Sept. 22, 1942. C. T. CRESSWELL 2,296,243

DOUBLE GLAZED WINDOW

Filed March 18, 1940 2 Sheets-Sheet 1

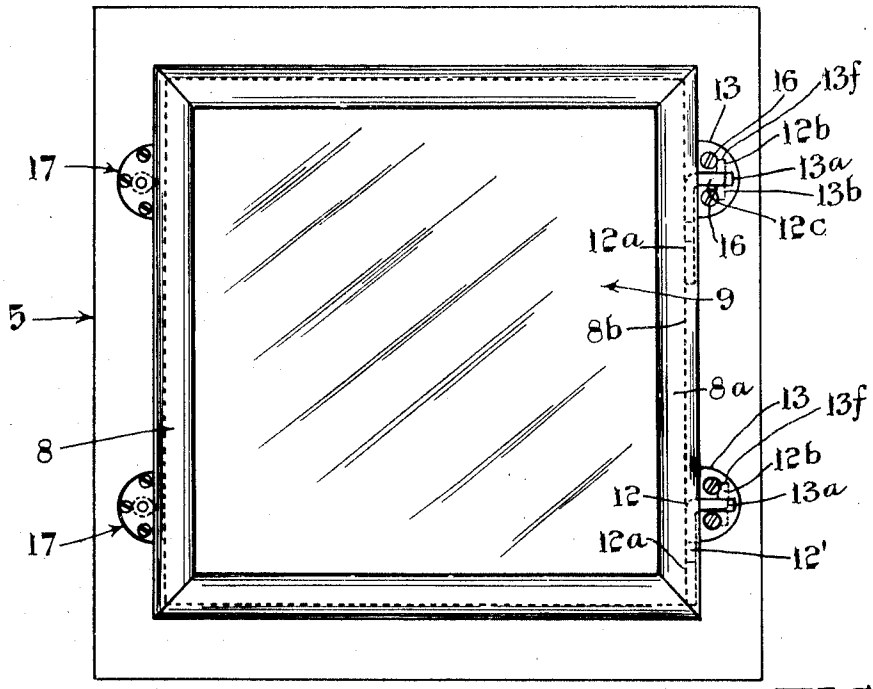


FIG. 1

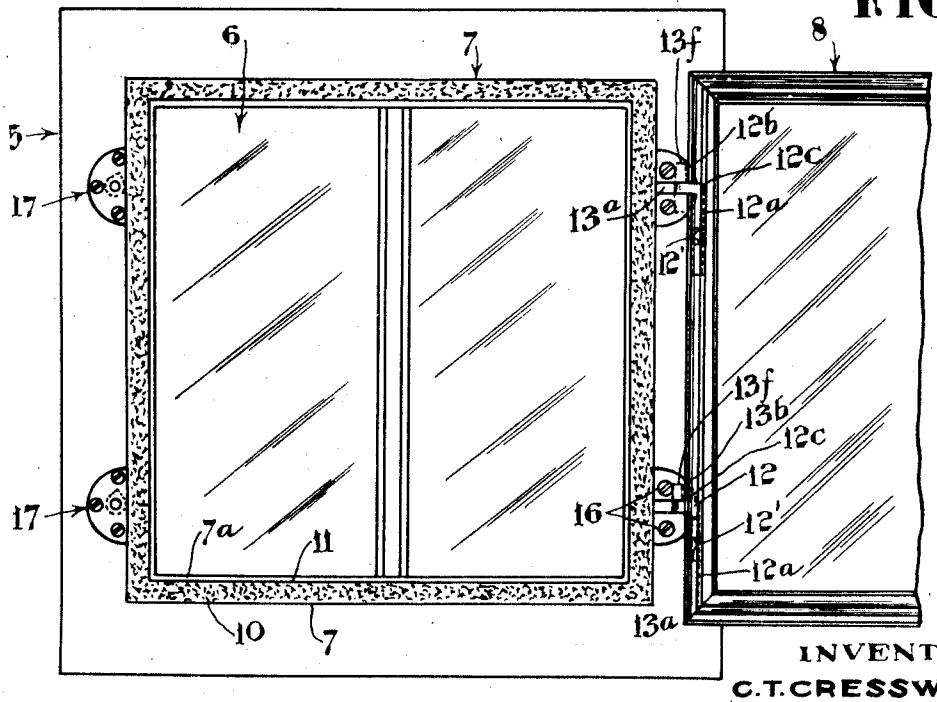


FIG. 2

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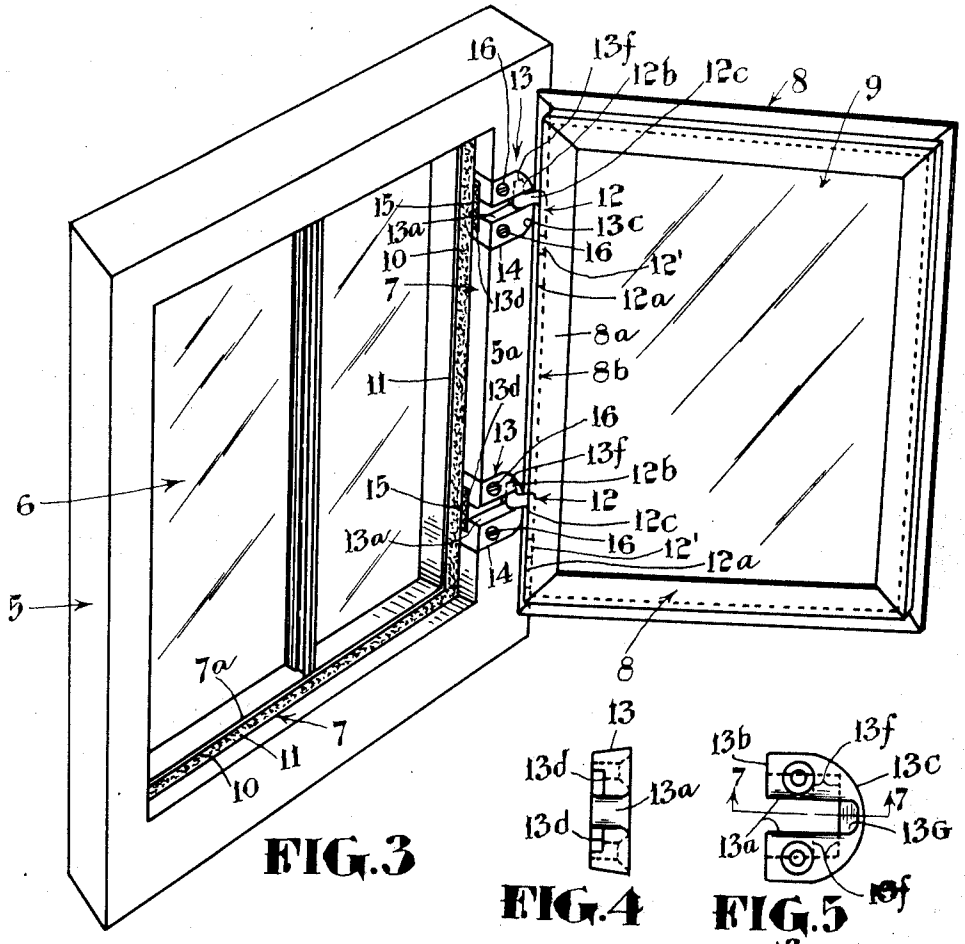


FIG.3

FIG.4

FIG.5

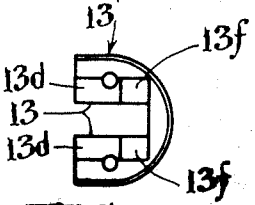


FIG.6

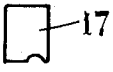


FIG.11

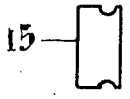


FIG.8

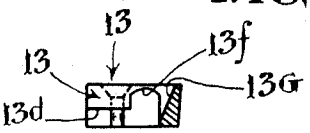


FIG.7

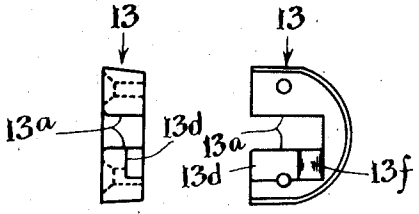


FIG.9 FIG.10

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Patented Sept. 22, 1942 2,296,243

UNITED STATES PATENT OFFICE

2,296,243

DOUBLE GLAZED WINDOW

Charles T. Cresswell, Montreal, Quebec, Canada

Application March 18, 1940, Serial No. 324,605
In Canada March 17, 1939

2 Claims. (Cl. 16—135)

(Granted under the provisions of sec. 14, act of March 2, 1927; 357 O. G. 5)

This invention relates to window sashes and particularly to improvements in the type of double glazed sash disclosed in Canadian Patent 223,345, granted September 5, 1922.

The above mentioned patent discloses a double glazed sash in which the outer glazing is permanently secured in the outer portion of a main sash frame, the inner glazing being carried by a supplementary frame removably fitted in a recess at the inner side of the main frame. The two frames are secured together by a plurality of fastening devices in the form of turn buttons. These turn buttons are mounted in casings countersunk in the rails of the main sash frame and are adapted to be projected into or withdrawn from keeper casings or sockets provided in the corresponding rails of the supplementary sash. Owing to the number and nature of the fastening devices employed in this construction considerable time and work is involved in the mounting and removal of the inner sash. Another objection is that the supplementary sash must be completely detached from the main sash whenever it is desired to obtain access to the inner surface of the outer glazing for cleaning or other purposes.

According to the present invention the two sash frames are hinged together by hinge connections of novel construction so that the supplementary frame may be conveniently swung into or out of the main frame and requires only a single fastening device for holding it in closed position.

A feature of the invention resides in the provision of hinge connections including hinge plates adapted to be attached to one of the sash frames and cooperating hinge pintles adapted to be attached to the companion frame, said plates and pintles being designed so that they may be applied with equal facility to the top, bottom or side rails of the sash frame in any desired number.

A further feature of the invention resides in the provision of improved hinge connections in which all the hinge plates are of exactly duplicate construction and may be interchangeably used on the top, bottom and side rails of the frame to which they are applied.

Another feature resides in the provision of improved hinge connections in which the hinge plates are slotted and grooved to take the engaging portions of the pintles in such manner that no portions of the plates or pintles project beyond the inner sides of the sash frame when the supplementary frame is secured in the inner recess of the main frame.

Proceeding now to a more detailed description reference will be had to the accompanying drawings, in which—

Fig. 1 is an inside elevational view of a double glazed window constructed in accordance with the invention. In this view the supplementary sash frame is shown secured in place within the recess of the main frame.

Fig. 2 is a view similar to Fig. 1 but showing the supplementary sash frame in a different position.

Fig. 3 is a perspective view in which the supplementary sash frame is swung to open position to expose the hinges connecting the sash frame to the main frame.

Fig. 4 is an edge view of one of the hinge plates appearing in the preceding figures.

Fig. 5 is a top plan view of the hinge plate.

Fig. 6 is a bottom plan view of the hinge plate.

Fig. 7 is a sectional view along the line 7—7 of Fig. 5.

Fig. 8 is a plan view of a filler piece used in conjunction with said hinge plate.

Fig. 9 is a view similar to Fig. 4 but showing a modified type of hinge plate.

Fig. 10 is a bottom plan view of the hinge plate appearing in Fig. 9.

Fig. 11 is a plan view of a modified filler piece used in conjunction with the hinge plate shown in Figs. 9 and 10.

Referring more particularly to the drawings, 5 designates the main sash frame in which the outer glazing 6 is secured in any suitable manner. The inner side of frame 5 is provided with a recess 7 adapted to receive the supplementary sash frame 8 in which the inner glazing 9 is permanently secured. When frame 8 is secured in recess 7 it is pressed tightly against sealing strips 10 secured in grooves 11 provided in the wall 7a of the recess.

Sash frames 5 and 8 are shown fastened together by hinge connections comprising pintle members 12 secured to side rail 8a of frame 8 and cooperating hinge plates 13 countersunk in recesses 14 provided in side rail 5a of frame 5.

Each pintle 12 comprises a single length of wire or rod-like material bent twice at right angles to provide offset parallel portions 12a and 12b connected by an intermediate portion 12c lying substantially at right angles thereto. The portions 12a of the pintles are fitted in the channel 8b of rail 8a and soldered, welded or otherwise secured in place so that the remaining portions 12b and 12c of each pintle project beyond the outer longitudinal edge of said rail, it being noted that

the portions 12b of the two pintles extend in the same direction and lie substantially parallel with said rail. The portion 12a of each pintle is preferably enlarged as at 12' to prevent turning movement thereof in the channel 8b.

Each plate 13 is provided with a slot 13a extending across the central portion of the plate from the straight edge 13b to a point close to the medial portion of the curved edge 13c. The undersides of the plate portions separated by the slot 13a are recessed as indicated at 13d. Portions of these recesses are enlarged adjacent the closed end of the slot to provide a pair of aligned bearing pockets 13f having their inner or opposing ends opening into said slot.

The plates 13 are secured in recesses 14 by screws 16 so that the slots 13a open into the recess 7 of frame 5 as shown to advantage in Fig. 3.

The plate slots 13a serve to accommodate the pintle portions 12c which are fitted therein so that the pintle portions 12b project upwardly into the bearing pockets 13f lying above said slots.

The screws securing the plates 13 in the recesses 14 also serve to hold in place suitable sealing pieces 15 which are fitted in the recessed portions 13d of the plates and extend across the slots 13a. These sealing devices 15 provide a tight dust and dirt excluding joint between the plates 13 and the bottom walls of the plate receiving recesses 14.

The pockets 13f appearing below the slots 13a in Figs. 1, 2 and 3 may be used for the reception of the pintle portions 12b when the pintles 12 are applied to rail 8a so that the pintle portions 12b extend downwardly instead of upwardly.

The provision of the two pockets 13f in each plate portion renders the plates completely interchangeable for application to any selected rail of the main sash frame 5. However, the invention also contemplates the use of hinge plates constructed as shown in Figs. 9 and 10. In this case each plate is provided with a single recess 13d and a single bearing pocket 13f both located at the same side of the slot 13a. This type of plate is used with the sealing piece indicated at 17 in Fig. 11.

The hinges may be installed with the pintle portions 12b projecting downwardly instead of upwardly as shown in Figs. 1 and 2. In this case the hinge plates must be installed so that the bearing pockets 13f lie below the slots 13a. In other words, the arrangement described here is that which may be realized by installing the window unit in an inverted position as compared with the position shown in Fig. 1. When the pintle portions 12b are directed downwardly their lower ends rest on the bottom walls of the bearing pockets 13f and serve to support the intermediate pintle portion 12c in spaced relation to the upper and lower edges of the slots 13a. The result is that the lower ends of the pintle portions 12b and the engaging bottom walls of the pockets 13f carry the entire weight of the supplementary sash.

When the sash is swung to its fully opened position the pintle portions 12c come in contact with the inclined surfaces 13g (Figs. 5 and 7) of the pintle plates. These inclined surfaces 13g serve as stops preventing the pintle portions 12c coming in contact with and damaging the rails of the main frame.

Having thus described my invention, what I claim is:

1. In a hinge connection of the character described, a flat-sided hinge plate of substantial thickness provided with a slot extending inwardly from one edge to a point short of the opposite edge of said plate, the side walls of the slot being perpendicular to the flat sides of the plate and one of said sides being provided with a recess extending along one side of said slot in communication therewith, said recess being open at the end adjacent the mouth of the slot and being enlarged at its opposite end and in the direction of the thickness of the plate to provide a pintle receiving pocket located at the closed end of the slot and extending laterally with reference to said slot, a hinge member adapted to be arranged for swinging movement in said slot and provided with a laterally extending pintle portion disposed in said pintle receiving pocket and a removable flat filler piece adapted to be fitted in the portion of the recess lying between the mouth of the slot and the pintle receiving pocket and to extend across a portion of the slot to retain said pintle in said pintle receiving pocket.

2. In a hinge connection of the character described a flat-sided hinge plate of substantial thickness provided with a slot extending inwardly from one edge of the plate, said slot having its side walls perpendicular to the flat sides of the plate and being closed at its inner end, one flat side of said plate being provided with recesses extending inwardly from the said edge of the plate and lying at opposite sides of said slot in open communication therewith, said recesses being substantially coextensive with said slot and being enlarged in the direction of the thickness of the plate to provide diametrically opposed pintle receiving pockets lying at opposite sides of the slot adjacent the closed end thereof and extending at right angles to said slot, a hinge member arranged to work in said slot and provided with a laterally directed pintle portion fitted in one of said pintle receiving pockets and a filler piece adapted to be fitted in said recesses so that the central portion of the filler piece extends across and closes the portion of the slot located between the mouth of the slot and said pintle receiving pockets, said filler piece being of a thickness not greater than the depth of the portions of the recesses lying outwardly of said pockets.

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