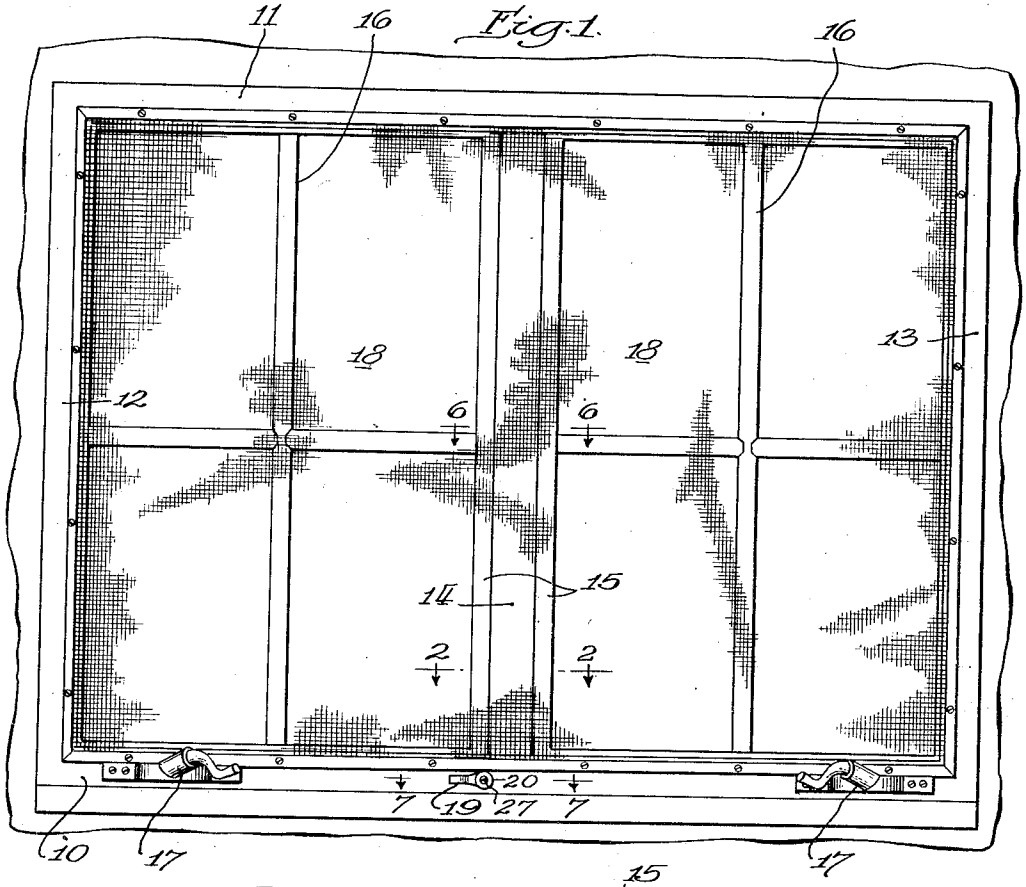
Oct. 10, 1939. O. W. ROBERTS 2,175,485

CASEMENT WINDOW LATCH

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Fig. 1.



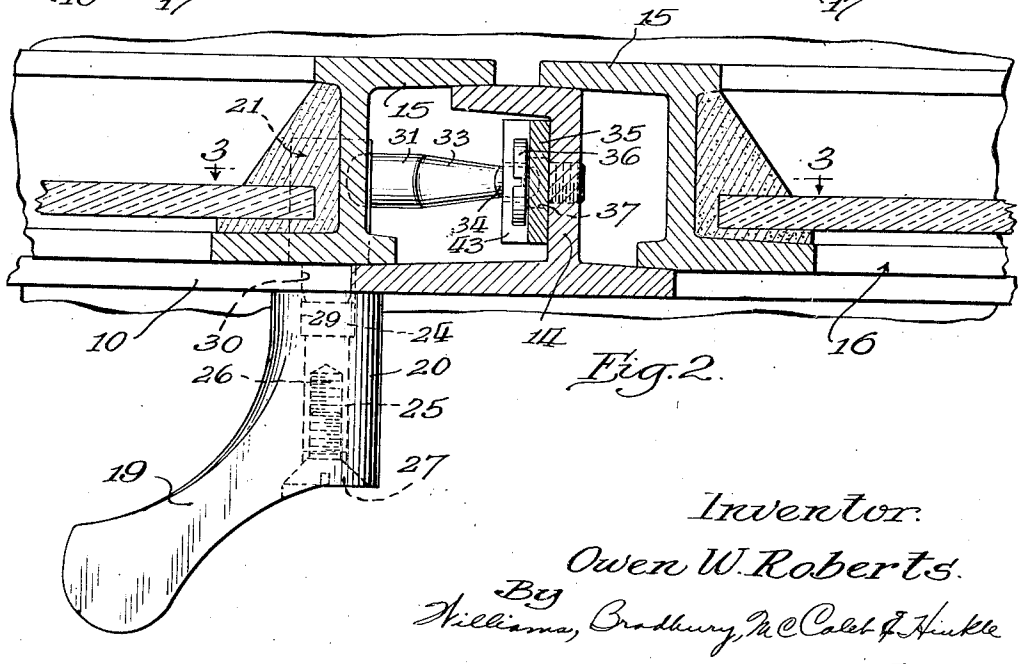


Fig. 2.

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CASEMENT WINDOW LATCH

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Fig. 3.

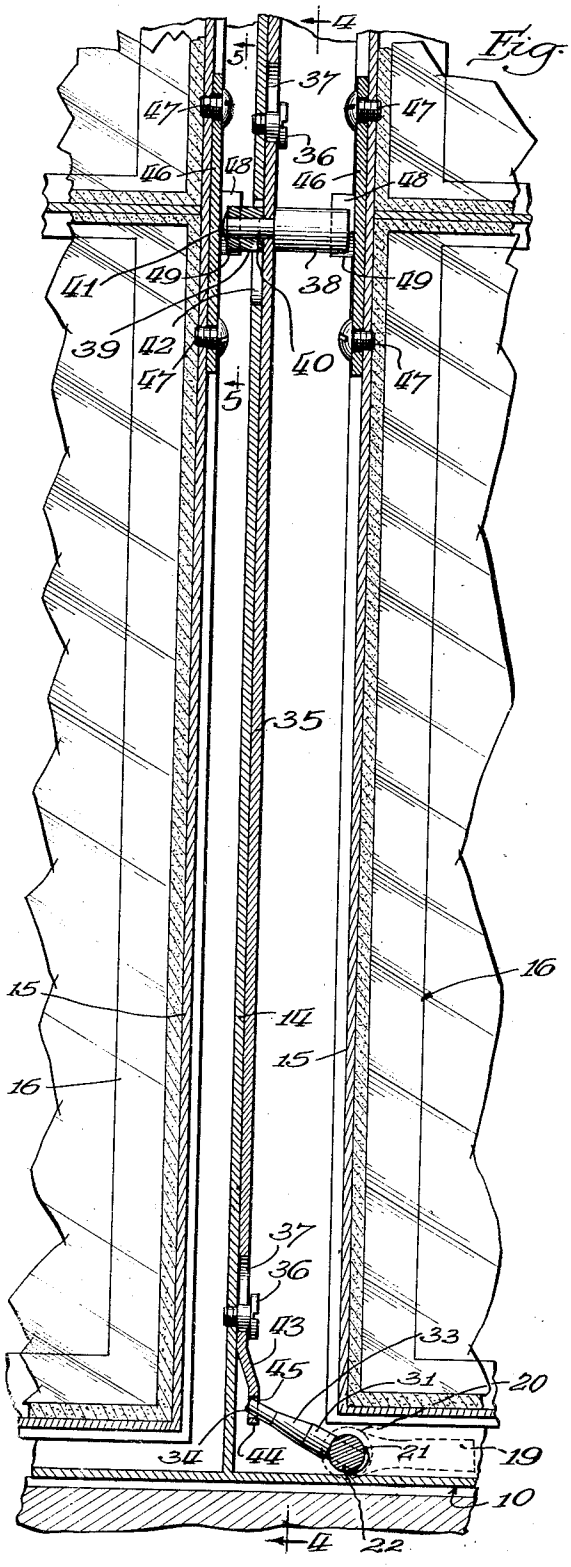
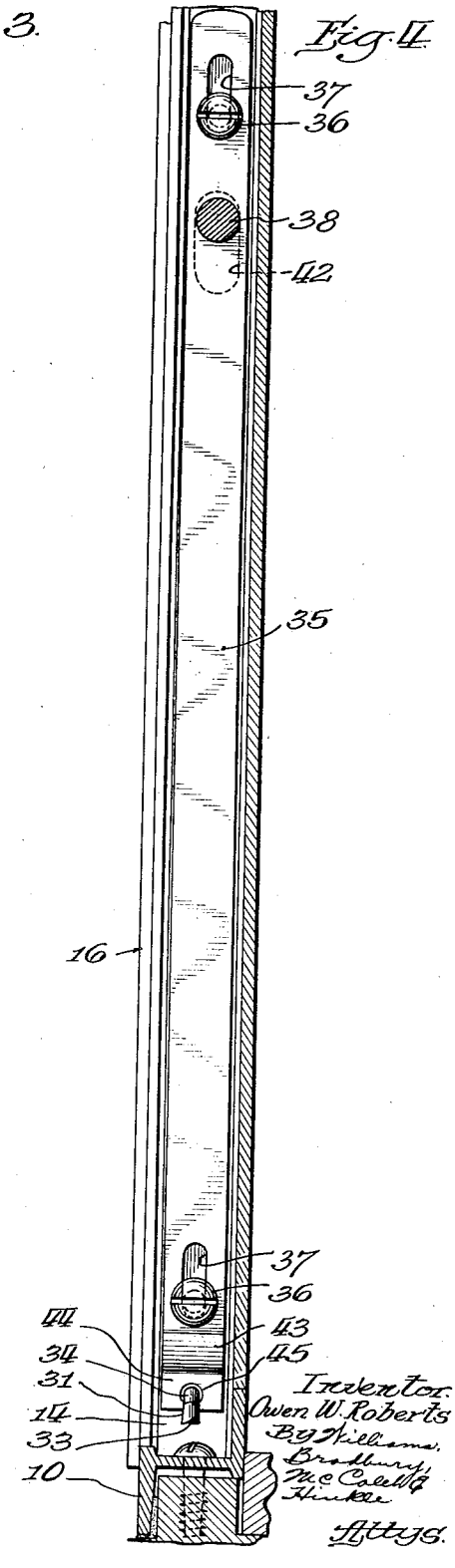


Fig. 4



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CASEMENT WINDOW LATCH

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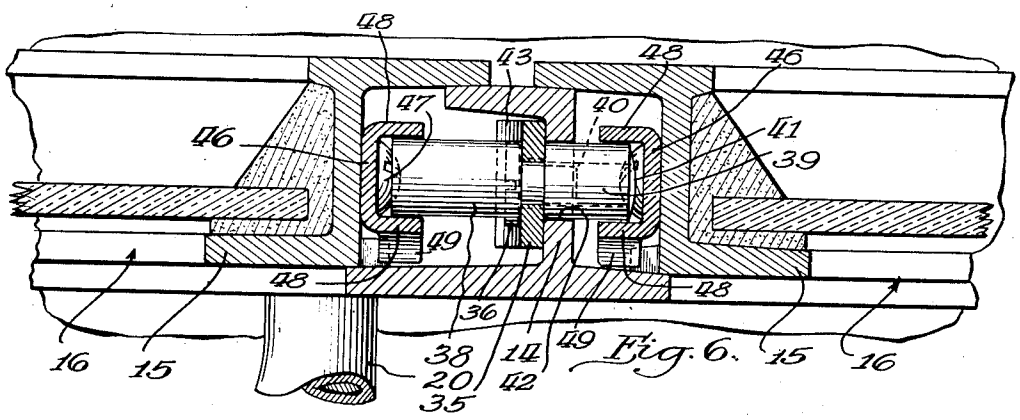
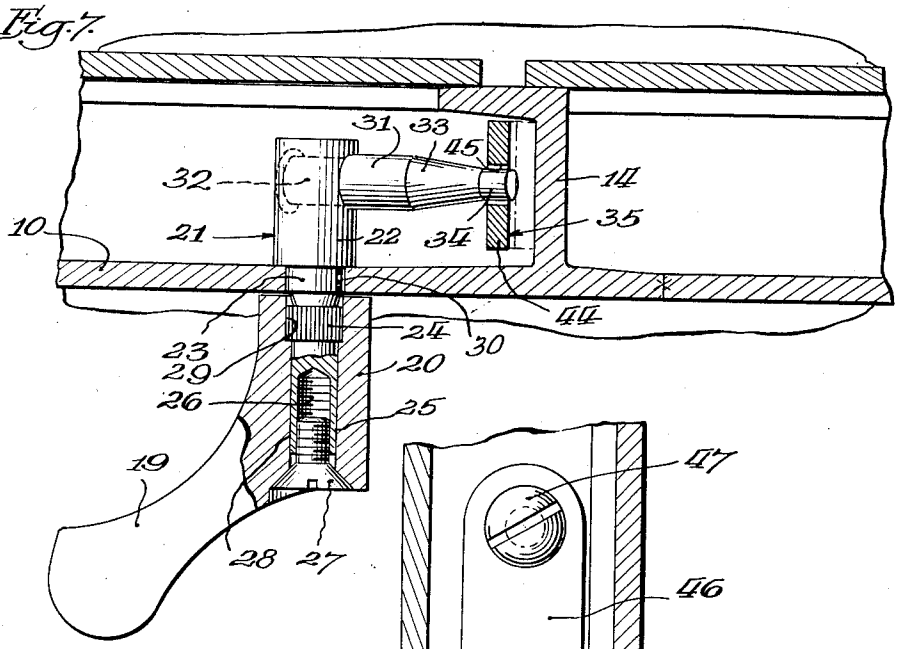


Fig. 6.

Fig. 7.



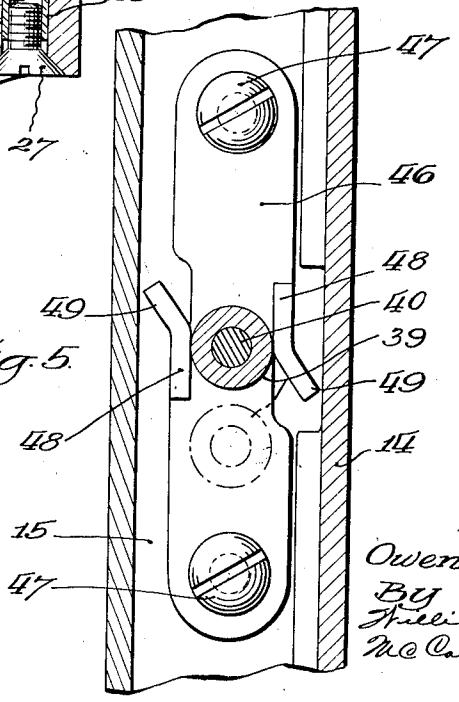


Fig. 5.

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UNITED STATES PATENT OFFICE

2,175,485

CASEMENT WINDOW LATCH

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Application November 5, 1938, Serial No. 238,934

2 Claims. (Cl. 292—158)

My invention contemplates and provides certain improvements which, for the first time to my knowledge, make commercially practical a type of casement window latch in which a casement sash is engaged at points approximately midway between the extremities of its unhinged vertical edge by a horizontally disposed vertically movable latch pin operable from and by a handle which is located on the casement frame, and beneath the sash, at a point where it does not interfere with the installation or removal of, or extend through, a fixed inside window screen or inside storm window covering all of the ventilated area of the casement window frame.

The improved latch of the present invention is suitable for use in connection with either single or double ventilated casement windows, the accompanying drawings showing the invention applied to a typical steel casement window of the double ventilated variety.

Important features and advantages of the latch of the present invention are the small number of its component parts and the ease and economy of their manufacture, assembly, and installation.

Another salient feature and advantage of the present invention resides in the fact that the rock shaft of the operating handle of the latch is appropriately and effectively mounted and journalled in a lower horizontal member of the casement frame without the necessity for any mounting bracket attached to the casement frame.

Still another important feature and advantage of the present invention resides in the simplicity of the means and arrangement of parts whereby the latch pin-bar, and the latch pin or latch pins carried thereby, are appropriately guided in their vertical movements on, in and relatively to a vertically disposed element of the casement frame, i. e., the separating bar or mullion between the proximate unhinged vertical edges of a pair of casement sash forming component parts of a double ventilated casement window.

Another important feature and advantage of the present invention resides in the specific manner in which a pair of latch pins cooperate with each other to effect their appropriate location on and attachment to the latch pin-bar by which they are both carried and operated.

A further and very important feature and advantage of my invention resides in the simplicity and effectiveness of the specific arrangement and cooperation of parts wherein rotary movements of the latch operating handle and the rock shaft of the latter are translated into vertical movements of the latch pin-bar.

Other features, objects and advantages of the present invention will appear from the following detailed description, wherein reference is made to the accompanying three sheets of drawings, wherein—

Fig. 1 is an inside elevational view of a casement window of the double ventilated variety to which the improvements of the present invention have been applied, this window being equipped with a more or less conventional screen which covers all ventilated area of the casement frame;

Fig. 2 is a horizontal sectional view taken in the horizontal plane of the line 2—2 of Fig. 1 and looking in the direction indicated by the arrows;

Fig. 3 is a vertical sectional view taken in the plane of the line 3—3 of Fig. 2 and looking in the direction indicated by the arrows;

Fig. 4 is a vertical sectional view taken in the plane of the line 4—4 of Fig. 3 and looking in the direction indicated by the arrows;

Fig. 5 is a vertical sectional view taken in the plane of the line 5—5 of Fig. 3 and looking in the direction indicated by the arrows;

Fig. 6 is a horizontal sectional view taken in the plane of the line 6—6 of Fig. 1 and looking in the direction indicated by the arrows; and

Fig. 7 is a horizontal sectional view taken in the plane of the line 7—7 of Fig. 1 and looking in the direction indicated by the arrows.

Similar characters of reference refer to similar parts throughout the several views.

The casement window depicted in the accompanying drawings comprises the usual rectangular frame fabricated from the horizontal bottom bar 10, the horizontal top bar 11, and the vertical side bars 12 and 13, all of such frame bars conveniently being substantially Z-shaped in cross section. The frame also includes the intermediate vertical bar or mullion 14 which cooperates in the usual manner with the proximate vertical Z bars 15 of casement sashes 16 which have their remote vertical edges appropriately hinged to the window frame for outward and retractive movements pursuant to operations of conventional or other suitable outwardly swinging sash operators indicated at 17.

In Fig. 1 the entire ventilated area of the casement frame is covered by an inside screen 18 comprising a frame which is attached to the casement frame by screws or in any other suitable manner. An inside storm window of sub-

stantially the same size and shape as the screen may be substituted for the latter in cold weather.

I shall now proceed to a description of the improved latch with which the present invention is concerned. This latch may be said to comprise, essentially, three simple units, each presenting certain features of novelty, these three units being (*a*) the handle unit, (*b*) the latch pin-bar unit, and (*c*) the keeper unit (of which two are employed in a double ventilated window).

The handle unit comprises the handle 19 having an integral cylindrical hub 20 which abuts against, and is adapted to turn on a horizontal axis with respect to the inner surface of lower bar 10 of the window frame, at a position which is adjacent to the lower end of mullion 14 and beneath the frame of the screen 18 (or inside storm window). The handle hub 20 cooperates with a rock shaft 21 which is formed from one piece of metal and comprises the portion 22 of greatest diameter, the journal portion 23 of intermediate diameter, the serrated or radially toothed portion 24, also of intermediate diameter, and the portion 25 of least diameter. Such portion 25 is internally threaded as at 26 to cooperate with screw 27, whereby portion 25 of the rock shaft is held in bore 28 of the handle hub and the serrated or toothed portion 24 of the rock shaft is held in locking engagement with the wall of counterbore 29 of the handle hub.

With the journal portion 23 of the rock shaft extending freely but snugly through a circular aperture 30 in frame bar 10, and with shaft portion 22 and handle hub 20 bearing snugly but lightly against the inner and outer faces of such frame bar 10, the handle unit is operably mounted on and in the frame bar 10 without the aid of a mounting bracket of any kind. This consideration naturally makes for cheapness in construction and ease of installation.

Carried by and projecting laterally from rock shaft portion 22 is a pin 31. One end 32 of the pin is reduced in cross section and extends through and is riveted in the rock shaft portion 22. The other end of the pin tapers, as at 33, down to a cylindrical tip 34 of relatively small diameter.

The latch pin-bar unit consists of a metal bar 35 which is disposed in the channel presented by mullion 14 and is held against the mullion web, for vertical sliding movements relatively to the mullion, by a pair of shoulder screws 36 which extend through vertically elongated slots 37 in bar 35 and engage in the mullion web.

Carried by the upper end of bar 35 and projecting from opposite faces thereof are the cylindrical latch pins 38 and 39. It is imperative that pins 38 and 39 be in exact axial alignment and that their attachment to bar 35 shall not materially weaken the latter which is desirably and necessarily formed of light and relatively narrow metal stock. Therefore, I provide pin 38 with a greatly reduced cylindrical portion 40 which extends through corresponding bores in bar 35 and pin 39 to be upset as shown at 41 (see Fig. 3). Pin 38 is longer than pin 39 because bar 35, lying as it does against the mullion web, is closer to one of the sash bars 15 than it is to the other. A slot 42 is formed in the web of mullion 14 to permit vertical movements of the shorter latch pin 39.

Attention is particularly directed to the fact that the lower end of bar 35 is turned away from the mullion web, as indicated at 43, and then extends straight downwardly in spaced relation to the mullion web, as indicated at 44 (see Fig. 3). The portion 44 is provided with a short narrow slot 45 which receives the reduced cylindrical extremity 34 of the handle unit pin 31.

I shall now describe the keeper units. Two of these are employed in the double ventilated window which is depicted in the accompanying drawings. Each keeper unit consists of a sheet metal strip 46 secured by screws 47 to the outer surface of the web of one of the sash frame bars 15 at a point substantially midway between the upper and lower ends of the latter. Each keeper strip 46 is provided with at least one latch pin engaging flange 48 and a latch pin engaging clutching element 49 which is in the nature of an integral extension of the flange 48. However, in order that each of the keeper strips 46 may be applicable to either of the two sashes, it is preferably provided with two flanges 48 and two clutching elements 49—the two clutching elements presenting their camming surfaces in opposite directions. However, it is only the downwardly facing clutching element, and its associated flange 48, which functions when, as preferred, the raised positions of the latch pins 38 and 39 are their locking positions and the lowered positions of such latch pins are their non-locking positions.

Turning of handle 19 in the clockwise direction causes lowering of bar 35 and downward recession of pins 38 and 39 from the flanges 48 and clutching portions 49 of the sash carried keepers, thereby unlocking the sashes. Subsequent turning of the handle 19 in the counterclockwise direction results in raising movement of bar 35 and causes each latch pin 38 and 39 to engage first the downwardly presented clutching element of its cooperating sash carried keeper, and then the flange 48 of which such clutching element 49 is an integral extension—to press snugly to closed position, and then to latch, the sash by which such keeper is carried. Of course, both sashes are pressed to closed position and latched simultaneously as the consequence of one counterclockwise movement of the handle unit, and similarly both sashes are unlatched simultaneously as the consequence of one clockwise movement of the handle unit.

Having thus illustrated and described a preferred embodiment of my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a latch for a double ventilated casement window, a rock shaft extending through the frame of such window and supported therein at a position which is adjacent to the lower end of a vertical mullion also forming a part of such window frame, an operating handle secured to the inner end of the rock shaft, a lateral projection at the outer end of said rock shaft, a latch pin-bar retained for sliding movement within the channel of the mullion, the lower end of said latch pin-bar being cambered to extend away from the web of the mullion channel, and a slot in such extended end of the latch pin-bar which is engaged by the lateral projection at the outer end of said rock shaft.

2. In a latch for a double ventilated casement window, a rock shaft adapted to extend through the lower horizontal bar of the window frame and supported therein at a position which is adjacent to the lower end of a vertical mullion also forming part of such window frame, an operating handle comprising a portion which receives

and is secured to the inner end of the rock shaft, the outer end of the rock shaft extending laterally therefrom, a latch pin-bar which is adapted to lie in a laterally opening channel presented by the mullion, laterally projecting latch pins at the upper end of such latch pin-bar, one of said pins extending through a slot in the mullion and said pins being adapted to cooperate with sash-carried keepers, the lower end of said latch pin-bar being cambered to extend away from and lie in spaced relationship to the web of the mullion channel, and a slot in the lower end of such latch pin-bar which is engaged by the laterally extending outer end of the said rock shaft.

OWEN W. ROBERTS.