March 23, 1954 A. N. NELSON 2,673,106

SAFETY WINDOW LOCK

Filed Sept. 11, 1952

2 Sheets-Sheet 1

Fig. 1

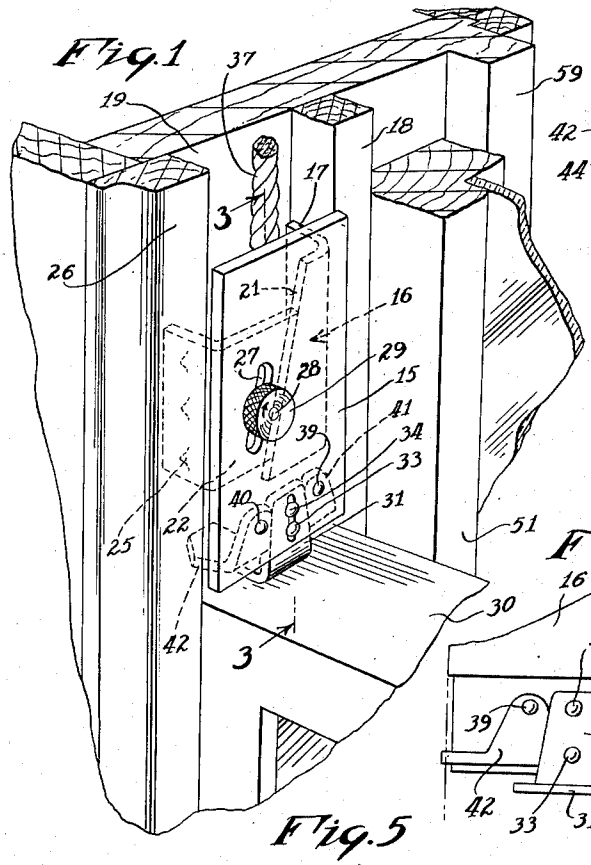


Fig. 2

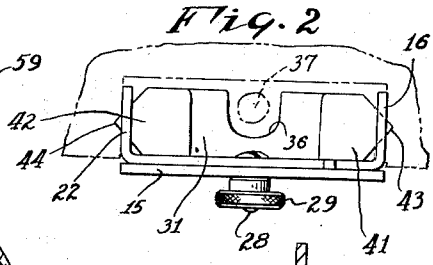


Fig. 3

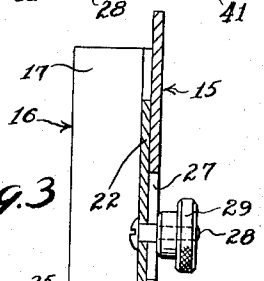


Fig. 4

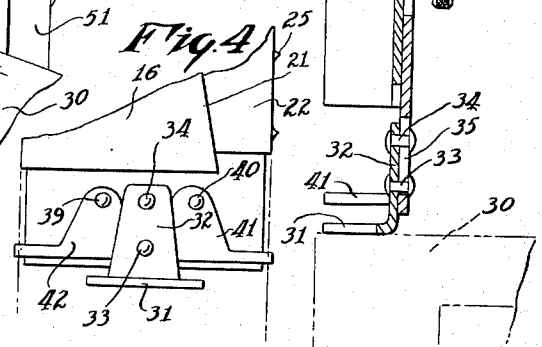
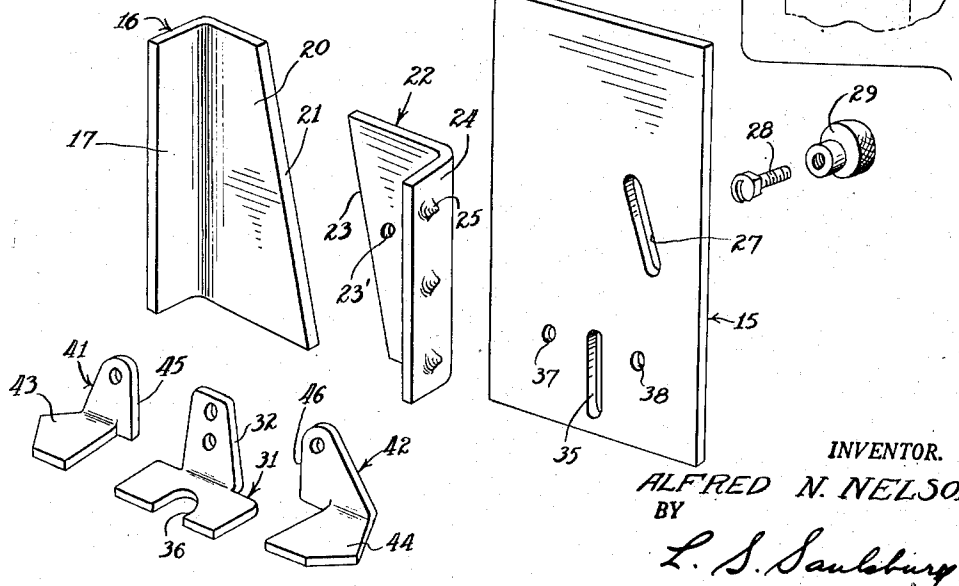


Fig. 5



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2 Sheets-Sheet 2

Fig. 6

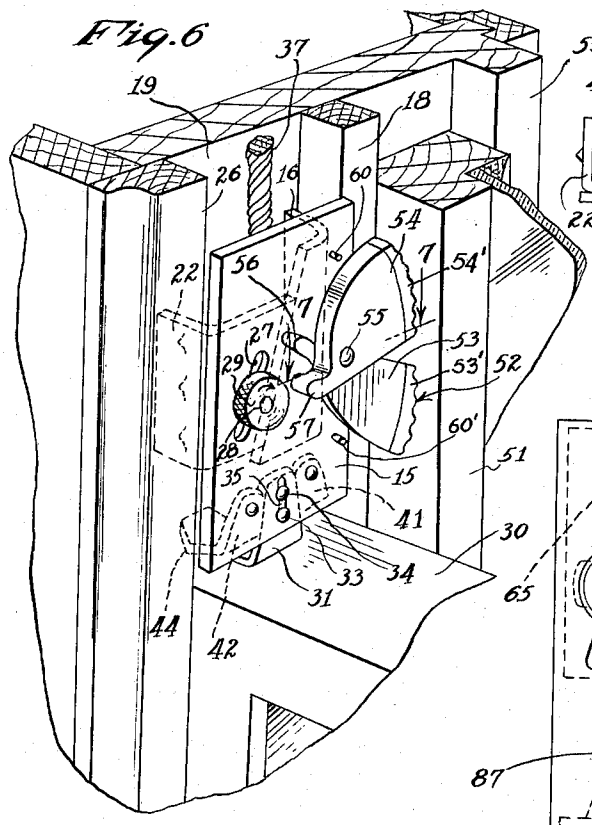


Fig. 7

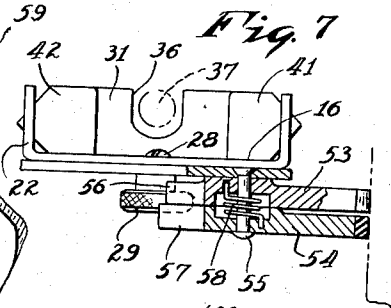


Fig. 8

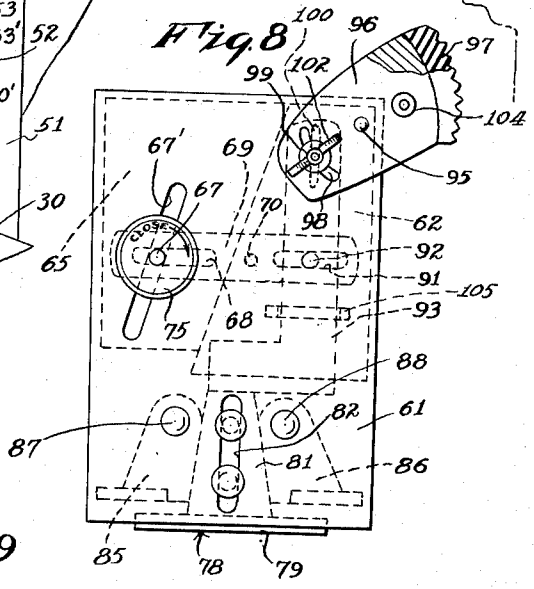
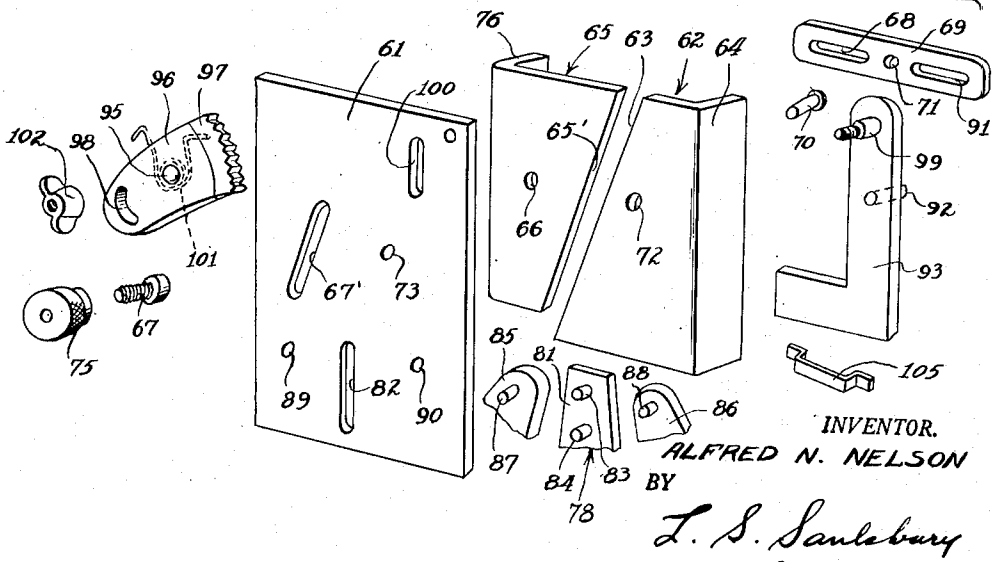


Fig. 9



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UNITED STATES PATENT OFFICE

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SAFETY WINDOW LOCK

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Application September 11, 1952, Serial No. 308,973

6 Claims. (Cl. 292—1)

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This invention relates to a safety window lock device.

It is an object of the invention to provide a safety window lock device which can be easily applied to a window frame and locked with the portions thereof and with the window elements so that the window elements can be prevented from being raised or lowered and held against further opening movement relative to each other, should an attempt be made by an intruder to enter the household through the window opening and wherein the user of the window lock can be assured of fresh air either at night or during the day with security and without the feeling that the window may permit the entry of another person.

Another object of the invention is to provide a safety window lock device which can be applied to the window frame parts in such a manner as not to interfere with the window sash cord or chain and wherein the lock, while extending over the sash cord, is open at the top and at the bottom to accommodate the sash cord or chain and wherein the lock is made secure to the window frame by engagement with vertical guides or runners that accommodate the movable window elements.

It is another object of the invention to provide a safety window lock device which is adapted to be secured to the window frame in a manner to fix the lower window element against upward movement therein and which has associated with it auxiliary locking means engageable with the upper window element to prohibit relative movement between the upper window element and the lower window element once the upper window element has been lowered below the upper edge of the lower window element.

It is another object of the invention to provide a safety window lock device which can be easily set at different positions along the runners of the window frame and in which the locking parts are forced into gripping engagement with the runners and the upper window element by a common setting and releasing means extending between the locking parts and wherein the common means has a member engageable by the lower window element to cause the additional gripping of the locking parts as an attempt is being made to raise the lower window element.

Other objects of the invention are to provide a safety window lock device having the above objects in mind which is of simple construction, inexpensive to manufacture, easy to install upon the window frame and engage with the window elements, has a minimum number of parts, is

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compact, durable and rugged, of pleasing appearance, light in weight and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which

Fig. 1 is a fragmentary perspective view of a window frame with window elements slidable therein and of the window lock device constructed according to one form of the present invention,

Fig. 2 is a top plan view of the form of the device shown in Fig. 1,

Fig. 3 is a vertical sectional view of the device shown in Fig. 1 taken on line 3—3 thereof,

Fig. 4 is a fragmentary rear elevational view of the lower portion of the device shown in Fig. 1,

Fig. 5 is a collective and perspective view of the parts of the device shown in Fig. 1,

Fig. 6 is a perspective view of a modified locking device similar to the form of the invention shown in Fig. 1 but having crossed window locking parts that are engageable with the upper window element,

Fig. 7 is a fragmentary and sectional view taken generally on line 7—7 of Fig. 6 and through the upper window locking parts,

Fig. 8 is a front elevational view of another modified form of the invention in which common means are employed for effecting the setting and releasing of the locking parts,

Fig. 9 is a perspective and collective view of the parts of the device constructed according to the form of the invention shown in Fig. 8.

Referring now to the form of the invention shown in Figs. 1 to 5, 15 represents a rectangular-shaped main body plate to which there is fixed a locking part 16 of angle section as by means of spot welding and having a flange 17 adapted to engage with a vertical runner or guide 18 of a window frame 19. The locking part 16 has a flange 20 with an inclined edge 21 over which a vertically-adjustable slide 22 is adjusted. This adjustable slide 22 has an inclined edge 23 engageable with the inclined edge 21 of the locking part 16 and a runner-engaging flange 24 with protrusions 25 that engage an inner runner 26 of the window frame 19. The body plate 15 has an inclined elongated slot 27 through which extends a threaded bolt 28 having fastening knob 29. As soon as the adjustable slide 22 is moved along the fixed element 16 to fix the device between the runners 18 and 26, the fastening knob 29 can be tightened upon the threaded bolt 28 to fix the device between the runners 18 and 26.

The device is placed above the lower window element 30 so that a depending slide or wedge 31 rests upon the top edge of the window element 30. The slide or wedge 31 has an upwardly-extending tapered wedge portion 32 having guide rivets 33 and 34 slidable in a vertical slot 35 in the lower part of the main body plate 15. The slide or wedge 31 has a notch 36 therein to accommodate sash cord 37.

The slide 22 has an opening 23' for receiving the threaded bolt 28, Fig. 5. The plate 15 has openings 37 and 38 for receiving respectively pins 39 and 40 that respectively hingedly and swingably secure runner engaging arms 41 and 42 to the plate 15. These arms respectively have pointed ends 43 and 44 that are adapted to penetrate the sides of the respective runners 18 and 26. These swingable runner-engaging arms 41 and 42 also respectively have side edges 45 and 46 adapted to be worked by the wedge portion 32 of the slide or wedge 31 so that as the window element 30 is raised, the window engaging element 31 is forced upwardly, guided by pins 33 and 34 and the slot 35 and by the wedge portion 32 with the edges 45 and 46 of the swingable runner-engaging arms 41 and 42, the runner engaging arms are expanded outwardly to increase the grip of the device with the runners at times when force is applied to raise the lower window element 30. The greater the upward force on the window element 30, the greater the gripping action of the swingable runner-engaging arms 41 and 42. If, however, the arms 41 and 42 should slip, the plate 20 would slide up and the fixed locking part would force outwardly adjustable slide 22 and protrusions 25 whereby to increase the gripping engagement of the device with runners 18 and 26.

When it is desired to release the lock device from the window frame, the fastening knob 29 is loosened on the threaded bolt 28 and elevating adjustable slide 22. By an upward pull of the device the pointed ends 43 and 44 of the runner-engaging arms 41 and 42 will be readily and quickly released. In an equally similar and simple manner, the window lock device can be installed upon the window frame between the vertical runners and astraddle the sash cord 37. The device can be used on either side of the window frame.

Referring now particularly to Figs. 6 and 7, there is shown an additional arrangement that is applied to the main body plate 15 for the purpose of gripping an upper window element 51. This arrangement is indicated generally at 52 and comprises two crossed gripping arms 53 and 54 pivotally connected to a pivot pin 55 projecting outwardly from the main body plate 15. These gripping arms have respectively handle portions 56 and 57 which can be squeezed to release the gripping elements from the upper window member 51 and to swing them into registry with each other against the action of spring 58, which tends to keep the elements 53 and 54 separated for engagement with the window element 51, and in order to locate the arms upon the upper window element 51 as the device is being installed in the window frame and to release the device from the frame. This form of the invention may readily be adapted to be used on either side of the window frame.

The gripping arms 53 and 54 can be squeezed at times when the same are to be placed in engagement with the upper window element 51. They may be put into gripping engagement with the window element with one up and the other down, in the manner as shown in Fig. 6, so that the movement of the upper window element 51 either up or down will be resisted by the gripping elements. The window elements have serrated hard rubber formations 53' and 54' on their ends to provide good gripping engagement with the window element 51. The gripping element 54 will prevent the downward movement of the window element 51 while the gripping element 53 will prevent upward movement of the window member 51. The window member 51 may be worked to properly position the gripping arms 53 and 54 upon the side of the window member. The window member is retained between the runner 18 and a runner 59. Stop pins 60 and 60' on the plate 15 keep the gripping arms 53 and 54 from spinning freely but are far enough apart to allow the gripping arms to move to their holding positions.

Referring now particularly to Figs. 8 and 9, there is shown a still further form of the invention. In this form of the invention common operating means can serve to operate the several engaging elements. A main body plate 61 supports the various parts of the device. This body plate has a stationary gripping member 62 with an inclined edge 63. This stationary member can be fixed to the plate 61 by welding or by any other suitable means and has a flange 64 which engages vertically-extending runners of the window frame. Cooperating with and adjustable upon the inclined edge of the stationary member 61 is an adjustable gripping member 65. This adjustable member 65 has a hole 66 for a fastening screw 67 that extends through an inclined elongated slot 67' in the plate 61. This same screw 67 passes also through elongated slot 68 in one end of a pivot lever 69 which is secured by a pivot pin 70 passing through a hole 71 of the lever 69, a hole 72 of the stationary gripping member 62 and through a hole 73 of the plate 61. This rivet is headed on both ends to secure the assembly together. As a fastening nut 75 is made fast upon the screw 67, the lever 69 is held upon the rear face of an adjustable gripping member 65, and the adjustable gripping member is frictionally locked in its adjusted position with its inclined edge 65' on inclined edge 63 of the stationary gripping member 62 and to the rear face of the supporting plate 61. The adjustable gripping member 65 is moved in and out in the manner set forth in the description of the other forms of the invention, and it has a flange 76 that will engage the vertical runner 26. The flanges 64 and 76 thereby fix the device to the runners.

Connected to the lower part of the plate 61 for vertical sliding movement, is a wedge member 78 having a horizontally-extending portion 79 engageable with the top edge of the lower window element 30 and a wedge portion 81 having spaced guide pin projections 83 and 84. The pin projections 83 and 84 work in the elongated slot 82 in the bottom of the plate 61. At the respective opposite sides of the wedge portion 81 of the wedge member 78 are respectively laterally-swingable gripping arms 85 and 86 respectively pivoted on pins 87 and 88 fitting respectively holes 89 and 90 in the plate 61. These pins 87 and 8 are headed in order to fix the gripping arms 85 and 86 against displacement on the plate 61.

The lever 69 has an elongated slot 91 which receives a pin 92 on an L-shaped operating link 93, the lower edge of which may be fixed by welding to the top edge of the wedge shaped por-

tion 81 of the wedge member 78. As the lever 69 is pivoted in a clockwise manner and lifted by the knob fastening nut 75 which lifts the adjustable gripping member 65, the wedge member 78 is depressed to allow the gripping arms 85 and 86 to be retracted and out of engagement with the runners 26 and 18.

Pivotally connected to the upper part of the plate 61 by a pin 95 is a pivotal grip element 96 having a serrated rubber engaging portion 97 and an arcuate slot 98 receiving a threaded pin projection 99 of the L-shaped link member 93 which also extends through vertically-extending elongated guide slot 100. A coil spring 101 surrounds the pivot pin 95 and serves to urge the grip element 96 toward the upper window member 51 when the device is in place in the window frame.

A thumb-nut 102 is threaded upon the threaded projection 99 of the link 93 and when tightened thereupon will lock the gripping element 96 in place and in engagement with the upper window member 51. With the thumb-nut 102 loosened and also the fastening nut 75 loosened, the fastening nut 75 can be elevated to simultaneously lift the adjustable member 65.

The lever 69 can in turn work the link 93 to force downwardly or upwardly the bottom wedge member 78. The gripping element 96 can be adjusted independently of the L-shaped member 93. A knob 104 can be used when adjusting the L-shaped member 93. A saddle strap 105 extends over the L-shaped member and is fixed to the plate 61 to guide the L-shaped member 93.

It should now be apparent that there has been provided a safety window lock which has adequate gripping and engaging elements to effect the holding down of the lower window and also the upper window member against movement within the window frame and relative to the lower window member. It should also be apparent that there has been provided a common means for operating all of these gripping elements by a single adjustment of a hand knob which is connected to a lever and the lever in turn connected to a link or L-shaped member that operates with the several gripping elements.

It should also be apparent in all of the forms of the invention that any tendency of movement of one of the window elements increases the gripping action of the gripping arms.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. A safety window lock device comprising a main body plate, a stationary gripping element of angle section fixed to the rear of said plate, said gripping element having a flange extending perpendicular to the plate and adapted to engage with a runner of a window frame and another flange having an inclined edge, said main plate having an inclined elongated slot, an adjustable gripping element of angle section having a flange extending perpendicular to the plate and engageable with an opposite runner of the window frame and another flange having an inclined edge adapted to cooperate with the inclined edge of the stationary gripping element and slidable thereover whereby the device may be adjusted to a window opening, operating knob means connected to the adjustable gripping element and adjustable to fix the gripping element against the rear face of the main plate when in the adjusted position, the perpendicular flanges of the gripping elements serving to space the main body plate from the window frame and to allow for the passage of a sash cord behind the window lock, and means on the lower end of the main plate adapted to lie in the path of a horizontal section of a window member slidable between the runners of the window frame.

2. A safety window lock comprising a main plate, gripping elements of angular section and respectively having flanges with inclined edges, the inclined edges of the respective gripping elements cooperating with one another to effect gripping action of the gripping elements upon runners of a window frame, one of said gripping elements being fixed to the main plate and the other of said gripping elements being adjustably secured to the main plate, a wedge member vertically adjustable on the lower part of the main plate having oppositely opposed inclined side edges and a horizontal normally projecting portion adapted to be engaged by a window member, and laterally swingable gripping elements pivotally connected to the main plate engageable with the oppositely inclined edges of the vertically slidable wedge member and adapted when engaged with pressure by the wedge member to be swung outwardly into tight engagement with the window frame runners.

3. A safety window lock device comprising a main body plate, gripping elements connected to the main body plate and adjustable relative to each other to fix the device between vertically extending runners of a window frame, said device when fixed between the runners of a window frame serving to prevent the displacement of a window member, further gripping means comprising crossed gripping cam elements extending laterally to engage with another window member and respectively having handle portions to bring the elements into registry with one another, pivot pin means securing said gripping elements to the main plate and spring means urging the separation of the gripping cam elements.

4. A safety window lock device comprising a main supporting plate, gripping elements having inclined edges operable with one another to effect the lateral adjustment of one of the gripping elements relative to the other, one of the gripping elements being fixed to the supporting plate and having a flange extending perpendicularly thereto for engagement with a runner of a window frame, and the other of said gripping elements being adjustably connected to the supporting plate for lateral adjustment with respect to the fixed gripping element and to the supporting plate, said adjustable gripping element having an engaging flange extending perpendicular to the supporting plate engageable with the opposing vertical runner of the window frame, laterally swingable gripping elements pivotally connected in the lower part of the supporting plate and expandable outwardly for engagement with the respective opposing runners of the window frame, an operating member having oppositely inclined edges respectively engaging the laterally swingable gripping elements and having a horizontal portion which is engageable by a window member whereby as the window member is urged upwardly, the laterally swingable gripping elements will be urged to a greater extent into the runners of the vertical frame, and common means on the supporting plate and extending between the adjustable element and the operating member for

the laterally swingable gripping elements whereby the first mentioned gripping elements and the laterally swingable elements can be simultaneously released from the vertical runners of the frame.

5. A safety window lock device comprising a main supporting plate, a fixed gripping member secured to the plate and of angle section with one flange extending perpendicularly to the plate and engageable with a vertical runner of a window frame and the other flange having an inclined edge, an adjustable gripping member of angular section having a flange extending perpendicular to the plate and another flange having an inclined edge opposing the inclined edge of the fixed gripping member and adjustable thereover, means connected to the adjustable gripping member and engageable with the supporting plate to adjust the adjustable gripping member into engagement with an opposite vertical runner of the window frame and for fixing the adjustable member to the supporting plate when in its adjusted position, a lever pivoted upon the supporting plate and operable by the means for adjusting the adjustable gripping member, a link pivotally connected to the opposite end of the lever, laterally swingable gripping elements pivotally connected to the lower end of the supporting plate, and an operating member for the laterally swingable gripping elements having opposite inclined edges respectively engaging the laterally swingable gripping elements to expand the same upon engagement of a window member with the operating member so as to force the laterally swingable gripping elements into greater engagement with the vertical runners as movement of the window member is attempted, said link engageable with the operating member for the laterally swingable gripping elements.

6. A safety window lock device comprising a main supporting plate, a fixed gripping member secured to the plate and of angle section with one flange extending perpendicularly to the plate and engageable with a vertical runner of a window frame and the other flange having an inclined edge, an adjustable gripping member of

angular section having a flange extending perpendicular to the plate and another flange having an inclined edge opposing the inclined edge of the fixed gripping member and adjustable thereover, means connected to the adjustable gripping member and engageable with the supporting plate to adjust the adjustable gripping member into engagement with an opposite vertical runner of the window frame and for fixing the adjustable member to the supporting plate when in its adjusted position, a lever pivoted upon the supporting plate and operable by the means for adjusting the adjustable gripping member, a link pivotally connected to the opposite end of the lever, laterally swingable gripping elements pivotally connected to the lower end of the supporting plate, an operating member for the laterally swingable gripping elements having opposite inclined edges respectively engaging the laterally swingable gripping elements to expand the same upon a window member engageable with the operating member so as to force the laterally swingable gripping elements into greater engagement with the vertical runners as movement of the window member is attempted, said link engageable with the operating member for the laterally swingable elements, and a further gripping element pivotally connected to the upper part of the supporting plate and extending laterally thereof for camming engagement with an upper window member and said link extending upwardly and pivotally connected to said camming gripping element whereby all of the gripping elements on the supporting plate may be simultaneously released upon the release of the adjustable inclined edge gripping member.

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