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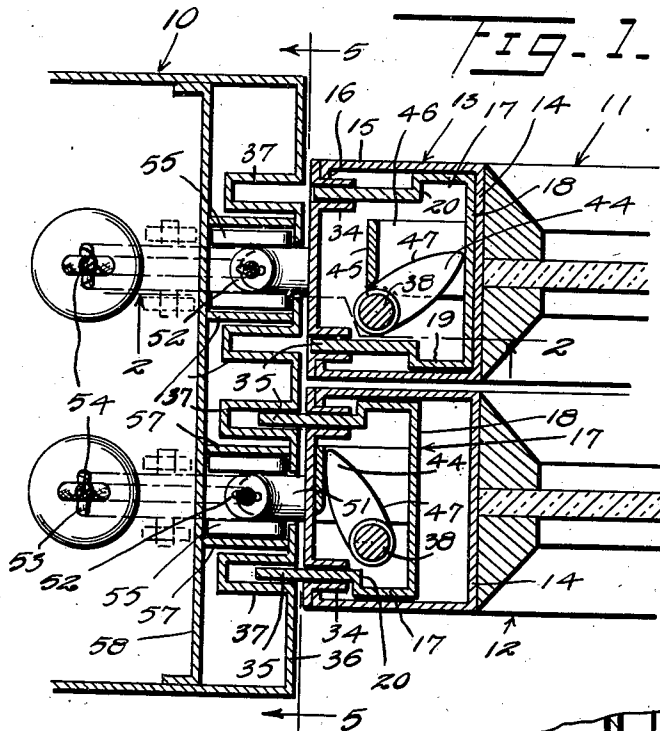
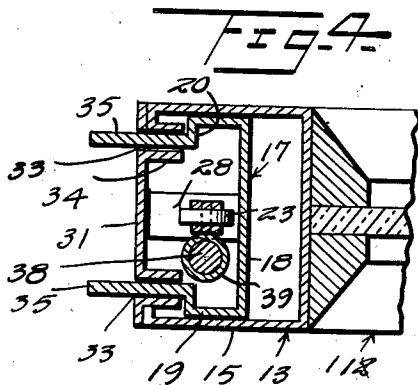
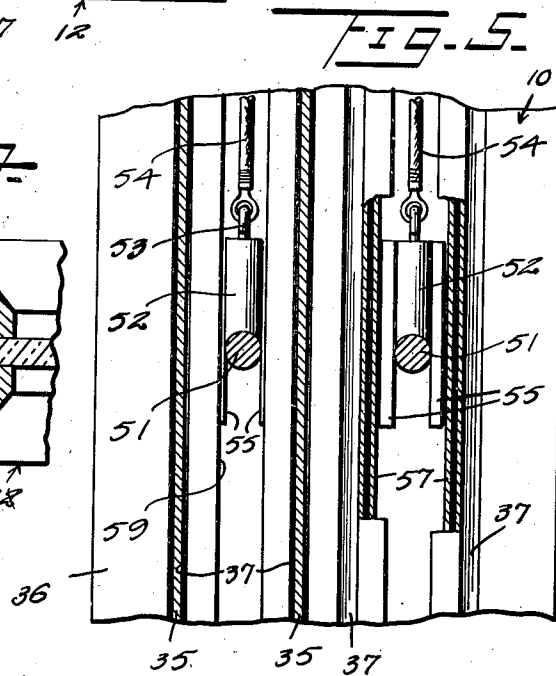
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2,185,982

COMBINED SLIDING AND SWINGING WINDOW

Filed April 7, 1939

2 Sheets-Sheet 1



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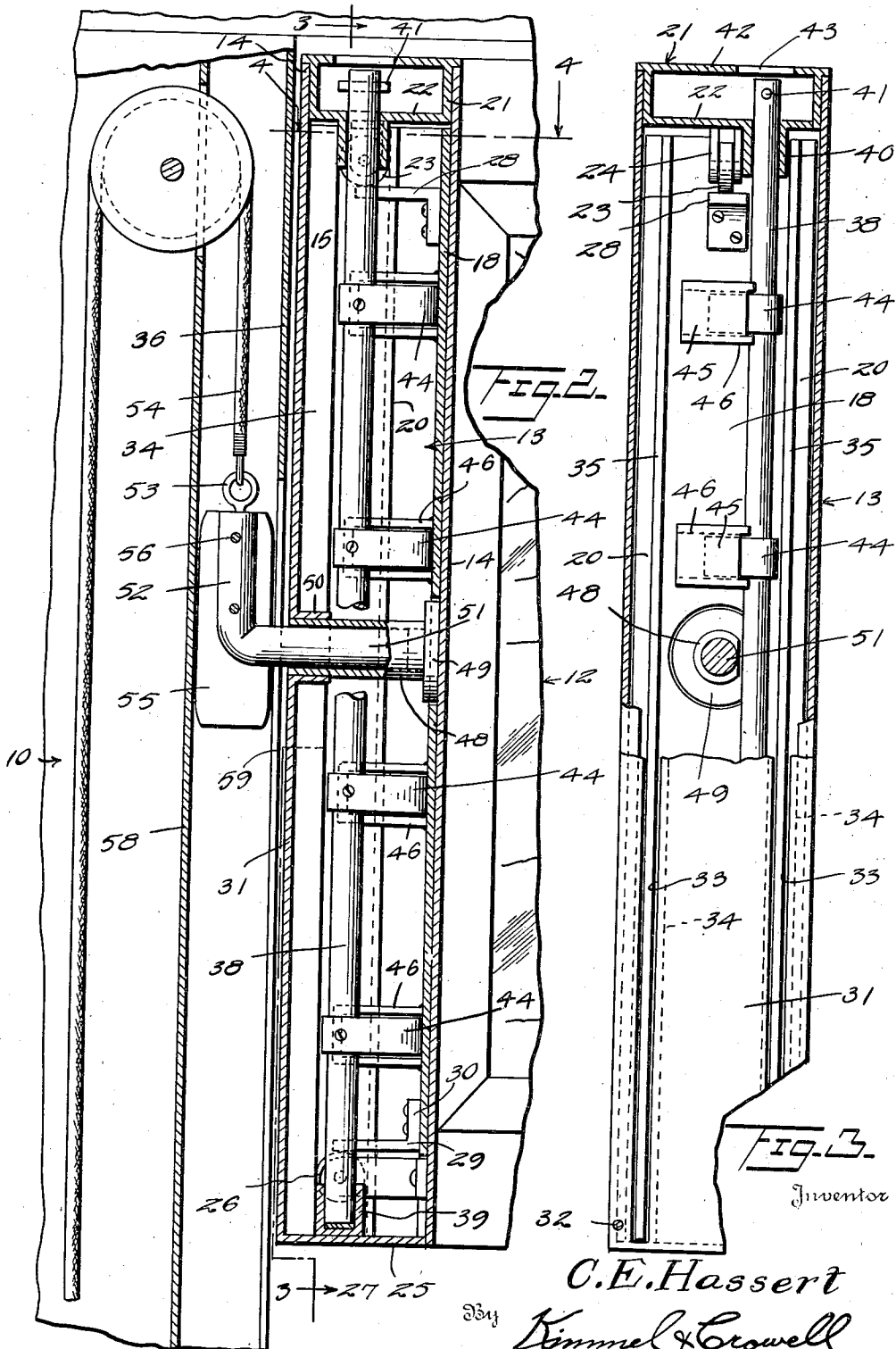
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UNITED STATES PATENT OFFICE

2,185,982

COMBINED SLIDING AND SWINGING WINDOW

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3 Claims. (Cl. 189—167)

This invention relates to windows and more particularly to a combined sliding and swinging window.

5 An object of this invention is to provide a window sash which may selectively slide vertically in a window frame or may be swung on pivots in order to either open the sash for ventilation or cleaning purposes.

10 Another object of this invention is to provide an improved window structure including a sash and a window frame wherein a part is carried by the sash on the opposite vertical edges thereof which is adapted to be moved in or out in order to either lock the window against swinging movement while permitting vertical sliding movement or to hold the sash in a position where the sash may be swung on a pivot structure.

15 A further object of this invention is to provide a structure of this kind which is so constructed that it can be readily locked in either a sliding position or a swinging position.

20 To the foregoing objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawings, wherein is illustrated an embodiment of this invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

25 Figure 1 is a horizontal section through one side of a window sash and frame constructed according to an embodiment of this invention,

Figure 2 is a sectional view taken on the line 2—2 of Figure 1,

30 Figure 3 is a sectional view taken on the line 3—3 of Figure 2,

40 Figure 4 is a sectional view taken on the line 4—4 of Figure 2, and

Figure 5 is a sectional view taken on the line 5—5 of Figure 1.

Referring to the drawings, the numeral 10 designates generally a window frame structure. The numeral 11 designates generally one sash and the numeral 12 designates an adjacent sash which are associated with the window frame 10 and are movable relative thereto.

45 The two sashes 11 and 12 are identical in construction and the description of one of these sashes applies equally as well to the other sash. The sash 11 comprises a sash frame member 13 which is of hollow or channel shaped construction. 50 with the light 14 thereof innermost. The oppo-

site or parallel legs 15 of the sash frame member 13 are provided at their free or outer ends with inwardly projecting flanges 16. An outwardly opening upstanding channel shaped slide member generally designated as 17 is disposed within the sash frame member 13 and comprises a vertical plate 18 provided with right angularly disposed opposite outwardly directed side flanges 19 terminating at their outer ends in the outer ends of the rear legs of a pair of forwardly directed oppositely disposed angle-shaped flanges 20. The plate 18 with the flanges 19 and 20 is slidably mounted within the hollow frame member 13 for movement toward or away from the window frame 10. The frame member 13 at its upper end is provided with a box or housing 21 on the lower or inner wall 22 of which a roller 23 is secured by means of a pair of brackets or bearing members 24. The frame member 13 is provided with a bottom wall 25 and a lower roller 26 is rotatably supported by a pair of upstanding brackets or bearing members 27 which are fixed to the lower wall 25. An upper track is secured to the slide member 17 and comprises an L-shaped member 28 having one leg thereof secured in any suitable manner to the plate 18 and the other leg disposed in a horizontal position for engagement with the roller 23. A roller track comprising an L-shaped member 29 is secured as by fastening members 30 to the plate 18 and engages the roller 26.

A plate 31 is fixed as by fastening members 32 to the open side of the channel frame member 13 and is provided with a pair of parallel vertically disposed spaced apart slots 33. A pair of inwardly projecting guide members 34 are secured to the plate 31 on the opposite sides of each slot 33 and project inwardly of the channel member 13. The slide 17 is provided with a pair of vertically disposed parallel and spaced apart slide members 35 which are fixed to the flanges 20 and are slidable between the flanges 34.

The window frame 10 is preferably of hollow construction being provided with an inner plate 36 having a pair of U-shaped slide receiving channels 37 for each window sash which confront the slide members 35. A vertically disposed slide operating shaft 38 is journaled in the channel member 13 being mounted at its lower end in a socket or bearing 39. A sleeve or bearing 40 is fixed to the inner wall 22 of the housing 21 and the shaft 38 projects through this bearing or sleeve 40 into the interior of the housing 22. A pin or key 41 is secured to the upper end of the shaft 38 and is adapted to be engaged by a suitable key to rotate the shaft 38. A cover or top plate 42 55

is secured to the housing 21 and is provided with an opening 43 which may be closed by a suitable closure and provides a means whereby a key or operating member may be inserted in the housing 21 for engagement with the upper end of the shaft 38.

The shaft 38 is provided at spaced intervals along the length thereof with a plurality of slide operating cam members 44 and these cam members 44 are adapted to engage the bight 45 of a U-shaped member 46 which is fixed to the slide 17. When the shaft 38 is rotated in one direction to extend the slide 17, the bight 45 of the U-shaped member 46 is engaged by the arcuate edge 47 of the cam 44. The cam 44 is swingably mounted between the bight 45 and the plate 18 so that when the cam 44 is swung to retract the slide 17 into the sash frame member 13, the free end of the cam 44 will contact with the plate 18 and thus move the slide 17 inwardly of the sash frame member 13.

The sash frame member 13 at a point substantially in the vertical center thereof is provided with a horizontally disposed sleeve 48 provided with a flange 49 which is fixed to the inner wall 14 of the channel member 13. The sleeve 48 terminates at its outer end at the outer surface of the plate 31 and extends through a sleeve 50 carried by the plate 31. A stub shaft 51 is loosely mounted in the sleeve 48 and projects outwardly thereof into the hollow frame 10 between a pair of U-shaped guide members 37. The outer end of the stub shaft 51 is provided with a right angular and vertically disposed extension 52 and at its upper end is provided with an eye 53 to which a weighted cord 54 is adapted to be secured. The vertical extension 52 of the shaft 51 is provided on opposite sides thereof with a pair of slide plates 55 which are fixed as by fastening members 56 to the extension 52. These two slide plates 55 engage a pair of vertically disposed parallel guide members 57 which are fixed between the inner plate 36 and an outer plate 58 carried by the hollow frame 10. The shaft 51 projects through a vertically disposed slot or opening 59 formed in the plate 36 so that the sash 11 may be vertically moved throughout the length of the frame 10.

In the use and operation of this window structure when it is desired to only move the sashes 11 and 12 vertically in the window frame 10, the slide member 17 will be in a projected position similar to that shown in Figure 1 with respect to the sash member 12. In this position the sash frame 13 is locked against swinging movement about the stub shafts 51 by reason of the engagement of the slide members 35 in the guide channels 37. In the event it is desired to swing one or both of the sashes, this may be accomplished by inserting a key or operator through the opening 43 in the housing 21. The shaft 38 is then rotated so as to retract the slide member 17, the cam members 44 at this time contacting at their free ends with the plate or inner wall 18 of the slide 17. In a fully retracted position the slide 17 will be in the position shown in Figure 1 with respect to the sash 11. In the position shown with respect to the sash 11 in Figure 1, this sash may then be freely pivoted on the stub shafts 51 and if desired, the selected sash or both of the sashes may also be raised or lowered by moving the sashes up or down with the slide plates 55 slidably engaging the guide members 57 of the window frame.

The slide members 17 are movably supported

in the sash member 13 by means of the rollers 23 and 26 and the tracks 28 and 29. In this manner the slide member 17 will be freely movably in or out with respect to the sash member 13.

With a structure of this kind it is also possible to swing the sash through an arc of 180°, so that the outside of the window panes may be cleaned from the inside. In this position the sash 11 may be locked against turning by moving the locking members 35 to their extended position. These locking members are positioned so that they will extend equal distances on opposite sides of the stub shaft 51. In this manner the sash 11 can be turned to a position with the outside of the sash on the inside of the window and then locked in this position if desired.

What I claim is:

1. In a window including a window frame and a sash frame, a guide channel on each vertical side of said window frame, an L-shaped shaft for each channel having one leg thereof vertical and engaging in a channel and the other leg thereof horizontal and projecting outwardly of the channel, a pair of slide plates fixed to the vertical leg of each shaft and slidable in a guide channel, a bearing member carried by each vertical side of said sash frame and engaging a horizontal leg of a shaft to swingably secure the sash frame to said shafts, a pair of locking channels disposed one on each side of said guide channel, a horizontally shiftable member carried by each vertical side of said sash frame, a pair of sash locking members fixed to said latter member and projectable into said locking channels to thereby lock said sash frame against swinging movement, a vertically disposed shaft rotatably carried by each side of said sash frame, a plurality of vertically spaced apart cam members fixed to said shaft, and means carried by said horizontally shiftable member engageable with said cams to thereby shift said latter member upon rotation of said shaft.

2. In a window including a window frame and a vertically movable sash frame within the window frame, a stationary combined guide and retainer element at each vertical side of the window frame and provided with a pair of spaced parallel slide receiving channels and a slot between said channels, channel-shaped sash members secured to the vertical sides of said sash frame and opening at their outer sides, closure plates for the outer sides of said members formed with spaced parallel passages aligning with said channels, suspended vertically disposed shafts within the body of the window frame rearwardly of and extending through the slots of said elements, through said plates and into said members, a pair of oppositely disposed horizontally shiftable channel-shaped slides opening at their outer sides and arranged within said members for extension through said passages into said channels and to coact with walls of the channels to arrest the swinging of the said sash frame, means carried by said members extending through the slides and connected to said plates for swingingly mounting the sash on said shafts, said slides being provided with spaced superposed U-shaped members, and means disposed lengthwise of said slides and including spaced parts coacting with said U-shaped members for shifting the slides in a direction to enter said channels and the said parts of such means coacting with the inner side of the slides for shifting them clear of said passages.

3. In a window including a window frame and

a vertically movable sash frame within the window frame, a stationary combined guide and retainer element at each vertical side of the window frame and provided with a pair of spaced parallel slide receiving channels and a slot between said channels, channel-shaped sash members secured to the vertical sides of said sash frame and opening at their outer sides, closure plates for the outer sides of said members formed with spaced parallel passages aligning with said channels, suspended vertically disposed shafts within the body of the window frame rearwardly of and extending through the slots of said elements, through said plates and into said members, a pair of oppositely disposed oppositely hori-

zontally shiftable channel-shaped slides opening at their outer sides and arranged within said members for extension through said passages into said channels and to coact with walls of the channels to arrest the swinging of the said sash frame, means carried by said members extending through the slides and connected to said plates for swingingly mounting the sash on said shafts, means within and coacting with said slides for shifting them to and from said channels, upper and lower spaced aligned superposed rollers within the channel shaped sash members, and tracks carried by said slides and bearing against said rollers.

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