July 12, 1960 M. A. AVERY 2,944,305

FRAME STRUCTURE FOR LIGHTS OR VENTILATORS IN DOORS

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Fig. 1.

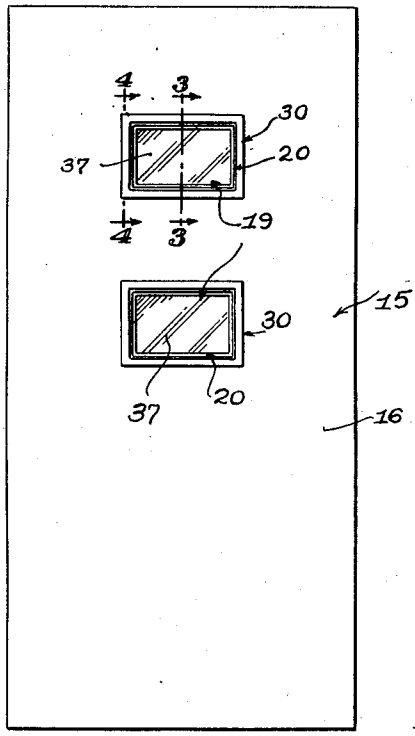


Fig. 3.

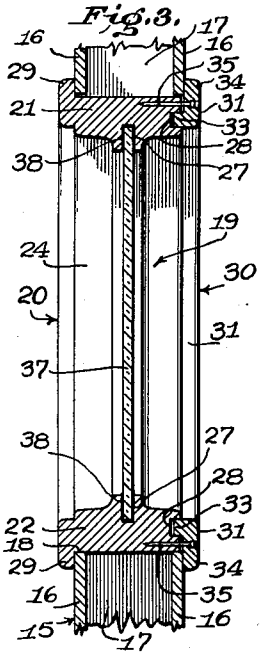


Fig. 4.

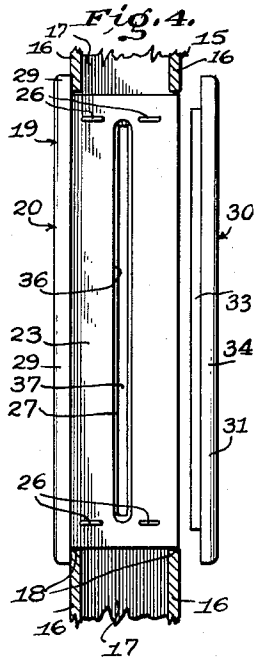
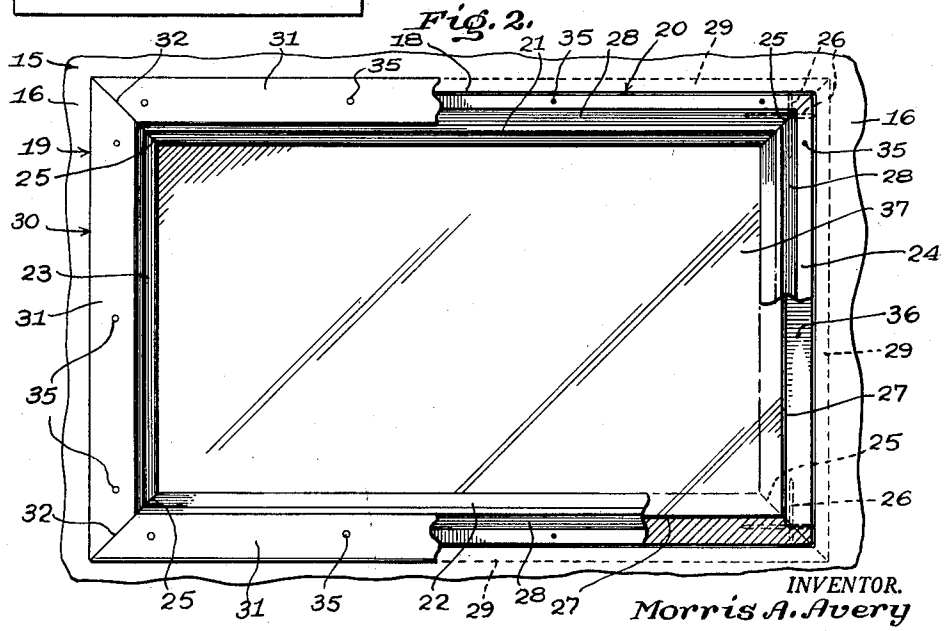


Fig. 2.



INVENTOR.
Morris A. Avery

BY Reginald W. Hoagland
ATTORNEY

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Fig. 5.

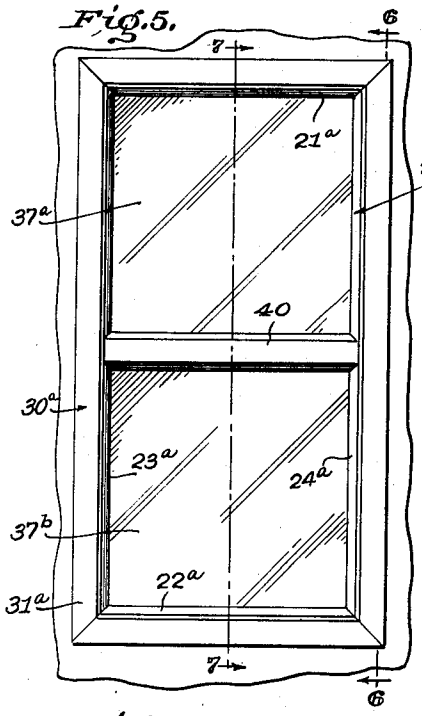


Fig. 6.

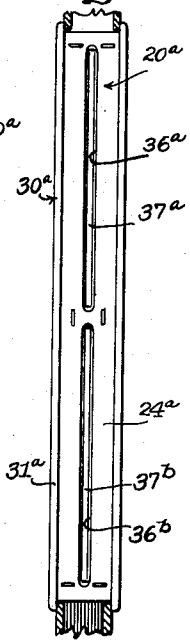


Fig. 7.

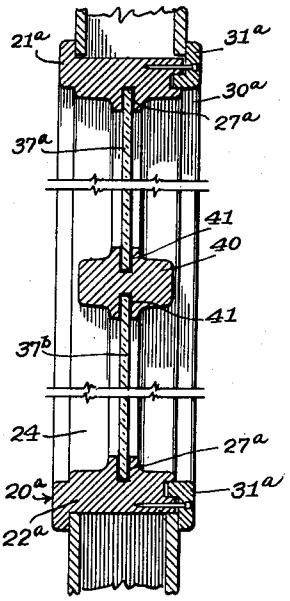


Fig. 8.

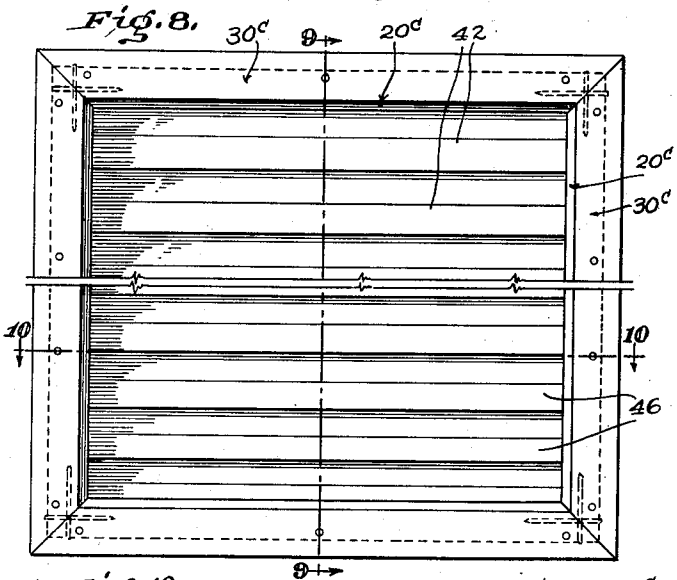


Fig. 9.

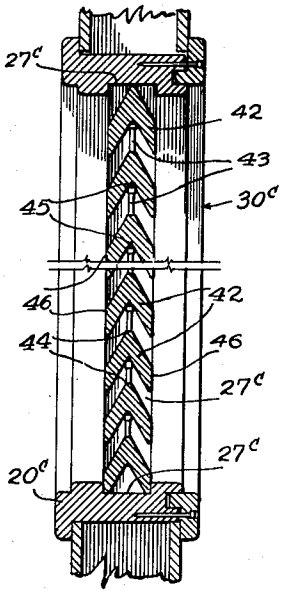
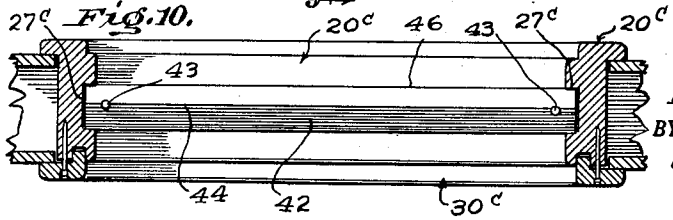


Fig. 10.



INVENTOR.
Morris A. Avery
BY Reginald W. Hoagland
ATTORNEY

United States Patent Office 2,944,305 Patented July 12, 1960

2,944,305

FRAME STRUCTURE FOR LIGHTS OR VENTILATORS IN DOORS

Morris A. Avery, 1151 W. Williamson St., Flint, Mich.

Filed Jan. 22, 1957, Ser. No. 635,356

1 Claim. (Cl. 20—36)

The present invention relates to lights, louvered vents, and other types of shields at openings in doors, and it consists in the combinations, constructions, and arrangement of parts herein described and claimed.

Door lights constructed according to the customary practice and upon which the present invention is an improvement, usually consist of a pair of symmetrical frame sections assembled in an opening in a door from opposite sides of the door and having marginal flanges thereon abutting sides of the door upon securement of the sections together with screws or the like, there being a pane of glass or other type of shield interposed between the frame sections and glazed at overlapping edge portions of the glass and the frame sections.

An industry, entirely separate from that of door manufacture, has developed for the manufacture of door lights; and the separate items are purchased by a retailer, et cetera, and assembled according to the size, number, and positional arrangement of lights desired by a buyer, thus reducing the amount of stock necessary to be carried and still being capable of covering the same range of styles and designs. In practice, it has been found that doors manufactured either by the same or a different manufacturer and supposed to be the same, vary slightly in their thicknesses, and in order to compensate for such variations, different amounts of glazing material are used between the glass pane and frame sections of different doors, thus requiring a glazing operation for each light by the retailer, et cetera, for proper installation of the lights in doors.

It is therefore the primary object of this invention to provide an improved light or louvered vent for installation to doors which has a pane of glass or louvers fixed in the frame, thereby dispensing with a glazing operation during installation of the light or louvered vent in a door.

Another object of the invention is to provide, in a device of the character set forth, a novel construction for affixing the pane of glass or louvers in place on the frame.

A further object of the invention is to provide, in a device as set forth above, a novel frame construction for easy and efficient attachment of lights or vents to doors that vary slightly in their thicknesses.

A still further object of the invention is to provide, in a device as outlined above, a novel louver construction forming a part of the invention.

It is also an object of the invention to provide a device of the above-indicated character which is simple and substantial in construction, economical to manufacture, and thoroughly efficient and practical in use.

These, together with various auxiliary features and objects of the invention which will later become apparent as the following description proceeds, are attained by the present invention, preferred embodiments of which have been illustrated by way of example only in the accompanying drawings wherein:

Figure 1 is a side view of a door illustrating a pair of door lights thereon;

Figure 2 is an enlarged side elevation of the door light installed in a door and showing portions broken away and in sections;

Figure 3 is a vertical section taken on line 3—3 of Figure 1;

Figure 4 is also a vertical section taken on line 4—4 of Figure 1, showing the door light in end elevation, and with portions thereof in the act of being assembled;

Figure 5 is a side elevation of a two-light and single frame construction, showing the same assembled in a door;

Figure 6 is a vertical section taken on line 6—6 of Figure 5, showing the door light in elevation;

Figure 7 is an enlarged vertical section taken on line 7—7 of Figure 5 and with portions broken away;

Figure 8 is a side elevation of the device showing the construction slightly modified for a louvered vent on doors and having the central portion thereof broken away;

Figure 9 is a vertical section taken on line 9—9 of Figure 8; and

Figure 10 is a horizontal cross section taken on line 10—10 of Figure 8.

Referring now more specifically to the accompanying drawings wherein like numerals designate similar parts throughout the various views, attention is directed first to Figures 1 through 4 which illustrate a flush door 15 of hollow core construction having a pair of veneer side panels 16 supported in spaced relation ot one another at their marginal portions by rails and stiles (not shown) and at their intermediate portions by a plurality of spacer struts 17. Aligned openings 18 are cut through the side panels 16, and any portion of a strut or struts 17 within the area of the openings are removed for insertion of a door light, indicated generally by the numeral 19. The openings 18 are made of a size and shape slightly larger than outside measurements of a main frame 20 on the light 19, which in the present instance is shown as being of rectangular shape.

The main frame 20 is composed of horizontal upper and lower rails 21 and 22 and a pair of vertical side rails 23 and 24 mitered at each end, as at 25, and secured together at mitered corners by staples 26, or the like. All rails are of the same general cross section, and each has one longitudinally extending groove 27 in its inner face and another longitudinally extending groove 28 in one of its side faces and both grooves extending to its mitered ends 25. Also provided on each rail at its side face opposite to that having the groove 28 and flush with said side face is an outwardly directed flange 29 so as to provide a peripheral flange on the main frame 20 that contacts by overlapping an outer surface portion of one side panel 16 of the door adjacent the opening 18 therein. As shown in Figures 3 and 4, each rail is of a width that the distance between the door-contacting surface of its flange 29 and its grooved side face is slightly less than the thickness of the door 15 irrespective of variations in door thicknesses.

An auxiliary frame 30 composed of separate strips 31, each being substantially L-shaped in cross section and mitered at opposite ends, as at 32, is arranged on the main frame 20. Each strip 31 has one of its flange-like portions 33 extending into a groove 28 of a rail and has its other right-angled flange-like portion 34 contacting and overlapping an outer surface portion of the other side panel 16 of the door. Small finishing nails 35 or like fastener elements driven through the flange-like legs 34 of the strips 31 and into the rails 21, 22, 23, and 24 secure the strips 31 comprising the auxiliary frame 30 to the main frame 20. The opposite sides of the flange-like portions 33 and grooves 28, which form tongue-and-groove joints, are closely fitted, and the flange-like legs 33

may extend into the grooves 28 various depths according to the thickness of a door in which the light is assembled.

One of the vertical rails 23 or 24 has a longitudinally extending slot 36 therethrough between the groove 27 in its inner face and its outer face. The slot is of a length that it terminates at the opposite mitered ends of the rail (Figures 4 and 5). In practice, it has been found most satisfactory to cut the slot 36 with a routing tool after the mitered ends 25 of all rails have been securely attached. A pane of double-strength glass or like shield 37 is assembled through the slot 36 and into a position in the frame 20 with its marginal portions loosely received in the grooves 27 of all rails and where said glass is affixed to said frame with aluminum liquid solder, by leading, or other glazing methods, as at 38 (Figure 3), prior to assembling the frame 20 in the opening 18 of the door.

In Figures 5, 6, and 7, there is shown a two-light and single frame construction having a main frame 20^a composed of horizontal upper and lower rails 21^a and 22^a and vertical side rails 23^a and 24^a mitered and secured together at their ends. A mullion 40 parallel with the upper and lower horizontal rails and attached at its opposite ends to the vertical side rails substantially midway of their lengths divides the main frame 28 into halves. In the upper and lower faces of the mullion 40, there are provided longitudinally extending grooves 41, which together with grooves 27^a in the inner faces of the rails 21^a, 22^a, 23^a, and 24^a, receive the marginal portions of an upper and a lower glass 37^a and 37^b. With the exception of separate slots 36^a and 36^b provided in either of the vertical rails 23^a and 24^a for assembling the panes of glass 37^a and 37^b, respectively, into the main frame 28, all rails of the frame 20^a and strips 31^a of an auxiliary frame 30^a are of the same construction as that described relative to the embodiment of the invention illustrated in Figures 1 through 4.

Referring now to Figures 8, 9, and 10 wherein there is shown a form of invention having a shield composed of a plurality of louvers 42 supported in a main frame 20^c, which together with an auxiliary frame 30^c, supports the shield in a door. The rails of the main frame 20^c are of the same general construction as those previously described and differ therefrom only in that the width of the grooves 27^c in their inner faces is greater and in the fact that a slot or slots for assembling of the shield in the main frame has been omitted.

The louvers are of an inverted V-shape in cross section and are stacked one above another with their opposite ends contained within the grooves 27^c of the vertical side rails. Likewise, upper and lower longitudinal portions of the uppermost and lowermost louvers are received in the grooves 27^c of the upper and lower horizontal rails, respectively, of the main frame. Small brads or like elements 43 driven in the ridges 44 of the louvers at their opposite end portions and engaging in the recesses 45 of the louvers directly thereabove provide spaces between the louvers for the passage of air. However, it is to be understood that other spacing means may be employed, such as the positioning of additional short louver sections between and at opposite end portions of the main louvers 42.

Each inverted V-shaped louver 42 has opposite parallel side faces 46 thereon (Figure 9) that engage the inner side faces of the grooves 27^c in the vertical side rails for maintaining said louvers in upright positions in the frame. When assembling the louvers 42 in the frame 20^c, one rail of said frame, preferably the upper horizontal rail, is not attached to the other rails until after the louvers have been properly stacked in place, there being no need of attaching the louvers individually to one another or to the main frame. The auxiliary frame 30^c composed of the separate strips 31^c and its attachment to the main frame 20^c is identical to that previously described.

While there are herein shown and described door lights and ventilators of rectangular shape, it is to be understood that said lights and ventilators may be made square, triangular, hexagonal, or any other shape found practical if so desired.

In view of the above description, taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the construction, operation, and advantages of the improved door light and ventilator will be quite apparent to those skilled in this art, a more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there are herein shown and described preferred embodiments of the invention, various changes may be made without departing from the spirit and full intendment of the invention.

What is claimed is:

A device of the character described for attachment at an opening extending entirely through a door to opposite sides thereof, said device comprising a main frame composed of a plurality of rails of the same general cross section mitered and joined together at their ends and of a size and shape that is closely received in the door opening, each of said rails being of one piece construction and having an outwardly directed flange thereon which together provide a peripheral flange for said frame that overlaps an outer surface portion of one side of the door, each of said rails having one longitudinally extending groove in its inner face, a shield bounded by said main frame and having marginal portions thereof received in said grooves, said frame and shield being assembled prior to insertion of said frame into the opening in the door, each of said rails also having another longitudinally extending groove in its side face opposite to that having the flange thereon, said grooves in the side faces of the rails being open to one another at their ends and together form a continuous channel in the side of the main frame, said grooved side face of said main frame being parallel with and slightly offset inwardly from one of the outer side surfaces of the door because of engagement of the peripheral flange on said frame with the other outer side surface of the door, said continuous channel in the side face of the main frame being of a depth considerably greater than the difference in thickness of the main frame and the door, an auxiliary frame composed of strips mitered at each end and arranged at the grooved side face of said main frame, each of said strips overlapping an outer surface portion of the side surface of the door adjacent thereto and having a tongue thereon extending into the continuous channel in the side face of said main frame, said tongues and the channel receiving same having their opposite side faces parallel and closely fitted so as to form slidable tongue-and-groove joints, said continuous channel also being of a depth at least equal to the distance of protrusion of said tongues on said strips so as not to bottom said tongues in said channel, and fastener elements attaching each strip to a rail so as to cause said peripheral flange on said main frame and said door overlapping portions of said strips to tightly engage opposite outer side surfaces of the door, thereby firmly positioning said united frames on the door.

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