

March 19, 1963

B. E. MENDELSON

3,081,503

STORM WINDOW

Filed Feb. 2, 1960

2 Sheets-Sheet 1

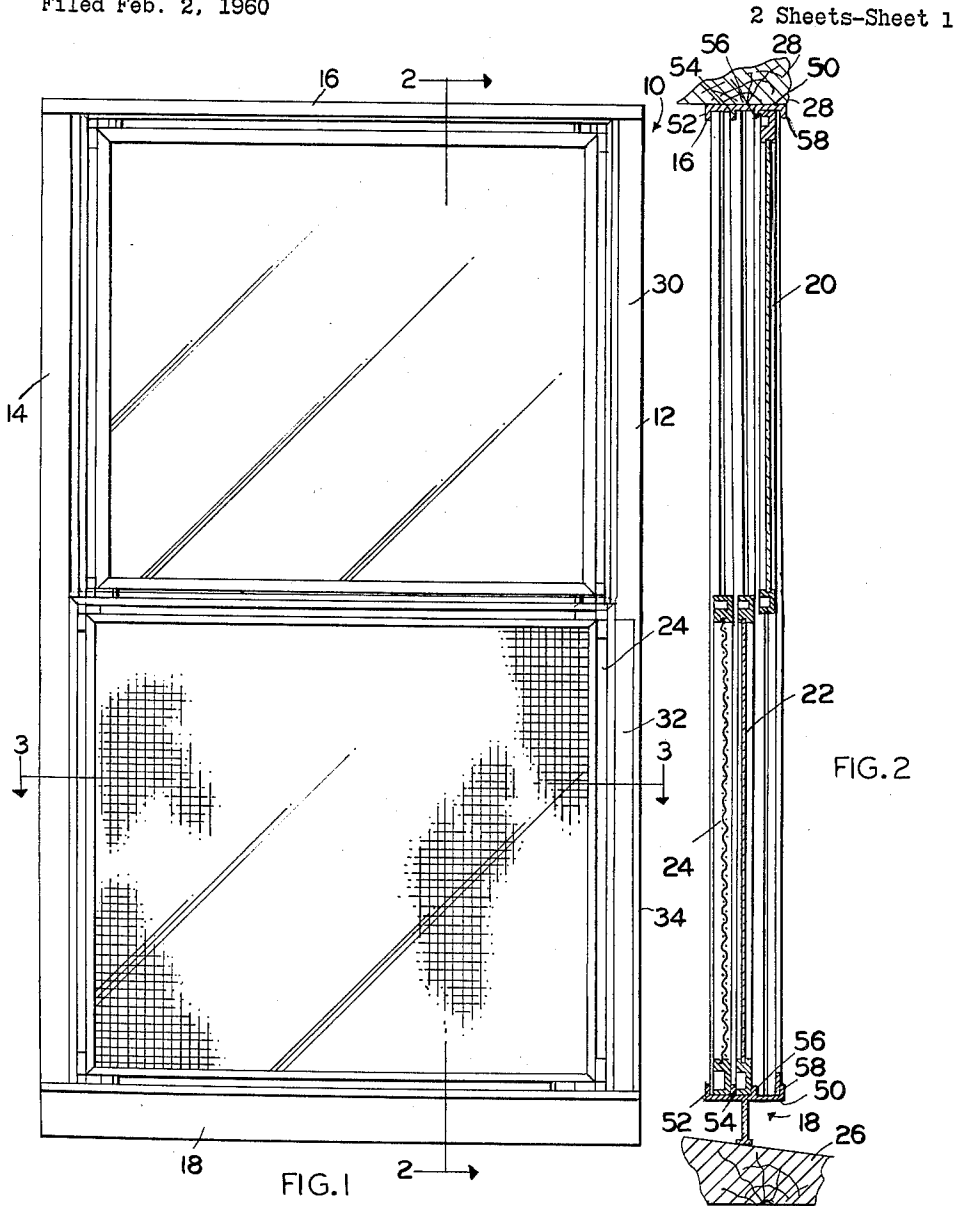


FIG. 1

FIG. 2

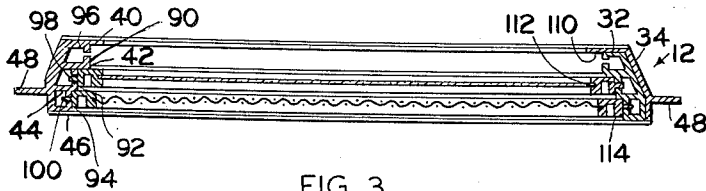


FIG. 3

INVENTOR.

BERNARD E. MENDELSON

BY  
*Ezekiel Wolf, Wolf & Greenfield*

ATTORNEYS

March 19, 1963

B. E. MENDELSON

3,081,503

STORM WINDOW

Filed Feb. 2, 1960

2 Sheets-Sheet 2

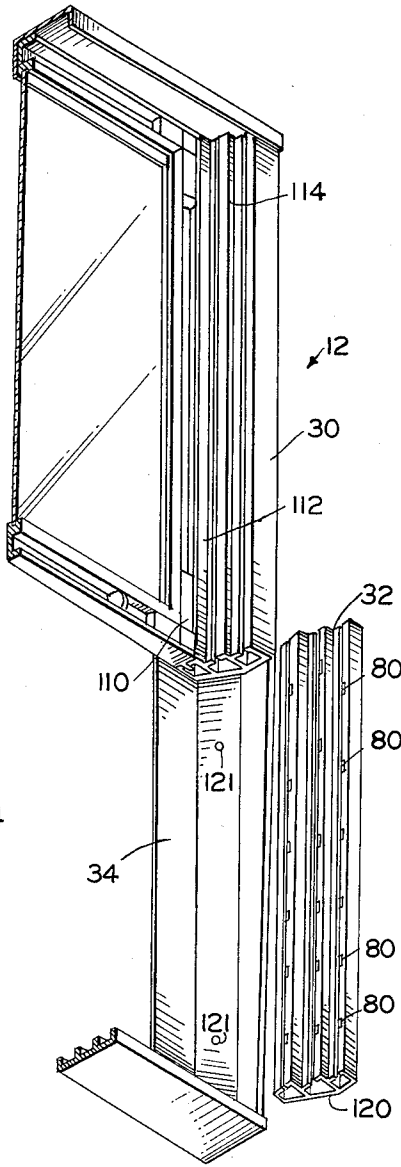


FIG. 4

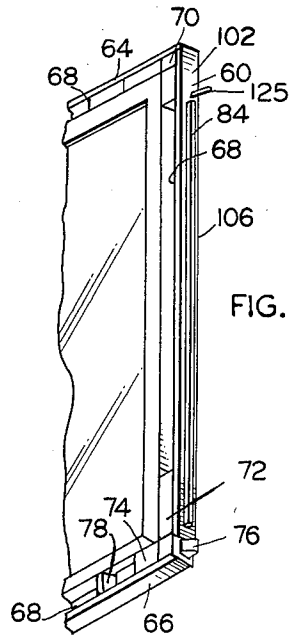


FIG. 5

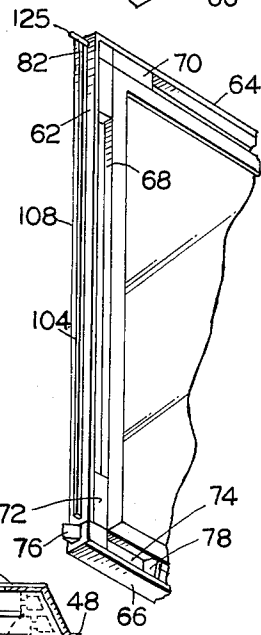


FIG. 6

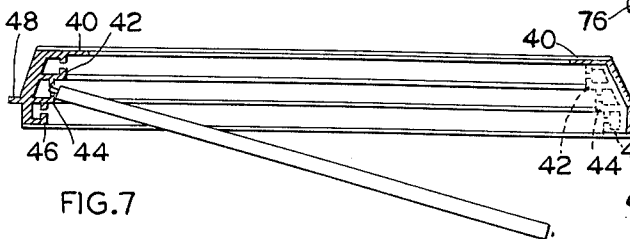


FIG. 7

INVENTOR.  
BERNARD E. MENDELSON  
BY

*Ezekiel Wolf, Wolf + Greenfield*

ATTORNEYS

1

3,081,503

**STORM WINDOW**

Bernard E. Mendelsohn, 5-7 Livingston St., Waban, Mass.  
 Filed Feb. 2, 1960, Ser. No. 6,290  
 2 Claims. (Cl. 20-52.2)

This invention relates to storm windows and more particularly comprises a new and improved storm window construction which provides a weather-tight seal about the sashes in the frame and allows each of the sashes to be removed without difficulty. This application is a continuation-in-part of my copending application Serial No. 849,799, filed October 30, 1959, entitled Storm Window.

Until recently, most multi-sash aluminum storm windows included a tongue and groove connection between the individual sashes and the frame, particularly along their sides, to effect a weather-tight seal about the sashes. Most commonly, the tongue and groove connection was made up of inwardly extending flanges formed on the sides of the frame which entered into and engaged tracks in the form of channels in the sides of the sashes. In windows incorporating this type of construction, the several sashes within the frame were all of the same width, and rather elaborate schemes were employed to permit removal of the sashes to facilitate glass or screen cleaning or replacement. All of the different schemes employed to allow removal of the sashes were less than satisfactory, and dust and dirt regularly collected in the tracks making it difficult to operate the sashes up and down in the frame.

To overcome the failings of the tongue and groove arrangements, the industry has recently developed what are called tilt or swing-type storm windows. In this type of window the sides of the sashes are not enclosed within channels or tracks in the frame nor are tracks provided in the sashes to enclose inwardly extending flanges formed on the frame. Rather, the sides of the sash run on bearing surfaces provided by single flanges on each side of the frame lying outside the sash. The inner faces of the sides of the sash are fully exposed, that is, they are not overlapped by flanges on the frame which complete a track about the sash sides.

Because retractable latches in the form of bolts, bosses, or pins are normally employed to engage recesses in the frame to retain the sashes on their bearing surfaces, the sashes may readily be removed from the frame merely by retracting the latch from its recess. While this type of construction overcomes the difficulties encountered in the earlier types of storm windows, the improved construction is much less effective than the earlier forms of windows against the elements. Wind, driving rain or snow directed against the outside of the windows, tend to push the sashes inwardly off their bearing surfaces to open a passage for the cold and dampness between the sashes and the frame. Moreover, particularly with large windows, even slight warping or bending of the sashes develops air spaces between the bearing surfaces of the frame and the sides of the sashes through which cold and damp air may flow.

The primary object of my invention is to provide a storm window having the attributes of both the track-type windows as well as the tilt-type windows without their accompanying limitations.

To accomplish this and other objects, the storm window of my invention includes three sashes mounted within a frame having exposed bearing surfaces upon which the sashes ride, and also having beyond those bearing surfaces tracks which receive flanges substantially coextensive with and secured to the sides of the sashes. The flanges on each side of the sashes may be permanently fixed to the sashes and may be extruded as an integral part of the sash sides. The lower portion of one side of the window

2

frame is so formed that the bearing surfaces and tracks for each sash are removable from the remaining portion of the frame. The removable portion in the form of a channel may only be taken from the frame when all of the sashes are in their raised position. When the channel is removed, each sash may be removed from the frame by moving it to its lower position wherein its outwardly extending flange is free of all connection with the frame. In its lower position, the sash may be pivoted about a vertical axis defined by the flange within the track on the other side of the frame, and after being so pivoted, may be moved translationally within its own plane from the frame.

This particular configuration provides a weather-tight seal about the sash within the frame by enclosing the flange in a track, but at the same time allows the sashes to move freely upwardly and downwardly within the frame. Moreover, the particular arrangement employed enables the removable channel of the frame to be withdrawn readily.

These and other objects and features of my invention, along with their incident advantages, will be better understood and appreciated from the following detailed description of one embodiment thereof, selected for purposes of illustration, and shown in the accompanying drawing wherein:

FIG. 1 is a front elevation view of a storm window constructed in accordance with my invention;

FIGS. 2 and 3 are cross sectional views taken along the corresponding section lines in FIG. 1;

FIG. 4 is a fragmentary view in perspective of the storm window shown in FIG. 1, with a portion of the frame removed;

FIGS. 5 and 6 are fragmentary views in perspective of opposite sides of one of the sashes in the window shown in FIG. 1; and

FIG. 7 is a cross sectional view demonstrating the manner in which the sashes may be removed from the frame.

The embodiment of my invention shown in the drawing includes in its general organization a window frame 10 having sides 12 and 14, and a top and bottom 16 and 18 respectively. Disposed within the frame 10 are top and bottom window sashes 20 and 22 and screen sash 24. Each of the three sashes is substantially one-half the height of the opening within the frame 10 and each is movable up and down within the frame to permit opening and closing of the windows and positioning the screen either in an upper or lower position.

The frame 10 as suggested in FIG. 2 is adapted to be secured to the window casing on the outside of the permanent window. Note in FIG. 2 the outwardly and downwardly sloping sill 26 and the horizontal portion 28 of the permanent casing.

In the embodiment of my invention illustrated the side 12 of frame 10 is composed of the frame proper 30 and a channel insert 32. The channel insert 32 fits within the panel 34 formed as an integral part of the frame proper 30 and when assembled in place its several parts form a smooth continuation of the like parts in the frame proper. When so assembled, the side 12 of the frame is virtually identical to the side 14 formed as an unbroken section.

The side members 12 and 14 of frame 10 include four vertically oriented inwardly extending flanges 40, 42, 44 and 46 parallel with one another. When the side panels 12 and 14 are secured by means of their outwardly extending flanges 48 to the window casing, the outermost flanges 40 extend inwardly towards the center of the frame beyond the adjacent flanges 42; flanges 42 in turn extend inwardly beyond the inner edges of flanges 44; and flanges 44 in turn extending inwardly beyond the

3

inner edges of flanges 46, to provide a stepped arrangement as is evident in several of the figures. The top and bottom portions 16 and 18 of the frame 10 each include a flat plate 50 having four uniformly spaced ridges 52, 54, 56 and 58 which define three tracks. The tracks formed in the upper portion 16 of the frame are adapted to receive the upper horizontal member of each sash when each is in its raised position. Similarly, the tracks defined by the ridges in the lower portion 18 of the frame engage the bottom of the sashes when they are in their lower position.

In FIGS. 5 and 6 one of the sashes is shown in detail. Each sash includes vertical side stile members 60 and 62 and top and bottom members 64 and 66 respectively. These members which may take substantially any form are normally extruded aluminum shapes and are provided with recesses 68 on their inwardly facing surfaces when the sashes are assembled in the frame. These recesses at their extremes receive the arms of the corner brackets 70 used to retain the several members in a rectangular configuration to define the sash itself. In the drawings, it will be noted that the corner brackets 70 connecting the tops of the side stile members to the top member 64 are of plain design and serve only the function of connecting the side members with the top member at the upper corners of the sash. The brackets 72 interconnecting the lower extremes of the side stile members 60 and 62 with the bottom member 66 serve both as connecting members and as latches to position the sashes within the frame. Thus, a latch 74 extends through the horizontal portion of the bracket 72 and includes an outwardly extending head 76 which may be withdrawn into the horizontal portion of the bracket by actuating the thumb lever 78. The latches are biased to the position illustrated wherein the heads 76 extend outwardly from the sides of the sash but may be retracted against the bias of the spring means (not shown) incorporated into the latch mechanism. These heads when extended engage the notches 80 formed in the flanges 42, 44 and 46 of the frame and retain the sashes in the raised position selected.

It will be noted in FIG. 6 that the side stile member 62 carries an outwardly extending vertical flange 82 substantially coextensive therewith. The flange 82 terminates just above the head 76 of the latch 74 in bracket 72 interconnecting the side member 62 and the bottom member 66. The side stile member 60 carries a similar flange 84 which terminates at its lower end above the head 76 of the other latch. The upper end of the flange 84 terminates a short distance below the top member 64 of the frame for reasons which will be explained in detail below. The flanges 82 and 84 are permanently secured to their respective side members and may in fact be extruded as an integral part of them.

Referring again to the frame and particularly to the side members 12 and 14, it will be noted in FIGURE 3 that the inner ends of the flanges 42, 44 and 46 each are provided with outwardly turned lips 90, 92 and 94 respectively, which terminate short of ridges 96, 98 and 100 formed on the inner faces of the flanges 40, 42 and 44. The ridges and lips cooperate to define openings or tracks for each sash into which their flanges 82 and 84 extend. The end faces 102 and 104 of the side stile members 60 and 62 of the sashes are disposed immediately inwardly of the lips and ridges of the frame and only the flanges which extend from these faces enter between the lips and ridges into the track. The outer faces 106 and 108 of the sashes ride on the inwardly facing bearing surfaces 110, 112 and 114 of the flanges 40, 42 and 44 respectively. Specifically, the outermost sash 20 when assembled in the frame has its side members 60 and 62 riding on the bearing surfaces 110, the other glass sash 22 has its side members running on the bearing surfaces 112, and the innermost screen sash 24 has its side members running on the bearing surfaces 114.

4

Thus, in the absence of the latch heads 76 and the flanges 82 and 84, the several sashes would be free to fall inwardly off the bearing surfaces. However, the heads 76 and flanges 82 and 84 serve to retain the several sashes against their respective bearing surfaces and guide the sashes as they are removed upwardly and downwardly within the frame.

The removable channel 32 of the side member 12 of the frame permits each sash to be withdrawn. The channel 32, as shown in FIG. 4, has an end face 120 which conforms exactly to the shape of the panel 34 of side member proper 30. The channel 32 may be retained in place on the panel 34 either by means of screws which pass through the face 120 into holes 121 or other similar means, and as stated above, when mounted within the panel 34, forms a continuation of the upper member 30 to provide a side 12 for the frame identical to the unbroken side 14. To remove each of the sashes, they are first positioned in the upper portion of the window frame 10 to free the channel 32 from engagement with any of the sashes. Thereafter, by removing the screws or other means employed to secure the channel 32 on the panel 34, the channel 32 may be withdrawn. When the channel 32 is removed from the frame, the sashes may be lowered one at a time to the lower part of the frame. When positioned in the lower half of the frame, the right side of the sash is totally freed from engagement with the side member 12 and thus may be swung out of the frame in a manner suggested in FIG. 7.

In FIG. 1, it will be noted that the sash 24, when in its lowermost position, extends a short distance above the lower end of flange 46 formed as a part of upper portion 30 of the side 12. Thus, if the flange 84 on the side member 60 of the sash extended to the very top of the side member, withdrawal of that sash would be prevented by the engagement of the flange 84 in the lower part of the track formed by flanges 44 and 46 in the top member 30 of the frame. However, because the flange terminates short of the top of the side stile member 60, it is free of the track and the window may be swung outwardly as suggested in FIG. 7.

From the foregoing description those skilled in the art will appreciate that the window construction illustrated does in fact have all of the advantages of both the track type and swing type windows of the prior art without their accompanying limitations. This construction provides ready means for removing each of the sashes from the frame and at the same time forms an effective weather-tight seal along the sides of the sashes by virtue of the thin flanges which extend into the tracks. Because the flanges do not necessarily have a tight fit within the tracks, that is, with the sides of the lips and ridges, they will not bind nor will dirt which collects in the tracks interfere with the sashes movement. Although the flanges formed on the sashes do not fit tightly within the track, it will be appreciated that any force directed against the outside of the sashes such as driving wind or rain, will only serve to push the sashes inwardly against the lips on the inside of the tracks to form a tight fit. Thus, a self-sealing type of action occurs when needed. When as preferred the flanges 82 and 84 fit loosely within the track beyond the end faces 102 and 104 of the side members of the sashes, a pin may be carried on each of those faces adjacent their tops as suggested in the FIGURES 5 and 6 at 125 to cooperate with the heads 76 of the latches to prevent the sashes from rattling on their bearing surfaces. These pins extend into the tracks with the flanges and bear against the rear edges of the lips which define one side of the tracks, and hold the respective sashes on their bearing surfaces. It will be recognized that the pins will not interfere with removal of the sashes when the channel 32 is taken out of the frame 10.

Those skilled in the art will realize that numerous modifications may be made of my invention without departing from its spirit. Therefore, it is not my intention

5

to limit the breadth of my invention to the specific embodiment illustrated and described. Rather, it is my intention that the scope of this invention be determined by the appended claims and their equivalents.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A storm window comprising a frame, channel members formed on and coextensive with the sides of the frame and each having a vertically oriented flange providing a bearing surface, said bearing surfaces on each side of the frame being coplanar, a vertically oriented track provided in each channel of the frame outwardly of the bearing surfaces and coextensive with the bearing surfaces, a sash substantially half the height of the frame and with its side stiles riding on the bearing surfaces and terminating inwardly of the tracks, pins extending outwardly from adjacent the top of the stiles and latches extending outwardly from the bottom of the stiles and cooperating with the tracks for slidably supporting the sashes on the bearing surfaces, flanges secured to the outer edges of each of the stiles intermediate the inside and outside edge thereof and extending vertically from just below the pins at the top of the stiles to just above the latches at the bottom of the stiles and extending outwardly and fitting loosely into the tracks outwardly of the bearing surfaces, and means enabling the lower half of one of the channels to be removed from the frame when the sash is in a raised position in the frame and freeing the pin and latch on the side of said one of the

6

channels from the frame when the sash is thereafter lowered in the frame.

2. A storm window as defined in claim 1 further characterized by an additional flange in the channel on each side of the frame also coextensive with the channels, said additional flanges providing bearing surfaces which extend inwardly beyond the first recited bearing surfaces, tracks formed outwardly of the additional flanges and coextensive therewith, a second sash disposed on the bearing surfaces and substantially half the height of the frame, and the lower half of one of the additional flanges and additional tracks being secured to and removable with the lower half of said one channel, whereby the second sash may be removed from the frame.

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

##### UNITED STATES PATENTS

542,726	Cleveland -----	July 16, 1895
855,359	Swaney -----	May 28, 1907
2,564,265	Knott -----	Aug. 14, 1951
2,636,227	Altwies -----	Apr. 28, 1953
2,711,232	Toth -----	June 21, 1955
2,760,607	Bongiovanni -----	Aug. 28, 1956
2,764,235	Renton -----	Sept. 25, 1956

##### FOREIGN PATENTS

1,165,911	France -----	June 9, 1958
-----------	--------------	--------------