

Oct. 18, 1955

C. RICK

2,720,950

WINDOW CONSTRUCTION

Filed June 27, 1952

3 Sheets-Sheet 1

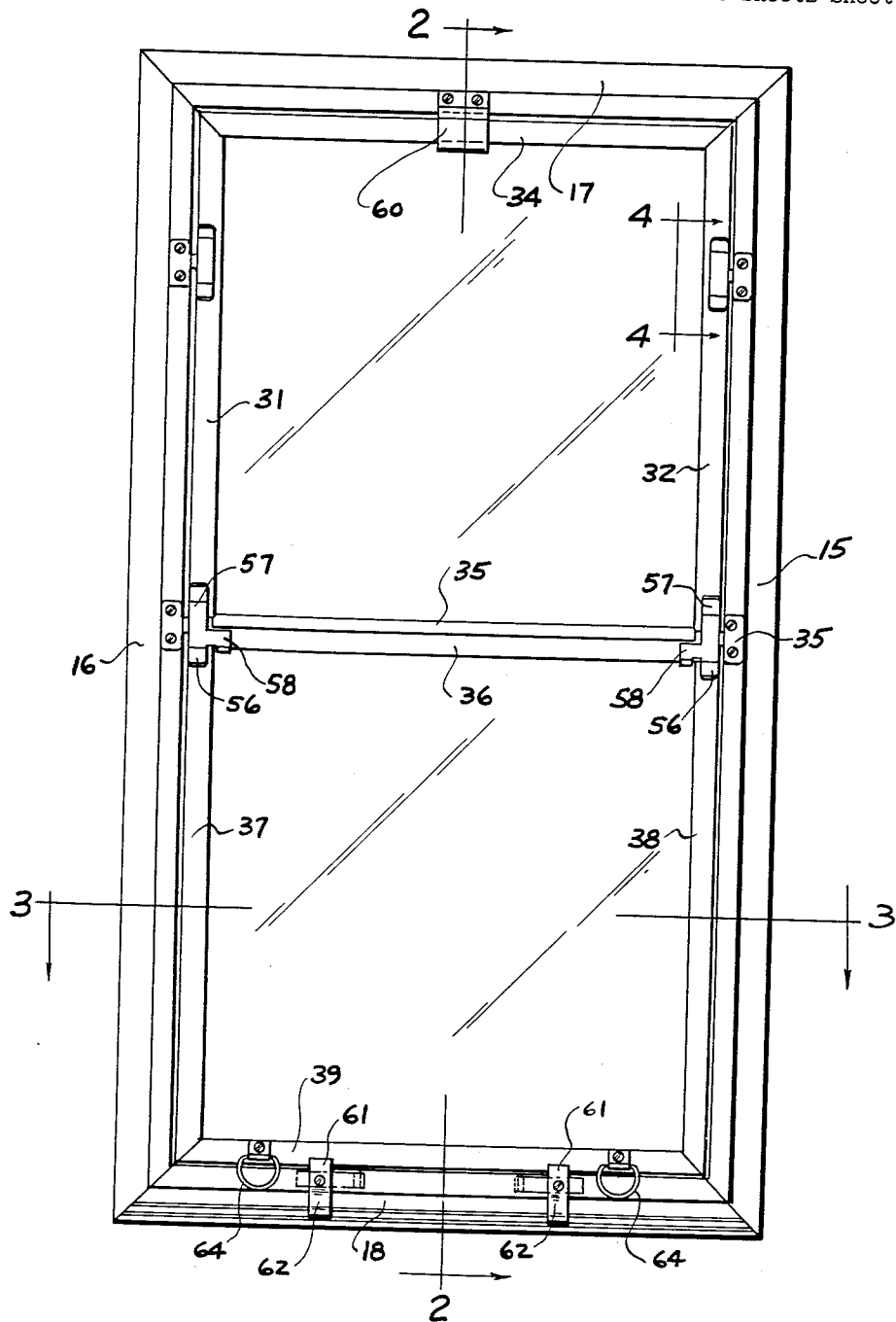


Fig. 1

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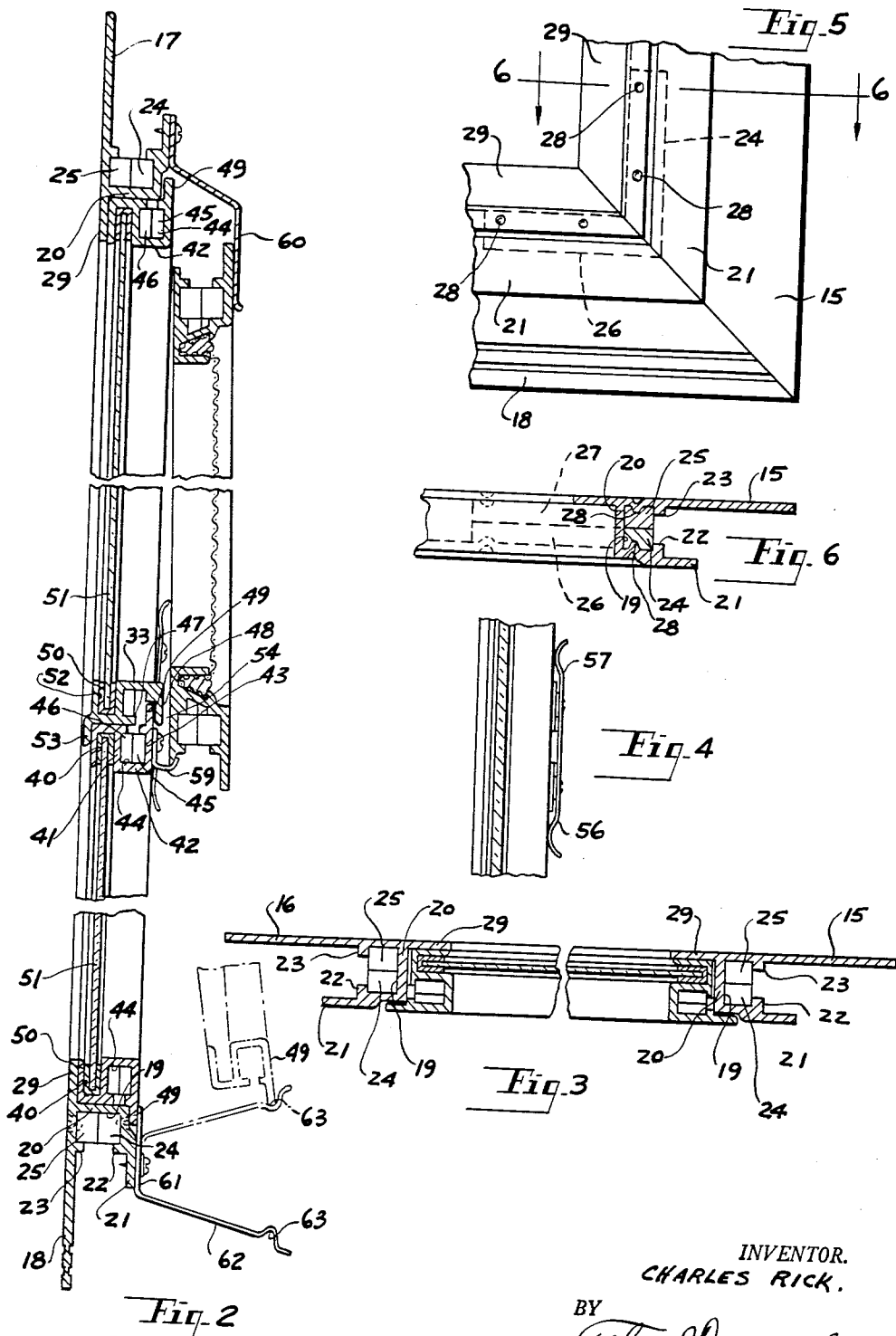
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

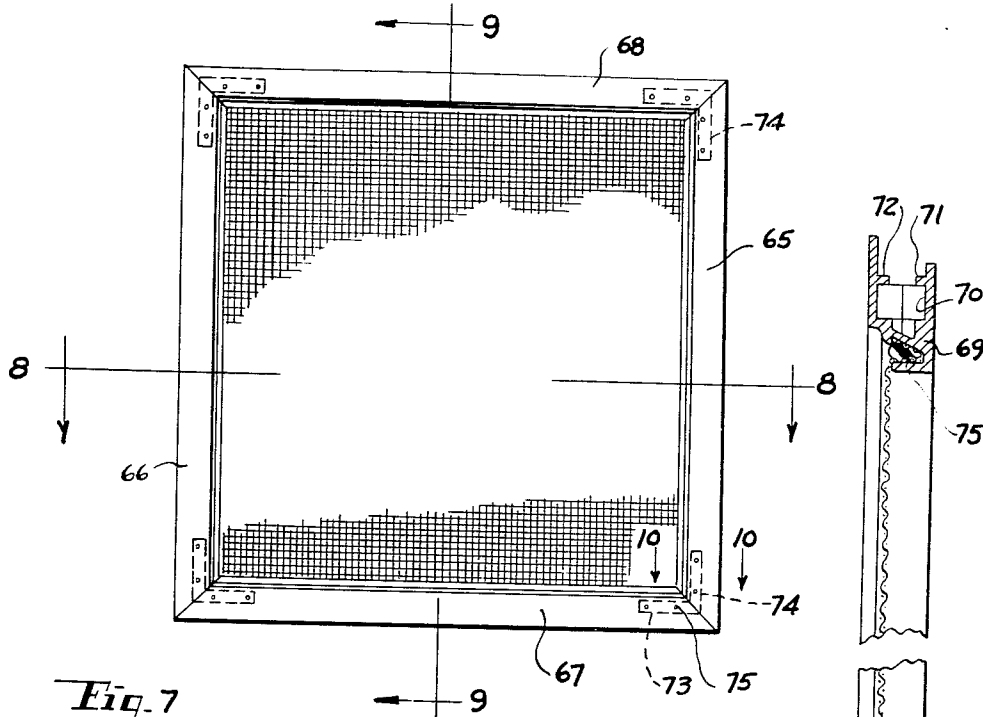


Fig. 7

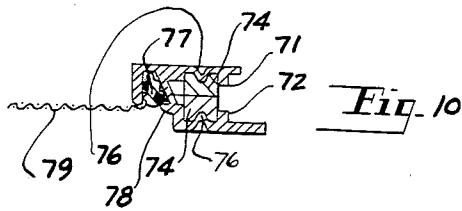


Fig. 10

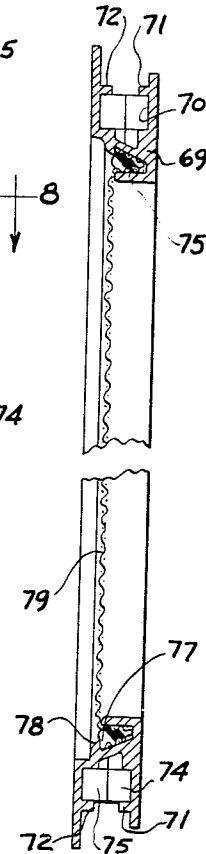


Fig. 9

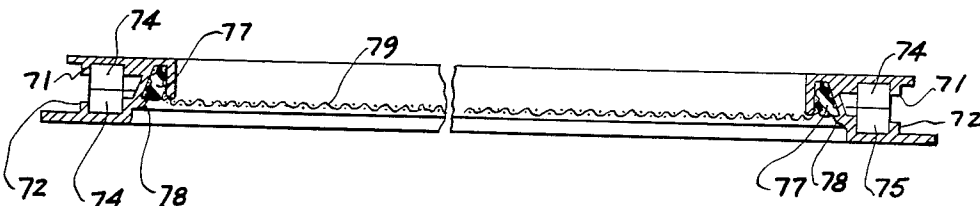


Fig. 8

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1

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WINDOW CONSTRUCTION

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2 Claims. (Cl. 189—65)

My invention relates to a new and useful improvement in a window construction and particularly that type of window which embodies a window frame having a pair of window sashes mounted therein with the frame forming portions formed preferably from metal.

It is an object of the present invention to provide a window construction of this class which will be simple in structure, economical of manufacture, durable, light, easily and quickly assembled and highly efficient in use.

Another object of the invention is the provision in a window construction of a window frame or a window sash each having oppositely disposed side rails, a top rail and a bottom rail, with the side rails joined to the adjacent ends of the top rail and the bottom rail by a pair of L-shaped members secured in position by a boss driven into the L-shaped members from the rail members.

Another object of the invention is the provision of a window frame having a window sash formed therein of slightly less width than the window frame and each part being provided with overlying sealing portions for sealing against entry of air between the window frame and the sash.

It is another object of the present invention to provide in a window construction of this class, having a pair of slidable sashes, a spring clip adapted for engaging both of said sashes and pressing same into close engagement with the window frame and adapted, upon removal of the lower sash, for engaging beneath the upper sash and retaining it in position.

Another object of the invention is the provision of a pair of window sashes slidably mounted in a window frame so constructed and arranged that the upper rail of the lower sash and the lower rail of the upper sash will inter-engage to provide a connection whereby inward or outward movement of the sashes relative to the frame will be prevented, each sash cooperating with the other for resisting any thrust directed inwardly or outwardly of the sashes.

Another object of the invention is the provision of a screen having oppositely disposed side rails and a top and a bottom rail constructed so that they are held together relatively to each other by bosses embedded in L-shaped retainers.

Other objects will appear hereinafter.

It is recognized that various modifications and changes may be made in the detail of structure illustrated without departing from the invention and it is intended that the present disclosure shall be considered but the preferred embodiment.

Forming a part of this application are drawings, in which:

Fig. 1 is a front elevational view of a window frame and a pair of sashes embodying the invention,

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1 with parts broken away,

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1 with a part broken away,

2

Fig. 4 is a fragmentary sectional view taken on line 4—4 of Fig. 1,

Fig. 5 is a fragmentary elevational view of a corner of the window frame slightly enlarged,

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5, Fig. 7 is an elevational view of the screen used with the invention,

Fig. 8 is a sectional view taken on line 8—8 of Fig. 7 with a part broken away,

Fig. 9 is a sectional view taken on line 9—9 of Fig. 7 with a part broken away,

Fig. 10 is a slightly enlarged sectional view taken on line 10—10 of Fig. 7.

As shown in the drawings, the window frame comprises the oppositely disposed side rails 15 and 16, the top rail 17 and the bottom rail 18. It is intended that these rails be formed from metal, such as aluminum or the like, and each of the rails is of similar construction in cross section so that a description of one will suffice for all.

As clearly shown in Fig. 2, Fig. 3 and Fig. 6, each of the rails is provided with a channel 19 having a bottom 20 and a side wall 21 spaced apart from the main body of the rails 15, 16, 17 or 18. Projecting inwardly from the part 21 is a rib 22 in spaced apart relation from a rib 23, projecting inwardly from the main body of the rail. Positioned in the channel 19 at the corners is a pair of L-shaped members having the legs 24 and 25, 26 and 27. As shown in Fig. 5, one of these legs extends in a channel in the side rail and the other leg extends in a channel in the bottom rail. A similar construction would be provided at the top rail. When these rails are assembled, so that the adjacent ends of the top and side rails are in engagement and the adjacent ends of the bottom and side rails are in engagement with the L-shaped members positioned as shown in Fig. 6, a tool is used to drive inwardly the bosses 28, shown in Fig. 6, which are forced into the body of the L-shaped members, thus securing the rails of the frame in fixed relation. Experience has shown that this provides a very sturdy and rigid construction. It is believed obvious that it is a construction which lends itself to quick assembly. As clearly shown in Fig. 3, there is extending inwardly from the portion 20 a flange 29. This extends around the frame and serves as an abutment for a sash which is adapted to be mounted in the frame.

In Fig. 1 I have shown a pair of sashes mounted in the frame. The upper sash has a pair of side rails, denoted generally by the numerals 31 and 32, a top rail 34 and a bottom rail 35. The lower sash is provided with a pair of side rails 37 and 38, a top rail 36 and a bottom rail 39. All of these rails are constructed similarly in cross section, excepting the bottom rail 35, so that a description of any of the other rails will constitute a description of all of the others. As shown in Fig. 2 the rails of the lower sash are provided with a channel 40, in which is adapted to engage a frame 50 secured around the edges of a pane of glass 51. Extending laterally from the side wall 41 of the channel 40 is a flange 42, which is angularly turned to provide the wall 43 to form a channel 44, in which engages one leg of a pair of L-shaped members 45 and 46. These L-shaped members are located at the corners of the sash frame and are secured in position in the same manner as the L-shaped members of the window frame, which have already been described. In this manner the four rail forming portions are securely fastened together at their meeting ends after the pane of glass has been inserted in position. Extending outwardly from the member 41 is a rib 47 in alignment with the rib 48 extending inwardly from the wall 43. These ribs serve to properly locate the L-shaped members 45 and 46 in position and retain them in position until the

securing bosses are driven inwardly. The wall 43 has a portion 49, termed a flange, which extends outwardly beyond the location of the rib 48.

The bottom rail of the top sash has a channel 52 for reception of the edge of the glass frame and is provided, as shown in Fig. 2, with a channel corresponding to the channel 44. One side wall 54 of this channel portion is adapted to inter-engage and overlie the flange 49. Extending downwardly from the lower rail of the upper sash is a flange 53 which overlies the wall of the channel 40. It will be noted that when the two sashes are in proper relative closed position the member 53 serves as a seal and the member 54 also serves as a seal for preventing passage of air between the upper rail of the lower sash and the lower rail of the upper sash. It will also be noted that a thrust tending to move either of these sashes inwardly or outwardly is resisted by the other sash. Movement outwardly could not take place, of course, because of the engagement of the sashes with the flange 29. Inward movement of the sashes is prevented by the spring clips.

As shown in Fig. 1, a spring body 55 is secured to the window frame and extended outwardly and extending longitudinally of the window frame is a pair of resilient tongues 56 and 57, each of which is adapted to engage against the side rail of the sash. As shown in Fig. 1, one of these clips is mounted at the location of the meeting of the lower sash with the upper sash and one is mounted adjacent the upper end of the window frame. Consequently, any inward thrust delivered to either of the frames at the lower rail of the upper sash would be resisted by the entire body of the spring clip.

Secured to the upper rail of the window frame is a spring clip 60 which is adapted to engage the outer face of a window screen placed thereunder, the lower edge of which would be engaged by a tongue 59 projecting outwardly from the tongue 58. With this construction a person may use these two clips for retaining the screen stored adjacent the window when the screen is not in use.

Swingably mounted on the flange 21 of the lower rail of the window frame is a pair of clips 61 formed from resilient material and having an angularly directed tongue 62, provided on its upper face with a recess 63. The clip 61, when rotated to the position shown in Fig. 1, will serve to overlie the lower rail of the lower sash and prevent inward movement of the lower rail of the lower sash, so that it cannot be removed from the window frame. When these clips are turned 90 degrees in either direction, so as to clear the lower rail and lower sash, the sash may be pulled inwardly at its lower end by means of the loops 64, which are mounted thereon, and thus the lower sash may be removed. When the lower sash is removed the tongues 58 will swing inwardly to lie below the lower rail of the upper sash and prevent the upper sash from sliding downwardly.

When it is desired to open the window a slight distance the member 61 may be turned 180 degrees and the lower sash may then be swung inwardly, as shown in dotted lines in Fig. 2, until its lower edge snaps into the recess 63. In this way the lower sash may be opened slightly, and held firmly in this slightly opened position, for ventilating purposes.

In Fig. 7, and the sections taken thereon, I have illustrated the construction of the screen used with the window construction. The screen comprises a frame having the oppositely disposed side rails 65 and 66, the bottom rail 67 and top rail 68. All of these rails are constructed similarly in cross section and a description of one will suffice for all. The main body 69 of the rail is provided with a channel 70 from the walls of which are the inwardly projecting ribs 71 and 72. Positioned in this channel and engaging the bottom of the channel, and also engaging the inner surface of the ribs 71 and 72, is a pair of L-shaped retaining members having the legs 73 and 74. As

shown in Fig. 1 the L-shaped members are so positioned that one of the legs lies in the channel of a side rail and the other leg lies in a channel of a bottom or top rail. At the location 75 there is punched inwardly, from the opposite sides of the channel, the bosses 76, which are driven into the material of the L-shaped legs 73 and 74, so that the side rails and the top and bottom rails are thus securely fastened together. Formed in the body 69 is a channel or groove 75 in which is pressed a bead 77 formed from plastic rubber or other suitable flexible material to press the edges of the screen 79 into the groove and secure the screen in taut condition on the frame. An overhanging lip 78 serves to engage this retaining strip 77 and retain it in position. It is believed obvious that the construction of the screen frame may be easily and quickly effected and that the mounting of the screen thereon in a secure manner is easily and quickly accomplished.

What I claim is:

1. In a window construction, a stationary frame; an upper sash and a lower sash mounted in said frame; an inwardly projecting flange on the sides of said frame for engaging said sashes at their inner faces; an upper rail on the lower sash; a lower rail on the upper sash; a downwardly projecting flange on the outer side of the lower rail of said upper sash, engaging the outer face of the upper rail of said lower sash; an upwardly projecting flange, inwardly off-set from the upper rail of said lower sash, and projecting upwardly beyond the upper rail of said lower sash; an inwardly off-set flange on the lower rail of said upper sash, and overlying and engaging the inner faces of said upwardly extending flange; said flanges preventing relative movements of said sashes at said rails.
2. In a window construction, a stationary frame; an upper sash and a lower sash mounted in said frame; an inwardly projecting flange on the sides of said frame for engaging said sashes at their inner faces; an upper rail on the lower sash; a lower rail on the upper sash; a downwardly projecting flange on the outer side of the lower rail of said upper sash, engaging the outer face of the upper rail of said lower sash; an upwardly projecting flange, inwardly off-set from the upper rail of said lower sash, and projecting upwardly beyond the upper rail of said lower sash; an inwardly off-set flange on the lower rail of said upper sash above said rail and having a downwardly extending flange inwardly off-set from said lower rail of said upper sash, and overlying and engaging the inner faces of said upwardly extending flange; said flanges preventing relative movements of said sashes at said rails; and an outwardly extending flange on the sides of each of said sashes, engaging the outer faces of said frame.

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