Nov. 12, 1935. F. ARMENTO 2,020,926

DOUBLE HUNG CASEMENT WINDOW

Filed Oct. 17, 1932

Fig. 1

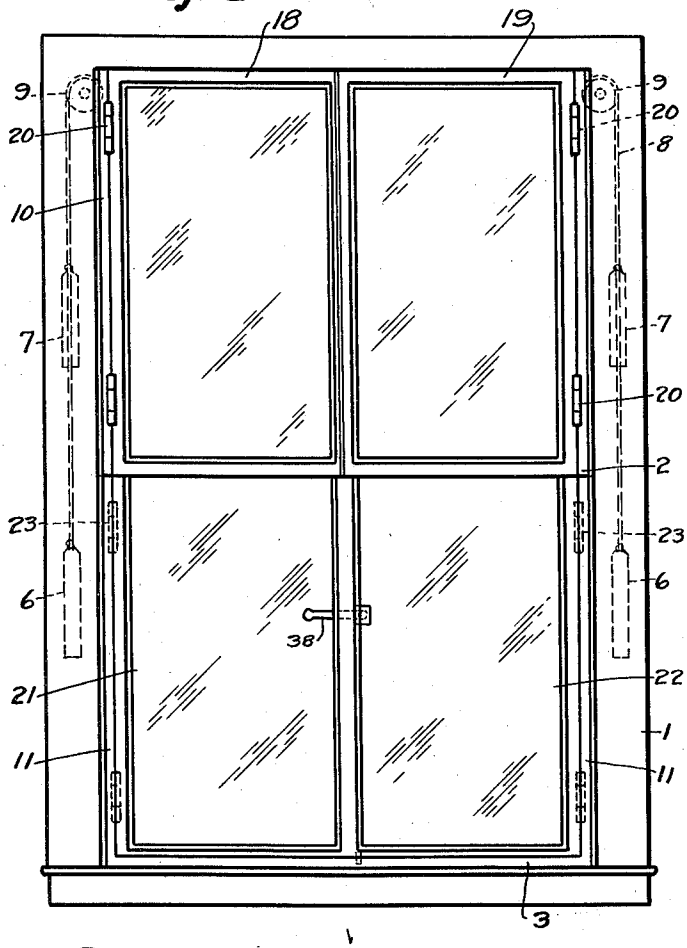


Fig. 2

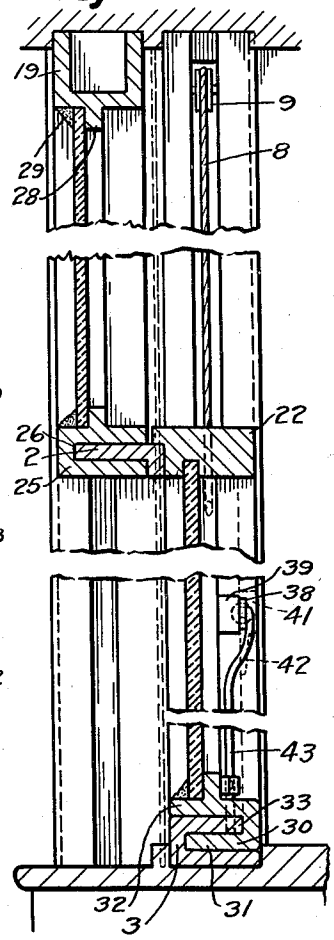


Fig. 3

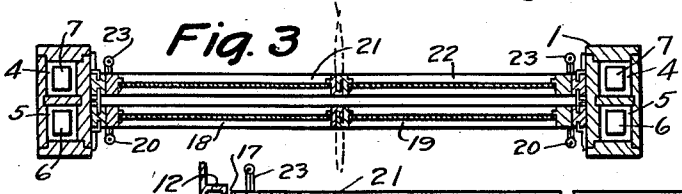
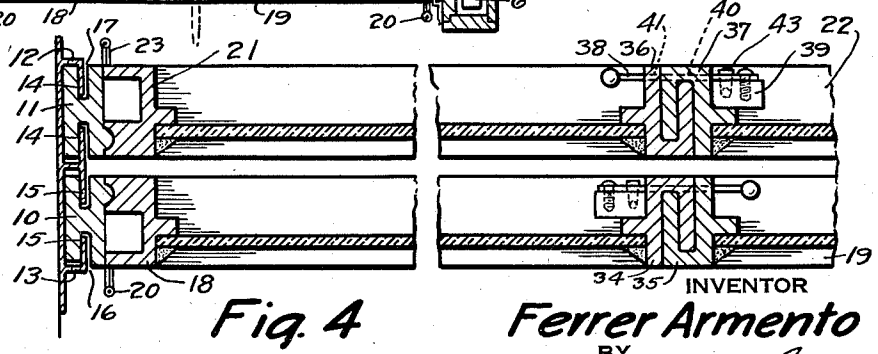


Fig. 4



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DOUBLE HUNG CASEMENT WINDOW

Ferrer Armento, New York, N. Y.

Application October 17, 1932, Serial No. 638,159

1 Claim. (Cl. 20—48)

The invention is a window which is a combination of a double hung window in which the sash are counterweighted, and a casement window in which the sash are hinged so that they may be opened with the glass of the upper sash swinging outward and the glass of the lower sash swinging inward.

The object of the invention is to provide a window with a 100 percent window opening.

Another object of the invention is to provide means for mounting casement windows in double hung window sash.

Another object of the invention is to provide independent hinged sections in sash of double hung windows in which the sections may readily be swung inward and outward.

Another object of the invention is to provide double hung window sash with swinging glass frames in which the frames are dovetailed to form a practically perfect lock between the frames and lock.

A further object of the invention is to provide means for locking double hung windows with swinging sash so that the sash may be locked in the closed position.

A still further object of the invention is to provide a window in which the glass may readily be cleaned.

And a still further object of the invention is to provide a double hung casement window which is of a simple and economical construction.

With these ends in view the invention embodies a window having double hung sashes with independent frames hinged in the sashes and in which the sashes are vertically slidable on rails at the sides of the window frame.

Other features and advantages of the invention will appear from the following description taken in connection with the drawing, wherein:—

Figure 1 is a view looking toward the outside of the window.

Figure 2 is a vertical section thru the frames and sash with the joints on an enlarged scale.

Figure 3 is a sectional plan thru the window showing the relative positions of the sash and window weights.

Figure 4 is a sectional plan showing one side and the center of the window on an enlarged scale.

In the drawing the window is shown as it would be made wherein numeral 1 indicates the window frame, numeral 2 the lower rail of the frame forming the upper sash, and numeral 3 the lower rail of the frame forming the lower sash.

The window frame 1 may be of any type or design and may be arranged in any manner. It may be of any shape and the proportions of the height and width may be varied to provide a window for any opening desired. In the design shown openings 4 and 5 are provided in the sides of the frame in which counterweights 6 and 7 may be located, as shown. It will be understood that the counterweights may be of any shape or design and may be arranged in any manner. In the design shown the counterweights may be supported by cables 8 which pass over pulleys 9 at the upper end of the window frame, as shown in Figure 1.

The cables 8 are attached to side members 10 and 11 of the frames in which the members 2 and 3 form the lower or cross rails thereof. The members 10 and 11 are slidably mounted in rails 12 and 13 and it will be noted that the rails have inwardly extending flanges 14 and 15 which extend into grooves 16 and 17 in the sides of the members 10 and 11. The members 10 and 11 are therefore free to move upward and downward and are connected at their lower ends by the cross rails 2 and 3 which are made integral therewith. These frames are therefore U-shaped with their upper ends open and the sash are hinged to the vertical members thereof.

The upper frame with the cross rail 2 is provided with sash 18 and 19 which are hinged to the members 10 by hinges 20, and the lower frame, with the cross rail 3, is provided with sash 21 and 22 which are hinged to the members 11 by hinges 23. It will be noted that the upper sash 18 and 19 are hinged to the outside of the vertical members 10 and the lower sash are hinged to the inside of the vertical members 11 so that the sash of the upper frame will swing outward and the sash of the lower frame inward. The horizontal members of the sash may be made as shown in Figure 2 with a channel shaped section 24 at the top and a grooved section 25 at the bottom. It will be noted that the section 25 dovetails over the member 2 of the upper frame with the member 2 forming a tongue extending into the groove which is indicated by the numeral 26. The sections 24 and 25 are provided with beads 27 against which a glass 28 may be held by putty, as indicated by the numeral 29, or by any other means.

The lower frame with the cross rail 3 is provided with sash 21 and 22 which swing inward and it will be noted that the lower edges of these sash are dovetailed into the member 3, as shown in Figure 2. The member 3 is provided with a groove 30 in which a tongue 31 on the lower edge of the

sash passes and the lower edge of the sash are provided with a groove 32 into which a tongue 33 on the member 3 passes as shown in Figure 2. It will be noted that this will form a perfect seal and at the same time rigidly lock the sash in the frame to form a rigid construction which will hold the frame and prevent bending or sagging at any point.

The sash may be jointed in the center, as shown in Figure 4, wherein the sash 18 and 19 are provided with interlocking members 34 and 35 and the sash 21 and 22 with interlocking members 36 and 37. It will be noted that these members dovetail into each other and each is provided with a bead similar to the bead 27 against which the glass may be placed. It will be understood that the glass may be held in the frames, or sash, by any other means or in any manner and the members may be shaped in any other design in order to facilitate mounting the glass therein.

The sash may be locked by a bar 38 which may be pivotally mounted on a block 39 on one sash and extend thru an opening 40, as shown in dotted lines in Figure 4, in the sash upon which it is mounted. This bar will also extend thru an opening 41 in the adjoining sash when the sash are in the closed position and in the lower part of the opening 41 is a slot 42 with a bevelled outer surface which the bar will engage as it is moved downward and it will be noted that the bevelled surface will clamp and hold the two sash rigid. A vertical bar 43 may be pivotally mounted on the bar 38 and may extend downward so that it may pass thru the lower member of the sash and also thru the end of the tongue 33 of the cross member 3 of the lower frame which will lock the sash in the frame to prevent them opening. It will be understood that a similar bar may be used on the upper sash, as shown in Figure 4, and it will also be understood that any other means may be used for locking or holding the sash together or in the frame. It will also be understood that the sash may be of any other shape, or the edges thereof may be formed in any other manner to provide interlocking connections between the members thereof and between the sash and the frames.

It will be understood that other changes may be made in the construction without departing from the spirit of the invention. One of which changes may be in the general design or arrangement of the sash or the frames in which the sash are mounted, another may be in the use of other means of hinging the sash in the frames, another may be in the use of rails of any other type or design for slidably holding the sash frames, another may be in the design or arrangement of the counterweights, and still another may be in the use of other means for holding the sash and frames.

The construction will be readily understood from the foregoing description. In use the window may be provided as shown and it will be noted that the frame may be installed in a similar manner to a standard window frame and the tracks mounted in the frame as shown and described. The U-shaped sash frames may be mounted in the tracks before the tracks are attached to the window frame and the sash may also be mounted in the U-shaped frames. The window may otherwise be installed in the usual manner and it will be noted that the sash of the upper sash frame may open outward whereas the sash of the lower frame will open inward. It will be noted that both sash may be opened with both of the sash in the lower position and in this position both of the cross rails 2 and 3 will be at the bottom of the window so that the entire window opening will be free and unobstructed. This window, therefore, provides 100 percent window opening and light and at the same time may be thoroughly sealed and may otherwise operate as a standard double hung window.

The small sash may be locked in the frames or otherwise secured therein during the winter or cold months and may be released so that they may be opened during the summer months when it is desired to obtain as much window opening as possible and when the sash are in the locked position the entire frame with the sash will form a very rigid member so that it may readily be raised and lowered in the usual manner.

Having thus fully described the invention what I claim as new and desire to secure by Letters Patent, is:

A combination double hung casement window of the type having sash frames hinged in U-shaped frames in which the U-shaped frames are slidable in a window frame, said U-shaped frames open at their upper ends and provided with tongues connecting their lower ends, in which the tongues dovetail into the lower members of the hinged frames of the sash, and the central adjoining members of said hinged frames dovetail within each other, the said hinged frames of the upper sash swinging outward and the frames of the lower sash swinging inward, means locking the hinged frames in the U-shaped frames, and means locking said hinged frames together.

FERRER ARMENTO.