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O. H. BIDDLE

2,156,964

INSULATING SASH

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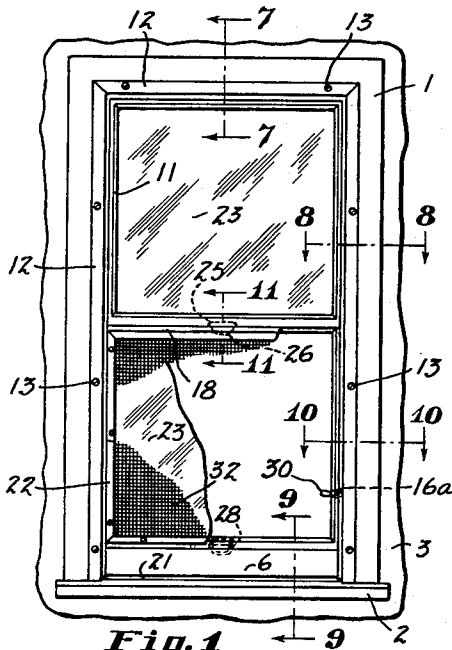


Fig. 1

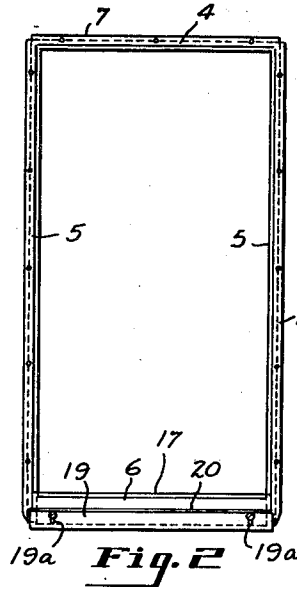


Fig. 2

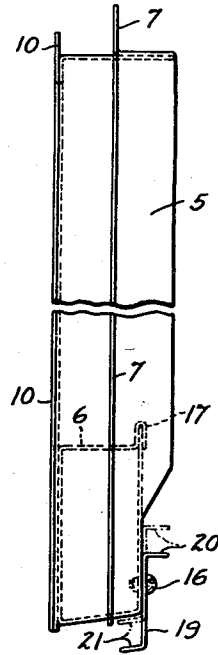


Fig. 3

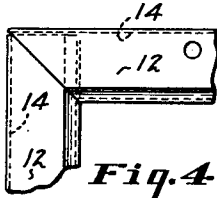


Fig. 4

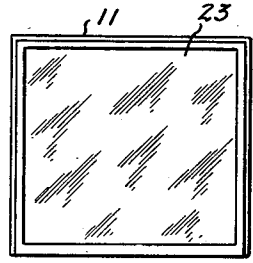


Fig. 5

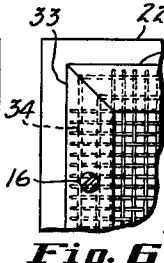


Fig. 6

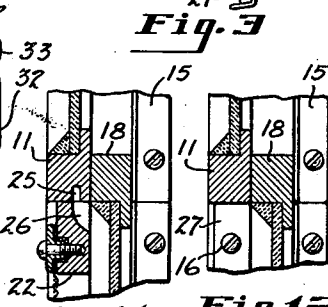


Fig. 11

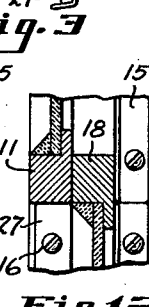


Fig. 12

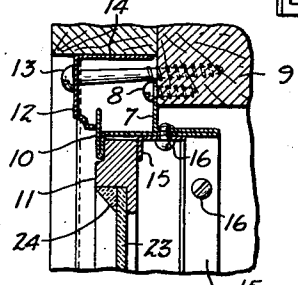


Fig. 7

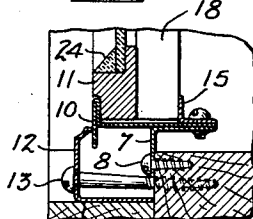


Fig. 8

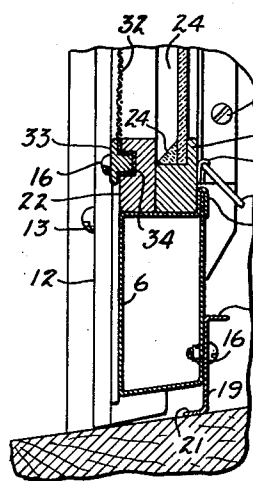


Fig. 9

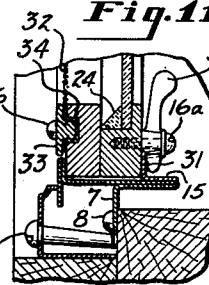


Fig. 10

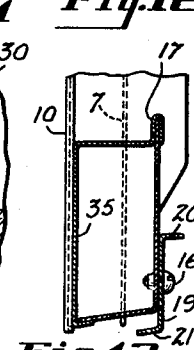


Fig. 13

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INSULATING SASH

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6 Claims. (Cl. 20—55)

This invention relates to insulating sashes and more particularly to an insulating metal sash that is adapted for being installed in building aperture frames of various dimensions and structural conditions by alterations that may be made on the job by a journeyman carpenter with conventional equipment.

In the past many forms of metal storm door and window sashes have been devised for use in the control of the temperature range within buildings. Most of these sashes have lacked adaptation to the wide variety of aperture dimensions and conditions that are encountered in the trade and are very difficult of adaptation to frames that are out of plumb or are not square, or where parts of the frame are of irregular shape or are excessively worn.

An object of the present invention is to provide an insulating sash that is formed of parts that may be altered in dimensions and shape by the use of ordinary equipment at the site of the installation.

Another object is to provide a building insulating sash that is formed of parts that are largely produced by conventional equipment and that are easily shaped, worked and assembled with a minimum of labor and expense.

A further object is to provide a building insulating sash that has an outside weather surface that is resistant to the tendency of wind and water to be whipped thru apertures in the sash assembly during storm periods.

Another object is to provide an insulating sash that embodies suitable stress sustaining arrangements of parts that have proven efficient over long periods of use.

Another object is to provide an insulating sash that is admirably adapted for use in air conditioned buildings.

With the above and other objects in view, the present invention may be said to consist of constructions and arrangements of parts that will be understood by those skilled in the art to which the present invention pertains and which is illustrated in the embodiment of the invention that is disclosed in the accompanying drawing, wherein:

Fig. 1 is an elevation from outside a building of the insulating sash installed in a window casing;

Fig. 2 is an indoor elevation of the frame portion of the sash that is shown in Fig. 1;

Fig. 3 is an enlarged side elevation of the sash frame that is shown in Fig. 2;

Fig. 4 is an enlarged, broken away detail elevation of a sealing strip corner that is applied to the outdoor side of the frame that is shown in Fig. 2;

Fig. 5 is an outdoor elevation of the glass panel that forms a removable part of the sash that is shown in Fig. 1;

Fig. 6 is an enlarged, broken away detail outdoor elevation of a corner of the lower screen panel that forms a removable part of the sash that is shown in Fig. 1;

Fig. 7 is an enlarged, broken away detail section taken along the line 7—7 of Fig. 1;

Fig. 8 is an enlarged, broken away detail section taken along the line 8—8 of Fig. 1;

Fig. 9 is an enlarged, broken away detail section taken along the line 9—9 of Fig. 1;

Fig. 10 is an enlarged, broken away detail section taken along the line 10—10 of Fig. 1;

Fig. 11 is an enlarged, broken away detail section taken along the line 11—11 of Fig. 1;

Fig. 12 is an enlarged, broken away detail section of the glass panel frame engagement with the screen panel shown in Fig. 11 replaced by an upper glass panel supporting strip; and

Fig. 13 is a broken away section of a modified form of sash bottom strip similar to that shown in Fig. 3.

In the accompanying drawing, the window casing or frame 1 and the window sill 2, that are positioned in the building wall 3, support the insulating sash that illustrates the subject matter of the present invention.

The sash frame portion of the insulating sash comprises the top strip 4, the pair of side strips 5, that are preferably continuous, and notched at the corners in a suitable manner for being bent, and the bottom strip 6 that is welded to the lower ends of the side strips 5.

The top strip 4 and each of the side strips 5, have an outwardly extending attaching portion 7, that may be cut away or altered in shape to conform with the requirements of a particular installation, thru which suitable securing means, such as the wood screws 8, extend into the blind stop 9 of the window frame 1 to secure the sash frame thereto, and an outdoor T-portion 10, against the inner face of the shaft of which the preferably rabbetted upper and side edges of the upper glass panel 11 jams, and against the outdoor part of the cross bar of which a suitable outdoor sealing strip 12 is drawn tightly by the long wood screws 13 about the sealing strip supporting leg 14.

The L-shaped stop strip 15, that is secured to the top strip 4 by suitable means, such as by the metal joining screws 16, completes a groove that receives the upper edge of the upper glass panel 11. Similar L-shaped stop strips extend along each of the side strips 5, and are properly spaced from the T-portion 10 of the side strips for the accommodation of two panels, as shown in Fig. 8.

The outdoor sealing strips 12, that extend along the top and two sides of the sash frame, join at the corners in any suitable manner, as by the simple overlap of ends shown in Fig. 4.

The sash frame bottom strip 6 is preferably of hollow sheet metal construction with an upwardly extending indoor fixed stop 17 for the indoor engagement of the lower glass panel 18.

The adjustable sill sealing strip 19 is adjustably secured to the indoor side of the bottom strip 6 by suitable means, as by the screws 16, that are positioned in vertically extending slots 19a in the sill sealing strip 19. The sill sealing strip 19 preferably has an indoor extending hand grip portion 20 along its upper edge and has a deformable window sill engaging and sealing portion, such as the outdoor extending window frame sill contacting portion 21, along its lower edge that may be mechanically deformed on the job to cause it to conform to an irregular window sill, as where the window sill is higher at one end than it is at the other, is worn low at its midportion, or the like.

The frames of the upper glass panel 11, the lower glass panel 18, and the screen panel 22, are preferably of solid extruded stock rigidly secured at the corners in any suitable manner, as by being welded together.

The glass 23 in the glass panels 11 and 18, is preferably provided with permanent support on the indoor side to withstand wind pressures, in conformity with proper stress distribution and long established practice, and is secured in place on the outdoor side in any suitable manner that is adapted for the convenient replacement of the glass 23 on occasion, as by the use of glazier's points or wires, not shown, that extend into holes in the panel frame stock, and by the putty 24.

The upper glass panel 11 is preferably supported vertically by the screen panel 22, as shown in Fig. 11, and its lower frame carries suitable panel removing grip means, such as the screw driver tip receiving slot 25, that is accessible thru the tool admitting notch 26 in the upper frame stock of the screen panel 22. Where the presence of the screen panel 22 is not desired, other suitable upper glass panel supporting means may be provided, such as the supporting stop strips 27, that may be removably attached to the side strips 5 by the screws 16.

The lower glass panel 18 preferably has suitable hand gripping panel lifting means, such as the ring 28, that is carried by the overlapped strip 29, that is welded to the panel bottom frame stock. The lower glass panel 18 may be moved vertically to a desired position and secured at the desired elevation by operation of suitable means, such as the hand lever 30, that is rotatably secured to the side frame stock of the panel by the screw 16a and that has the stop strip gripping inclined faced portion 31 for gripping the stop strip 15 in increasing frictional compression.

In the screen panel 22, the screen 32 is preferably secured to the screen panel frame in any suitable manner, as by the tongued key strip 33 that draws the screen edge into the groove

34 in the screen panel frame on the tightening rotation of the screws 16.

A modified form of panel bottom strip 35 is shown in Fig. 13 of the drawing, that comprises two strips of stamped sheet metal with overlapping edges in place of the single strip of roll pressed sheet metal that is shown in Fig. 3.

It is to be understood that the particular constructions of parts that are shown and described herein are presented for purposes of illustration and explanation and that various modifications in the means for accomplishing a given function may be made without departing from the invention as defined in the appended claims.

What I claim is:

1. An insulating sash, comprising a sheet metal sash frame, a sheet metal outwardly extending attaching portion of said sash frame, a T-portion forming a part of said sash frame, a panel making sliding engagement with said sash frame, a panel frame forming a part of said panel, an L-shaped stop strip spaced from said T-portion and forming a panel receiving groove therebetween, a hand lever mounted on said panel frame for inter-engaging said panel frame with said panel and adjusting the elevation of said panel in said sash frame, and an inclined face portion forming a part of said hand lever for gripping said stop strip in increasing frictional compression and securing said panel at a desired elevation and said sash frame, sash frame attaching portion, panel, panel frame, stop strip, hand lever, and hand lever inclined face portion, together forming a wind and storm barrier of adjustable effectiveness.

2. An insulating sash, comprising a metal sash frame, an upper panel removably positioned within said sash frame, an upper panel frame portion forming a part of said upper panel and having a tool receiving slot formed therein, a lower panel removably positioned within said sash frame and supporting said upper sash frame, a lower panel frame portion forming a part of said lower panel and having a tool admitting notch formed therein and substantially registering with said tool receiving slot in said upper panel frame portion.

3. An insulating sash, comprising in combination, a sash frame having an outwardly extending attaching portion, a panel frame slideably mounted in said sash frame, a stop strip forming a part of said sash frame and contacted by said panel frame, a hand lever mounted on said panel frame, and a stop strip engaging portion of said hand lever for compressing said stop strip against said panel frame and securing said panel frame at a desired elevation on the operation of said hand lever.

4. A storm sash for removable installation in an aperture frame, comprising in combination, an insulating sash frame T-portion, an insulating sash frame attaching portion supporting said sash frame T-portion, an outdoor sealing strip, and means for adjustably compressing said outdoor sealing strip in storm sealing engagement with said sash frame T-portion.

5. A storm insulating sash for installation in a building aperture frame, comprising in combination, a storm sash frame having a T-portion, a sash frame attaching portion integral with said sash frame T-portion and adapted for being secured to said building aperture frame, an outdoor sealing strip substantially weather sealing the junction of said sash frame and said building aperture frame, and means for drawing an edge of said outdoor sealing strip in weather sealing

engagement with a part of said building aperture frame.

5 6. A storm insulating sash for installation in a window frame having a sill, comprising in combination, a sash frame, a sash frame bottom strip in rigid relation with said sash frame, a sill sealing strip having an elongated slot adjacent either

end thereof, a hand grip portion forming a part of said sill sealing strip, and means disposed in said sill sealing strip elongated slot for securing a part of said sill sealing strip in permanently rigid engagement with said sill of said window 5 frame.

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