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SILL LOCK FOR STATIONARY PANEL OF SLIDING GLASS DOOR UNITS

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FIG. 1

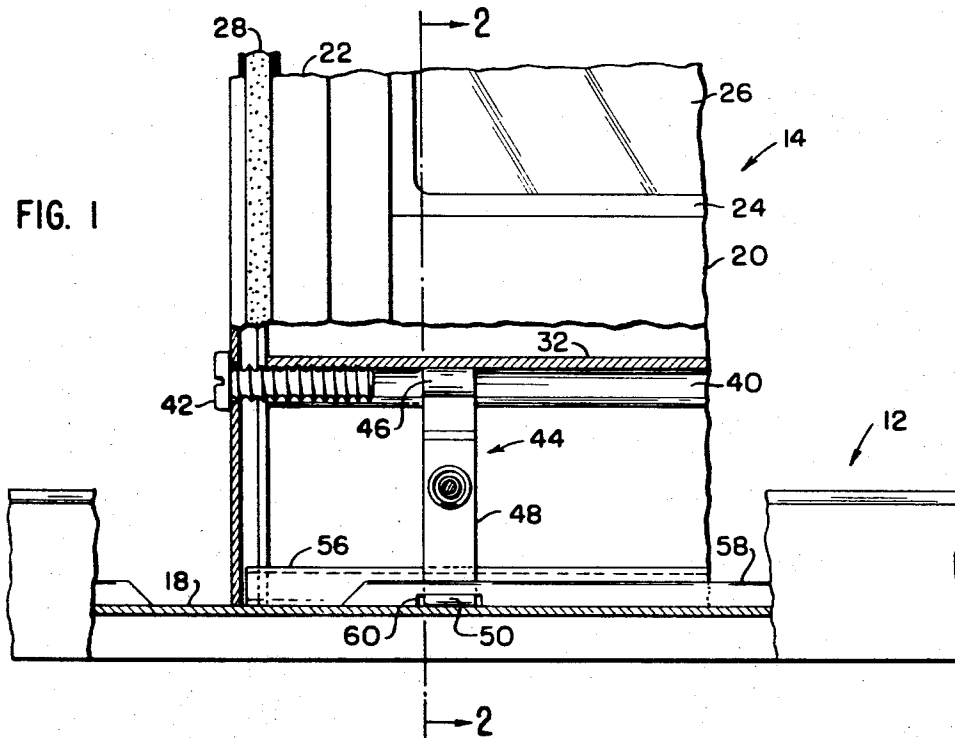
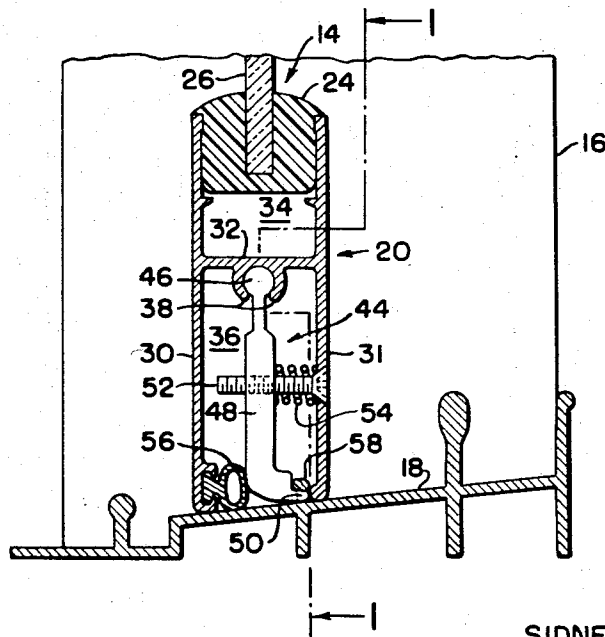


FIG. 2



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## SILL LOCK FOR STATIONARY PANEL OF SLIDING GLASS DOOR UNITS

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6 Claims. (Cl. 292—96)

### ABSTRACT OF THE DISCLOSURE

A glass door unit includes a frame having a sill with an upwardly projecting rib over which a stationary panel is assembled, and to which the panel is lockable by screw operated latches visible only from the interior side of the unit. The panel has a channel-shaped bottom edge concealing one or more latches pivotal within and slidable along the channel for alignment with locking slots in the rib.

### Background of the invention

This invention relates generally to stationary panels in door or window units for assembly into frames in the wall of a structure, and it concerns more particularly the means for locking such panels to the frames.

In a typical construction having plural overlapping panels and sashes or doors assembled in multi-track frames, it is desired to lock certain panels to the frame while adapting the other parts to translate by sliding or rolling to open and close the units. Existing locking means are often of cumbersome and expensive construction, requiring special fittings and adaptations in the frame as well as the panel. Moreover, the locking means are often visible from the exterior of the structure, either through the glass in the panel or by observation of parts of the locking means extending to or beyond the exterior surface of the panel. Thus, while the normally movable sash or door in the unit may be relatively securely locked to the frame by a door latch or equivalent means, an intruder may be able to gain entry by removal of a fixed panel, by the relatively simple manipulation of tools for forcing the locking means thereon. Therefore, the lack of security in such panel units precludes their use in many desirable application.

### Summary of the invention

This invention solves the foregoing security problem by means of a simple latching device concealed within the panel to be locked so that no locking parts are visible from the outside of the unit. The latching means have no fixed position relative to the stiles of the panel and therefore an intruder has no means of finding a position for use of a forcing tool.

The means provided by this invention are readily employed during assembly of the panel into the frame, and they are also usable with ease to unlock the panel if it should be desired to remove it from the frame or to change its position therein for any reason.

Moreover, this invention is readily adapted for use with weatherstripped panels without interfering with the action of the seals thereon.

### Brief description of the drawing

FIG. 1 is a fragmentary elevation, partially in section, viewed from the interior side of a lockable panel according to this invention.

FIG. 2 is an elevation in section taken on line 2—2 of FIG. 1.

### Description of the preferred embodiment

The preferred embodiment of the invention, as illus-

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trated in the drawing, comprises an extruded frame 12 of aluminum or other suitable metal and two or more panels or sashes, of which only a single panel designated generally at 14 is illustrated. The panel 14, when assembled in the frame 12, is a fixed part while sashes or doors, not shown, ride in separate channels or tracks of the frame and serve as the movable parts.

The frame 12 comprises the usual head member at the top, not shown, spaced jambs 16 and a sill 18, and it may be identical to the frame disclosed in applicant's copending application Ser. No. 635,602 filed on even date herewith under the title, Sealing Bar for Sliding Glass Door Units. The frame members are preferably formed as extrusions having upstanding ribs defining channels or tracks within which the panels and sashes are received. Details of the structure of the frame have been omitted from the drawing, as the present invention is concerned only with the structures and interrelationships of the fixed panel 14 and the sill 18.

The panel 14 includes the usual top rail, not shown, a bottom rail 20 and spaced stiles 22, these parts also being extruded and having the usual grooves, ribs and channels defining a receptacle for receiving a vinyl or rubber glazing strip 24 for a glass pane 26, and also for receiving the usual weather strips such as a nylon pile strip 28 which bears against a movable sash in its fully closed position.

Referring more particularly to the bottom rail 20, this member comprises exterior and interior opposed side walls 30 and 31, respectively, connected by a continuous web 32 defining a glass receiving channel 34 and a latch channel 36. The web 32 includes curved rib portions 38 defining an elongate groove 40 within the channel 36. This is a dual-function groove, providing holes into which assembly screws 42 are threaded for connection of the stiles 22 to the bottom rail 20, and also serving as a pivotal support for one or more metal latches 44.

Each latch 44 has a generally cylindrical shaped head portion 46 slidably received in and retained by the groove 40 to permit the latch to be moved along the longitudinal axis of the groove and to be rotated through an appreciable angle about that axis, while at the same time being confined in the groove by reason of an inward curvature of the ribs 38. The latch also has a flat shank portion 48 and a curved lower portion from which a tab end 50 extends. The shank has a threaded hole receiving a locking screw 52 countersunk in the wall 31 on the interior side of the sash. A compression coil spring 54 surrounds the screw and bears at one end upon the interior wall 31 and at the other end upon the shank 48, tending to pivot the latch 44 clockwise as viewed in FIG. 2 against the mild restraint of a hollow tubular rubber weather strip 56 received in a groove in the exterior wall 30.

The sill 18 has the usual pitch downwardly toward the exterior side of the frame. It includes an upstanding elongate rib 58 over which the panel 14 is received during assembly, and against which the interior wall 31 of the bottom rail bears in the assembled and locked position as illustrated. The rib has a slot 60 to receive the tab 50 of the latch when the screw 52 is tightened against the force of the spring 54. The rib also has a round overhang or bead so formed that the latch tab end will lock with a camming action under the bead, forcing the fixed panel weatherstripping to seal against the sill, and also locking the fixed panel into place without the use of a slot, if so desired.

It will be observed that the slot 60 may be located at any desired position to which the latch 44 may be moved along the groove 40. It is only necessary to drill a hole in the wall 31 at the corresponding position along the rail 20 for insertion of the screw 52, and to make a cor-

responding slot in the rib 58. Thus, with relatively little effort either at the factory or on the part of the installer at the building site, one or more latches 44 may be located in the panel at unique positions along the rail 20 between the stiles 22. The locations of the latches are invisible from the exterior side of the panel, and there will be no evident location at which to insert a forcing tool for disengaging the panel from the sill. Since the top rail of the panel is inserted a substantial distance into a channel in the head of the frame in accordance with usual construction, the value of this invention in foiling an intruder will be evident.

It will be understood that the reference to panels throughout this description is intended to include any units assembled in frames in the foregoing manner and intended to be locked in fixed position when so assembled. Also, it will be evident that while the invention has been described with reference to a specific preferred form thereof, various structural modifications and adaptations may be employed without departing from the spirit or scope of this invention.

I claim:

1. A lockable panel closure including the combination of

a panel member having an edge defining a channel,  
a frame having a rib extending along the principal dimension of the channel and projecting thereinto,  
a latch enclosed and pivotal within the channel about an axis parallel to the rib and having a free end engageable with the rib,

and means passing through a single side of the panel member and engaging the latch to draw the free end thereof into securing engagement with the rib, the latch being free of restraint by the panel member longitudinally of the channel when disengaged from the rib.

2. The combination according to claim 1, in which the

rib is provided with a slot and the free end of the latch is provided with a tab which enters into the slot in the locking position of the latch.

3. The combination according to claim 1, in which the means for drawing the latch into locking engagement with the rib is a screw threaded into the latch intermediate its pivotal and its free ends.

4. The combination according to claim 1, in which the panel member has a groove within the channel and parallel to the rib and the latch has its pivotal end slidable in the groove to position the latch along the channel.

5. The combination according to claim 1, in which the frame has a sill from which the rib extends, and the panel member has sealing means secured to the side of the panel member opposite to the means engaging the latch and resiliently engageable with the sill.

6. The combination according to claim 1, including a spring within the channel tending to push the free end of the latch away from the rib.

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