Oct. 15, 1963 T. G. SCONZO 3,107,113

ADJUSTABLE DOOR LATCH ASSEMBLY

Filed May 17, 1961

FIG. 1

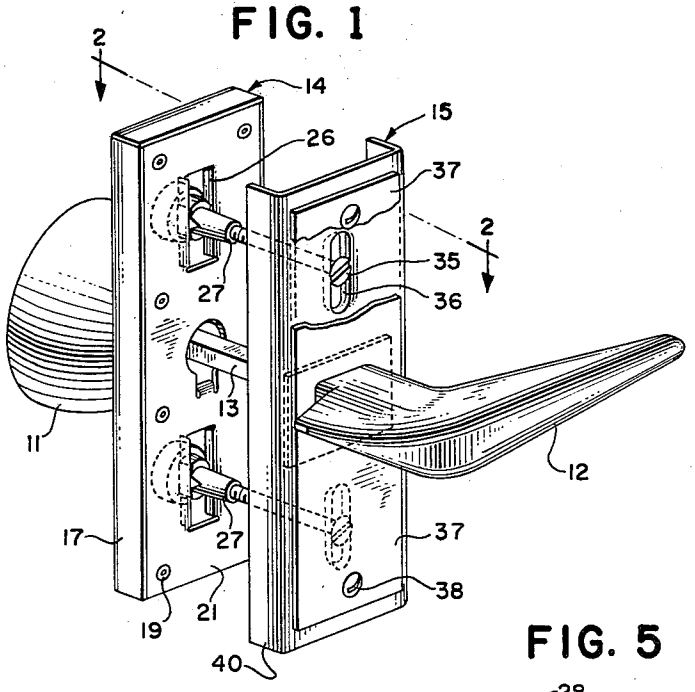


FIG. 3

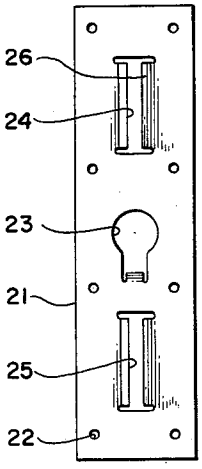


FIG. 5

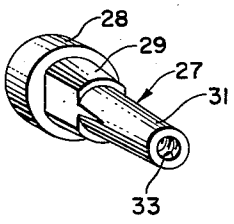


FIG. 4

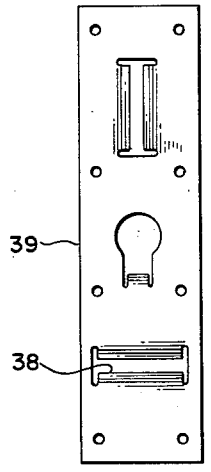
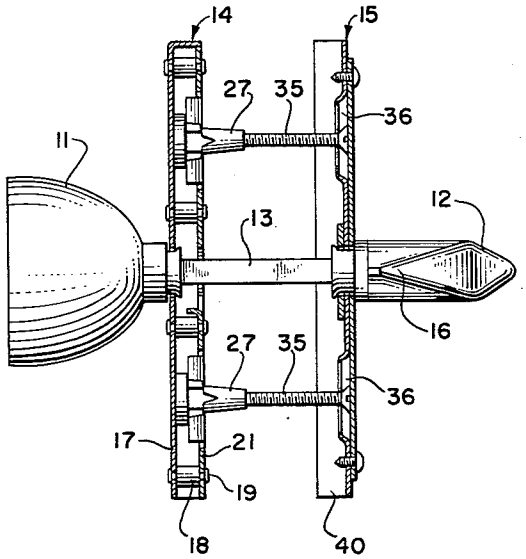


FIG. 2



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ADJUSTABLE DOOR LATCH ASSEMBLY

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This invention relates to builders' hardware generally. More particularly the invention relates to a novel form of adjustable door latch assembly for use on metal storm doors and the like.

With the advent of practical methods for the inexpensive production of metal alloy shapes of complex cross section by extrusion, there has developed a widespread acceptance of storm doors and windows, screen doors, jalousies and the like so constructed of light metal alloys.

These are found to be useful not only for purposes of original construction, but they have also found a very wide market for application to existing buildings. In such applications they are used as replacements for older types of installations such as those made of wood, and they are also very widely used for initial installation, especially on residential properties which have been built and sold without any provision whatever for these facilities in order to achieve a lower selling price.

In all such cases where these facilities are not included in the original building construction, and they are numerous, there is a strong incentive for the residential property owner to undertake their purchase and installation himself at the time when their need is felt.

It is apparent, therefore, that installation procedures are desirable which are adapted to the unskilled installer, rather than to the talents of the competent artisan, such as would be available at the time of original building construction. In contract to this obvious requirement, it is found that because of the greater strength, rigidity, and dimensional stability of metal door and window sections, their thicknesses are smaller, the fits are closer, and the tolerances for installation error actually less than in the case of former designs.

Door handle hardware for metal storm doors, for example, is provided with the purchase of such a storm door, but it is unassembled, and must be installed by the purchaser before use. This is because it must be precisely located on the stile of the door for engagement with a special type of striker, surface mounted on the jamb. Installation in such location requires the drilling of two holes through the hollow metal stile of the door in the perpendicular direction, and with considerable precision as to size, location, and direction. A third and larger hole is also required to accommodate the doorknob, but without such stringent limitations as to precision, since it is merely of clearance dimensions.

Another difficulty arises in the case where a door lock mechanism must be replaced, and it is found, usually after unsuccessful experiment, that replacement locks come in a variety of stile hole size and spacing arrangements, most of which do not fit the existing holes in the stile.

It should be noted at this point that these door lock mechanisms are retained in place on the door stile by two through bolts engaging the exterior escutcheons, so that they are retained positively in location if these bolts are a close fit in their corresponding through holes in the door stile, but if a loose fit in the holes, the entire assembly is retained by friction only, and is subject to easy dislocation and malfunction. It is thus apparent that the holes must be accurately sized to the through bolts, and also that slight inaccuracies in hole location cannot be compensated by the use of oversized holes.

All of these difficulties I overcome by providing a novel form of latching mechanism for doors and the like wherein the spacing, and in fact even the precise direction of the through holes in the stile is not critical in importance, and in which the location of the mechanism is adjustable within limits, independently of the through hole location. By the use of this device, the unskilled craftsman finds that the tendency of a slightly dull drill bit to "walk" a short distance from the mark before starting to drill is not fatal, that a failure to hand hold the drill precisely perpendicular does not prevent subsequent engagement of the through bolts, and that cumulative measurement errors do not result in location of the latch where it will not work.

It is therefore an object of the instant invention to provide a door latch assembly for puposes of architectural fenestration which is capable of ready installation by the unskilled or amateur by reason of an inherent tolerance to minor errors of location of the mounting holes.

It is another purpose of the invention to provide such a door latch which is more securely mounted in a correct position, despite mislocation of the mounting holes.

It is still another purpose to provide such a door latch which is inherently tolerant to misalignment of the direction of its mounting holes.

A further purpose of the invention is to provide such a door latch which is better adapted to be employed in conjunction with preexisting mounting holes.

These purposes I accomplish with advantages as aforementioned and with further advantages which will be seen by reference to the following detailed description of an illustrative example of a specific embodiment of the invention, taken together with the drawings wherein:

FIG. 1 is a perspective view of a door latch constructed in accordance with the present invention;

FIG. 2 is a cross sectional view of FIG. 1 taken along the line 2—2;

FIG. 3 is a view of one of the parts of FIG. 1;

FIG. 4 is a view of an alternative embodiment of the device of FIG. 3; and

FIG. 5 is a perspective view of one of the parts of FIG. 1.

Referring now to the drawings, wherein like numbers refer to like parts there is seen in FIG. 1 a doorknob **11** on one end, and a handle **12**, on the other end of a conventional square shaft **13**, transfixing the exterior escutcheon assembly **14** and the interior escutcheon assembly **15**, as may be seen more clearly in FIG. 2. Securing of the door is accomplished by engagement with a spring biased striker on the jamb (which is not shown) of the beak **16** of handle **12**, in well known manner.

Bezel assembly **14** comprises a formed cover plate **17**, spacers such as **18** having necked down portions formable and formed into rivets, such as, **19** for the retention of an interior plate **21** seen more clearly in FIG. 3.

In FIG. 3 is seen a plate **21** having rivet holes such as **22**, a central clearance opening **23** adapted to accommodate shaft **13** of FIG. 1 and such conventional knob return spring arrangement, not shown, as may be desired and the elongated slots **24** and **25**. Inwardly turned longitudinal edges such as **26**, of these slots are seen more clearly in FIG. 1, and are used to retain fast nuts **27** seen also in FIG. 5.

In FIG. 5, the fast nut **27** is seen to comprise a shouldered head **28** adapted to engage edges **26**, a non-circular collar portion **29** having two parallel flats for retention in the slot **24** or **25** without rotation, and a tapered shank portion **31**. A threaded hole **33** is located axially therein.

Fast nuts **27** are seen in FIG. 2 to be slidable vertically with respect to escutcheon assembly **14**, and to engage through bolts **35** in the form of flat head machine screws, flush mounted in slots having mating chamfered edges **36** in the plate **40** of interior escutcheon assembly **15**, as seen also in FIG. 1. A cover plate **37** is retained in place over said screws **35** by screws, such as, **38** in order to present

a trim appearance, lock the screws **35** against loosening, and prevent unauthorized tampering with them.

From what has been said it will appear that the invention as described is capable of substantial vertical adjustment regardless of mis-location of through holes in the rail separating escutcheons **14** and **15**.

It should be understood that the invention is not so limited, however, for as seen in FIG. 4, a plate **39** may be used instead of the plate **21** of FIG. 3, and which has at least one of its slots **38** disposed horizontally. This is feasible in the instant invention because of the fact that the tapered shank **31** of fast nut **27** is capable of seating accurately in a misdirected through hole, while the plate **39** enables escutcheon **14** to be installed square and upright regardless of the reasonable emergent location of the through holes for bolts **35** on the exterior of the rail.

This invention has been described in terms of a specific illustrative example of the best means of practice thereof, but it will be evident that various modifications or alternatives will occur to those skilled in the art, which do not depart, however, from the essential spirit of the invention. It is therefore intended that the invention be limited only by the appended claims.

I claim:

1. A latch for a door comprising a pair of plates for a rail, one of said plates comprising a concave member having a plurality of slots for flush fastener means retention, and a cover plate thereover, said other plate comprising a concave member and an inner member coextensive therewith, means between said last named members for securing the same together, said inner member having elongated slots therein, the edges of said last mentioned slots being aligned and reentrant between said members, adjustable means for bearing on said last mentioned slots and movable therein to permit adjustment, fastener means for said adjustable means and knob latch means disposed in said plates.

2. A latch for fenestration closures comprising first and second escutcheon plates for a rail, said first plate comprising an inwardly concavely recessed member having a plurality of elongated and inwardly chamfered slots for flush fastener means retention and a cover plate thereover, said second escutcheon plate comprising an inwardly concavely recessed member and an inner member coextensive therewith, spacing and fastening means between said last named members and securing them in fixed relation, said inner member having a plurality of elongated slots therein, the edges of each of said slots being aligned and reentrant between said members, fast nuts having shoulders for bearing on said edges and movable in said slots for positional adjustment without rotation, flush fastener means retained in said first plate and engaging said fast nuts, and knob latch means retained in said plates.

3. The article of claim 2 wherein the plurality of elongated slots in said inner member comprises two.

4. The article of claim 3 wherein the plurality of elongated slots in said inner member are aligned.

5. The article of claim 3 wherein the plurality of elongated slots in said inner member are disposed on axes intersecting at an angle.

6. In a latching means for installation on a swingable closure member for architectural fenestration which comprises a pair of escutcheon plates secured on a rail by a plurality of fasteners going completely through the rail and retained in elongated slots associated with the escutcheons, a fast nut for the fasteners having a body with a tapered symmetrical terminal portion, a non-rotatable shank portion on the body having two parallel sides for slot engagement, a round, shouldered head for escutcheon retention, and an interiorly threaded axial hole.

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