Oct. 17, 1967 D. G. HANN 3,347,581

CONCEALED DOOR LATCH

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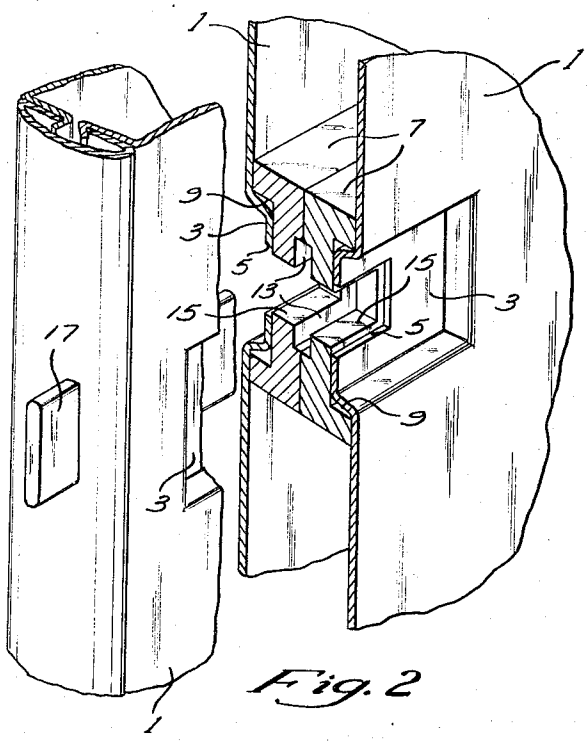


Fig. 2

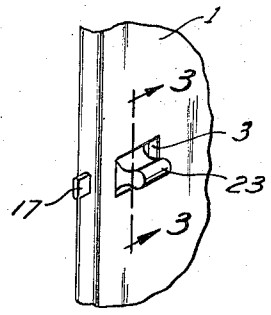


Fig. 1

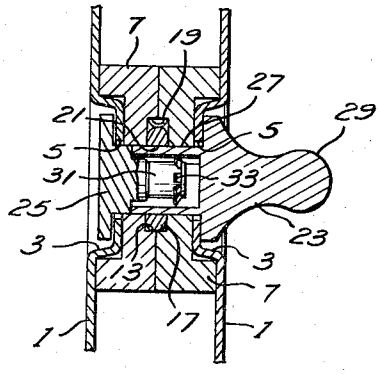


Fig. 3

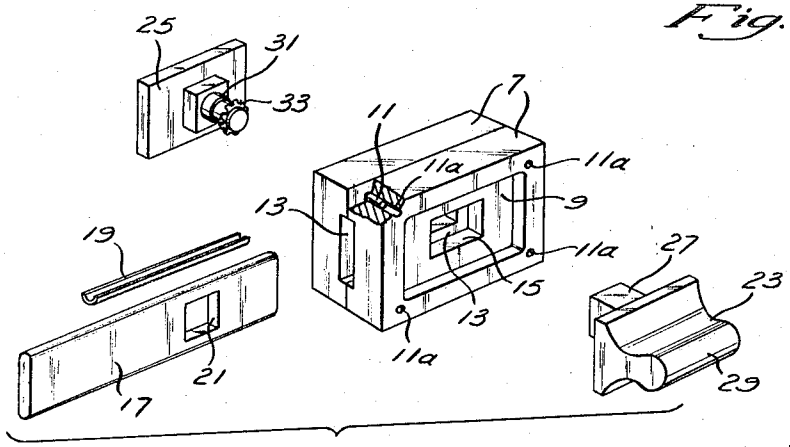


Fig. 4

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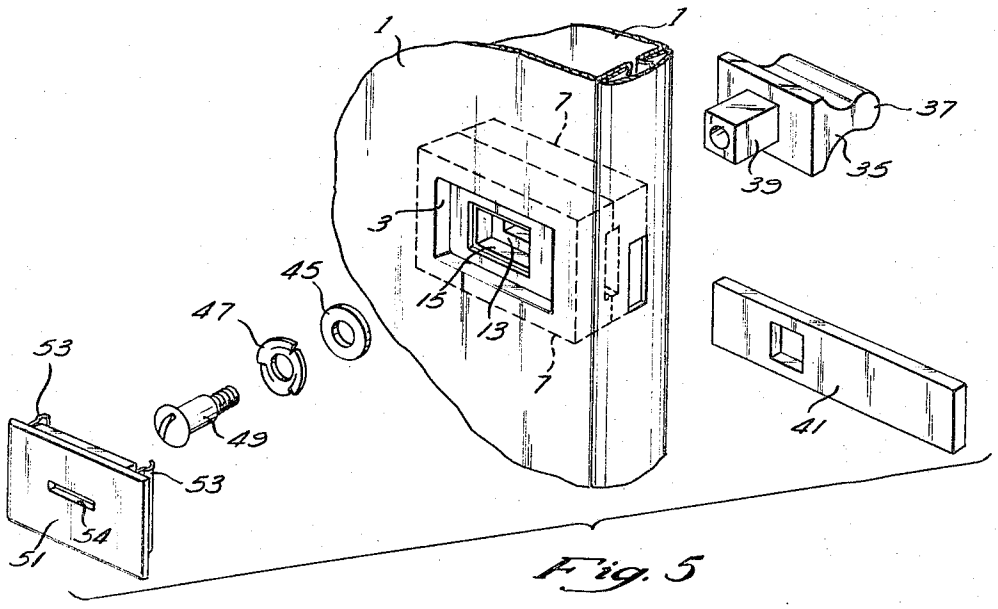


Fig. 5

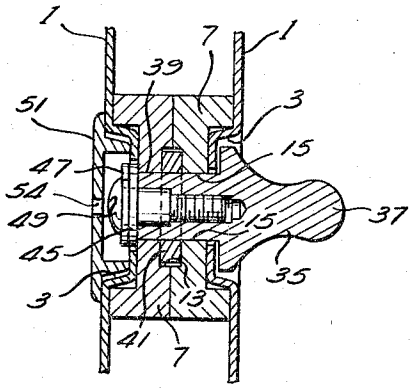


Fig. 6

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CONCEALED DOOR LATCH

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5 Claims. (Cl. 292—147)

ABSTRACT OF THE DISCLOSURE

This invention relates generally to latches for doors and is particularly concerned with a latch which is concealed within a metal door and is operable from only one side of the door.

Background of the invention

Latches of the sliding bolt or bar type are commonly mounted entirely on one side of a door but they are unsightly, have projections on which clothing may catch and Efforts have been made to provide latches which avoid those disadvantages by positioning the sliding bolt or bar within a door but such devices have not been entirely satisfactory for various reasons including the expense of mounting and dismounting them for adjustment or repair and the susceptibility of such latches to being tampered with from the outside of the door.

Summary

The present invention aims to provide a sliding bar latch which can be readily and inexpensively mounted within a metal door, is not unsightly, does not have objectionable protruding parts, is readily mounted or dismounted and is substantially tamper proof.

Brief description of the drawings

The present invention will be better understood by those skilled in the art from the following specification and the accompanying drawings, in which:

FIG. 1 is a perspective view on a reduced scale of a metal door equipped with a preferred form of the present invention;

FIG. 2 is an exploded perspective view of the door and of FIG. 1 with the latch bar in latching position;

FIG. 3 is a vertical, transverse, sectional view of the latch of FIG. 1 in position in the door;

FIG. 4 is an exploded perspective view of the parts of the latch of FIGS. 1 to 3;

FIG. 5 is an exploded perspective view of a modified form of the apparatus embodying the present invention; and,

FIG. 6 is a transverse, sectional view, similar to FIG. 3, but showing the latch and door of FIG. 5.

Description of the preferred embodiments

In the embodiment of the present invention shown in FIGS. 1 to 3, the sheet metal sides of the door are indicated at **1**. These sides have opposed indentations **3**, and transverse openings **5** through the middle of these indentations.

A latch body **7** (see also FIG. 4) consisting of two similar parts is positioned within the door. The remote sides of the latch body parts are provided with depressions **9** which receive the indentations **3** of the sheet metal sides **1**. The opposed faces of the latch body parts are provided with dowel pins **11** and dowel pin holes **11***a* by means of which the parts of the latch body are maintained in predetermined position. The opposed faces of the latch body parts are cut away to provide rectangular spaces indicated at **13** which extend to the edge of the door, and an elongated hole **15** which extends transversely therethrough and is aligned with the openings **5** in depressions **3**. An elongated latch bar **17**, FIG. 4, is slidably mounted in space **13** and

may be moved to project beyond the edge of the door to engage a striker plate and thus latch the door. The latch bar may be urged against one side of space **13**, as by resilient, means, for example a leaf spring **19** which engages the body and the bar. The latch bar has an aperture **21** extending therethrough and aligned with hole **15**.

The means for moving the latch bar endwise comprises plates **23** and **25** which have marginal portions movably disposed in the indentations **3** in the sides of the door. Plate **23** has a hollow projection **27** which extends into and substantially fills aperture **21** in the latch bar, and has an actuating handle **29** projecting in the opposite direction. Plate **25** has a projection **31** extending into the hollow projection **27** of plate **23**. Means is provided for locking the plates in assembled position with sufficient clearance between **25** and **1** so as not to scratch the door face, as seen in FIG. 3. Any suitable means may be used for this purpose but one such means is the external tooth lock washer **33** which is fixed to the end of projection **31** and has teeth which engage the inner surface of projection **27**. Since the hole **15** in the latch body is larger than projection **27**, plates **23** and **25** and bar **17** may be moved relative to the latch body and thus the bar may be moved into and out of door latched position.

In the modification shown in FIGS. 5 and 6, the door is shown as having several parts like those shown in FIGS. 1 through 4 including the sheet metal sides **1**, the two-part latch body **7** with its space **13** for the latch bar and a hole **15** extending through the body for a latch bar actuator. In this modification one plate **35** has an exposed actuating handle **37** and a projection **39** extending through the latch bar **41**. The second plate **45** is in the form of a flat washer which engages the outer surface of the adjacent latch body **7**, a spring washer **47** bearing against washer **45** and a screw **49** which extends through plate **45** and washer **47** and into projection **39** of plate **35**, thereby serving to hold the plates in assembled position with the door and with the latch bar. An escutcheon plate **51** encloses depression **3** on the outer side of the door, has marginal ribs seating on the sheet in the depression and is retained in place by spring clips such as is shown at **53**. This plate may be provided with a slot **54** which can then be used in an emergency to unlock the door from the outside. A pin may be inserted in slot **54** into engagement with the head of screw **49** and then moved laterally to cause the bar **41** to be retracted from contact with a striker plate.

Having thus described this invention in such full, clear, concise and exact terms as to enable any person skilled in the art, to which it pertains to make and use the same, and having set forth the best mode contemplated of carrying out this invention, I state that the subject matter which I regard as being my invention is particularly pointed out and distinctly claimed in what is claimed, it being understood that equivalents or modifications of, or substitutions for, parts of the above specifically described embodiment of the invention may be made without departing from the scope of the invention as set forth in what is claimed.

What is claimed is:

1. A latch for a door comprising:

(a) a two-part latch body to be fixed in position between the sides of a door and having depressions in its remote sides to receive indentations of the sheet metal sides of the door, said body parts being connected together against relative parallel movement, the body parts having a space therebetween for a latch bar and holes extending therethrough for a latch bar actuator,

(b) a latch bar slidably movable endwise in said space and having an aperture aligned with said holes,

(c) means for moving said latch bar endwise into and out of door locking positions, said means including plates disposed in and engaging said indentations in

the metal sides of the door, one of said plates having a hollow projection extending into and substantially filling the aperture in said latch bar, one of said plates having an outwardly projecting bar actuating handle, and

(d) means in said hollow projection to lock said plates in assembled position.

2. The combination of elements set forth in claim 1 in which resilient means is disposed in said space in said body and engaging said latch bar and urging it against the body.

3. The combination of elements set forth in claim 1 in which one of said plates has a projection extending into said hollow projection.

4. The combination of elements set forth in claim 1 in which a cover is seated in and closes one of said indentations and includes spring means engageable with the adjacent sheet metal side of the door to retain the cover in place.

5. The combination of elements set forth in claim 4 in which said cover is provided with a slot for use in sliding the latch bar into unlocked position for emergency unlocking of the door.

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