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H. A. J. J. JANSSENS

3,383,802

DOOR

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FIG. 1

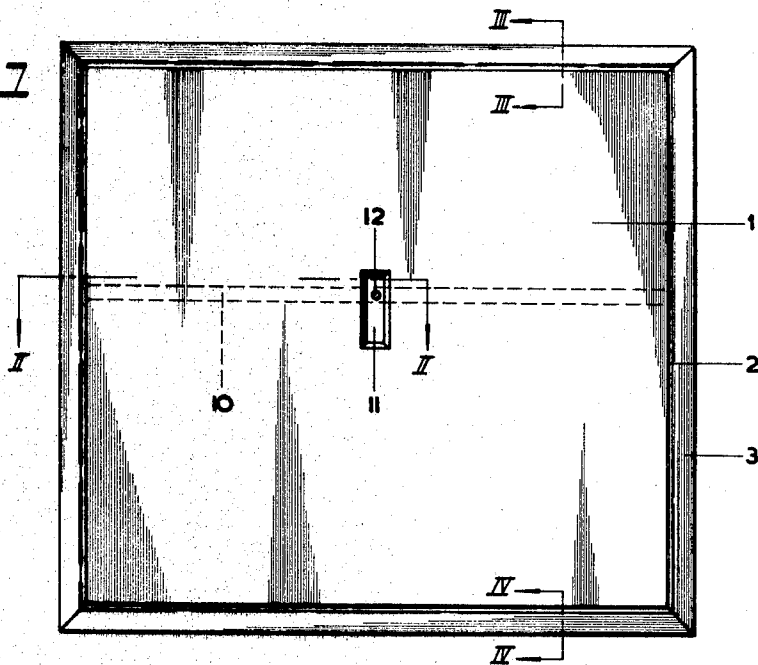


FIG. 2

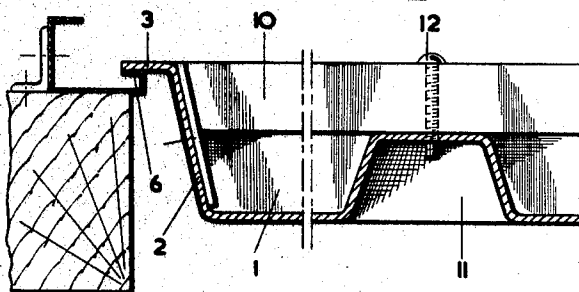


FIG. 3

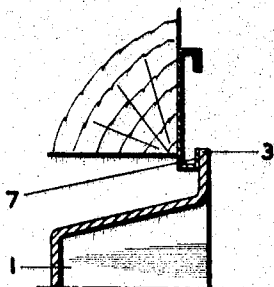
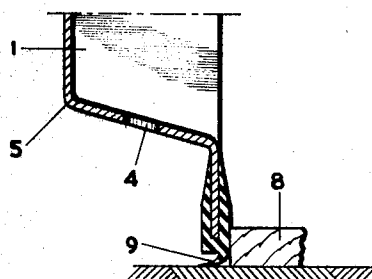


FIG. 4



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DOOR

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2 Claims. (Cl. 49-503)

ABSTRACT OF THE DISCLOSURE

A rectangular door comprises a thin sheet of glass fiber bonded with synthetic resin and formed to have an obtusely angled marginal flange that terminates in a marginal rim parallel to the sheet and forming an obtuse angle with the flange. A horizontal stiff reinforcing member in the form of a hollow tube spaced substantial distances from the top and bottom of the door extends between and is secured to portions of the flange on opposite sides of the door and is spaced a substantial distance from the sheet over at least most of the width of the door. The sheet has a rearwardly extending forwardly opening depression therein for the reception of a lock intermediate the width and height of the door, and the bottom of this depression is secured to the tubular reinforcing member.

The present invention relates to doors, more particularly of the rectangular type well adapted for use as a vertically swingable door as used on residential garages and the like.

It is an object of the present invention to provide a door which will be light in weight and yet strong and rigid.

Another object of the present invention is the provision of a door which is adapted to be manufactured from synthetic material.

Still another object of the present invention is the provision of a door having special means for accommodating a lock.

The invention also contemplates the provision of a door which provides for ventilation but which at the same time is rainproof.

Finally, it is an object of the present invention to provide a door which will be relatively simple and inexpensive to manufacture, easy to install, operate, maintain and repair, and rugged and durable in use.

Further objects and advantages of the present invention will become apparent from a consideration of the following description, taken in connection with the accompanying drawing, in which:

FIG. 1 is a front elevational view of a door according to the present invention;

FIG. 2 is an enlarged fragmentary cross-sectional view taken on the line II-II of FIG. 1;

FIG. 3 is an enlarged fragmentary cross-sectional view taken on the line III-III of FIG. 1; and

FIG. 4 is an enlarged fragmentary cross-sectional view taken on the line IV-IV of FIG. 1.

Referring now to the drawing in greater detail, there is shown a door in the form of a rectangular panel or sheet 1. The door is preferably of a unitary or monolithic piece of glass fiber impregnated with a synthetic resin, preferably a thermosetting resin, such as a polyester resin. It is preferably quite thin and of uniform thickness throughout, and is formed and cured in a heated mold having mold halves of complementary configuration between which the material to be cured is placed in sheet form,

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according to techniques which are already known in the art and need not be further explained here.

Sheet 1 has a flange 2 that encompasses sheet 1 and is disposed at an acute angle to sheet 1. Flange 2 is disposed at an obtuse angle to sheet 1 and extends rearwardly from sheet 1. Thus, FIG. 1 is a view from the outer side of the door; while in FIG. 2, the outer side is downward, and in FIGS. 3 and 4 the outer side is to the left. The obtuse angle relationship of flange 2 to sheet 1 facilitates removal of the molded door from the dies.

Flange 2 has a marginal rim 3 which is flat and generally parallel to sheet 1 and is disposed along the edge of flange 2 which is opposite sheet 1. Rim 3 forms an obtuse angle with flange 2.

Ventilating means for the door are provided, comprising a plurality of holes 4 through the lower extent of flange 2, as seen in FIG. 4. These holes permit free circulation through the lower portion of the door, but at the same time exclude rainwater. Rain can beat against the outside of sheet 1, from the left as seen in FIG. 4, down to the bend 5 that marks the dividing line between flange 2 and sheet 1; but rainwater thereafter can only drip or run down the outer side of flange 2 and cannot enter holes 4. At the same time, the holes 4 are invisible from the outer side of the door, because they are shielded from view by the underhang of edge 5.

In addition to strengthening and lending rigidity to the door, the margin 3 performs the important function of cooperating with the doorframe elements. Thus, as seen in FIG. 2, the vertical stretches of rim 3 can lie flat against the upright stiles 6 at either inner side of the doorway; while the uppermost stretch of rim 3 can lie against a horizontal lintel 7 which is along the inside of the upper edge of the doorway. Similarly, the lowermost extent of marginal rim 3 can bear against the flooring 8 of the garage or other interior space which is closed by the door; and if desired, a flexible strip 9 can embrace this lowermost portion of rim 3 and serve as a sealing strip.

Particularly in the case of larger doors such as garage doors, there is considerable danger that the door will twist or rack, that is, flex about lines interconnecting diagonally opposite corners. To avoid this difficulty, the present invention provides a stiff hollow tube 10 which is secured to and interconnects opposite vertical portions of flange 2 and which extends horizontally a substantial distance from the upper and lower edges of the door, as best seen in FIGS. 1 and 2. Over most of its length, tube 10 is spaced a substantial distance rearwardly of sheet 1. Tube 10 thus not only lends three-dimensional rigidity to the door, but also serves as a convenient handle for grasping the door to open or close the door from the inside.

A depression 11 is also molded in the material of a central portion of sheet 1. Depression 11 thus presents a recess to the outer side of the door and an inwardly directed projection on the inner side of the door. Depression 11 is secured to tube 10 by means of a screw-threaded fastener 12 which passes through tube 10 and through the bottom or inner wall of depression 11. Depression 11 thus fulfills a number of functions: it serves to reinforce the door assembly by reducing the unsupported length of tube 10 and the unsupported expanse of sheet 1; it provides a recess for a lock (not shown) such that the lock need not protrude outwardly beyond the contour of the rest of the sheet 1; and it provides, in conjunction with tube 10, a structure by which the exposed portions of the lock may be disposed in depression 11 with the locking bars (not shown) extending in one direction or in opposite directions from depression 11 through hollow tube 10 to the side or the side door.

Doors according to the present invention can be mounted for vertically swinging movement or horizontal swinging movement or bodily movement in any of a variety of known ways, it being unnecessary here to describe any of the many mounting means that can be used.

From a consideration of the foregoing disclosure, therefore, it will be evident that all of the initially recited objects of the present invention have been achieved.

Although the present invention has been described and illustrated in connection with a preferred embodiment, it is to be understood that modifications and variations may be resorted to without departing from the spirit of the invention, as those skilled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention as defined by the appended claims.

What is claimed is:

1. A rectangular door comprising a thin sheet of glass fiber bonded with a synthetic resin having a marginal flange encompassing the sheet and extending rearwardly of the sheet at an obtuse angle to the sheet and a marginal rim on the flange generally parallel to the sheet and forming an obtuse angle with the flange, a horizontal stiff reinforcing member in the form of a hollow tube spaced

substantial distances from the top and bottom of the door and extending between and secured to portions of the flange on opposite sides of the door, said reinforcing member being spaced a substantial distance from the sheet over at least most of the width of the door, the sheet having a rearwardly extending forwardly opening depression therein for the reception of a lock intermediate the width and height of the door, and means securing together said reinforcing member and the bottom of said depression.

2. A door as claimed in claim 1, the door having vents in the form of holes through said flange at the bottom of the door.

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