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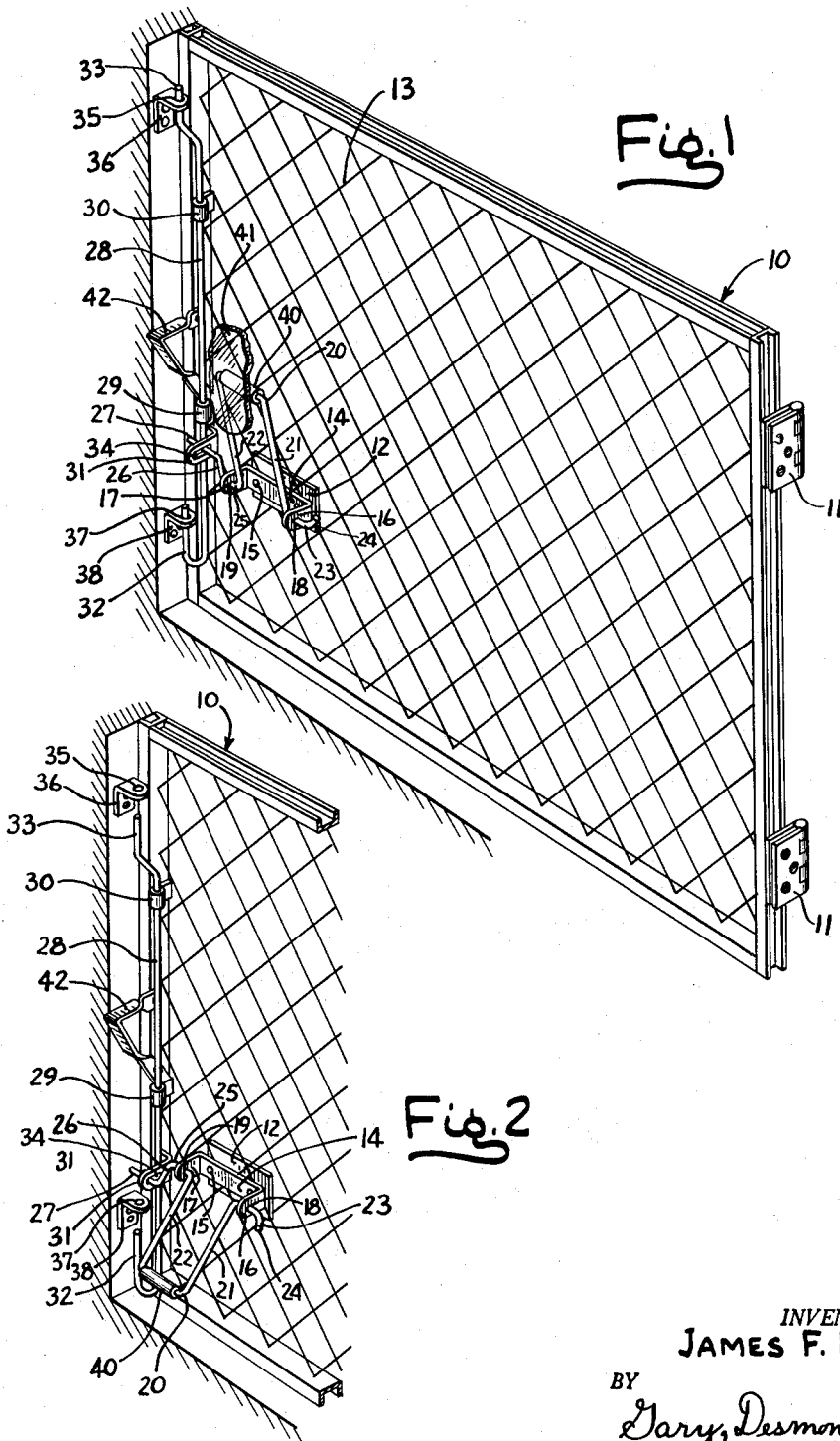
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LOCKING DEVICE FOR WINDOW GUARDS

Filed July 11, 1960

2 Sheets-Sheet 1



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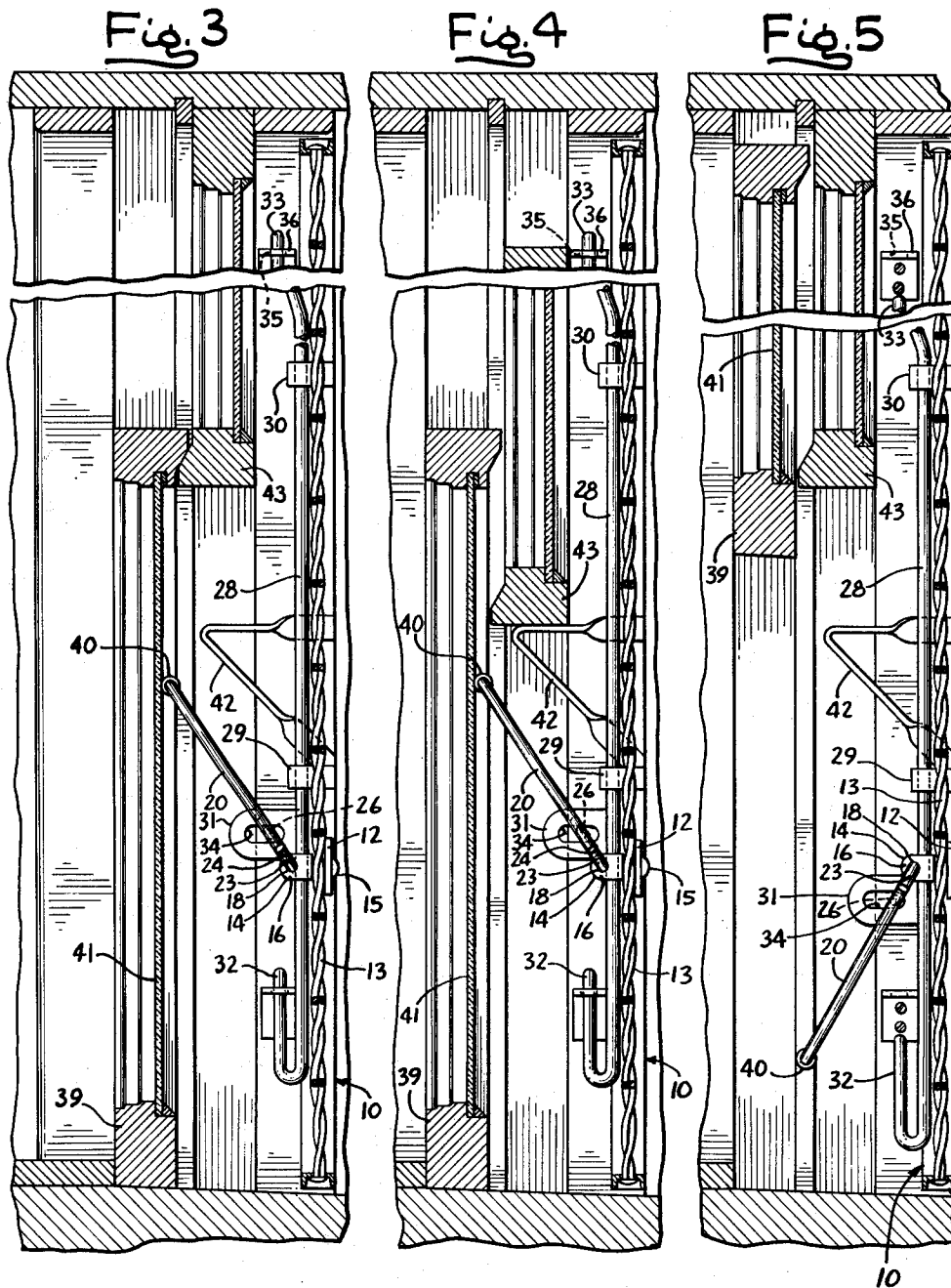
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LOCKING DEVICE FOR WINDOW GUARDS

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6 Claims. (Cl. 292-161)

This invention relates to a novel device for use in maintaining a window guard in locked position adjacent a window, while at the same time affording means for rapidly unlocking same when required, as in the case of an emergency.

It is a customary practice to employ metal wire mesh guards over windows, especially on the ground floor of buildings, to protect the windows against breakage and to prevent prowlers from gaining access to a building through the window. This has presented a problem, and especially in school buildings and the like, as the guards must not be padlocked or fastened in such manner that they cannot be readily released in the event of a fire or other emergency to permit quick egress through the windows of a building.

Heretofore, devices have been developed for locking window guards which incorporate means for opening same, but the operation of such devices has been dependent upon mechanism which is unable to function unless a window sash with which it is associated is at least partially raised to release the mechanism. Dependence upon such devices is hazardous as, in an emergency, a window may be jammed, frozen or warped in such manner that it is impossible to open, with the result that the device is unable to function to release a locked window guard.

Therefore, it is an object of the present invention to provide a device which combines means for positive locking of a window guard and at the same time permits rapid release of the guard when required without reliance upon an open window sash.

Another object is the provision of a safety window guard locking and release device which may be constructed substantially entirely on the window guard itself, thus leaving the window sash free of fixtures or hardware which might inconvenience window maintenance crews from washing or repairing a window.

In general the device of the present invention comprises a swingable, weighted, U-shaped member mounted on the inside of a window guard, one side of the member being provided with a crank pin cooperating with a slotted bracket attached to a double ended rod, whereby upon raising the U-shaped member and resting same against an adjacent window light the double ended rod will be raised to engage with brackets attached to the side of a window structure and thereby lock the window guard, and upon lowering the U-shaped member, as by disengagement with an adjacent window or by breaking the window glass, the double ended rod will be reciprocated out of engagement with the window brackets and unlock the guard, permitting it to be swung outwardly away from the window.

Other objects and advantages relate to the details of construction, arrangement of parts, and the economies thereof which will be apparent from a consideration of the following specification and accompanying drawings, wherein:

FIG. 1 is a perspective view of the device assembled on a metal window guard showing the position it assumes when in locked condition.

FIG. 2 is a similar view showing the position the device will assume when it is in unlocked condition.

FIG. 3 is a side elevational view of the device in locked position in association with a double-hung window structure.

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FIG. 4 is a view similar to FIG. 3 showing an angle iron stop member attached to one side of the window guard with an upper window sash resting thereon.

FIG. 5 is another view similar to FIG. 3 showing the device in unlocked position.

Referring to the drawings, the reference numeral 10 indicates a conventional metal-framed window guard panel which is provided with hinges 11 at one side thereof for hingedly attaching same to a window structure (not shown). The device of the present invention is associated with the window guard 10 by means of a flat elongated metal plate 12 and a bracket member 14 which clamp therebetween a portion of the woven wire mesh screening 13 in the body or face of the guard, the assembly being held in permanent association by means of rivets or the like 15. The plate 12 and member 14 are preferably attached to the guard 10 in a lower corner thereof in order to minimize the obstruction of light and view through an adjacent window.

The sides of member 14 terminate in two arms 16 and 17 extending laterally at right angles therefrom in a direction away from the plate 12, the arm 16 being provided with a circular opening 18 substantially in the center thereof, and the arm 17 being provided with a similar opening 19 in the same plane with opening 18. A generally U-shaped member 20 is pivotally engaged with the member 14 through the medium of the openings 18 and 19 and acts as a trigger for the operation of the device, as will be later described. Member 20 is constructed of round metal stock and is provided with a central connecting bar and two spaced apart legs 21 and 22 extending in substantially parallel relation with respect to each other. Leg 21 is bent outwardly a short distance from the tip thereof to provide a laterally extending pin 23 which engages in the opening 18 in member 14 for pivotal movement therein. The tip of the pin 23 is bent or distorted, as at 24, to prevent disengagement of the pin from member 14.

The leg 22 is similarly associated with member 14 by means of an integral laterally extending pin 25, diametrically disposed with respect to pin 23, which protrudes through opening 19 in the arm 17 for pivotal movement therein. In further development, the pin 25 is bent intermediate its length to form a crank 26 and an outwardly horizontally extending crank pin 27 integral therewith and at the extremity thereof. When so arranged the member 20 may be pivoted in an upward or downward direction with respect to member 14 and will function as a crank and trigger to provide means for locking and unlocking the guard 10, as will be later described.

The locking and release means comprise a vertically extending rod 28 adjacent the free frame side of the guard 10 and associated in spaced relation therewith by means of supporting brackets 29 and 30 which are welded or riveted to the inner face of a side channel member of the guard. The protruding sections of brackets 29 and 30 are cylindrically-shaped to provide collars for the reception of rod 28 and permit sliding reciprocal movement of the rod therein. The lower end of the rod 28 is return bent to provide a parallel hook bolt 32 and the opposite end of the rod is offset to form a parallel upwardly extending bolt pin 33.

The member 20 and rod 28 are associated by means of a bracket 31 which is welded or otherwise firmly secured to rod 28 intermediate its length and extends laterally therefrom in juxtaposed position with respect to crank 26. Bracket 31 is provided with an elongated slot 34 in the center of the laterally extending portion through which crank pin 27 is inserted to provide rocking movement thereof and activation of the rod 28, as will be later described.

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When it is desired to lock a guard over an adjacent window, the guard 10 is swung into position adjacent to and parallel with the window. While the window sash is open the U-shaped member 20 is raised to an upright position, as shown in FIG. 1. The raising of member 20 will turn crank pin 27 and the latter, due to its rocking association with bracket 31, will push the bracket and associated rod 28 upward a sufficient distance to insert the bolt pin 33 through aperture 35 provided in a bracket 36 extending horizontally from a side wall of the window or window casing. Simultaneously, the rod 28 will raise hook bolt 32 a sufficient distance to insert it through opening 37 in a bracket 38 extending horizontally from a lower side wall of the window casing, thereby locking the guard 10 against the window casing.

The member 20 may be maintained in an upright locked position by closing the lower window sash 39 and permitting a roller 40 to rest and be confined against a window light 41, as shown in FIG. 3. Inasmuch as the length of member 20 is substantially greater than the space between a closed guard panel and an adjacent closed window sash, the member will be confined against rotation within the space and will rest in an upright position against the closed window. The roller 40 is rotatably mounted on the head of member 20 and, being constructed of nylon, rubber, plastic or the like, acts as a cushion for the member when it rests against a window light. Also, the roller prevents frictional engagement of the member 20 with an adjacent window and facilitates raising or lowering the window sash inasmuch as it rolls thereagainst during such operation. It will be evident that when the device is confined in this position the bolts 32 and 33 will maintain the guard 10 in locked condition with the side wall of the window.

When it is desired to open the window guard the lower window sash 39 may be raised a sufficient distance to by-pass or clear the roller 40 which is bearing thereagainst. Inasmuch as the member 20 is held in an upright oblique angle with respect to the glass 41 and member 14 it will automatically fall forward and downward as soon as it is released from confinement with the window sash and will assume the position shown in FIGS. 2 and 5. As the member 20 falls forward it acts in a reverse manner to that described for locking the device. As the crank pin 27 is triggered by the movement of the U-member it will lower the rod 28, by means of the bracket 31, a sufficient distance to disengage the bolts 32 and 33 from brackets 36 and 38, respectively, thereby unlocking the window guard from the adjacent window and permitting same to be pushed outwardly.

Although the member 20 is shown associated with a window light it is to be understood that the member may be enlarged or extended in such manner that it could be associated with a window mullion instead of glass to reduce the risk of glass breakage. It is contemplated that the head of member 20 on which the roller 40 is mounted be weighted or constructed of heavier stock than the remaining sections of the member to afford greater leverage to the U-member when it is released from confining contact with a window sash and assist in the automatic mechanical operation of the device.

It will be apparent that the device above described provides means for positively locking a window guard while at the same time affording means for quickly opening the guard if required in an emergency. In the event a window sash should become warped, frozen or unopenable for any reason, the device may still be operated by breaking the window glass or the mullion bar to release the member 20 and permit it to operate in the manner above described. Also, in case the rod 28 should become distorted or impaired by rust, whereby the device is deprived of its automatic operation, force may be manually applied to the member 20 to provide the necessary leverage for removing the bolts 32 and 33 from locking engagement with brackets 36 and 38. Thus, it is not

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absolutely necessary that a window sash be open to permit operation of the device. Also, in the case of an emergency, such as fire, a guard may be opened by firemen from the outside of a building by breaking the window glass and releasing the member 20.

Where the device is employed with double hung window sash it permits the upper and lower sash to be opened to afford proper ventilation without interference with the locking arrangement. As a safety measure, to prevent breakage of glass when the device is in locked position, an angle iron stop 42 is riveted or otherwise firmly secured to a side of the guard member 10 in spaced relation to the rod 28, with the upper face thereof being at right angles thereto. As shown in FIG. 4, the upper face of the stop 42 is arranged approximately two inches above the top of the roller 40 when it is in upraised and locked position and acts as a barrier against lowering an upper sash 43 onto the member 20, which action might break the glass in the absence of such a stop.

The entire device is carried on the window guard itself and no fixtures necessary to its operation are carried on the window sash, with the exception of small brackets 36 and 38. This is advantageous to maintenance crews inasmuch as the device will not interfere with their repair, replacement or cleaning of windows.

Although the device has been described in use with double hung windows, it is contemplated that it may also be adapted for use with other types, such as tilting or swinging windows. The device is of such nature that it may be readily installed on window guards of present construction, or it may be made an integral part of new window guard structures.

Although I have illustrated and described the preferred embodiment of my invention, it will be understood by those skilled in the art that various changes may be made in the details without departing from the scope thereof.

I claim as my invention:

1. A locking device for securing a pivotally hinged guard panel in locked position adjacent a window in a building wall, said device comprising a horizontally disposed bracket member attached to an inner face portion of the panel adjacent the free frame side thereof opposite the hinged side, a trigger member pivotally engaged with said bracket by two laterally and horizontally extending arms, one arm of which is pivotally engaged with one end of said bracket and extends inward toward the hinged side of the panel and the other arm of which is pivotally engaged with the other end of the bracket and terminates in an integral crank member extending horizontally toward the free side of the panel, a rod slidably secured to and extending vertically along the frame component at the free side of the panel and carrying means intermediate its length for association with said crank member, means extending from at least one end of the rod adapted for engagement with locking means secured to and projecting horizontally from the confines of said window in said building wall.

2. Locking means for a sidewise pivotally hinged guard panel for a window mounted in a wall, said locking means comprising at least one apertured bracket secured to and projecting horizontally from the confines of said window on said wall, a locking rod mounted for vertical reciprocation on the free frame portion of said guard panel opposite the hinged frame portion, said vertically reciprocal rod including an offset parallel end portion receivable in said apertured bracket, a horizontally disposed supporting bracket member attached to an inner face portion of the panel adjacent the free frame side thereof opposite the hinged side, a trigger member pivotally engaged with said supporting bracket by two laterally and horizontally extending arms, one arm of which is pivotally engaged with one end of said supporting bracket and extends inward toward the hinged side of the panel and the other arm of which is pivotally engaged with the other end of the supporting bracket and terminates in an integral

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crank member extending horizontally toward the free side of the panel, and a slotted horizontally extending bracket carried on said vertically reciprocal rod intermediate its length for association with said crank member whereby said rod may be vertically reciprocated and its offset end caused to be successively engaged in and from said apertured bracket upon rotation of said crank by means of said pivoted trigger member.

3. Locking means for a sidewise pivotally hinged guard panel for a window mounted in a wall, said locking means comprising apertured brackets secured to and projecting horizontally from the confines of said window on said wall, a locking rod mounted for vertical reciprocation on the free frame portion of said guard panel opposite the hinged frame portion, said vertically reciprocal rod including offset parallel portions at each end thereof receivable in said apertured brackets, a horizontally disposed supporting bracket member attached to an inner face portion of the panel adjacent the free frame side thereof opposite the hinged side, a trigger member pivotally engaged with said supporting bracket by two laterally and horizontally extending arms, one arm of which is pivotally engaged with one end of said supporting bracket and extends inward toward the hinged side of the panel and the other arm of which is pivotally engaged with the other end of the supporting bracket and terminates in an integral crank member extending horizontally toward the free side of the panel, and means carried on said vertically reciprocal rod intermediate its length for association with said crank member whereby said rod may be vertically reciprocated and its offset ends caused to be successively engaged in and from said apertured brackets upon rotation of said crank by means of said pivoted trigger member.

4. A locking device for securing a pivotally hinged guard panel in locked position adjacent a window in a building wall, said device comprising a horizontally disposed trigger member provided with two laterally and horizontally extending arms, one arm of which is pivotally engaged with one end of a horizontally disposed bracket member attached to the inner face portion of the panel adjacent the free frame side thereof opposite the hinged side, said arm extending inward toward the hinged side of the panel, and the other arm of the trigger member is pivotally engaged with the other end of the bracket and terminates in an integral crank member extending horizontally toward the free side of the panel, a rod slidably secured to and extending vertically along the frame component at the free side of the panel and carrying means intermediate its length for association with said crank member, means extending from at least one end of the rod adapted for engagement, with locking means secured to and projecting horizontally from the confines of said window in said building wall.

5. A locking device for securing a pivotally hinged guard panel in locked position adjacent a window in a building wall, said device comprising a horizontally disposed trigger member provided with two laterally and horizontally extending arms, one arm of which is pivot-

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ally engaged with one end of a horizontally disposed bracket member attached to the inner face portion of the panel adjacent the free frame side thereof opposite the hinged side, said arm extending inward toward the hinged side of the panel, and the other arm of the trigger member is pivotally engaged with the other end of the bracket and terminates in an integral crank member extending horizontally toward the free side of the panel, a rod slidably secured to and extending vertically along the frame component at the free side of the panel and carrying a horizontally extending slotted bracket intermediate its length for association with said crank member, means extending from at least one end of the rod adapted for engagement with locking means secured to and projecting horizontally from the confines of said window in said building wall.

6. A locking device for securing a pivotally hinged guard panel in locked position adjacent a window opening in a building wall and maintaining said guard panel in locked position in response to the position of an associated window disposed in said window opening, said locking device comprising apertured brackets secured to and projecting horizontally from the confines of said window opening in said building wall, a locking rod mounted for vertical reciprocation on the free frame portion of said guard panel opposite the hinged frame portion, said vertically reciprocal rod including offset parallel portions at each end thereof receivable in said apertured brackets, a trigger member in horizontally pivoted engagement with a horizontally disposed supporting bracket member attached to the inner face portion of the guard panel adjacent the free frame side thereof opposite the hinged side by means of two laterally and horizontally extending arms, one arm of which is pivotally engaged with one end of said supporting bracket and extends inward toward the hinged side of the panel, and the other arm of which is pivotally engaged with the other end of said supporting bracket and terminates in an integral crank member extending horizontally toward the free side of the guard panel, means carried on said vertically reciprocal rod intermediate its length for association with said crank member whereby said rod may be raised and its offset parallel end portions caused to be engaged in said apertured brackets projecting from the window wall upon rotation of said crank by means of said trigger member being raised to an upright position and confining same against said window when it is in a predetermined position whereby said vertically reciprocal rod is restrained against disengagement from said apertured brackets.

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