Jan. 8, 1963 J. H. GOLUB 3,071,957

LOCKING MECHANISM

Filed Aug. 28, 1959 2 Sheets-Sheet 1

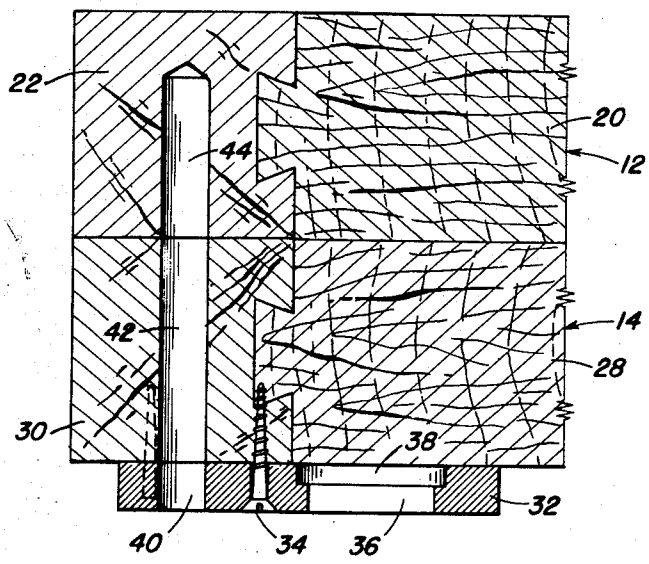


Fig. 2.

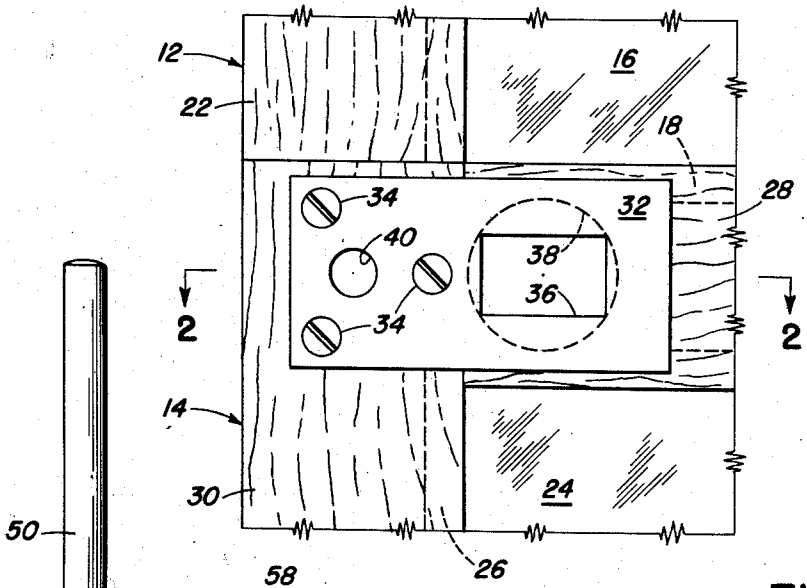


Fig. 1.

Fig. 3.

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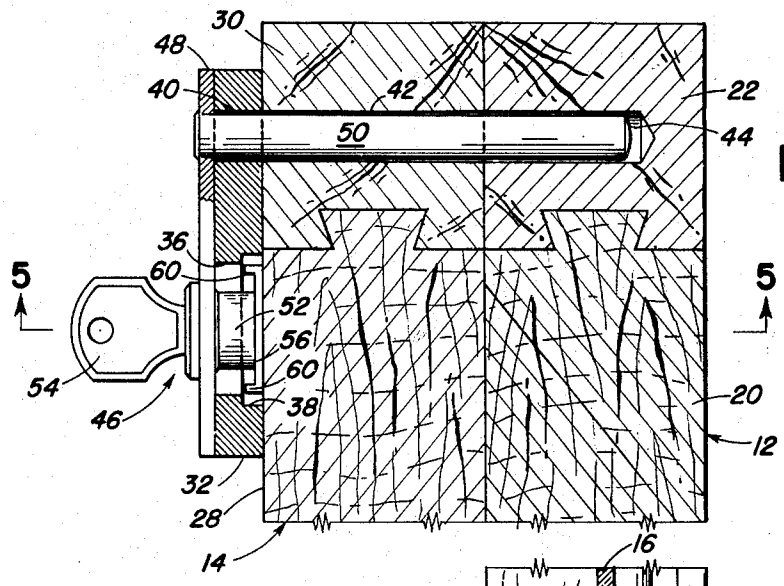


Fig. 4.

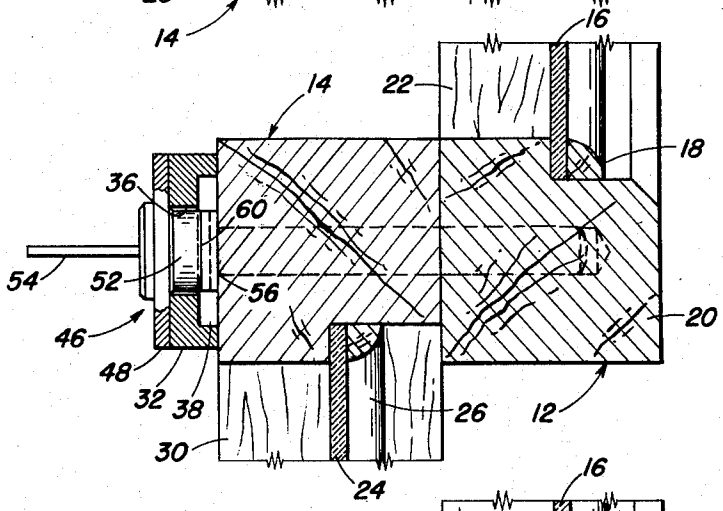


Fig. 5.

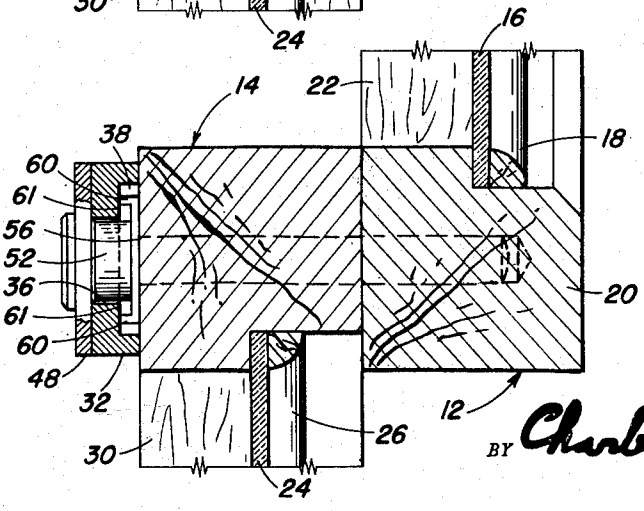


Fig. 6.

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3,071,957
Patented Jan. 8, 1963

3,071,957

LOCKING MECHANISM

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Filed Aug. 28, 1959, Ser. No. 836,774
3 Claims. (Cl. 70—90)

This invention relates to locking mechanisms and more particularly to locking mechanisms especially useful for retaining two or more relatively movable closure members in a predetermined relation. It will be apparent from the following description that the invention is susceptible to a variety of uses and, by way of example only and for the purpose of illustration, and the invention will be explained as applied to a common household window of the sliding sash type.

Prior-art workers have proposed many types of locking mechanisms for windows and the like. When such devices have been relatively simple and inexpensive however, they have usually been so constructed as to be subject to easy circumvention. A typical example is the standard cam latch for sliding sash windows. While retailing at very low cost and having the distinct advantages of simplicity and ease of installation, the cam latch offers little or no actual protection against wrongful entry because the latch can be opened from outside of the window once the glass is broken or removed.

A general object of the invention is to provide a locking mechanism capable of preventing a closure member, such as a sliding window sash, from being moved to open position without the mechanism first being properly unlocked, unless the sash itself is destroyed.

Another object is to provide novel means for preventing a window from being opened, after being properly secured, except when a key is utilized to actuate a lock, unless the window sash itself be destroyed.

A further object is to provide a simple, economical locking mechanism which is operable to retain at least two closure members in a predetermined position.

Still another object is to provide a locking mechanism which can readily and easily be installed, without use of special skill or unusual tools, to retain a pair of closure members securely in a desired position.

In order that the manner in which these and other objects are attained in accordance with the invention can be understood in detail, a reference is had to the accompanying drawings, which form a part of this specification, and wherein:

FIG. 1 is a front elevational view of a keeper plate forming a portion of one particularly advantageous embodiment of the invention;

FIG. 2 is a horizontal sectional view taken on line 2—2, FIG. 1;

FIG. 3 is a plan elevational view of a bolt and lock assembly employed in this embodiment of the invention;

FIG. 4 is a horizontal sectional view, with some parts shown in plan elevation, of the completed locking mechanism of this embodiment, applied to a sliding sash window;

FIG. 5 is a vertical sectional view taken on line 5—5, FIG. 4, with some parts in elevation, and

FIG. 6 is a view similar to FIG. 5 showing certain parts of the mechanism in another operative position.

Referring now to the drawings, and first to FIGS. 1 and 2, a portion of a common household window is shown as comprising an upper sash 12 and a lower sash 14. Sash 12 comprises a glass pane 16, secured by suitable molding 18 to horizontal framing member 20 and vertical framing member 22, the two framing members being connected together in usual fashion, by a dovetail joint. Similarly, sash 14 comprises a glass pane 24 secured by molding 26 to a horizontal framing member

28 and a vertical framing member 30. Sashes 12 and 14 are held in place by the usual window frame (not shown) and are slidable relative to one another in the usual manner. It will be apparent that sashes 12 and 14 can be retained in any number of predetermined positions. However, by way of example only and for the purposes of illustration, the sashes are considered to be in a closed position wherein the lower edge of member 20, as best seen in FIG. 5, is substantially below the upper edge of member 28, for a purpose apparent hereinafter.

A rectangular base or keeper plate 32 is secured to sash 14 by a plurality of screws 34 at the junction of framing members 28 and 30 and extends longitudinally in a horizontal direction along member 28. Plate 32 is formed with aperture means including a rectangular portion 36 and a circular portion 38. The axis of portion 38 is coincident with a line extending perpendicularly through the center of the plane defined by the edges of portion 36, portion 38 being located behind portion 36 adjacent to member 28. The diagonal of aperture portion 36 is equal to the diameter of aperture portion 38. Plate 32 is also formed with a cylindrical bore 40 which is spaced laterally from the common center of aperture portions 36 and 38, as shown.

Members 30 and 22 are provided with cylindrical apertures 42 and 44, as for example by drilling, the axes of which are aligned with the axis of bore 40 when sashes 12 and 14 are in their desired relationship to one another.

A bolt and lock assembly 46 is provided for retaining sashes 12 and 14 in the position shown (with bore 40 aligned with apertures 42 and 44) and comprises a rectangular cover plate 48 of substantially the same length and width as keeper plate 32. A bolt 50 is secured at one end to cover plate 48, as for example by inserting the end of the bolt through an aperture formed in plate 48 and then upsetting the end. Bolt 50 extends perpendicularly from the rear face of cover plate 48 and is formed with a diameter slightly less than that of apertures 40, 42 and 44 to allow bolt 50 to be inserted therein. The length of bolt 50 is great enough to extend completely through sash 28 and partially through sash 20.

Lock means is provided for detachably securing bolt and lock assembly 46 to keeper plate 32 and comprises a conventional barrel lock 52 extending through an opening in and fixed to cover plate 48, the lock being operative, by a key 54, for selective rotation of a locking member 56. Locking member 56 is in the form of a rectangular base plate 58 having a pair of oppositely disposed, upstanding side flanges 60. The length and width of plate 58 are slightly less than the length and width of aperture portion 36, and the flanges 60 project for a distance which is slightly less than the depth of the cylindrical aperture portion 38. Bolt 50 and barrel lock 52 are spaced apart, center to center, by the same distance as bore 40 and aperture portions 36 and 38.

In operation, it may be assumed that window sashes 12 and 14 are closed, so that bore 40 and apertures 42 and 44 are aligned. To mount the assembly 46, locking member 56 and bolt 50 are simultaneously inserted through aperture portion 36 and bore 40, respectively, plate 48 being brought into face-to-face contact with plate 32. Member 56 is therefore now disposed within cylindrical aperture portion 38, and bolt 50 extends through bore 40 and aperture 42 into aperture 44, as will be clear from FIGS. 4 and 5. The assembly may then be locked by turning key 54 through 90° so that locking member 56 is rotated and flanges 60 engage behind shoulders 61, FIG. 6, formed at the juncture between aperture portions 36 and 38. The key is then removed.

It will be apparent that, when in the locked position shown in FIG. 6, assembly 46 may be removed by revers-

ing the procedure just described. Should an intruder break a window pane in an attempt to open window sashes **12** and **14**, however, keeper plate **32** cannot be detached by removing screws **34** since they are covered by cover plate **48**. Consequently, the only way to open the window without using key **54** would be to destroy the window sash.

It will be noted that keeper plate **32** is substantially thicker than cover plate **48**. The thickness of plate **32** is advantageously such, as shown, that the entire projecting portion of the lock, including barrel **52** and locking member **56**, is received within the aperture means consisting of portions **36** and **38**. Thus, the depth of aperture portion **36** is less than the projecting length of barrel **52**, while aperture portion **38**, forming a recess in which member **58** can work, is of an axial depth slightly greater than the length of flanges **61**.

Whereas only a single embodiment has been shown, it will be apparent that various changes can be made in the details and arrangement of parts of the device without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. In a device for retaining two relatively movable closure members in predetermined positions, the combination of channel means in each of said movable closure members in registration with each other in at least one predetermined positioned of said closure members, a keeper plate having a first aperture and a second aperture formed therein, said keeper plate being adapted to be permanently mounted on one of the closure members for movement therewith with said first aperture in registration with the channel means in said closure member, and a lock and bolt assembly cooperable with said keeper plate, first and second apertures and channel means for retaining the closure members in said predetermined position, said assembly including a removable cover plate having substantially the same lateral configuration as said keeper plate, a cylindrical bolt extending from said cover plate, and a key-operated barrel lock having a locking member rotatable upon operation of the key, said barrel lock extending parallel to and spaced from said bolt, and said locking member cooperating with said second aperture and said bolt cooperating with said first aperture and channel means to allow said lock and bolt assembly means to be attached to said keeper plate to prevent movement of the closure members from said predetermined position.

2. In a lock for a window having two sashes, the combination of a first plate permanently mounted on one movable sash of the window, channel means provided in both sashes of said window in registration with each other in at least one predetermined position of said sashes, said first plate being formed with a first aperture in alignment with the channel means provided in said sash and a second aperture having a rectangular portion located in front of a circular portion, a second plate adapted to abut said first plate to prevent removal thereof, a bolt mounted on said second plate and extending outwardly therefrom and adapted to be received through the first aperture in said first plate into the channel means provided in said sashes, a lock barrel mounted on said second plate and extending outwardly parallel to and spaced from said bolt, a generally rectangular locking member formed with substantially the same lateral dimensions as said rectangular portion of said second aperture and insertable therein only when said locking member is in one angular position with respect to said barrel, said locking member being operably connected with said lock barrel and rotatable in response to rotation of a key inserted within said lock barrel.

3. In a device for retaining two sliding window sashes in closed positions wherein the window sashes are formed with alignable apertures, the combination of a keeper plate adapted to be mounted on one of the sashes and formed with a first aperture in alignment with the apertures of the sashes when the sashes are closed, said keeper plate having a second aperture spaced from said first aperture, said second aperture including a rectangular portion and a circular portion, a bolt insertable in said first aperture and adapted to extend into the apertures of the sashes to prevent the sashes from being opened, key operated lock means including a rectangular locking member insertable through said rectangular aperture portion, said locking member being rotatable within said circular portion and engageable with said keeper plate to prevent said locking means from being removed except upon operation of a proper key, and a cover plate affixed to said locking means and said bolt to prevent said bolt from being withdrawn from said first aperture except upon removal of said locking means from said second aperture.

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