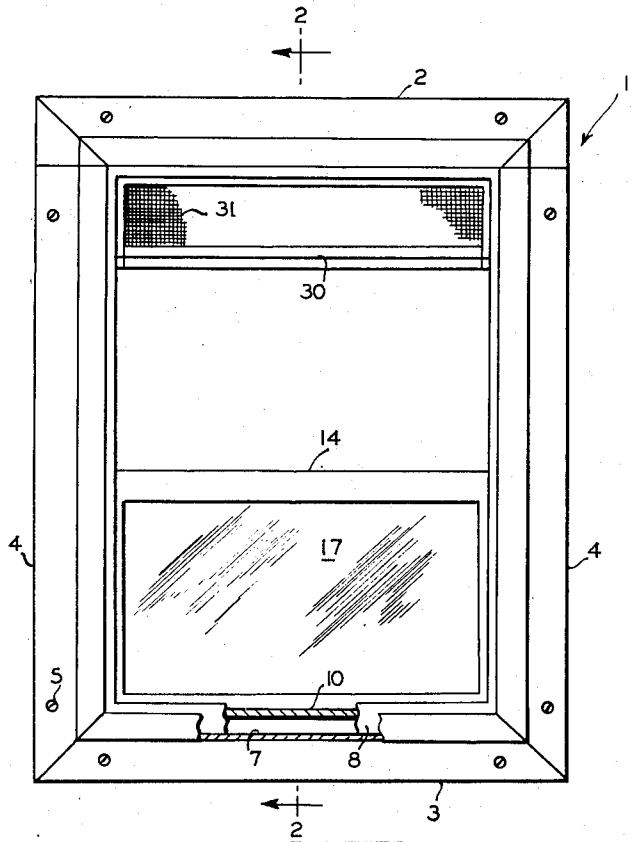
Oct. 19, 1954 E. CAMERINO 2,692,016

TRIPLE TRACK STORM AND SCREEN WINDOW

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Fig. 1



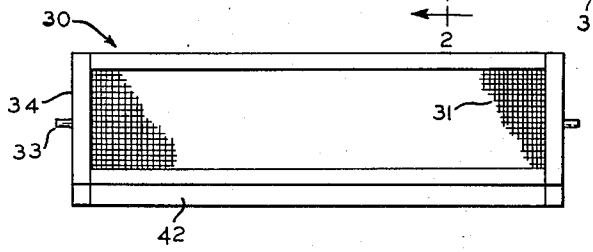
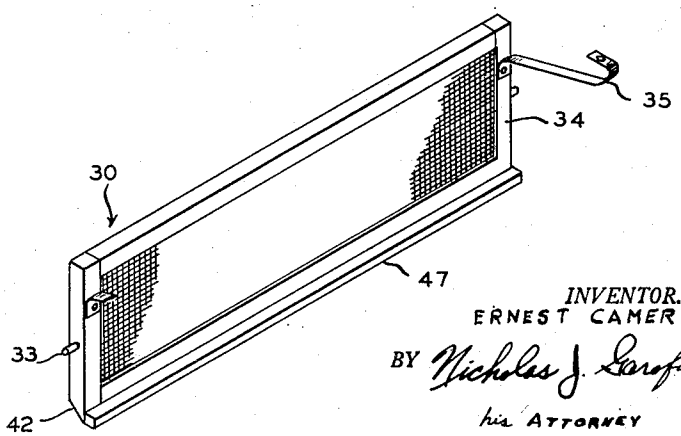


Fig. 4

Fig. 5



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TRIPLE TRACK STORM AND SCREEN WINDOW

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Fig. 2

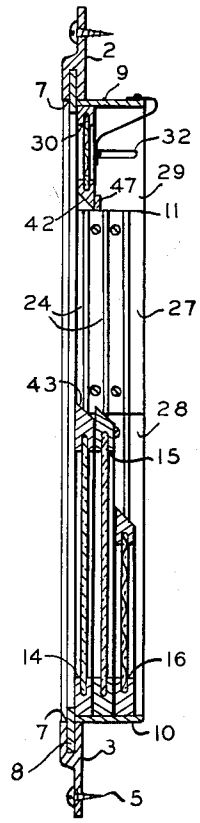


Fig. 6

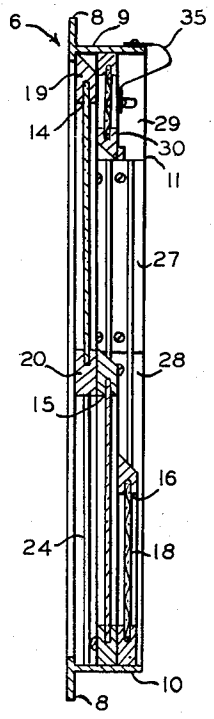
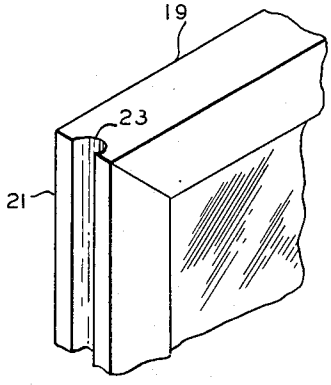


Fig. 3



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UNITED STATES PATENT OFFICE

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TRIPLE TRACK STORM AND SCREEN WINDOW

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Application July 16, 1952, Serial No. 299,457

7 Claims. (Cl. 160—90)

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My invention is particularly concerned with an improved type of combined storm and screen window construction incorporating a sash supporting frame having triple tracks, and it has for its general object a triple track combined storm and screen window structure wherein screened ventilation is enabled through either the top or bottom of the structure or both without removal or replacement of any of the sash members.

In my invention an expansion frame adapted to be secured about a window opening carries a sash encasing frame provided with three pairs of rails up and down which there is adapted to slide a pair of storm window sashes and a screen sash. The screen sash serves to provide ventilation through the lower portion of the window opening; to have ventilation through the upper portion there is provided a smaller screen sash. This latter sash does not move vertically, but is arranged to move rearwardly or forwardly of the encasing frame.

The invention, while it could well be used in lieu of the conventional double hung windows of a building, represents an auxiliary structure for double hung windows, and it is intended to occupy that space in the window opening that exists between the regular window and the outside of the building. In its later use it provides many advantages, eliminating many defects associated with conventional storm and screen window structures.

Inserting or changing storm or screen sashes with the different seasons is not required with my invention, as the storm and screen sashes are already incorporated in the structure and are operable much in the manner of double hung windows. The screen sashes and the storm sashes may be adjusted as desired and, regardless of the season, without removing or replacing any of the sash members.

In the use of a structure embodying my invention ventilation may be had through the window frame opening either at the top or bottom, or both; ventilation may also be cut off entirely by the storm window sashes, if desired, particularly in cold weather.

The invention further lies not only in the various features whereby the foregoing advantages are obtained, but also in the novel arrangement and general organization of its various co-operable elements.

The invention together with its many advantages will become readily apparent as this specification unfolds in greater detail and as it is read in conjunction with the accompanying drawings

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wherein a preferred and specific embodiment of the invention is illustrated. In the drawings:

Fig. 1 is a front elevational view of a combined storm and screen window structure embodying my invention;

Fig. 2 is a cross section taken on the lines 2—2 of Fig. 1;

Fig. 3 is a fragmentary view of part of a sash member;

Fig. 4 is a front elevation of the small screen sash;

Fig. 5 is a perspective view of the small screen sash illustrating the top, rear and one side thereof; and

Fig. 6 is a sectional view showing the small sash displaced to its middle position.

In detail, the invention includes an expansion frame 1 comprising upper and lower broad strips 2, 3 and a pair of upright broad side strips 4. The expansion frame is adapted to be affixed in suitable manner, such as by fasteners 5 to the outside of a building about the conventional window opening. The expansion frame serves to carry by proper means a sash encasing frame 6. For this purpose a continuous channel 7 is provided in the inner side of the expansion frame. In this channel there is adapted to be received and contained a tongue 8 of the encasing frame member 6. To allow frame member 6 to be received by its tongue in the expansion frame 1, the upper strip 2 is preferably formed free of the uprights 4. In the assemblying process the tongue 8 on three sides of frame 6 is received in the channel 7 of the uprights 4 and the lower strip 3. Next, the strip 2 is placed in its proper position at the top to complete the frame, in such manner that tongue 8 of the upper side of frame 6 is contained in the channel 7 of the upper strip 2.

The sash encasing frame 6 further includes top and bottom cross walls 9, 10 and a pair of upright side walls 11, of which but one is shown, the other being identical, suitably joined to one another in the form of a box with open front and rear ends. Frame 6 is further provided to carry for vertical sliding movement therein three sashes 14, 15 and 16. Sashes 14 and 15 are each closed over with a glass panel 17, while sash 16 carries a screen panel 18. Each sash member comprises upper and lower cross pieces 19, 20 and a pair of side pieces 21. The lower cross piece of each sash contains lifting means, such as a finger well, not shown. In each of the sash uprights 21 is a channel 23 by which each sash is guided for vertical sliding movement upon a separate pair of rails 24 carried by the inner

walls of the upright side members 11 of frame 6. The outer pair of rails, those nearest to the expansion frame 1, serve to guide one of the glazed sashes, here sash 14; the middle pair of rails serve to guide the glazed sash 15, while the inner pair of rails guide the screen sash 16.

Rails 24 are carried, three to each side, on the inner faces of walls 11. While the rails may be an integral part of walls 11, or removably inserted in suitable manner in slots therein; here, however, they assume a different and preferred form. In this form there is provided for each side wall 11 a pair of plates 27, 28. In each plate there is formed a set of three rails 24 parallel to one another and uniformly spaced apart. Plates 27, 28 of each pair are removably secured to the inner face of each side member 11, one above the other, in such manner that the rails of the lower plate 28 are in vertical alignment with the rails of the plate 27 above it. The several rails of each side wall are of equal height and extend from the base of the frame to a short distance from the top, leaving a space 29 without rails at the top of each wall 11.

Between the wall spaces 29 at the upper portion of frame 6 there is provided to move rearwardly or forwardly of the frame, as desired, a small sash member 30 having a screen panel 31. This small screened sash occupies about one-sixth of the opening of frame 6, and it is intended to provide screened ventilation through the top portion of the window opening. Suitable means is provided to enable this rearward or forward movement of sash 30. It is guided in this crosswise by suitable pin and slot means. Crosswise of the space 29 in each sidewall 11 is an elongated slot 32 through which extends a pin 33 projecting one from each side of uprights 34 of the small screen sash 30. The sash is carried rearwardly or forwardly of slots 32 through spring means co-operable with the raising or lowering of the glazed sash members 14 and 15. A pair of curved or S springs 35 affixed at one end to the top side of wall 9 and at the other end to the rear of sash uprights 34 serve to tension sash 30 in an erect position constantly forwardly of frame 6. Sash 30 is limited in its forward movement to a position in alignment with and above sash 14 by pins 33 abutting the forward ends of slots 32.

Glazed sashes 14 and 15 are of equal height and each is adapted to close off a half portion of the window opening. Screen sash 16 could also be of a height equal to one of the glazed sashes, however, it is desirable that sash 16, when combined with sash 30 equal the height of one of the glazed sashes. The smaller sash 30 is intended to provide screened ventilation through the upper portion of the window opening, while the larger sash 16 is intended to serve the bottom.

To enable sash 30 to move rearwardly of frame 6 against the tension of springs 35, the lower crosspiece of sash 30 is adapted for camming action in conjunction with either of the sashes 14, 15 or 16, whereby sash 30 may be progressively moved rearwardly. To effect this action, the bottom side 42 of the lower crosspiece of sash 30 is inclined rearwardly from a high point on the forward edge of the crosspiece to a low point on the rearward edge thereof; and the top side 43 of the upper crosspiece 19 of each sash 14, 15 and 16 is inclined in a complementary manner.

In explanation of the use and operation of the structure reference is directed particularly to Figs. 1, 2 and 6. The expansion frame 1 is intended to attach to the outside of a building structure, while the frame 6 encasing the several sashes is intended to occupy the space between the outside and the regular window of the building. In Fig. 2 the small screen sash 30 is shown tensioned to its foremost position above the lower sash 14, and sash 15 is in its lowered position. To move sash 30 rearwardly so as to cut off ventilation from the top of the structure, sash 14 is raised to bring the cam surface 43 of its upper cross piece against the complementary cam surface 42 of sash 30. Further and a full raising of sash 14 will cam sash 30 rearwardly against the tension of springs 35 to assume a position to the rear of sash 14 as in Fig. 6. During the camming operation sash 30 is forced off the inclined surface of sash 14 and moves to the rear as it rises upwards in front of it as in Fig. 6. Sash 30 is guided in its rearward movement by the pin and slot means 32, 33 at the sides thereof. It is plain that fully raising the middle sash 15 will in a similar manner force sash 30 to its rearmost position above screen sash 16. When sash 30 is in the latter position with the two glazed sashes 14 and 15 fully raised, screen sash 16 may in a lowered position provide screened ventilation through the bottom of the window opening.

It is plain from Fig. 6 that if the first sash 14 is lowered, springs 35 will tension sash 30 back to its normal position.

When sash 30 is in its normal position, sashes 14 and 15 may be partly raised and screen sash 16 lowered, whereby ventilation will be afforded through both the top and bottom of the structure.

Due to the slight separation of sashes 14, 15 and 16 from one another, means is provided to prevent entrance of cold air, insects and other foreign matter from between the sashes. This is enabled by a cross strip 47 located along the rear marginal edge of sash 30, which strip overhangs the sash below and to its rear.

When sash 30 is in its normal forward position and sash 14 is in its fully lowered position, sash 15, the middle sash, may be raised until its uppermost edge contacts the cross strip 47 of sash 30. In this arrangement ventilation can be had solely through the sash 30 at the top of the structure. When sash 14 is fully raised so that sash 30 is displaced to its rear, and while sash 15 is in its lowered position, ventilation is cut off entirely.

The lower half of the window opening may be made fully open so as to provide free access through to the outside of the building. This is accomplished by successively and fully raising sashes 14 and 15 so as to displace sash 30 to its rearmost position above sash 16, and finally by raising sash 16 until it contacts sash 30.

Conventional well known means, such as springs, not shown, in the channels 23 of sashes 14, 15 and 16 serve in conjunction with conventional grooves, not shown, in which they engage to tension and to hold the sashes in their various raised positions.

The various elements of the structure are preferably fashioned of light, stainless metal, such as aluminum or other suitable metal.

While I have described what I consider to be a highly desirable embodiment of my invention, it is my intent, however, to claim all such forms of the invention as may be reasonably construed to be within the spirit of the invention and within the scope of the appended claims.

I claim:

1. In a window frame including opposed side walls and an upper wall, a plurality of vertical sash tracks on the opposed side walls carrying window sash for vertical movement thereon, and another sash adapted for movement in an upright position from a forward position to a rearward position in a space provided above the sash tracks and extending from the front of the frame to the rear thereof, and means for guiding the movement of the latter sash.

2. In a window structure, a frame member including a pair of tracks, a sash member adapted for vertical movement on the tracks, the frame including a space extending from the front of the frame to the rear thereof above the tracks, another sash member adapted for front to rear movement in this space, spring means serving to retain the latter sash in a position forwardly of the frame, and camming means on the vertically moving sash cooperable with camming means on the upper sash so constructed and arranged that the upper sash may be moved from its forward position to a position rearwardly of the frame.

3. In a window structure, a frame open in its forward and rear ends including a pair of side walls, and a plurality of opposed vertical tracks on the side walls, one to the rear of the other, a plurality of sash members adapted to vertically ride the tracks, one to the rear of the other, a small sash member above the tracks in the upper portion of the frame movable progressively from a forward to a plurality of rearward positions of the frame, means for constantly tensioning the small sash to its forward position, and cam means on each of the vertically moving sash successively cooperable with complementary cam means on the small sash, so constructed and arranged that the small sash is progressively movable rearwardly to said plurality of positions as each vertically moving sash is successively raised.

4. In a window structure as in claim 3 wherein the sidewalls include a pair of opposed guide slots and the small sash is provided with a pair of pins adapted to ride in the slots as the small sash is cammed from one position to another.

5. In a window structure as in claim 3 wherein the cam means of the small sash is on the bottom rail of the sash and inclined downward and rearwardly, and the cam means on the vertically moving sash members is complementary to that of the small sash member.

6. In a window structure as in claim 3 wherein the first two of the plurality of vertically moving sashes are provided with glass panels and the small sash is provided with a screen panel, so constructed and arranged that when the first vertically moving sash is raised until its cam means contacts the upper sash and the second vertically moving sash remains in a lowered position, screened ventilation is provided through the upper small sash alone.

7. In a window structure of the character described including, a track sash carrying frame including top and side walls and a space between the tracks and the top wall, a small sash member movable from a forward erect position to a rearward erect position, spring means adapted to constantly tension the small sash to its forward position, and guide means cooperable with the spring means serving to maintain the small sash in its erect position and to guide it as it is moved from one position to another.

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