March 10, 1959 H. C. KNEBEL 2,876,506

RETRACTABLE JAMBS FOR REVERSIBLE WINDOWS

Filed Sept. 27, 1956 2 Sheets-Sheet 1

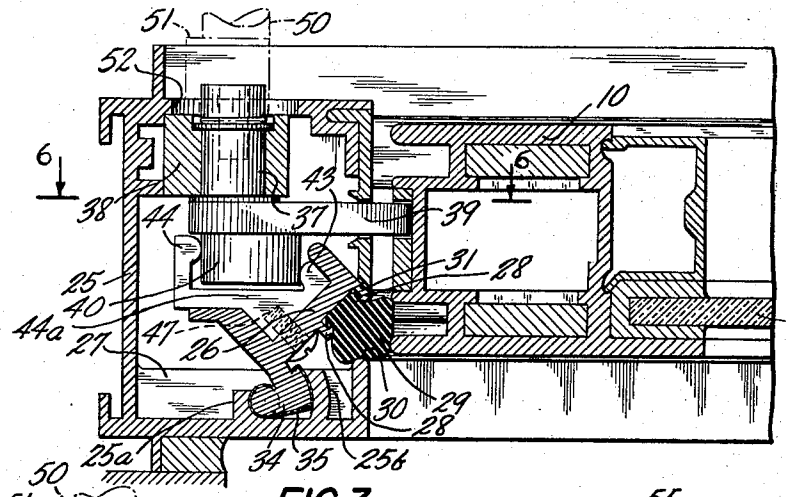



FIG.2.

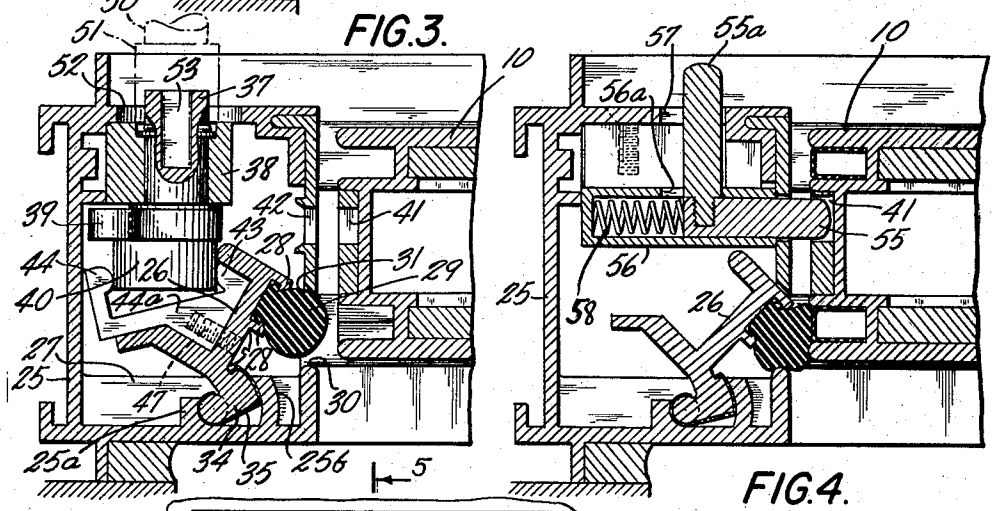



FIG.3.

FIG.4.

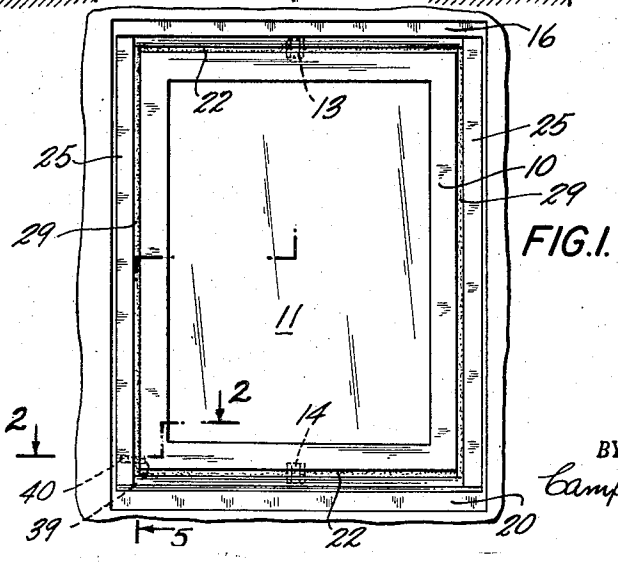



FIG.1.

INVENTOR.
HERMAN C. KNEBEL

BY
Campbell, Brumbaugh, Frost & Graves
his ATTORNEYS

March 10, 1959 H. C. KNEBEL 2,876,506

RETRACTABLE JAMBS FOR REVERSIBLE WINDOWS

Filed Sept. 27, 1956 2 Sheets-Sheet 2

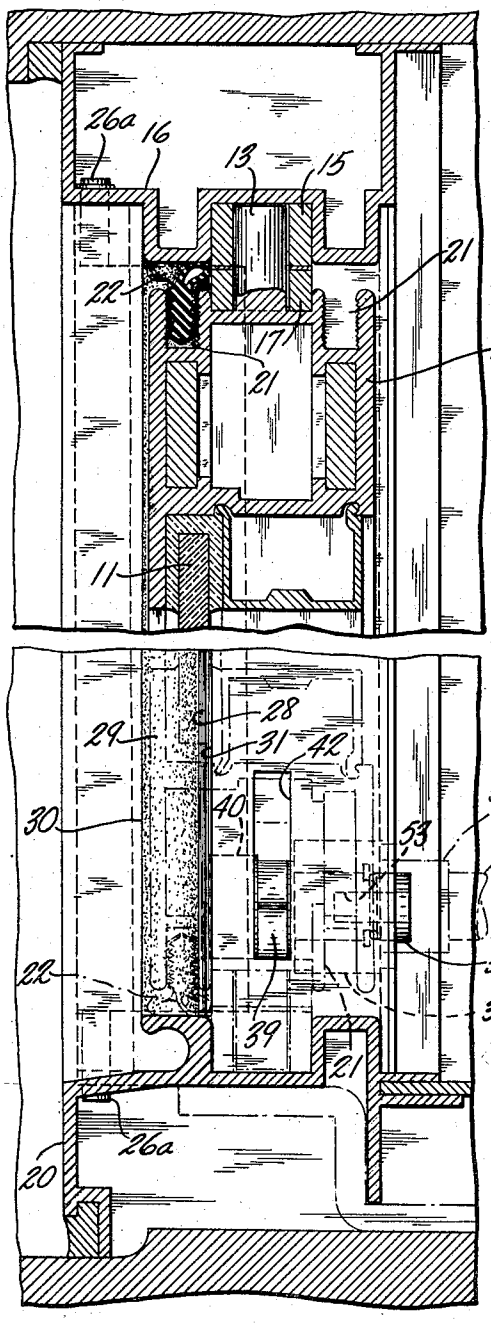



FIG.5.

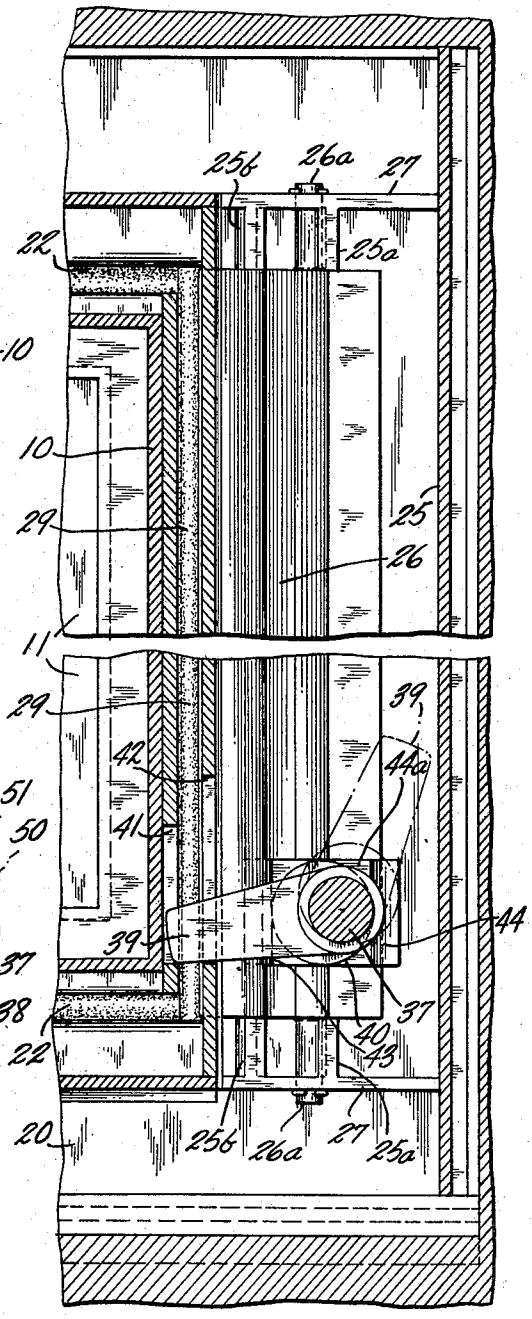



FIG.6.

INVENTOR.
HERMAN C. KNEBEL

BY

Campbell, Brumbaugh, Free & Graves

his ATTORNEYS

United States Patent Office 2,876,506 Patented Mar. 10, 1959



2,876,506

# RETRACTABLE JAMBS FOR REVERSIBLE WINDOWS

Herman C. Knebel, Westbury, N. Y., assignor to S. H. Pomeroy Company, Inc., New York, N. Y., a corporation of New York

Application September 27, 1956, Serial No. 612,393

4 Claims. (Cl. 20—53)

This invention relates to a window of the type in which the sash may be rotated about a center pivot in order to reverse the sash to facilitate cleaning the outer surface of the window pane mounted in the sash. Windows of this general organization are advantageously used in air conditioned buildings where the windows are kept closed except for cleaning.

More specifically the present invention relates to a window structure of this type wherein a manual operated cam controls the movement of a weatherstrip holder in order to move the weatherstripping carried thereby into sealing engagement with one edge of the sash when the sash is in closed position or separate the weatherstripping from said edge of the sash in order to free the sash for pivotal rotation about its center axis.

A further feature of the window structure of the present invention is that the manually operated cam which controls the movement of the weatherstrip holder also controls the operation of sash locking means whereby the operation of the cam in order to bring the weatherstripping into sealing engagement with the sash also moves the locking means into locking engagement with the sash, and the operation of the cam to separate the weatherstripping from the sash moves the locking means out of locking engagement with the sash.

For a complete understanding of the present invention reference may be made to the detailed description which follows and to the accompanying drawings in which;

Figure 1 is a front elevation of the window structure embodying the present invention;

Figure 2 is a cross sectional view taken generally along the line 2—2 of Figure 1 looking in the direction of the arrows showing the parts in locked position;

Figure 3 is a view generally similar to Figure 2 but showing the parts in unlocked position;

Figure 4 is a cross section view of the window structure similar to Figure 4 but illustrating an additional sash-locking device;

Figure 5 is a cross section view taken generally along the line 5—5 of Figure 1 looking in the direction of the arrows; and

Figure 6 is a cross section view taken generally along the line 6—6 of Figure 2 looking in the direction of the arrows.

Referring to Figure 1 of the drawings, a sash **10** having a window pane **11** mounted therein is pivoted about its vertical center axis on pins **13** and **14**. As best shown in Figure 5, the pin **13** is mounted in a housing **15** attached to the hollow channel member **16** which forms the horizontal header of the window, and the lower end of the pin **13** engages a sleeve or bearing **17** anchored to the upper edge of the sash. The pin **14** is similarly mounted and extends upwardly of a hollow channel member **20** which forms the sill of the window. The pins **13** and **14** are coincident with the vertical center axis of the sash, and as mentioned above permit the sash to be pivoted thereon and reversed to facilitate cleaning of the



outer surface of the sash and window pane from the interior of the building.

As best shown in Figure 5, the upper and lower edges of the sash **11** are provided with a pair of parallel grooves **21** which extend continuously along the length of the sash on opposite sides of the pins **13** and **14**. These grooves **21** accommodate wiper type weatherstrips **22** which are wedged within the grooves. When the sash is pivoted to closed position the upper weatherstrips **22** yieldingly engage the channel member **16** and the lower weatherstrips yieldingly engage the channel member **20**.

Vertically disposed channel members **25** which form the jambs of the window frame accommodate movable weatherstrip holders **26** therein. As shown in Figure 6, opposite ends of the movable weatherstrip holders **26** are provided with extended shaft portions **26***a* which are rotatably mounted in bearings formed in the horizontal flanges **27** of the channel members **25**. The weatherstrip holders **26** are provided with a pair of teeth **28** between which a flexible weatherstrip **29** is wedged. When the weatherstrip holder **26** is pivotally moved in a clockwise direction, as viewed in Figures 2 and 3, to the position illustrated in Figure 2, the weatherstrip **29** is moved through a vertical slot defined by the parallel edges **30** and **31** of the channel member **25** into yielding engagement with the edge of the sash **10** and with the edge **30** of the hollow channel member **25**. Inasmuch as the weatherstrip **29** extends continuously between the upper and lower horizontally disposed weatherstrips **22**, a weather-tight seal is thus formed between the edge of the sash and the channel member **25** forming the jamb of the window. When the weatherstrip holder is moved in a counterclockwise direction to the position illustrated in Figure 3, the weatherstrip **29** is moved out of sealing engagement with the edge of the sash and the edge **30** of the channel member **25**, and the weatherstrip is sufficiently retracted to free the edge of the sash to permit it to be rotated about the pins **13** and **14**.

A segment portion **34** is formed integrally with the weatherstrip holder **26** and this segment portion **34** is disposed between a pair of leg members **25***a* and **25***b* formed integrally with the channel member **25**. The segment portion **34** may extend the entire length of the weatherstrip holder **26**. The surfaces of the leg portions **25***a* and **25***b* which engage the segment portion **34** of the weatherstrip holder **26** form continuous guide surfaces for the weatherstrip holder throughout its entire length. These guide surfaces prevent bending or bowing of the weatherstrip holder and eliminate any looseness or play therein which would prevent the weatherstripping from being moved into uniform sealing engagement with the edge of the sash. Accordingly, the guide surfaces of the leg portions **25***a* and **25***b* are curved to provide complementary surfaces with the adjacent surfaces of the segment portion **34** which they engage. In addition, a stainless steel strip **35** is affixed to and surrounds the segment portion **34** in order to reduce friction and to prevent excessive wear between the complementary surfaces of the segment portion **34** and the legs **25***a* and **25***b*.

The pivotal movement of the weatherstrip holder **26** is controlled by a manually operated shaft **37** rotatably mounted within a housing **38**. The housing **38**, in turn, is mounted within the hollow channel member **25**. A locking pawl **39** is attached eccentrically to the shaft **37**, and a cam **40** is attached to the locking pawl **39**. The rotation of the shaft **37** moves the locking pawl **39** into and out of engagement with a recessed slot **41** formed in the edge of the sash **10**. In Figure 2 the locking pawl is shown in locking engagement with the sash **10**, and in Figure 11 the locking pawl **39** is shown in unlocked position. In order to permit the movement of the locking pawl **39** into and out of engagement with the recess

41 in the edge of the window sash 10 a slot 42 (see Fig. 3) is provided in the channel member 25.

The cam 40 controls the pivotal movement of the weatherstrip holder 26. Accordingly, the cam 40 is interposed between two cam follower arms 43, 44 of the weatherstrip holder which are disposed on opposite sides of the cam 40. The cam follower arms 43 and 44 are formed integrally with a piece 44*a* which is anchored to the weatherstrip holder 26 by one or more screws 47. It will be understood, therefore, that a positive movement in either a clockwise or counterclockwise direction is imparted to the weatherstrip holder 26 by the rotation of the cam 40.

The rotation of the shaft 37 is effected by a crank member 50 (shown in phantom lines in Figures 2 and 3) having a key head 51 thereon which is insertable through a keyhole 52 formed in the channel member 25. The key head 51 is provided with a non-circular tongue which when the key head is properly connected to the end of the shaft 37 is insertable into a non-circular opening 53 formed in the end of the shaft 37. The use of a key of this type to lock and unlock the sash is desirable in order that only authorized persons will be able to lock and unlock the sash.

If desired, an auxiliary lock may be provided in addition to the locking pawl 39. The auxiliary lock consists of a plunger 55 slidably accommodated within a hollow housing 56. The plunger 55 is normally urged by compression spring 58 into engagement with another portion of the groove or recess 41 formed in the edge of the sash. A handle 55*a* extends outwardly from the plunger 55 extending through a slot 56*a* formed in the housing 56 and a slot 57 formed in the channel member 25. By slidably moving the handle 55 against the action of the compression spring 58, the plunger 55 may be disengaged with the recess and moved to unlocked position. This type of locking device may be used in lieu of the locking pawl 39 if desired. Preferably, however, it is used to supplement the locking action of the locking pawl 39, being spaced apart at some distance from the locking pawl 39 to provide a two point lock for the sash so that one corner of the sash cannot be forced open.

The invention has been described in preferred form and by way of example only, and obviously many variations and modifications may be made therein without departing from the spirit of the invention. For example, it might be advantageous to locate cam 40 at the center of the jamb height, instead of at the lower position shown. The invention, therefore, is not to be limited to any specified form or embodiment, except in so far as such limitations are set forth in the appended claims.

I claim:

1. A window structure comprising a sash, means for pivotally mounting the sash about the center axis, a hollow frame member adjacent an edge of the sash when the sash is in closed position, an elongated weatherstrip holder pivotally mounted within the hollow frame member, weatherstripping carried by the pivotal weatherstrip holder, a sash-locking pawl rotatably mounted within the hollow frame member, a cam connected to the sash-locking pawl in fixed relationship thereto, a rotatable shaft for rotating the locking pawl and the cam in unison, a recess formed in the edge of said sash, said recess receiving a portion of the locking pawl therein when the locking pawl is moved to sash-locking position, cam follower means carried by the pivotal weatherstrip holder and disposed on opposite sides of the cam so as to be engaged by the cam surface, whereby the rotation of the cam pivotally moves the weatherstrip holder toward or away from the sash in closed position, and an elongated slot formed in the hollow frame member to permit the weatherstripping to be moved into sealing engagement with the edge of the sash and with an edge of the hollow frame member which defines the elongated slot, thereby sealing the space between the hollow frame member and the edge of the sash when the sash is in closed position.

2. A window structure as set forth in claim 1 including a pair of fixed curved guide surfaces intermediate the opposite ends of the weatherstrip holder, and complementary surfaces formed on said weatherstrip holder intermediate curved guiding surfaces.

3. A window structure as set forth in claim 1 including a hollow housing accommodated within the hollow frame member, a spring urged auxiliary lock slidably mounted in said housing, said lock being spaced apart from said sash-locking pawl, a recess formed in the edge of said sash, a handle attached to said slidable lock and extending through aligned slots in the housing and in the hollow frame member, whereby the movement of the handle within the aligned slots permits the disengagement of the slidable lock from the recess when it is desired to reverse the sash.

4. A window structure as set forth in claim 1 including a handle detachably connected with the end of said rotatable shaft, and a keyhole formed in the hollow frame member to permit the handle to be coupled with the shaft.


**References Cited in the file of this patent**

UNITED STATES PATENTS

| | | |
|---|---|---|
| 713,414 | Essig | Nov. 11, 1902 |
| 2,090,349 | Grady | Aug. 17, 1937 |
| 2,268,114 | Foster et al. | Dec. 30, 1941 |
| 2,805,451 | Evans et al. | Sept. 10, 1957 |