of a fire and which may be automatically reopened by the stream of water from a hose; to provide improved operating means for manually opening and closing a window of this class; to provide an improved form of locking means which will permit the window to be securely locked by hand, but which will automatically release the window through exposure to a fire; and to provide improved means for securing the window in an open position, which means will also release the window when exposed to a fire.

A specific embodiment of this invention is illustrated in the accompanying drawings, in which:

Figure 1 is a vertical section of a fire-proof window constructed according to this invention, the section being taken on the line A—A of Fig. 2. Fig. 2 is an inside elevation, partly broken away, of the same. Fig. 3 is an elevation of the same viewed from the right of Fig. 2. Figs. 4 and 5 are enlarged detail views of the lock 25, the detent casing being in section. Fig. 6 is a sectional detail, illustrating the construction of the crank 17 and the rack 18.

In the construction shown, the main frame or casing 1 of the window is of metal and of usual form, and the frames of the sashes 2 and 3 are also of usual form, except the meeting rails 4 and 5, which have their abutting faces so formed as to provide a tight joint when the windows are closed, but at the same time provide a space 6 between them, as shown in Fig. 1. The adjacent faces of the side rails of the sash frames are recessed behind and along the vertical sash guides 7 of the casing frame, and racks 8 and 9 located on the upper and lower sash rails respectively are seated in said recesses. Each side rail of each sash has a rack. A shaft 10 extends across the frame of the casing from side to side at an elevation where it will be hidden by the meeting rails 4 and 5 when the window is closed, and both of the meeting

rails are so shaped that they will pass freely into and out of engagement with each other without interference with the shaft 10. The shaft 10 is carried by bearings 11 which are secured to the vertical bars of the frame 1. Pinions 12 rigidly secured upon the shaft 11 mesh with the racks at the respective sides of the window. The shaft 11 carries a sprocket wheel 13 at one end, which is connected by means of a chain 14 with a second sprocket 15 carried by a shaft 16. The shaft 16 is journaled in the frame, adjacent to the inner face of the lower sash 3, and carries a crank 17 at its end. There is a curved rack 18 secured to the face of the frame 1 adjacent to the path of the crank 17. A spring pressed detent 19 carried by the crank engages the rack for securing the crank in any of its various positions, and thereby securing the window in various open positions. The rack 18 is mounted on a metal plate and is secured thereto by means of readily fusible solder which will release the rack when exposed to heat. The casing 20 which carries the movable detent 19 is also connected with the crank by means of easily fusible solder. The head 21 of the detent 19 serves as a handle for turning the crank, and when the crank is to be turned the head 21 is first pulled outward against the action of the spring 22 so as to move the detent 19 out of engagement with the rack.

In order to cause the window to automatically close when the fusible parts of the rack 18 and crank 17 collapse, the lower sash is made slightly heavier than the upper sash. The upper sash is provided with an opening 23 in the outer face of its top rail, which opening is covered by a hood 24 open only at the bottom, so as to protect the opening against the inflow of water during a rainstorm. The hood 24 also serves as a funnel for guiding water into the hollow rails of the upper sash when a fireman directs the stream of his hose upward into the opening of the hood. The added weight of water in the hollow rails of the upper sash causes it to overbalance the weight of the lower sash, and therefore causes the window to open after the fastening devices have been released by exposure to the heat of the fire.

In case it is not desirable to rely upon the engagement of the detent 19 with the rack 18 for locking the window, an additional lock 25 may be provided. This lock comprises a casing mounted on the sill and provided



with a bolt 26 movable into and out of a recess in the lower rail of the lower sash 3 when the window is closed. In the form shown the bolt 26 is carried by a pivoted shaft 27 and is thrown into and out of locking position by means of an arm 28 fixed on the shaft. This arm is provided with a detent 29 which is spring pressed like the detent 19 and which has a head serving as a handle for the arm 28. The upper surface of the casing of the lock 25 is provided with a shoulder for engagement with the detent for securing the bolt 26 in its locking position. A spring 30 normally urges the locking tongue 26 to a released position. The shoulder 31 on the lock casing and the casing of the detent 29 are both connected with their respective parts by means of easily fusible solder, so that one or both of the connections will collapse when exposed to heat, allowing the spring 30 to withdraw the bolt 26 from engagement with the lower sash and permitting the window to open. As the lower sash normally rests upon the sill through the fact of its overbalancing the upper sash, the locking tongue 26 may have loose engagement with the sash so that it may be readily withdrawn by the spring at such time.

The operation of the device shown is as follows:—When it is desired to open the window, the detent 19 is withdrawn from engagement with the rack 18 by means of the knob 21, and the crank 17 is swung upward. This action causes the chain 14 to rotate the shaft 11, and the rotation of the pinions 12 lowers the upper sash and lifts the lower sash. The only work which is required to accomplish this result is the exercise of enough force to overcome friction and the slight difference in weight between the sashes. As the pinions 12 are rigidly mounted upon the same shaft, the movements of the sashes will be true in their guide grooves and there will be no tendency of either sash to bind through transverse tilting, as is the case in ordinary sliding windows, or as would be the case if there were but one pinion 12 operating on racks at one side of the window only. The window is secured in any desired open position by means of the spring pressed detent 19. If when the window is open it is exposed to a fire, the heat of the fire will cause the connection between the casing 20 and the crank 17 to collapse, or will cause the collapse of the connection between the rack 18 and the main frame 1, and the excess of weight of the lower sash will then cause the window to automatically close. If firemen thereafter desire to open the window for the purpose of fighting the fire, this can be done by directing the stream from the hose into the hood 24 until the upper sash has become filled with water to a sufficient extent to overbalance the weight

of the lower sash, whereupon the window will open. Stops 32 on the casing 1 prevent the sashes from moving beyond the position of greatest opening.

While the lock 25 is provided with fusible connections, its locking bolt in no way depends upon soldered or other fusible connections, for resisting such strains as might be applied to the sash in attempting to open the window forcibly from the outside. If the lock 25 is exposed to heat, the shoulder 31 will break off from the casing of the lock 25, and the bolt 26 will be withdrawn by the spring 30, so that when the firemen fill the upper sash with water the window will open. The lock 25 is so located that it will be impossible for a person on the outside to cause the release of the lock by directing the heat of a torch against the sash frame.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention.

I claim:—

1. A window comprising a frame, a pair of sashes, slidably mounted therein and normally urged toward a closed position, racks secured to the sides of said sashes, pinions journaled at opposite sides of said frame, each pinion meshing with racks on both sashes, means connected to said pinions separately from the sashes and adapted to rotate said pinions for opening the sashes, and adapted to retain said sashes in their open position, and a fusible connection included in said means and adapted, when heated, to release said means.

2. A window comprising a frame, a pair of sashes slidably mounted therein, racks secured to both sides of said sashes, a shaft journaled in said frame and extending transversely across the same between the meeting rails of said sashes, and adapted to be hidden thereby when the window is closed; pinions secured to said shaft at opposite sides of the window and each adapted to mesh with racks on both of said sashes; a lever journaled on said frame, geared to said shaft and adapted to rotate the same for opening said sashes; means normally urging said sashes to their closed position, and means for retaining said sashes in their open position and comprising a fusible connection adapted, when subjected to a certain degree of heat, to release said retaining means.

3. A window comprising a frame, a pair of sashes slidably mounted therein and normally urged to a closed position, mechanism connecting said sashes to cause one to counterbalance the weight of the other, a locking bolt adapted to secure said sashes against relative movement when closed, but normally urged to a retracted position for per-



mitting the opening of the sashes, and means for securing said bolt in its locking position and comprising a fusible part adapted, when exposed to a high temperature, to release said bolt.

4. A window comprising a frame, a pair of sashes slidably mounted therein and normally urged to a closed position, mechanism connecting said sashes to cause one to counterbalance the weight of the other, means coacting with said connecting mechanism separately from the sashes for opening said sashes, and securing means comprised by said sash opening means and including a fusible part adapted to release said securing means when exposed to a high temperature.

5. A window, comprising a frame, a pair of sashes slidably mounted therein, a pair of

racks secured to each sash adjacent to the side edges thereof, the racks on one sash being opposed to those on the other, a shaft journaled in said frame in position to extend along and between the meeting rails of said sashes when they are in their closed position, a pair of pinions rigidly mounted on said shaft adjacent to opposite ends thereof and each located to mesh with a rack on each sash, the meeting rails of said sashes having abutting parts adapted to surround and hide said shaft when the sashes are closed.

Signed at Chicago this 16th day of March, 1909.

OTHELLO J. RAMSHAW.

Witnesses:

W. G. RAMSHAW,

EUGENE A. RUMMLER.