May 14, 1940. C. B. WEEDON 2,200,568

STORM WINDOW

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Fig. 1.

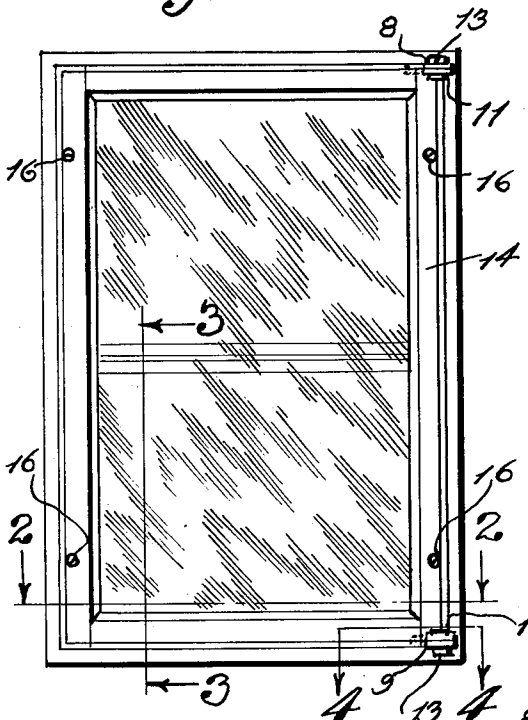


Fig. 3.

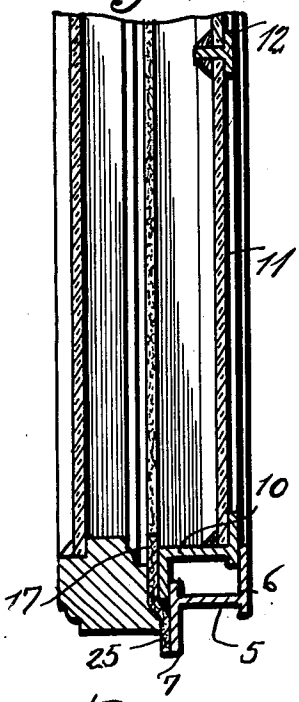


Fig. 2.

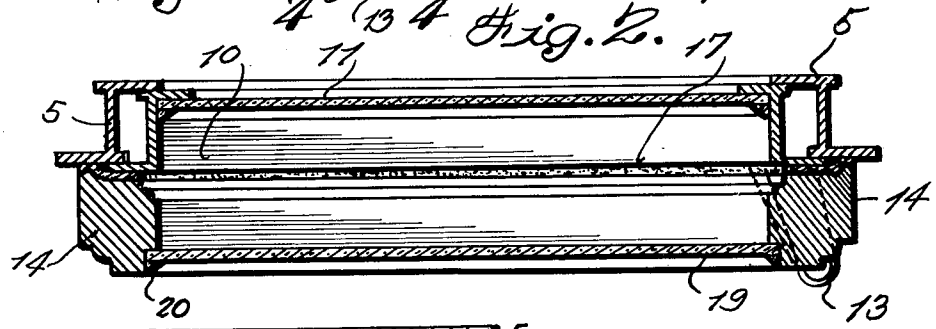
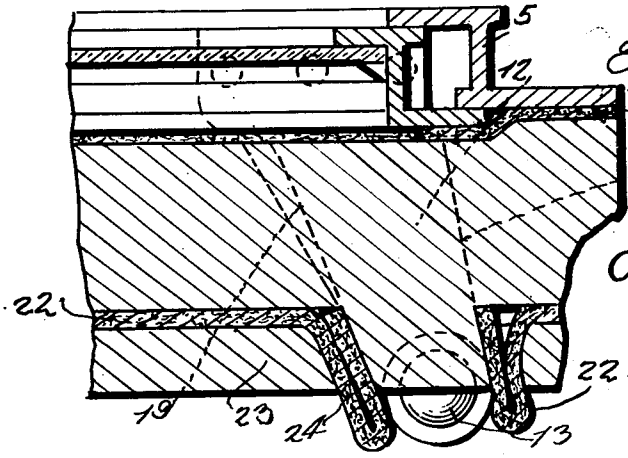


Fig. 4.



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STORM WINDOW

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Fig. 5.

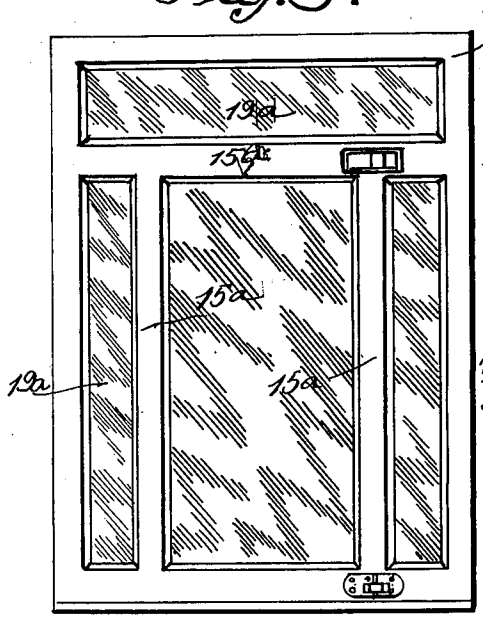


Fig. 9.

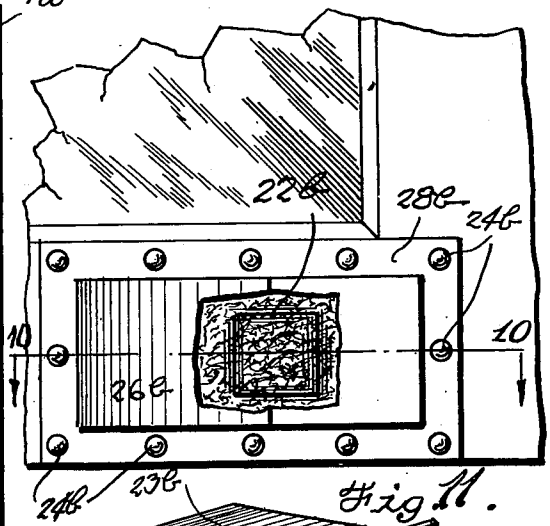


Fig. 11.

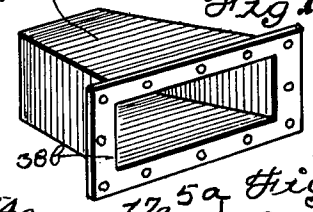


Fig. 6.

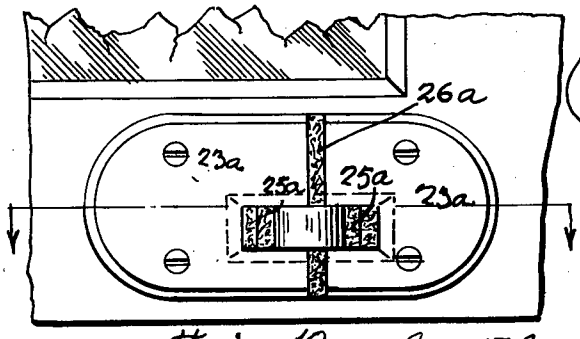


Fig. 7.

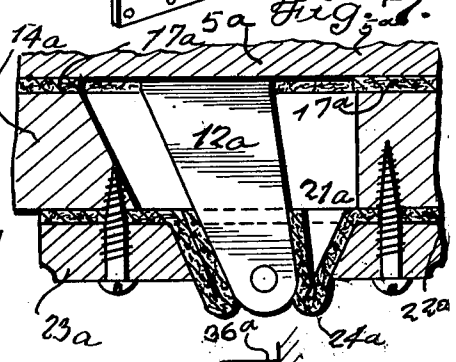


Fig. 10.

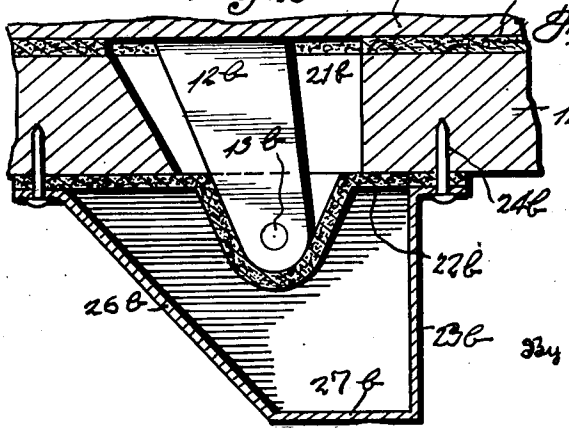
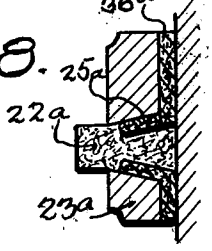


Fig. 8.



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STORM WINDOW

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Fig. 12.

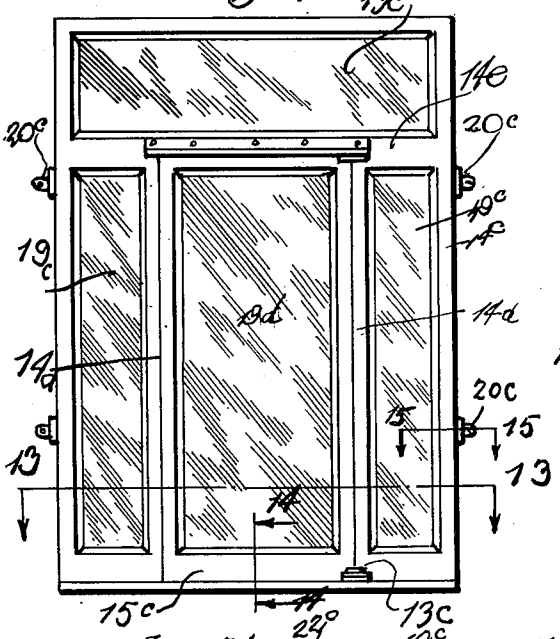
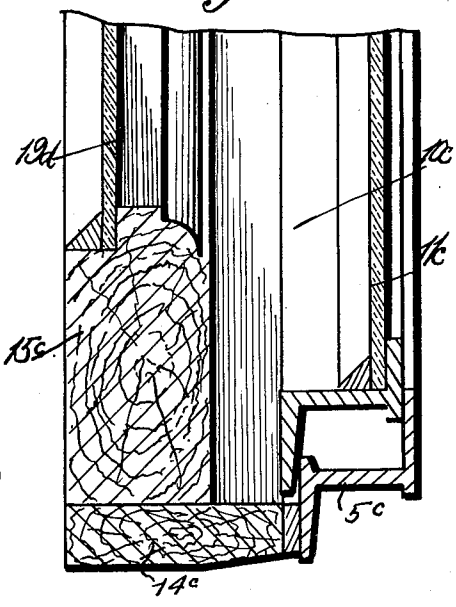


Fig. 14.



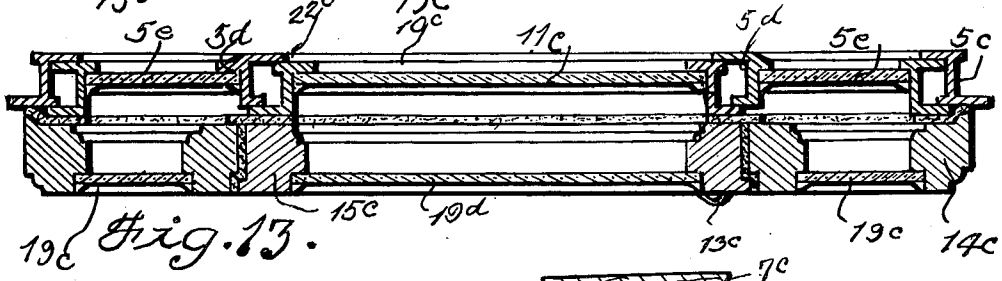
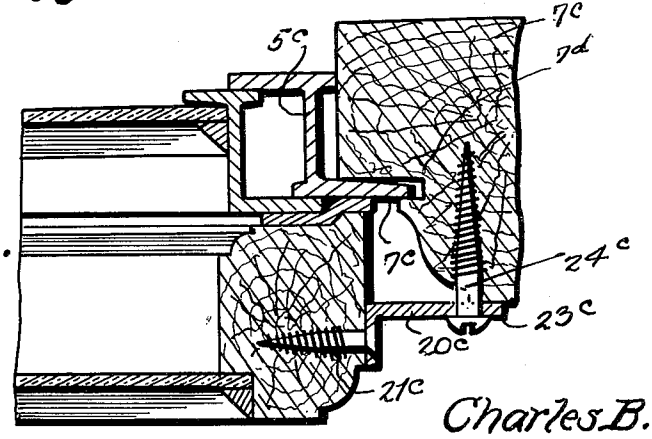


Fig. 13.

Fig. 15.



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STORM WINDOW

Charles B. Weedon, Highland Park, Mich.

Application October 26, 1938, Serial No. 237,091

2 Claims. (Cl. 20—55)

This invention relates to improvements in storm windows.

The primary object of this invention is to provide a storm window which may be readily attached to a casement or horizontally swinging window of the wood or metal type so that the storm window will be capable of swinging in a horizontal path with the conventional window.

A further object of this invention is to provide sealing means between the storm sash and casement window to prevent the intrusion of wind and other weather conditions.

A still further object of this invention is to provide sealing means for the hinge members of the casement window which in present constructions are arranged at the top and bottom of the sash.

Heretofore, it has been general practice to secure storm windows to the frame of a window opening by means of nails, screws or the like and in the event that the window is of the casement type constructed to swing outwardly in the horizontal plane, it naturally follows that the window cannot be opened because the storm window is permanently fastened in place. In the case of the sliding type window, the storm window is generally secured in the same manner and therefore cannot be opened immediately from the interior of the building.

The above objections and disadvantages have been overcome by securing the storm window to the sash of the casement frame whereby said storm window may swing in a horizontal plane with the casement window as a single unit.

Other objects and advantages of the invention will become apparent during the course of the following description, taken with the drawings wherein,

Figure 1 is a front elevational view of a metal casement-type window embodying this invention;

Figure 2 is a horizontal cross-sectional view taken on line 2—2 of Figure 1, looking in the direction of the arrows, illustrating the same greatly enlarged and showing the manner in which the storm sash is secured to and sealed on the casing;

Figure 3 is a vertical enlarged cross-sectional view taken on line 3—3 of Figure 1, looking in the direction of the arrows and further illustrating in detail the manner in which the casement window may be provided with a storm sash;

Figure 4 is a horizontal cross-sectional view taken on line 4—4 of Figure 1, looking in the direction of the arrows, showing in enlarged detail one of the hinge joints and the manner of sealing the same against the intrusion of weather conditions;

Figure 5 is a front elevational view of another embodiment of the invention in which the casement window is of the wood type and the storm sash being also of wood may be secured to swing in a horizontal plane;

Figure 6 is an enlarged fragmentary front elevational view of the lower hinge member which is substantially identical to the form of hinge member shown in Figures 1 to 4 inclusive;

Figure 7 is a horizontal cross-sectional view taken on line 7—7 of Figure 6, looking in the direction of the arrows for clearly illustrating in detail the hinge joint and the manner of sealing the same by means of a sealing gasket;

Figure 8 is a vertical cross-sectional view further illustrating the manner in which the hinge member shown in Figures 6 and 7 is sealed against intrusion of weather conditions;

Figure 9 is a front elevational view of a modified form of hinge sealing member showing the same greatly enlarged for the purpose of more clearly illustrating the invention;

Figure 10 is a horizontal cross sectional view taken on line 10—10 of Figure 9, looking in the direction of the arrows, illustrating in enlarged detail the manner in which the projecting hinge member of the casement window is sealed and showing the same extending through an opening in the storm sash;

Figure 11 is a perspective view of the cover member or casing which completely encloses and confines the protruding casement hinge member and the extended packing;

Figure 12 is a further modified form of invention in which a storm sash is secured to a casement window of the metal type in which certain marginal portions of the casement window are stationary and are not movable;

Figure 13 is a horizontal cross-sectional view taken on line 13—13 of Figure 12, looking in the direction of the arrows, illustrating the central casement panel of the storm sash secured to the central movable sections of the casement window to swing in a horizontal plane therewith;

Figure 14 is a vertical cross-sectional view taken on line 14—14 of Figure 12, looking in the direction of the arrows, illustrating in enlarged detail the manner in which the storm window is sealed to the casement window; and

Figure 15 is a horizontal cross-sectional view taken on line 15—15 of Figure 12, looking in the

direction of the arrows, showing in enlarged detail the manner in which the marginal portions of the storm sash are connected to the casement window supporting mullions.

In the drawings, wherein for the purpose of illustrating the invention and wherein like reference characters will be employed to designate like parts throughout the same, attention is first directed to Figures 1 to 4 inclusive, wherein is shown a preferred embodiment of the invention and wherein the reference character 5 will generally be employed to designate a metal casement window frame which may be supported by the walls of the building or by suitable supporting mullions embedded in the walls of the building. The frame 5 is of the usual construction and includes inner and outer flanges 6 and 7 respectively on all four sides of its rectangular framework. Secured to the top and bottom of the frame 5 are outwardly extending hinge members 8 and 9 at the top and bottom thereof respectively as clearly shown in Figure 1.

Hingedly secured to the rectangular frame 5 is a swinging casement sash 10 having the usual glass framework 11 provided with interrupting beading 12. The horizontally swinging casement sash 10 is provided at the top and bottom with outwardly extending hinge members 11 and 12 respectively, connected by suitable pintle members 13 arranged in vertical alignment whereby said casement sash 10 may swing in a conventional manner.

The invention embodies a rectangular storm sash 14 adapted to be secured to the outer flange of the casement sash by screws 16 threaded in the marginal edges thereof and between the outer flange of the casement sash and the storm frame is interposed a packing element 17 formed of felt, sponge rubber or other material having equivalent weather-proofing properties.

The storm sash 14 is provided with the usual transparent panes 19 held in place at the edges in transverse portions of the storm frame 14 by beading as at 20.

To accommodate the protruding hinge members including upper and lower hinge leaves 9 of the casement frame 5 and the cooperating hinge leaves 11 and 12 of the casement sash 10, the openings 21 are formed in the top and bottom portions of the storm sash frame 14 to allow the hinge leaves to extend therethrough. In order to seal the opening 21 at the top and bottom of the storm sash frame 14, a packing strip 22 is secured around the edges of the opening 21 by means of plate 23 held in place by screws or the like so that the free ends of the packing strip 22 may be bent upon itself and be presented to the hinge member as shown clearly in Figure 4 and designated as at 24.

It will be obvious that when the casement sash 10 is opened on the hinge pins 13 in the usual manner that the storm sash frame 14 will be carried therewith and will also be opened and it can also seal the space between the storm frame 14 and the case 5 when the window is in a closed position it may be desirable to extend the packing member 17 as at 25 whereby the packing 17 will perform the double function of sealing the horizontally swinging casement sash 10 with its casement frame 5 and also sealing the space between the storm sash frame 14 and the horizontally swinging casement sash 10.

In Figures 5 to 8 inclusive, there is shown a modification of the invention and as illustrated in Figure 5 more particularly, the storm sash 14a may be of a general rectangular construction and may be provided by a series of panels formed of transparent glass as at 19a. This type of storm window may be employed when sealing windows which are never opened such as attic and basement windows during the winter months and may be placed over the casement window so that the hinges thereof extend through openings in the frame portion in a manner similar to the form of invention shown in Figures 1 to 4 inclusive. Specifically, the storm sash 14a is provided with vertical and horizontal division rails 15a and it will be noted that a casement hinge cover is provided in the top horizontal division rail 15a while another type of sealing means is provided in the lower or horizontal frame portion of the storm sash.

In the modified form of the hinge sealing means as shown in the lower portion of the storm sash frame 14a it will be noted that the joint between the casement hinge 12a and storm sash frame 14a is identical with the form of invention shown in Figures 1 to 4 inclusive, with the exception that the storm sash 14a is secured to a casement window having a wood frame 5a to which may be detachably secured the storm sash 14a by means of screw or nails. Interposed between the wooden casement frame 5a and the storm sash frame 14a is a packing element 17a preferably formed of the same material as that disclosed in Figures 1 to 4 inclusive, and having the marginal edge portions extending thereover to more clearly seal the space between the casement frame 5a and the storm sash 14a.

It will be noted that an opening 21a is formed in the storm sash frame 14a for accommodating the extended hinge leaf 12a of the casement frame, whereby the free end of the hinge leaf will extend therethrough and may be sealed by means of a packing member 22a formed of asphalt treated felt or sponge rubber or a combination thereof so that the free edge portion of the packing may be bent upon itself at at 24a, allowing the inturned edges to abut the surfaces of the casement sash hinge. The packing element 22a may be held in place by a sealing plate 23a anchored by means of screws as clearly shown in Figs. 6 and 7.

The sealing plate 23 may be divided vertically for the purpose of more easily forming the opening for the protrusion of the casement sash hinge 12a and the packing strip 22a. In Figure 6, the reference character 25a will be employed to designate a notch formed in each section of the sealing plate 23a so that when the sections are placed together an opening will be formed and adequately accommodate the protruding hinge member 12a. A packing strip 26a may be interposed between the sections 23a of the sealing plate to further insure against the intrusion of weather conditions surrounding the opening 21a in the storm sash frame.

In the further modified form of hinge sealing means as shown applicable to the modified window in Figure 5, and particularly to the cross-rail 15a, the casement sash 10b may be of the type shown in Figures 1 to 4 inclusive or may be wood or other material and may be provided with a hinge leaf 12b and a pintle 13b. A storm sash frame 14b may be secured to the casement window sash 10b by screws, machine screws and bolts or the like and interposed therebetween, there is provided a packing element 17b formed of treated felt, sponge rubber or a combination of felt and rubber having adequate sealing proper-

ties. An opening 21b is formed in portions of the storm sash 14b to accommodate the protruding hinge members 12b of the casement frame and sash whereby the hinge member will extend beyond the outer surface and through the opening 21b in order to seal the opening 21b, a sheet of rubberized fabric, sponge rubber or felt treated with rubber is secured over the opening as clearly shown in Figures 9 and 10. If desired, an adhesive may surround the edges of the sealing sheet 22b to further insure against the intrusion of climatical conditions.

A metal hinge cover 23b as shown in perspective in Figure 11 is provided and completely encloses the sealing sheet 22b and may be held in place by nails or the like as at 24b. The housing 23b is constructed with three right angle side walls and an opposed angular side wall 26b is closed by a top wall 27b. The right angle side walls of the housing and the angular side wall 26b are provided with flanged edges as at 28b to accommodate the anchoring means such as the nails 24b.

In Figures 12 to 15 inclusive, there is shown a further modified form of the invention in which a storm window is provided for a casement window of the multiple panel type in which the frame of the casement window as at 5c is provided with vertical frame bars 5d in which may be fitted transparent glass panels 5e thereby providing stationary side panels on opposite sides of the casement sash. The casement sash 10c is provided with the usual transparent panels 11c held in place at the edges by beading or the like.

The casement frame and sash above described may be held in place by anchoring the flange 7c of the frame 5c in a vertical chamber 7d formed in one end of a supporting mullion 7e.

The construction above is of the usual casement window type in which the central panel only is movable in a horizontal plane but has the swinging sash 10c.

The form of storm sash applicable to this type of window includes a rectangular framework 14c having vertical rails 14d connecting a top horizontal rail 14e forming transparent panel sections 19c.

A hinged section is formed by means of a rectangular frame 15c having a transparent glass panel as at 19d.

The storm window above described except for the movable rectangular frame section 15c may be anchored to the casement frame as at 5c and interposed therebetween there may be provided a packing strip 22c formed in the manner of a gasket having cut-out portions to correspond to the opening such as 5e, 19b, 11c and 19d. The sealing member 22c may be formed of treated felt, sponge rubber or a combination of the two in a similar fashion to the sealing element shown in Figures 1 to 4 inclusive and 5 to 10 inclusive.

In order to insure the storm sash frame 14c from displacement, brackets 20c may be secured thereto by means of screws 21c and may have the free ends as at 23c secured to and anchored to the vertical mullions 7e by means of screws 24c. The anchor brackets may be located on opposite vertical edges of the storm sash frame 14c as shown in Figure 12.

The central rectangular storm sash panel 15c may be secured to the horizontally swinging sash 10c so that when the casement sash 10c is opened by swinging the same on the hinge 13c the movable storm sash member 15c will also move therewith. Suitable packing may be interposed between the meeting edges of the rectangular movable storm sash frame 15c and the storm sash frame proper 14c to insure against intrusion of weather conditions and the hinge sealing means shown in Figures 1 to 11 inclusive to conceal the hinge 13c or if desired, the movable section may be hinged to the storm sash frame 14c at the top and bottom thereof.

It is to be understood that the form of invention herewith shown and described may be taken as the preferred embodiment of the same and that various changes may be made in the shape, size and arrangement of parts without departing from the spirit and scope of the invention as claimed.

I claim:

1. In combination with a metal casement sash having hinge members, a storm sash secured thereto having openings adapted to receive the hinge members, a packing strip covering the free ends of the hinge members and secured to the storm sash and a housing enclosing the packing strip to exclude moisture.

2. In window construction, the combination with a stationary metallic casement, and a metallic swingable sash hinged to said casement to swing outward thereof from and to a closed position to produce an assembly equipped for summer usage, of a supplemental sash adapted to be removably secured to and being movable with the swingable sash and adapted to co-operate with the casement and swingable sash to seal the assembly for winter service and produce a dead air space of material air content between the glass panes of the two sash, said supplemental sash having its contour dimensions greater than the similar dimensions of the swingable sash to thereby overlie the stationary casement and also having cut-away portions for passage of the hinge elements for the swingable sash, said supplemental sash having its inner face carrying a sealing strip formation positioned to overlie the joint between the swingable sash and its casement and adapted to contact both the casement and the swingable sash when the window is closed and to sealably isolate the hinge members from the air space provided between the glass panes, the body of the supplemental sash and its glass pane being located outside of a plane extending between and parallel to both sash panes and generally corresponding to the position of the sealing strip formation, whereby the swingable sash retains its normal relationship with the casement during both summer and winter service conditions with the positioned supplemental sash operative to prevent air flow through the joint between the swingable sash and its casement when the sash is closed and to seal against air flow between the supplemental sash and the faces of the swingable sash and casement to thereby establish the dead air space while permitting freedom of swinging movement of the two sash as a unit.

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