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METALLIC DOOR AND HINGE ASSEMBLY

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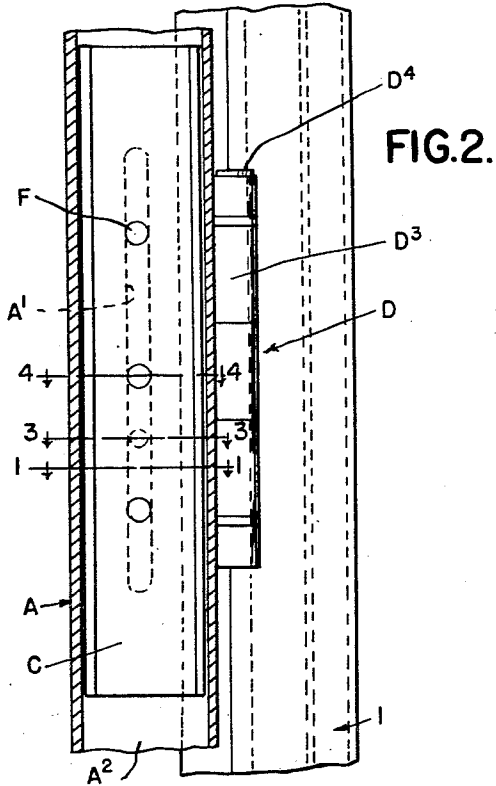


FIG. 2.

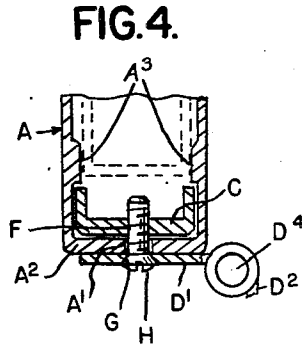


FIG. 4.

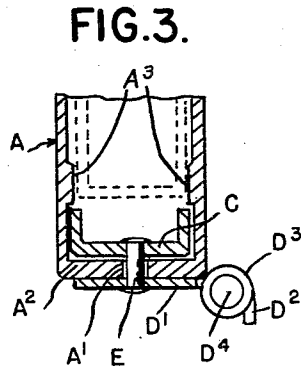


FIG. 3.

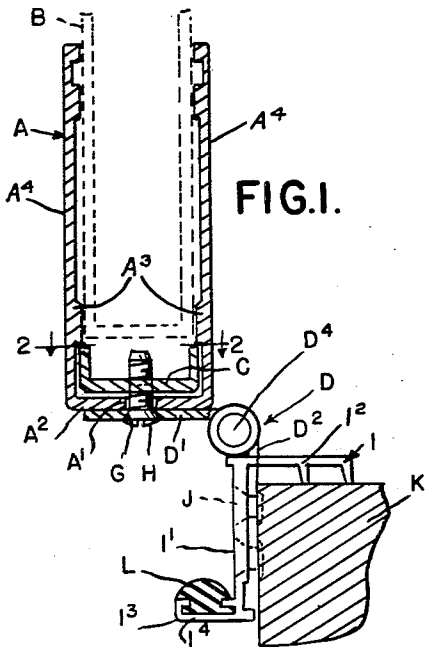


FIG. 1.

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METALLIC DOOR AND HINGE ASSEMBLY

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4 Claims. (Cl. 189-46)

The invention relates to metallic doors and more particularly to constructions in which the hinge stile is formed of an extruded metal bar. It is the object of the invention to obtain a construction which may be easily installed by carpenters or other workmen unfamiliar with the use of or not possessing metal working tools. Until comparatively recent years doors for dwelling houses and other frame buildings were made of wood and were fitted and installed by the same workmen, usually carpenters constructing other parts of the building. With the introduction of metallic doors, workmen familiar only with wood working tools had difficulty in fitting and installing the same and more particularly in applying the hinges. Because of this builders were reluctant to substitute metallic doors for those made of wood. It is, therefore, the primary object of this invention to obtain a construction including an assembly of the door and its hinge mounting which is adjustable as may be required for its installation and without tools other than those used by carpenters. To this end the invention consists in the construction as hereinafter set forth.

In the accompanying drawings:

Fig. 1 is a horizontal section through a portion of a metallic door and its hinge mounting on line 1-1, Fig. 2.

Fig. 2 is a vertical section on line 2-2, Fig. 1.

Figs. 3 and 4 are horizontal sections respectively on lines 3-3 and 4-4, Fig. 2.

The metallic door may be of any suitable construction not fully shown but including a stile which is hinged to the door frame. As specifically shown this stile A is formed of an extruded metal bar of U-shaped cross section and is connected to a cross member B extending into the open side of the U. The inner faces of opposite sides of said channel-shaped stile A are provided in spaced relation to the base A² of the channel with opposed integral bearing strips or thickened portions A³ that are engageable by the cross member B when the latter extends into the open side of the U. The stile A has a longitudinally extending slot A' in the cross portion of A² thereof which forms the edge of the door. Within the stile between the portion A² and thickened portions A³ of the side walls A⁴ thereof is a reinforcing plate or member C specifically shown as a channel member and of a length substantially equal to that of the slot A'. D is a hinge including the plates or members D' and D² formed with interspaced eye portions D³ connected by a pivot pin D⁴. The member D' extends over the end portion A² of the stile and the slot A' therein. The members C and D' are permanently connected at the factory to the portion A² of the stile A by a double headed pin or rivet E which passes through the slot A' but with sufficient freedom for the sliding of the connected members longitudinally of the stile upon installation of the door. The member C is further formed with a plurality of threaded apertures F therethrough in registration with the slot A'. The portion D' of the hinge is provided with apertures G registering with the apertures F. Headed screws H are

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inserted through the registering apertures from the hinge side and when tightened will clamp the members C and D' against the portion A² of the stile. Thus, in any position of adjustment of the hinge D on the stile A it may be clamped to remain fixed in this position.

The hinge D is also preferably connected with a metallic stile member I which is to be attached to the wooden frame of the door. As shown this member I is of Z-shaped cross section, the central portion I' of which is attached by rivets J to the member D² of the hinge. This portion is adapted to extend into the opening in the door frame adjacent to a wood member K thereof. The portion I² of the member I which is at right angles to the portion I' overlaps the outer face of the member K. The third portion I³ is provided with an undercut channel I⁴ on its inner face for holding a resilient sealing member L against which the stile A will bear in the closed position of the door.

With the construction as above described the members A, C, D and I may be assembled and secured to each other in the factory which manufactures the door and shipped in such assembled relation to the point of installation. The screws H may also be engaged with the members D' and C but are not tightened into clamping position. This will enable the workmen installing the door to connect the member I to the wooden frame K at which time the door is free to be adjusted up or down relative to the hinge D. Thus, without detachment from the hinge D the door may be adjusted to fit the door opening in the frame and the threshold or other portions thereof. The only tools required are a screwdriver for tightening and clamping the screws H and other wood working tools for attaching the member I to the wood frame by screws or other fastening means, not shown.

What I claim as my invention is:

1. In a metal door structure, an upright channel-shaped stile, the inner faces of opposite sides of said channel-shaped stile being provided in spaced relation to the base of the channel with opposed integral bearing strips for a cross member, a channel-shaped reinforcing member within and extending longitudinally of said channel-shaped stile between and held against displacement by the base of the channel thereof and said bearing strips, the base of said channel-shaped stile having a longitudinally extending slot therein, the base of said channel-shaped reinforcing member bridging the inner side of said slot and being provided in registration therewith with a circular hole and a threaded opening, a hinge plate having surface-to-surface engagement with and adjustable lengthwise of the outer surface of the base of said channel-shaped stile, said hinge plate bridging the outer side of said slot and provided in registration therewith with circular holes, a permanent loose connection between said hinge plate, stile and reinforcing member permitting adjustment of said hinge plate lengthwise of said stile and including a rivet extending through said slot and engaging circular holes aforesaid in said hinge plate and reinforcing member, and an adjustable connection between said hinge plate, stile and reinforcing member operable to hold said hinge plate in adjusted position and including a screw extending through said slot, engaging a circular hole aforesaid in said hinge plate and engaging the threaded opening aforesaid in said reinforcing member.

2. In a metal door structure, an upright channel-shaped stile, the inner faces of opposite sides of said channel-shaped stile being provided in spaced relation to the base of the channel with opposed integral bearing strips for a cross member, a reinforcing member within and extending longitudinally of said channel-shaped stile between and held against displacement by the base of the channel thereof and said bearing strips, the base of said channel-

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shaped stile having a longitudinally extending slot therein, said reinforcing member bridging the inner side of said slot and being provided in registration therewith with a circular hole and a threaded opening, a hinge plate having surface-to-surface engagement with and adjustable lengthwise of the outer surface of the base of said channel-shaped stile, said hinge plate bridging the outer side of said slot and provided in registration therewith with circular holes, a permanent loose connection between said hinge plate, stile and reinforcing member permitting adjustment of said hinge plate lengthwise of said stile and including a rivet extending through said slot and engaging circular holes aforesaid in said hinge plate and reinforcing member, and an adjustable connection between said hinge plate, stile and reinforcing member operable to hold said hinge plate in adjusted position and including a screw extending through said slot, engaging a circular hole aforesaid in said hinge plate and engaging the threaded opening aforesaid in said reinforcing member.

3. In a metal door structure, an upright channel-shaped stile, the inner faces of opposite sides of said channel-shaped stile being provided in spaced relation to the base of the channel with opposed integral bearing strips for a cross member, a reinforcing member within and extending longitudinally of said channel-shaped stile between and held against displacement by the base of the channel thereof and said bearing strips, the base of said channel-shaped stile having a longitudinally extending slot therein, said reinforcing member bridging the inner side of said slot, a hinge plate having surface-to-surface engagement with

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and adjustable lengthwise of the outer surface of the base of said channel-shaped stile, said hinge plate bridging the outer side of said slot, a permanent loose connection between said hinge plate, stile and reinforcing member engaging said slot and permitting adjustment of said hinge plate lengthwise of said stile, and an adjustable connection between said hinge plate, stile and reinforcing member engaging said slot and operable to hold said hinge plate in adjusted position.

4. In a metal door structure, an upright stile having an edge portion provided with a longitudinally extending slot, a reinforcing member upon the inner side of and extending longitudinally of the edge portion of said stile and bridging the inner side of said slot, a hinge plate having surface-to-surface engagement with and adjustable lengthwise of the outer surface of the edge portion of said stile, said hinge plate bridging the outer side of said slot, a permanent loose connection between said hinge plate, stile and reinforcing member engaging said slot and permitting adjustment of said hinge plate lengthwise of said stile, and an adjustable connection between said hinge plate, stile and reinforcing member engaging said slot and operable to hold said hinge plate in adjusted position.

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