July 4, 1961 G. E. GILPATRICK 2,990,570

SNAP-ON HINGE

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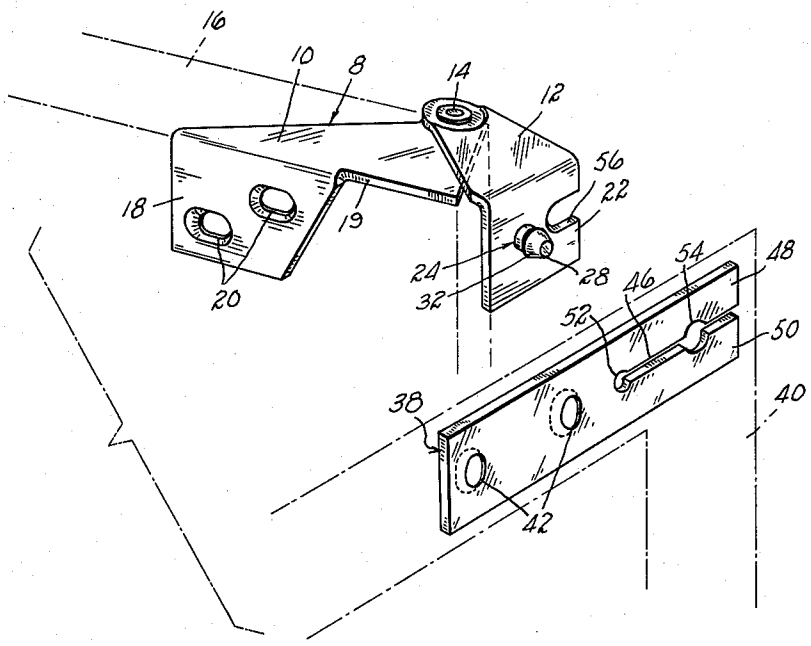


FIG. 1

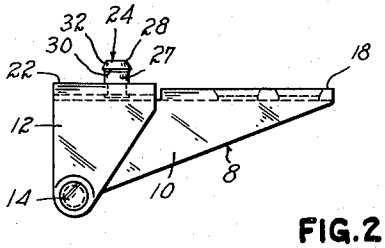


FIG. 2

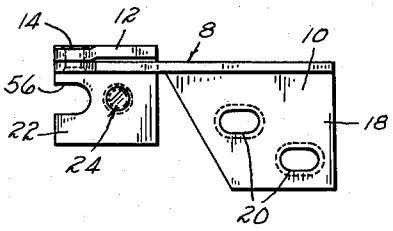
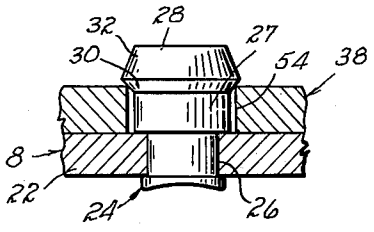


FIG. 3

FIG. 4



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SNAP-ON HINGE

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This invention relates to hinges and, more particularly, to a hinge for a door or the like which permits the door to be rapidly and easily removed and replaced by a simple snap-on action.

The aim of the invention is to provide a hinge assembly for doors which will permit the door to be taken off and replaced without the need for taking out the mounting screws or removing the pintle as normally required when using conventional hinges. Included in this aim is the provision of a quick detachable snap-on type of hinge which is of simple and economical construction, attractive in appearance, and of sufficiently rugged design so that it will function effectively without failure during normal service.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the drawing:

FIG. 1 is a perspective view of a snap-on hinge constructed in accordance with the invention, the parts being separated with one part being mounted on an open door, and the other part being mounted on a cabinet, the door and cabinet being shown in broken lines;

FIG. 2 is a top view of the hinge of FIG. 1 in the position when the door is closed;

FIG. 3 is a side view of the hinge of FIG. 2; and

FIG. 4 is an enlarged fragmentary cross-sectional view through the snap-on connection.

With reference to the drawing, the present invention is shown applied to a pivot hinge indicated generally at 8 although it is to be understood and will be apparent that the invention is not limited to this particular form of hinge. The pivot hinge 8 comprises a pair of sheet metal hinge leaves 10, 12 pivotally connected by a rivet 14 with the leaves in overlapping relation. The leaf 10 hereinafter referred to as the door leaf, is adapted to rest on the top of a door 16 and has a flange 18 depending from the edge 19 of the leaf opposite the rivet 14 and extending at right angles to the leaf for engagement with the inner face of the door. The flange 18 has elongated screw holes 20 for receiving the usual mounting screws (not shown) for fastening the hinge to the door.

The other leaf 12, hereinafter referred to as the jamb leaf, has a depending flange 22 at the end thereof opposite the rivet 14 and, mounted centrally thereof, is a hardened steel mounting pin 24 protruding outwardly as shown. As best shown in FIG. 4, the pin is secured in an aperture 26 in the flange 22 and is formed with a collar 27 terminating in a tapered head or tip 28 which preferably has a relatively sharp or acute rear taper 30 while the forward face 32 is more gradually tapered.

The flange 22 and pin 24 cooperate with a flat rectangular mounting plate 38 which is adapted to be fastened on the front of a cabinet 40 or the like by screws (now shown) receivable in the screw holes 42. The mounting plate which preferably is formed of hard tempered steel has a slot 46 extending from one end thereof, preferably at the longitudinal centerline of the plate, to provide a pair of resilient legs 48, 50. The

inner end of the slot 46 may be enlarged at 52 for stress relief. Spaced inwardly from the outer end of the slot 46 is a generally circular aperture 54 in which the pin 24 is engageable. As shown in FIG. 4, it is preferred that the pin 24 be dimensioned relative to the plate 38 and aperture 54, such that the length of the collar 27 of the pin is slightly less than the thickness of the plate thereby causing the rear taper 30 of the head to bear against the periphery of the aperture 54 and thus exert sufficient spreading force on the legs 48, 50 to keep the flange 22 firmly clamped to the plate 38.

In the use of the hinge assembly just described, two or more hinges such as hinge 8 are secured to the door and a corresponding number of mounting plates 38 are mounted on the front face of the cabinet or other enclosure. To mount the door on the cabinet, the pins 24 are merely lined up with the apertures 54 and then the door is pressed in to force the heads of the pins through the apertures until they snap into locked position. The gradually forwardly tapered end 32 of the pin facilitates insertion into the aperture 54, but the relatively sharp incline or taper 30 at the rear face makes it almost impossible to disengage the hinge merely by pulling outwardly thereon so that accidental disengagement of the hinge is unlikely to occur. In order to permit disengagement of the hinge from the plate 38, the flange 22 is notched as at 56 to permit a tool, such as a screwdriver, to be inserted into the slot 46 to flex the legs 48, 50 apart and permit removal of the pin from the aperture 54.

It can thus be seen that there has been provided a novel and improved snap-on hinge assembly whereby a door may be assembled with or disassembled from a cabinet, with a minimum of effort and a maximum of convenience. The hinge assembly consists of the minimum number of parts and is relatively economical to fabricate and, at the same time, holds the hinge securely and firmly and may be assembled and disassembled without deterioration of the retention ability of the hinge components.

I claim:

1. A snap-on hinge assembly comprising a mounting plate having means for attachment to a frame and the like, said mounting plate having an elongated slot extending inwardly from one end thereof to provide a pair of resiliently flexible clamping legs; a pair of pivotally connected hinge leaves, one of said leaves having means for attachment to a door and the like and the other of said leaves having a surface portion overlying the mounting plate slot; and a pin on said overlying surface portion of said other hinge leaf projecting normally therefrom and having a tapered head portion releasably engaged in said slot to mount said other hinge leaf to the mounting plate in overlying disposition, said pin being engageable in and releasable from said mounting plate slot by movement normal thereto with concurrent spreading of said clamping legs.

2. A snap-on hinge assembly in accordance with claim 1 wherein said other hinge leaf is provided with an aperture registering with said mounting plate slot for insertion of a tool therethrough to spread said clamping legs and release said pin.

3. A snap-on hinge assembly comprising a mounting plate having means for attachment to a frame and the like, said mounting plate having an elongate slot extending inwardly from one end thereof with an enlarged portion inwardly of the ends of the slot defining a generally circular aperture, said slotted mounting plate providing a pair of resiliently flexible clamping legs on opposite sides of said aperture; a pair of pivotally connected hinge leaves, one of said leaves having means for attachment to a door and the like and the other of said leaves having

a surface portion overlying said mounting plate aperture; and a generally cylindrical pin on the overlying surface portion of said other hinge leaf projecting normally outwardly therefrom and having a head portion tapering outwardly and then inwardly to provide a bulb-like structure, the inner tapering surface of said head portion being engaged with the sides of said slot aperture and applying a camming force thereto to hold said mounting plate and hinge leaf in firm engagement and prevent inadvertent disconnection, said pin being engageable in and releasable from said mounting plate by movement in a direction normal thereto with concurrent spreading of the clamping legs.

4. A snap-on hinge assembly comprising an elongated mounting plate having means at one end for engagement to a frame and the like, said mounting plate having an elongated slot extending inwardly from the other end with an enlarged portion spaced inwardly from the ends of the slot defining a generally circular aperture, said slotted mounting plate providing a pair of resiliently flexible clamping legs on opposite sides of said aperture; a pair of pivotally connected hinge leaves, one of said hinge leaves having means for attachment to a door and the like and the other of said hinge leaves having a surface portion overlying the aperture and slot of said mounting plate; and a generally cylindrical pin on said overlying surface portion of the hinge leaf projecting normally outwardly therefrom and releasably engaged in said aperture, said pin having a collar portion and a terminal head portion tapering outwardly and then inwardly to provide a bulb-like structure, said collar portion being of a diameter greater than the width of the slot and of an axial length less than the thickness of the mounting plate, the inner tapering surface of said head portion being engaged with the sides of said circular aperture and applying a camming force to said clamping legs to hold the mounting plate and hinge leaf in firm engagement against inadvertent disconnection, said other hinge leaf having an aperture registering with the slot in said mounting plate for insertion of a tool therethrough to spread said clamping legs apart for withdrawal of the pin and disengagement of the hinge leaf.

5. A snap-on hinge assembly comprising an elongate mounting plate having means for attachment to a frame and the like, said mounting plate having an elongate slot extending inwardly from one end with an enlarged portion spaced inwardly of the ends of the slot, said slotted mounting plate providing a pair of resiliently flexible clamping legs on opposite sides of said enlarged portion; a pair of pivotally connected hinge leaves each having a side mounting flange, the inwardly disposed mounting flange having means for attachment to the side of a door or the like and the outwardly disposed mounting flange having a surface portion overlying the enlarged portion of said slot; and a pin on said overlying surface portion projecting normally outwardly therefrom and having an oppositely tapered head portion releasably engaged in said enlarged portion of the slot to hold the hinge leaves in firm engagement to said mounting plate and prevent inadvertent disconnection, said pin being engageable in and releasable from said slot enlarged portion by movement normal to said mounting plate with concurrent spreading of said clamping legs.

6. A snap-on hinge assembly comprising an elongated mounting plate having means at one end for attachment to a frame and the like, said mounting plate having an elongated slot extending inwardly from the other end with an enlarged portion disposed inwardly of the ends of the slot to define a generally circular aperture, said slotted mounting plate providing a pair of resiliently flexible clamping legs on opposite sides of said aperture; a pair of pivotally connected hinge leaves each having a side mounting flange, the inwardly disposed hinge leaf flange having means for attachement to a door and the like, the outwardly disposed hinge leaf flange having a surface portion overlying the mounting plate aperture and slot; and a generally cylindrical pin on said overlying surface portion of the flange projecting normally outwardly therefrom and releasably engaged in said aperture, said pin having a head portion tapering outwardly and then inwardly to provide a bulb-like structure, the inner tapering surface of the head portion being spaced outwardly from the hinge leaf flange a distance less than the thickness of said mounting plate and being engaged with the sides of said mounting plate aperture and applying a camming force to said resilient clamping legs to hold said mounting plate and hinge leaf in firm engagement against inadvertent disconnection, said other hinge leaf flange having an aperture registering with said slot in the mounting plate for insertion of a tool therethrough to spread said clamping legs and release said pin, said pin being engageable in and releasable from said aperture by movement in a direction normal to said mounting plate with concurrent spreading of the clamping legs.

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