May 12, 1953 W. C. WATKINS 2,638,190

COMBINED DOOR AND WINDOW

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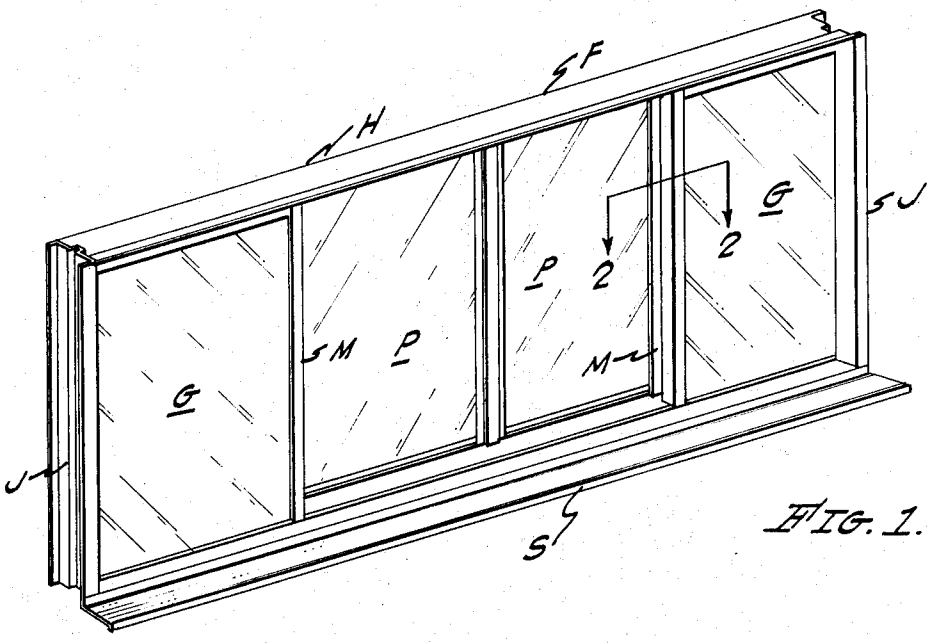
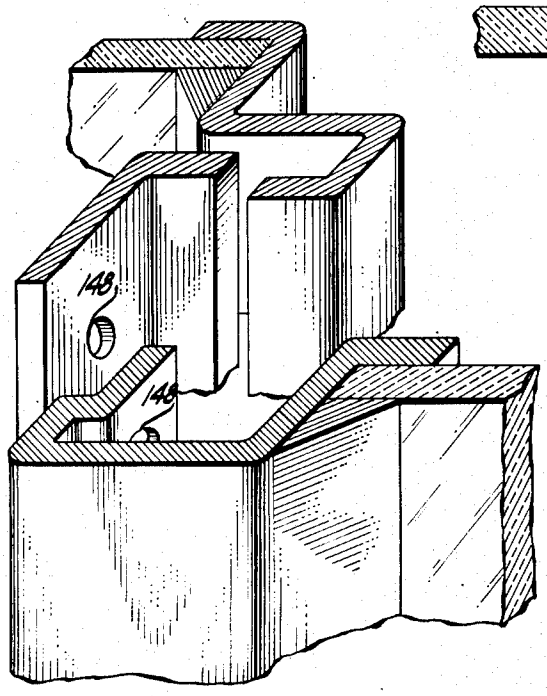


FIG. 1.

FIG. 3.



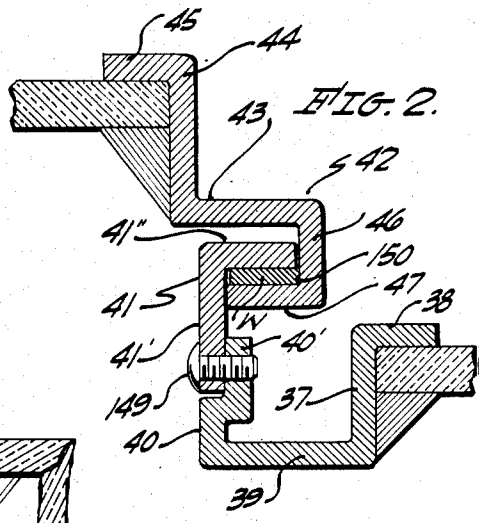


FIG. 2.

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COMBINED DOOR AND WINDOW

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6 Claims. (Cl. 189—76)

1

My invention relates to the field of combined doors and windows, and is a continuation-in-part of my co-pending application, Serial No. 107,172 filed July 28, 1949.

Although the combined door and window disclosed in my co-pending application has been found to operate satisfactorily, it has the disadvantage that a portion of each mullion used in the device is difficult to paint and service after the glazing of the window has been completed.

The primary purpose of my present invention is to provide a combined door and window having a mullioned construction that will eliminate the above mentioned disadvantage.

A major object of my invention is to supply a mullion for a combined door and window that can readily be painted or serviced after the window has been glazed.

Another object of my invention is to furnish a mullion having an extremely simple structure, that can be fabricated from standard commercially available materials, and can be incorporated in my combined door and window at a relatively small increase in cost.

These and other objects and advantages of my invention will become apparent from the following description of a preferred form thereof, and from the drawing illustrating that form in which:

Figure 1 is a perspective view of my combined door and window;

Figure 2 is a horizontal cross sectional view of one of the mullions taken on the line 2—2 of Figure 1; and

Figure 3 is a fragmentary exploded perspective view of the mullion and the end portion of one of the sliding panels.

Referring now to Figure 1 for the general arrangement of my combined door and window, it will be seen that it includes a substantially rectangular framework F having a longitudinally extending head member H, a sill S situated thereunder, and the sill and head member being connected at each end by a vertical side jamb J. Two stationary vertical mullions M that extend from the sill S to the head member H are longitudinally spaced and situated between the side jambs J.

Two substantially rectangular stationary panes G of glass or other transparent material are supported in the frame F, with each pane being situated in one of the end portions of the frame between one of the jambs J and mullions M. Two longitudinally movable panels P are mounted in the frame F, and due to being glazed, serve the dual function of providing a door to close the space between the mullions M, and serving as windows when so positioned.

The structure of my present invention is identical in a number of respects to the combined door and window shown in my co-pending application Serial No. 107,172.

2

The mullions M are similar in cross section but oppositely disposed. Each of the mullions M includes a vertically positioned member 37 having a lip 38 formed on the rearward edge thereof that extends outwardly, and a flange 39 formed on the forward edge of the member 37 that is parallel to the lip 38 and extends inwardly. A leg 40 extends rearwardly from the inner edge of the flange 39, with the leg having an offset end portion 40' formed thereon.

An elongated vertically positioned member 41 of L-cross section is provided for each of the mullions M, with the member having the end portion of one of its legs 41' situated adjacent to the leg portion 40'. The member 41 has a second leg 41'' that extends outwardly therefrom and is positioned parallel to the flange 39.

Each of the slidable panels P, as may best be seen in Figure 2, has a member 42 that forms the outer vertical end thereof. The member 42 includes a substantially vertical strip 43 having a leg 44 disposed normal thereto on the inner edge thereof. A lip 45 extends inwardly from each of the legs 44, and an inwardly extending hooked member 46 is formed on the outer edge of the member 43. The hooked member 46 includes a short inwardly extending leg 47 that is adapted to be situated adjacent to the leg 41'' when the panel P, of which the hooked member is a part, is in the closed position.

Each of the members 41 and the offset leg portion 40' when it is positioned adjacent thereto are formed with longitudinally spaced tapped bores 148 that are in vertical alignment, with the bores being engaged by screws 149 to removably hold each of the members 41 and leg portions 40' together as an integral unit, as may best be seen in Figures 2 and 3.

It will be noted that with one of the panels P being placed in the closed position as shown in Figure 1 that the leg 41'' is engaged by the hooked member 46, with the result that a vertically extending space 150 of rectangular cross section is formed between the forward face of the leg 41'' and the rearward face of the leg 47. To prevent the possibility of wind or air passing from the outside to the inside of the building in which my invention is installed, a length of weather stripping W may be affixed to the forward face of the leg 41''. The weather stripping W is of such a thickness that it fully occupies the space 150 when the panel P is in the closed position as shown in Figures 1 and 2.

The operation and installation of my combination door and window is extremely simple. The frame F and the various component parts making up the finished combination door and window are fabricated by the manufacturer and dis-

patched to the building in which it will be installed. Each of the frames F is installed in the building in accordance with conventional building practice, and the glazing operation completed in the frames prior to the building being put in use. The stationary panes of glass G are situated between the jambs J and the mullions M, with each pane of glass having the bottom edge thereof resting on the upper surface of the sill S, and the upper edge of glass in contact in a portion of the head member H. The vertical edges of each pane of glass G are supported by one of the mullions M and one of the jambs J.

Each of the panels P is longitudinally movable within the frame F due to being mounted on rollers as described in detail in my co-pending application, Serial No. 107,172. Although the painting of my combination door and window can be carried out prior to the glazing operation being performed thereon, it frequently happens that the painting is not done until after this operation has been completed. As a result, certain portions of the window as described in my co-pending application, Serial No. 107,172 are difficult to paint, and this difficulty is eliminated by my present window construction. In the window disclosed in my co-pending application Serial No. 107,172 it was impossible to paint the interior of one of the mullions M after the window had been glazed, but in my present window the member 41 may be removed from the supporting mullion M by loosening the screws 149. Thus, the interior of the mullion is accessible for painting, as well as the interior of the member 41. In addition, by removing the member 41 the weather stripping W can be affixed to the forward face of the leg 41'' with a minimum of effort when it is found desirable to include weather stripping as a part of the window. It will be apparent that after the weather stripping W has become damaged or worn by use, that the member 41 may be removed to permit the replacing of weather stripping W with new material.

Although the described structure of the mullion M is fully capable of achieving the results and providing the advantages hereinbefore mentioned, it is to be understood that it is merely illustrative of the presently preferred form of my invention, and that I do not mean to be limited to the details of construction herein shown and described other than as defined in the appended claims.

I claim:

1. A window structure which includes: a substantially rectangular frame comprising a sill and header and first and second vertically disposed end pieces; a horizontally movable panel supported in said frame; a vertically disposed leg mounted on the inner end of said panel and laterally separated therefrom; an intermediately disposed vertical extending mullion extending between said sill and header to divide said frame into two portions, the first of said portions being open, and the second of said portions normally being closed by a transparent sheet of weather-protecting material rigidly affixed to said frame and mullion, said mullion comprising an elongate rigid strip that has a supporting lip for said sheet projecting from the interiorly disposed vertical edge thereof in a direction toward said second end piece and a flange from the exteriorly disposed edge thereof that extends toward said first end piece, with said flange terminating in an inwardly disposed leg that is substantially normal thereto, and said leg formed with a number of vertically spaced tapped bores therein; a vertically disposable elongate member of transverse L-shaped cross section comprised of a first and second leg, said first leg formed with a number of vertically spaced tapped bores therein that may be aligned with said bores in said flange-supported leg; a plurality of screws that engage said tapped bores and removably support said vertically disposable member on said mullion in a weather-protecting position, with said first leg and said flange-supported leg in contact with one another, and said second leg positioned parallel to said sheet-supporting lip but disposed interiorly therefrom; and weatherstripping disposed along one face of said second leg in a position to be slidably engaged by said panel-supported leg to effect a weather-tight seal when said panel is moved to a position to completely close said open portion of said frame.

2. A window structure which includes: a substantially rectangular frame comprising a sill and header that are joined by first and second vertically disposed end pieces; a roller-supported panel that is horizontally movable in said frame; a vertical leg mounted on the inwardly disposed end of said panel and laterally separated therefrom; an intermediately disposed mullion extending between said sill and header that divides said frame into two portions, the first of said portions of which is open, and the second of said portions normally closed by a pane of weather-protecting sheet material, said mullion comprising an elongate rigid strip that has a supporting lip for said pane projecting from the interiorly disposed vertical edge thereof and a flange from the exteriorly disposed edge thereof, with said flange terminating in an inwardly disposed leg that is substantially normal thereto, and said leg having an off-set interiorly disposed leg portion in which a number of vertically spaced tapped bores are formed; a vertically disposable elongate member formed from a first and second leg disposed normal to one another to provide said member with a transverse L-shaped cross section, said first leg formed with a number of vertically spaced tapped bores therein that may be aligned with said bores in said flange-supported leg; a plurality of screws that engage said tapped bores to removably support said elongate member from said off-set leg portion with said second leg positioned parallel to said pane-supporting lip but disposed inwardly therefrom; and weatherstripping disposed on one of the faces of said second leg in a position to be slidably engaged by said panel-supported leg when said panel is moved to a position to completely close said first portion of said frame.

3. A window structure which includes: a substantially rectangular frame comprising a sill and header that are joined by first and second vertically disposed end pieces; a roller-supported panel that is horizontally movable in said frame; a vertical leg mounted on the inwardly disposed end of said panel and laterally separated therefrom; a mullion extending between said sill and header that divides said frame into two portions, the first of which is open, and the second of which is closed by a pane of weather-protecting sheet material, said mullion comprising an elongate rigid strip that has a pane-supporting lip projecting from the interiorly disposed vertical edge thereof in a direction toward said second end piece and a flange from the exteriorly disposed edge thereof that terminates in an inwardly disposed leg, said leg having an off-set interiorly

disposed leg portion in which a number of vertically spaced tapped bores are formed; a vertically disposable elongate member formed from a first and second leg disposed normal to one another to provide said member with a transverse L-shaped cross section, said first leg formed with a number of vertically spaced tapped bores therein that may be aligned with said bores in said flange-supported leg; and a plurality of screws that engage said tapped bores to removably hold said elongate member on said mullion with said second leg positioned parallel to said pane-supporting lip but disposed inwardly therefrom in such a position that it will interlock with said panel-supported leg to effect a weather-tight seal when said panel is moved to a position to completely close said open first portion of said frame.

4. A window frame structure having a horizontally movable panel that includes: a substantially rectangular frame comprising a sill and header that are joined by first and second vertically disposed end pieces; an intermediately disposed mullion extending between said sill and header that divides said frame into two portions, the first of said portions being open, and the second of said portions normally closed by a pane of weather-protecting material, said mullion comprising an elongate rigid strip that has a supporting lip for said pane projecting from the interiorly disposed vertical edge thereof in a direction toward said second end piece and a flange from the exteriorly disposed edge thereof that extends toward said first end piece, with said flange terminating in an inwardly disposed leg that is substantially normal thereto, and said leg formed with a number of vertically spaced tapped bores therein; a vertically disposable elongate member formed from a first and second leg disposed normal to one another to provide said member with a transverse L-shaped cross section, said first leg formed with a number of vertically spaced tapped bores therein that may be aligned with said bores in said flange-supported leg; a plurality of screws that engage said tapped bores to removably support said vertically disposable member on said mullion, with said first leg and said flange-supported leg in contact with one another, and said second leg positioned parallel to said pane-supporting lip but disposed interiorly therefrom; and weatherstripping disposed along one of the faces of said second leg to be slidably engaged by the inwardly disposed vertical edge of said panel when said panel is moved to a position to completely close said first open portion of said frame.

5. A window frame structure in which a horizontally movable panel may be disposed that includes: a substantially rectangular frame that comprises a sill and header joined by a first and a second vertically disposed end pieces; an intermediately disposed mullion extending between said sill and header that divides said frame into two portions, the first of said portions which is open, and the second of said portions normally closed by a pane of weather-protecting material, said mullion comprising an elongate rigid strip that has a supporting lip for said pane projecting from the interiorly disposed vertical edge thereof in a direction toward said second end piece and a flange from the exteriorly disposed edge thereof that extends toward said first end piece, with said flange terminating in an inwardly disposed leg that is substantially normal thereto, and said leg formed with a number of vertically spaced bores

therein; a vertically disposable elongate member formed from a first and second leg disposed normal to one another to provide said member with a transverse L-shaped cross section, said first leg formed with a number of vertically spaced bores therein that may be aligned with said bores in said flange-supported leg; and a plurality of elongated fastening means that removably engage said bores to removably support said vertically disposable member on said mullion, with said first leg and said flange-supported leg in contact with one another, and said second leg positioned parallel to said pane-supporting lip but disposed interiorly therefrom to be removably engaged by an inwardly disposed vertical edge portion of said panel to effect a weather-tight seal therewith when said panel occupies a position to completely close said first open portion.

6. A window structure which includes: a substantially rectangular frame formed from a sill and header that are joined by a first and a second vertically disposed end pieces; a horizontally movable panel supported in said frame; a vertical leg mounted on the inwardly disposed end of said panel and laterally separated therefrom; an intermediately disposed mullion extending between said sill and header that divides said frame into two portions, the first of said portions of which is open, and the second of said portions normally closed by a pane of weather-protecting material, said mullion comprising a transversely disposed elongate rigid strip that has a supporting lip for said pane projecting from the interiorly disposed vertical edge thereof in a direction toward said second end piece and a flange from the exteriorly disposed edge thereof that extends toward said first end piece, with said flange terminating in an inwardly disposed leg that is substantially normal thereto, and said leg formed with a number of vertically spaced bores therein; a vertically disposable elongate member formed form a first and second leg disposed normal to one another to provide said member with a transverse L-shaped cross section, said first leg formed with a number of vertically spaced bores therein that may be aligned with said bores in said flange-supported leg; and elongated threaded means that removably engage said bores to support said vertically disposable member on said mullion, with said first leg and said flange-supported leg in contact with one another, and said second leg positioned parallel to said pane-supporting lip but disposed interiorly therefrom in such a position that it will removably interlock with said panel-supported leg to effect a weather-tight seal when said panel is moved to a position to completely close said first open portion of said frame.

WILLIAM C. WATKINS.

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