Feb. 25, 1941. L. M. JONES 2,233,315

AWNING SHUTTER

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FIG. 1.

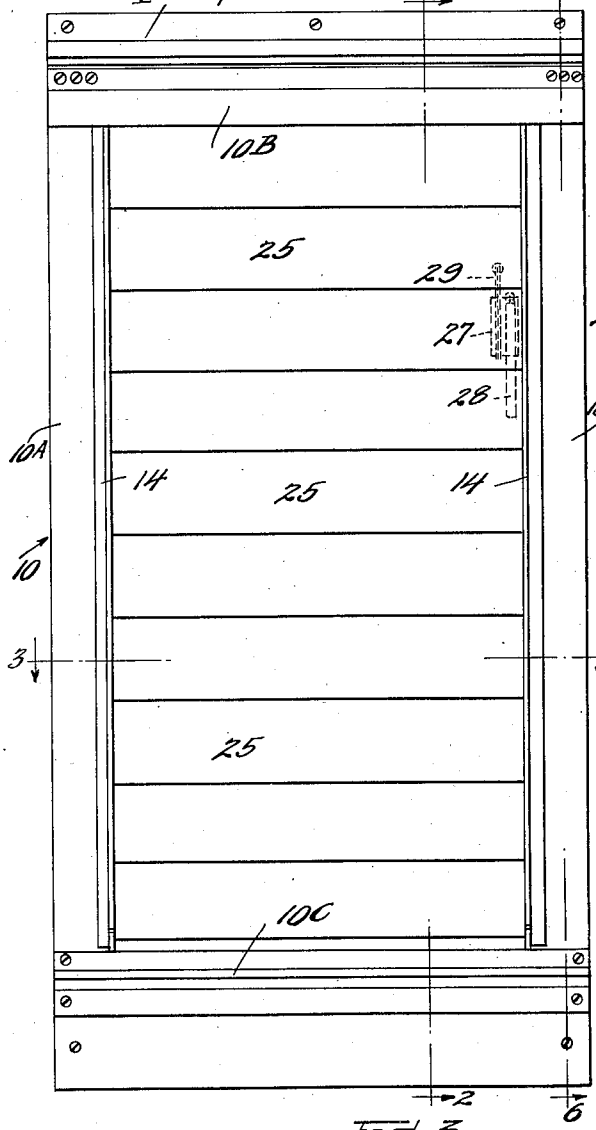


FIG. 2.

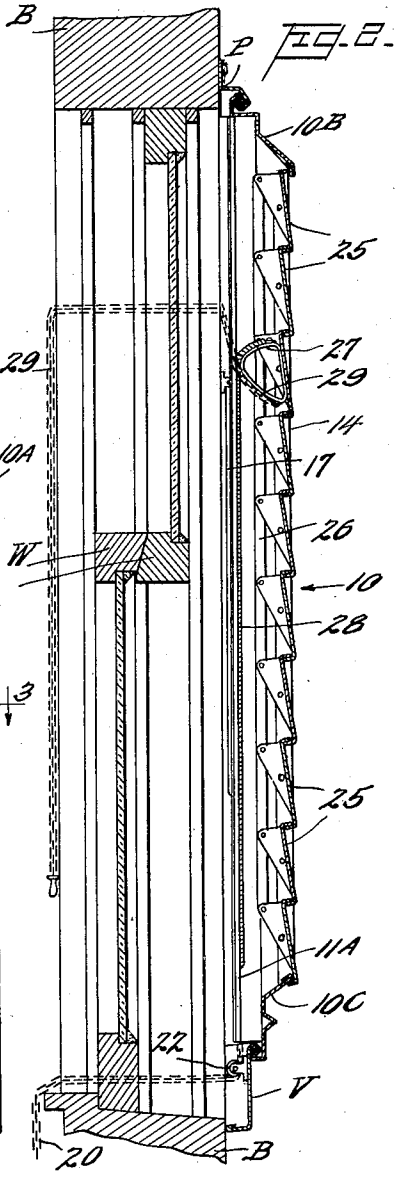
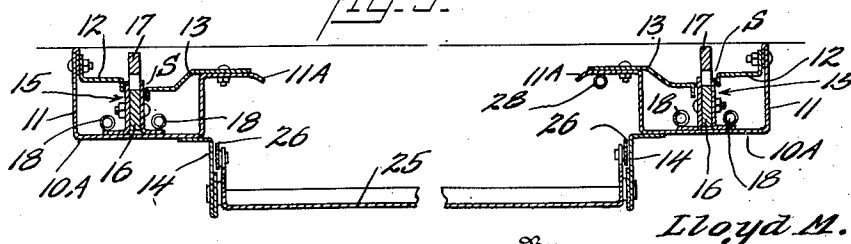


FIG. 3.



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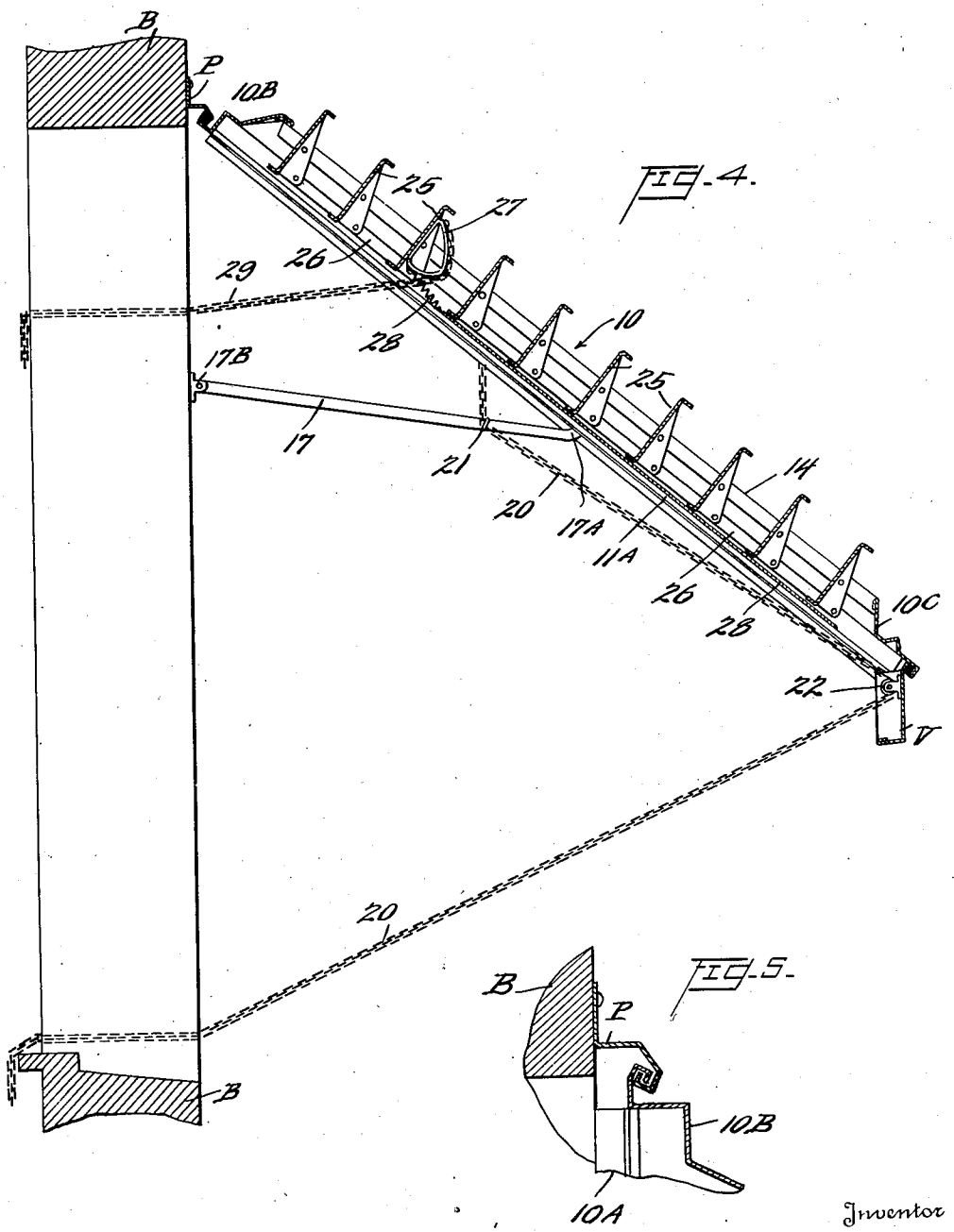


FIG. 4.

FIG. 5.

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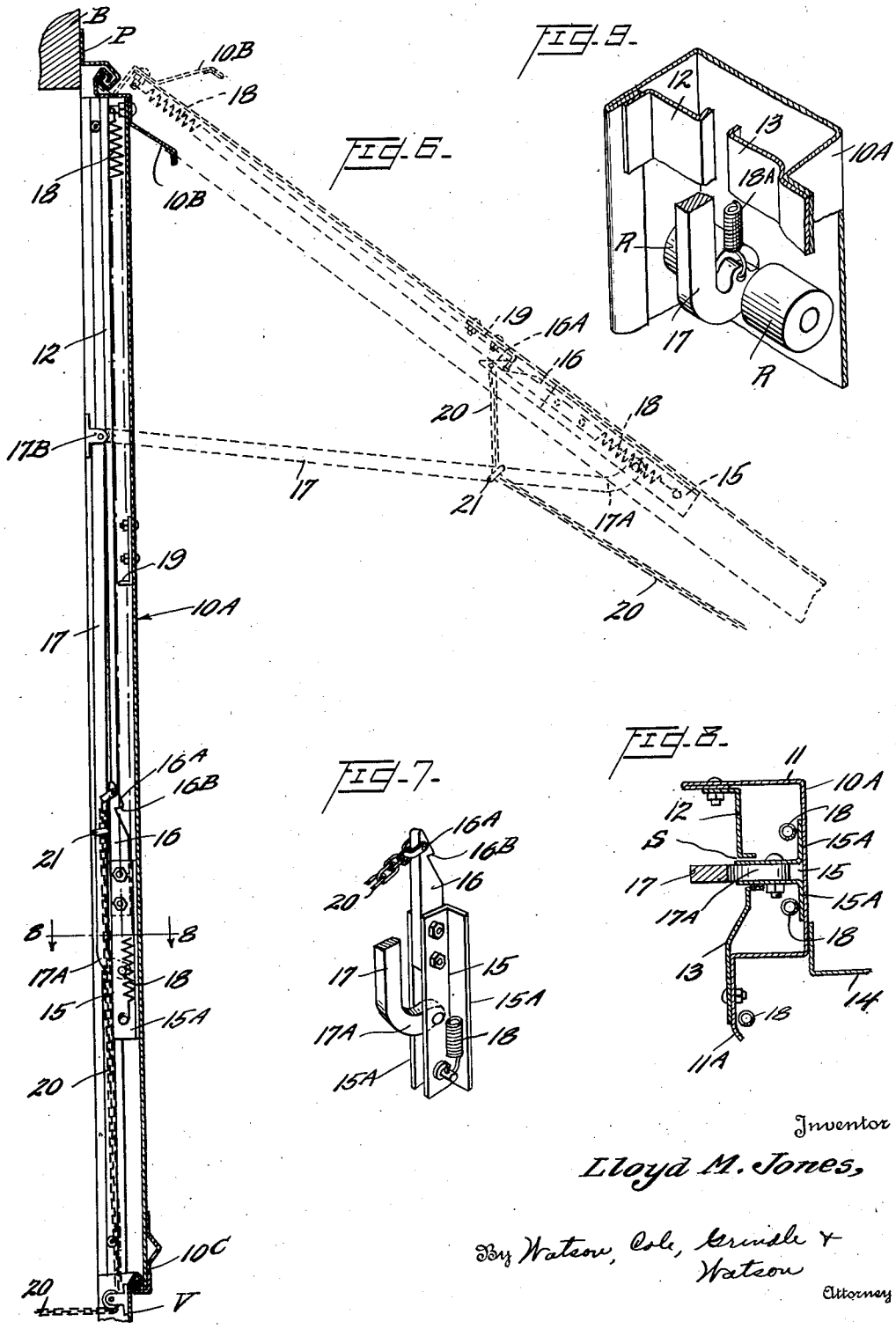
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AWNING SHUTTER

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UNITED STATES PATENT OFFICE

2,233,315

AWNING SHUTTER

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Application July 14, 1938, Serial No. 219,241

3 Claims. (Cl. 189—55)

This invention relates to what is generally termed awning shutters and particularly to devices of that kind which are pivotally supported at the upper end thereof on a building or other structure and arranged to swing into position to cover an opening in the building, such as a window, the end of a porch, or the like, and which can be swung outwardly from the building and held in a desired position to afford access of light and air to the building.

It is the purpose of the present invention to provide an awning shutter of this kind which can be easily and quickly and smoothly manipulated to open or close the same, which will be automatically locked in open position when swung outwardly from the window or other opening, and which is constructed in such a way as to conceal much of the operating mechanism so that such mechanism will not detract from the appearance of the shutter and will be protected from the weather or injury.

Another object of the invention is to provide simple and efficient means for opening and closing the ventilating louvers with which such shutters are usually provided.

Other advantages of the invention will be apparent from the accompanying drawings, illustrating one embodiment thereof, and the accompanying specification describing the same and forming part hereof.

In said drawings,

Figure 1 is a vertical outside view of an awning shutter of the kind herein disclosed, the same being shown in closed position adjacent the window;

Figure 2 is a vertical section on the line 2—2 of Figure 1;

Figure 3 is a horizontal section on the line 3—3 of Figure 1;

Figure 4 is a vertical section of a shutter, such as shown in Figure 1, with the lower end thereof swung outwardly from the window or building;

Figure 5 is an enlarged detailed section illustrating the manner of pivotally supporting the upper end of the shutter;

Figure 6 is a longitudinal section substantially on the line 6—6 of Figure 1, illustrating details of the operating mechanism for locking the shutter in open position, this view showing in dotted lines the open position of the shutter;

Figure 7 is an enlarged perspective view of certain details of the automatic lock or latch for holding the shutter in open position;

Figure 8 is a transverse section on the line 8—8 of Figure 6; and

Figure 9 is a fragmentary perspective view of a slightly modified form of device.

Referring to the drawings in detail, the invention is shown applied to a building generally illustrated at B and having a window opening provided with the usual window sash indicated at W. It will be understood that the invention may be applied to any opening or space which it is desired to cover and protect.

The awning shutter constituting the present invention is generally indicated at 10 in the various figures. The shutter is preferably formed by employing spaced longitudinal side members 10A rigidly connected by an upper transverse member 10B and a lower transverse member 10C. The upper transverse member 10B is pivotally supported on a supporting plate P which is rigidly secured to the building above the window or other opening to be protected.

The longitudinal side members 10A and transverse members 10B and 10C form a rigid open framework in which a louver construction may be mounted, as later described. It is to be understood that instead of the louvers, the shutter may be formed of one or more flat sheets of metal rigidly secured to the side members 10A.

As already indicated, one feature of the present invention relates to the mechanism for operating the shutter and automatically locking the same in open position. To that end, the side members 10A are made in the form of hollow bars or channels, each having a slot extending longitudinally along the rear or inner side thereof. These hollow bars or channels may be constructed in any desired manner. Preferably they are formed from plates 11 bent into U-shape, as shown particularly in Figures 3 and 8. A plate 12 is secured to one side of the U-shaped plate 11, and a similar plate 13 is secured to the other side thereof. These plates 12 and 13 extend toward each other and the edges thereof are flanged, such flanges being spaced apart to form a slot between them, indicated at S. The plates 11, 12, and 13 together form the longitudinal side members 10A of the shutter and the slot S between said plates 11 and 12 extends longitudinally throughout the length of said members.

In the arrangement shown, a plate 14 is secured to the outer face of each member 10A and extends longitudinally thereof. These plates 14 serve to pivotally support the ends of the slats or louvers, hereinafter described.

Arranged within each of the side members or channels 10A is a slide 15 shown in enlarged form in Figure 7. The side members 10A form

guideways or trackways for such slides and the guideways extend longitudinally of the shutter. The slides 15 may be formed in any suitable way, but as shown, they are made up of two angularly bent plates 15A arranged side by side but spaced apart with one flange of each resting against the inner surface of the plate 11 and the other flanges thereof extending outwardly through the slot S in the side bars 10A. Secured between the upper ends of the outwardly projecting flanges of the plates 15A is a latch 16 and the outer end of a brace or thrust bar 17 is also pivotally secured between said plates 15A below said latch, it being understood that a similar thrust bar is preferably provided on each side of the shutter. The thrust bars 17 are curved adjacent their outer ends as shown at 17A and these bars slide in the slots S of the side members 10A as the shutter is opened or closed. The inner ends of thrust bars 17 are pivotally secured to the building as indicated at 17B.

A coiled spring 18 is arranged within the members 10A on either side of the slide 15, and each of these springs is secured at its lower end to the lower end of the slide 15 and at its upper end near the upper end of the side members 10A. The springs 18 are made comparatively strong and are under tension at all times. These springs serve to draw the slides 15 upwardly within the side bars 10A and thus cause the shutter to be swung outwardly by the thrust members 17.

A locking lug 19 is secured in each of the side members 10A and these lugs are so positioned that when the slides 15 are drawn upwardly, the latches 16 will automatically engage over these lugs. The latches 16 are provided on their upper ends with an inclined surface 16A which will slide over the lugs 19 and thus permit the angular portion 16B on the latches to engage said lugs 19. It will be understood that as the slides 15 are drawn upwardly and the latches 16 engage the lugs 19, the latches 16 will yield or move outwardly to a slight extent to permit the inclined surfaces thereof to pass over the lugs 19 and engage the angular surfaces 16B. When the latches 16 are thus engaged with the lugs 19, the shutter will be firmly held in open position so that the outer end thereof cannot be moved downwardly.

Secured to each slide, preferably to the latch 16, is a suitable flexible operating member 20 which may be in the form of a cable or chain, preferably the latter. Each of the chains 20 extends from the latch 16 through a guide 21 mounted on the thrust bar 17 and then through a guide 22 secured adjacent the lower end of the shutter, preferably to the pivoted valence section V thereof, and then into the building, preferably through openings in the window frame or other part of the building.

With the shutter in open position, by drawing the chains or operating members 20 inwardly, it will be apparent that the latches 16 will first be withdrawn from the lugs 19 and the slides 15 will then move downwardly in the side members 10A of the shutter and through the action of the thrust bars 17 the shutter will be swung inwardly toward the building.

When the operating chains or members 20 are released, and the springs 18 are free to act, the slides 15 will be drawn upwardly in the side members 10A and the shutter will be swung outwardly into the position shown in Figure 6; and as the slides 15 are drawn upwardly, the latches 16 will automatically engage the lugs 19 to lock the shutter in its outward position. When thus locked and the chains 20 tightly secured inside the building, it will be seen that the shutter is firmly held against movement by the wind or other force. When thus locked, the louvers can also be readily operated without disturbing the position of the shutter.

In place of the slides 15, the outer ends of the brace bars 17 may carry one or more rollers as indicated at R in Figure 9, which are adapted to move up and down along the guideways or trackways, these rollers also being drawn upwardly by one or more coiled springs 18A as in the case of the slides 15.

As previously noted, the shutter may be provided with a louver construction, a simple and convenient form being illustrated in the drawings. This comprises a series of pivoted slats or louvers 25 which are pivotally connected at spaced intervals to the plates 14 secured to the side members 10A. Each of the louvers 25 is also pivotally connected to a common operating bar 26 so that all the louvers are caused to move simultaneously into open or closed position. Each of the louvers is provided along its upper edge with an outwardly projecting flange and along its lower edge with an inwardly projecting flange. These flanges on adjacent louvers are adapted to overlap and engage and thus form a tight closure in the manner well known. The flange at the upper edge of the top louver is arranged to engage beneath a downwardly and outwardly extending flange on the upper transverse member 10B of the shutter, and the lower edge of the bottom louver is arranged to engage over an upwardly and outwardly extending flange on the lower transverse member 10C of the shutter.

The invention includes a simple and convenient means for operating the slats or louvers 25. Secured to the underside of one of the louvers is an anchor plate or member 27 which is bent into a curved or cam shape as shown in the drawings. A coiled spring 28 is connected at one end to the member 27 and passes over the same and extends longitudinally of the side member 10A of the shutter to which the other end of the spring is attached. The inner side of the plate 11, heretofore described, is preferably extended inwardly as indicated at 11A to provide a channel in which the spring 28 is positioned and which also serves to catch and conduct away any water which may be forced inwardly adjacent the ends of the louvers 25. The spring 28 is under tension at all times and this spring tends to rotate the louvers 25 into open position, as shown in Figure 4. An operating chain or cable 29 is also secured to the member 27 at a point opposite the point of attachment of the spring 28. The chain 29 passes over the member 27 in a direction opposite to the spring 28 and said chain preferably extends through an opening in the building so that the same can be conveniently grasped and manually operated from the inside of the building. The member 27 is so shaped as to require the minimum amount of force to overcome the spring 28 and close the louvers and to provide a smoothly operating mechanism for controlling the louvers.

It will be seen that the means for opening and closing the louvers do not project outwardly beyond the louvers themselves so that when the louvers are closed, none of the operating mechanism for closing the same is visible and such mechanism is thus protected from the elements,

and at the same time it does not detract from the appearance of the shutter.

It will be observed also that the mechanism by which the shutter itself is manipulated into open or closed position is practically all concealed within or behind the hollow side members 10A of the shutter so that such mechanism is also protected from the weather and is practically invisible so as not to detract from the appearance of the shutter.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. An awning shutter installation for a building comprising, in combination, an open framework including spaced hollow box-like side bars for supporting a plurality of louvers therebetween, upper and lower members rigidly secured to and extending between said spaced side bars, means for pivotally connecting said upper member to the building, each of said hollow side bars having a narrow slot in the rear wall thereof extending longitudinally of the bar, a traveller member arranged in the interior of each of said hollow bars and guided for longitudinal movement therein, a brace bar pivotally connected at its outer end to each of said traveller members, said brace bars extending through said slots and having the inner ends thereof pivotally connected to the building at horizontally spaced points, said brace bars being arranged to swing said shutter outwardly when the outer ends of the bars and said traveller members are moved upwardly, a coil spring arranged within each of said hollow bars, said springs having the lower ends thereof secured to said traveller members and the upper ends thereof secured to said shutter, said springs being normally under tension and adapted to urge said traveller members and the outer ends of said brace bars upwardly and thereby swing said shutter outwardly from the building, and means for moving said traveller members and brace bars downwardly to a substantially vertical position to swing said shutter toward the building.

2. An awning shutter installation for a building comprising, in combination, a unitary non-extensible shutter structure pivotally connected at its upper end to the building and having its lower end arranged to swing toward and from the building, said shutter having a hollow box-like bar extending along each vertical side edge thereof, each of said hollow bars having a narrow slot in the rear wall thereof extending longitudinally of the bar, a traveller member arranged in the interior of each of said hollow bars and guided for longitudinal movement therein, a brace bar pivotally connected at its outer end to each of said traveller members, said brace bars extending through said slots and having the inner ends thereof pivotally connected to the building at horizontally spaced points, said brace bars being arranged to swing said shutter outwardly when the outer ends of the bars and said traveller members are moved upwardly, a coil spring arranged within each of said hollow bars, said springs having the lower ends thereof secured to said traveller members and the upper ends thereof secured to said shutter, said springs being normally under tension and adapted to urge said traveller members and the outer ends of said brace bars upwardly and thereby swing said shutter outwardly from the building, cooperating locking means on said traveller members and on upwardly located portions of said hollow bars for locking said shutter in open position when the traveller members are drawn upwardly by the springs, and means for simultaneously releasing said locking means and for moving said traveller members and brace bars downwardly to a substantially vertical position to swing said shutter toward the building.

3. A construction as specified in claim 2 in which the last named means comprises flexible elements each having one end secured to one of said traveller members, said flexible elements passing through guide elements carried by an intermediate portion of said brace bars and further guide elements carried by the lower side portions of the shutter, the opposite ends of said flexible members being retained in convenient positions for manual control.

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