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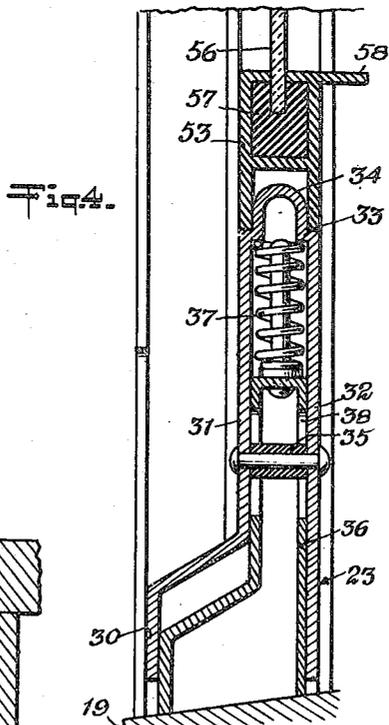
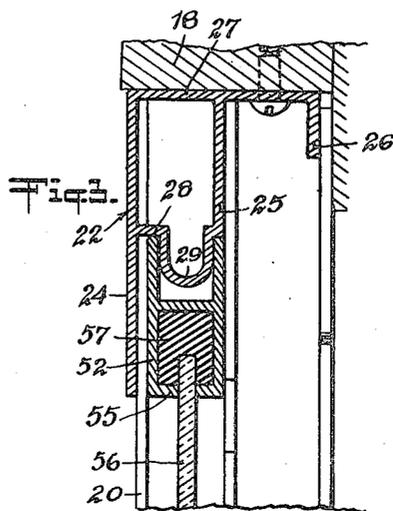
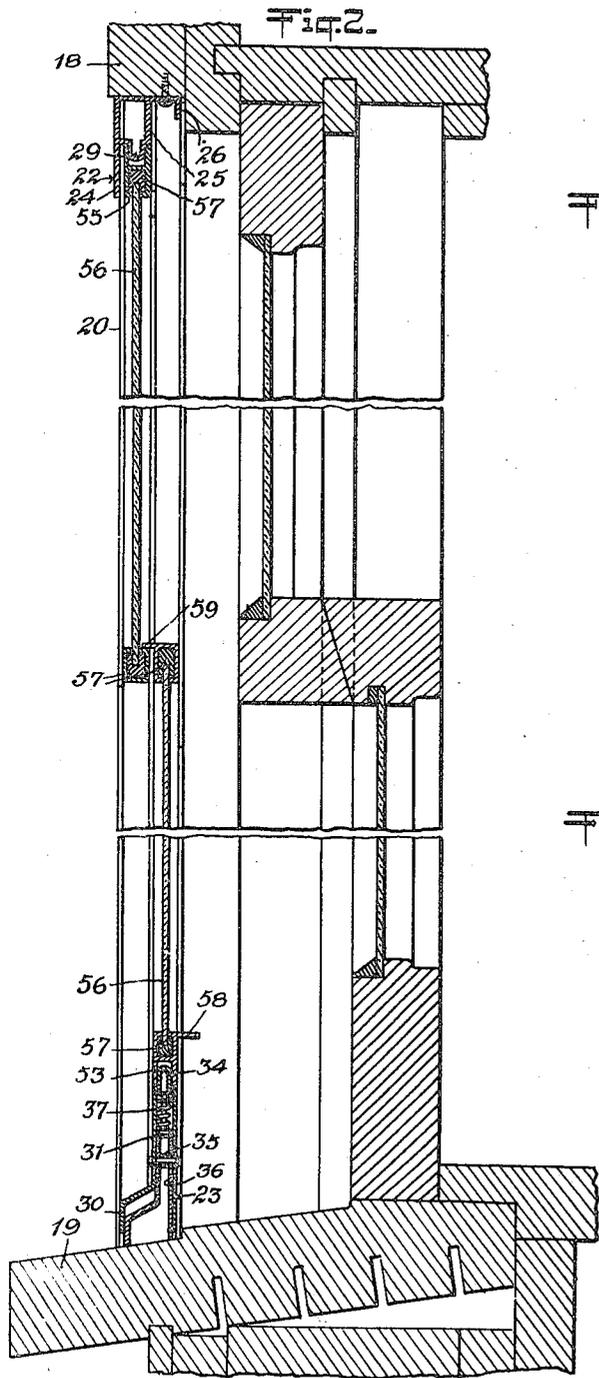
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2,430,772

REMOVABLE SASH CONSTRUCTION

Filed Sept. 2, 1944

3 Sheets-Sheet 2



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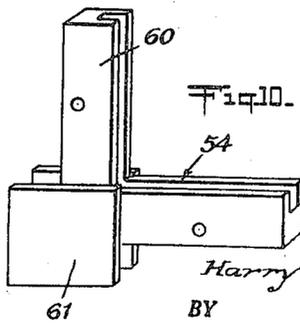
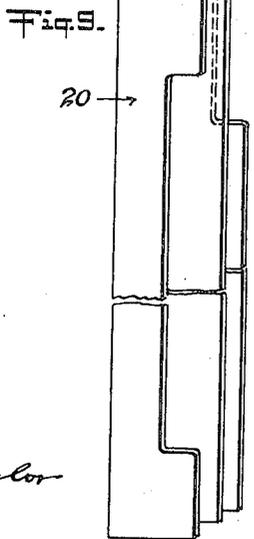
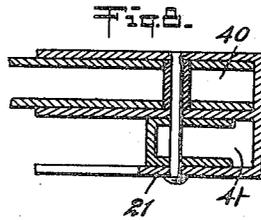
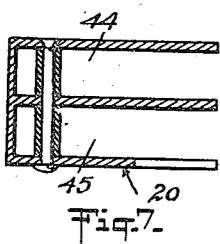
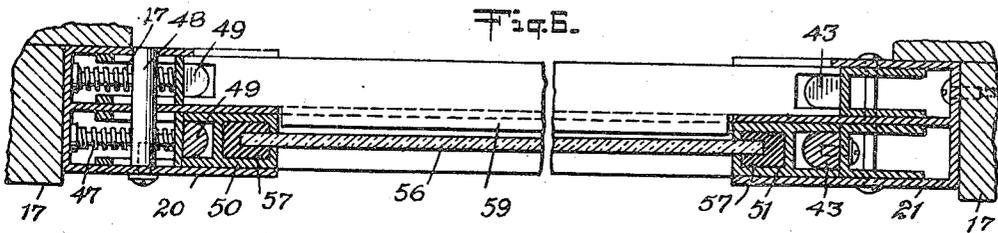
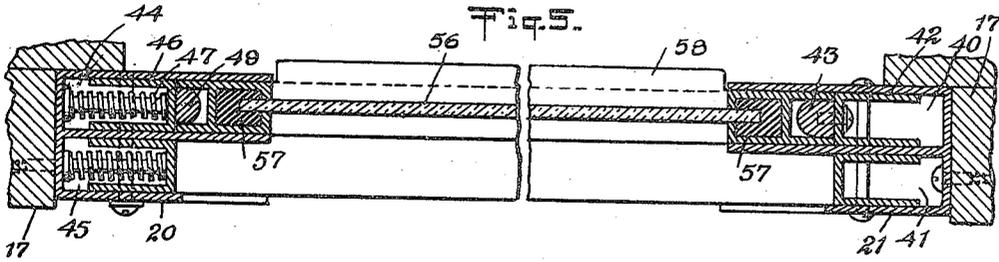
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UNITED STATES PATENT OFFICE

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REMOVABLE SASH CONSTRUCTION

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Application September 2, 1944, Serial No. 552,486

3 Claims. (Cl. 189-72)

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The present invention relates to a window sash, and more particularly, to an auxiliary or storm window sash.

An object of the invention is to provide a permanent holding frame for use interchangeably with storm sash and screens.

Another object is to provide means for holding the sash which may be prefabricated by means of mass production methods and which may be cut and fitted on the job to window frames of any size.

A further object is the provision of storm sash which may be slidably opened and closed in the same manner as windows of standard construction.

A still further object is the provision of storm sash which is fractionally engaged by its permanent holding means to hold it in any desired position, open or closed.

Still another object is the provision of storm sash which may be opened to register with the open window for the purpose of providing better ventilation.

These and other objects are attained by structure and mechanism illustrated in the accompanying drawing in which

Figure 1 is a face view of storm sash constructed in accordance with the present specification, shown installed in a typical window frame, the view being partly broken away;

Figure 2 is a vertical section on the line 2-2 of Figure 1;

Figure 3 is a fragmentary vertical section on the line 3-3 of Figure 1;

Figure 4 is a fragmentary vertical section on the line 4-4 of Figure 1;

Figure 5 is a horizontal section on the line 5-5 of Figure 1;

Figure 6 is a horizontal section on the line 6-6 of Figure 1;

Figure 7 is a fragmentary horizontal section on the line 7-7 of Figure 1;

Figure 8 is a fragmentary horizontal section on the line 8-8 of Figure 1;

Figure 9 is a perspective view of one of the side members of the permanent holding frame; and

Figure 10 is a perspective view of one of the corner members of the storm sash proper.

The permanent holding frame consists of four members: two vertical side members 20 and 21, one top cross member 22 and one bottom cross member 23.

Side members 20 and 21 are E-shaped channel bars whose outer parallel walls are cut out in part, one at its upper portion, the other at its lower portion. The purpose of these cut out portions will be disclosed shortly.

Top member 22 in cross section, appears as shown in Figure 3. It has three parallel walls; a wide outer wall 24, a medium inner wall 25, and

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a narrow outer wall 26 which are joined at right angles to the top wall or ceiling 27, said parallel walls being spaced apart the same distance as the parallel walls of the E-shaped channel bars 20 and 21. Outer wall 24 and inner wall 25 are joined at a point where the latter terminates by means of a downwardly humped web 28. The hump 29 of said web constitutes the upper bead member of the holding frame.

Bottom frame member 23 is a hollow member made, preferably, of a single piece of sheet material bent backward upon itself. It has no bottom plate to correspond to the top plate 27 of the top cross member 22. It has three parallel walls 30, 31 and 32 of which outer walls 30 and 32 register at the bottom, outer wall 30 is joined at the top to the bottom of inner wall 31 by means of a web and inner wall 31 and outer wall 32 are joined at the top by means of an upwardly humped web 33. The hump 34 of said web constitutes the lower bead member of the holding frame. A plurality of riveted spacers 35 assist in properly spacing walls 31 and 32. Walls 31 and 32 are spaced to fit into the space between adjacent parallel walls of the E-shaped channel bars and walls 30 and 32 are spaced to fit into the space between the outer parallel walls of said channel bars.

Slidably disposed in said bottom frame member 23 is a smaller, somewhat similarly shaped member 36. A plurality of torsion springs 37 disposed between the web of frame member 23 and the corresponding web of member 36 tend to urge member 36 downwardly against window sill 19. The purpose of this arrangement will shortly become apparent. Slots 38 in member 36 accommodate spacers 35.

The four members constituting the holding frame may be made of sheet metal or of any other suitable material. They may be pressed into shape or they may be made in any other desirable way. They may be fabricated in different standard sizes or they may be cut to size on the job.

When installed, top member 22 is affixed, as by screws, to the top 18 of the window frame, and side members 20 and 21 are affixed in the same manner to the side posts 17 of the window frame. The side members 20 and 21 may also be affixed to the top member 22 by means of screws 22a and the bottom member 23 may be affixed to the side members by means of screw 23a. Bottom member 23 is not affixed to the sill 19 of the window frame.

It will be noted that in each of the U shaped channels 40 and 41 formed by the walls of E-shaped side member 21 is affixed, as by rivets, a U-shaped channel member 32 to whose web is affixed, as by screws, a bead 43. It will also be noted that slidably disposed in each of the U-shaped channels 44 and 45 formed by the walls

of E-shaped side member 20 is a U-shaped member 46, similar, in all substantial respects, to U-shaped members 42. Torsion springs 47 tend to push members 46 out of their respective channels and cross bars 48 which are affixed to the side member 20 and pass through apertures in the side walls of said members 46, prevent said members 46 from leaving their respective channels. Beads 49 are affixed, as by screws, to the webs of U-shaped member 46.

The sash proper comprises side frame members 50 and 51, a top member 52, a bottom member 53 and four corner members 54. Members 50, 51, 52 and 53 are elongated channel bars which are H-shaped in cross section, the ends of the inner legs thereof, being bent inwardly to form a pair of flanges 55. These flanges hold, in the space that separates them, pane of glass 56. A cushion or insulating material 57, such as rubber or felt, is carried by these members 50, 51, 52 and 53 in the space formed by the web portions thereof, the inner leg portions and the flanges. This cushion may be made in U-shaped cross section to accommodate the edge of the glass pane. This is shown in Figures 3 and 4, for example.

It will be seen in Figure 2 that the lower sash frame has an inwardly extending flange 58 on its bottom member 53 and an outwardly extending flange 59 on its top member 52. The flange 59 assists in rendering the space between the frame of the upper sash and the frame of the lower sash weathertight. The flange 58 is a finger grip for convenience in raising or lowering the lower sash.

The corner members 54 comprises an L-shaped element 60 which is U-shaped in cross section. This element corresponds cross sectionally to cushion 57 and by the same token, to the U-shaped channel formed by the inner legs, web and flanges of the members 50, 51, 52 and 53, when a pane of glass projects into said channel through the space between said flanges. A plate 61 is affixed to each side of said L-shaped element, in the manner shown in Figure 10. Said plate corresponds in width to members 50, 51, 52 and 53.

To assemble the sash, the cushions 57, L-shaped elements 60 and pane of glass are inserted into members 50, 51, 52 and 53 in the manner indicated. Said members and the L-shaped elements are then fixed together as by means of screws.

To install the sash into the holding frame, the sash is inserted into the vertical channels formed by the parallel walls of the E-shaped side members 20 and 21. This is done through the cut-out portions in said side members. It will be seen in Figures 5 and 6 that the outer legs of H-shaped side members 50 and 51 straddle beads 43 and 49. It will be seen in Figures 3 and 4 that the outer legs of top and bottom members 52 and 53 of the sash straddle, respectively, beads 29 and 34. Plates 61 of the corner members of the sash frame also straddle the beads.

U-shaped members 46 are brought into frictional contact with the sash frame. This permits of raising or lowering either sash to any height and leaving it there. This close contact also makes for weathertight construction. Weathertight construction is also provided by the pressure contact of the member 36 with the window sill, previously described.

Screens may be substituted for the storm sash

when provided with frames which correspond to the sash frames above described.

Modifications of the invention may be incorporated therein without departing from the broad principles thereof.

I claim:

1. A sash frame for window sash, said sash having rectangular guide channels on top, bottom and sides, said frame comprising a pair of side members affixed to top and bottom members, said side members being E-shaped in cross section and having bead carrying guide members which are U-shaped in cross section in each of their channels, the U-shaped guide members in one of said E-shaped side members being urged outwardly against the window sash by means of tension elements, said top member being substantially E-shaped in cross section, the outer leg of the E being longer than the middle leg and the latter being longer than the inner leg thereof, a bead being formed at the end of the middle leg, between said middle leg and said outer leg, said bottom member comprising a pair of hollow telescoping members, a plurality of tension elements disposed between said telescoping members and urging them into extended position, the upper telescoping member having a bead formed at the top thereof, the lower of said members having a short inner leg and a long outer leg to conform to the downward slope of a window sill, the beads in said top, bottom and side frame members being adapted, respectively, to engage the top, bottom and side guide channels of the window sash.

2. In a sash frame for window sash, said sash having rectangular guide channels, a top member which is substantially E-shaped in cross section, the outer leg of the E being longer than the middle leg and the latter being longer than the inner leg thereof, a bead being formed at the end of the middle leg, between said middle leg and said outer leg, said bead being adapted to engage the corresponding rectangular channels of the window sash.

3. In a sash frame for window sash, said sash having rectangular guide channels, a bottom member comprising a pair of hollow telescoping members, a plurality of tension elements disposed between said members and urging them into extended position, the upper telescoping member having a bead formed at the top thereof, the lower of said members having a short inner leg and a long outer leg to conform to the downward slope of a window sill, said bead being adapted to engage the corresponding rectangular guide channels of the window sash.

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