

May 2, 1961

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2,982,575

AUTOMATIC NOTCHED LOCK CONTROL ASSEMBLY

Filed July 24, 1959

3 Sheets-Sheet 1

Fig. 1

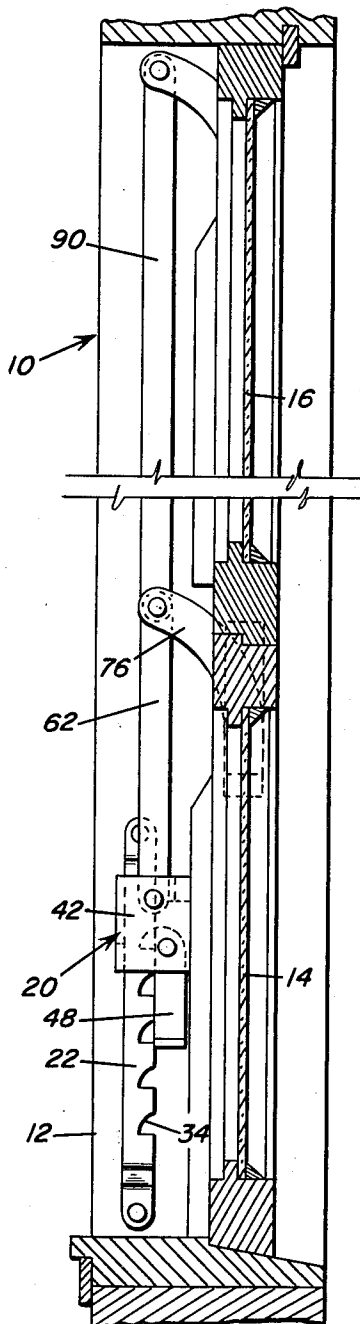
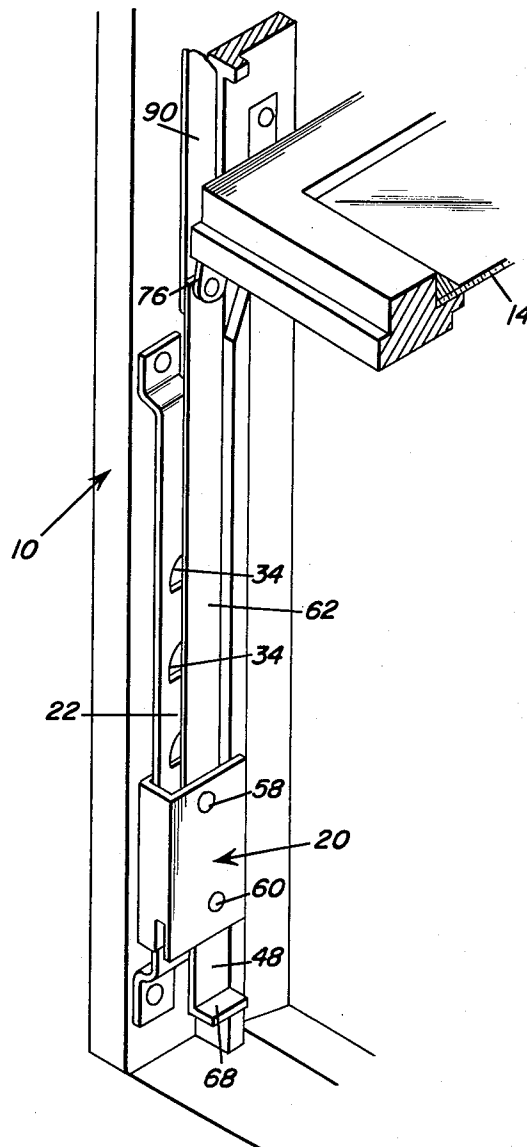


Fig. 2



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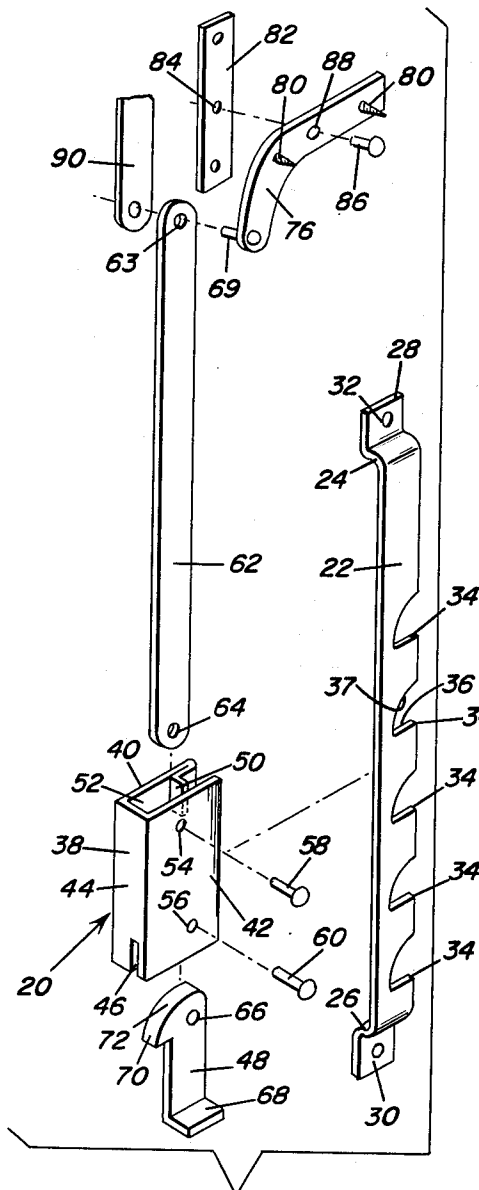


Fig. 3

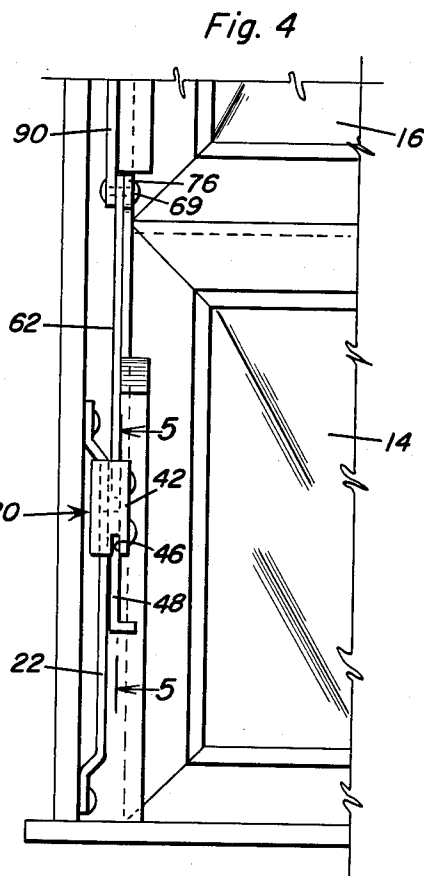


Fig. 4

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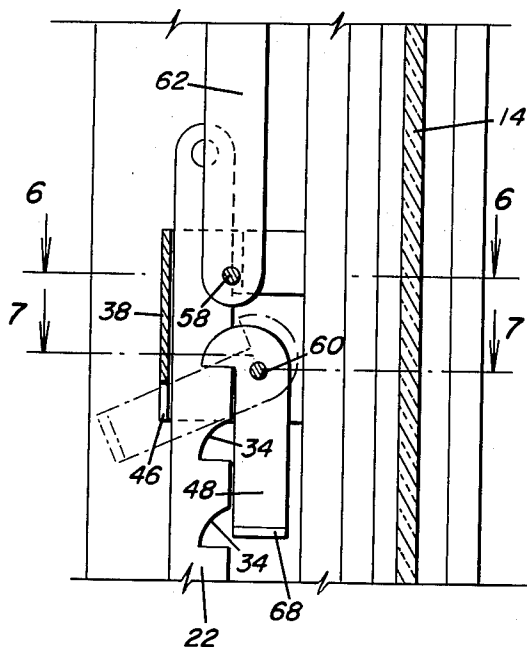


Fig. 5

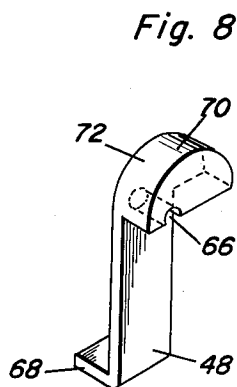


Fig. 8

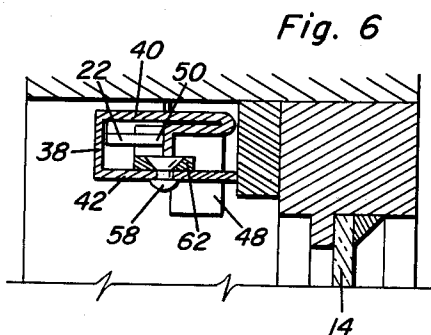


Fig. 6

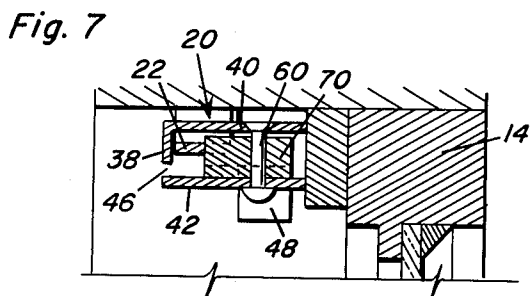


Fig. 7

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AUTOMATIC NOTCHED LOCK CONTROL ASSEMBLY

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Filed July 24, 1959, Ser. No. 829,267

6 Claims. (Cl. 292—274)

This invention relates to window operators and more particularly to a lock control assembly for an "awning" type window.

The current application is a continuation-in-part of my co-pending application, Serial No. 698,879, which was filed on November 25, 1957 and now abandoned.

In general, the invention provides a novel control assembly to regulate the degree at which one or more window panels of a window assembly are opened in a much more easy and reliable manner. A very important feature of the invention is found in the locking device or assembly which is very easy to operate. It includes a small housing that is vertically slidable on a stationary rack bar and which has an upwardly extending link connected thereto and also to the upper hinge of a window sash. A locking dog with an arcuate edge is engageable in a selected one of a group of notches in the stationary rack bar, and these notches have arcuate upper edges that coact with the locking dog. The housing is vertically movable on the rack bar in response to hinged adjustment of the window in one direction. In this direction of movement the housing moves vertically upward, and the locking dog does not interfere because it can be swung pivotally so that it disengages the rack bar. But, when the window sash tends to move down to a closed position, the locking dog engages in the nearest notch and forms a stop. The mechanical simplicity of construction and the simplicity of operation is explicitly pointed out as being an improvement and what is deemed to be an advance in this art.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a vertical sectional view of a window constructed in accordance with the invention;

Figure 2 is a fragmentary perspective view showing one typical embodiment of the invention wherein the window is in an open position;

Figure 3 is an exploded perspective view of all parts required for one locking assembly as shown in Figure 2;

Figure 4 is a fragmentary front elevational view of the window in Figure 1;

Figure 5 is a sectional view on enlarged scale and taken on the line 5—5 of Figure 4;

Figure 6 is a transverse sectional view taken on the line 6—6 of Figure 5;

Figure 7 is a sectional view taken on the line 7—7 of Figure 5; and,

Figure 8 is a perspective view of the locking dog constituting an important feature of the invention.

In the accompanying drawings there is a window assembly 10 which includes a window frame 12 and two window panels or sashes 14 and 16, each of which is glazed. It is evident, though, that the principles of the

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invention are applicable with screened sashes in addition to or in place of the glazed window sashes, this being a mere detail incidental to the invention which is embodied in the control 20.

Control 20 has only a few parts (Fig. 5) evidencing the claim of mechanical simplicity. There is a rack bar 22 having offsets 24 and 26 near the upper and lower ends thereof and mounting plates 28 and 30 at the ends of the offsets. The mounting plates have holes 32 and 34 by which to receive fasteners, for instance screws, rivets, etc. depending upon the material of construction of window frame 12. The offsets 24 and 26 enable the main body of the rack bar 22 to be mounted parallel to a side of the window frame but spaced slightly therefrom. A series or group of notches 34 open through one side edge of the rack bar 22. Each notch has a horizontal bottom wall 36 and an arcuate side and top wall 37 forming a laterally opening pocket.

A small housing 38 is slidably associated with the rack bar 22. It is essentially C-shaped in cross-section, having parallel walls 40 and 42 connected together at one edge thereof by means of transverse wall 44. There is a slot 46 at the lower edge of wall 44 to provide clearance for movement of the locking dog 48. A guide flange 50 has a face parallel to wall 44 and is set in from the longitudinal edges of wall or side 40. Flange 50 may be made by bending the end portion of an extension wall, for example by welding a bracket in place. Flange 50, cooperating with portions of the inside surfaces of sides 40 and 42 together with the inside surface of wall 44 forms a passageway 52 within which rack bar 22 is received. In addition, there is a pair of upper apertures 54 and a pair of lower apertures 56 in which pins 58 and 60 are disposed. Pin 58 constitutes a pivot for link 62 inasmuch as the pivot 58 is extended through an aperture 64 in the lower end of this link. Pin 60 extends through an aperture 66 in locking dog 48 thereby pivotally connecting locking dog 48 to the housing 38.

Locking dog 48 has a finger-grip 68 formed as a lateral extension at the lower part thereof. The main body of the locking dog is adapted to swing through slot 46. The head 70 of the locking dog has an arcuate upper surface 72 which matches the curvature of wall 37 of each of the notches 34.

The upper end of link 62 has a pivot 69 extending therethrough, and this pivot is secured to a mounting bracket 76 which is connected by fasteners to the side edge of sash 14. The mounting bracket 76 is in the form of a crank, and the fasteners are conventional, for instance screws 80, securing the bracket to one edge of the sash 14. Mounting plate 82 is mortised in frame 12 and has a hole 84 therein by which to receive pivot pin 86 that extends through an aperture 88 in mounting bracket 76. The pin 86 constitutes the main pivot for the window sash 14.

When more than one sash, for instance sash 16, are to be operated simultaneously, extension link 90 is used. This extension link is connected to one end of pivot 69, this pivot ordinarily extending through aperture 63 at the upper end of link 62, to establish a pivot connection between link 62 and bracket 76.

In use and operation sash 14 is opened by simply pushing the lower edge of the sash outwardly. This causes (Fig. 1) link 62 to be moved downwardly and due to the curvature of the upper wall 37 of the notches and the mating curvature 72 of head 70 of dog 48, the dog is deflected to the dotted line position shown in Figure 5, at which the window is free to be moved to the open position. However, when it is desired to lock the window in a selected position, the dog 48 is moved to the full line position shown in Figure 5 at which head 70 engages

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in one of the notches 34 thereby holding housing 38 in a fixed position on the rack bar 22.

Assuming that the window is in an intermediate position, i.e. half open and half closed, if it is desired to lower the window, the dog 48 is pulled inwardly of the room until the shank of the dog enters slot 46 and the housing is capable of being lowered since the dog head is released from the notch accommodating it in rack bar 22. Obviously, the window may now be either closed or opened depending upon the desires of the operator. When the window is partially open or closed fully, it is opened simply by pushing on the lower edge of the window. When the degree of angularity of the window is selected, it is simply released and due to the presence of the dog it falls into the nearest notch holding the window in the position desired by the operator.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A lock control assembly for a window sash, said assembly comprising a stationary rack having a plurality of notches, a housing slidable on said rack bar, a link pivoted to said housing, means pivoting said link to the sash, a dog pivoted to said housing and having a head engageable in said notches of said rack bar and separable therefrom in response to movement of said dog in one direction and engageable with the notches of said rack bar in response to movement of said dog in the opposite direction, said notches having a curved upper wall, said head having a curvature matching the curvature of said notched upper wall so that said dog is smoothly pivotable into and from engagement with said notches.

2. The combination of claim 1 wherein said housing is essentially U-shaped in cross-section and has a pair of sides together with a connecting wall, and means defining a guideway for said link in said housing.

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3. The combination of claim 2 wherein there is a slot in said housing by which to receive a portion of said dog when said dog is pivoted in one direction.

4. The combination of claim 2 wherein said link has an extension link attached thereto by which to connect to an adjacent window sash so that the first-mentioned sash and said adjacent sash are simultaneously pivotally operable.

5. A lock control assembly for a window sash, said assembly comprising a stationary rack bar having a plurality of notches, a housing slidable on said rack bar, a link pivoted to said housing, means pivoting said link to said sash, a dog pivoted to said housing and having a head engageable in said notches of said rack bar and separable therefrom in response to movement of said dog in one direction and engageable with the notches of said rack bar in response to movement of said dog in the opposite direction, said notches having a curved inner side and top wall and a flat horizontally disposed bottom wall lying in a plane in which the axis of rotation of said dog extends, said head having a curvature matching the curvature of said inner side and top walls and complementary to said notches so that said dog is smoothly and quietly pivotable into and from engagement with said notches.

6. The combination of claim 5 wherein said housing is essentially U-shaped in cross-section and has a pair of sides together with a connecting wall, and means defining a guideway for said link and said housing, a slot in said housing by which to receive a portion of said dog when said dog is pivoted in one direction, said link having an extension link attached thereto by which to connect to an adjacent window sash so that the first mentioned sash and said adjacent sash are simultaneously pivotally operable.

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