Aug. 6, 1946. H. O. CARROLL 2,405,112

CONVERTIBLE COMBINATION STORM SASH AND SCREEN

Filed May 4, 1945

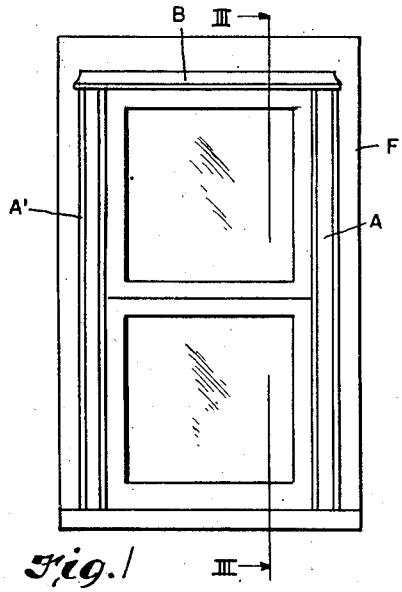


Fig. 1

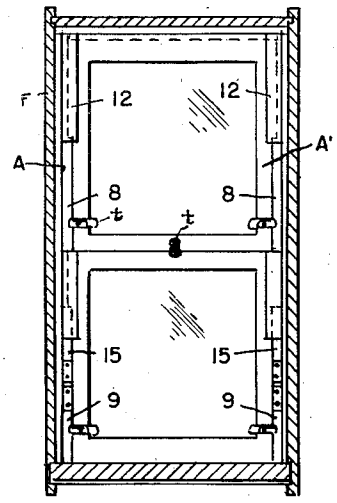


Fig 2

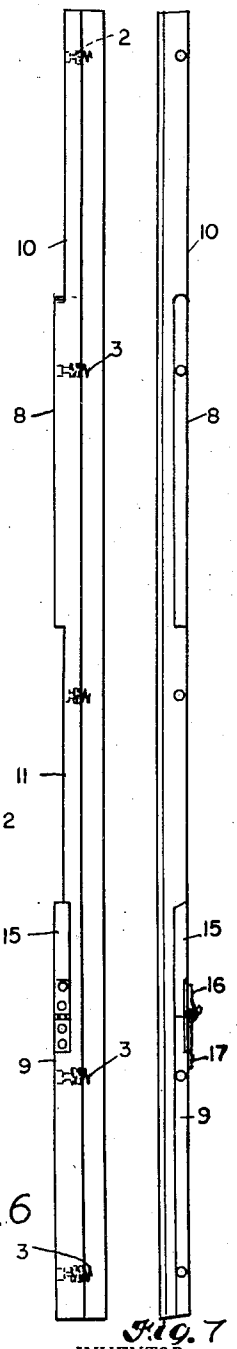


Fig. 7

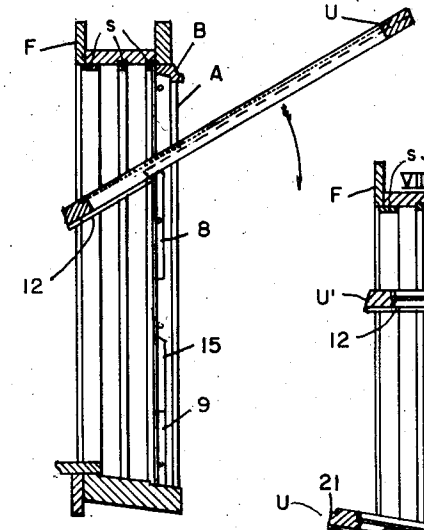


Fig. 4

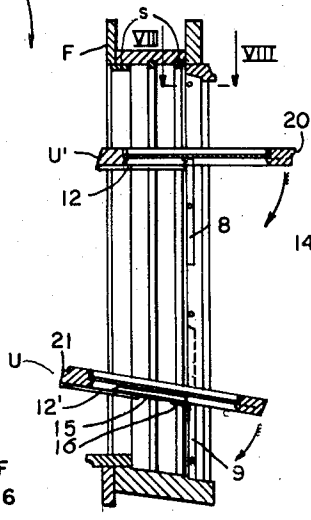


Fig. 3

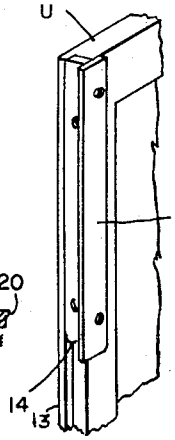


Fig. 5

Fig. 6

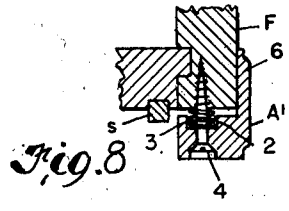


Fig. 8

INVENTOR.
HUBERT O. CARROLL
BY
Oberlin & Limbach
ATTORNEYS

Patented Aug. 6, 1946 2,405,112

UNITED STATES PATENT OFFICE

2,405,112

CONVERTIBLE COMBINATION STORM SASH AND SCREEN

Hubert O. Carroll, Painesville, Ohio

Application May 4, 1945, Serial No. 592,029

15 Claims. (Cl. 160—182)

1

In applying storm sash and screens to window frames which commonly lack satisfactory guide means therefor, considerable difficulty is generally incurred in the handling of units of large size, and such difficulties are aggravated where the window frames are warped or distorted. In accordance with the present invention, however, distortions such as are frequently found in old window frames are without complications as regards the installation of storm sash and screen units, and the insertion of the units is particularly facilitated and made easy of rapid accomplishment. Other objects and advantages of the invention will be seen from the following description.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawing:

Fig. 1 is an outside elevational view of a window including a convertible combination in accordance with the invention;

Fig. 2 is an inside elevational view, the window frame being in section;

Fig. 3 is a sectional view taken on a plane substantially indicated by line III—III, Fig. 1, showing manner of assembly, the customary window sashes which would lie between the stops *s* being omitted for clarity;

Fig. 4 is a similar view, showing the manner of insertion of a one-piece unit;

Fig. 5 is a fragmentary perspective view of the upper corner of a unit;

Fig. 6 is an enlarged elevational detail of the insert member A' as shown in Fig. 2;

Fig. 7 is an edge view of the same; and

Fig. 8 is an enlarged detail fragmentary section taken on a plane substantially indicated by the line VIII—VIII, Fig. 3.

In a window frame F, Fig. 1, of customary type, such as for double-hung sashes, the invention contemplates providing holding members for sash and screen units, embodying inserts A, A' at the sides, and B at the top, these being placed at the forward outer edges of the window frame and being suitably secured thereto. As these inserts are initially independent, and are assembled in place, spring equalizing or take-up means 3 are arranged in interposed relation between the insert and the window frame. While such spring means may be in the form of leaf springs, I generally prefer coil springs, and these may be held in simple manner in a shallow countersunk recess 2 in the insert, and the screws 4, Fig. 8, for securing the insert, may pass through the spring into the window frame F. As seen clearly in Fig. 8, the insert members have a laterally projecting flange 6 which laps over on the outside front of the window frame and thereby makes a weather-tight seal, while the body of the insert may be more or less close to the frame edge, as drawn up by the securing screws 4, with compensating alignment as permitted by the compensating springs 3. Thus, the insert members A, A', B, can be secured in position at the front of the window frame such as to provide a true and accurate receiving stop system for the sash and screen units.

2

In detail construction, the insert members A, A', involve laterally inwardly-extending stops 8 and 9, the former being in a position opposite the lower portion of the upper window sash, and the latter opposite the lower portion of the lower window sash, as shown in detail in Figs. 3 and 4 particularly. Above the stop portion 8 and above the stop portion 9 are cut-out portions 10, 11, which provide a clearance equal to the transverse dimension of the sash or screen unit which is to be positioned in the window frame. Thus, it is a simple matter to insert the sash or screen unit through the top, as illustrated in Fig. 4, by sliding the unit from the inside through the opened window, against the cut-out guide portions 10. And, as the unit is slid out until the cleats 12 come into engagement with the stop portion 8, on then swinging the unit down as indicated by the arrow in Fig. 4, the recesses 14, Fig. 5, engage on the top of the stops 8 so that the unit swings down precisely into place by engagement of its outer edges as stops against the stop portions of the insert, and it may then be locked by suitable turn-buttons *t*.

Desirably, the combination set may include glass storm sash and screen units, and for larger sizes either or all of these may be in two pieces, upper and lower, as illustrated more particularly in Fig. 3. Where the unit, glass or screen, is in upper and lower pieces, the detail of stop construction as shown more particularly in Figs. 2–4 and 7 and 8, comes into operation. In this the upper part of the lower stop portion 9 is in the form of a hinged member or switch-stop 15. Suitable spring means, as in the hinge, or by a strip spring 16, Fig. 7, secured as at 17, serves

to normally hold the tongue or switch-stop in closed position or to assist in supporting it in open position when the tongue is opened inwardly. In positioning two-piece units thus, with the lower window open, the switch-stops 15 are opened inwardly, by swinging in on their hinges, as shown in Fig. 3, and the unit U is slid from within on such switch-stops as guides, to a position in which the cleats 12' ride under the projecting elements 15, as shown in Fig. 3, and on then swing the unit downwardly as indicated by the arrow, it comes precisely into position. With the upper window opened, the upper unit U' is slid from within along the guide edges 10 and the top of stop portions 8 until the cleats 12 engage the latter, and then on swinging the unit down as indicated by the arrow, the unit comes into position, with its lower edge 20 fitting in the coacting portion 21 of the lower unit U, in weather-tight relation. On all units a longitudinal front edge-flange 13 rests against the front of the adjacent portions of the insert frame.

For ventilation, the storm sash may simply be unlocked and be pushed off of its normal closed position on the sill, and the cooperating cleat and stop construction allows it to drop down slightly from the sill level, enough to hold it open for air entry at the sides below. Necessity of awkward pivoted shutter boards in the lower part of a storm sash, as common, is thus eliminated.

Convenient and accurate placement of storm sash and screen units accordingly may be had, and even if these are of a size or weight tending to render them unwieldy, they are nevertheless easily handled, since the lateral guides and the guides provided by the upper ends of the stop portions form a positive system for accurately aligning the units in their movement. And, with the equalizing take-up for compensating distortions in the window frames, as provided by the spring means interposed between the frames and the inserts, accurate and uniform fit of the storm sash and screen units is assured even where applied to old and distorted window frames.

Other modes of applying the principle of the invention may be employed, change being made as regards the detail described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In convertible storm sash and screen construction for window frames having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, lateral draft-excluding flanges on the front edges of said side members, spring truing-means interposed between said insert and the window frame, interchangeable storm sash and screen units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly-projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, inwardly swinging switch-stops hinged to the upper ends of said lower stop portions, spring means for holding said switch-stops in position, and outwardly projecting cleats on the upper portion of said units.

2. In convertible storm sash and screen construction for window frames having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, lateral draft-excluding flanges on the front edges of said side members, interchangeable storm sash and screen units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, inwardly swinging switch-stops hinged to the upper ends of said lower stop portions, spring means for holding said switch-stops in position, and outwardly projecting cleats on the upper portion of said units.

3. In convertible storm sash and screen construction for window frames having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, interchangeable storm sash and screen units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, inwardly swinging switch-stops hinged to the upper ends of said lower stop portions, spring means for holding said switch-stops in position, and outwardly projecting cleats on the upper portion of said units.

4. In convertible storm sash and screen construction for window frames having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, removable outer units for correlation with said insert, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, inwardly swinging switch-stops hinged to the upper ends of said lower stop portions, spring means for holding said switch-stops in position, and outwardly projecting cleats on the upper portion of said units.

5. In convertible storm sash and screen construction for window frames having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, lateral draft-excluding flanges on the front edges of said side members, spring truing-means interposed between said insert and the window frame, removable outer units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, inwardly swinging switch-stops hinged to the upper ends of said lower stop portions, spring means for holding said switch-stops in position, and outwardly projecting cleats on the upper portion of said units.

6. In convertible storm sash and screen construction for window frames having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, lateral draft-excluding flanges on the front edges of said insert members, removable

outer units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, inwardly swinging switch-stops hinged to the upper ends of said lower stop portions, spring means for holding said switch-stops in position, and outwardly projecting cleats on the upper portion of said units.

7. In convertible storm sash and screen construction for window frames having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, spring truing-means interposed between said insert and the window frame, removable outer units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, inwardly swinging switch-stops hinged to the upper ends of said lower stop portions, spring means for holding said switch-stops in position, and outwardly projecting cleats on the upper portion of said units.

8. In convertible storm sash and screen construction for a window frame having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, spring truing-means interposed between said insert and the window frame, removable outer units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, and laterally outwardly projecting cleats on the upper portion of said units.

9. In convertible storm sash and screen construction for a window frame having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, lateral draft-excluding flanges on said side members, spring truing-means interposed between said insert and the window frame, and removable outer units in relation with said insert.

10. In convertible storm sash and screen construction for a window frame having top and bottom window sashes, a frame insert of side and top members to be received within the window

frame, removable outer units, and means facilitating the placing of such units within the insert from the inside, said means including stop means on said insert and said units comprising laterally inwardly projecting stop portions on said insert opposite the lower portion of the top sash of the window, laterally inwardly projecting stop portions on said insert opposite the lower portion of the bottom sash of the window, and laterally outwardly projecting cleats on the upper portion of said units.

11. In convertible storm sash and screen construction for a window frame having top and bottom window sashes, a frame insert of side and top members to be received within the window frame, a removable outer unit, and means facilitating placing such unit within the insert from the inside, said means including laterally inwardly projecting stop portions opposite the lower portion of the bottom sash of the window, inwardly swinging tongues hinged to the upper ends of said lower stop portions, spring means for holding said tongues in closed position, and cleats on said removable outer unit forming recesses to seat over said tongues.

12. A convertible storm sash and screen construction, comprising a frame insert to be received in a window frame, spring elements between said insert and the window frame, laterally inwardly projecting stop portions spaced down from the top on said insert, laterally outwardly projecting draft-excluding flanges on the insert to lap on the front of the window frame, a removable outer unit to fit in said frame insert, laterally outwardly projecting flanges at the front of said unit to seat along said inwardly projecting stop portions, and cleats on said unit forming recesses to receive the top of the stop portions of the insert.

13. A convertible storm sash and screen construction, comprising a frame insert to be received in a window frame, spring elements between said insert and the window frame, laterally inwardly projecting stop portions spaced down from the top on said insert, and laterally outwardly projecting draft-excluding flanges on the insert to lap on the front of the window frame.

14. A convertible storm sash and screen construction, comprising a frame insert to be received in a window frame, equalizing cushion elements between said insert and the window frame, and laterally outwardly projecting draft-excluding flanges on the insert to lap on the front of the window frame.

15. A convertible storm sash and screen construction, comprising a frame insert to be received in a window frame, and equalizing cushion elements between said insert and the window frame.

HUBERT O. CARROLL.