Dec. 31, 1957 A. PALMIERI 2,818,146

AUXILIARY DOOR AND FRAME STRUCTURE

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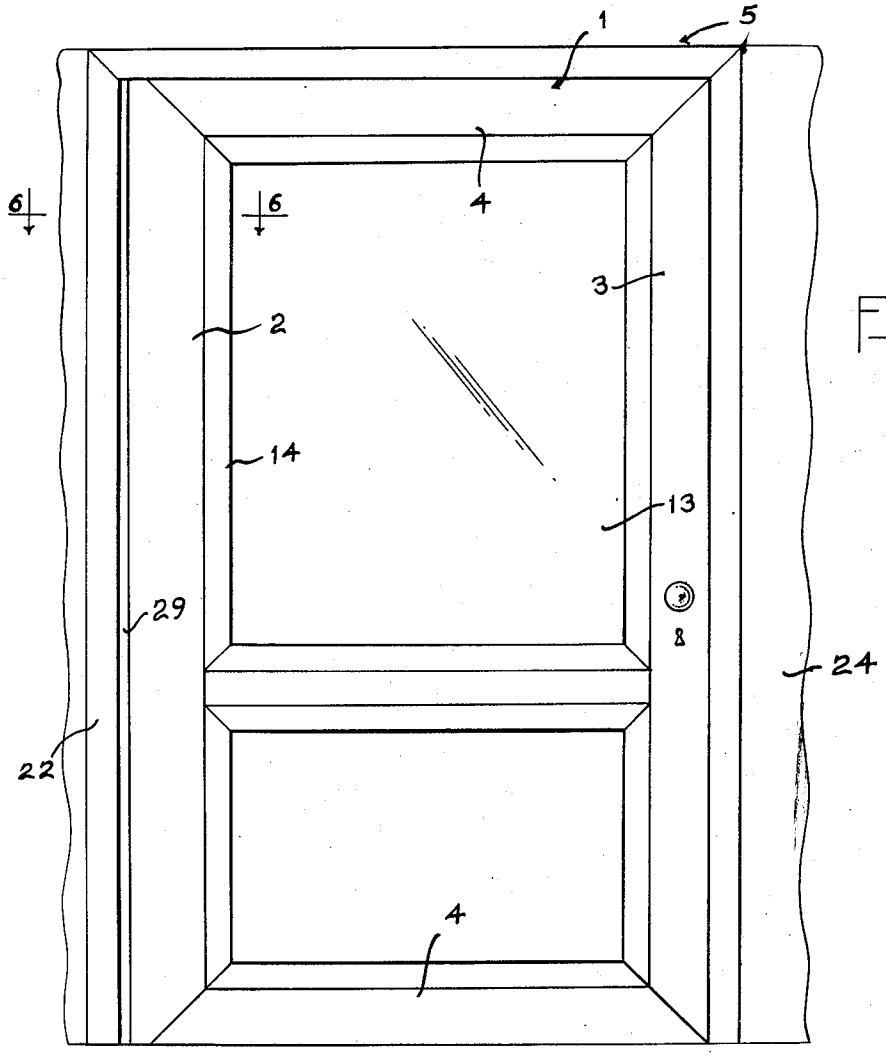


Fig. 1

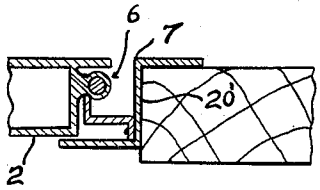


Fig. 10

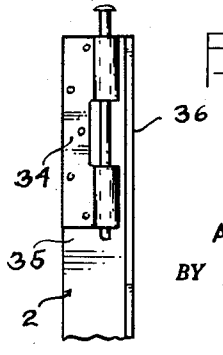


Fig. 11

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AUXILIARY DOOR AND FRAME STRUCTURE

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Fig. 6

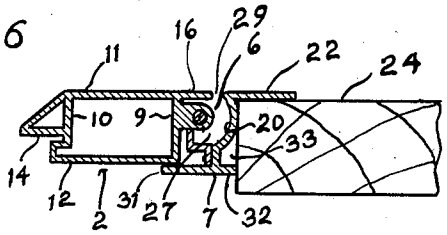


Fig. 7

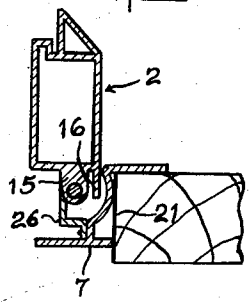
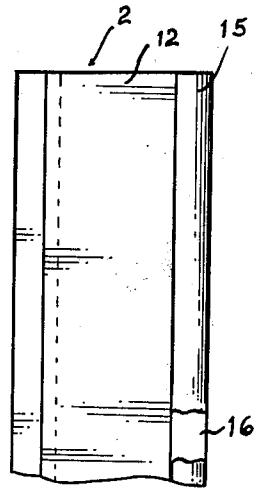


Fig. 2



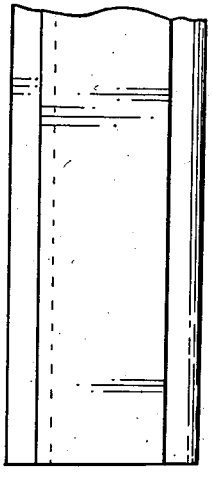
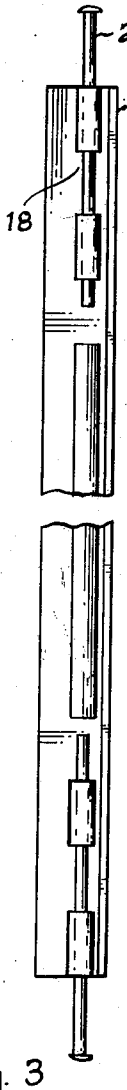
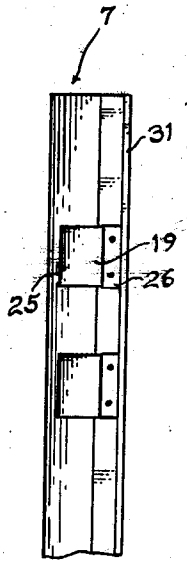


Fig. 3





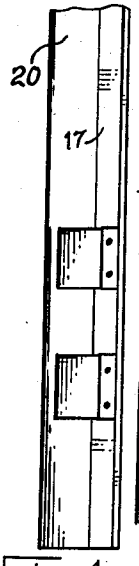


Fig. 4

Fig. 8

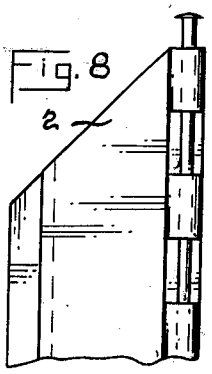


Fig. 5

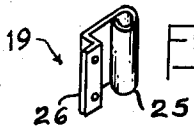
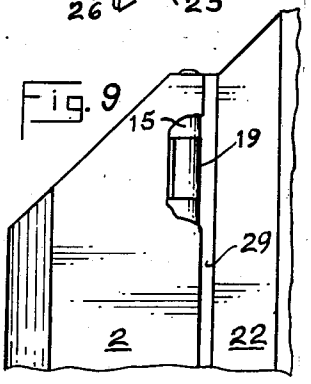


Fig. 9



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2,818,146

AUXILIARY DOOR AND FRAME STRUCTURE

Albert Palmieri, Howard Beach, N. Y.

Application January 31, 1955, Serial No. 485,187
3 Claims. (Cl. 189—46)

This invention pertains to new and useful improvements in metal type doors, such as are commonly used auxiliary to an outside door of a dwelling or other structure for storm or screen purposes.

Doors of this nature are customarily fashioned of lightweight rust-proof metals, such as aluminum and the like. They are usually of a combination nature, designed for use during the colder seasons as a storm door, and during the warmer seasons as a screen door. They find extensive use auxiliary or supplemental to the outside door in the main entrance of dwellings and the like. Having an all year round use, and because of the focal position which they usually occupy in the main entrance of homes, these doors are often ornamented with scrolls and the like for purposes of appearance. Auxiliary doors of this nature are installed, not only for their practical advantages, but also to add to the attractiveness and style of a home.

The door is customarily hung to an associated similar type metal frame by strap or flat hinges, usually of the type having rectangular plates fastened to the outside faces of the door and associated frame work. Such hinges, for lack of space and other reasons, are ordinarily, plain, and not at all attractive. Two, and sometimes three, of these hinges are required to support the average door. Very often these hinges are of a metal material different in nature and texture from that of the associated door and frame. Besides their unattractiveness, this obvious difference in material structure focuses attention upon the hinges. The latter, consequently, stand out as blemishes or defects, and materially mar the attractiveness and appearance of the door.

The metal screen and storm door industry is a big one, and the demand for such doors is ever increasing with new homes and renovations of old ones. Means for eliminating the unsightly appearance of doors of this nature, resulting from the supporting hinges, is very much desired.

Now, the general object of this invention is, therefore, to provide a practical means to this end. I have accomplished this by providing new and useful improvements in the door as well as in the associated frame, whereby hinge elements supporting the door are concealed from view.

Another object of the invention is, therefore, to provide a door and associated framing with supporting hinge elements that are hidden from view.

A more particular object of this invention is to provide a door stile, having hinge portions engageable with complementary portions of an associated frame piece, in such an arrangement that the cooperating hinge portions are normally concealed from view.

The invention further lies in the novel structure and arrangement of the various elements of the device in which the invention is embodied, as well as in the cooperative association of the various elements thereof with one another.

The foregoing and other objects and advantages of this invention will appear more fully hereinafter from a

consideration of the detailed description which follows, taken in conjunction with the accompanying drawings wherein an embodiment of the invention is illustrated by way of example. It is to be expressly understood, however, that the drawings are for purposes of illustration and description only, and are not intended as a definition of the limits of the invention.

Referring to the drawings, wherein like parts are represented by like numbers,

Fig. 1 is a front elevational view of an auxiliary door and associated framework embodying my invention;

Fig. 2 is a rear elevational view of an extruded door stile prior to any sectioning being made in the tubular portion thereof;

Fig. 3 is a side elevational view of Fig. 2 having portions of the tubular portion cut away;

Fig. 4 is an elevational view of the hinge side of the frame member;

Fig. 5 is a detail of a hinge section attachable to the frame member;

Fig. 6 is a section on line 6—6 of Fig. 1 showing the stile hinged to the frame member and in a closed position relative to the latter member;

Fig. 7 is a view similar to that of Fig. 6 but showing the door stile pivoted to open position;

Fig. 8 shows the stile in mitered form for mitered joining with the crosspieces of the door;

Fig. 9 is a front elevational detail of a stile in hinged relation to the frame member;

Fig. 10 is a top plan of a modified form of the hinge attaching frame member; and

Fig. 11 is a modified form of the door stile.

In the drawings there is shown a door 1, the stiles 2, 3, and connecting cross pieces 4 of which are of lightweight metal construction, such as aluminum, and are of hollow rectangular cross section. The several members of the door assembly are individually formed by extrusion processes, and are joined to one another in conventional manner. The door is complemented by a metal frame 5 in which it is hingedly supported for opening and closing of the frame passage. The hinge elements supporting the door are designated generally by the reference numeral 6. A portion of each hinge element is provided by door stile 2, and a complementary portion is provided by a neighboring stile or vertical member 7 of the framework. Suitable concealing means provided by stile member 2, serves to hide the hinge elements from view when the door is in a closed position within framework 5.

Door stile 2, representing a principal feature of this invention, is, as previously mentioned, hollow through and rectangular in form. It has narrow side panels 9 and 10, and relatively wider front and rear facing panels, respectively, 11, 12. The inner side panel 10 is formed with conventional lip or shoulder means 14 to accommodate the usual glass or screen sash, as at 13. The outer side panel 9 carries lengthwise thereof and in close proximity to its forward edge a tubular member 15. Closely overlying the latter is a continuous extension or lip 16 of the front panel of the stile, whereby the tubular member is concealed behind the lip, and is not visible from the front of the stile. Door stile member 2, including lips 14, 16 and member 15, is formed as an integral unit by conventional extrusion methods. The stile appears as in Fig. 2 after being extruded.

A portion of the hinge means utilized in supporting the door 1 to the frame member 7, is formed by milling out sections from the tubular member 15. Here, sections indicated by the spaces 18, are cut out of element 15 near the top of the stile, and similar sections are cut out near the bottom (Fig. 3). Complementary or interfitting

hinge portions 19 are carried by frame member 7. Pin means 21 inserted in tubular member 15 and passed through the hinge elements 19 join member 15 and elements 19 in pivoted or hinged relation to one another. It is understood, that sections or spaces 18 may be milled out at any desirable point along member 15, and that the frame member 7 may carry a complementary number of hinge elements to be received in the spaces 18.

Frame member 7 serves as one of the stiles or uprights of the surrounding framework 5 in which the door is hingedly carried. Framework 5 is secured in a conventional entrance of a building structure. A side panel 20 of member 7 covers over an adjacent wall 21 of the building structure. A front panel 22 of member 7, at right angles to panel 21, overlaps a front wall 24 of the building. Member 7 is secured to the building structure by suitable fasteners passed through either panel 20 or 22.

It is understood that the hinge elements 19 might be formed as an integral part of frame member 7 in an extrusion of the latter. This, however, would prove expensive because of the required subsequent milling away of excess material in order to provide the elements 19. The latter are, therefore, formed separately and are subsequently affixed in suitable manner to frame member 7 by fasteners or soldering.

A hinge element 19 is shown in detail in Fig. 5, and it includes a tubular portion 25 that complements and is receivable in a milled out section 18 of frame member 7. It is pivotally retained in section 18 by the pin 21. Element 19 further includes a mounting plate having an offset ear 26 which is attachable to panel 20 of member 7. This offset ear is here secured to a shoulder 17 of panel 7 along the rear marginal portion thereof. This construction serves to space the tubular portion 25 away from the neighboring panel wall 20.

It is to be noted in Figs. 6 and 7 that a space 27 is provided between panel 20 and the hinge means 6. This space is enabled by the offset arrangement of element 19 with respect to panel 7, and it serves to receive the lip 16 of stile member 2 when the door is pivoted to open position, as in Fig. 7. The space is of sufficient depth so as to permit the door stile lip to be fully received therein when the door stile is pivoted from a closed to a fully open position.

It is to be noted that the side panel 20 of frame member 7 is concaved in its forward position (Figs. 4, 6, 7), having a radius sufficient to enable stile lip 16 to pass freely therein. The advantage of this construction is to reduce to a minimum the width of the entrance slot 29 leading into space 27. It also permits lip 16 to enter space 27 in close proximity to the panel wall 20. By this construction, when the door is in closed position, a substantially continuous unbroken facing or front surface of the door and adjacent framework is presented to the eye of the observer, as in Fig. 1, without visible sign of the hinge elements behind the lip 16.

Means is further provided to also conceal the hinge elements from view at the rear of the door. To this end, there is provided lengthwise of the rear edge of frame panel 20 a lip 31 (Figs. 6, 7). This lip parallels the front panel 22, and it extends in a direction so as to overlap the rear panel 12 of door stile 2 when the latter is in closed position. Lip 31 thereby conceals the hinge elements behind it.

A further lip or leg 32, continuing in the opposite direction from lip 31, is adapted to abut against the building structure (Figs. 6, 7). It lends support to panel 7 and also closes off from a rear view any resulting space, as at 33, that may exist between the panel 7 and the adjacent building structure. It is to be appreciated that the building structure, if desired, may be cut away to complement the concaved form of frame panel 7. It is also clear that the frame panel 7 may be formed as in Fig. 10 wherein panel 20' is flat and adapted to abut flush against the building structure.

In Fig. 11 is shown a modified form of the door stile

in which the hinge element 34 replaces the tubular member 15 in the above form and complements hinge element 19. Hinge element 34 is formed separately and subsequently fastened to the side panel 35 of the stile behind the facing lip 36.

While an embodiment of the invention has been illustrated and described in detail, it is to be expressly understood that the invention is not limited thereto. Various changes can be made in the design and arrangement of the parts without departing from the spirit and scope of the invention as the same will now be understood by those skilled in the art, and it is my intent, therefore, to claim the invention not only as shown and described, but also in all such forms and modifications as may be reasonably construed to be within the spirit of the invention and the scope of the appended claims.

What is claimed is:

1. A combined door and supporting frame of the character described, wherein the door includes a metal stile hingedly supporting the door to an opposed wall of the frame, the stile having a front facing wall, a side wall at right angles thereto, at least two vertically disposed aligned barrel members opening through their ends and formed integral with the exterior face of the side wall in vertical spaced relation to each other, and a lip continuous with the front facing wall extending laterally over the barrel members in close proximity thereto and concealing them from front view; wherein the wall of the frame carries at least two hinge plate members, each plate member having a flange offset therefrom and in parallel spaced relation thereto, the latter flange carrying at its end a vertically disposed barrel member, each of the latter barrel members being aligned with those of the stile and located so as to be below and vertically contiguous with one of the barrel members of the stile; wherein pin means pivotally engages the contiguous barrel members; and wherein the offset arrangement of the barrel members of the frame defines a channel into which the lip of the stile is receivable upon outward pivoting of the door.

2. A door and frame structure comprising a door frame adapted to be secured in an opening of a building, a door co-planar with the frame, and hinge means provided in part by a side of the door and in part by an opposed wall of the frame for pivoting the door in the latter, the hinge means comprising a plurality of vertically disposed open ended barrel members spaced in vertical alignment on the outer face of the said side of the door and formed integral with the latter, a plurality of cylindrical tubular members opening through their ends and carried in vertical spaced alignment by integral plate portions supported by the said opposed wall of the frame, the said tubular members being disposed between the spaced barrel members and in vertical alignment with the latter, common pin means pivotally engaging the barrel members with the tubular members, and the said tubular members being disposed between the said side of the door and the said opposed wall of the frame and in spaced relation to the latter wall whereby a channel is defined between the tubular members and the opposed wall, and a lip formed longitudinally of the said side of the door and being continuous with the front face of the door, the lip overlying the hinge means so as to conceal the latter from a front view, and the lip adapted upon outward pivoting of the door to pass into said channel.

3. A unit comprising a door and a door frame member pivotally supporting the door, wherein the door in characterized by an extruded metal end stile that is rectangular in cross section having inner and outer side walls, front and rear facing walls, a plurality of vertically aligned and vertically spaced portions projecting out from the outer wall, and a lip portion continuous with the front facing wall and closely overlying the several projecting portions so as to conceal them from a front view of the door; wherein the door frame member is characterized by

a vertical wall disposed directly opposite the outer wall of the stile and in spaced relation thereto, a plurality of vertically spaced and vertically aligned hinge elements each comprising a plate fixed to the frame wall and a barrel portion occupying a space below a projection of the stile, a pintle common to holes in the barrel portions and in the projections whereby the door is pivotally supported to the frame; and wherein the barrel portions are offset from their plates whereby a channel is defined between the barrel portions and the frame wall, which channel is adapted to receive therein the lip of the stile in an outward pivoted movement of the door.

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