

Dec. 31, 1935.

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2,026,128

AUXILIARY WINDOW CLOSURE

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2 Sheets-Sheet 1

Fig.1.

Fig.2.

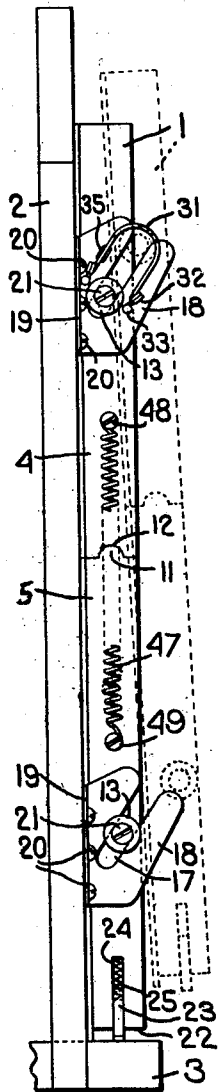
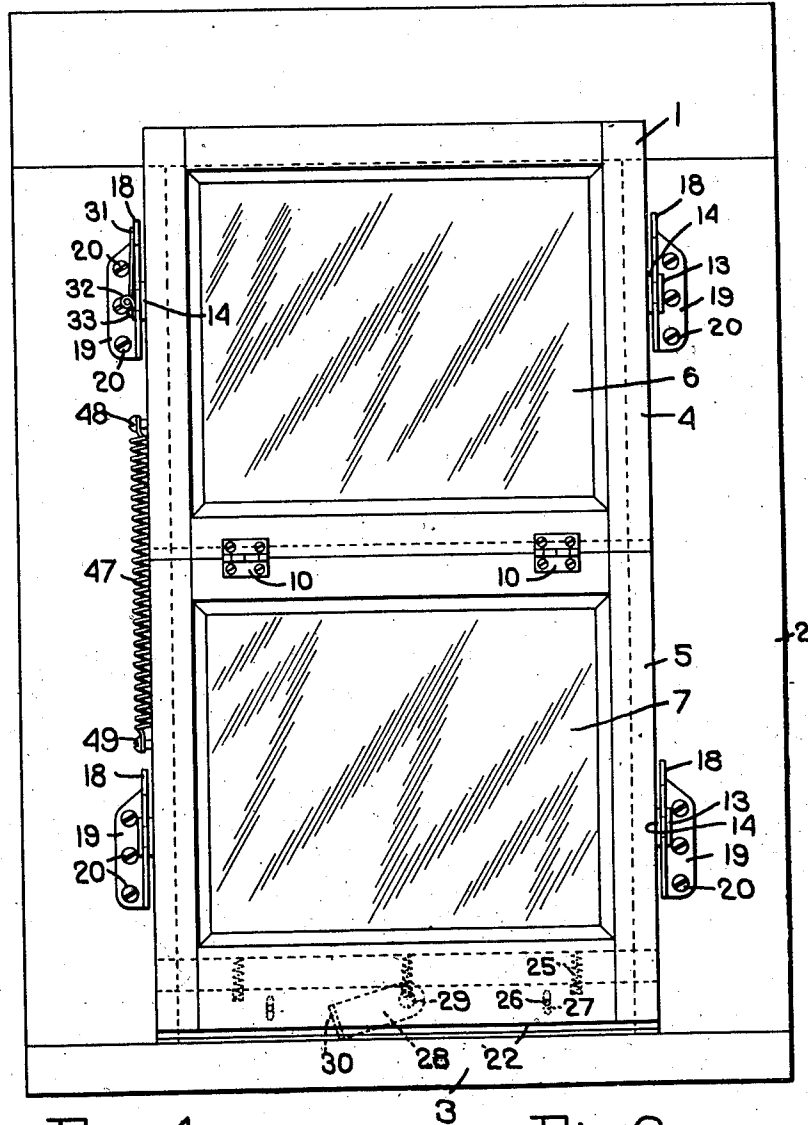


Fig.3.

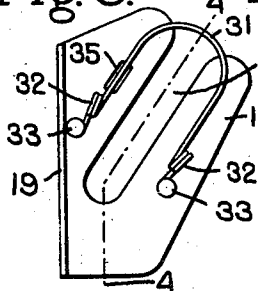


Fig.4.

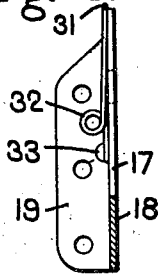


Fig.5.

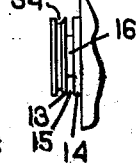
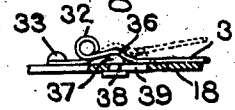


Fig.6.



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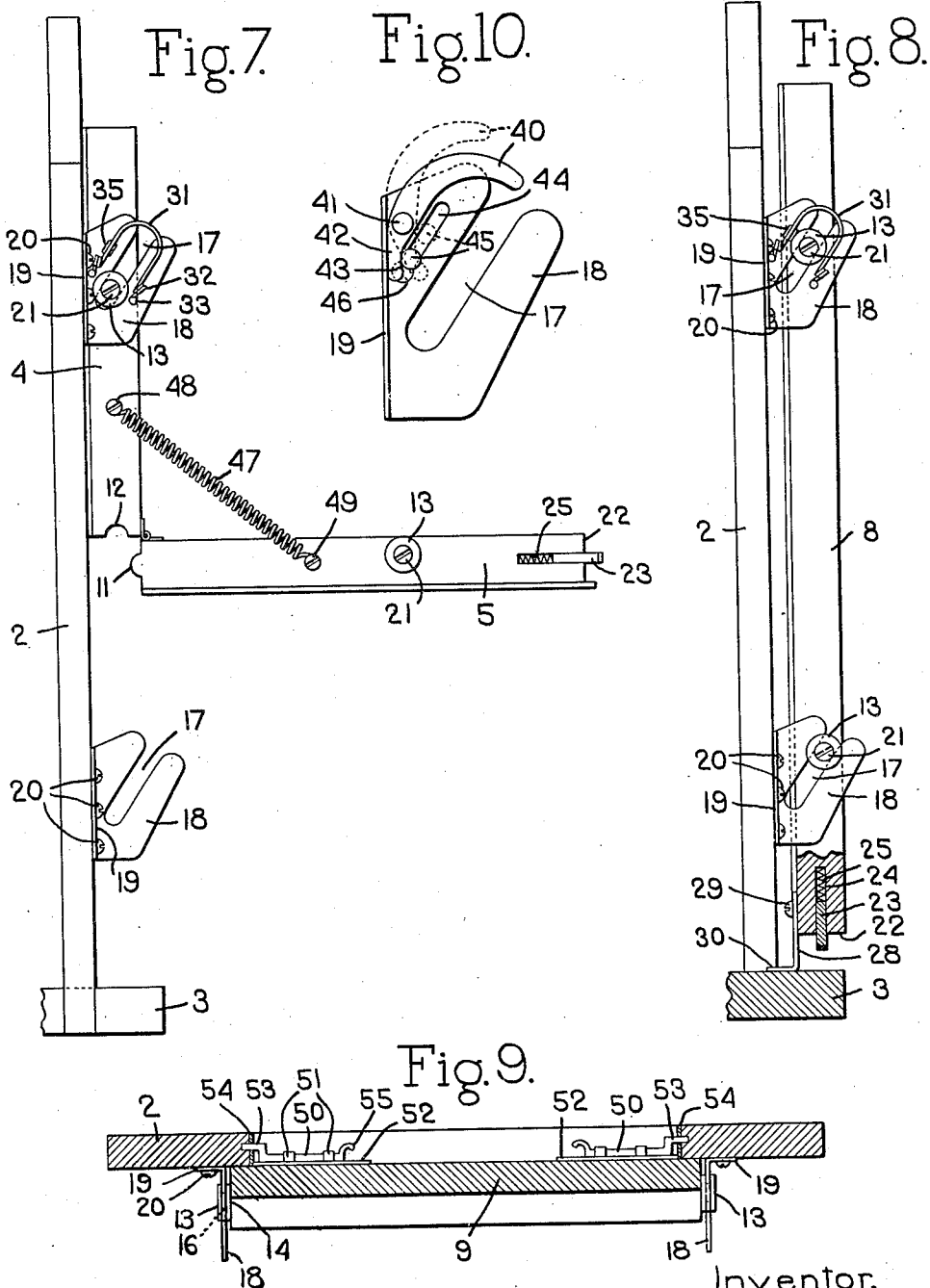
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AUXILIARY WINDOW CLOSURE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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AUXILIARY WINDOW CLOSURE

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10 Claims. (Cl. 20—55)

This invention relates to improvements in auxiliary window closures, such as storm windows, screens, shutters, and the like, and one of the objects of the invention is to provide a closure member and novel supporting means therefor adapted to permit the auxiliary closure member to be readily applied to and removed from the window frame, and which will hold the closure member in firm contact with the window frame when in normal position.

Another object of the invention is to provide an auxiliary window closure comprising a closure member and means for supporting the same in such manner that when the closure member is raised it will be removed from contact with the window frame, with means for holding the closure member in such raised position.

Another object of the invention is to provide an auxiliary window closure construction adapted when in normal position to be held tightly against the window frame, with a weather-strip yieldably mounted on the lower end of the closure member adapted firmly to engage the window sill to prevent the entrance of any considerable amount of air beneath the lower end of the closure member.

Another object of the invention is to provide an auxiliary window closure comprising a closure member having upper and lower pairs of supports extending from the longitudinal edges thereof, and upper and lower pairs of metal brackets mounted on the window frame provided with symmetrical downwardly inclined slots having open upper ends and parallel edges slidably fitting said supports and acting when the weight of the closure member is imposed thereon by said supports to force the closure member firmly into engagement with the window frame, the lower pair of brackets being so positioned as to permit the removal of the lower supports from the slots thereof before the upper supports are disengaged from their brackets.

A further object of the invention is to provide one or more of the upper brackets with means for preventing removal of the supporting member or members therefrom when the closure member is raised sufficiently to free the lower supporting members from the lower brackets.

Another object of the invention is to provide an auxiliary window closure comprising upper and lower rectangular sash members having abutting horizontal edges hinged together, with supports for said closure member operable to permit the lower sash to be swung outwardly and upwardly.

A further object of the invention is to provide a construction of this character with resilient means tending to swing the lower sash outwardly and upwardly when released from the means for securing it to the window frame.

Another object of the invention is to provide an auxiliary window closure of the character described having releasable supports acting when the weight of the closure member is imposed upon them to force the closure member firmly into engagement with the window frame, and releasable locking means located on the interior of the closure member for securing said member against removal.

These and other objects and features of the invention will more fully appear from the following description and the accompanying drawings, and will be particularly pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of a window frame showing in full lines an auxiliary closure member, such as a storm window, screen, shutter, or the like, releasably mounted thereon, and illustrating in dotted lines the position of the closure member when raised sufficiently to permit the lower end thereof to be swung outwardly;

Fig. 2 is a front elevation of the same;

Fig. 3 is a detail side elevation of one of the slotted supporting brackets, illustrating also a releasable retaining spring to prevent the removal of the closure support from the slot in the bracket;

Fig. 4 is a vertical sectional view of the bracket on line 4—4 Fig. 3;

Fig. 5 is a detail view showing a portion of the closure member with the grooved supporting member mounted upon the edge thereof;

Fig. 6 is a sectional view of a portion of the bracket shown in Fig. 3, illustrating means for removing the retaining spring from locking position;

Fig. 7 is a side elevation similar to Fig. 1, showing the closure member made in two sections hinged together with resilient means holding the lower section swung outwardly into substantially horizontal position;

Fig. 8 is mainly a side elevation with the lower part in vertical section showing the closure member moved outwardly from the window frame and supported in raised position, and also illustrating a preferred form of resiliently mounted weather-stripping adapted to engage the window sill when the closure member is in engagement with the window frame; and,

Fig. 9 is a horizontal sectional view through the

window frame and closure member showing locking means mounted upon the inner face of the closure member engaging the window frame to prevent removal of the closure member; and

Fig. 10 illustrates a modified form of releasable locking mechanism for retaining the supporting member for the closure in the inclined slot in the bracket.

The auxiliary window closure illustrated in the accompanying drawings comprises a closure member 1, which may be in the form of a storm window, window screen, shutter, or the like, releasably supported upon a window frame 2 having a sill 3. In the preferred construction illustrated in Figs. 1, 2, and 3, the closure member comprises an upper rectangular sash 4 and a lower sash 5 of any suitable form in which may be mounted glass panes 6 and 7, wire screens, or opaque wooden panels, according to the usage to which the closure member is to be employed. In Fig. 8 the closure member is illustrated as a single frame, such as a storm window frame 8, while in Fig. 9 the closure member is shown as a shutter 9, it being understood that the invention is equally applicable to such forms of closure members or other constructions for like purposes.

In the particular construction illustrated in Fig. 2 the lower edge of the upper sash 4 and the upper edge of the lower sash 5 are held in abutting engagement by hinges 10 and preferably these abutting edges are provided with rounded tongue and groove construction 11 and 12 to insure a tight joint therebetween when the sashes are in alignment.

The closure member is provided with upper and lower pairs of supports mounted in the edges thereof comprising grooved members adapted to be removably inserted in downwardly and inwardly inclined slots in brackets which are secured to the outside of the window frame. In the preferred construction illustrated the grooved supporting members are of circular form similar to pulleys each having a flange 13 and 14 with a groove 15 therebetween providing a cylindrical portion 16 adapted slidably to fit in an inclined slot 17 having parallel edges and an open upper end in a bracket 18 having a laterally extending flange 19 adapted to be secured to the window frame by suitable screws 20. The pairs of brackets, of course, are rights and lefts. The slots 17 of all the brackets extend symmetrically downwardly toward the flanged portions. The supporting members desirably are secured to the edges of the closure member by screws 21 and the upper and lower pairs of supporting members and the brackets therefor desirably are so positioned that when the closure member is in engagement with the window frame the upper pair of supporting members will be nearer the bottom of the slots of their brackets than will be the lower supporting members in respect to the bottoms of their brackets.

By reason of this construction the closure member may be readily applied to the window frame by merely inserting the supporting members in the upper ends of the respective brackets and then permitting the closure member to descend by its weight until the inner face of the closure member engages the window frame. The downward inclination of the slots causes the weight of the closure member to force its inner face firmly into engagement with the window frame and by reason of the fact that the flanges 13 and 14 engage the opposite face of the bracket 18 and the grooved portion thereof fits the slot

17, all tendency of the closure member to be vibrated by gusts of wind is prevented. As a matter of fact the force of wind against the closure member tends to force it more closely into engagement with the window frame. If desired, a packing of felt or other material may be secured to the inner face of the frame of the closure member to overcome any inequalities in the surface of the sashes of the closure member or of the window frame.

If care is exercised in mounting the closure member upon the window frame, the lower end 22 of the closure member may be caused to fit tightly upon the window sill. Inasmuch, however, as such closure members are frequently mounted upon the window frames by unskilled labor and to avoid any likelihood of considerable currents of air entering beneath the lower end 22 of the closure member and the window frame, the closure member has a suitable weather-strip yieldably mounted at its lower end. In the particular construction illustrated the weather-strip comprises a narrow board 23 having a felted lower edge and is slidably mounted in a slot 24 extending across the lower end of the closure member with a spring 25 interposed between the upper edge of the wooden strip 23 and the base of the slot 24. The wooden strip 23 is prevented from being forced out of the slot by two or more pins 26 mounted in the strip and extending into slots 27 in one of the walls of the slot 24.

It is sometimes desirable that storm windows or shutters be raised sufficiently to permit the air to enter through the open inner window. In order to permit this means are provided for supporting the closure member in a somewhat raised position. This is accomplished in the present invention by providing a support or leg 28, preferably of sheet metal, which is pivotally mounted upon a screw or stud 29 in the central lower portion of the closure member and provided with a foot 30 adapted to rest upon the window sill, as illustrated in Fig. 8. By providing the leg member of proper length, the closure member may be supported in raised position, as illustrated in Fig. 8, without releasing the supports for the closure member from their engagement with the slots 17 of the brackets. When raised to such position the closure member is moved and held away from the window frame, thereby permitting the air to enter the spaces between the sides, top and bottom of the closure member and the window frame in a gentle manner, even though a considerable breeze is blowing toward the closure member.

A further object of the invention is to provide means which will enable the lower end of the closure member or the lower sash of the closure member to be raised sufficiently to disengage the lower supports from their brackets and to permit the lower portion to be swung outwardly without disengagement of the supports for the closure member from the upper brackets, so that the closure member will not be released and permitted to fall. This is accomplished by providing one or both of the upper brackets with locking means which will prevent the upper supports from passing through the open ends of the upper brackets. The preferred retaining means illustrated comprises a U-shaped spring 31, preferably having a plurality of coils 32 near its ends, with the ends of the spring passing through holes in the brackets and secured therein by rivets 33, or other fastening means. The U-shaped spring is so mount-

ed upon the bracket that its curved upper end overlies the open end of the slot 17.

In the preferred construction, as illustrated in Fig. 5, one or both of the upper supporting members or pulleys is provided with an additional groove 34, see Fig. 5, adapted to engage the spring 31, and thereby to permit a pivotal movement of the upper end of the closure member without permitting the supporting member to be forced out of the slot 17.

In order to permit the upper supporting member or members to be introduced into or removed from the open end of the slot 17, the bracket 18 is provided with a slot 35 through which an instrument, such as a suitable nail, may be inserted to press and wedge the spring outwardly, while the upper supporting members are introduced into the open ends of the slots of their brackets. The instrument may then be withdrawn and the spring will return to its normal position.

Other means for releasably locking the upper supporting member or members in the slot 17 may be employed, such as are illustrated in Figs. 6 and 10. As illustrated in Fig. 6, the retaining spring 31 is provided near the coil 32 with a curved portion 36 adapted to be engaged by the rounded head 37 of a stud 38, the stem of which is slidably mounted in a slot 39 in the bracket 18. The spring is shown in full lines in normal position for locking the support within the slot and is illustrated in dotted lines in the position it will assume when the stud 36 has been moved upwardly in the slot to permit the removal of the supporting member from the bracket. This stud can ordinarily be moved by hand, but if necessary a screw driver or other tool may be employed to force it lengthwise of the slot.

In the construction shown in Fig. 10 the locking means comprises a detent 40 in the form of an arcuate lever which is pivotally mounted upon a stud 41 fixedly secured in the upper portion of the bracket. The lower arm 42 of the detent has a somewhat abruptly curved end portion 43 which overlies a slot 44 in the bracket. A stud 45 is slidably mounted in the slot and when positioned in the lower portion thereof engages the arm 42 of the detent and holds the same in locking position, illustrated in full lines. When it is desired to release the support from the slot the stud 45 is moved to the upper end of the slot, thereby permitting the detent to swing to the dotted line position. The lower portion of the slot 45 may be provided with a circular enlargement 46 through which the opposite head of the sliding stud may be introduced before the detent is secured upon the bracket by the rivet 41.

It is found advantageous in many instances to form the closure member in upper and lower sections in order that the lower section may be swung outwardly and held in raised position to permit a dust mop to be shaken out of the window, or otherwise to afford access from the room to the exterior of the building. In the preferred construction illustrated resilient means are provided to aid in swinging the lower section outwardly when the closure member has been raised sufficiently to disengage the lower supporting members from the slots in their brackets and also to hold the lower sash in open position. This desirably is accomplished by mounting a spiral spring 47 under tension lengthwise of the aligned edges of the upper and lower sections or sashes 4 and 5, the ends of the spring being secured to the upper and lower sections respectively by screws 48 and 49.

By reason of this construction the spring 40 normally tends to hold the abutting edges of the sections in tight engagement, but when the closure member is raised and the lower section swung outwardly the contraction of the spring first aids to swing it outwardly toward horizontal position and then supports the lower section or sash in such position as is illustrated in Fig. 7. Obviously, other resilient means for thus swinging the lower section outwardly and supporting it may be employed such as spring hinges, in which the hinges act in a reverse manner to those ordinarily employed on screen doors and the like.

A further object of the invention is to provide means for preventing the closure member from being removed and this is particularly important where the closure member is in the form of a shutter. A preferred locking mechanism for accomplishing this purpose, which is illustrated in Fig. 9, comprises a bolt 50 which is slidably mounted in keepers 51 upon a plate 52 which is secured to the inner face of the supporting member. The bolt 50 has an offset end 53 adapted to enter a slot in a suitable metallic plate 54 which is fixedly secured in a countersink in the inner edge of the window frame. The bolt 50 may be provided with an upturned opposite end 55 which can be readily grasped by the hand. As illustrated in Fig. 9, two of such bolts are shown to secure both edges of the closure member in locked position.

It will be understood that the particular embodiments of the invention shown and described herein are of an illustrative character and are not restrictive, and that various changes in form, construction and arrangement of parts may be made within the spirit and scope of the following claims.

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

1. An auxiliary window closure comprising a closure member having upper and lower pairs of grooved cylindrical supports mounted upon the longitudinal edges thereof and metal brackets mounted on the window frame provided with symmetrical downwardly and inwardly inclined slots having open upper ends and parallel edges slidably fitting the grooves of said supports and acting when the weight of the closure member is imposed thereon by said supports to force the closure member firmly into engagement with the window frame and to prevent sidewise movement of said closure member.

2. An auxiliary window closure comprising a vertically movable closure member having upper and lower pairs of grooved cylindrical supports mounted upon the longitudinal edges thereof, a pair of upper metal brackets mounted on the window frame provided with symmetrical downwardly and inwardly inclined slots with open upper ends and parallel edges slidably fitting the grooves of said supports, one of said brackets having releasable retaining means acting normally to close the open end of its slot thereby to prevent the support when in said bracket from being removed from the slot thereof when the closure member is raised, and a lower pair of brackets having similarly inclined slots to receive the lower supports so positioned on the window frame as to permit the lower supports to be removed from the open ends of said slots by raising the closure member while the upper supports are held in the slots in the upper brackets by said retaining means.

3. An auxiliary window closure comprising a closure member having upper and lower pairs of grooved cylindrical supports mounted upon the longitudinal edges thereof, a pair of upper metal brackets mounted on the window frame provided with symmetrical downwardly and inwardly inclined slots with open upper ends and parallel edges slidably fitting the grooves of said supports, a spring secured to one of said brackets extending across the open end of its slot yieldable to permit insertion and removal of the support, but acting normally to prevent the support when in the bracket to be removed from the slot thereof when the closure member is raised, and a lower pair of brackets having similarly inclined slots to receive the lower supports so positioned on the window frame as to permit the lower supports to be removed from the open ends of said slots by raising the closure member while the upper supports are held in the slots of their brackets by said spring.

4. An auxiliary window closure comprising a closure member having upper and lower pairs of grooved cylindrical supports mounted upon the longitudinal edges thereof, a pair of upper metal brackets mounted on the window frame provided with symmetrical downwardly and inwardly inclined slots with open upper ends and parallel edges slidably fitting the grooves of said supports, a spring secured to one of said brackets extending across the open end of its slot yieldable to permit insertion and removal of the support, but acting normally to prevent removal of the support from the slot thereof when the closure member is raised, means for forcing said retaining spring from normal position to permit introduction and removal of the support from the slot in said bracket, and a lower pair of brackets having similarly inclined slots to receive the lower supports so positioned on the window frame as to permit the lower supports to be removed from the open ends of said slots by raising the closure member while the upper supports are held in the slots by said spring.

5. An auxiliary window closure comprising a closure member having an upper pair of circular peripherally grooved supports extending from the longitudinal edges thereof, one of said supports being provided with an outer lock-receiving peripheral groove of greater diameter than the other groove, a pair of upper metallic brackets mounted on the window frame provided with symmetrically downwardly extending slots with open ends and parallel edges slidably fitting the inner grooves of said supports, a U-shaped spring lock secured at its ends to the outside of said brackets and normally maintained in contact with said bracket adapted to engage the lock-receiving groove of said support acting normally to prevent the support when in said bracket from being removed from the slot thereof when the closure member is raised, a lower pair of supports extending from the longitudinal edges of said closure member, and lower brackets having similarly inclined slots open at their upper ends to receive the lower supports so positioned on the window frame as to permit the lower supports to be removed from the open ends of said slots by raising the closure member while the upper supports are held in the slots of the upper brackets by said locking spring.

6. An auxiliary window closure comprising a closure member having upper and lower pairs of grooved cylindrical supports mounted upon the longitudinal edges thereof, a pair of upper metal brackets mounted on the window frame provided

with symmetrically downwardly and inwardly inclined slots having open upper ends, one of said brackets having releasable retaining means including a detent pivotally mounted upon the bracket and adapted when in locking position to extend across a portion of said slot, means for holding said detent in locking position, and a lower pair of brackets having similarly inclined slots to receive the lower supports so positioned on the window frame as to permit the lower supports to be removed from the open ends of the slots in the lower brackets by raising the closure member while the upper supports are held in the slots in the upper bracket by said retaining means.

7. An auxiliary window closure comprising a closure member having upper and lower pairs of grooved cylindrical supports mounted upon the longitudinal edges thereof, a pair of upper metal brackets mounted on the window frame provided with symmetrically downwardly and inwardly inclined slots having open upper ends, one of said brackets having releasable retaining means including a detent pivotally mounted upon the bracket and adapted when in locking position to extend across a portion of said slot, means for holding said detent in locking position, including a stud slidably mounted in a downwardly and inwardly inclined closed slot in said bracket adapted to engage the lower end of said detent, but slidably removable from such engagement to permit the detent to be swung out of locking position, and a lower pair of brackets having similarly inclined slots to receive the lower supports so positioned on the window frame as to permit the lower supports to be removed from the open end of the slots in the lower brackets by raising the closure member while the upper supports are held in the slots in the upper bracket by said retaining means.

8. An auxiliary window closure comprising upper and lower rectangular sash members having abutting horizontal ends hinged together, pairs of upper and lower supports extending respectively from the longitudinal edges of the upper and lower sash members, upper and lower pairs of metal brackets mounted on the window frame provided with symmetrical downwardly inclined slots having open ends and parallel edges slidably fitting said supports, releasable locking means on one of said upper brackets normally preventing the removal of the support from the upper end thereof, the lower pair of brackets being so positioned on the window frame as to permit the lower supports to be raised out of the open ends of their slots and the lower sash member swung outwardly while the upper supports are retained in the upper brackets by said locking means.

9. An auxiliary window closure comprising upper and lower rectangular sash members having abutting horizontal ends hinged together, pairs of upper and lower supports extending respectively from the longitudinal edges of the upper and lower sash members, upper and lower pairs of metal brackets mounted on the window frame provided with symmetrical downwardly inclined slots having open ends and parallel edges slidably fitting said supports, the lower pair of brackets being so positioned on the window frame as to permit the lower supports to be raised out of the open ends of their slots and the lower sash member swung outwardly while the upper supports are retained in the upper brackets, and resilient means acting to swing the lower sash member

to raised position upon release of the lower supports from the lower brackets.

10. An auxiliary window closure comprising upper and lower rectangular sash members having abutting horizontal ends hinged together, pairs of upper and lower supports extending respectively from the longitudinal edges of the upper and lower sash members, upper and lower pairs of metal brackets mounted on the window frame provided with symmetrical downwardly inclined slots having open ends and parallel edges slidably fitting said supports, the lower pair of brackets being so positioned on the window frame as to

permit the lower supports to be raised out of the open ends of their slots and the lower sash member swung outwardly while the upper supports are retained in the upper brackets, and a coiled spring under tension extending along aligned edges of the upper and lower sash members having its ends secured respectively to the upper and lower sash members acting normally to hold said sash members in alinement and to swing and hold the lower sash in raised position when the closure member is raised and its lower supports released from said lower brackets.

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