June 26, 1951 E. VOGEL 2,558,636

CHANNELED DOOR FRAME

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FIG.1

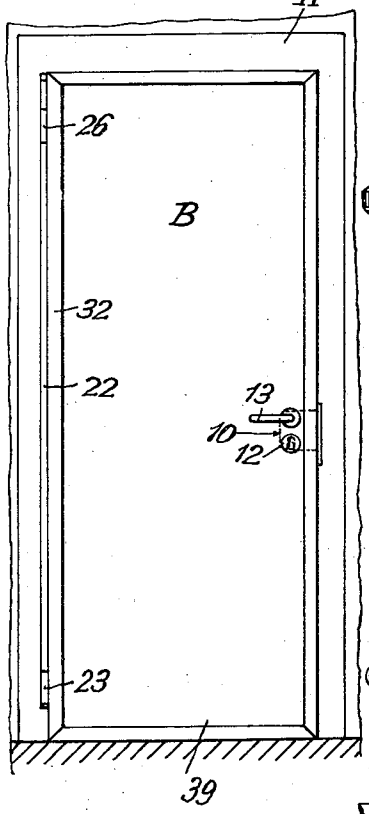


FIG.2

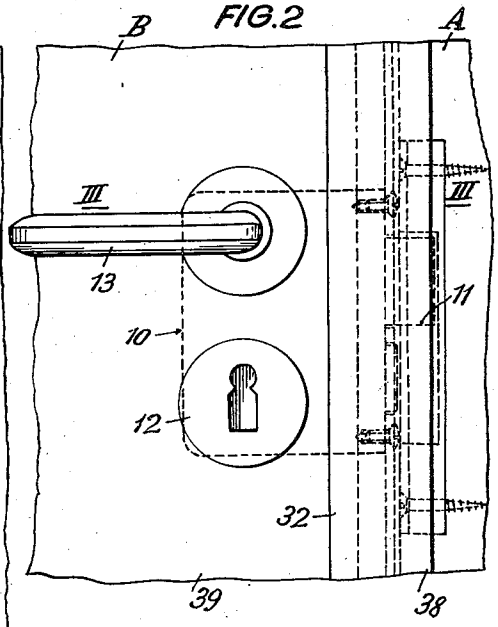
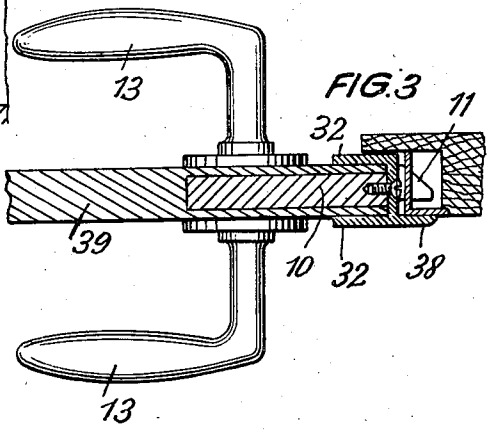


FIG.3



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FIG.10

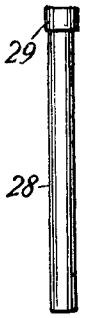


FIG.8



FIG.9



FIG.4

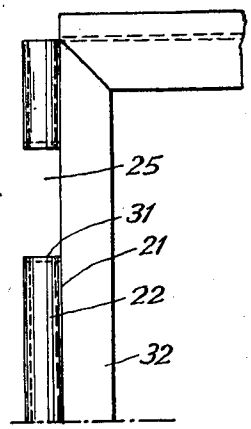


FIG.12

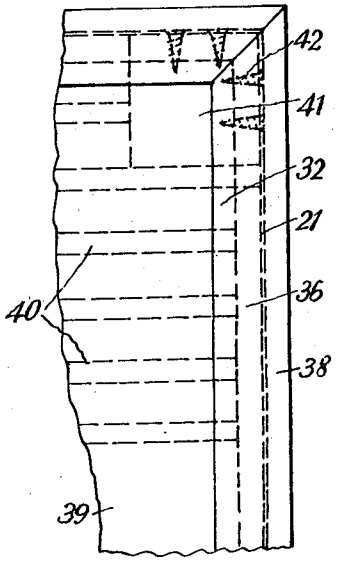


FIG.11

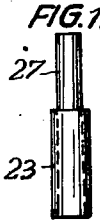


FIG.5

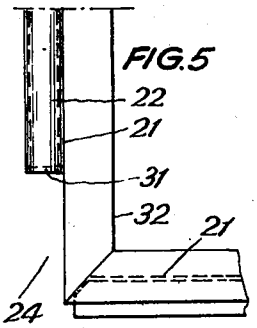


FIG.6

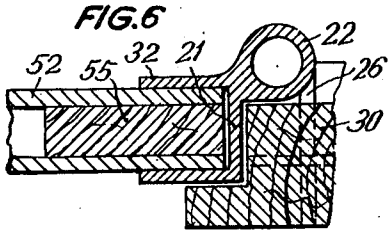
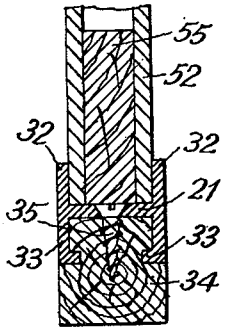


FIG.7



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UNITED STATES PATENT OFFICE

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CHANNELED DOORFRAME

Eugen Vogel, Emmenbrucke, Switzerland

Application January 25, 1949, Serial No. 72,639
In Switzerland September 17, 1946

1 Claim. (Cl. 189—46)

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This invention relates to door constructions comprising a fixed door frame and a door body hinged to the former.

Doors are already known the body of which consists of a skeleton of crossed strips of wood, covered with a veneer covering on both sides, or of which the door body consists of a board. In the first mentioned form of construction such a skeleton usually has a wooden frame running around it. These doors have the disadvantage that even well seasoned wood alters its shape so that the surfaces of the veneer sheets peel or flake off, whereby the edges of the door become unsightly. Similar defects arise with doors made of boards where the wood is cut across the grain at the edges. Both door constructions, the one with a skeleton of the above mentioned kind surrounded by a frame covered on both sides with veneer sheets, and the other comprising a board, will hereinafter be referred to as plywood bodies.

It is an object of the present invention to remove the aforementioned disadvantages and to provide a door which does not alter its shape. To this end the door is provided with a metal frame and a filling or panel and the metal frame surrounds and embraces the filling at least on the top and on both sides. Doors of this type are already known, but the door according to the invention shows the novel feature that on the rabbet or hinge side of the door the frame has a hollow, preferably tubular profile portion, extending substantially throughout the entire length of that side and serving as part of the hinge joint i. e. as hinge eyes so that no separate hinge eyes have to be fixed to the door body.

Another drawback of known door having a metal frame consists in the fact that an adjustment of the bottom of the door relatively to the floor of the room can only be made by adjusting the height of the hinge connection. It is another object of the invention to overcome this drawback in the manner described hereinafter.

In the accompanying drawings constructional examples of the invention and several variations thereof are illustrated.

In the drawings:

Fig. 1 shows in elevation the door according to the invention,

Fig. 2 shows on a larger scale a detail of Fig. 1,

Fig. 3 is a section along line III—III in Fig. 2,

Fig. 4 shows in elevation the hollow-profiled frame at the upper part of the door according to Fig. 1,

Fig. 5 shows in elevation the hollow-profiled

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frame and bottom bar at the lower part of the door,

Fig. 6 shows a horizontal section of the hollow-profiled metal frame and a part of the door body,

Fig. 7 shows a vertical section through the bottom part of the frame with an inserted wooden rail and a part of the door body,

Fig. 8 is an elevation of the hinge eye in the upper part of the door frame,

Fig. 9 is a section through the hinge eye in the upper part of the door frame,

Fig. 10 shows a hinge pin by means of which the upper part of the metal frame is connected to the hinge eye fixed to the door frame,

Fig. 11 shows the hinge eye with the fixed pin at the lower part of the door frame,

Fig. 12 shows the screw attachment of the door body to the metal frame.

Referring now to the drawings the door construction illustrated in Fig. 1 essentially consists of the fixed door frame A which may be of conventional design and material, for instance made of wood, and of the door B, which is hinged to the fixed door frame A by means of hinges **23** and **26** connected to the door frame and hinge pins. The door B comprises a metal frame **32** which surrounds a filling **39** at least at the top and on both sides and preferably also at the bottom of the door. At the side of the frame opposite to the hinges a lock **10** is inserted in the filling and fixed to the metal frame. **11** denotes the door latch, **12** the key plate and **13** the handles.

The filling **39** may be made of any suitable material, for instance of solid wood, plywood sheets fixed to a skeleton structure, pressed sheets of wood fibre, sheets of artificial resin, glass, sheet metal and so on. Constructional examples of such fillings are described hereinafter. The preferred materials for the filling are pressed sheets of wood fibre or of artificial resin, as these materials provide for a higher stability in comparison with plywood sheets, so that the skeleton lying between the sheets can be more lightly constructed.

For the metal frame surrounding the door body or filling any metal and preferably a light metal such as an aluminum alloy may be used, and the metal frame may have various profiles but it is an essential feature of the invention that on the rabbet side of the door the frame has a hollow profile, extending substantially throughout the entire length of this side whereby the fitting of hinge eyes to this side is obviated since

the hollow profile serves as a hinge. Another feature of the invention is the provision of a profile of the metal frame at the lower edge of the door which has inwardly projecting flanges embracing the lower edge portions of the door body and outwardly projecting flanges or limbs holding a wooden bar, which can be planed down to fit the door body to the floor of the room. These features will now be more fully explained with reference to Figs. 4–12 of the drawings.

The metal frame **21** shown in Figs. 4–7 and 12 is of a U-shaped cross-section and on the side of the door which is connected by hinges to the fixed door frame, the frame **21** has a hollow section **22**. This hollow section, which is rigidly connected to the frame **21**, and preferably forms one piece with it, extends substantially down the interior side of the door but is cut away at the lower end to admit a hinge eye **23** secured to the fixed door frame **30**. At the upper part of the door the hollow section **22** is interrupted to admit a hinge eye **26** attached to the fixed door frame.

The hinge eye **23** shown in Fig. 11 has a pin **27** fixed in its circular opening over which the lower end of the hollow section **22** can be hung.

The metal pin **28** shown in Fig. 10 is inserted into the uppermost portion of the tubular member **22** through the tubular member **26** which is placed in said cut-away portion **25** and into the middle portion of the tubular member **22**. The pin **28** has a head **29** having the same external diameter as the tubular member **22**. This arrangement forms a hinge by means of which the door body surrounded by the metal frame is movably attached to the fixed door frame **30**. At **31** are shown the liners, made of hard wearing material, which are necessary for the hinge mountings and serve to reduce the wear of the tubular member by friction, particularly when the frame is made of light-metal.

The frame **21** has in addition two projections **32** directed towards the middle of the door, which embrace the edges of the door body **52** (Fig. 6). As shown in Fig. 7 the U-shaped profile of the frame has two outwardly directed projections at the under side which extends along the floor, which projections are bent inwardly at right angles at their free ends. At **34** is shown a wooden rod which is inserted in the guide formed by the projections and serves to fit the door to the floor, since these wooden rods can be planed down as required. Wood screws **35** serve to attach the wooden rod to the metal frame **21**.

Fig. 12 shows in elevation a corner portion of a door with a metal frame **21**, having again an inwardly directed projection **32**, and an outwardly directed projection **38** which overlaps the door frame. **36** is the edge of a moulded sheet **39** covering the skeleton, which sheet is embraced by the projection **32** so that it is possible to insert the door body firmly in the door frame, the door body being made of any desired filling material. The wooden strips forming the skeleton are shown at **40**, which is covered by two moulded sheets **39**. At **41** there is shown a piece of wood inserted between the moulded sheets at one corner, and serving to permit the frame surrounding the door body to be attached by wood screws **42**.

It will be understood that various changes and modifications in the construction herein shown may be made without departing from the scope of the appended claim. Particularly, the door frame **32**, instead of being made of a light metal alloy, may be made of another resistant material, such as any form of plastics or other high molecular condensation products.

I claim:

A hinged door structure comprising a rectangular metal frame provided with a channel section and a filling panel inserted into said channel section, said frame having two vertical sides and an upper transverse side provided with an outwardly directed flange destined for overlapping abutment with the fixed framing of a door opening, the hinged vertical side of said frame having said outwarly directed flange formed hollow and integral with the channel section, said hollow flange extending over the major portion of the length of said vertical side and having two recessed portions destined for engagement with hinged members on the fixed door framing.

EUGEN VOGEL.

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