April 24, 1951 E. M. MILLER 2,549,983

DEADLOCKING LATCH

Filed March 11, 1948 2 Sheets-Sheet 1

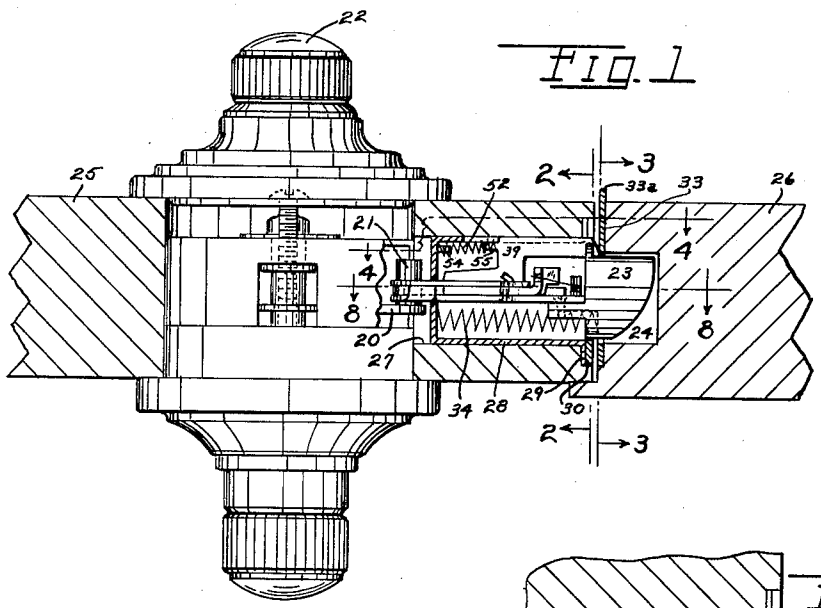


FIG. 1

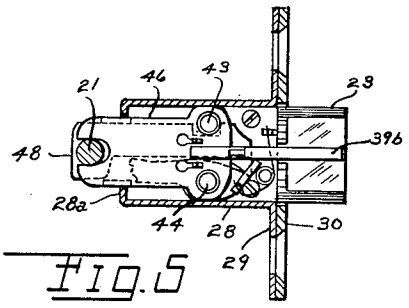


FIG. 5

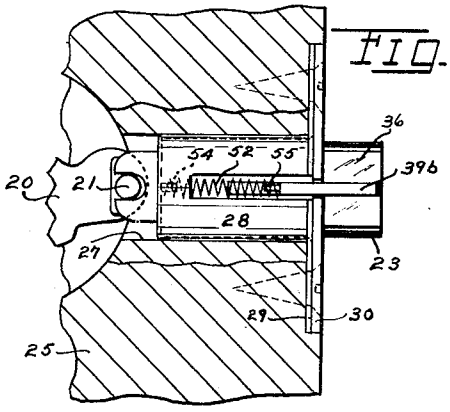


FIG. 4

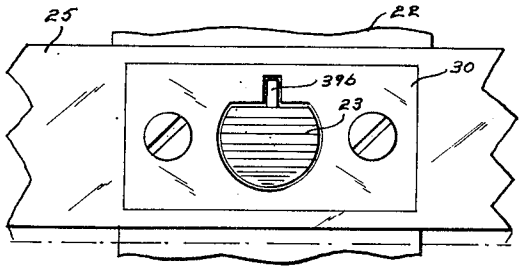


FIG 2

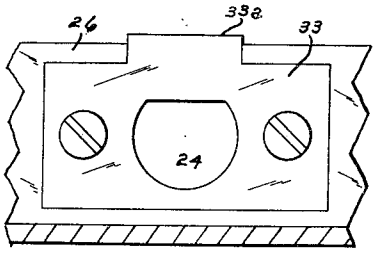


FIG. 3

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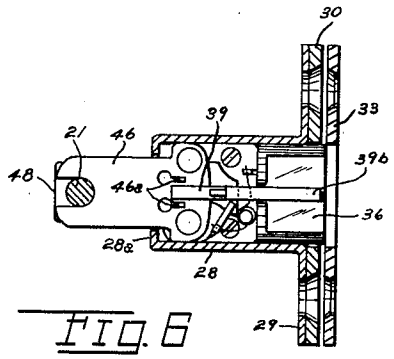


FIG. 6

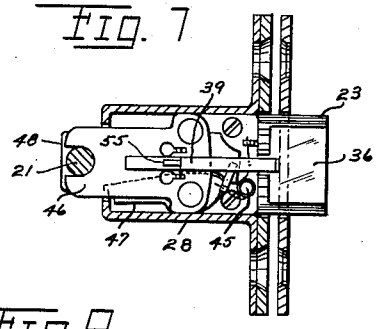


FIG. 7

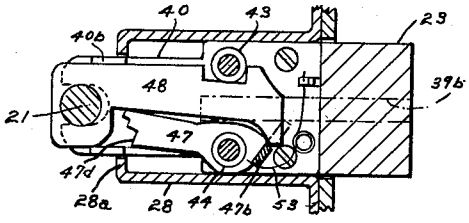


FIG. 9

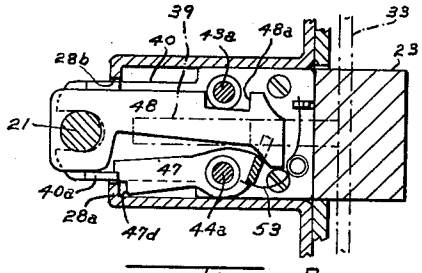


FIG. 8

FIG. 10

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2,549,983

DEADLOCKING LATCH

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Application March 11, 1948, Serial No. 14,342

2 Claims. (Cl. 292—167)

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This invention relates to locks, and more particularly to lock bolts of the dead locking, night latch type.

An object of the invention is to provide a simple and efficient dead locking bolt for a lock of the character indicated, utilizing novel and improved dogging leverage means.

Other objects and advantages will be apparent from a study of the following description in conjunction with the accompanying drawings, in which:

Fig. 1 is a horizontal section through a fragmentary portion of a door and door jamb, illustrating a dead locking latch bolt embodying my invention;

Figs. 2, 3 and 4 are sectional views taken respectively on the lines 2—2, 3—3 and 4—4 of Fig. 1;

Fig. 5 is a view similar to Fig. 4 but with certain portions cut away or removed to illustrate internal structure;

Figs. 6 and 7 are views similar to Fig. 5, but showing different operating positions of some of the movable elements;

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 1;

Fig. 9 is a view similar to Fig. 8 but showing different operating positions of some of the movable parts; while,

Fig. 10 is an exploded perspective view of a number of the operating elements of my novel and improved dead locking bolt.

In the following description the terminology "dead locking bolt" comprises a lock bolt normally urged to locking engagement with a keeper, and having means preventing its forcible disengagement with said keeper, said means however being rendered ineffective to prevent normal retraction of the bolt by operation of the inner door knob. The bolt may be retracted by means of the outer door knob after suitable release operation of a lock.

A bolt of the character just mentioned may be used in conjunction with any of the usual outer door locks for residences, or the like, although I prefer a lock mechanism such as illustrated and described in my copending application, Serial No. 14,341, filed March 11, 1948. Such mechanism is shown only in outline herein, there being a fragmentary showing in Fig. 1 of a bolt retracting means 20 to which is affixed a pin 21. It will be understood that appropriate rotation of inner knob 22, for example, produces movement of pin 21 to the left so as to withdraw bolt head 23 from keeper aperture 24 whereby the door 25 may be swung away from jamb 26.

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The means whereby motion of link 20 is transmitted to latch bolt 23, and the means for deadlocking the latch bolt, will now be described.

The edge of door 25 is provided with an inwardly extending aperture 27 in which is fixed a tubular bolt housing 28, outwardly flanged at its periphery 29 and secured to the door by a face plate 30 in conventional fashion (Figs. 1, 2 and 5). The door jamb carries a striker plate 33 having an aperture therein in alignment with keeper aperture 24. In normal operation, when the door is closed, bolt 23 is cammed to retracted position by the leading edge 33a of the striker plate, and spring 34 biases the bolt to door locking position in keeper aperture 24.

The bolt, and cooperating dead locking means are clearly shown in exploded perspective in Fig. 10, and in various working positions in Figs. 2 to 9.

The latch bolt is provided with a beveled leading face 35, a flat trailing face 36, a stop flange 37 which is maintained in normal abutment with face plate 30 by spring 34, and a pair of rearwardly extending shoulders 38 to which is attached the mechanism for operating a dead locking lever or slider 39. A base plate 40 is attached to shoulders 38 by screws, rivets or otherwise. The base plate might be integral with the bolt head, but may be more readily fabricated separately. Base plate 40 carries three posts 43, 44 and 45. Near their tips posts 43 and 44 have portions 43a and 44a of reduced diameter, the shoulders thereby provided serving to support a top plate 46, spaced somewhat from base plate 40, and in fixed relationship thereto. A dog lever 47 and a dog release link 48 are housed between base plate 40 and top plate. The dog lever is perforated at 49 to receive post 44, and be pivoted thereon for limited outward swinging movement, as indicated for example in Figs. 7 and 9. Outward swing of dog 47 is limited by contact of tip 47a of the dog with a tab 40a on base plate 40. Tabs 40a and 40b likewise serve as supports and spacers for the front end of plate 46. Post 45 on base plate 40 carries a spring 53 the free end of which abuts a finger 47b on dog 47, and normally biases the finger end 47b inwardly, and the tip end 47a outwardly.

The dog release link 48 lies in the same plane and adjacent to dog 47. Link 48 has a lost motion connection with plate 40, the link being cut away at 48a to receive post 43, and the cut away recess being somewhat longer than the diameter of post 43, so as to permit limited endwise movement of link 48. The edge portions 47c and 48c of dog 47 and link 48 respectively (Figs. 8, 9 and

10) lie adjacent each other. In the position of Fig. 8 the shoulder 47*d* of the dog is longitudinally aligned with the inturned rear wall 28*a* of housing 28. When so aligned, the bolt cannot be retracted, even forcibly with a jimmy, but the aperture 28*b* in rear wall 28*a* is large enough to permit retraction of the bolt assembly when dog shoulder 47*d* is in the position shown in Fig. 9.

Referring to Figs. 1, 8 and 9, pin 21 is operatively connected to the door knob, and seats in aperture 51 in link 48. Movement of link 48 to the left responsive to door knob rotation first takes up the loose motion between recess 48*a* and post 43*a*, and while so doing inclined face 48*c* of the link forcibly abuts the complementary inclined face 47*c* of the dog. This abutment produces a clockwise rotation of dog 47, against the bias of spring 53, so as to draw shoulder 47*d* inwardly to the Fig. 9 position. When the aforesaid lost motion is taken up, the whole bolt assembly is retracted, and the bolt head 23 is freed from the keeper.

The bolt mechanism so far described permits retraction of the bolt only by means of the outer or inner knob, and the door could be closed only by turning the knob and keeping it in the turned position until the bolt head registers with the keeper. To permit the door to be closed by a simple slamming motion, a dead lock slider control, herein termed a dead lock lever 39, is provided which in certain operative positions is effective upon dog 47 to keep it swung inwardly, so that the door may be pulled or pushed to fully closed position without turning the knob.

Lever 39 has a short body portion 39*a*, an inner leg 39*c* and an outer leg 39*b*. The outer leg 39*b* passes through a slot 37*a* in stop flange 37 and rides on the flat face 36 of theh bolt head 23. The inner leg 39*c* rides on the exposed face of top plate 46 being guided between two tabs 46*a* on the plate. As best seen in Figs. 1 and 4, the body portion is normally biased against stop flange 37 by a helical spring 52 the ends of which are telescoped on projections 54 and 55 carried respectively by wall 28*a* of the housing, and by the body 39 of the dead lock lever.

While the door is in the open position, as best seen in Figs. 4 and 5, the body 39*a* obstructs the tip 47*e* of dog 47 so as to prevent spring 53 from swinging dog 47 to dogging position. As long as the dead lock lever is in this position the bolt can be freely cammed inwardly as for instance by slamming the door. When the door is slammed, however, the bolt head 23 and dead lock lever 39 are cammed inwardly by striker plate 33. When the door comes to a stop against the stop bead 26*a* on jamb 26 (Fig. 1) the bolt head 23 snaps outwardly into keeper aperture 24, but the dead lock lever 39 is still blocked by the striker plate, so that all parts of the bolt assembly move to the right with respect to the dead lock lever. As soon as finger 47*b* clears the body 39*a* of lever 39, it snaps inwardly under leg 39*b* and the parts assume the position shown in Fig. 7, the shoulder 47*d* of the dog 47 moving outwardly to dogging position. In such position the bolt cannot be forced inwardly. The bolt may however be retracted by operation of the retracting link 48 by the knob, the dog being thereby pulled inwardly by cam action of the edge faces 47*c* and 48*c* as heretofore explained, during which action spring 52 advances the body portion 39*a* of lever 39 so that it again holds dog 47 out of dogging position until the door is again closed.

From the preceding description it will be apparent that without dead lock lever 39, dog 47 would be at all times effective to block forcible retraction of the bolt head in any way except by operation of the door handle. The interposition of the dead lock lever 39 permits the bolt head to be cammed inwardly at any time except when the bolt head is in the keeper aperture while the dead lock lever is intercepted by the striker plate.

In the drawings, Fig. 5 shows the bolt and dead lock lever position when the door is swinging freely; Fig. 6 shows the parts when fully retracted by the door knob; Figs. 1 and 7 show the parts when the bolt head is in the keeper aperture, but the dead lock lever is held back by the striker plate.

What I claim is:

1. A dead locking night latch mechanism for a latch bolt which is spring-biased forwardly to seat in a keeper aperture in a door jamb, said mechanism comprising a housing, a bolt retractor link having a lost motion connection with said bolt including a post connected with said bolt and a recess in said link embracing said post and wider than the diameter of said post, a dog pivotally carried on said bolt and having a free end biased to swing away from said bolt into a bolt blocking position engaging a portion of said housing whereby to prevent rearward retraction of said bolt, a dead locking lever slidably movable forwardly and rearwardly on said bolt but normally spring biased forwardly, said lever when in forward position being in engagement with said dog and effective upon said dog to prevent said dog from assuming bolt-blocking position, said dead locking lever being disposed to operatively abut the edge of said keeper aperture when said bolt enters said keeper aperture whereby to move said lever rearwardly upon and relative to said bolt, and out of engagement with said dog to thereby permit the dog to block forcible retraction of said bolt, said retractor link and said dog lying adjacent each other and having complementary edge face portions of cam-like character disposed to be brought into operative contact with each other while said link is being rearwardly retracted to take up said lost motion, said operative contact and continued rearward movement of said link relative to said bolt causing said dog to be swung inwardly from bolt-blocking position.

2. A dead locking night latch mechanism for a door-mounted latch bolt which is spring biased to seat in a keeper aperture in a door jamb, said mechanism comprising a door-knob-operated part, a bolt retractor link connected to said part and having a lost motion connection with said bolt including a post connected with said bolt and a recess in said link embracing said post and wider than the diameter of said post, a dog pivotally mounted on said latch bolt, a spring normally biasing said dog towards a bolt-blocking position, said dog and said link lying adjacent each other and having complementary edge portions disposed to be brought into operative abutment by rearward motion of said link relative to said bolt while taking up said lost motion, and effective upon such abutment to move said dog from bolt-blocking position and to permit retraction of said bolt, a dead lock lever extended with said bolt when said door is open and depressed by said keeper when said door is closed, said dead lock lever when extended effective upon said dog to prevent its spring bias-

ing said dog to bolt-blocking position, and said dead lock lever when depressed effective upon said dog to permit its spring to bias said dog to bolt-blocking position, whereby when said bolt is in door locking position in said keeper, said bolt cannot be forced out of said keeper except by rearward retraction of said link.

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REFERENCES CITED

The following references are of record in the file of this patent:

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