Dec. 16, 1947. A. L. HERRMANN 2,432,889

CLOSURE PANEL AND STRIP THEREFOR

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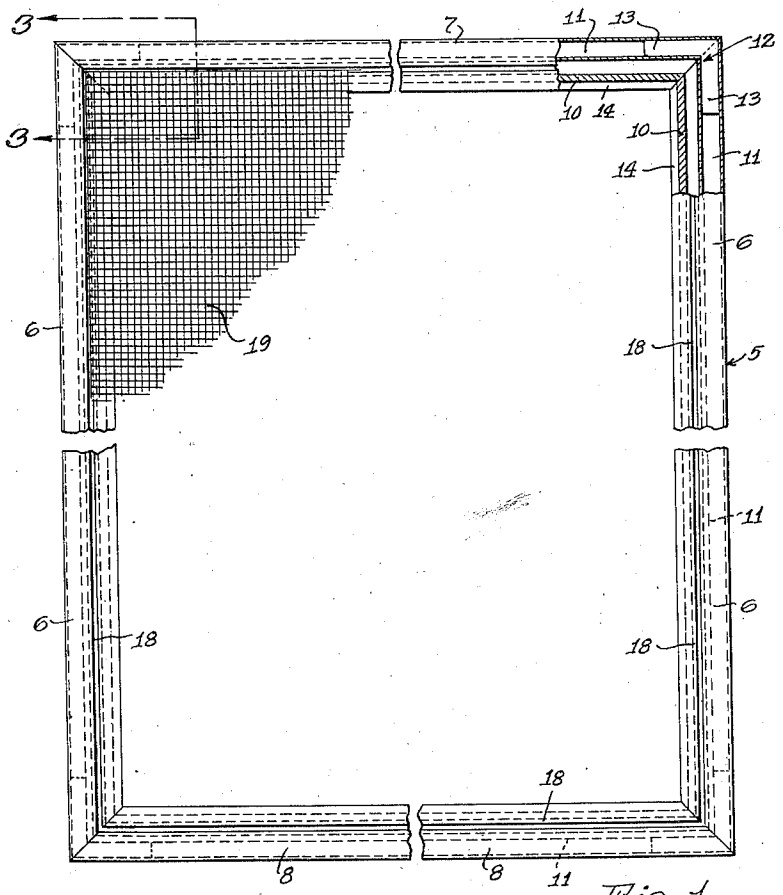


Fig. 1.

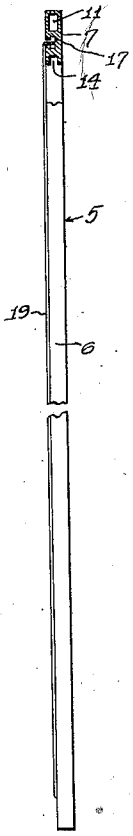


Fig. 2.

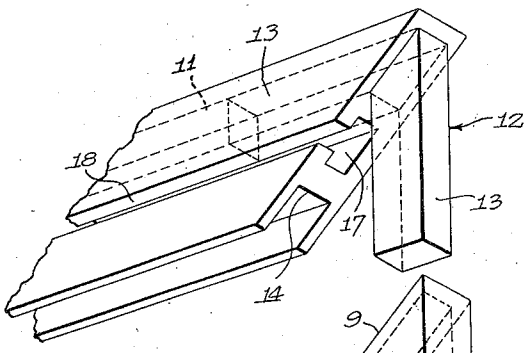
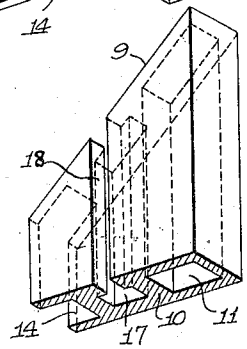


Fig. 4.



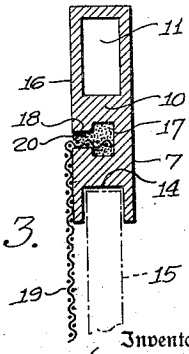


Fig. 3.

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CLOSURE PANEL AND STRIP THEREFOR

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10 Claims. (Cl. 160—90)

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The present invention relates to improvements in storm and closure panels and more particularly, to a combination frame structure therefor.

The primary object of the invention is to provide a frame structure for closure panels which may be alternately employed for accommodating a screen panel or a transparent panel composed of glass or the like so as to obviate the necessity of providing separate panel members for winter and summer seasons.

Another object of the invention is to provide a frame structure for closure panels for windows and doors which can be constructed and kept in stock for filling orders for both screened closure panels and transparent window panels.

Another object of the invention is to provide a frame structure for closure panels which is constructed of extruded side, top and bottom rails having a sectional shape such that a glass or transparent panel may have its edges received and supported thereby or a screen panel may be substituted for the glass or transparent panel with its edges received in a slightly modified portion of said frame structure.

Another object of the invention is to provide a frame structure for closure panels and the like which may be employed in the construction of closure panels having a screened panel member as well as closure panels having a transparent panel member so that it is only necessary to form a frame structure of one sectional shape to accommodate both types of panel members to suit the demands of the public during the winter and summer months.

Another object of the invention is to provide a frame structure for closure panels having side, top and bottom rails formed of a sectional shape to provide tubular socket portions at the ends thereof for receiving the ends of connecting angle brackets to thereby eliminate the use of screws and other fastening elements in assembling said side, top and bottom rails to form a closure panel of the desired size and dimensions.

Another object of the invention is to provide a frame structure for closure panels having side, top and bottom rails which are formed of a sectional shape to provide a pair of grooves therein which may alternately be employed for receiving transparent panel members and screen panel members, and to provide means for closing one of said grooves when one or the other of said panel members is arranged in said grooves. The grooves are arranged one in a side wall of the frame structure for receiving the screen panel and another in the edge wall for receiving the edge of a transparent panel of glass or the like.

Another object of the invention is to provide a frame structure for panel members of the above-mentioned type in which one of the grooves is shaped to receive the edge of a screen panel

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member in such a manner as to lock the screen in said groove against displacement.

Another object of the invention is to provide a frame structure for closure panels of the above-mentioned type in which one of said panel receiving grooves is provided with a restricted portion to facilitate the reception of a plastic anchoring material and prevent removal of said screen panel by reason of the plastic material being anchored in the enlarged portion of said groove.

Another object is to provide a restricted portion to facilitate the reception of a liquid anchoring material which will become hard and set and keep the screen from coming out, thereby eliminating the use of machinery to provide a method of driving, pressing or rolling in a retainer to hold the wire and also to hold the wire in position on one side while the edge of the wire on the other side is being inserted.

Another object is to provide a liquid plastic material anchoring arrangement which prevents the screening from being pulled out of position on one side of the screen frame while the other side is being inserted.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawing, wherein:

Figure 1 is a front elevational view of a closure panel constructed in accordance with the present invention;

Figure 2 is a side elevational view of the closure panel showing a portion thereof in section to illustrate the manner in which the screen panel is anchored in place;

Figure 3 is a vertical cross-sectional view taken on line 3—3 of Figure 1, looking in the direction of the arrows and illustrating the sectional shape of the side, top and bottom frame members in detail; and

Figure 4 is an exploded perspective view of the corner joint of said closure panel frame structure showing the manner in which the ends of the side, top and bottom rails are connected.

In the drawing, the reference character 5 will generally indicate a closure panel frame consisting of side, top and bottom rails 6, 7 and 8 respectively. Preferably the side, top and bottom rails are formed of a light-weight non-ferrous metal capable of being extruded, rolled or drawn. The side, top and bottom rails have their ends bevelled as at 9 and are adapted to be connected to form a rectangular closure panel frame in a manner which will be hereinafter more fully described.

Each of the side, top and bottom rails includes a body portion 10 having a longitudinal opening or passageway 11 (Figure 3) for receiving the ends or legs of an angle bar 12. The angle bar 12 may

be likewise formed of metal of a size to snugly fit within the end portions of the longitudinal passageway or opening 11 so as to retain the side, top and bottom frame members in position. The legs 13 of the angle bar 12 are of a sectional shape to conform to the opening 11, and although said opening is shown as being rectangular, it obviously may be of any desired shape such as round, hexagonal or triangular.

The body portion 10 is provided on one edge thereof with an inwardly extending groove 14 of such dimensions as to receive the marginal edge of a transparent panel 15 formed of glass or other material. The outer wall 16 of the body portion is provided with a longitudinally extending slot or groove 17 having a restricted or reduced portion 18 for receiving the edge of a screen panel 19 when the glass panel 15 is omitted, and vice versa. In order to hold the margin of the screen 19 in place, the longitudinal slot or groove 17 is filled with a plastic material 20 so as to pass between the interstices of the screen and secure the same in place.

During the summer months, the closure panel 5 may be sold to the public with the screen 19 in place, and secured and anchored within the longitudinal groove 17 by means of a suitable plastic material 20. Conversely, during the winter months, the closure panel 5 may be sold with the glass or transparent panel 15 in position and the screen 19 omitted. Thus, it will be seen that a closure panel frame may be constructed which will accommodate both transparent and screened panels without necessitating the altering of the structure. When the closure panel 5 is sold to the public with the glass or transparent panel 15 in place, the longitudinal slot 17 and reduced or restricted portion 18 may be filled by a trim strip frictionally held in place.

When assembling the closure panel 5 with a transparent or glass panel 15, the marginal edges of the glass panel are positioned in registry with the longitudinal grooves 14 in the edge wall of the body portion before the side, top and bottom walls have been completely closed and forced over the legs 13 of the angle brackets 12. When the glass panel is in position, pressure is exerted on the side, top and bottom walls to completely close the frame about the transparent panel 15. If desired, packing and sealing material may be inserted in the groove 14 prior to the insertion of the glass panel so that when the frame is closed by forcing the side, top and bottom walls together on the angle bars 12, the marginal edge of the glass panel will be sealed against the elements.

When assembling the closure panel with a screened panel member, the side, top and bottom rails are forced into position upon the legs 13 of the angle brackets or bars 12, and then the screen 19 is placed over the panel so that the marginal edge may be inserted in the longitudinally extending groove 17. With the screen in this position, the groove may be filled with plastic material as mentioned above, and preferably a phenolic condensation product or other resinous type plastic.

In installation, the closure panel with either the glass or screen panel is slidably mounted in a window frame to move vertically in channel-shaped guideways nailed or otherwise affixed to the vertical rails of the window frame. The closure panel 5 may be used as a storm sash or a regular window sash structure.

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

What I claim is:

1. A closure panel, comprising side, top and bottom rails, means for securing the ends of said rails together to form a rectangular frame, said side, top and bottom rails being provided with longitudinally extending grooves in two faces thereof, one of said grooves being adapted to receive a transparent panel member and the other groove being adapted for receiving a screen panel member.

2. A closure panel, comprising side, top and bottom rails, means for securing the ends of said rails together to form a rectangular frame, said side, top and bottom rails being provided with cross-sectional shape to provide longitudinally extending grooves in two faces thereof, one of said grooves being adapted to receive a transparent panel member and the other groove being adapted for receiving a screen panel member, one of said grooves being of T-shaped cross-section with a restricted mouth portion to facilitate anchoring said screen panel in position therein.

3. A closure panel, comprising top, side and bottom rails, each of said rails being formed of a strip of metal having a body portion provided with a longitudinally extending opening, said strip being provided along one of its edges with a groove for receiving a transparent panel member, one of the faces of said body portion being provided with an undercut groove for receiving a screen panel member, and means for connecting the ends of said top, side and bottom rails in rectilinear relationship.

4. A closure panel, comprising top, side and bottom rails, each of said rails being formed of a strip of metal having a body portion provided with a longitudinally extending opening, said strip being provided along one of its edges with a groove for receiving a transparent panel member, one of the faces of said body portion being provided with an undercut groove of T-shaped cross-section for receiving a screen panel member, and angle bars for the corner portions of said closure panel having the legs thereof received in said longitudinally extending passageways.

5. A closure panel, comprising top, side and bottom rails, each of said rails being formed of a strip of metal having a body portion provided with a longitudinally extending opening, said strip being provided along one of its edges with a groove for receiving a transparent panel member, one of the faces of said body portion being provided with an undercut groove for receiving a screen panel member, means for connecting the ends of said top, side and bottom rails in rectilinear relationship, and angle bars for the corner portions of said closure panel having the legs thereof received in said longitudinally extending passageways, said rails being extruded from a non-ferrous metal.

6. A closure panel, comprising top, side and bottom rails, each of said rails being formed of a strip of metal having a body portion provided with a longitudinally extending opening, said strip being provided along one of its edges with a longitudinally extending groove for receiving a transparent panel member, one of the faces of said body portion being provided with an under-

cut longitudinally extending groove for receiving a screen panel member, and means for connecting the ends of said top, side and bottom rails in rectilinear relationship, said longitudinally extending grooves being arranged with said edge groove at right angles with respect to said face groove.

7. A closure panel frame structure, comprising side, top and bottom rails having mitered end portions, each of said rails being formed of a strip of rectangular cross section including a body portion having a longitudinally extending opening therethrough, said body portion being formed in one of its edges with a longitudinally extending groove for receiving the edge of a transparent panel member, said body portion also being formed with a lingitudinally extending groove in one of the face walls thereof arranged at right angles to the first-mentioned groove for receiving the marginal edge of a screen panel member, and angle bars for the corner portions of said side, top and bottom rails having their legs received in the longitudinally extending passageway.

8. A closure panel frame structure, comprising side, top and bottom rails having mitered end portions, each of said rails being formed of a strip of rectangular cross section including a body portion having a longitudinally extending opening therethrough, said body portion being formed in one of its edges with a longitudinally extending groove for receiving the edge of a transparent panel member, said body portion also being formed with a longitudinally extending groove in one of the face walls thereof arranged at right angles to the first-mentioned groove for receiving the marginal edge of a screen panel member, and angle bars for the corner portions of said side, top and bottom rails having their legs received in the longitudinally extending passageway, said last-named groove being of T-shaped cross-section with a restricted mouth portion so that the marginal edge of the screen can be anchored therein.

9. A closure panel frame structure, comprising side, top and bottom rails having mitered end portions, each of said rails being formed of a strip of rectangular cross-section including a body portion having a longitudinally extending opening therethrough, said body portion being formed

in one of its edges with a longitudinally extending groove for receiving the edge of a transparent panel member, said body portion also being formed with a longitudinally extending groove in one of the face walls thereof arranged at right angles to the first-mentioned groove for receiving the marginal edge of a screen panel member, a liquid plastic filler adapted to be inserted in said last-named groove to pass between the interstices of the marginal edge of said screen panel so that upon hardening of said liquid plastic filler, the screen will be anchored in said groove, and means for retaining said side, top and bottom bars in rectangular relationship.

10. A closure panel frame structure, comprising side, top and bottom rails having mitered end portions, each of said rails being formed of a strip of rectangular cross-section including a body portion having a longitudinally extending opening therethrough, said body portion being formed in one of its edges with a longitudinally extending groove for receiving the edge of a transparent panel member, said body portion also being formed with a longitudinally extending groove in one of the face walls thereof arranged at right angles to the first-mentioned groove for receiving the marginal edge of a screen panel member, a liquid plastic filler adapted to be inserted in said last-named groove to pass between the interstices of the marginal edge of said screen panel and become hardened and set to anchor said screen panel in said groove, and angle bars for the corner portions of said side, top and bottom rails having their legs received in the longitudinally extending passageway.

ARTHUR L. HERRMANN.

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