

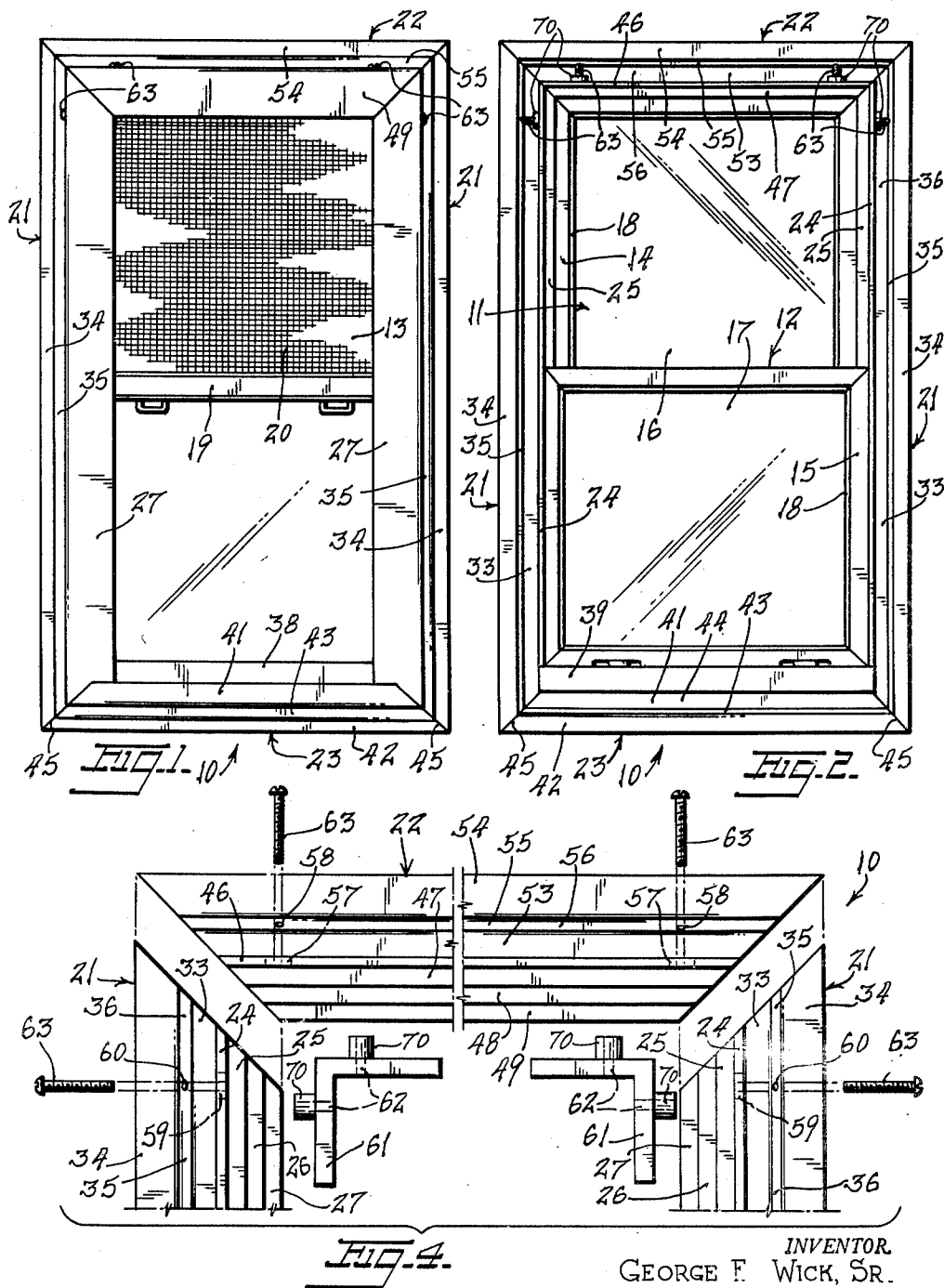
Feb. 1, 1955

G. F. WICK, SR
ADJUSTABLE FRAME CORNER FOR THREE CHanneled
COMBINATION SCREENS AND STORM WINDOWS

2,701,040

Filed April 13, 1953

2 Sheets-Sheet 1



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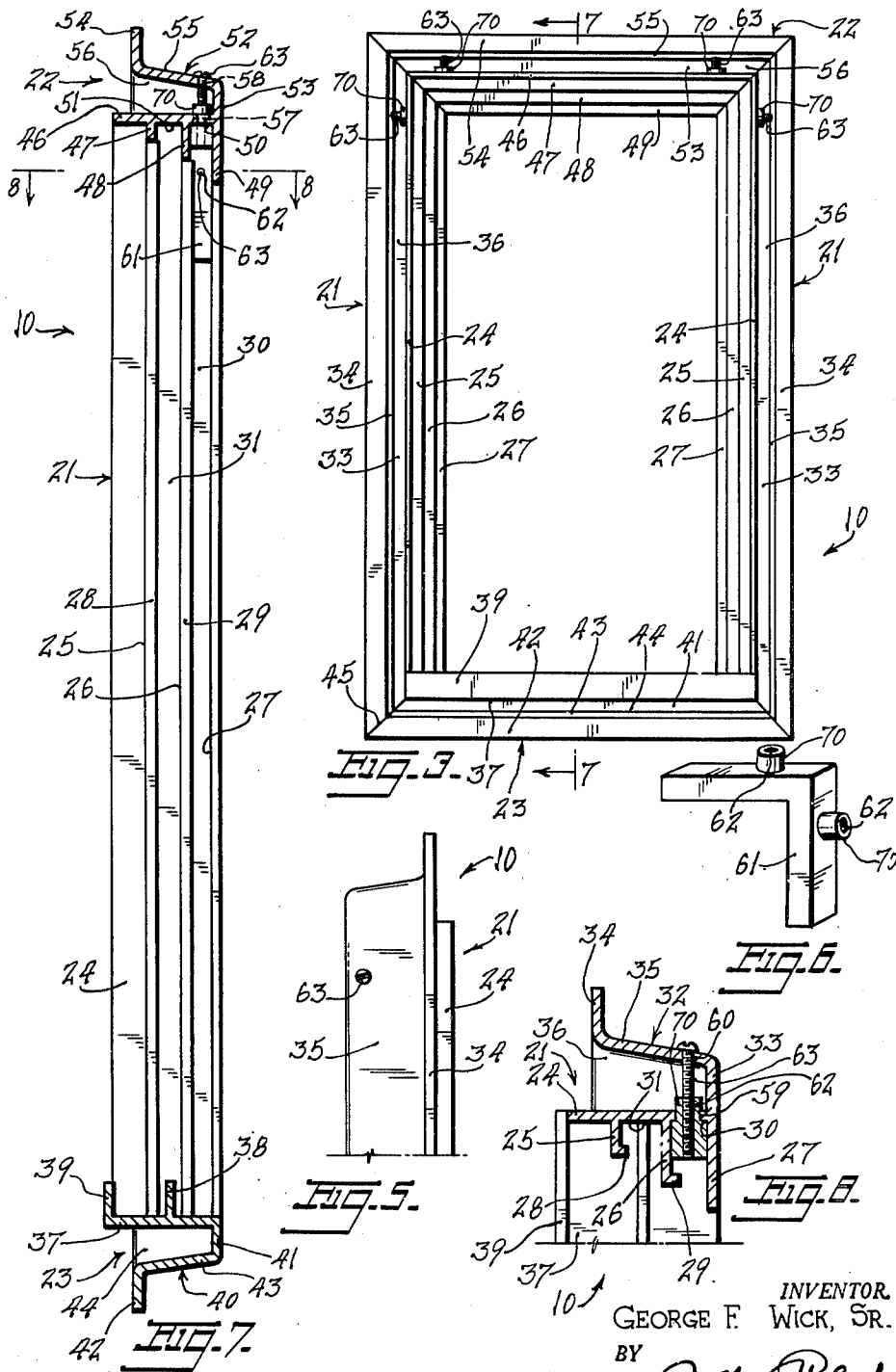
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ADJUSTABLE FRAME CORNER FOR THREE CHANNELED COMBINATION SCREENS AND STORM WINDOWS

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12 Claims. (Cl. 189—36)

This invention relates to new and useful improvements in metal window constructions such as disclosed in Patent Number 2,693,850, patented November 9, 1954, and more particularly to an adjustable frame corner for a three-channeled combination screen and storm window.

Channel type window frames are known in which the sashes and screens are removably and slidably mounted but difficulty has been experienced in installing the window frames in building openings so that the frame will exactly fit the opening. Where the building openings are standardized, irregularities are often found causing a misfit whereby space is left between the window frame and wall of the building opening which causes leakage and is unsightly.

A primary object of the present invention is to provide a window frame with means for adjustably fitting the frame to the window opening in the building.

Another object of the invention is to provide a rectangular metal window frame having means within itself for compensating for ordinary variations from the rectangular which frequently appear in the window openings of buildings.

A specific object of the invention is to provide a metal window frame with side, top and bottom members, the top member of which is adjustably connected to the side members.

For further comprehension of the invention and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is an elevational view of the exterior side of a window construction embodying the invention.

Fig. 2 is an elevational view of the interior of the window of Fig. 1, with the screen removed.

Fig. 3 is a front elevational view of the improved window frame.

Fig. 4 is a fragmentary front view of the top of the window frame, the parts being shown disassembled.

Fig. 5 is an edge view of the top of the window frame.

Fig. 6 is an enlarged perspective detail view of a corner bearing strip.

Fig. 7 is an enlarged vertical sectional view taken on the plane of the line 7—7 of Fig. 3.

Fig. 8 is a cross-sectional view taken on the plane of the line 8—8 of Fig. 7.

Referring in detail to the drawings, a metal window construction is shown including a frame 10 made in accordance with the invention, an upper sash 11 slidably mounted in the frame, a lower sash 12 slidable therein and a screen 13 slidably mounted therein. The upper and lower sashes are provided with aluminum frames 14 and 15 and with glass panes 16 and 17, respectively. Preferably gaskets 18 are provided to seal the panes in their frames. Screen 13 is provided with an aluminum frame 19 in which a wire mesh 20 is secured in any suitable manner.

The frame 10 is formed of aluminum and is rectangular in shape including side members 21, a top member 22 and a bottom member 23. Each side member comprises a strip 24 from which three ribs 25, 26 and 27 extend inwardly. The inner free edges of the ribs 25 and 26 are formed with flanges 28 and 29, respectively. The ribs 25, 26 and 27 extend inwardly,

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graduated distances, the outer ribs 27 being the longest, and between them, form, at either side of the frame, an inner channel 30 and an outer channel 31. Extending laterally of the strip 24 and forming a continuation of the rib 27 is a Z-shaped molding strip 32 including a rear wall portion 33, a front wall portion 34 and a connecting side wall portion 35. The side wall portion 35 is spaced laterally from the strip 24 in approximately parallel relation thereto so as, with said strip 24 and rear wall portion 33, to form a channel 36.

The bottom member 23 comprises a strip 37 from which a pair of ribs 38 and 39 extend upwardly. A Z-shaped molding strip 40, similar to molding strip 32, is formed integrally with the inner end of the strip 37. Strip 40 includes a vertical rear wall portion 41, a vertical front wall portion 42 and an approximately horizontal connecting wall portion 43. The strip 37 and the strip 40 form a channel 44.

In the form here specifically disclosed the side members 21, including the molding strips 32, are cut at a forty-five degree bevel at their ends, and the ends of the bottom member 23 and its molding strip 40 are cut at a similar bevel. These ends are fitted together and secured by welding, such welding joints being indicated by the bevel lines 45 shown at the bottom corners of the frame in Fig. 3.

The top member 22 is constructed substantially the same as the side members 21 and comprises a strip 46 from which three ribs 47, 48 and 49 extend downwardly. The ribs 47, 48 and 49 form a pair of channels 50 and 51, but these ribs have no flanges such as the flanges 28 and 29 of the ribs of the side members 21. A Z-shaped molding strip 52, similar to the molding strips 32, extends upwardly and forms a continuation of the rib 49. The molding strip 52 includes a rear wall portion 53, a front wall portion 54 and an approximately horizontal wall portion 55, approximately parallel to the strip 46, connecting the rear and front wall portions 53 and 54 respectively. The strip 46, the approximately parallel wall portion 55 and the rear wall portion 53 form a channel 56. The ends of the strip 46 and its molding strip 52 are cut at a forty-five degree bevel similar to the ends of the side members. The top member 22 however is not welded to the side members 21 but is detachably and adjustably secured thereto as will be presently described.

The top member 22 and the side members 21 are fitted together so that their channels 50, 51 and 30, 31 respectively are in alignment. The strip 46 of the top member is formed with an opening 57 adjacent each end thereof, and the approximately parallel wall portion 55 of the molding strip 52 has an opening 58 in alignment with each opening 57. Each strip 24 of the side members 21 is formed with an opening 59 adjacent its upper end, and each approximately parallel side wall portion 32 of each molding strip 32 has an opening 60 in alignment with each opening 59. In assembling the top and side members, a bearing and reinforcing member 61, of angle shape, is interposed across the meeting edges of said members. The bearing member is dimensioned to fit snugly into the channels 30 and 50 and it is formed with a screw-threaded opening on each side of its central joint, each opening continuing into an integral projecting tubular screw-threaded boss 62. In mounting the bearing member 61, one arm thereof is slid lengthwise into and along the channel 30 of the adjacent side member 21 inside the flange 29 of rib 26 until its boss 62 drops into the opening 59 in the strip 24 of the side member and projects into the channel 36 of the side member. The top member 22 may then be mounted on the side members 21 and its beveled ends brought into engagement with the top beveled ends of the side members whereby the channel 50 of the top member will fit over the other arm of the bearing member 61 and its opening 57 will slip over the boss 62 on said arm, the end of the boss projecting into the channel 56 of the top member. The openings 57 and 59 in the top member 22 and each side member 21, respectively, are slightly larger in diameter than the diameter of the bosses 62 to permit

clearance between the openings 57, 59 and their respective bosses 62.

A screw 63 extends through each of the openings 58 and 60 in the top and side members 22 and 21, respectively and through the aligned tubular boss 62 and arm of the adjacent bearing member 61 whereby the top and side frame members are adjustably secured together.

The bearing member 61, by reason of its bosses 62 receivable through the openings 57, 59 in the top member 22 and the side member 21 at each corner, serves to retain the strip 24 of each side member in substantially fixed relationship to the strip 46 of the top member 22. Thus the channels 30 and 31 in the side members 21 and the channels 50 and 51 in the top member 22 are retained in registration with one another so that movement of the sashes is not impeded. However, the outer dimensions and shape of the window frame may be varied to a limited degree, but to a degree sufficient to compensate for the magnitude of irregularities normally to be expected in the building openings in which the windows are to be placed, through manipulation of the screws 63, these screws causing variations in the relative positions of the wall portions 34 and 35 of the side members 21 and the corresponding wall portions 54 and 55 of the top member 22. This adjustment comes about in the following manner: The channel 36, which extends longitudinally of the side member 21 and the width of which channel is in the direction of the width of the side member 21, is defined by an inner wall 24, an outer wall 35, and a bottom wall 33. The corresponding channel 56 in the top member 22 is defined by the inner wall 46, the outer wall 55 and the bottom wall 53. The material of which these walls are formed is somewhat resiliently distortable. Hence if the screws 63 on the top member 22 are screwed down into the bosses 62 with which they engage, the outer channel wall 55 will be forced downwardly toward the inner channel wall 46, thus reducing the width of the channel 56. This has the effect of reducing the height of the overall frame. Similarly, if the screws 63 in the side members 21 are screwed out from the bosses 62 with which they engage, the outer walls 35 of the channels 36 will spring away from their inner walls 24, thus increasing the width of the channels 36, and hence increasing the overall width of the frame. Independent adjustment may be made at each corner, or the same adjustments may be made at each corner, depending upon the particular size and shape of the building opening into which the frame is to be placed, thus permitting the outer periphery of the frame to conform to irregularities in the window opening while the inner channel walls 24 and 46 are retained in substantially fixed relationship to one another through the action of the bosses 62 on the bearing member 61, so that no adverse effect on the movability of the sashes results.

The upper sash 11 is mounted in the frame against the outer side ribs 25 and with its side edges abutting against the channels 31 and the center ribs 26. The lower sash is mounted in the frame against the outer side ribs 25. The screen is mounted in the channel between the central ribs 26 and the inner ribs 27. The frames 14 and 15 of the sashes 11 and 12, respectively, and the frame 19 of the screen 13 fit into the channels of the top member 22 when in uppermost position.

The sashes and screen all have their positions in the frame and no one fits the position of another but all three fit together to form a weather and insect proof combination. The sashes and screen all fit snugly into the frame and are slidable upwardly and downwardly therein.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a window construction, two frame pieces meeting at a corner and each comprising inner and outer walls connected by a bottom wall to define a channel extending longitudinally thereof, the width of said channel being parallel to the plane in which the frame pieces lie, a corner piece engaging said inner walls so as to

substantially rigidly fix the relative position of said inner walls, and securing elements passing through and operatively engaging the outer walls of said frame pieces, and adjustably engageable with said corner piece so that their length extending outwardly from said corner piece is adjustable, thereby permitting adjustment of the relative positions of the outer walls of said frame pieces with respect to their corresponding inner walls.

2. In the window construction of claim 1, walls projecting inwardly from the inner walls of said frame pieces to define channels extending longitudinally thereof, the width of said channels being perpendicular to the plane in which said frame pieces lie, said corner piece being received within one of said last named channels in each frame piece.

3. In the window construction of claim 2, openings in the inner walls of said frame pieces in line with the channels in which said corner piece is received, and bosses on said corner piece passing through said openings, said securing elements engaging with said bosses.

4. In the window construction of claim 1, openings in the inner walls of said frame pieces in line with said corner piece, and bosses on said corner piece passing through said openings, said securing elements engaging with said bosses.

5. In a window construction, two frame pieces meeting at a corner and each comprising inner and outer walls connected by a bottom wall to define a channel extending longitudinally thereof, the width of said channel being parallel to the plane in which said frame pieces lie, said inner and outer walls having beveled meeting edges, a corner piece engaging said inner walls so as to substantially rigidly fix the relative position of said inner walls, and securing elements passing through and operatively engaging the outer walls of said frame pieces, and adjustably engageable with said corner piece so that their length extending outwardly from said corner piece is adjustable, thereby permitting adjustment of the relative positions of the outer walls of said frame pieces with respect to their corresponding inner walls.

6. In the window construction of claim 5, walls projecting inwardly from the inner walls of said frame pieces to define channels extending longitudinally thereof, the width of said channels being perpendicular to the plane in which said frame pieces lie, said corner piece being received within one of said last named channels in each frame piece.

7. In the window construction of claim 5, openings in the inner walls of said frame pieces in line with the channels in which said corner piece is received, and bosses on said corner piece passing through said openings, said securing elements engaging with said bosses.

8. In the window construction of claim 6, openings in the inner walls of said frame pieces in line with said corner piece, and bosses on said corner piece passing through said openings, said securing elements engaging with said bosses.

9. In a window construction, two frame pieces meeting at a corner and each comprising inner and outer walls connected by a bottom wall to define a channel extending longitudinally thereof, the width of said channel being parallel to the plane in which said frame pieces lie, means retaining said inner walls in substantially fixed relationship, and means of adjustable effective length operatively connected between the inner and outer walls of each of said frame pieces, thereby permitting adjustment of the relative positions of the outer walls of said frame with respect to their corresponding inner walls.

10. In a window construction, two frame pieces meeting at a corner and each comprising inner and outer walls connected by a bottom wall to define a channel extending longitudinally thereof, the width of said channel being parallel to the plane in which said frame pieces lie, means retaining said inner walls in substantially fixed relationship, and means of adjustable effective length operatively connected between the inner and outer walls of each of said frame pieces and spanning said channels, thereby permitting adjustment of the relative positions of the outer walls of said frame pieces with respect to their corresponding inner walls.

11. The window construction of claim 9, in which said outer walls have beveled meeting edges.

12. In a window construction, two frame pieces meeting at a corner and each comprising a structure adja-

cent the outside of said frame piece, extending longitudinally thereof, and collapsible laterally thereof, said structure comprising inner and outer walls, means retaining said inner walls in substantially fixed relationship and means operatively connected between said inner and outer walls for adjusting the spacing between them, thereby permitting adjustment of the size and shape of the outer periphery of said window.

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