July 26, 1955 M. M. KEHNE 2,713,896

CASEMENT WINDOWS

Filed Aug. 14, 1950 4 Sheets-Sheet 1

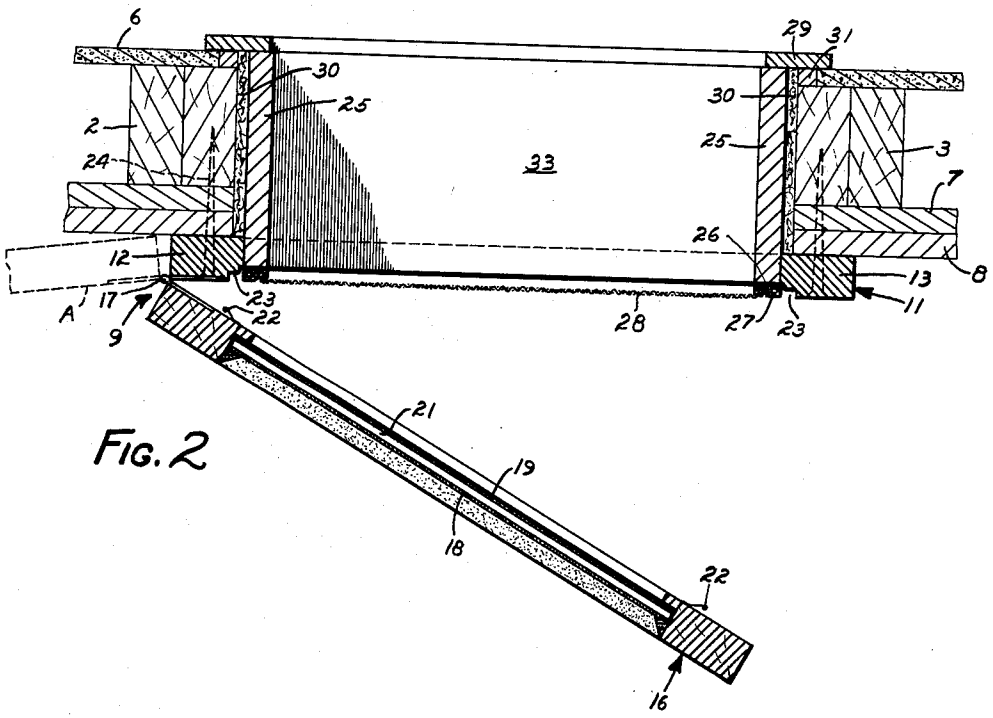


FIG. 2

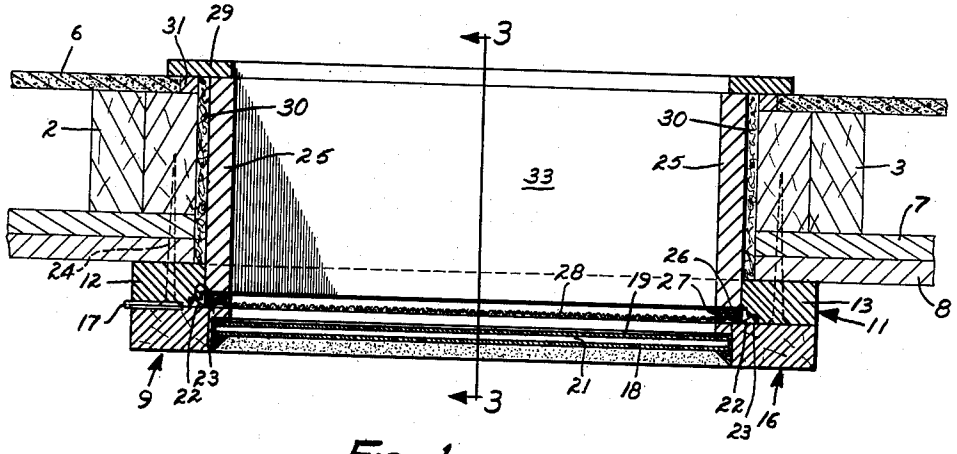


FIG. 1

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CASEMENT WINDOWS

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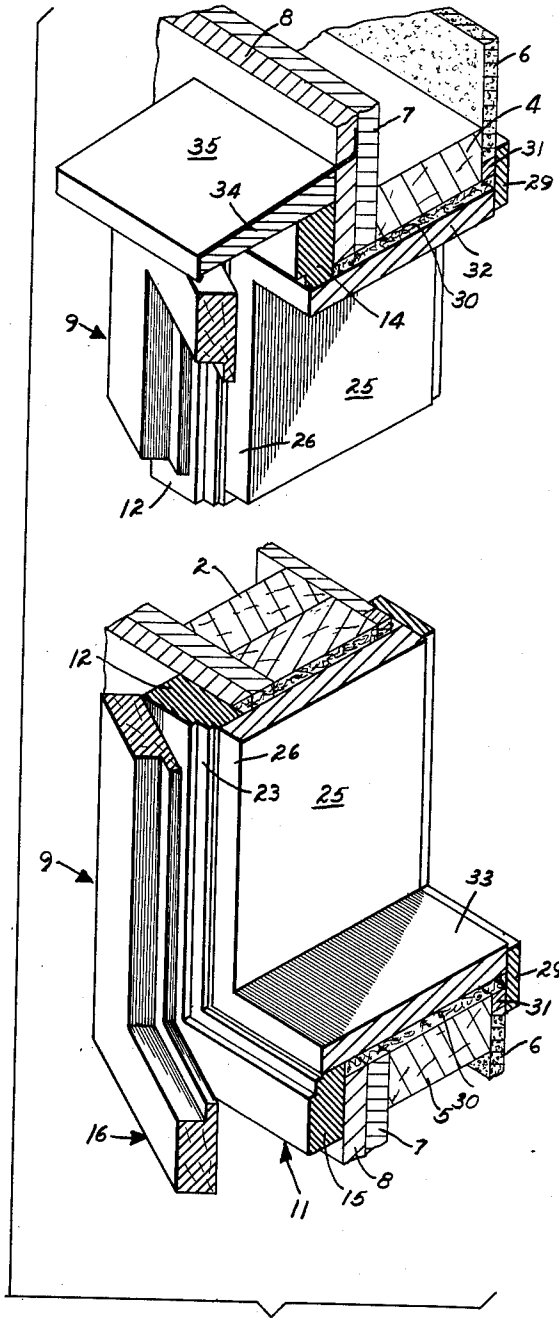


FIG. 4

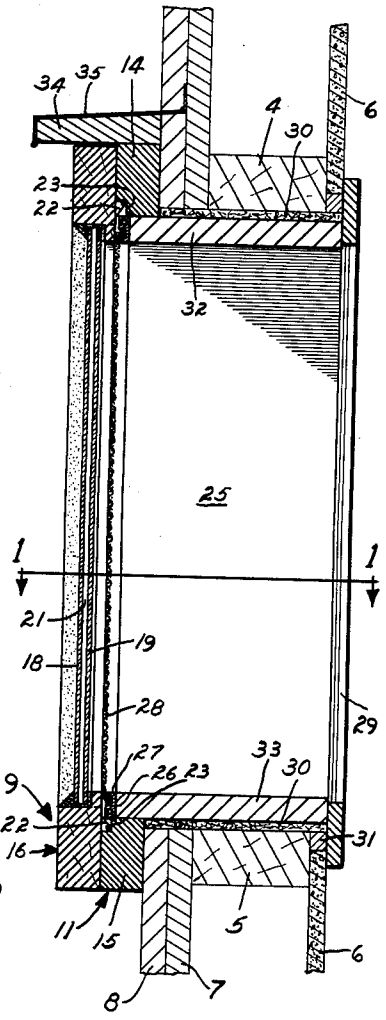


FIG. 3

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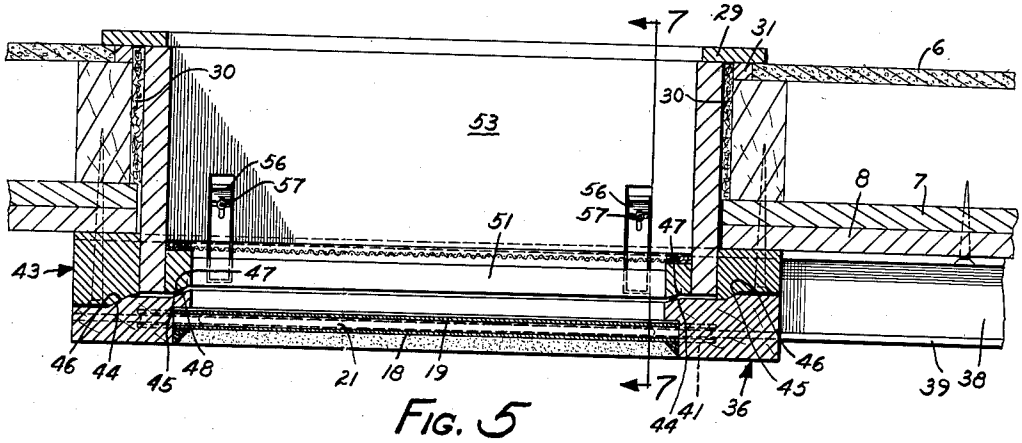


FIG. 5

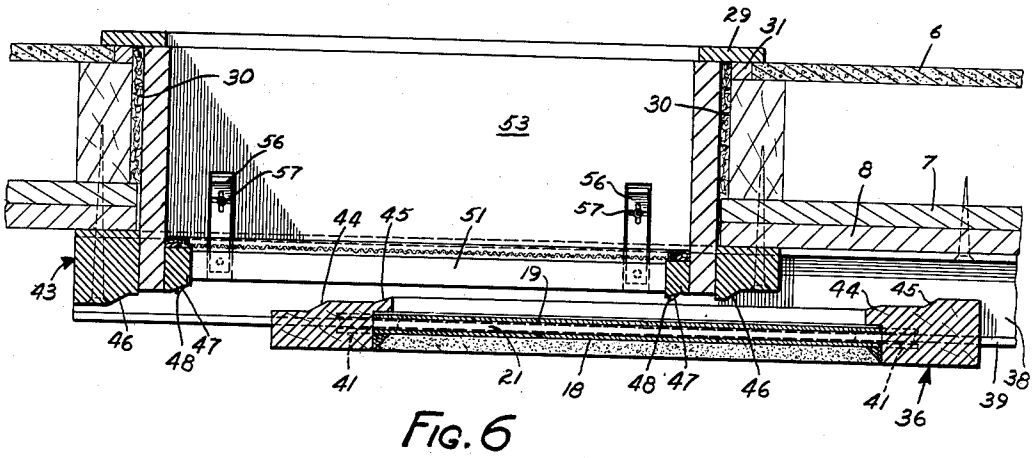


FIG. 6

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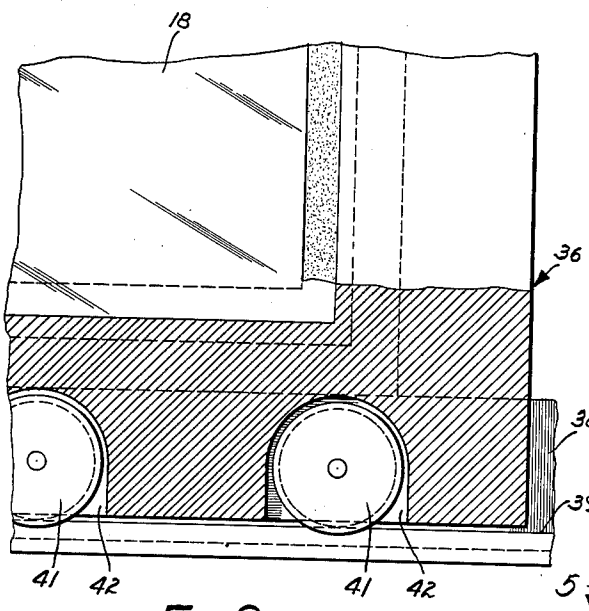


FIG. 8

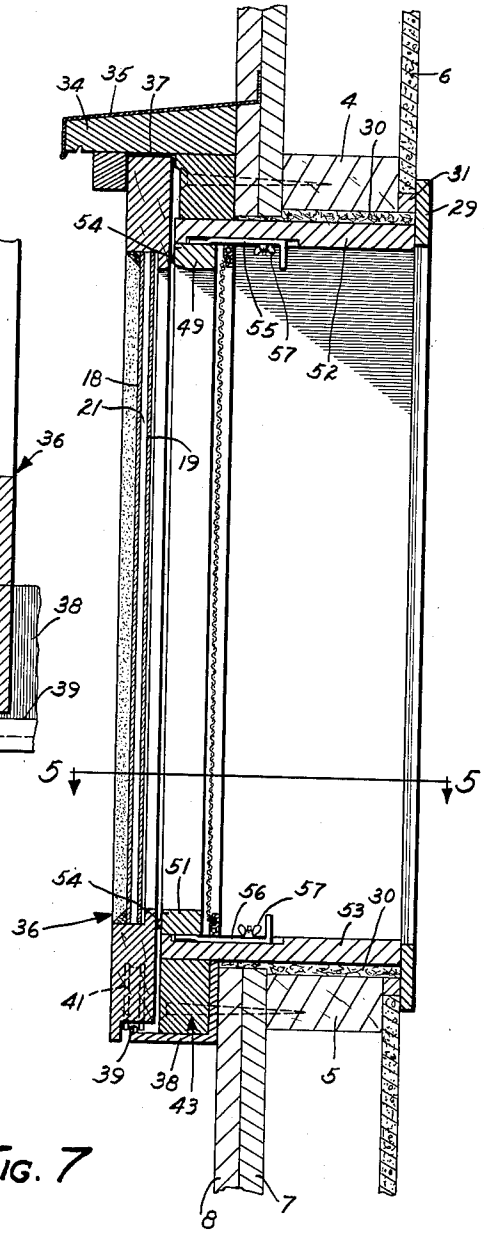


FIG. 7

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2,713,896

CASEMENT WINDOWS

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Application August 14, 1950, Serial No. 179,129

3 Claims. (Cl. 160—92)

This invention relates to new and useful improvements in window constructions and more particularly to a window construction of the casement type, wherein the sash frame is usually mounted for swinging movement about a vertical axis.

The invention is concerned more particularly with the design and construction of casement windows, and an important object thereof is to provide an improved structure of this general type which is so constructed that all of the component parts of the window may be completely prefabricated and assembled into a completed structure, ready to be mounted in the usual opening in a building wall, whereby the mounting of the casement window may be greatly facilitated.

A further object of the invention is to provide a casement window constructed of relatively few parts, and which parts are so designed and arranged with respect to one another that the composite casement window presents a very practical and useful structure of this general type which may be manufactured at extremely lost cost.

A further object is to provide a casement window comprising a rectangular or square frame adapted to be fixedly secured to a wall of a building about a window opening provided therein, and said frame having a casement sash frame hinged thereto for swinging movement about a vertical axis to permit free ventilation of the building.

A further object is to provide a composite casement window including a fixed frame and a sash frame hinged thereto, and which frames may be completely constructed and assembled for shipment as a composite unit for installation in building walls, provision being made in the construction of said casement window for supporting a sealing element between the fixed and movable frames thereof, thereby to seal the joint between said parts when the casement window is closed.

Other objects of the invention reside in the simple and inexpensive construction of the fixed and movable frames thereof, whereby each may be constructed of conventional lumber; the rails constituting said frames being so designed, cross-sectionally that they may be manufactured in mass production on conventional milling machinery, ready for assembly as conventional sash frames; in the provision of means in one of said frame members for supporting a weather stripping element, thereby to seal the joints between said fixed and movable frame members; in the provision of means for supporting a screen substantially within the confines of the fixed frame member in a more or less permanent manner; and in the simplicity of the composite casement window whereby it may readily and quickly be mounted in a wall opening to complete that portion of a building structure with a minimum of fitting.

These and other objects of the invention and the means for their attainment will be more apparent from the following description taken in connection with the accompanying drawings.

In the accompanying drawings there has been disclosed a structure designed to carry out the various objects of

the invention, but it is to be understood that the invention is not confined to the exact features shown, as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a sectional plan view on the line 1—1 of Figure 3 showing the casement window closed;

Figure 2 is a view similar to Figure 1 showing the window open;

Figure 3 is a vertical sectional view on the line 3—3 of Figure 1;

Figure 4 is a perspective view illustrating upper and lower frame details of the composite casement window;

Figures 5 and 6 illustrate a window of slightly modified construction wherein the casement window is mounted for horizontal sliding movement in suitable guide rails; and

Figures 7 and 8 further illustrate the form shown in Figures 5 and 6, and particularly the anti-friction rollers or wheels mounted for rolling movement in suitable tracks.

In the selected embodiment of the invention herein disclosed, there is illustrated in Figures 1 and 2, for purposes of disclosure, a portion of a building wall comprising the usual studs 2 and 3, a header 4 and a lower member 5 which cooperate to provide an opening for the novel casement window herein disclosed.

The usual side wall covering 6, such as Sheetrock, wall board, plaster, etc., is shown secured to the inner faces of the studs and headers 4 and 5. Sheathing 7, of conventional well known construction, is shown secured to the outer faces of the studs to provide a base for supporting the usual wall covering indicated at 8, such as siding or various other forms of coverings, well known in the industry. The usual insulating material, such as building paper, and other insulating materials, not shown in the drawing, may be embodied in the wall structure, as is now common.

One of the important features of the present invention resides in the construction of the composite casement window, generally designated by the numeral 9 in Figures 1 and 3. The window is best illustrated in Figures 1 and 2, and comprises a relatively fixed frame, generally designated by the numeral 11. This frame may be completely prefabricated at a mill, and comprises upright rails 12 and 13, the upper and lower horizontal rails 14 and 15, respectively, being suitably mortised and tenoned together at the corners of the frame, as is customary, thereby to provide a well constructed window structure which, when properly treated with paint or some other preservative, will give long uninterrupted service. The composite frame 11 may be secured in position on the building wall, to encase the window opening therein, as is customary.

In the application drawings, the frame 11 is shown seated directly against the wall covering 8, which may be desirable in some instances, in that it outwardly spaces the outer face of the frame 11 a relatively greater distance from the adjacent face of the wall covering 8, to permit the casement window next to be described, to be swung back against the building wall when in open position, as indicated by the dotted lines A in Figure 2. If desired, the frame 11 may be seated directly on the sheathing 7, in which case the wall covering is abutted against the outer edges of the frame 11, as will be understood. When so constructed, it may be advisable to make the fixed frame 11 of slightly thicker lumber so that its outer face may be spaced outwardly from the adjacent face of the wall covering 8, a distance substantially equal to the spacing now shown in Figure 1.

The swinging portion of the casement window comprises a frame, generally designated by the numeral 16,

which preferably is hinged to the stationary frame **11** by suitable hinges **17**, whereby the sash frame **16** may swing about a vertical axis, as is well known in the construction of casement windows.

The sash frame **16** is shown provided with spaced transparent panels **18** and **19**, which are hermetically sealed at their edges to provide a dead air space **21** therebetween as is now common practice. The dead air space **21** serves as an insulation to prevent the conduction of heat or cold through the window panel, thereby dispensing with the use of a storm window. A suitable wheather stripping, indicated at **22** in Figure 2, is secured to the inner surface of the sash frame **16** and is adapted to seat in the bottoms of the grooves **23**, provided in the outer surface of the fixed frame **11**.

If desired, a single transparent panel not shown, may be utilized in lieu of the dual panels **18** and **19**. With such a single panel it may be necessary to use a separate storm sash during the colder or winter season, which may be mounted in the space normally occupied by the screen **28**.

A suitable operating mechanism, not shown in the drawings is provided for opening and closing the casement window **16**. There are now numerous openers of this general type available on the market and it is therefore believed unnecessary herein to show such a device.

Before installing the casement window in a wall opening, the wall may be completed. That is, the wall covering **8** is secured to the sheathing and the inner wall covering **6** may be also applied. The inner frame **11** is then seated about the window opening and secured to the sheathing by suitable fastening elements such as nails **24**, preferably driven through the wall covering **8**, sheathing **7** and into the studs **2**, as indicated in Figures 1 and 2.

When the frame **11** has been properly anchored to the wall and squared with the window opening, the jambs **25** are secured in place by securing their outer edges to the inner edges of the frame **11** with the outer edges of the jambs **25** being spaced inwardly from the inner face of the sash frame **16** to provide a seat **26** for the frame **27** of a suitable window screen **28**. The inner edges of the jambs **25** may be substantially aligned with the inner surface of the plaster **6**, whereby an inner trim **29** may be secured to the inner edges of the jambs and the adjacent surrounding surfaces of the wall opening, thereby to complete the installation, as will be understood by reference to Figures 1 and 2. Suitable firring strips **31** may be secured to the studs **2** and **3** and the headers **4** and **5**, as shown in Figures 1, 2 and 3, to provide a solid surface against which to nail the inner trim **29**. The spaces **30** between the jambs **25** and studs may be filled with a suitable insulation, as indicated in Figures 1 and 2.

In some installations it may be found more desirable to assemble the jambs **25**, upper trim **32** and sill **33** in a composite frame, before installation in the building, whereupon the operation of mounting the frame in a wall opening is facilitated.

From the foregoing, it will be noted that the casement window in itself is extremely simple in construction and may readily and quickly be positioned in a wall opening by an inexperienced worker and without requiring the use of special tools in the installation thereof. It will also be noted that the composite window structure is extremely simple and inexpensive, and requires very few parts, all of which are very ordinary in construction, so that they may readily be fitted against a building wall and secured in position about the window opening to provide a very practical and rugged casement window, which has many desirable features. An upper trim **32** is interposed between the jambs **25** and a similar sill member **33** is shown interposed betwen the lower ends of the jambs to complete the structure.

One of the important features of the present window structure resides in the fact that when the casement window is swung open, full vision through the open window is obtained, limited only by the inside dimensions of the inner frame composed of the jambs **25—25**, and upper and lower frame members **32** and **33**. Also by hinging the outer sash frame in the inner fixed frame, as shown in Figures 1 and 2, the operation of hanging the swingable frame is greatly simplified.

Another desirable feature made possible by the novel construction of the casement window herein disclosed, resides in the way the transparent panel of the window is arranged, whereby the size of the transparent dual panels is substantially equal to the maximum size of the window opening, whereby full vision is obtained through the window at all times, regardless of whether the casement window is in open or closed position.

The usual cap **34** is shown secured to the upper edge of the fixed frame **14** and extends outwardly and well over the upper edge of the pivoted frame **16**, when the latter is in closed position, as illustrated in Figure 3. The cap **34** may be provided with a metal facing **35**, if desired, to protect it against the elements.

Figures 5 to 8, inclusive, illustrate a casement window of slightly different construction, wherein the sash frame, generally designated by the numeral **36**, is mounted for sliding movement in suitable horizontal guide ways **37** and **38**. The bottom guide way **38** is preferably in the form of an angle bar having its outer edge bent slightly upwardly to provide a rail **39** upon which anti-friction rollers **41** may roll, thereby to reduce friction to a minimum, and thus render the sash frame readily movable when shifting it from open to closed position. The rollers **41** may be mounted in recesses **42** provided in the lower rail of the movable sash frame **36**, as best illustrated in Figure **8**.

To obtain a leaktight joint between the inner surface of the movable sash frame **36** and the adjacent face of the fixed frame **43**, when the window is closed, the upright rails of the two frames are provided with a plurality of complemental faces **44**, **45**, and **46**, **47**, respectively, as best illustrated in Figures 5 and 6. Suitable weather stripping elements **48** are secured to the faces **47** of the fixed frame member, as shown in Figures 5 and 6.

By thus constructing the upright rails of the two frame members, when the outer sash **36** is in closed position, as shown in Figure 5, its beveled faces **44** and **45** will engage the corresponding faces **46** and **47** of the fixed frame and thereby seal the joints between the two frames, assisted by the weather stripping elements **48**, as will be understood by reference to Figure 5.

The horizontal rails of the fixed and movable window frames are of normal thickness and the joints between the two frame members are sealed by manipulation of sealing strips **49** and **51** secured at the top and bottom of the trim or facing formed by the header **52** and lower member **53**. The strips **49** and **51** carry weather stripping elements **54**, similar to the weather stripping elements **48** shown in Figures 5 and 6, and are adapted to be moved into sealing engagement with the inner surface of the sash frame **36** by manipulation of suitable operators **55** and **56**, mounted in recesses provided on the header **52** and sill member **53**, as clearly illustrated in Figure 7. Wing nuts **57** are provided for securing the operators **55** and **56** in adjusted position.

These elements are utilized only in cold weather, when the window is to be sealed against infiltration of cold air currents. In warmer climates, the sealing strips **49** and **51** may be moved inwardly so that the weather stripping **54** does not contact the inner surface of the sash frame **36**.

A suitable operator, not shown, may be provided for shifting the outer sash frame **36** from its closed to an open position and vice versa.

The structure illustrated in Figures 5 to 8, inclusive, embodies most of the desirable features of the form shown in Figures 1 to 4, inclusive. It presents the utmost in simplicity and when installed in a window opening may readily be shifted from open to closed position, and vice

versa, without effort, a highly desirable feature in structures of this general type.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

I claim as my invention:

1. In a casement window structure, a stationary frame comprising top, bottom and side rails secured together at the corners of the frame to provide a relatively flat open frame structure adapted to be seated against and secured to a building wall in registry with a window opening therein, opposed jamb members and an upper trim member and a lower sill member secured together to provide a box-like frame portion adapted to be received in the window opening in the building wall, said box-like frame having one end fitting into said stationary frame and secured thereto, and a sash frame pivoted to the outer marginal edge portion of one of the side rails of said stationary frame and having a transparent panel therein, the effective area of which is substantially equal in size to the size of the opening in said box-like frame portion, thereby to provide maximum vision through the composite window structure.

2. A casement window structure according to claim 1, wherein the end of the box-like frame which is fitted into the opening in said stationary frame and secured therein, is spaced inwardly from the outer face of said stationary frame, thereby to provide an annular recessed seat adapted to receive the frame of a window screen.

3. In a casement window structure, a box-like frame comprising opposed jamb members, an upper horizontal member, and a lower sill member, said box-like frame

being adapted to be fitted into an opening in a wall structure, a stationary frame comprising top, bottom and side rails secured together in edge-wise relation and cooperating to provide an opening for receiving the outer end of said box-like frame, said outer end stopping short of the thickness of said stationary frame and cooperating with the exposed portions of the walls of the opening in said stationary frame to provide an annular recessed seat adapted to receive a window screen, a sash frame pivoted to the outer marginal edge portion of one of the side rails of said stationary frame and having a transparent panel therein, the over-all size of the sash frame corresponding substantially to the over-all size of said stationary frame, whereby when said sash frame is folded into flat-wise relation against said stationary frame, the perimeter of said sash frame is substantially coincident with the perimeter of said stationary frame, said sash frame having an annular inwardly extending flange providing an outwardly facing seat for receiving said transparent panel, and the inner edge of said flange being substantially coincident with the inwardly facing wall surfaces of said box-like frame, thereby to provide maximum vision through the composite window structure.

References Cited in the file of this patent

UNITED STATES PATENTS

582,029	Tremmel	May 4, 1897
864,931	Spicer	Sept. 3, 1907
1,364,695	Boyan	Jan. 4, 1921
1,750,659	Barclay	Mar. 18, 1930
1,887,415	Lobell	Nov. 8, 1932
2,379,727	Lewis	July 3, 1945
2,389,863	McLaughlin, Jr.	Nov. 27, 1945