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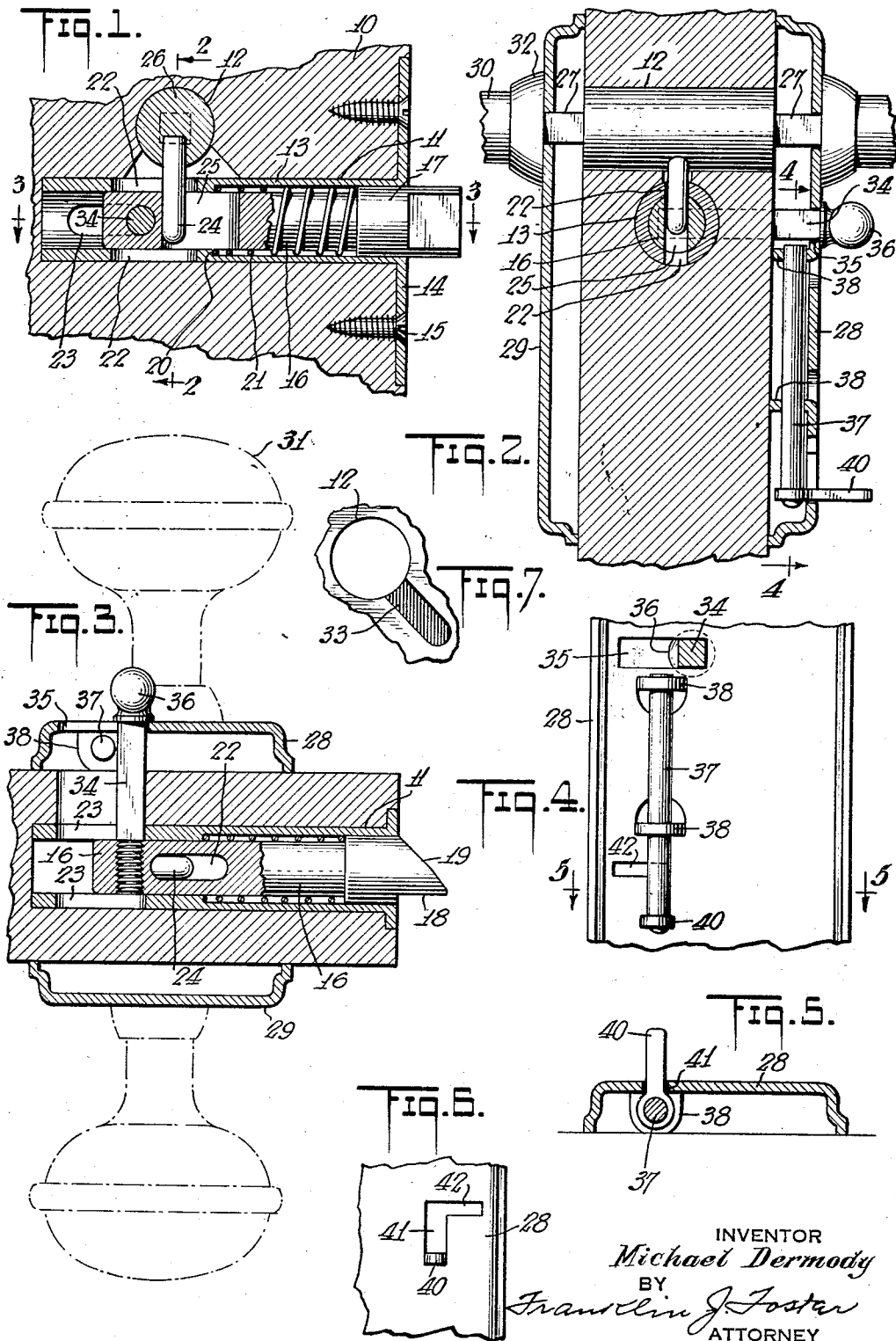
M. DERMODY

1,786,521

LATCH

Filed Nov. 6, 1928

2 Sheets-Sheet 1



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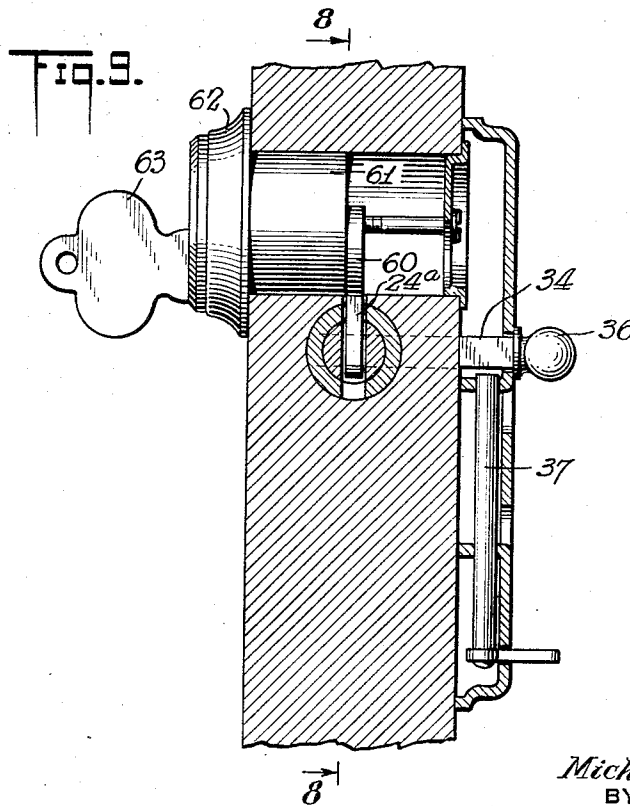
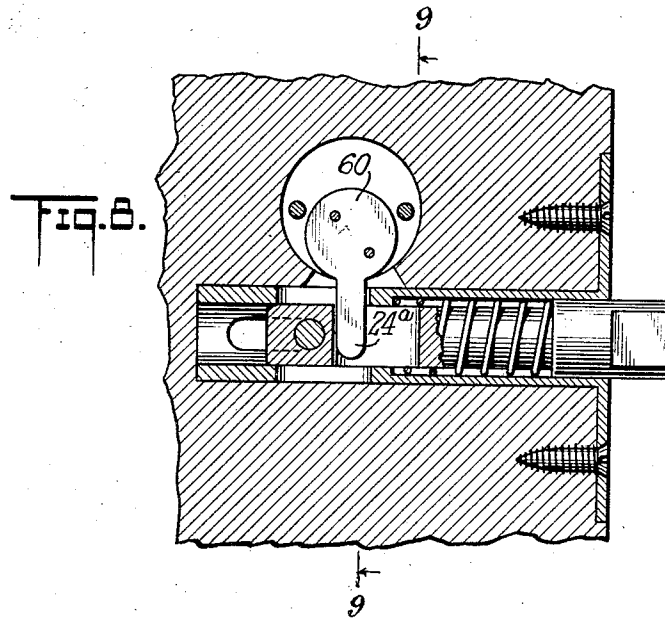
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UNITED STATES PATENT OFFICE

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LATCH

Application filed November 6, 1928. Serial No. 317,530.

The present invention in its broader aspects is applicable to latch bolt constructions in which a wide and varied range of handle or key controlled bolt-operating mechanisms may be used. The invention is more specifically designed, however, for embodiment in a latch of the knob or handle operated type equipped with means for positively preventing operation of the latch bolt from the outside of the door.

Not only is the device suitable for preventing retraction of the latch bolt by an outside knob but it is well adapted for embodiment in a latch bolt normally key controlled from the outside of the door yet capable of selective internal setting in such a manner that even a key is ineffective to withdraw the bolt.

More specifically the invention finds its preferred embodiment in a latch bolt mechanism which, considered by itself, embodies numerous desirable structural features, together with a manually operable bolt blocker mechanism for sustaining the bolt in either its projected or retracted position.

As concerns the latch bolt mechanism itself one object of the invention is to provide a mechanism which will do away with the present necessity for expensive door mortising operations and which requires little more than the drilling of two holes in the door, one transversely through the stile and the other inwardly from the edge of the stile.

The latch bolt, when applied, is capable of either right hand or left hand operation, being rotatable in its casing so that its camming face may properly coact with a keeper on the jam regardless of the direction in which the door is to be swung.

The bolt blocker mechanism is of extremely simple, practical construction. It may be conveniently associated with any ordinary escutcheon plate and is preferably substantially concealed by the escutcheon plate, leaving only a couple of small handles or knobs projecting through slots in the plate.

An important feature of the invention is the fact that when the latch bolt has been once applied it actually locks the operating spindle against lateral withdrawal from the door stop. The spindle and bolt are opera-

tively connected by a rotary movement of the spindle at the time that the bolt casing is only partially home and after the bolt casing is secured the spindle itself is held against withdrawal although free for rotation to the extent required for projecting and retracting the bolt.

The bolt blocker mechanism is so disposed that it cannot be attacked from the outside of the door with a jimmy, hacksaw, or other tool.

With the above noted and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts which will be more fully hereinafter described and pointed out in the claims.

The invention may be more fully understood from the following description in connection with the accompanying drawings, wherein:

Fig. 1 is a longitudinal sectional view through the bolt casing and associated mechanism showing the casing in its home position.

Fig. 2 is a sectional view at right angles to Fig. 1 and taken approximately on the line 2—2 thereof.

Fig. 3 is a sectional plan view on the line 3—3 of Fig. 1, showing the operating knobs in dotted lines.

Fig. 4 is a view of the bolt blocker mechanism taken from the inside of the escutcheon plate approximately on the line 4—4 of Fig. 2.

Fig. 5 is a transverse sectional detail on the line 5—5 of Fig. 4.

Fig. 6 is a fragmentary outside elevational detail showing the slot and the escutcheon plate through which the handle of the bolt blocker works.

Fig. 7 is a detail elevation showing the cut-out which supplements the transverse bore in the stile, in order that the coupling pin may be entered with the spindle.

Fig. 8 is a view similar to Fig. 1 but illustrating a key-controlled mechanism for the bolt.

Fig. 9 is a vertical sectional view taken approximately on the line 9—9 of Fig. 8.

Referring first to Figs. 1 to 7 of the drawings, I have used the reference numeral 10 to designate a door stile. Drilled inwardly from the edge of the stile is a relatively deep pocket or bore 11 and immediately above the pocket the stile is intersected by a transverse cylindrical bore 12. Bolt casing 13 of cylindrical formation is entered into the bore 11 and a plate 14 integral with the outer end of the bolt casing lies flush with the edge of the stile and is retained in position by screws 15.

The bolt 16 is also of circular cross-section throughout the major portion of its length including a relatively enlarged head 17, the projecting end of which is flattened at one side and beveled on the other side, as at 18 and 19, in order to produce the usual latch formation. Head 17 is guided for sliding movement in the relatively enlarged outer end of the bolt casing, the reduced inner end of the bolt casing defining a shoulder 20, against which a coiled expansion spring 21 is backed. This spring encircles the bolt, bears against the head 17, and normally acts to project the bolt.

Inwardly beyond the shoulder the bolt casing is provided with pairs of diametrically opposite slots 22 and 23 respectively. A radial finger or pin 24 extends through one of the slots 22 and into a corresponding transverse slot 25 in the bolt. Finger 24 is fixed to a rotatable spindle 26 journaled in the transverse bore 12. Said spindle includes the usual reduced extensions 27 to pass through the inner and outer escutcheon plates 28, 29 and rosettes 32 and having fixed thereto the knob shanks 30 and knobs 31.

The radial slot 33 which, as shown in Fig. 7, communicates with the bore 12, serves the purpose of permitting the finger 24 to pass from one face of the door to its operative position, as the spindle is entered into the bore.

In Fig. 1 it is apparent that rotation of the spindle in either direction is inoperative to disengage the finger 24 from the slot 25 in the bolt. When, however, the bolt casing is partially withdrawn finger 24 may be rocked out of engagement with the bolt and the casing upon rotation of the spindle. This feature is important since it affords a unique arrangement by which the bolt casing and bolt are engaged with the spindle through the finger 24 with the casing in partially retracted position. When the casing is forced home and secured by the screws 15 it is impossible to remove the spindle, and the bolt and spindle are positively coupled and held against disconnection by the bolt casing. Obviously an intruder cannot get at the bolt casing to withdraw the same.

One of the slots 23 serves to accommodate the elongated handle arm 34 having its inner end screwed into or otherwise secured to the

bolt 16. The outer end of the arm 34 works through a slot 35 in the escutcheon plate and carries an operating knob 36.

Preferably the inner escutcheon plate is rather deeply offset and slotted for the accommodation of a dogging mechanism which coacts with the stud 34. Said mechanism may consist of a dogging bolt 37 guided for vertical sliding movement in ears 38 turned inwardly from the escutcheon plate 28.

A handle member 40 fixed to the lower end of the bolt 37 works in a generally L-shaped slot in the escutcheon plate, this slot including a vertical section 41 and a horizontal section 42 communicating with the top of section 40. Bolt 37 normally is held in the inoperative position of Fig. 2 by gravity. By grasping the handle 40 and lifting the bolt upwardly however, the upper end of the bolt becomes effective to block movement of the stud 34. Bolt 37 is held in this blocking position by simply rotating it until the handle 40 enters the slot 42. With the blocker bolt 37 in its elevated position, the latch bolt may be held either in retracted or projected position, depending upon the position of the latch bolt and consequently the stud 34 at the time bolt 37 is shot upwardly.

While it is of no special consequence in the disclosure of Figs. 1 to 7, the knob 36 may itself be used for projecting and retracting the latch bolt 16. In the form of the invention shown in Figs. 8 and 9 the handle of the stud is so used as part of a night latch.

In Figs. 8 and 9 I have shown the same principle embodied in a night latch and in these figures have used similar reference numerals on similar parts of the latch bolt and bolt blocker mechanisms. With this form of the invention, a finger 24a, corresponding to the finger 24, is fixed directly to the key cylinder 60 of a conventional key-controlled rotary tumbler lock, the casing of which is shown at 61, the escutcheon plate at 62 and the key at 63. Here the key 63 acts through the finger 24a to actuate the latch bolt from the outside of the door and the knob 36 of the stud 34 serves as a handle to actuate the latch bolt from the inside of the door. Blocker bolt 37, when shifted into the path of the stud 34 acts to prevent key-controlled movement of the latch bolt. The latch bolt blocking may be effected with the latch bolt in either retracted or projected position, but of course is particularly useful as a night latch for preventing opening of the door from the outside, even with a key.

What I claim is:

1. In a latch an escutcheon plate, a sliding bolt, a laterally projecting actuating arm fixed to the inner end of the bolt and a sliding dog movable into the path of the arm to selectively dog the movement of the bolt to projected or retracted position, the slid-

able dog being normally gravitationally held out of dogging position and means integral with the escutcheon plate to support it in dogging position.

5 2. In a latch a sliding bolt, a laterally projecting actuating arm fixed to the inner end of the bolt and a dogging member movable into the path of the arm to selectively dog the movement of the bolt to projected or
10 retracted position, the slidable dog being normally held in inoperative position and being mounted for rotary movement when in operative dogging position, an extension on the dogging member and means engageable
15 with the extension to retain the member in operative dogging position upon rotary movement of the dog while in such position.

3. In a latch construction, a slide bolt and a laterally projecting arm fixed thereto, a
20 dog adapted to engage the arm to prevent movement of the slide bolt, said dog being mounted for sliding movement and including a handle portion, means engageable with the
25 handle portion to sustain the dog in operative dogging position.

Signed at New York, in the county of New York and State of New York, this 1st day of November, A. D. 1928.

MICHAEL DERMODY.

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