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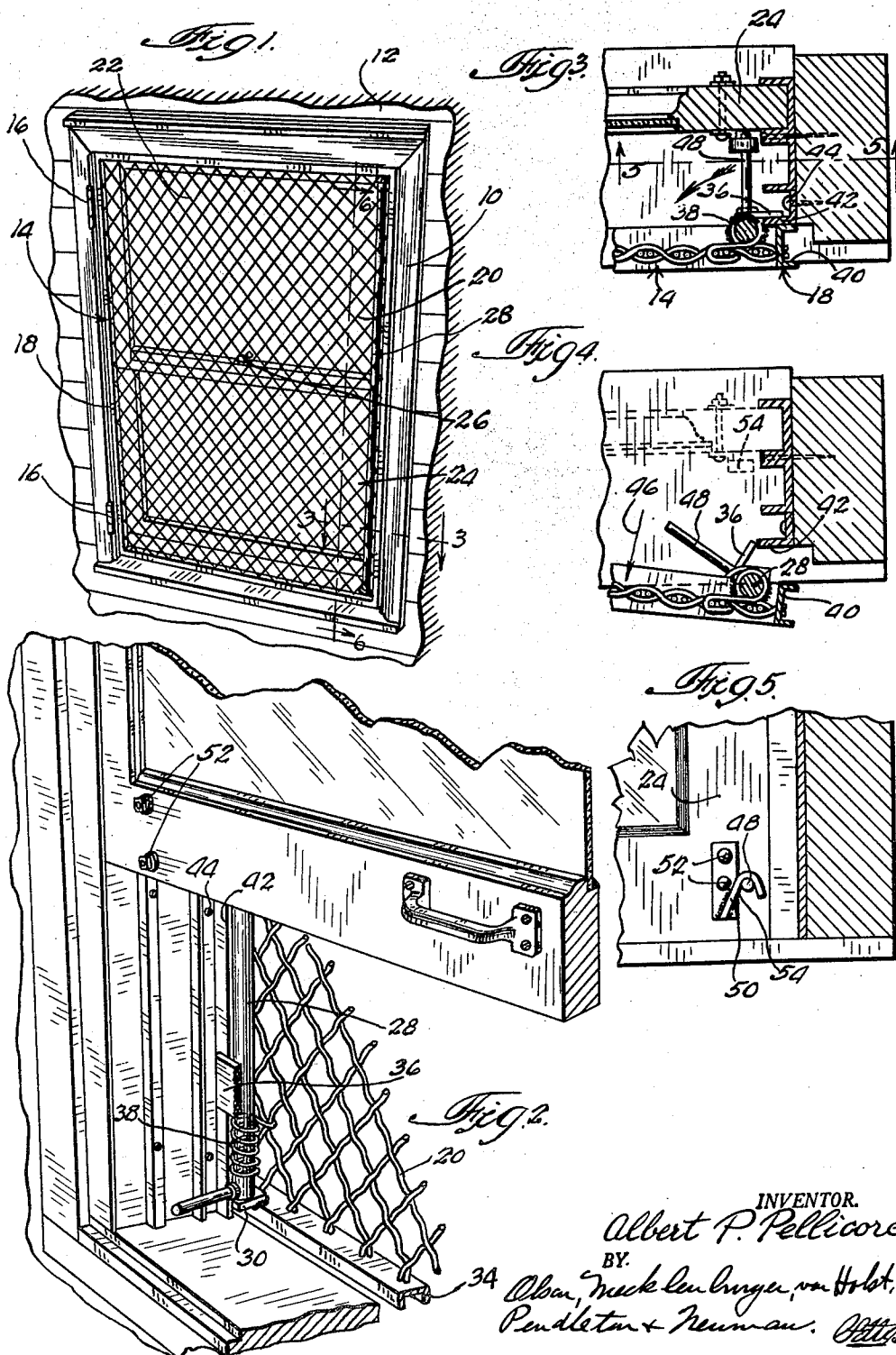
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SECURING MEANS FOR WINDOW GUARDS AND THE LIKE

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2 Sheets-Sheet 1



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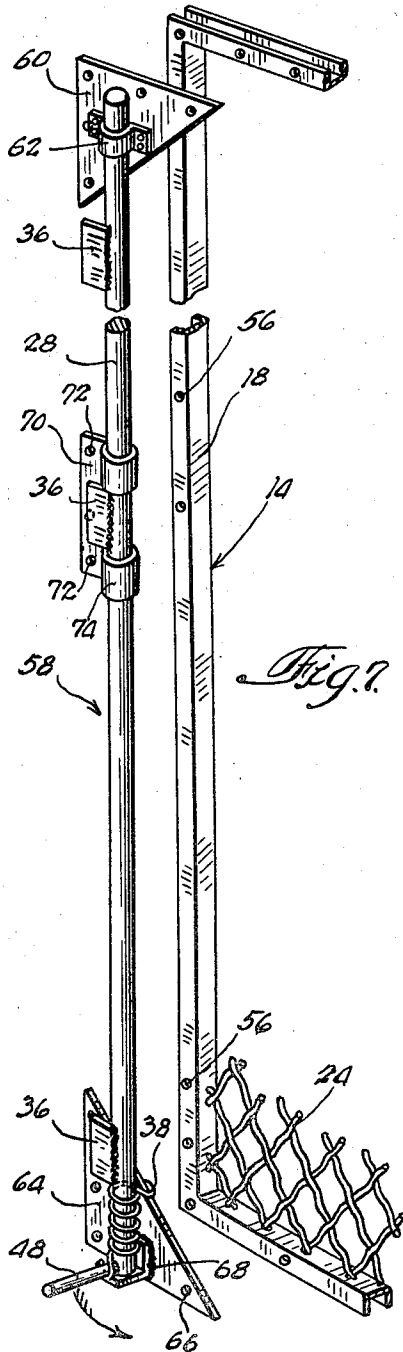
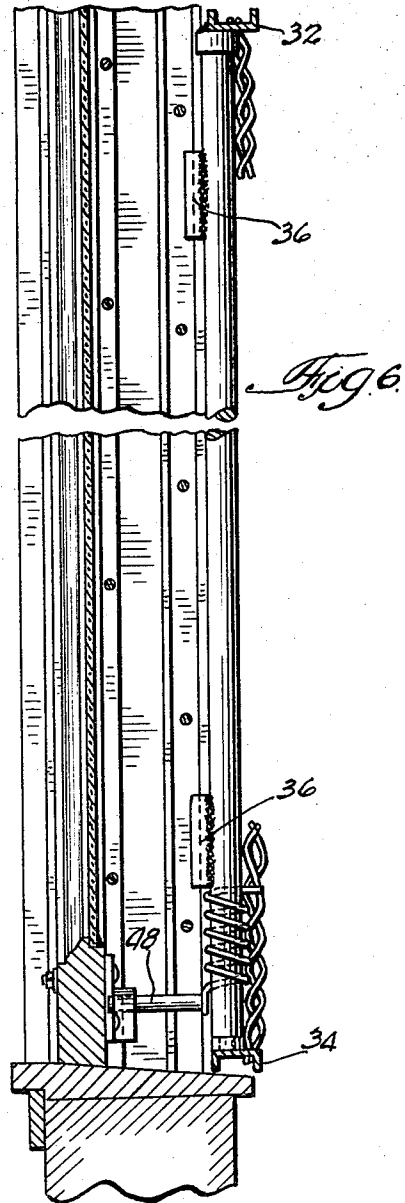
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2 Sheets-Sheet 2



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2,924,862

SECURING MEANS FOR WINDOW GUARDS AND THE LIKE

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13 Claims. (Cl. 20—71)

This invention relates to improved securing means and more particularly to a locking means for a window guard or the like adapted to resiliently maintain the window guard in a closed position while being selectively lockable to positively restrain the guard in the closed position.

Window breakage has been a serious problem and expense in public buildings in recent years. Playful school children as well as vandals and prowlers cause school systems and other institutions excessive expense as a result of glass breakage resulting from thrown stones and balls as well as tampering. In one particular school the glass breakage in one year amounted to approximately \$30,000 and, following the installation of wire window guards, this breakage was reduced to approximately \$1,500.

To avoid removal of and damage to the guards and to avoid ingress by prowlers and vandals it has been the practice to provide means on the guards and in the window frames whereby hinged mounted window guards may be padlocked in the closed position. However, this is troublesome to window washers and maintenance personnel and creates a major hazard in the event of a fire or other emergency. Many possible escape routes are closed when all lower floor windows are covered with heavy wire guards which are padlocked in the closed position. This hazard is of special importance in the case of school buildings.

In a recent Chicago school fire ninety students perished because they were unable to leave the building promptly. As a result of that fire, the Chicago school system ordered all window guards unlocked during daylight hours and locked at the end of each school day. This creates an obvious burden on school engineers and maintenance men and, while the procedure may be followed for a short time, in time it is certain to be overlooked by the men charged with the responsibility for this task.

It is therefore one object of this invention to provide a locking means which will resiliently maintain a panel in a closed position and which will be lockable to positively maintain the panel in a closed position in response to the movement of a second associated panel.

It is another object of this invention to provide locking means for a window guard wherein the locking means will normally maintain the guard in the closed position resiliently but will positively lock the guard in the closed position whenever the associated window is also closed.

It is still another object of this invention to provide an improved window guard having a unique locking means which will selectively lock the window guard in a closed position or resiliently maintain the guard in the closed position.

It is another object of this invention to provide an improved window guard which will protect against glass breakage, which can be positively locked against vandals and prowlers, and which provides protection against panic in the event of an emergency.

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It is still a further object of this invention to provide an improved window guard and locking means which is safe and inexpensive while providing adequate protection for public property and safety.

Further objects of this invention will become obvious from a consideration of this description, the accompanying drawings and the appended claims.

In one form of this invention a unique locking means is provided for maintaining a hinged mounted panel such as a window guard over an opening in an associated building wall whereby the panel is resiliently maintained in position over the opening whenever a secondary closure for the opening is ajar but is positively locked whenever the secondary closure is in closed relationship.

For a more complete understanding of the invention reference will now be made to the accompanying drawings wherein:

Figure 1 is a perspective view of a window employing a window guard and locking means constructed in accordance with this invention;

Fig. 2 is a fragmentary view of the window guard and locking means of Fig. 1, looking outwardly from within the building;

Fig. 3 is a sectional view of the window, window guard and locking means taken on the line 3—3 of Fig. 1;

Fig. 4 is similar to Fig. 3 with the window guard ajar;

Fig. 5 is a fragmentary elevational view of the window frame and sash;

Fig. 6 is a vertical sectional view taken on the line 6—6 of Fig. 1; and

Fig. 7 is an exploded view of an alternate embodiment of the invention.

Referring now to the drawings and more particularly to Fig. 1, a conventional double hung window sash 10 is illustrated in a vertical wall 12. A window guard 14 covers the opening defined by the window sash 10 and is hinged along one vertical edge of the frame by a plurality of hinges 16. The window guard comprises a welded steel frame 18 formed of a channel member, better illustrated in Figs. 3 and 4 with a woven wire mesh 20 secured in the frame and filling the space defined thereby. The wire mesh 20 and frame 18 comprise a panel member which effectively prevents window breakage and ingress by vandals, prowlers, burglars and the like.

In the window illustrated in Fig. 1, upper pane 22 and lower pane 24 are spaced in overlying planes so that the lower edge of the upper pane and upper edge of the lower pane align. A conventional locking means 26 is provided to prevent relative movement between the two panes.

While it is highly desirable that ingress by vandals, prowlers and the like be prevented where window guards are employed by schools and other institutions, it is very important that the window guards can be opened quickly in the event of an emergency. The locking means of the instant invention provides this dual protection. As best illustrated in Fig. 2, the locking means comprises a rod 28 pivotally mounted in supports 30 secured to the upper and lower channel members 32 and 34. Rod 28 has a plurality of small plates 36 secured thereto in spaced relationship. While the various parts are illustrated as a welded assembly, it should be clear that they may be integrally cast or forged, or perhaps riveted together.

In the embodiment of Figs. 1—6, two spaced plates or stop means 36 are provided although in large windows additional plates may be desirable. The rod 28 and stop plates 36 are rotatably urged by a coil spring 38 so that the stop plates 36 will abut against the channel 40 comprising the free edge of frame 18. A flange or angle iron 42 is secured to the window sash by a plu-

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rality of screws 44 and is so disposed that one leg of the flange extends into the window opening to align with the free edge channel 40. This is best illustrated in Fig. 3. As can be seen in Fig. 3, coil spring 38 urges stop plate 36 toward channel 40 and flange 42 is entrapped therebetween whereby the window guard 14 is resiliently held in closed relationship over the window opening.

As should be obvious, the spring 38 may have any desired stiffness to prevent inadvertent opening of the guard. However, the window guard may be readily opened by applying pressure from the inside. Thus, in the event of fire or other emergency, the window will be opened, and by merely pushing on the window guard it too will open. Thus effective panic protection is provided.

The operation of the guard is clearly illustrated in Fig. 4 where the rod 28 is rotated counterclockwise by force applied in the direction of arrow 46 whereby stop plates 36 release flange 42, permitting egress through the window.

To prevent vandalism during the hours when the building is not normally occupied, means is provided for positively locking the window guard. The locking means comprises a locking arm 48 extending transversely from rod 28 through the window opening. The locking arm 48 has a length such that it aligns with but is spaced from the sliding window 24. As will be apparent, if the locking arm 28 is restrained against movement the window guard 14 will be positively locked in place. To provide this restraint, a locking keeper 50, best illustrated in Fig. 5, is secured to the lower window frame 24 by a pair of carriage bolts 52. The locking keeper 50 extends outwardly from the lower frame 24 and has an angular sloping cam-like surface 54.

As illustrated in Fig. 5, when the lower frame 24 is in closed position the keeper 50 receives locking arm 48 whereby the arm is restrained against rotation and the window guard is positively locked in place. By raising the window only a few inches the locking arm 48 is freed and the window guard 14 is held in the closed position only by the resilient force of spring 38. The cam surface 54 insures positive locking of the window guard. In the event that the guard has not been pulled snugly against flange 42, the camming action of surface 54 on arm 48 will insure a tight fit.

An alternate embodiment of the invention is illustrated in Fig. 7. This embodiment is especially adapted for the conversion of existing window guards to the safe but positive locking system described herein. A window guard 14 having wire mesh 20 and frame 18 is provided with a plurality of apertures 56 along the free edge thereof and in the upper and lower channels 32 and 34 adjacent the free edge. A kit comprising the elements already described mounted in supporting brackets is secured to the window guard 14. Upper gusset plate 60 has a mounting pillow 62 extending therefrom to receive rod 28. Similarly, a lower gusset plate 64 having apertures 66 to receive mounting bolts has a bracket 68 welded thereto with a supporting recess therein to receive the lower end of rod 28.

Coil spring 38 is secured at one end to the gusset 64 and at the other end to locking arm 48 and urges the stop plates against the free edge portion of frame 18. Where desired, any number of stop plates 36 may be provided. In the embodiment illustrated in Fig. 7, a third intermediate stop plate 36 is employed. A corresponding supporting bracket 70 having apertures 72 for bolting to the channel 18 and cylindrically-shaped portions 74 to receive rod 28 is provided for greater strength and rigidity. As illustrated, gusset plate 60 and pillow 62 are welded, while supporting bracket 70 has integrally formed collar portions 74. However, as will be clear, any desired construction technique may be employed. The kit will further include the angle iron 42 which is

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secured to the window frame and the locking keeper 50 which is bolted to the lower window-pane.

While the locking feature of the instant invention is extremely important in accessible windows on the lower floors of public buildings, where the window guard is used above this level the locking plate 50 may be omitted and the features of the invention relating to emergency escape and accessibility for window washing and maintenance are still obtained.

Without further elaboration, the foregoing will so fully explain the character of my invention that others may, by applying current knowledge, readily adapt the same for use under varying conditions of service, while retaining certain features which may properly be said to constitute the essential items of novelty involved, which items are intended to be defined and secured to me by the following claims.

I claim:

1. Locking means for resiliently maintaining a hinged panel member in closed relationship over an opening in a building wall and for positively locking said panel member in said closed relationship in response to the position of a secondary closure means, said locking means comprising stop means rotatably mounted adjacent the free edge of said panel member, flange means secured to said building wall adjacent said opening substantially parallel to and adjacent said free edge when said panel member is in said closed relationship, resilient means urging said stop means toward said free edge whereby said panel member is maintained in said closed relationship by the resilient engagement of said flange means between said panel member and said stop means, and locking means extending transversely from said stop means into said building opening and engageable by said secondary closure means whereby said stop means is restrained against rotation.

2. Locking means for resiliently maintaining a hinged panel member in closed relationship over a building opening and for positively locking said panel member in said closed relationship in response to the position of a secondary closure means, said locking means comprising rod means rotatably mounted adjacent the free edge of said panel member, flange means secured to said building adjacent said opening substantially parallel to and spaced from said rod means when said panel member is in said closed relationship, stop means extending from said rod means and engaging said flange means, spring means rotatably urging said rod means to resiliently maintain said stop means against said flange means and said flange means intermediate said stop means and said panel member, and a locking arm extending transversely from said rod means and engageable by said secondary closure means whereby said rod means is restrained against rotation.

3. Locking means for resiliently maintaining a hinged panel member in closed relationship over an opening in a building wall and for positively locking said panel member in said closed relationship in response to the position of a secondary closure means, said locking means comprising support means secured to said panel member at spaced positions adjacent the free edge thereof, rod means rotatably mounted on said support means, a plurality of stop means extending transversely of said rod means, resilient means rotatively urging said rod means to urge said stop means toward said free edge, flange means secured to said building wall adjacent said opening substantially parallel to and adjacent said free edge when said panel member is in said closed relationship, said flange means being resiliently maintained between said panel member and said stop means to maintain said panel member in said closed relationship, and locking means extending transversely from said rod means into said building opening and engageable by said secondary closure means whereby said rod means is maintained in locked relationship against rotation.

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4. Locking means for resiliently maintaining a window guard hinged along one edge in closed relationship over a window opening in a building wall and for positively locking said window guard in said closed relationship in response to the position of an associated window disposed in said window opening, said locking means comprising stop means rotatably mounted adjacent the free edge of said guard, flange means secured to said building wall adjacent said opening and extending into said opening, said flange means being substantially parallel to and adjacent said free edge when said guard is in said closed relationship, resilient means urging said stop means toward said free edge whereby said guard is maintained in said closed relationship by the resilient engagement of said flange means between said guard and said stop means, and locking means extending transversely from said stop means into said window and engageable by said window whereby said stop means is restrained against rotation.

5. Locking means for resiliently maintaining a window guard hinged along one edge in closed relationship over a window opening in a building wall and for positively locking said guard in said closed relationship in response to the position of an associated window mounted in said opening, said locking means comprising rod means rotatably mounted adjacent the free edge of said guard, flange means secured to said building adjacent and extending into said opening, said flange means being substantially parallel to and spaced from said rod means when said guard is in said closed relationship, stop means extending from said rod means and engaging said flange means, spring means rotatably urging said rod means to resiliently maintain said stop means against said flange means and said flange means intermediate said stop means and said guard, and a locking element extending transversely from said rod means and engageable by said window when said window is in a predetermined position whereby said rod means is restrained against rotation.

6. Locking means for resiliently maintaining a window guard hinged along one edge in closed relationship over a window opening in a building wall and for positively locking said guard in said closed relationship in response to the position of an associated window mounted in said opening, said locking means comprising support means adapted to be secured to said guard at spaced positions adjacent the free edge thereof, rod means rotatably mounted on said support means, a plurality of stop means extending transversely from said rod means at spaced intervals, resilient means rotatively urging said rod means to urge said stop means toward said free edge, flange means secured to said building wall adjacent said window opening and extending into said opening, said flange means being substantially parallel to and adjacent said free edge when said guard is in said closed relationship, said flange means being resiliently maintained between said guard and said stop means to maintain said window in said closed relationship, and locking means extending transversely from said rod means into said window opening and engageable by said window whereby said rod is locked against rotation.

7. Locking means for resiliently maintaining a window guard hinged along one edge in closed relationship over a window opening in a building wall and for positively locking said guard in said closed relationship in response to the position of an associated window mounted in said opening, said locking means comprising support means adapted to be secured to said guard at spaced positions adjacent the free edge thereof, rod means rotatably mounted on said support means, a plurality of stop means extending transversely from said rod means at spaced intervals, resilient means rotatively urging said rod means to urge said stop means toward said free edge, flange means secured to said building wall adjacent said window opening and extending into said opening, said

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flange means being substantially parallel to and adjacent said free edge when said guard is in said closed relationship, said flange means being resiliently maintained between said guard and said stop means to maintain said window in said closed relationship, a locking element extending transversely from said rod means into said window opening, and means secured to said window and engageable with said locking element to maintain said stop means against said flange whenever said window is in a closed position.

8. Locking means for resiliently maintaining a window guard hinged along one edge in closed relationship over a window opening in a building wall and for positively locking said guard in said closed relationship in response to the position of an associated window mounted in said opening, and vertically slidable between an open and a closed position, said locking means comprising support means adapted to be secured to said guard at spaced positions adjacent the free edge thereof, rod means rotatably mounted on said support means, a plurality of stop means extending transversely from said rod means at spaced intervals, resilient means rotatively urging said rod means to urge said stop means toward said free edge, flange means secured to said building wall adjacent said window opening and extending into said opening, said flange means being substantially parallel to and adjacent said free edge when said guard is in said closed relationship, said flange means being resiliently maintained between said guard and said stop means to maintain said window in said closed relationship, a locking arm extending transversely from said rod means into said window opening, and a locking plate secured to said window and engageable with said locking arm to maintain said stop means against said flange means whenever said guard and said window are closed.

9. The window guard of claim 8 wherein said locking plate comprises an angularly disposed plate extending toward said guard and upwardly toward said flange whereby said plate engages said locking element and urges said stop means against said flange means.

10. A window guard assembly comprising a guard panel member hinged to a building wall and locking means for resiliently maintaining said hinged guard panel member in closed relationship over an opening in said wall and for positively locking said panel member in said closed relationship in response to the position of a secondary closure means, said locking means comprising stop means rotatably mounted adjacent the free edge of said panel member, flange means secured to said building wall adjacent said opening substantially parallel to and adjacent said free edge when said panel member is in said closed relationship, resilient means urging said stop means toward said free edge whereby said panel member is maintained in said closed relationship by the resilient engagement of said flange means between said panel member and said stop means, and locking means extending transversely from said stop means into said building opening and engageable by said secondary closure means whereby said stop means is restrained against rotation.

11. A window guard assembly comprising a window guard, means for hingedly mounting said guard along one edge of a building wall adjacent a window opening therein, and locking means for resiliently maintaining said guard in closed relationship over said window opening and for positively locking said guard in said closed relationship in response to the position of an associated window mounted in said opening, said locking means comprising rod means rotatably mounted adjacent the free edge of said guard, flange means secured to said building adjacent and extending into said opening, said flange means being substantially parallel to and spaced from said rod means when said guard is in said closed relationship, stop means extending from said rod means and engaging said flange means, spring means rotatably urging said rod means to resiliently maintain said stop means

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against said flange means and said flange means intermediate said stop means and said guard, and a locking element extending transversely from said rod means and engageable by said window when said window is in a predetermined position whereby said rod means is restrained against rotation.

12. A window guard assembly comprising a window guard, means for hingedly mounting said guard along one edge of a building wall adjacent a window opening therein, and locking means for resiliently maintaining said guard in closed relationship over said window opening and for positively locking said guard in said closed relationship in response to the position of an associated window mounted in said opening and vertically slidable between an open and a closed position, said locking means comprising support means adapted to be secured to said guard at spaced positions adjacent the free edge thereof, rod means rotatably mounted on said support means, a plurality of stop means extending transversely from said rod means at spaced intervals, resilient means rotatively urging said rod means to urge said stop means toward said free edge, flange means secured to said building wall adjacent said window opening and extending into said opening, said flange means being substantially parallel to and adjacent said free edge when said guard is in said closed relationship, said flange means being resiliently maintained between said guard and said stop means to maintain said window in said closed relationship, a locking arm extending transversely from said rod means

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into said window opening, and a locking plate secured to said window and engageable with said locking arm to maintain said stop means against said flange means whenever said guard and said window are closed.

13. Locking means for maintaining a hinged panel member in closed relationship over an opening in a wall and for positively locking said panel member in said closed relationship in response to the position of a secondary closure means, said locking means comprising stop means rotatably mounted adjacent a free edge of said panel member, flange means secured to said wall adjacent said opening and adjacent said free edge when said panel member is in said closed relationship, said stop means being yieldably maintained in a position toward said free edge whereby said panel member is maintained in said closed relationship by the engagement of said flange means between said panel member and said stop means, and locking means extending transversely from said stop means and rotatable therewith, said locking means extending into said opening and engageable by said secondary closure means whereby said stop means is restrained against rotation.

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