No. 846,858. PATENTED MAR. 12, 1907.

B. J. LESLIE.

WINDOW.

APPLICATION FILED JUNE 5, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

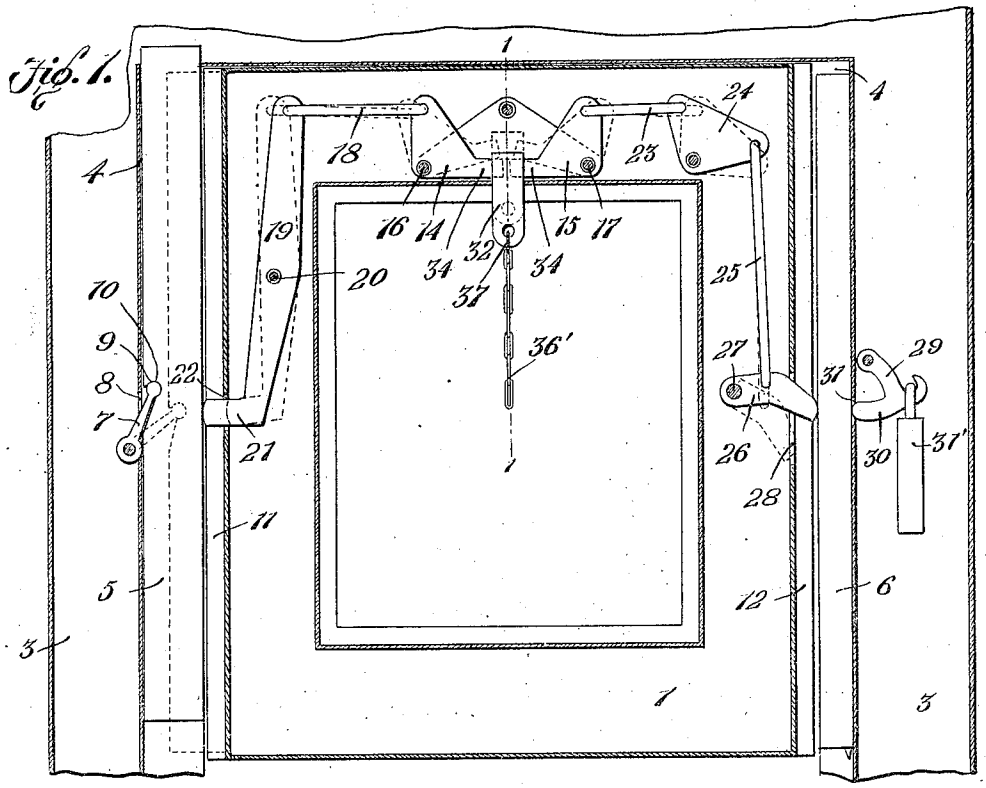
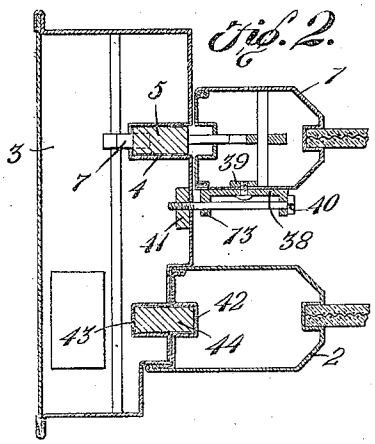


Fig. 2.



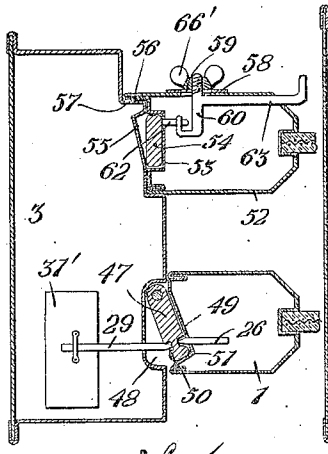


Fig. 4.

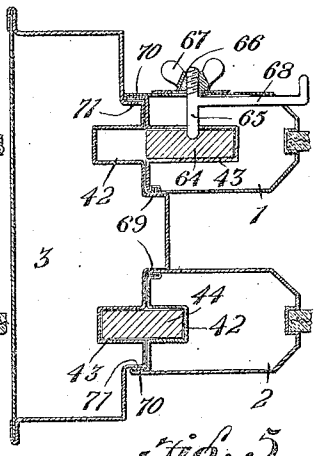


Fig. 5.

Benjamin J. Leslie,
INVENTOR.

WITNESSES:
E. F. Stewart
J. A. Bishop.

By Church & Co
ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

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3 SHEETS—SHEET 2.

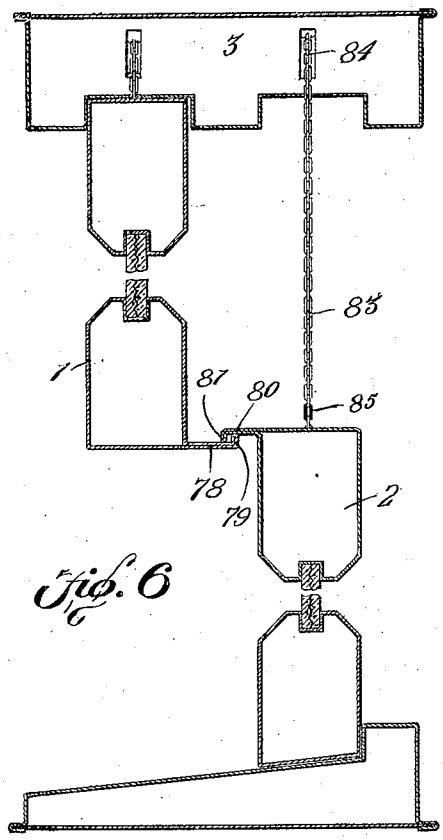


Fig. 6

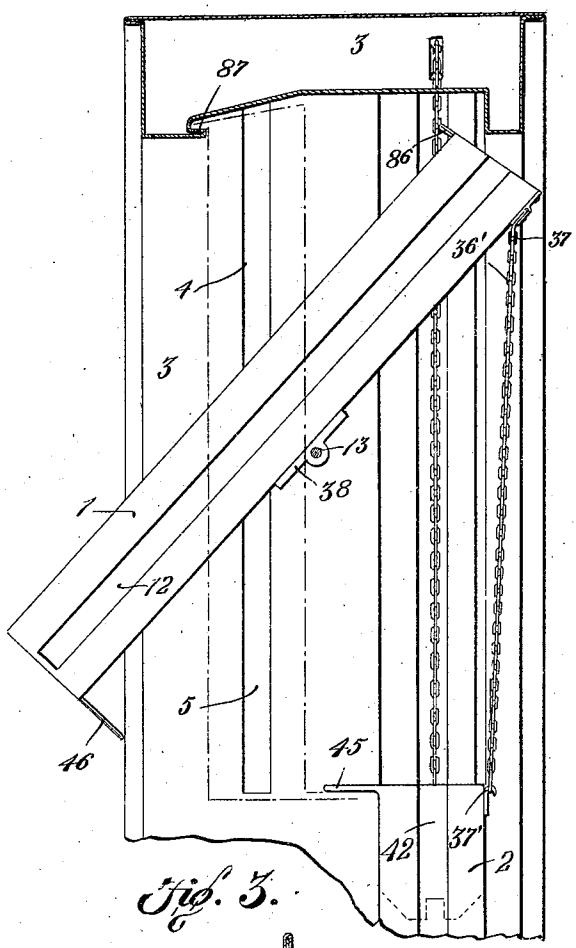


Fig. 5.

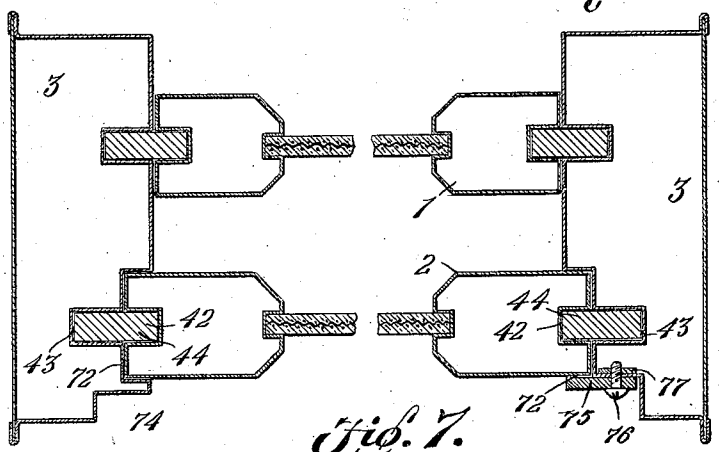


Fig. 7.

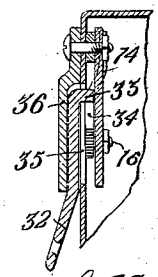


Fig. 7a

WITNESSES:

E. F. Stewart

J. A. Bishop.

Benjamin J. Leslie,
INVENTOR.

By C. A. Snow & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 846,858. PATENTED MAR. 12, 1907.

B. J. LESLIE.

WINDOW.

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3 SHEETS—SHEET 3.

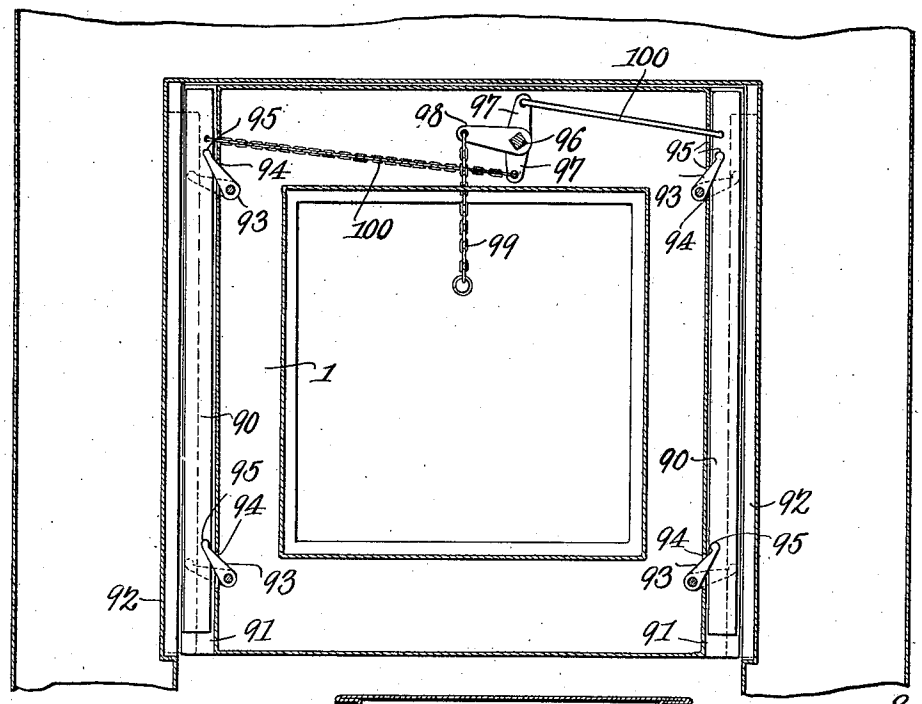


Fig. 8.

Fig. 9.

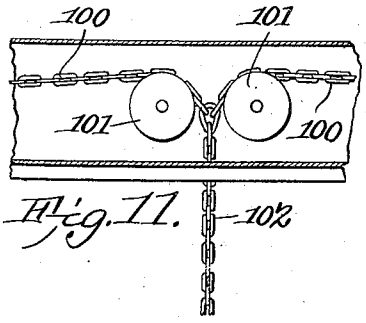


Fig. 11.

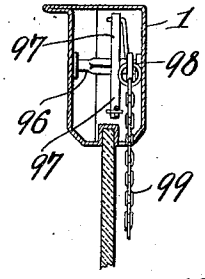
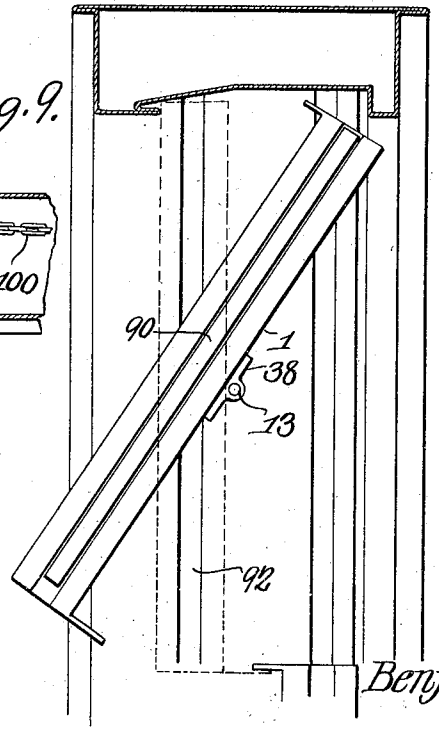


Fig. 10.



WITNESSES:

E. F. Bleuard

J. A. Bishop.

Benjamin J. Leslie,
INVENTOR.

By C. A. Snow & Co
ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN J. LESLIE, OF CHICAGO, ILLINOIS.

WINDOW.

No. 846,858. Specification of Letters Patent. Patented March 12, 1907.

Application filed June 5, 1906. Serial No. 320,347.

To all whom it may concern:

Be it known that I, BENJAMIN J. LESLIE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Window, of which the following is a specification.

This invention has relation to windows; and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a combination sliding and pivoted window, the sash and frame of which is made of sheet metal, and consequently is fireproof. The joints between the frame and sash are as near air-tight as possible and still permit the sash to slide or turn freely. It is often desirable to place windows at fire-escapes with the top pivoted and the lower sash adapted to slide. In the present invention this is accomplished in such a manner that one sash does not interfere with the other and that the bottom sash may be raised or lowered without having to close the top pivoted sash should the same be opened and that the top pivoted sash may be opened or closed without having to raise the lower sash.

With this object in view the invention consists of the various forms of novel construction as will be hereinafter explained.

In the accompanying drawings, Figure 1 is a vertical sectional view of an upper pivoted sash and a portion of the frame. Fig. 1ª is a sectional view of the front of sash shown in Fig. 1, cut on line 1 1 thereof. Fig. 2 is a horizontal sectional view of one of the sides of the frame, showing the form of pivoted sash as illustrated in Fig. 1. Fig. 3 is a transverse sectional view of the upper portion of a window-frame, showing the upper pivoted sash in edge elevation. Fig. 4 is a horizontal sectional view of a modified form of frame, showing a modified form of pivoted sash. Fig. 5 is a horizontal sectional view of a modified form of frame, showing a modified form of sliding sash. Fig. 6 is a vertical sectional view of sash and frame, showing the overlapping means at the meeting edges of the sash; and Fig. 7 is a horizontal sectional view of still another modified form of frame using sliding sash. Fig. 8 is a vertical sectional view of a form of pivoted sash in which the rods are carried by the sash. Fig. 9 is an edge elevation of the sash as shown in Fig. 8. Fig. 10 is a transverse sectional view of the upper portion of the sash as shown in Fig. 8. Fig. 11 is a sectional view of the upper portion of a sash, showing a modified means for operating the rods.

All of the parts of the sash and frame are made of metal, and wire-glass is preferably used for lights.

In the form of the invention as shown in Figs. 1, 2, and 3 the sash 1 is pivoted and the sash 2 is adapted to slide vertically within the frame 3. The sash and the frame are made of sheet metal struck or bent up in the general configuration of ordinary fittings of this character, with the exceptions, however, that will be hereinafter pointed out. In the upper part of the frame 3 and on the inner faces thereof the vertically-disposed recesses 4 4 are formed. In one of said recesses is located a metallic rod 5, while the other receives a metallic rod 6. The arm 7 is pivoted behind the rear wall of one of the recesses 4 and extends through the perforation 8, provided in the said wall of said recess. The end of said arm 7 is rounded, as at 9, and enters a notch 10 in the rear edge of the metallic rod 5. The edges of the sash 1 are provided with the longitudinally-extending recesses 11 and 12. When the said sash 1 is closed, the recess 11 is directly opposite and registers with the recess 4 containing the rod 5, and the recess 12 is opposite and registers with the recess 4 containing the rod 6. It will thus be seen that the inner edges of the said rods 5 and 6 may enter the recesses 11 and 12 when the upper sash 1 is in its closed position—that is to say, part of the said rods will be in the recesses 4 4 and part of the said rods will be in the recesses 11 and 12, thus closing the joint between the sash 1 and the frame 3. In order to swing the sash 1 on its pivot 13, it is necessary to remove the edges of the rods 5 and 6 from the recesses 11 and 12—that is to say, the said rods 5 and 6 must be moved back into the recesses 4 4, so that the edges of the sash 1 may clear the edges of the said rods 5 and 6 when the sash 1 swings open. The rocking levers 14 and 15 are fulcrumed on the transversely-extending pins 16 and 17, respectively, the said levers and said pins being located at the top of the sash 1 and within the sides thereof. The link 18 is pivotally attached to the upper end of the rocker-lever 14 and at its other end is pivotally attached to the upper end of the lever 19. Said lever 19 is fulcrumed at the point 20 in the side of the sash 1. The lower end

of said lever 19 is provided with the angular extension 21, which is adapted to pass through the perforations 22, provided in the inner wall of the recess 11 of the said sash. The link 23 is pivotally attached at one end to the upper end of the rocker-lever 15, and its other end is pivotally attached to the upper end of the rocker-lever 24, which is fulcrumed in the sash 1. The link 25 is pivotally attached at its upper end to the other end of the rocker-lever 24 and at its lower end is pivotally attached to the lever 26, which is fulcrumed at the point 27 in the sash 1. The free end of the lever is adapted to move in and out of the perforation 28, provided in the wall of the recess 12. By reference to Fig. 1 it will be observed that the arm 7 is positioned in the frame 3 substantially opposite to the end of the angular extension 21 of the lever 19 when the sash 1 is closed. Located in the opposite side of the frame 3 and opposite to the perforation 28 of the recess 12 is a pivoted dog 29. Said dog is provided with an end 30, which is adapted to pass through the perforation 31, provided in the back wall of the groove 4, and bears against the rod 6. The weight 31′ is suspended from the said dog 29 and by force of gravity has a tendency to extend the end 30 of the said dog 29 through the perforation 31. Consequently the mechanism embracing dog 29 with its end 30 and the weight 31′ operates to force the rod edges against the edge of the sash 1 and into the recess 12 thereof. The slide 32 is provided at its upper end with the angle extension 33, which rests over the substantially horizontal ends 34 of the rocker-levers 14 and 15. The lower end of said slide 32 is at the exterior of the sash 1, while its upper angular portion 33 enters the interior of the sash 1 through the elongated opening 35. The said opening 35 is vertically disposed and in conjunction with the plate 36 serves as a guide for the said slide 32. The chain 36′ is attached at its upper end to the slide 32. Said chain is provided at or near its point of attachment to the said slide 32 with a link 37, composed of metal that will fuse or melt at comparatively low temperature.

The operation of the top sash constructed as above described is as follows: The normal positions of the parts are indicated by the dotted lines in Fig. 1. The chain 36′ is pulled, which draws down the slide 32. This in turn swings down the adjacent ends of the rocker-levers 14 and 15 and moves their upper ends toward each other. Consequently the links 18 and 23 are moved longitudinally toward the middle of the sash 1. The link 18 draws the upper end of the lever 19 toward the middle of the sash, and the said lever turning on the pivot 20 projects the end 21 through the opening 22 in the wall of the recess 11 and forces the rod 5 back into the recess 4. Owing to the fact that the notch 10 of the said rod 5 receives the end of the arm 7 and as the said arm is pivoted at its other end, the end of the said arm 7 within the notch 10 describes the arc of a circle, which forces the rod 5 in an upward direction as it passes within the recess 4. As the link 23 moves toward the middle of the sash 1 the lever 24 is turned on its fulcrum-point, which moves the link 25 up. Said link 25 projects the free end of the lever 26 through the opening 28 in the wall of the recess 12. This forces the rod 6 back into the recess 4 of the frame against the inclination of the dog 29 and its weight attachments. It will thus be seen that by pulling the chain 36′ the inner edges of the rods 5 and 6 are moved beyond the edges of the sash 1 and that the same force that is used for moving the said rods back will cause the sash 1 to tilt into the position as shown in Fig. 3 of the drawing, and the chain may then be linked under the hook 37′, attached to the lower sash 2, and thus the top sash 1 is held in its open position. When the top sash 1 is closed, the rods 5 and 6 will enter the recesses 11 and 12 as soon as the said recesses register with the recesses 4 4. If the top sash 1 is swung open in the position as shown in Fig. 3 and the lower sash 2 is raised, the said top sash 1 will swing into its closed position.

Pivots 13 are preferably composed of the U-shaped casting 38, which are riveted or otherwise secured to the sash 1, the reinforcing-strip 39 being located in the interior of the sash 1 and receiving the inner end of the said casting-securing means. The bolt 40 passes through openings in the end portions of the U-shaped casting 38 and at its inner end enters the metallic reinforcement 41, which is located in the interior of the frame 3. The lower or sliding sash 2 is provided in its edges with the longitudinally-extending recesses 42, which are located in vertical alinement with the longitudinally-extending recesses 43, located in the frame 3.

In the form of the invention as illustrated in Figs. 2 and 3 the rod 44 is confined within the recess 42 and is adapted to slide in the recess 43 as the sash 2 is moved up and down. The bottom sash 2 is provided at its upper edge with the horizontal flange 45, which is adapted to lay upon the upper side of the flange 46, located at the lower edge of the top sash 1 when both of said sash are in closed positions.

In the form of the invention as shown in Fig. 4 the rod 47 is pivoted at its lower end to the bottom side of the recess 48 of the frame 3. The dog 29 and weight 31′ operate against the free edge of rod 47 to force the same out into the recess 49 of the sash 1. The said rod 47 is provided with a notch or detent 50, which receives the extended end of the dog 29 while on the opposite side. The

said rod is provided with a notch or detent 51, which is adapted to receive the end of the lever 26. The lever 26 and its attachments and the dog 29 and its attachments are substantially as that shown and described in Fig. 1 of the drawing. The advantage of the pivoting feature of the rod 47 is that the said rod so mounted offers minimum friction to the moving parts.

Referring again to Fig. 4 of the drawing, the lower sliding sash 52 is provided in its edges with the recesses 53, which receive the rods 54. The frame 3 is provided with the recesses 55, into which the ends of the said rod 54 may be swung. The inner face of the sash 52 is provided with the edge 56, which is adapted to fit against the shoulder 57, formed in the frame 3. The plate 58 is attached to the exterior surface of the sash 52 and is provided with the elongated opening 59. The shank of the hook 60 extends through the said opening 59 and at its extreme end is screw-threaded and enters the thumb-nut 61. The inner end of the hook 60 enters the eye 62, which is located upon the rod 54 and passes through the opening provided in the side of the recess 53. The extension 63 is secured at its inner end to the hook 60 and extends along the inner surface of the face of the sash 52 and projects beyond the edge of the sash at the inner side thereof.

In the form of the invention as shownin Fig. 5 both of the sash are intended to slide, and the edges of each is correspondingly provided with the recesses 42, which are adapted to register with the frame-recesses 43. A means is provided for withdrawing the rod 64 from the recess 43. Said means consists of a pin 65, which is fixed at one end to said rod 64 and extends through a perforation 66, located in the side of the sash 1. Said perforation is elongated and horizontally disposed. The thumb-nut 67 screws upon the end of the pin 65. The said pin 65 is provided with the lateral extension 68, the major portion of which is located in the interior of the sash 1. The end of the said extension passes through a perforation in the side of the frame and is provided with an upturned end. In the form of the invention as shown in the said Fig. 5 the frame 3 is provided with the shoulders 69 69, against which the inner opposite edges of the sash 1 and 2 are located. The outer edges of the sash are provided with the flanges 70 70, which are adapted to bear against the shoulders 71 71, also provided in the frame 3. In the construction as shown in Fig. 5 both the sash 1 and 2 are intended to slide.

In the form of the invention as shown in Fig. 7 the sash 1 and 2 are also intended to slide only. The frame 3 is provided with the sash-receiving groove 72. Said groove and recess extend longitudinally of the said frame 3. On one side of the frame the fixed shoulder 74 is provided, which forms one side of the sash-recess 72. On the opposite side of the frame 3 the removable plate 75 is provided, which also forms one side of the sash-recess 72. The plate 75 is secured to the frame 3 by means of bolts or screws 76, which engage at their inner ends the reinforcing-strip 77, located in the interior of the said frame.

In the form of the invention as shown in Fig. 6 the upper sash 1 is provided at its lower end with a horizontally-extending flange 78, which is provided with the upturned edge 79. The lower sash 2 is provided with the horizontally-extending frames 80, which in turn is provided with the downturned flange 81. The sash in this form of the invention are intended to slide only, and when in their closed positions the strip 80 rest over the strip 78, the flanges 79 and 81 being vertically located and close together. The lower sash 2 is provided with the chain 83, which passes over the pulley 84, located in the top of the frame 3. To the other end of said chain is attached the usual sash-weight. (Not shown.) The chain 83 is provided with a link 85, which is composed of metal that fuses or melts at a comparatively low degree of temperature. Consequently in case of fire the said link 85 will cause the chain 83 to separate or disengage from the sash 2, when the said sash will fall by gravity and close the window.

In the form of the invention as shown in Fig. 3 the top sash 1 is provided at its upper outer edge with the flange 86. When the said sash 1 is in closed position, the said flange 86 enters the recess 87, provided at the top of the frame 3.

In the form of the invention as shown in Figs. 8, 9, and 10 the sash 1 is pivoted to the frame in the usual manner, as at 13. The rods 90 90 are located in the vertical recesses 91 91 in the edges of the sash 1. The recesses 92 92 are located in the sash-frame and register with the recesses 91 91 when the said sash 1 is closed. The arms 93 93 are pivoted at their lower ends to the sash and are located within the same. The upper ends of said arms 93 project through perforations 94 and enter the recesses 91. The upper ends of the arms 93 engage suitable sockets 95, provided in the rods 90. The shaft 96 is journaled in the upper portion of the sash 1 and is provided with the laterally-extending arms 97. The lever 98 is fixed to said shaft 96, and the upper end of the chain 99 is attached to the free end of the lever 98. The chain or links 100 are attached at their inner ends to the ends of the arms 97 and at their outer ends 1 to each of the rods 90. It will thus be seen that when the chain 99 is pulled down that the free end of the lever 98 descends and partially rotates the shaft 96. Fig. 8 illustrates the chain 99 in pulled-down

position. As the arms 97 are moved the links 100 are drawn in, which in turn elevate and pull the rods 90 into the recesses 91. Thus the sash 1 may be swung open. When the chain 99 is relieved from the pull, the weight of the rods 90 will cause the same to enter the recesses 92 when the edges of said rods are brought opposite the edges of the said recesses.

In the form of the invention as shown in Fig. 11 the means for drawing the rods 90 90 together consists of chains 100, which pass over the shoulders 101 and which connect with the chain 102. The chain 102 extends through the side of the sash and is adapted to be pulled. It is obvious that when the chain 102 is pulled that the chains 100 are moved longitudinally toward each other over the rollers 101 and that the rods 90 90 will be drawn into the sash-recesses 91 91.

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

1. A window consisting of a frame, a sash located therein, the upper sash being pivotally mounted and the lower sash being slidably mounted, said frame having at its upper end a horizontally-disposed recess, the upper edge of the upper sash being provided with the horizontally-extending flange adapted to enter the said frame-recess when the sash is closed, the lower edge of said sash being provided with a horizontally-extending flange, the upper edge of the sliding sash being provided with the horizontally-extending flange, the flange upon the lower sash being adapted to lay over the flange at the lower end of the upper sash when the said sash are closed in the frame.

2. A window consisting of a frame having longitudinally-extending recesses, sash mounted in said frame, said sash having at their edges longitudinally-extending recesses, rods movably located in said sash-recesses, and a means attached to said rods for removing the same from the frame-recesses.

3. A window consisting of a frame having vertically-extending recesses, a sash located in said frame and being provided at its edges with vertically-extending recesses, a rod pivoted at its ends and adapted to swing within the said recesses of the frame and sash, and means for swinging said rod out of one or the other of said recesses.

4. A window consisting of a frame having vertically-extending recesses, a sash located in said frame and having at its edges vertically-extending recesses, rods pivotally mounted at their ends in the frame-recesses and adapted to swing laterally into the sash-recesses, and means for swinging said rods out of said sash-recesses.

5. A window consisting of a frame having vertically-extending recesses, a sash located in said frame and having at its edges vertically-extending recesses, rods located in said recesses and adapted to be moved out of the sash-recesses, and a lever mechanism attached to the sash and operatively connected with said rods for moving them out of said sash-recesses.

6. A window consisting of a frame having vertically-extending recesses, sash located therein and having at its edges vertically-extending recesses, rods adapted to enter the recesses of the sash and the frame when the same are alined, a lever mechanism attached to the sash and adapted to operate the rods at both of its edges in such manner as to force the said rods out of the sash-recesses when the sash is opened.

7. A window consisting of a frame having vertically-extending recesses, a sash located in said frame and having vertically-extending recesses, rods pivotally mounted in said frame-recesses and adapted to swing into the sash-recesses, a means for forcing said rods into the sash-recesses, and means attached to the sash and adapted to be operated to force the said rods out of said sash-recesses.

8. A window consisting of a frame having vertically-extending recesses, a sash located in said frame and having vertically-extending recesses, rods pivotally mounted in the frame-recesses and adapted to swing into the sash-recesses, a means for normally holding said rods in the sash-recesses, a lever mechanism attached to and carried by the sash and operatively connected with said rods whereby the same may be forced out of the sash-recesses when the same is opened.

9. A window consisting of a frame having vertically-extending recesses, a sash located in said frame and having at its edges vertically-extending recesses, rods positioned in said recesses and when the sash is closed, adapted to extend across the edges of the frame and sash recesses, a means for moving said rods beyond the edges of said recesses consisting of a lever mechanism attached to the sash and being operatively connected with the said rods whereby when the sash is opened the rods are forced beyond the edges of one or the other of said recesses.

10. A window consisting of a frame having vertically-extending recesses, a sash pivotally mounted in said frame and having at its edges vertically-extending recesses, rods retained within the sash-recesses and adapted to enter the frame-recesses and means carried by the sash for withdrawing the rods from the frame-recesses.

11. A window consisting of a frame having vertical recesses, a sash pivoted to the frame and having vertical recesses, rods retained within the sash-recesses and adapted to enter the frame-recesses, arms pivotally supporting said rods in parallel relation, said

rods adapted to enter the frame-recesses, and means carried by the sash for withdrawing the rods from the frame-recesses.

12. A window consisting of a frame having vertical recesses, a sash having vertical recesses and being pivoted to the frame, rods retained within the sash-recesses and adapted to enter the frame-recesses, means for withdrawing the rods from the frame-recesses consisting of link connections attached at their outer ends to said rods, and a means for exerting a pull upon the inner ends of said connections.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN J. LESLIE.

Witnesses:
L. F. KLEIN,
PAUL B. DIETRICH.