Dec. 16, 1952 J. B. STUMAN 2,621,357

HANDLE MOUNTING MEANS

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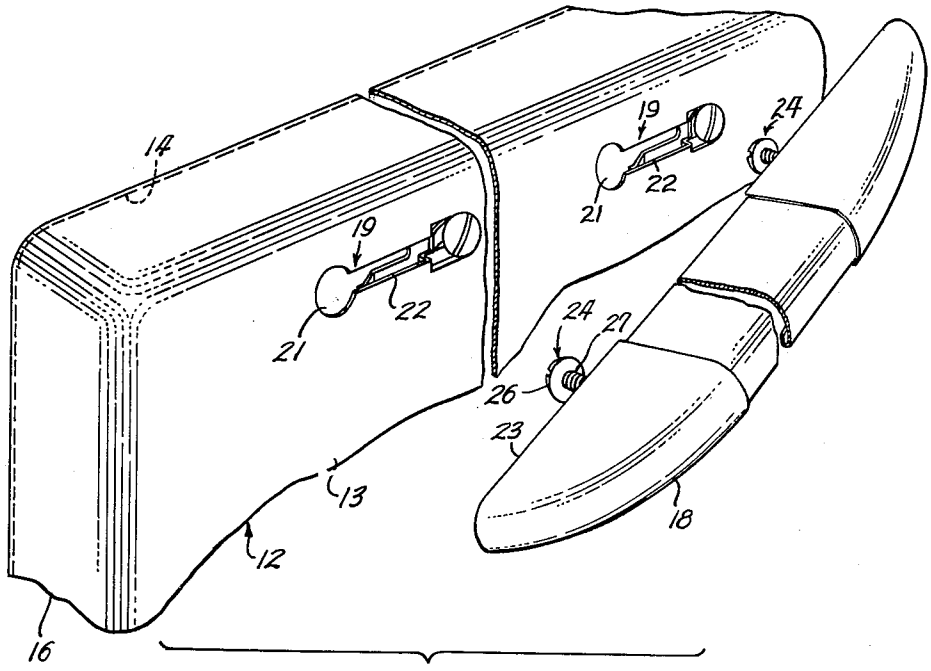


Fig. 1

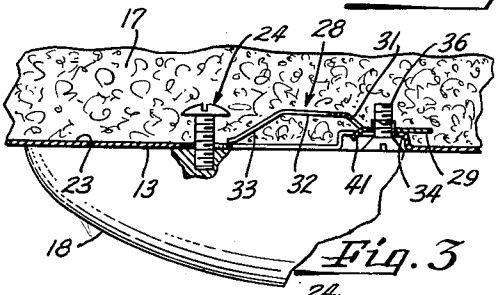


Fig. 3

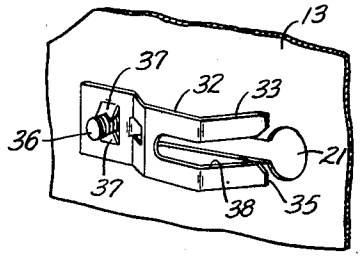


Fig. 2

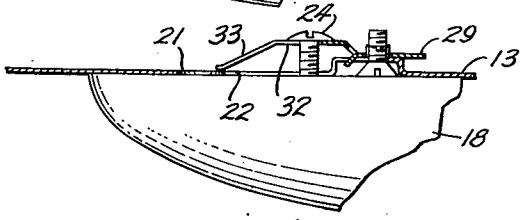


Fig. 4

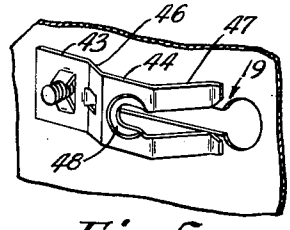


Fig. 5

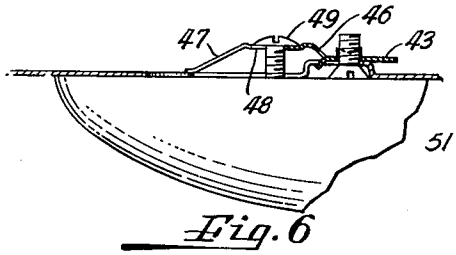


Fig. 6

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HANDLE MOUNTING MEANS

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6 Claims. (Cl. 16—114)

1

This invention relates to a mounting panel and fastener assembly for releasably mounting handles or other articles.

An object of this invention is the provision of novel mounting panel and fastener assembly by means of which a handle or other article may be quickly attached to or removed from the mounting panel with simple movements.

Another object of the invention is the provision of handle mounting means that is simple, that insures that a handle is positively maintained in a preselected relation with a panel when it is attached thereto, that is rugged, that requires a minimum of maintenance and that is relatively inexpensive to manufacture.

Another object of the invention is the provision of handle mounting means of the above character wherein a handle may be readily attached to and detached from one side of a door in the field as well as in the factory, and that does not require manipulation of threaded parts to effect attachment of or removal of the handle from a door.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which—

Figure 1 is a fragmentary perspective view showing a handle in a position to be attached to a door;

Fig. 2 is a perspective view of the back of the front panel of the door showing the construction of a leaf spring for holding the handle on the door;

Figs. 3 and 4 are sectional views showing different relative positions of the handle and the leaf spring as the handle is being attached to the door; and

Figs. 5 and 6, similar to Figs. 2 and 4, show a modification of the invention.

Referring now to the drawings the invention is shown embodied in a handle and mounting therefor for use on an oven door 12 for a gas range or the like, not shown. It will be apparent however to those skilled in the art that the above construction may be used on many other types of equipment. In general, the oven door 12 includes an outer panel 13 and an inner panel 14 in spaced relation to the outer panel. The outer panel 13 preferably has its outer edges deformed to define a peripheral flange 16 receiving and supporting the inner panel 14. Suitable insulation 17 is disposed between the panels 14 and 13.

One aspect of the invention is the provision

2

of a novel means for mounting a handle 18 on the door 12 so that it may be quickly and readily attached to or removed from the door 12 with a minimum of effort and manipulation of parts. For this purpose the outer panel 13 is formed with spaced keyhole slots 19, each having an enlarged circular portion 21 and an elongated narrow portion 22 in communication with the circular portion. As shown in Figure 1 the elongated portions 22 extend outwardly from the same side of the circular portions 21 in a horizontal direction. The handle 18 may be of any suitable shape. In this instance the handle has a face 23 shaped to be flush with the outer surface of the panel 13 and a pair of screws 24 extending outwardly from the face 23 on opposite ends of the handle and spaced apart the same distance as the enlarged portions 21 of the keyhole slots. Each screw 24 is of such configuration that the head 26 may be inserted through the enlarged portion 21 of the keyhole slot 19 and the shank 27 of the screw may be received in the narrow portion 22 of the keyhole slot 19.

A leaf spring 28 is mounted in a cantilever manner at the rear of the panel 13 as best shown in Fig. 3 adjacent each keyhole slot 19. Each spring comprises a mounting portion 29, a bridging portion 31, a central portion 32 and a free end portion 33. The bridging portion 29 is shaped to lie against the bottom wall 34 of a recess for the head of a screw 36 extending through one end of the slot 22 to secure the spring 28 to the panel 13. As shown, the mounting portion 29 has a hole for receiving the screw 36, defined in part by a pair of diametrically opposed tabs 37 deformed outwardly from the plane of the mounting portion 29. The tabs 37 are shaped to define a threaded connection to be engaged by the screw 36. The central portion 28 of the leaf spring is spaced from the back of the panel 13 and the mounting portion 29 and is attached to the free end portion 33 and to the mounting portion 29 by the bridging portion 31. Preferably the part of the central portion 32 adjacent the free end portion 33 is spaced farther from the panel than the part of the central portion adjacent the bridging portion 31. Thus, as shown in Fig. 3, the central portion 32 is inclined outwardly from and at a relatively small angle to the back of the panel. The free end portion 33 is inclined from the central portion toward the back of the panel and its extreme end 35 terminates adjacent one side of the enlarged portion 21. The central portion 32 and

the free end portion 33 are formed with an elongated slot 38 extending lengthwise of the leaf spring and opening on the end 35 of the free end portion 33. The shape of the leaf spring 28 is such that when the leaf spring is secured to the back of the panel the slot 38 is in registration with the slot 22. A tang 41 on the leaf spring is shaped to be inserted in the slot 22 to prevent rotation of the leaf spring and to assure alinement of the slot 38 with the elongated narrow portion 22 of the keyhole slot 19.

The handle 18 may be readily attached to the door 12. Thus, to attach the handle, the handle is brought into position such that the screws 24 are inserted in the enlarged portions 21 of the keyhole slots 19 on the panel 13. After both screws 24 have been inserted in the keyhole slots the handle 18 is moved laterally in the direction of the elongated narrow portions 22 of the slots. As the handle 18 is moved, as described, the shanks 27 of the screws 24 are received in the elongated portions 22 of the keyhole slots 19 and the heads 26 of the screws 24 engage the inclined free end portions 33. Lateral movement of the handle 18 is continued until the heads 26 of the screws 24 engage the central portions 32 of the leaf springs as shown in Fig. 3. During the lateral movement of the handle the inclined surfaces 33 serve as cams or guides to guide the heads or shoulders 26 to their proper location. As the handle moves from the position shown in Fig. 3 to the position shown in Fig. 4 each leaf spring 28 is stressed so that it tends to urge the heads 26 of the screws 24 away from the back of the panel and to urge the handle into tight engagement with the door 12. Because the part of the central portion 32 adjacent the free end portion 33 is spaced farther away from the back of the panel than the part of the central portion 32 adjacent the bridging portion 31, the interconnection between the central portion and the free end portion in effect defines a shoulder that must be cleared before the heads 26 can seat on the central portion 32. This shape of the central portion tends to lock the screw heads 26 in position on the central portions 32.

To remove the handle 18 the latter is moved from the position shown in Fig. 4 in the direction of the enlarged portion 21 of the keyhole slot to the position shown in Fig. 3 to clear the central portion 32 and free end portion 33. Due to the locking action of the leaf springs 28 a slightly greater force may have to be applied to the handle 18 to initially disengage the heads 26 from the central portions 32. In this position of the handle the heads of the screw may be pulled through the enlarged portions 21 of the keyhole slot 19.

Figs. 5 and 6 show a modification of the invention and in this modification the leaf springs comprise a mounting portion 43, a central portion 44, a bridging portion 46, a free end portion 47 formed in the same general manner as that shown in the embodiment in Figs. 1–3 with the exception that the central portion 44 has a depressed portion 48 shaped to receive the head of a screw 49. With this construction when a handle 51 is in the position shown in Fig. 6 the heads of the screws are positively interlocked with the central portion 44 so that the parts cannot accidentally move relative to each other.

The above handle construction has many advantages. For example, the keyhole slots 19 may be formed in the panel 13 by a simple forming process and the leaf springs 28 may be formed by simple stamping processes. This construction has a minimum number of parts and consequently requires a minimum amount of time to effect assembly or disassembly. Only one screw is required to secure each leaf spring in position and no manipulation of threaded parts is required to effect attachment and detachment of a handle after the leaf springs have been assembled. The construction is positive in its action since a constant force is being applied to hold the handle in assembled relation.

I claim:

1. In combination, a mounting panel formed with a slot having an enlarged portion and an elongated narrow portion communicating therewith, and a bifurcated leaf spring fastener member having an elongated slot between its furcations and attached at one end to the back of the panel to position the slot between its furcations in lengthwise alignment with the elongated panel slot, the furcations at the other end of the bifurcated leaf spring member freely engaging the back of the panel on either side of the narrow portion of the panel slot and terminating adjacent the enlarged portion of the panel slot, said leaf spring being longitudinally bowed to resiliently bias its bifurcated portion intermediate its ends away from the back of the panel.

2. In combination, a mounting panel formed with a slot having an enlarged portion and an elongated narrow portion communicating therewith, and a leaf spring fastener member bifurcated to form an elongated slot and attached at one end to the back of the panel, said leaf spring member being formed with a transverse tang portion snugly received in the narrow portion of the panel slot to align the slot in the leaf spring member with the panel slot, said leaf spring member terminating at its other end in a bifurcated free end formed with spaced furcations freely engaging the back of the panel adjacent the enlarged portion of the slot therein and disposed on either side of the narrow slotted portion, said leaf spring member being longitudinally bowed to bias its bifurcated portion intermediate its ends away from the back of the panel.

3. In combination, a mounting panel formed with a slot extending through the panel and elongated along its length across the panel, and a bifurcated leaf spring fastener member attached at one end to the back of the panel and having an elongated space between its furcations extending in lengthwise alignment with the elongated panel slot, the other end of said leaf spring fastener member freely engaging the back of the panel to resiliently bias a bifurcated portion of the leaf spring fastener member intermediate its ends away from the back of the panel.

4. In combination, a mounting panel formed with an aperture extending through the panel and elongated along its length across the panel, and a spring member formed with an elongated aperture intermediate its ends, said spring member being attached at one end only to the panel with its aperture extending in lengthwise alignment with the elongated aperture in the panel, and said spring member being longitudinally bowed to resiliently bias its apertured portion intermediate its ends away from the back of the panel.

5. In combination, a mounting panel formed with an aperture extending through the panel and alongated along its length across the panel, and a spring member formed with an elongated aperture intermediate its ends, said spring

member being attached at one end only to the panel with its aperture extending in lengthwise alignment with the elongated aperture in the panel, and said spring member at its other end freely engaging the back of the panel and being longitudinally bowed intermediate its ends to resiliently bias its apertured portion intermediate its ends away from the back of the panel.

6. In combination, a mounting panel formed with an aperture extending through the panel and elongated across the panel, and a bifurcated spring member formed with an elongated slot between its furcations extending from one end of the spring member lengthwise therealong and terminating short of the other end of the spring member, said spring member being attached at its other end only to the back of the panel with its elongated slot extending in

lengthwise alignment with the elongated aperture in the panel, and said spring member being longitudinally bowed to resiliently bias its furcations intermediate its ends away from the back of the panel.

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