

May 29, 1934.

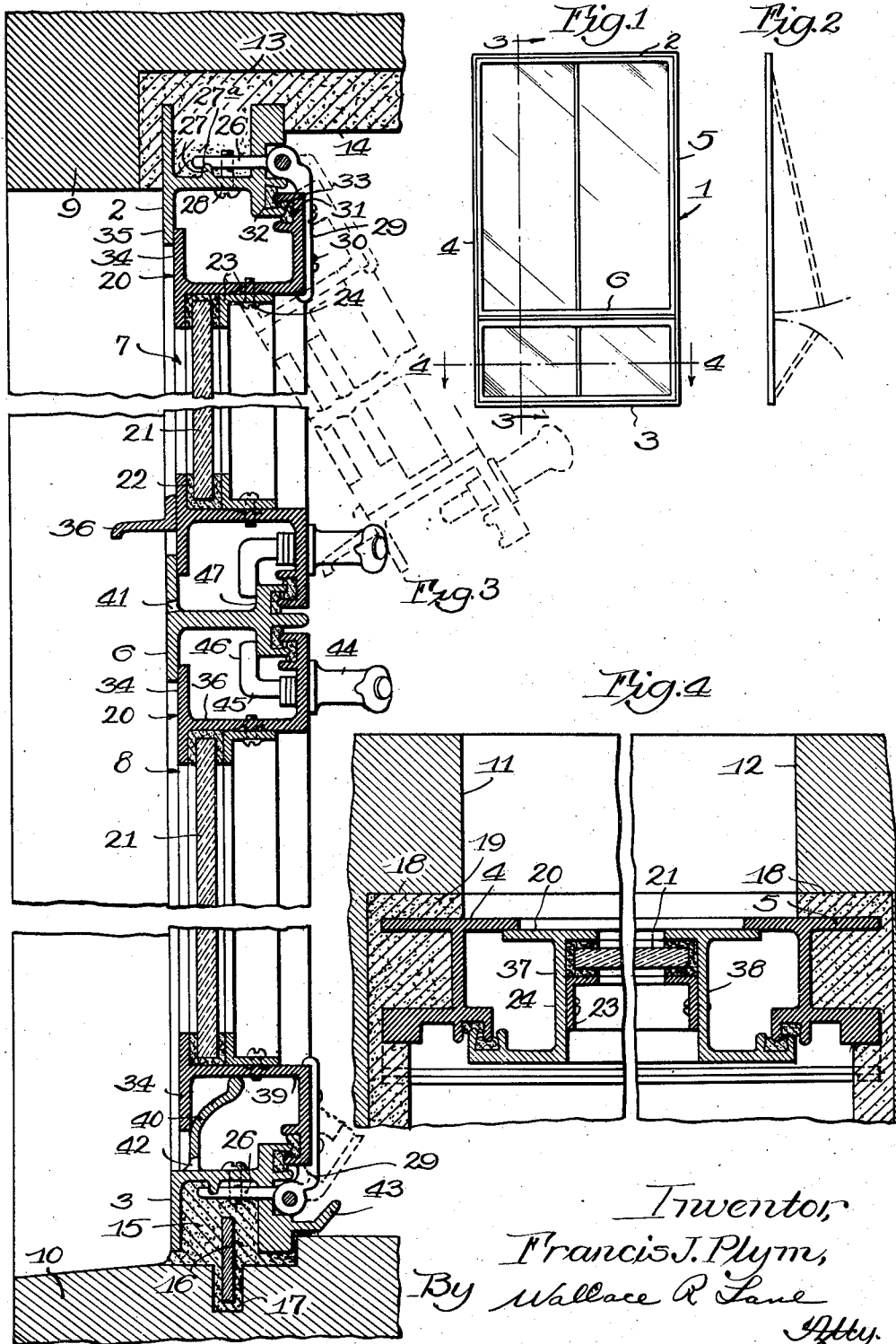
F. J. PLYM

1,960,920

WINDOW CONSTRUCTION.

Filed March 5, 1931

2 Sheets-Sheet 1



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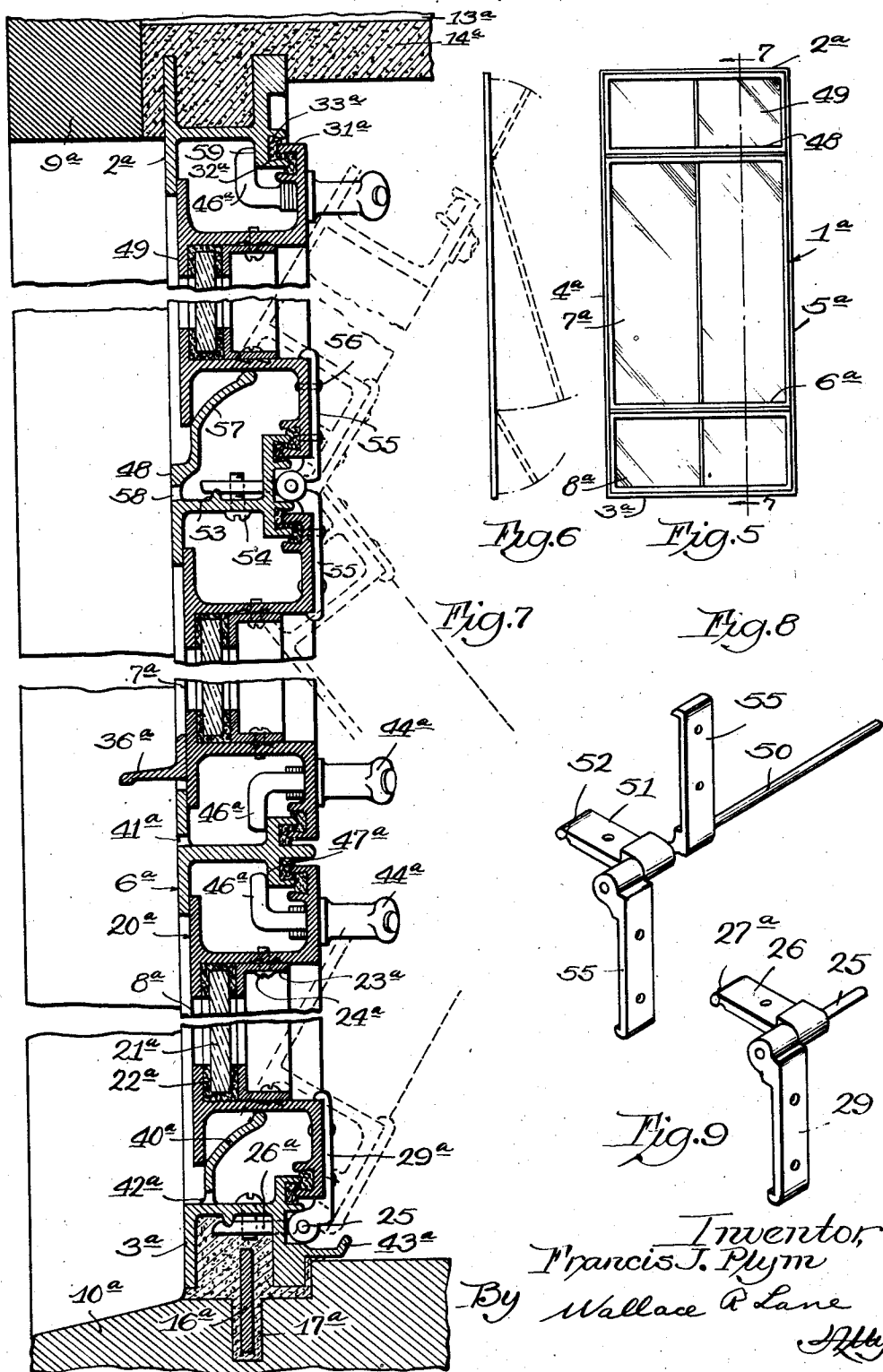
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UNITED STATES PATENT OFFICE

1,960,920

WINDOW CONSTRUCTION

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Application March 5, 1931, Serial No. 520,278

13 Claims. (Cl. 189—69)

The present invention relates to window constructions and more in particular to window structures adapted to be inserted in a window opening in a building or the like, as a unit.

5 Among the objects of the present invention is to provide a novel window construction having a frame adapted to be readily and easily inserted and secured in a window opening, and in which one or more closure members or window sashes
10 provided therein are adapted to be swung inwardly of the frame for ventilating purposes and to make it possible to clean or wash these members from the inside of the building.

The invention comprehends the idea of providing a novel hinge connection for one or more
15 closure members mounted in the frame of the window construction whereby such members may be easily and readily swung inwardly for the purposes above indicated.

20 A further object of the invention is to provide a hinge connection for one or more sash or closure members mounted in the frame in which means are provided for effecting a positive hinge connection so as to firmly hold the sash members
25 in place in the frame, whereby rattling and other objectionable noises are eliminated.

In the embodiments selected to illustrate the invention, these sash members are shown as being provided with hinge elements adapted to engage with or be mounted upon pintle members
30 mounted on and secured in place on the frame of the window construction. These sash members have been shown as being mounted so as to swing inwardly of the frame, although of course it is understood that should occasion arise, the same
35 could be mounted to swing outwardly without departing from the spirit of the invention. In the illustrative embodiments, these pintle members are shown as being mounted in hinge elements
40 having parts projecting through openings in certain portions of the frame, these elements being provided with a depression adapted to be engaged by projections on the frame. Means, such as screws or the like, are provided for drawing these
45 hinge elements into engagement with these projections in order to provide a rigid construction.

The present invention further comprehends the idea of providing a window construction in which the sash or closure members thereof are provided with grooves adapted to inter-engage with
50 grooves of the frame, means being further provided in these grooves for effecting a weather-tight construction when the sash or closure members are in their closed position.

55 Still another object of the invention is to pro-

vide a window frame having guide means for certain of the sash or closure members fitting therein for guiding and limiting the movement of these sashes relative to the frame. These guide
60 means are so constructed as to prevent rain, snow, dirt, dust and the like from entering the window frame and to assist in providing a weather-tight window construction.

Other objects, features, capabilities and advantages are comprehended by the invention as will later appear and as are inherently possessed
65 thereby.

Referring to the drawings:

Fig. 1 is a front view in elevation of a window construction made in accordance with the present
70 invention.

Fig. 2 is a side view in elevation of the window construction shown in Fig. 1 of the drawings and showing in dotted lines the position of the window
75 sashes when in an open position.

Fig. 3 is an enlarged broken vertical cross-sectional view taken in a plane represented by the line 3—3 of Fig. 1 of the drawings and disclosing the present novel window construction in position
80 in a window opening of a building or the like, the closure members of this construction being shown in dotted lines to represent the position of the same when opened.

Fig. 4 is a broken horizontal cross-sectional view taken in a plane represented by line 4—4 of
85 Fig. 1 of the drawings.

Fig. 5 is a front view in elevation of another window construction embodying the present novel
invention.

Fig. 6 is a side view in elevation of the window construction shown in Fig. 5 of the drawings and showing in dotted lines the position of the window
90 sashes when in an open position.

Fig. 7 is an enlarged broken vertical cross-sectional view taken in a plane represented by line 7—7 of Fig. 5 of the drawings and disclosing this window construction in position in a window
95 opening of a building, the position of the closure members when in an open position being shown in dotted lines.

Fig. 8 is a detached view in perspective of a hinge construction particularly adapted for use in the embodiment of the invention disclosed in
100 Figs. 5 to 7 inclusive.

Fig. 9 is a detached view in perspective similar to that of Fig. 8 and disclosing a hinge construction adapted to be used in the embodiment of the
105 invention disclosed in Figs. 1 to 4 inclusive.

Referring now more in detail to the drawings, an embodiment of the present novel window con-
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struction illustrative of the invention is disclosed as comprising a frame 1 having upper and lower rails 2 and 3, side jamb members 4 and 5, and a mullion 6 spanning between the stile members 4 and 5 and dividing the frame into an upper and lower opening in which window sash members 7 and 8 are adapted to fit, respectively. This window construction 1 is shown in Figs. 3 and 4 as fitting in a window opening having a top rail member or portion 9, a sill 10, and side jamb members 11 and 12.

The upper rail 2 of the frame 1 projects or extends into a depressed or recessed portion 13 in the top rail or lintel 9 of the window opening and is held in place by mortar 14 or the like, while the lower rail 3 of this frame member is secured and held in place by the mortar 15 or the like surrounding a rib 16 embedded in the mortar 15 and projecting into a recess or groove 17 in the sill member 10. Each of the side stile members 4 and 5 of the frame 1 project into recessed or depressed portions 18 provided in the stile members 11 and 12 and are held in place by mortar 19 or the like.

The sash members 7 and 8 are of substantially the same construction and comprise a pane seating section 20 having a shoulder portion adapted to support a pane of glass 21 embedded in putty 22 or the like and held in place by glass retaining strips or members 23 secured to the pane seating section by means of screws 24 or the like.

Novel means is provided for hingedly connecting the sash members 7 and 8 in the window frame 1 whereby these members may be swung inwardly for either ventilating the building, or to position the same so as to make it possible to wash or clean them from the inside of the building. Such means comprises a pintle member 25 mounted in openings of hinge members 26 projecting or extending through openings in the upper rail member 2 and lower rail 3 of the window frame. These hinge elements 26 are provided with a recessed or depressed portion 27 adapted to engage or fit over projections 27 provided on the rail members 2 and 3.

Screw members 28 or the like are provided for drawing these hinge elements 26 into tight engagement with the projections 27. Hinge elements 29 are further provided and are secured, as by means of the screws 30 to the pane seating section 20 of the upper and lower sash members 7 and 8. These hinge elements 29 are mounted on the pintle members and provide a positive pivotal or hinged connection whereby the sash members may be swung inwardly of the window frame. Although I have shown the sash members 7 and 8 as being hinged to the upper and lower rails of the window frame 1, it is of course understood that these sash members, or others, could be hinged to the side stile members without departing from the spirit of the invention.

In order to provide a weather-tight construction, the pane seating section 20 of the window sash members 7 and 8 are provided with a channel shaped groove 31 adapted to interengage with channeled grooves 32 provided in the frame member 1 and mullion 6. Means, such as weatherstrips or the like 33 are provided in each of these grooves for effecting a weather-tight construction when the window sashes are in a closed position, as shown in Fig. 3 of the drawings. In order to prevent entrance of rain, snow, dirt and dust into the window construction and to assist in providing the weather-tight window construction, the pane seating section 20 of the upper sash member 7 is provided with flanges 34 adapted to

contact and engage, when the sash is in its closed position, with flanges 35 provided on the rail 2, stile members 4 and 5 and the mullion 6 of the frame. The outwardly extending drip plate 36 is further provided adjacent the mullion 6 for diverting water and the like and for preventing entrance of the same into the window construction.

The pane seating section 20 of the lower sash member 8 is similarly provided with flanges 34, these flanges of the top rail 36 and stile members 37 and 38 of the pane seating section being adapted to contact with flanges provided on the mullion 6, and stile members 4 and 5 respectively, while the flange 34 on the lower rail member 39 of this pane seating section is adapted to contact with and be guided over the surface of a guide projection 40 of the lower rail member 3. This guide means 40 is adapted to limit the inward movement of the lower sash member 8.

Openings 41 and 42 are provided in the mullion 6 and lower rail member 3 of the frame 1, respectively, for draining any moisture or water collecting in or on these members. Further, a condensate plate 43 is provided on the lower rail member 3 for the purpose of receiving any moisture or condensation from the window sashes and frame.

When the sash members are in a closed position, the same are locked by means of a handle 44 mounted in the pane seating section 20 of these window sash members, these handles having an inwardly extending portion 45 provided with a lateral extension 46 adapted to engage shoulder portions 47 of the mullion 6.

In Figs. 5 to 7 inclusive, the present novel invention is disclosed in a window construction having a frame 1^a provided with an upper and lower rail 2^a and 3^a, and side stile members 4^a and 5^a having an upper mullion 48 and lower mullion 6^a dividing this frame into an upper, lower and intermediate opening in which frame members 49, 8^a and 7^a fit, respectively. These sash members 49, 7^a and 8^a are of a construction similar to the sash members 7 and 8 hereinbefore disclosed and are hinged to the frame 1^a. The lower sash member 8^a is provided with hinge elements 29^a mounted on a pintle 25 secured, as by means of the hinge element 26^a to the lower rail 3^a of the frame whereby the sash member 8^a may be swung inwardly of the frame 1^a. This sash is guided and limited in its movement inwardly by means of the guide strip 40^a of the rail member 3^a. When in its closed position, the same is secured and held in place by means of a lateral projection 46^a of the handle 44^a which is adapted to engage a shoulder portion 47^a of the lower mullion 6^a.

Both the upper sash member 49 and intermediate sash member 7^a are hingedly connected to the upper mullion 48 and are adapted to swing inwardly thereabout. This hinge connection is somewhat similar to the hinge connection previously described and comprises a pintle member 50 mounted in hinge elements 51 projecting through openings in the upper mullion 48. These hinge elements 51 are provided with recessed or depressed portions 52 adapted to engage with projections 53 on the mullion 48.

Screws 54 or the like are provided for drawing the hinge elements 51 into engagement with the projections 53 and to provide a rigid construction. Both the upper sash member 49 and intermediate sash member 7^a are provided with hinge elements 55 secured thereto by means of screws 56 or the like, these hinge elements being mounted on the

pintle member 50 so as to provide a hinge connection whereby these members may be swung inwardly of the window frame 1^a. The inward movement of the upper sash member 49 is limited by the guide member 57 of the upper mullion 48, this guide strip or member being of a similar construction to the guide members 40 and 40^a.

As in the previously described embodiment, the sash members 49, 7^a and 8^a are provided with channel shaped grooves or depressions 31^a adapted to inter-engage with channel shaped portions or depressions 32^a of the window frame 1^a and upper and lower mullions 48 and 6^a. Weatherstrips 33^a or the like are provided in these channel shaped portions for providing a weather-tight construction, as previously disclosed. Openings 58, 41^a and 42^a are provided in the upper mullion 48, lower mullion 6^a and lower rail 3^a respectively, for drainage purposes, as previously disclosed. Further, a condensate plate or portion 43^a is provided on the lower rail 3^a for the purposes as hereinbefore described.

The intermediate sash member 7^a is held in its closed position by means of the handle 44^a having the lateral projection 46^a adapted to engage with a shoulder 47^a of the lower mullion 6^a. The upper sash member 49 is provided with a similar handle 44^a having a lateral projection 46^a adapted to engage with a shoulder 59 of the upper rail 2^a.

While I have herein described and upon the drawings shown illustrative embodiments of the invention, it is to be understood that the invention is not limited thereto, but may comprehend other constructions, arrangements of parts, details and features without departing from the spirit of the invention.

Having thus disclosed the invention, I claim:

1. In a window construction, a frame adapted to be inserted in a window opening, said frame having a grooved portion and a flange spaced therefrom, a sash fitting in said frame and having a grooved portion adapted to interengage with the grooved portion of said frame and a flange adapted to abut against the flange on the frame, means in said grooved portions providing double weathering for effecting a weather-tight construction, and means for swinging said sash into position and comprising a hinge member on said frame and engaging said sash.

2. In a window construction, a grooved frame adapted to be inserted in a window opening and provided with a mullion, grooved closure members for said frame, the grooved portions of the frame and closure members interengaging, means in said grooves providing double weathering for effecting a weather-tight construction, a pintle, and hinge elements mounted thereon and engaging said frame, mullion and closure members whereby to provide for the inward swinging of said closure members.

3. In a window construction, a grooved frame adapted to be inserted in a window opening and having a grooved mullion, closure members in said frame and having grooved portions adapted to inter-engage the grooved portions of said frame and mullion when in a closed position, means in said grooves adapted to provide double weathering to effect a weather-tight construction, pintle members, and hinge elements mounted thereon and engaging said frame, mullions and closure members whereby to provide for the inward swinging of said closure members.

4. In a window construction, a frame adapted to be inserted in a window opening, hinge elements mounted in said frame, said frame having project-

ing portions, said elements having depressed portions adapted to be engaged by said projecting portions, means for drawing said elements into tight engagement with said projecting portions, a closure member in said frame, hinge elements secured to said closure member, and means associated with said hinge elements whereby said member may be swung inwardly of said frame.

5. In a window construction, a frame adapted to be inserted in a window opening, a closure member in said frame, hinge elements adapted to project through openings in said frame, said hinge elements having depressed portions adapted to engage projecting portions on said frame, means for drawing said elements and frame into tight engagement, hinge elements on said closure member, and means associated with the hinge elements of said frame and closure member whereby said member may be swung inwardly of said frame.

6. In a window construction, a frame adapted to be inserted in a window opening, a closure member in said frame, hinge elements adapted to project through openings in said frame, said hinge elements having depressed portions adapted to engage projecting portions on said frame, means for drawing said elements and frame into tight engagement, said closure member having hinge elements, and a pintle member for said hinge elements whereby said closure member may be swung inwardly of said frame.

7. In a window construction, a frame adapted to be inserted in a window opening, a pintle member mounted on the lower rail of said frame, a closure member having hinge elements mounted on said pintle member whereby said closure member may be swung inwardly of said frame, and means for guiding and limiting the movement of said closure member.

8. In a window construction, a frame adapted to be inserted in a window opening, a pintle member mounted on the lower rail of said frame, a closure member having hinge elements mounted on said pintle member whereby said closure member may be swung inwardly of said frame, said rail having a guide portion adapted to limit the inward movement of said closure member.

9. In a window construction, a frame adapted to be inserted in a window opening and having an upper and lower mullion providing an upper, lower and intermediate opening, a pintle member mounted on said upper mullion and the lower rail of said frame, an intermediate window sash having hinge elements mounted on the pintle of said upper mullion, an upper and lower ventilator sash having hinge elements mounted on the pintle of said upper mullion and lower rail, respectively, and means for guiding and limiting the inward movement of said ventilator sashes.

10. In a window construction, a frame adapted to be inserted in a window opening and having an upper and lower mullion providing an upper, lower and intermediate openings, a pintle member mounted on said upper mullion and the lower rail of said frame, an intermediate window sash having hinge elements mounted on the pintle of said upper mullion and an upper and lower ventilator sash having hinge elements mounted on the pintle of said upper mullion and lower rail, respectively, said upper mullion and lower rail having a guide portion for limiting the inward movement of said ventilator sashes.

11. In a window construction, a frame adapted to be mounted in a window opening and provided with a mullion, a pintle member mounted on said

mullion, hinge members mounted on said pintle, sashes connected to said hinge members, and double weathering means on said mullion and sashes.

- 5 12. In a window construction, a frame adapted to be mounted in a window opening and provided on its interior and exterior sides with inwardly extending flanges, a sash member hingedly mounted in said frame and provided on its interior and exterior sides with outwardly extending flanges adapted to engage with the flanges on the frame, the exterior flanges being straight and adapted to engage each other when the sash is closed, the interior flanges being provided with laterally extending grooved portions adapted to interengage with each other thereby providing a double weathering means.

13. In a window construction, a frame adapted to be inserted in a window opening and provided with a mullion, window sashes in said frames, flanges on the inner and outer sides of said mullion, frame and sashes, the outer flanges being adapted to contactingly engage each other when the sash is closed, the inner flanges being provided with laterally extending grooved portions adapted to interengage with each other, pintle members, and hinge elements mounted thereon and engaging said frame, sashes and mullion whereby said sashes may be swung inwardly of said frame.

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