Feb. 2, 1937. M. H. OTTO 2,069,268

COMBINATION DOOR

Filed July 24, 1935

FIG. 1

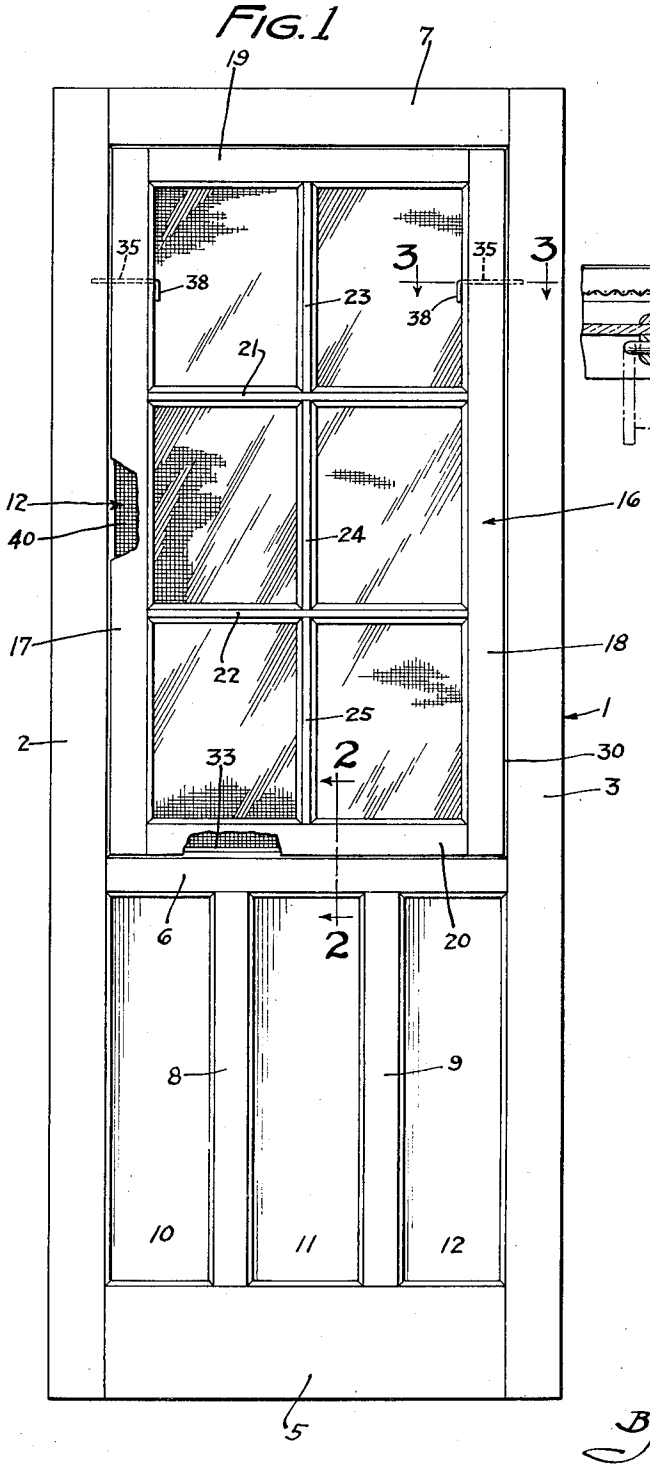


FIG. 3

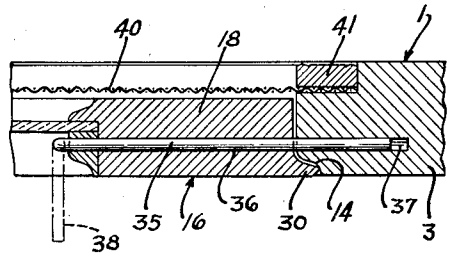
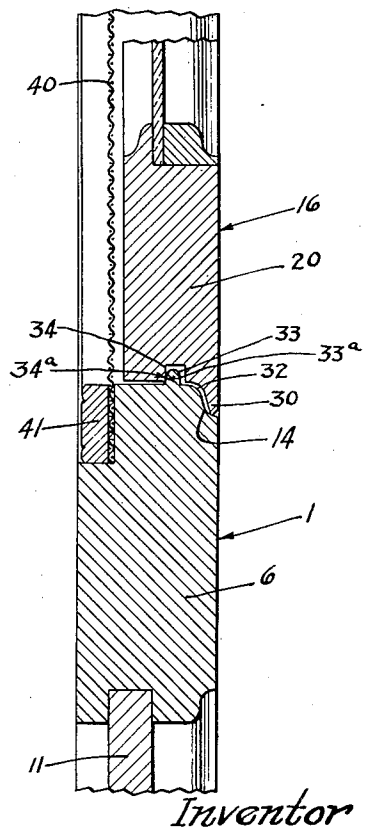


FIG. 2



Inventor
MARTIN H. OTTO
By Kerr, Page & Moore
ATTORNEYS

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COMBINATION DOOR

Martin H. Otto, Minneapolis, Minn., assignor to The Wabash Screen Door Company, Minneapolis, Minn., a corporation of Minnesota

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5 Claims. (Cl. 20—36)

This invention relates to improvements in screen doors, and is particularly concerned with the provision of new means by which an ordinary screen door can be turned into a weather-tight winter door by utilization of the ordinarily employed ornamental ogee or other molding surfaces, as means cooperative with complemental surfaces of a window or other panel to obtain a weather-tight seal.

An object is to make a screen door which is suitable for all year round use and which is strong enough to carry the additional load of a large sized glazed panel or window, which panel may be used only in the upper part of the door.

Another object is to provide a combination winter and summer door, and a door which may be considered half summer door and half winter door, and in which the lower part of the door is solid while a larger area of the door above the middle rail is provided with screening, and means by which a window panel can be sealingly but removably connected thereto, to convert it into a winter door.

Another object is to utilize the ordinary ogee molding or surface, which is made with an ordinary cutter, and which is commonly used in the manufacture of screen and other doors, as means for obtaining a sealed relation between the edges of the screen opening and of a removable panel.

Features of the invention include: the utilization of the ordinary ogee molding or ogee contour, of an ordinary screen door as means sealingly cooperating with a removable panel to form an efficient combination door; the provision of an integral bead lying inwardly from the ogee beading and cooperating with a groove of the panel to weather-seal and prevent outward movement of the bottom of the panel; the use of only two pins as simple fastening devices for securing the panel, and the combination use of the beading and grooving, with only two pins as the sole means for securing the panel in sealing relation.

Features also include all details of construction shown, along with the broader ideas of means inherent in the disclosure.

Objects, features and advantages of the invention will be set forth in the description of the drawing forming a part of this application, and in said drawing

Figure 1 is a face view of the outside of the door showing the panel in position;

Figure 2 is a vertical section taken on line 2—2 of Figure 1; and

Figure 3 is a horizontal section taken on line 3—3 of Figure 1.

In the drawing, numeral 1 generally indicates the door which is provided with the stiles 2—3, and with lower, middle and upper rails, 5, 6 and 7. The lower part of the door is, in this instance, shown closed by means including mullions 8—9, and three solid panel sections 10, 11 and 12, thus providing a structure for winter use. However, the middle rail may be placed at an unusually low level to increase the area of the screen opening which is generally indicated at 12. On that side of the opening which corresponds to the outer side of the door, the usual ogee contour is provided and the utilization of this very commonly used surface ornamentation is a feature of the invention, the feature being the utilization of this surface contour as a means sealingly cooperating with a solid winter panel, or with a glazed or window panel, preferably the latter. The ogee surface is circumferentially continuous, as is usual. The concave part 14 of the ogee intersects the outer face of the door.

The frame panel is indicated at 16 and is composed of stiles 17—18 and top and bottom rails 19 and 20. There are two horizontal mullions 21—22 and three aligned vertical mullions 23, 24 and 25 providing a six-light window panel. The four lateral edges of the panel are cut to provide a circumferentially continuous marginal projection 30, the contour of the inner face of which is complemental to the ogee surface of the opening. This projecting part is adapted to sealingly engage at least the outer or concave part of the ogee surface.

On the top of the middle rail and placed inwardly of and forming a sort of upward continuation of the convex part 32 of the ogee surface and also forming an integral part of the rail is an upstanding bead 33 which extends entirely across the rail and abuts the inner surfaces of the stiles. The bottom rail of the panel is grooved as at 34 to fit the rib and the panel is applied by placing the rib and groove in cooperative relation and then swinging the panel about those elements as a hinge to a position in which the outer surface of the panel is substantially flush with the outer surface of the door. By this means the lower edge of the panel is secured and weather-sealed. The overlapped element 30 sealingly cooperates with the concave and preferably with the convex portion of the ogee surface to provide an efficient seal and this is an important feature of the invention.

Another feature of the invention relates to the means, acting in conjunction with the bead and groove, to secure the panel in weather-tight operative position. This means consists of only two pins, each provided with a straight portion 35, which snugly slidably traverses registered openings 36—37, respectively in the stiles of the panel and door. Each pin is provided with right-angularly bent portion 38 used as a head to facilitate introduction and removal of the pin. During either operation the head portion is disposed to extend outwardly beyond the front of the door. After introduction or before re-

moval, the pin is rotated, in the first instance to bring the head to an inconspicuous position within the plane of the door; in the second instance to bring the head beyond the plane of the door to facilitate withdrawal. A screen **40** is attached by means of strips **41** in the usual manner. The screen is arranged at the inner side of the door. The outer surfaces of the strips are flush with the inner face of the door or at least lie within the plane of the door, and it will be further noted that when the panel is applied, its inner surface is spaced from the inner surface of the screen.

All parts, screen, panel and fastening device are within the plane of the door.

I am aware that various attempts have been made to provide combination doors, but all those with which I am acquainted are clumsy, unsightly, and relatively complex in their construction, the latter feature being obviously objectionable from the standpoint of cost. The present invention provides a neat, sturdy combination door, which is very simple in construction and costs little to manufacture.

The circumferential projection **30** preferably has a substantially knife-edge configuration, and this edge assumes weather-tight relation with the concave portion of the circumscribing ogee surface. The innermost surface of the bead **33** is preferably slanted downwardly and generally in the direction of the inner face of the door as at **33a** to provide a kind of wedging surface against which the vertical surface **34a** of the groove **34** engages, the action being to draw the panel tightly inwardly and form a seal by the knife edge, and between the bead and the face of the groove. It will of course be understood that although this specific construction is claimed for the bottom connection, there is no intention to limit the broader aspects of the invention thereto because the broad feature is the utilization of the curved surface of a common form of ornamentation, as means cooperative with the removable panel to obtain a weather-tight fit.

I claim as my invention:

1. A closure for an opening of a housing structure, having an opening having marginally thereof at one side, a circumferentially continuous concave curved surface intersecting the face side of the door, a panel fitting within the opening and having a circumferentially continuous marginal projection overlapping and sealingly cooperative with the concave curved surface, said panel having stiles, and means for releasably securing the panel in weather-tight position, said means slidably traversing the stiles of the panel from the innermost sides thereof and entering sockets in the door, and being removable by motion toward the middle of the panel.

2. A combination door having, an opening having marginally thereof at one side a circumferentially continuous surface intersecting the face of the door, a panel frame fitting within the opening and having a circumferentially continuous marginal projection overlapping and sealingly cooperative with the aforesaid surface, said frame having stiles and means for releasably securing the panel in weather-tight position including two pins one slidably traversing each stile of the panel from the innermost surface thereof and slidably entering a corresponding socket in the stile of the door, each pin having an angularly extending portion lying at the innermost surface of the stiles of the panel and adapted to rotate the pin and only after rotation to accessibly project beyond the face of the door to facilitate sliding removal.

3. A combination door having, an opening having marginally thereof at one side, a circumferentially continuous surface of ogee configuration with the concave surface of the ogee intersecting the face side of the door, a panel frame having stiles, said panel fitting within the opening and having a circumferentially continuous marginal projection overlapping and sealingly cooperative with the concave portion of said ogee surface, and means releasably securing the panel in weather-tight position including two pins one slidably traversing the stiles of the panel from their innermost sides and slidably entering a corresponding socket in the corresponding stile member of the door, each pin having an angularly extending portion disposed at the innermost surface of the stile of the panel adapted to rotate the pin and only after rotation to accessibly project beyond the face of the door to facilitate sliding removal.

4. In combination with a door providing an opening defined in part by the usual stiles, a panel fitting within the opening, and having stiles, the inner surfaces of the elements forming the opening having an ogee configuration, with the concave curved surface of the ogee intersecting one face of the door, and said ogee surface being circumferentially continuous, said panel having marginal projection at that face corresponding to the face of the door which is intersected by the concave portion of the ogee, said projection having substantially a knife-edge sealing engagement with said concave surface, and means lying entirely within the plane of the panel and door and slidably engaging drilled openings in the stiles of the panel and door and removable to release the panel by inward sliding movement.

5. In combination with a door having an opening in part defined by vertical stiles and by a lowermost horizontal element, a panel fitting within said opening and substantially entirely within the plane of the door and also having stiles, the inner faces of the opening defining portions of the door providing a circumferentially continuous surface of ogee configuration, the concave curved part of the ogee surface intersecting one face of the door, and said panel having a circumeferentially continuous marginal projection overlapping sealingly cooperative with said concave portion of said ogee surface, the bottom surface of the panel and the opposed part of the door providing a tongue and groove construction cooperative to draw the marginal projection of the panel sealingly against the concave ogee surface, and a single pair of pins one slidably traversing a drilled opening in each stile in a direction substantially parallel with the faces of the greatest area of the panel and door, and entering a corresponding drilled socket in the door, each pin having means lying against the innermost surface of the stile and normally lying within the plane of the door and panel, said part capable of rotating the pin and of being brought to an accessible position outside the plane of the door to facilitate sliding removal of the pin by motion toward the middle of the panel.

MARTIN H. OTTO.