March 26, 1963 R. S. LINDEROTH 3,083,045

SASH LOCK

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Fig. 1

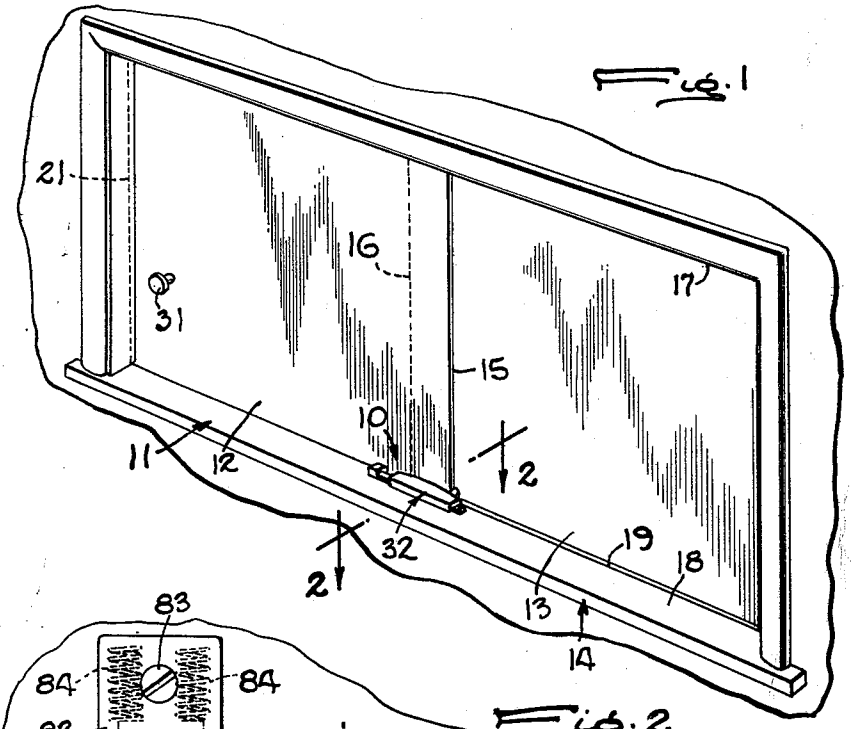
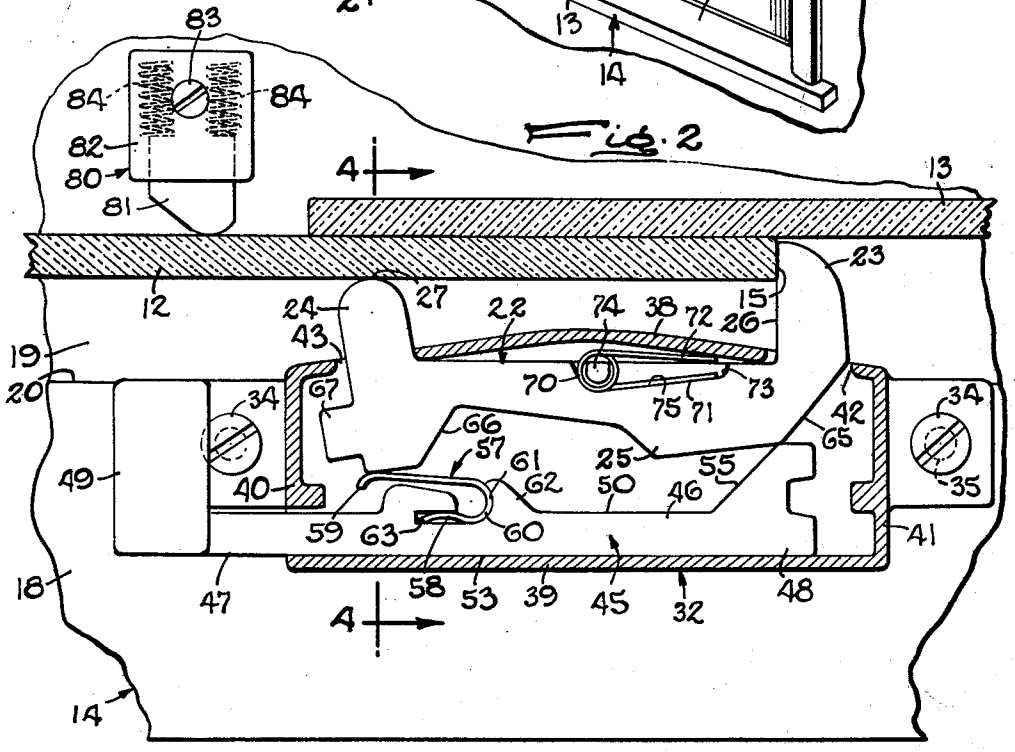


Fig. 2



INVENTOR

Roger S. Linderoth

by Wolfe, Hubbard, Voit & Osann

ATTORNEYS

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Fig. 3

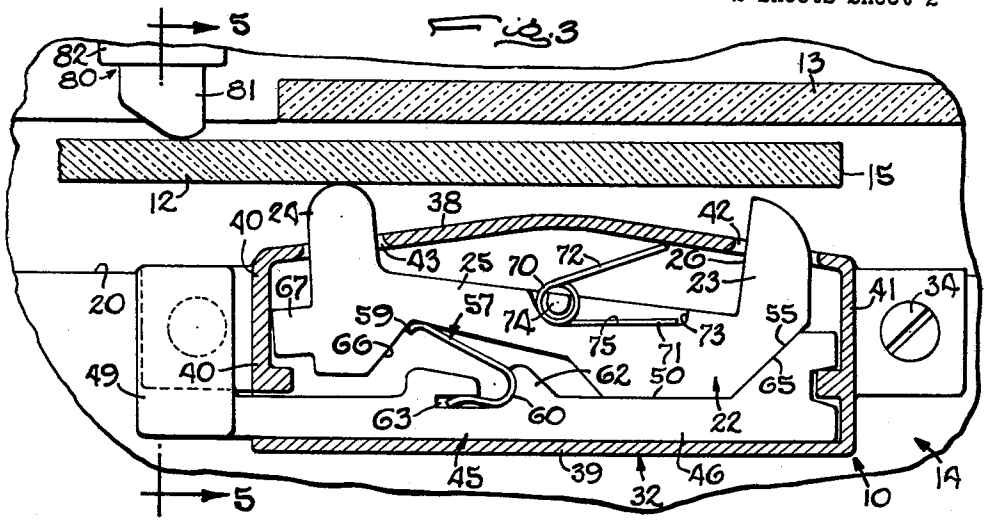


Fig. 4

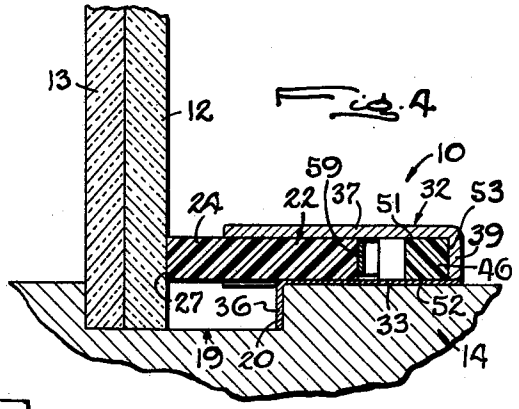


Fig. 5

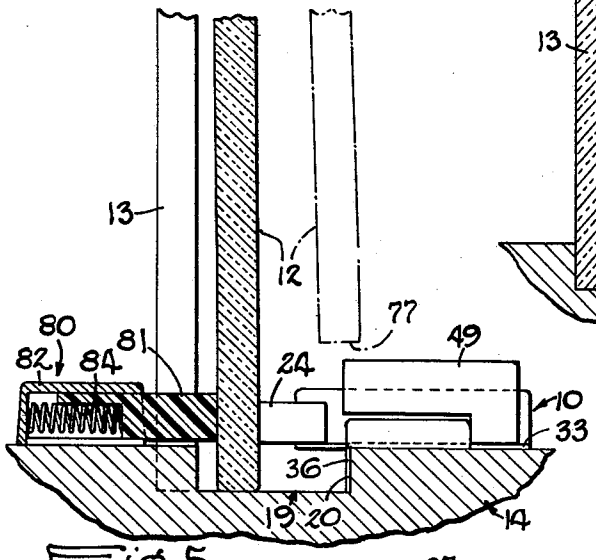
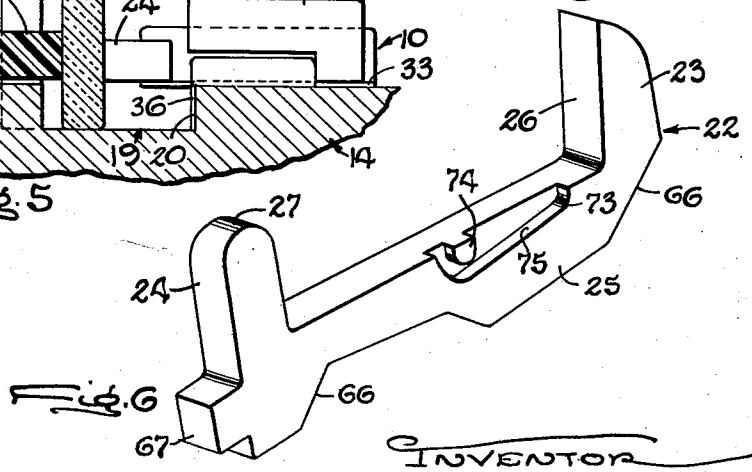


Fig. 6



INVENTOR
Roger S. Linderoth
by Wolfe, Hubbard, Voit & Osann
ATTORNEYS

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3,083,045

SASH LOCK

Roger S. Linderoth, Meaford, Ontario, Canada, assignor to Amerock Corporation, Rockford, Ill., a corporation of Illinois

Filed Dec. 14, 1960, Ser. No. 75,699
7 Claims. (Cl. 292—69)

This invention relates to locks for securing a panel of a window in a fixed position, and relates more particularly to locks for use on sashless windows of the type having a panel slidable back and forth in a frame along a horizontal track between an open position and a closed position in which the sliding panel overlaps a fixed panel.

The general object of the invention is to provide a novel lock of the above character which is of simple and attractive construction and is easy to install and operate as compared with former locks of this type.

Another object is to provide a lock which may be mounted entirely on the frame and requires no attachment on the window itself, and which is of flat construction so that the window panels may be removed without detaching the lock from the frame.

A further object is to construct the lock in a novel manner whereby it presses the overlap of the sliding panel into tight contact with the fixed panel as the window is locked.

Still another object is to provide a novel combination, including a lock of the above character and a snubber, which prevents sliding contact between the panels during opening and closing of the window but insures that the panels will be pressed tightly together when the window is locked.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which—

FIGURE 1 is a perspective view of a window secured in closed position by a lock embodying the present invention.

FIG. 2 is a fragmentary sectional view taken along the line 2—2 in FIG. 1.

FIG. 3 is a view similar to FIG. 2 but showing another position of the lock.

FIG. 4 is a fragmentary section taken along the line 4—4 in FIG. 2.

FIG. 5 is a fragmentary section taken along the line 5—5 in FIG. 3.

FIG. 6 is a perspective view of the bolt.

For purposes of illustration, the invention is shown in the drawings embodied in a lock 10 for use with a window 11 of the sashless type comprising two rectangular glass panels 12 and 13 mounted directly in a frame 14 with the adjacent edges 15 and 16 of the panels overlapping when the window is closed. At least one of the panels, herein the left panel in FIG. 1, is slidable back and forth between open and closed positions in tracks formed by horizontal grooves 19 in the upper and lower frame members 17 and 18. A knob 31 may be attached to the inside of the panel 12, preferably near the edge 21 opposite the overlap, by means of a headed screw (not shown) inserted through the glass and threaded into the knob 31. The lock 10, embodying the present invention, is mounted on the frame 14 adjacent the overlapping edge of the sliding panel 12 and is adapted to secure the latter in a closed position.

In accordance with the present invention, the lock 10 is constructed in a novel manner so that it is easy to operate, insures a tight closure of the window, and permits removal of the sliding panel 12 without first detaching the lock from the frame. For these purposes, the lock includes two projections 23 and 24 extending toward

the window and movable toward and away from the window in response to back and forth shifting of a slide 45 manually movable between locked and unlocked positions. As the slide is pulled toward the locked position (FIG. 2), one projection 24 presses the overlapping portion of the sliding panel against the fixed panel 13, while the other projection 23 simultaneously rocks into a blocking position past the edge 15 of the sliding panel 12 to act as a hook and prevent the panel 12 from sliding toward the open position.

Herein, the lock 10 is enclosed in a generally flat housing 32 including an elongated, sheet metal base plate 33 fixed to the inside of the frame 14 adjacent the overlapping edge 15 of the sliding panel 12 by means of screws 34 driven into the frame through holes 35 in the opposite ends of the plate 33. Depending flanges 36 (FIGS. 4 and 5) may be formed along the plate adjacent the window to abut against the inner side wall 20 of the groove 19 thereby bracing the plate 33 against movement away from the window. To complete the housing, a shallow, cup-like cover comprising an elongated top wall 37, side walls 38 and 39, and end walls 40 and 41 is mounted over the base plate 33 and suitably secured thereto.

In the preferred form of the lock 10 illustrated in the drawing, the projections 23 and 24 are connected by a crosspiece 25 to form a bolt 22 which may be molded of plastic or one-piece sheet metal stamping. The bolt 22 is mounted within the housing 32 with the crosspiece 25 generally parallel to the window 11. The hook 23 and the finger 24 extend toward the window through openings 42 and 43, respectively, adjacent each end of the side wall 38. When the lock 10 is fixed to the frame 14, the hook 23 is positioned adjacent the overlapping edge 15 of the sliding panel 12 so that it may be moved past the plane of the inner surface of the panel and a flat side 26 of the hook will engage the edge 15 and block sliding of the panel toward the open position. The finger 24 is located adjacent the overlapping portions of the panels and preferably is formed with a blunt end 27 for pressing the sliding panel 12 against the fixed panel 13 as the slide 45 is pulled toward the locked position.

The manually operable slide 45 is disposed between the bolt 22 and the side wall 39 of the housing 32 for sliding back and forth on the base plate 33 along the wall 39, and comprises an elongated rod 46 with one end 47 projecting through an end wall 40, in this instance the left end as viewed in the drawings. A handle 49 may be fixed to the projecting end 47 to provide a grip at the end of the rod 46. To facilitate sliding of the rod 46 in the housing, the top 51, the bottom 52, and the side 53 of the rod adjacent the housing are flat. The side 50 adjacent the bolt 22, however, is specially shaped to cam the hook and the finger toward the window as the rod is shifted toward the locked position (FIG. 2).

Preferably, the finger 24 abuts against the window when the latter is unlocked and the panels are separated as shown in FIG. 3, as well as when the window is locked and the panels are pressed together, as shown in FIG. 2. Because the hook 23 moves from a position on one side of the plane of the sliding panel 12 to the blocking position beyond the plane of the sliding panel, a greater distance than the movement of the finger 24, cams act at each end of the bolt 22 to impart a slight turning movement thereto and to rock the hook ahead of the finger as both are moved toward the window. At the end of the rod 46 adjacent the hook 23, the side 50 is inclined toward the window at 55 to form a wedge for rocking the hook past the edge 15 of the sliding panel. A cam for imparting a similar movement to the finger 24 is located on the rod adjacent the finger. This cam may be a flat

spring 57 bent into a generally U shape with one leg 58 held in an open-ended slot 63 cut into the rod and with the other leg 59 abutting against and sliding along the bolt. To hold the leg 58 of the spring 57 in the slot 63 as the free end 59 slides along the bolt, the rounded portion 60 of the spring 57 may be seated against a concave surface 61 on an abutment 62 on the rod.

The inclined surface 55 and spring 57 described above coact with opposing surfaces 65 and 66 on the bolt 22 to move the hook 23 and finger 24 simultaneously as the slide 45 is shifted toward locked position. As the slide moves to the left and the free end 59 of the spring 57 rides down the inclined surface 66 on the bolt, the spring 57 is stressed and thus pushes the finger against the panel 12. Similarly, the incline 55 on the rod 46 slides relative to the mating incline 65 on the bolt 22, pushing the hook toward and past the edge 15 of the sliding panel 12. Longitudinal shifting of the bolt with the slide is prevented by a lug 67 which abuts against the end wall 40 of the housing.

When the slide 45 is in the locked position (FIG. 2), the wedge end 48 of the rod 46 is disposed beneath the hook and locked in that position between the bolt 22 and the housing wall 39, thus effectively securing the window in the closed position. Unlocking may be accomplished merely by shifting the slide inwardly until the inner end 48 abuts against the end wall 41 (FIG. 3). The hook is withdrawn by a spring 70 carried in a recess 73 on the bolt 22 and acting between the housing wall 38 and the bolt to urge the latter away from the window. The spring 70 comprises a wire spring coiled intermediate its ends around a stud 74 to form a generally V-shaped spring opening toward the hook with the projecting leg portions 71 and 72 bearing respectively against a wall 75 of the recess and the housing wall 38. Thus, when the window is locked, the legs of the spring 70 are pressed together between the wall 75 and the housing wall to load the spring. When the window is unlocked, the hook is urged by the spring 70 back into the housing and out of the path of the panel 12 so that the latter may pass into the open position.

With a lock constructed according to the present invention, the overall height may be held to less than one-half inch. Consequently, the removal of the window panel may be accomplished simply by raising the panel until the bottom edge 77 clears the side wall 20 and the top of the lock, and then tilting the glass so that the bottom 77 passes over the lock as illustrated in phantom in FIG. 5. Because the lock is low in construction, very little clearance in the top groove is required for this purpose.

The invention also contemplates utilizing in combination with the lock described above, a snubber 80 acting from the outside of the window to push the sliding panel 12 inwardly and thus to separate the two panels and prevent possibly injurious sliding contact during the opening and closing of the window. To this end, the snubber includes a blunt-ended snubber bolt 81 slidably supported by a casing 82 fastened to the outside of the frame 14 by means of a screw 83 extending through the casing and driven into the frame. The bolt 81 is urged against the sliding panel 12 by two helical springs 84 acting in compression between the casing 82 and the bolt 81. When the window is unlocked, the force exerted by the springs 84 holds the panels apart (FIG. 5) so that the panel 12 may slide back and forth without contacting the fixed panel 13. The force exerted by the spring 57 is correlated with the strength of the springs 84 to insure that the finger is urged against the window with sufficient force during locking to overcome the springs 84 and to press the overlapping portions of the panels tightly together.

It will be seen that a lock embodying the present invention insures a tight closure and secure locking of the window and yet may be of flat, low-lying, and therefore, attractive construction which facilitates removal of the glass from the frame.

I claim as my invention:

1. A lock for use on windows having a panel slidable in a frame between an open and a closed position, said lock comprising a housing adapted to be mounted on said frame adjacent one end of said panel when the panel is in said closed position, a bolt movable back and forth in said housing toward and away from said panel, said bolt having projections forming a hook adjacent one end and a finger adjacent the other end, said hook and said finger projecting through said housing and toward said panel, a slide accessible from the exterior of said housing and manually movable back and forth relative to said bolt between a locked position and an unlocked position, said slide having a cam surface disposed adjacent said bolt and acting on an opposing surface on the bolt when said slide is moved toward said locked position to shift the bolt toward said window and press said finger against said panel thereby to urge the panel away from said lock and into tight contact with a stationary member of said frame, said cam surface simultaneously moving said hook past one edge of said panel when the panel is in closed position thereby to lock the panel against sliding toward open position, and a spring acting between said housing and said bolt to urge the latter away from said panel and against said cam.

2. A lock for use on windows having a panel slidable in a frame between an open and a closed position, said lock comprising a housing adapted to be mounted on said frame adjacent one end of said panel when the panel is in said closed position, a bolt movable back and forth in said housing toward and away from said panel, said bolt having projections forming a hook adjacent one end and a finger adjacent the other end, said hook and said finger projecting through said housing and toward said panel, a slide accessible from the exterior of said housing and manually movable back and forth relative to said bolt between a locked position and an unlocked position, cam surfaces formed on said slide adjacent said bolt and coacting with opposing surfaces on the bolt when the slide is moved toward said locked position to move the bolt toward said window and simultaneously to turn the bolt and advance the hook ahead of the finger, thereby to press said finger against said panel and urge the latter away from said lock and into tight contact with a stationary member of said frame, and to rock said hook into a blocking position past one edge of said panel when the latter is in said closed position.

3. For use on a window having a panel slidable in a frame between an open and closed position, a lock comprising, in combination, a housing adapted to be mounted on said frame adjacent one end of said panel when the latter is in said closed position, a finger projecting through said housing and mounted therein for sliding toward said panel, a hook member mounted in and projecting through said housing toward said window and slidable toward the window into a blocking position past one edge of the panel when the latter is in said closed position, an elongated slide mounted in said housing and accessible from the exterior thereof, said slide being slidable manually back and forth relative to said finger and said hook between a locked position and an unlocked position, a cam formed on said slide adjacent the inner end of said finger and coacting with an opposing surface on the finger to press the latter against said panel as said slide is moved toward said locked position, a cam formed on said slide adjacent the inner end of said hook and coacting with an opposing surface on said hook to move the latter into said blocking position as said slide is moved toward said locked position and to wedge the hook in said blocking position thereby to lock the panel against sliding toward said open position.

4. A lock as defined in claim 3 in which said cam formed on said slide adjacent the inner end of said finger is a

spring fixed to the slide and stressed between said opposing surface and the slide to urge the finger against said panel as the slide is moved toward locked position.

5. For use with a window having a panel slidable in a frame between an open and a closed position, the combination of a casing adapted to be mounted on said frame adjacent the outside of said panel, a movable member slidable back and forth in said casing, one end of said member projecting inwardly from said casing and abutting against said panel, a spring acting between said casing and said member to urge the latter toward said panel and thereby to push said panel inwardly away from a stationary member of said frame, a housing adapted to be mounted on said frame on the inside of said panel and adjacent one end of the latter when in said closed position, a bolt movable back and forth in said housing toward and away from said panel, projections on said bolt forming a hook and a finger, each projecting outwardly toward said panel, a slide accessible from the outside of said housing and manually movable back and forth relative to said bolt between a locked position and an unlocked position, said slide having a cam surface disposed adjacent said bolt and acting on an opposing surface on the bolt when the slide is moved toward said locked position to shift the bolt toward said window and press said finger against said panel thereby to urge the panel against the force of said spring away from said lock and into tight contact with said stationary member of said frame, said cam surface simultaneously rocking said hook past one edge of said panel when the panel is in closed position thereby to lock the panel against sliding toward open position, and spring means disposed between said housing and said bolt to urge the latter away from said panel and against said cam.

6. For use with a window having a panel slidable in a frame between an open and a closed position, the combination of a casing adapted to be mounted on said frame adjacent the outside of said panel, a movable member slidable back and forth in said casing, one end of said

member projecting inwardly from said casing and abutting against said panel, a spring acting between said casing and said member to urge the latter toward said panel and thereby to push said panel inwardly away from a stationary member of said frame, a housing adapted to be mounted on said frame on the inside of said panel and adjacent one end of the latter when in said closed position, a finger projecting through said housing and mounted therein for sliding toward said panel, a hook member mounted in and projecting through said housing toward said window and slidable toward the window into a blocking position past one edge of the panel when the latter is in said closed position, an elongated slide mounted in said housing and accessible from the exterior thereof, said slide being slidable manually back and forth relative to said finger and said hook between a locked position an an unlocked position, a cam formed on said slide adjacent said finger and coacting with an opposing surface on the finger to press the latter against said panel as the slide is moved toward locked position and to press the panel against the force of said spring into tight contact with said stationary member, and a cam formed on said slide adjacent said hook and coacting with an opposing surface on said hook to move the latter into said blocking position as said slide moves toward said locked position.

7. The combination as defined in claim 6 in which said cam formed adjacent said finger is a spring fixed to said cam and stressed between said opposing surface and said slide to urge the finger against said panel as the slide is moved toward locked position, the strength of said last mentioned spring being correlated with the strength of said first mentioned spring to insure that the panel is pressed securely against said stationary member.

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