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PANELED STRUCTURE

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Fig. 1.

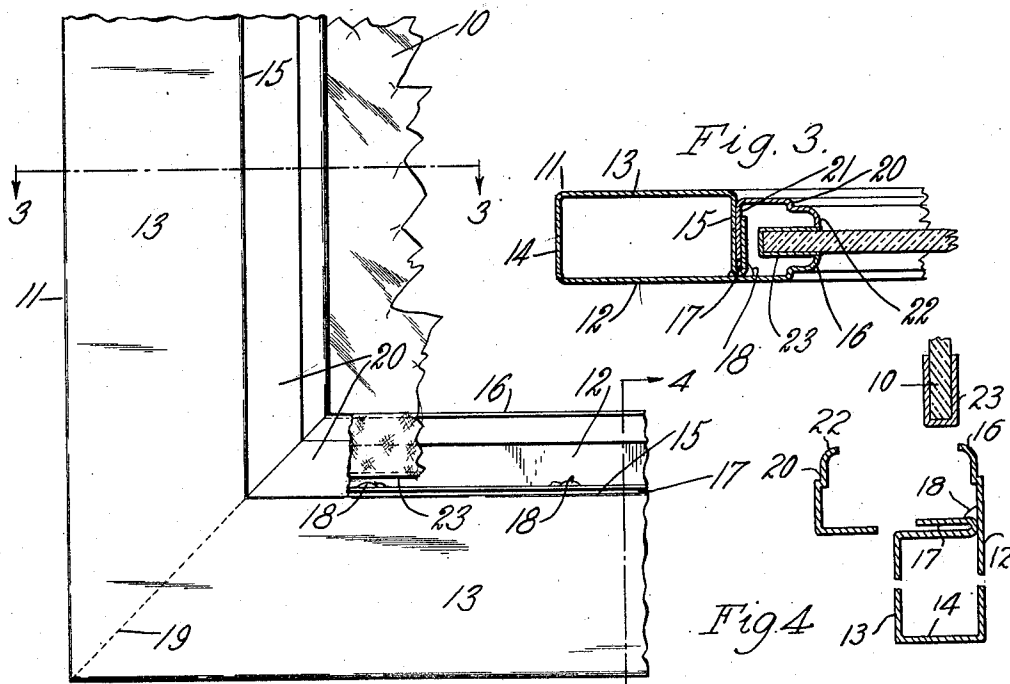
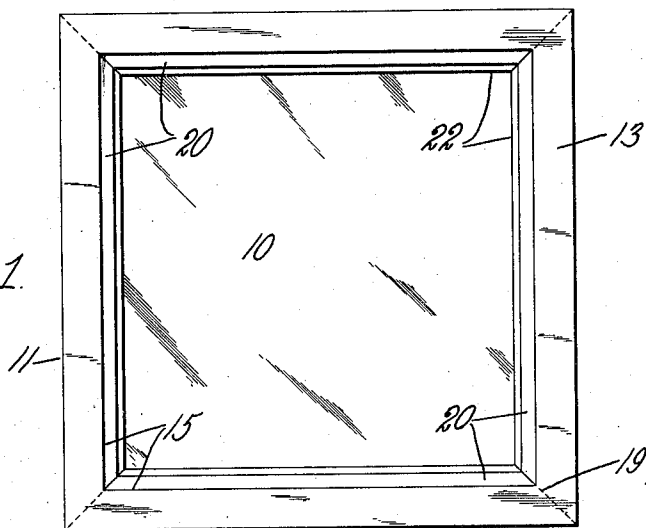


Fig. 2.

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PANELED STRUCTURE

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3 Claims. (Cl. 189—76)

This invention relates to paneled structures of the kind which comprise a panel of glass, metal or other material, and a metal panel frame in which the panel is mounted and supported. Paneled constructions of this sort are employed in metal doors, windows, partitions and the like, in which the glass or other panel is secured in a metal frame ordinarily comprising side and end bars, stiles or rails, each of which may be made of sheet metal and of hollow or tubular formation.

One object of my invention is to provide a paneled structure of this nature which is exceedingly simple and inexpensive but which nevertheless provides a light but strong, rigid frame in which the panel can be readily mounted and securely held.

Other objects are to provide a panel securing stop or molding which is adjustably retained in place by engagement with the frame without the need for screws or other fastenings and in such a way as to enable the use of panels of different thicknesses; also to provide a paneled structure in which each rail of the panel frame may be formed from a single piece of sheet metal bent to provide a hollow rail with an integral, fixed panel molding or stop against which the panel is secured by a removable or adjustable molding or stop which is retained in place by engagement in a groove formed in the rail, without the necessity for other fastening or securing means; and also to improve metal paneled structures in the other respects hereinafter described and set forth in the claims.

In the accompanying drawing:

Fig. 1 is a front elevation of a paneled frame embodying my invention.

Fig. 2 is an enlarged elevation of one corner of the frame, a portion of one of the removable stop strips being broken away.

Fig. 3 is a transverse section thereof on line 3—3, Fig. 2.

Fig. 4 is an exploded cross sectional view of the bottom rail of the frame on line 4—4, Fig. 2.

The paneled structure comprises a panel 10, which may be of glass, metal or other material, and a surrounding frame 11 in which the panel is mounted and supported. This frame is composed of metal bars or rails suitably joined at their ends to form a rigid open frame, and each of these rails is preferably formed of a single piece or strip of sheet metal bent into hollow or tubular cross sectional shape. To form the rail of the rectangular cross section, shown in Fig. 3, the sheet is bent to form opposite, parallel side

walls 12 and 13, and outer and inner parallel edge or cross walls 14 and 15, but it will be understood that the cross sectional shape of the hollow rail may vary, depending upon the purpose for which the paneled frame is to be used or the formation of the structure in which it is to be incorporated. One side wall 12 of the rail shown is wider than the opposite side wall 13, and the inner edge wall 15 joins and is attached to the wide side wall 12 between its opposite edges, thus leaving the inner edge of the side wall 12 projecting beyond the edge wall 15 and forming a fixed, projecting flange or panel molding or stop 16. The opposite edge of the sheet metal strip forming the rail is folded back upon itself parallel with and close to the inner edge wall 15, thus forming a narrow, outwardly opening groove 17 between this edge and the wall 15, and the folded inner edge of the wall 15 is rigidly attached to the side wall 12, as by electric welding, indicated at 18.

The several bars or rails of this hollow formation may be rigidly joined together at their ends to form the panel frame 11 in any suitable way. For instance, the rails may be made with bevelled ends and welded together along the diagonal, dotted lines 19 at the corners of the frame. The panel frame thus formed has hollow rails with integral, longitudinal flanges forming a continuous, fixed or rigid stop or molding at one side of the inner perimeter of the frame against which one face of the glass or other panel 10 is adapted to abut.

The panel 10 is retained in place in the frame against this fixed stop by separate or detached molding strips or stops 20 each of which extends lengthwise of one frame rail and has an attaching flange 21 adapted to enter the groove 17 and lie flat against the inner edge wall 15 of the rail, and a stop flange 22 which extends toward and is adapted to abut against the face of the panel opposite to that against which the fixed stop bears. Preferably, the groove 17 for receiving the attaching flange 21 of this stop strip is of such width that the flange fits tightly in the groove and has to be forced or driven into the groove so that the flange 21 will be gripped between the opposite walls of the groove 17 and tightly and securely retained in place in the groove 17, and the groove is of such depth that the stop flange can extend to a greater or less distance into the groove, thus adapting the stop strip to be adjusted in the groove to bear against and properly hold panels of different thicknesses. The ends of the separate stop strips are prefer-

ably bevelled so as to meet in miter joints at the corners of the frame, thus adapting these stops to be readily placed in position in the grooves 17 in the frame and pressed inwardly tightly against the face of the panel notwithstanding variations in the thickness of the panel, in which position the stop will be retained by the pressure of the walls of the groove 17 on the flange 21 of the stop. The pressure of the panel against the flange 22 of the stop creates a leverage which causes the other flange 21 to bind in the groove 17 and thus firmly secure the stop in different adjustments in the groove. The stop is therefore adapted to firmly and securely hold panels of one or another thickness in place in the frame between the fixed and movable stops. The fixed stop 16 and the stop flange 22 of the removable stop may be of the configuration shown, or of any other desired form or face configuration to provide more or less ornamental molding strips around the edges of the panel.

The flanges of the removable stops may be of such proportions that when the stops are pressed into place in holding contact with the face of the panel, the outer faces of the removable stops may be flush with or offset slightly inwardly or outwardly from the outer face of the panel frame, thereby producing a desired finished effect in the frame. Water tight joints can be made between the frame and the panel by suitable packings, such as gummed packing tape 23 applied to the edges of the panel, as shown in Fig. 3.

In the case of breakage of a glass panel in the frame constructed as described, the broken glass can be removed, and this permits the removable stops to be readily detached by prying them out of their grooves 17 by means of a suitable tool or implement inserted between the fixed and removable stops. If it is desired to remove an unbroken panel for replacement by a different panel, or for any other reason, this can be done by providing a small hole in one end of one removable stop strip so as to enable the insertion of a tool or implement in the hole and by means of which the stop strip can be pulled out. After one stop strip has thus been removed, a tool or implement can be readily engaged with the exposed ends of the other stop strips to permit them to be disengaged from the frame.

I claim as my invention:

1. A panel structure comprising a rail having opposite side walls, a cross wall extending from one side wall to the other and rigidly connecting the same, a projecting fixed panel stop at one side of the rail, and a narrow deep groove formed by said cross wall and a fixed wall at the outer side of the cross wall, said groove opening laterally away from said stop, and a separate stop strip having an attaching flange which enters said groove, and a panel holding flange disposed opposite to and cooperating with said fixed stop to secure the panel between said stops, said groove having substantially parallel opposite walls which bear against opposite faces of said attaching flange and secure said flange in different adjustments in said groove to suit panels of different thicknesses.

2. A panel structure comprising a hollow rail having opposite side walls and consisting of a single metal sheet bent into the form of a tube, one edge of said sheet projecting out from the tube and forming a fixed panel stop along one side of the inner edge of the rail, and the opposite bent edge of the sheet being folded upon itself and forming a narrow longitudinal groove along said inner edge of the rail and opening laterally away from said stop, said folded edge of the sheet forming a cross wall extending from one side wall of the rail to and attached at its fold to the other side wall of the rail and a separate stop strip having a flange which fits and is retained in said groove, and a flange forming a panel stop disposed opposite to and cooperating with said fixed stop to secure a panel between said stops.

3. A panel structure comprising a rail consisting of a single bent sheet of metal forming opposite side walls and a cross edge wall joining said side walls, one longitudinal edge of said sheet forming a projecting fixed panel stop along one side of said rail, the other longitudinal edge of the sheet which forms the cross wall being folded upon itself and attached at the fold to the side wall having the fixed stop and forming with said cross wall a groove opening laterally away from said fixed stop, and a separate stop strip having a flange which fits and is retained in said groove, and a flange forming a panel stop disposed opposite to and cooperating with said fixed stop to secure a panel between said stops.

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