Dec. 30, 1941. D. J. HUNT 2,267,977

WINDOW CONSTRUCTION

Filed Dec. 26, 1939 2 Sheets-Sheet 1

Fig. 1.

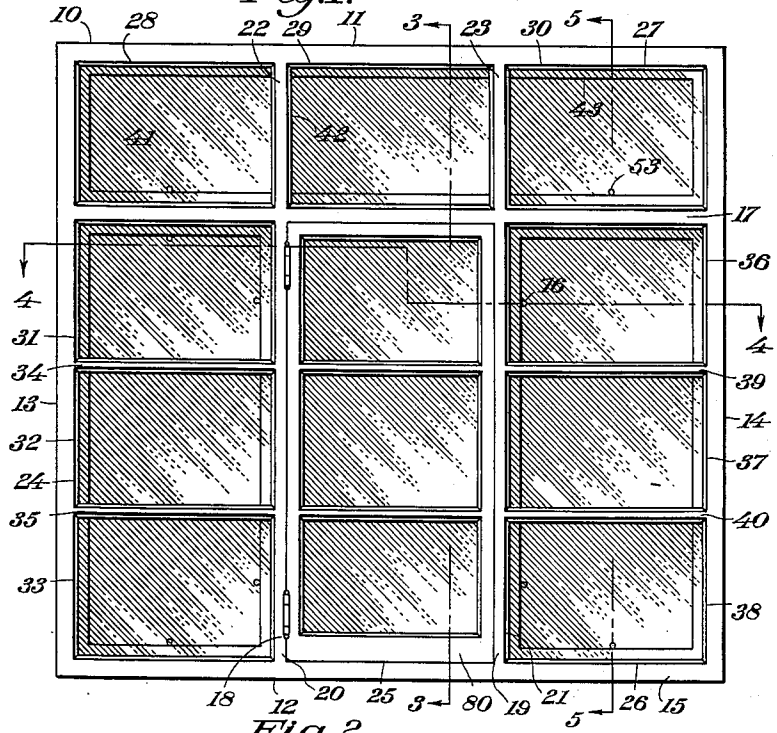


Fig. 2.

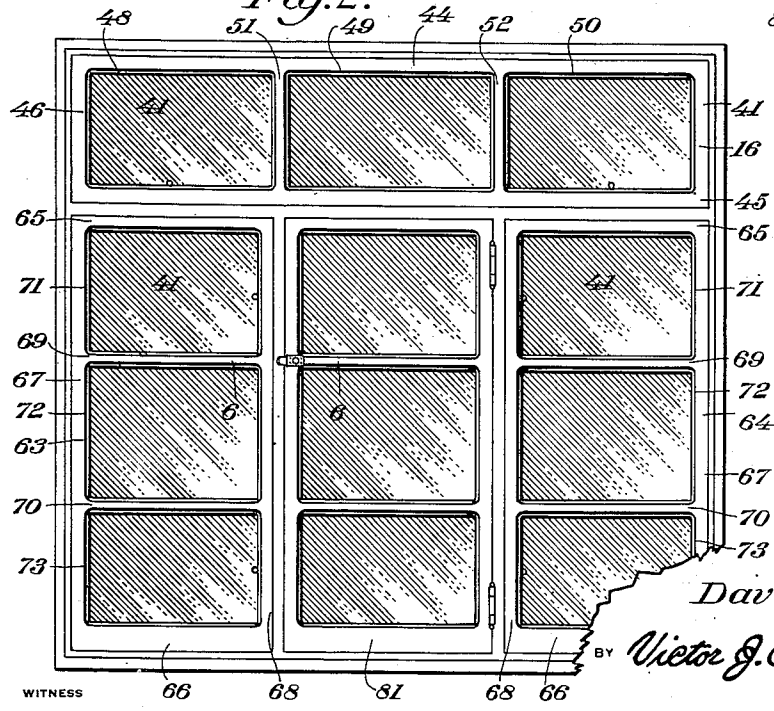
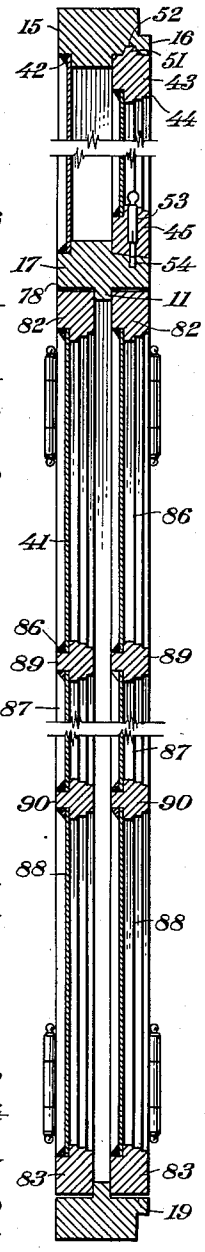


Fig. 3.



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Dec. 30, 1941. D. J. HUNT 2,267,977

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Filed Dec. 26, 1939 2 Sheets-Sheet 2

Fig. 4.

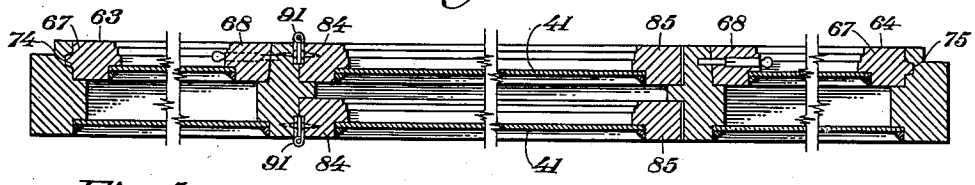


Fig. 5.

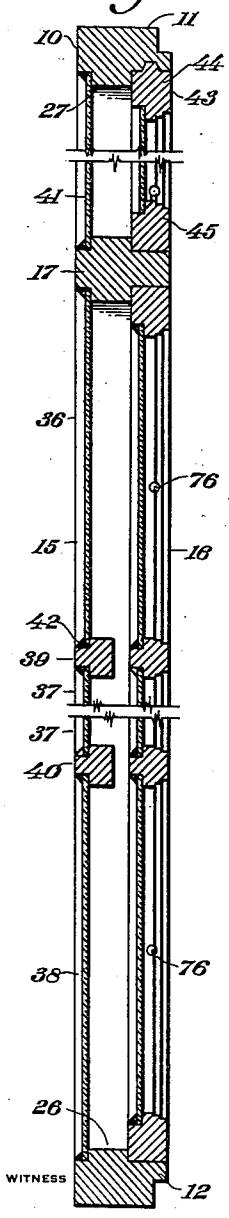


Fig. 6.

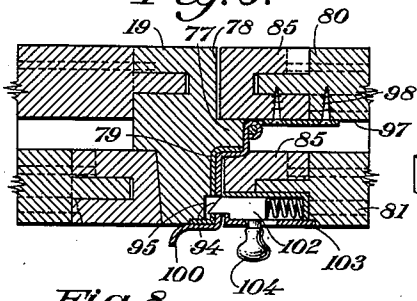


Fig. 7.

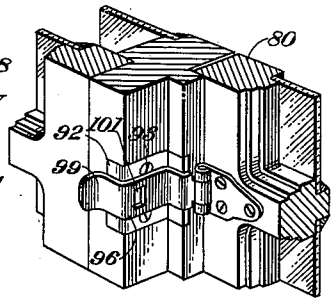


Fig. 8.

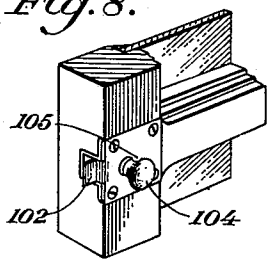


Fig. 9.

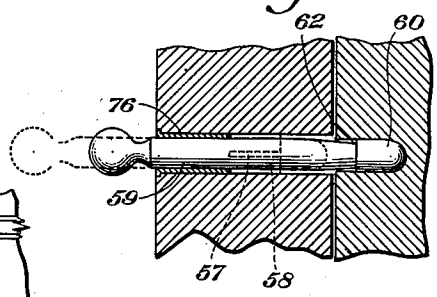


Fig. 11.

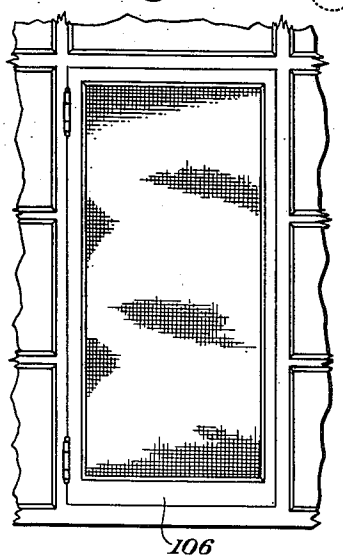
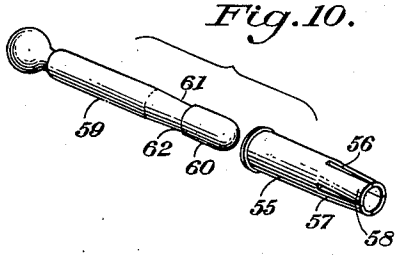


Fig. 10.



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Patented Dec. 30, 1941

2,267,977

UNITED STATES PATENT OFFICE

2,267,977

WINDOW CONSTRUCTION

David J. Hunt, Alexandria, Va.

Application December 26, 1939, Serial No. 310,968

1 Claim. (Cl. 20—53)

My invention relates to new and useful improvements in window construction.

An important object of my invention is to provide a window construction having inner and outer panels, each comprising a plurality of sections maintained in spaced parallelism to provide a dead air space therebetween, and wherein the air space will effectively insulate the inner panel from outside inclement weather conditions.

Another object of my invention is to provide a window construction of the above-mentioned character wherein the dead air space between the panels will permit the air within the building to warm the inner panel to prevent "sweating" of the said inner panel caused by condensation of warm, moist air on a cold pane of glass.

Still another object of my invention is the provision of a window construction of the above-mentioned character wherein one section of both the inner and outer panels is hingedly mounted to permit opening of the same for ventilation purposes and wherein a unique fastening means is provided for the said hinged sections to permit both the inner and outer sections to be latched from within the building and the inner panel to be opened independently of the outer panel.

Yet another object of my invention is the provision of a window construction of the above-mentioned character wherein certain of the panels are adapted to be constructed of glass panes for winter use and to comprise a suitable wire mesh for use during warm weather.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a front elevation of a window constructed in accordance with my invention,

Figure 2 is a rear elevation of the same,

Figure 3 is a vertical sectional view taken on the line 3—3 of Figure 1,

Figure 4 is a transverse sectional view taken on the line 4—4 of Figure 1,

Figure 5 is a vertical sectional view taken on the line 5—5 of Figure 1,

Figure 6 is a fragmentary transverse sectional view taken on the line 6—6 of Figure 2,

Figure 7 is a perspective view illustrating the latch means for fastening the outer swinging panel to the frame,

Figure 8 is a perspective view of the latch means for fastening the inner swinging panel to the frame,

Figure 9 is a view of the sliding plunger adapted to detachably associate certain of the panels with the frame,

Figure 10 is an exploded perspective view of the plunger and sleeve, and

Figure 11 is a fragmentary front elevation illustrating the glass swinging panel of Figure 1 replaced by a swinging panel covered by a suitable wire mesh.

In the drawings, wherein for the purpose of illustration, is shown a preferred embodiment of my invention, the numeral 10 designates a casement or frame here illustrated as being substantially square in front elevation and having top and bottom rails 11 and 12 and stiles 13 and 14. The numeral 15 designates the outer face of the casement and the numeral 16 designates the inner face thereof. The casement 10 is transversely divided by a bar 17 disposed in spaced parallel relation with the top and bottom rails 11 and 12 and substantially three-fourths the height of the casement from the bottom rail 12. The bars 18 and 19 are equi-spaced from each other and from the stiles 13 and 14 of the casement and further subdivide the casement into horizontally spaced congruent openings. The bar 17 is of substantially the same thickness as the stiles for its entire length, and the portions 20 and 21 of the bars 18 and 19 extending between the bar 17 and bottom rail 12 are of substantially the same thickness as the stile and rail, while the portions 22 and 23 extending between the bar 17 and the top rail 11 extend flush with the outer face 15 of the casement but are of substantially reduced thickness.

The bars 17, 18 and 19 divide the frame 10 into panel-receiving openings 24, 25, 26 and 27. The opening 24 is bounded by the stile 13, bars 17 and 18 and bottom rail 12; the opening 25 is bounded by bars 17, 18 and 19 and the bottom rail 12; the opening 26 is bounded by the bars 17 and 19, stile 14 and bottom rail 12; the opening 27 is bounded by the bar 17, stiles 13 and 14 and top rail 11; and the upper portions 22 and 23 of the bars 18 and 19 further subdivide the outer face of the opening 27 into horizontally spaced congruent openings 28, 29 and 30.

The opening 24 is further subdivided into a plurality of vertically spaced congruent openings 31, 32 and 33 by the horizontal lattice strips 34 and 35. The lattice strips 34 and 35 extend between the stile 13 and the lower portion 20 of the bar 18, is flush with the outer face 15 thereof,

and is of substantially reduced thickness. The opening 26 is similarly subdivided into a plurality of vertically spaced congruent openings 36, 37 and 38 by the lattice bars 39 and 40. The lattice bars 39 and 40 extend between the lower portion 21 of the bar 19 and the stile 14, are flush with the outer face of the bar and stile, and are of substantially reduced thickness. The peripheries of the openings 28, 29, 30, 31, 32, 33, 36, 37 and 38 thus formed in the casement 10 are formed with outwardly directed rabbets to receive the panes of glass 41, which panes may be secured therein by strips of putty 42, or the like.

The periphery of the opening 27 at the inner face of the casement 10 is rabbeted to receive the elongated panel 43. The panel 43 comprises top and bottom rails 44 and 45 maintained in spaced parallel relation by the stiles 46 and 47, and the enclosure thus formed is further subdivided into horizontally spaced congruent openings 48, 49 and 50 by the vertically disposed bars 51 and 52, the peripheries of which openings are rabbeted to receive the panes of glass 41.

The upper edge of the top rail 44 of the panel 43 is formed with a longitudinally extending tongue 51 which is adapted to be received within the groove 52 formed in the bottom edge of the top rail 11 of the casement to hold the panel flush with the inner face 16 thereof. The bottom rail 45 of the panel is provided at spaced intervals therealong with vertical bores 53 which align with the cul-de-sacs 54 formed in the upper face of the horizontal bar 17. Latch assemblies 76 are disposed within the bores 53 in a manner to detachably seat within the cul-de-sacs. Each of the assemblies includes a sleeve 55 immovably received by a bore 53 and formed at the end 57 thereof with a plurality of spaced longitudinal slots 56 to define the resilient finger elements 58. A cylindrical plunger 58 is adapted to be slidably received within the sleeve 55 and is formed adjacent the end 60 thereof with a tapering throat portion 61 whereby the plunger may extend through the sleeve and into the cul-de-sac 54. The resiliency of the finger portions 58 of the sleeve will permit the same to spread when the end 60 of the plunger is received by the cul-de-sac 54 and retraction of the plunger from the cul-de-sac may be easily effected. The removal of the plungers from the bore 53 however is prevented by the finger elements 58 which slidably contact the throat portion 61 of the plunger and abuttingly engage the offset portion 62 of the end 60.

The peripheries of the congruent openings 24 and 26 are rabbeted at the juncture thereof with the inner face 16 of the casement to receive the panels 63 and 64. The panels are formed with top and bottom rails 65 and 66 maintained in spaced parallel relation by the stiles 67 and 68 and the opening defined thereby is subdivided by horizontally disposed lattice bars 69 and 70 into vertically spaced congruent openings 71, 72 and 73, the peripheries of which are rabbeted to receive the panes of glass 41. The outer stiles 67 of the panels 63 and 64 are formed with longitudinally extending tongues 74 which are received by aligning grooves 75 in the inner edges of the stiles 13 and 14 of the casement 10. The inner stiles 68 of the panels 63 and 64 are provided with latch assemblies 76 which cooperate with aligning cul-de-sacs formed in the bars 18 and 19 in the same manner described for the top panel 43.

The opening 25 of the casement is formed with a central peripheral bead 77 which defines outer and inner rabbets 78 and 79 adapted to receive the outer and inner swinging panels 80 and 81, respectively. The swinging panels are formed with horizontally disposed top and bottom rails 82 and 83 maintained in spaced parallel relation by the stiles 84 and 85 and the opening thus defined is subdivided into vertically spaced congruent openings 86, 87 and 88 by the lattice bars 89 and 90, the peripheries of which last-mentioned openings are rabbeted to fixedly receive the panes of glass 41. The stiles 84 of the inner and outer swinging panels 81 and 80 are connected to the vertical bar 18 in the casement by the hinge members 91, whereby the stiles 85 may swing outwardly of the said casement.

A keeper 92 is embedded in the rabbeted edge 79 of the vertical bar 19 and fixedly maintained therein by the screw members 93. The keeper is formed with an opening 94 which registers with the recess 95 in the bar 19. A hasp 96 is hingedly secured to the inner face 97 of the outer swinging panel 80 by the screw members 98. The pivoted bar 99 of the hasp is bent to extend around the bead 77, against which the panel 80 abuts when in the closed position, and to extend in superposed relation to the keeper 92. The extending end 100 of the bar is then disposed at right angles thereto to define a finger piece adapted to frictionally engage the inner face of the bar 19 in a manner to hold the panel 80 in the closed position. The pivoted bar 99 is provided with an opening 101 which registers with the opening 94 in the keeper in a manner to permit the spring-pressed plunger 102 of the latch 103 to be received by the keeper. The latch 103 is mounted on the inner face of the panel 81 and includes a knob 104 which extends through the slot 105 in the latch casing. The inner end of the knob is attached to the plunger 102 in a manner to slidably operate within the slot 105 and to provide a means whereby the plunger may be slidably actuated into and out of engagement with the keeper.

As illustrated in Figure 11, the openings in the hinged panels may be closed either by glass or a suitable wire mesh. During the warm summer months it may be desirable to replace the glass panel 80 with a screen panel 106. The panel 106 is similarly provided with a hasp 96 which cooperates with the keeper and latch 103 of the inner panel in the same manner described for the swinging panel 80.

The casement 10 is adapted to be permanently mounted in the window opening of a building and the unique construction of the same provides adequate protection against inclement weather conditions during the cold weather months and permits ventilation during the warm summer months.

It may be seen that the outer openings 28, 29, 30, 31, 32, 33, 36, 37 and 38 of the casement have panes of glass 41 immovably positioned therein and that the inner openings 24, 26 and 27 receive removable panels 43, 63, and 64. By virtue of the unique construction of the removable panels and the manner in which the same are fitted within the receptive openings, they may be easily and expeditiously removed to permit cleaning of the inner surface of the fixed outer panes of glass. When inserted in the manner hereinbefore described, the removable panels will be securely held against casual displacement relative to the casement and provide a dead air space between the inner and outer panes 41 which ef-

fectively insulates the inner panes from the outside air. The dead air space permits the inner panes to assume the same temperature as the air within the building thereby preventing condensation of the moist, warm air within the building on the said panes. The air space is also advantageously employed to prevent escape of the warm air within the building, either through or about the casement, thus effecting a substantial saving in the heating of the building.

The unique construction and mutual cooperation of the hasp 96 carried by the outer swinging panel 80 and the latch 103 carried by the inner swinging panel 81 permits both of the panels to be easily and expeditiously locked from within the building. This unique construction and association also permits the inner swinging panel 81 to be opened independently of the outer panel. This coaction is particularly advantageous when the outer panel 80 is replaced by the screen panel 106 whereby opening of the inner panel 103 will provide adequate ventilation through the screen panel. By providing the means for fastening the outer panel from the inside opening of the same by a person outside the building is efficaciously prevented. The unique manner in which the swinging panels are associated with the frame in no manner destroys or diminishes the beneficial results obtained by the dead air space therebetween.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same and that various changes and modifications in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the appended claim.

What I claim is:

In a window construction having a frame and spaced parallel panels hingedly associated with the frame, the improvements comprising a keeper carried by the frame, a latch carried by the swinging end of one of the panels and extending intermediate the frame and the other of the panels, said latch having an opening adapted to register with the said keeper, an offset end portion adapted to frictionally engage the frame, and a sliding latch element carried by the second panel, said latch being adapted to extend through the opening in the first latch and to be received within the said keeper.

DAVID J. HUNT.