May 30, 1944. R. C. SPAIN 2,350,306

LOCK

Filed Sept. 26, 1941

Fig. 1.

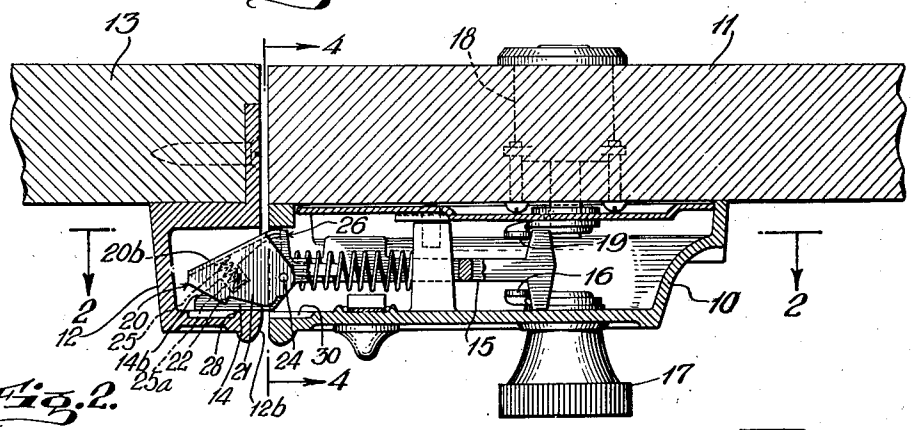


Fig. 2.

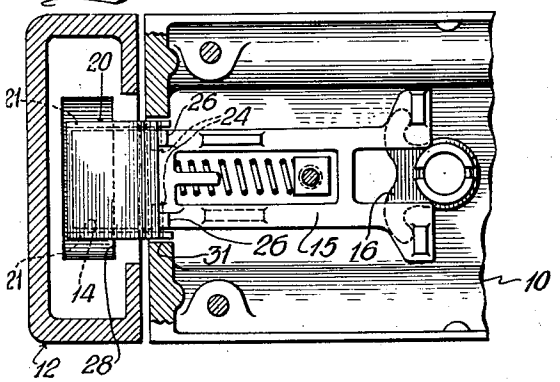


Fig. 4.

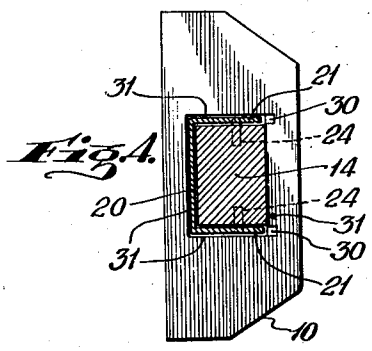


Fig. 3.

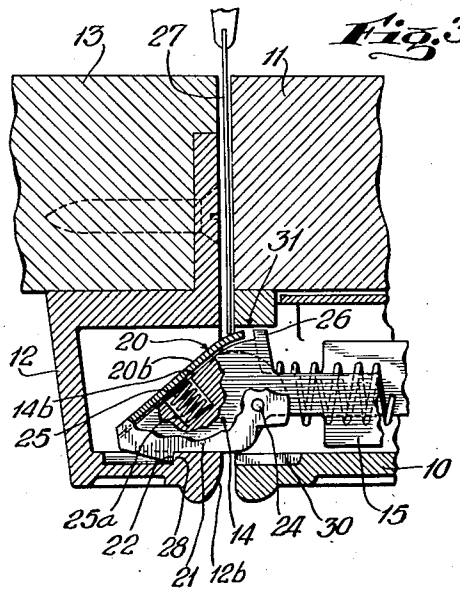


Fig. 5.

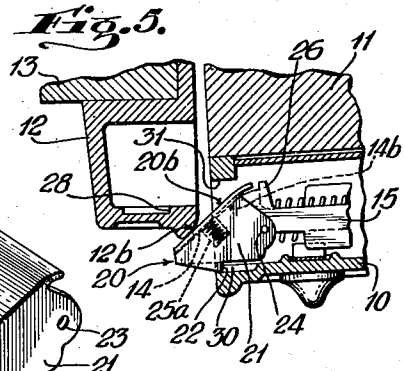
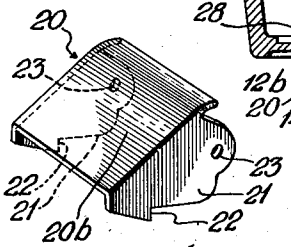


Fig. 6.



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UNITED STATES PATENT OFFICE

2,350,306

LOCK

Roy C. Spain, Michigan City, Ind., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn., a corporation of Connecticut

Application September 26, 1941, Serial No. 412,407

7 Claims. (Cl. 70—418)

My invention relates to a lock of the type in which a latch bolt carried by a casing is adapted to enter a strike. More particularly, my invention relates to means carried by the latch bolt whereby it may be interlocked with the strike to prevent the movement of the latch bolt out of the strike as by a jimmying tool.

I realize quite well that the prior art contains patents in which are shown structures for obtaining results similar to those herein set forth. One such patent is that to Rush No. 1,800,662 issued on April 14, 1931 in which a dog slidably mounted on a latch bolt cooperates with a portion of the lock casing to prevent retraction of the latch bolt. My invention differs from Rush and other prior art structures in that a very simple dog carried by the latch bolt, and preferably pivotally mounted thereon, is adapted to interlock the latch bolt with the strike into which the latch bolt is adapted to enter. A further feature of my invention which distinguishes it from the prior art, is the provision of means for permitting the retraction of the latch bolt and its dog when the dog is moved relatively to the latch bolt by contact with the strike, as the door on which the latch bolt and its casing are mounted, is moved into closed position.

Still a further feature of my invention resides in the simple construction thereof, whereby it may be manufactured at a relatively low cost and applied to relatively inexpensive latches.

I have thus described my invention generally in order that the detailed construction thereof which I shall hereinafter set forth may be better understood. Naturally, my invention may be embodied in physical forms other than that which I shall herein show and describe, so that my patent claims should not be limited to the detailed structure of this application.

Referring now to the drawing, Fig. 1 is a horizontal section through my lock, showing it applied to a door and with the latch bolt entered into a strike mounted on the jamb of the door. Fig. 2 is a sectional view taken substantially along the lines 2—2 of Fig. 1. Fig. 3 is an enlarged view of parts of Fig. 1 showing a jimmying tool, and the manner in which it is adapted to actuate the dog. Fig. 4 is a section taken along lines 4—4 of Fig. 1. Fig. 5 illustrates the action of the parts when the door is swung into closed position and the dog and latch bolt impinge against the strike to be retracted thereby. Fig. 6 is a perspective view of the dog.

Referring now more particularly to the drawing, a lock casing 10 is shown applied to a door 11 in a conventional manner, while a strike 12 is applied in the usual way to a jamb 13. Mounted within the casing 10 is a latch bolt 14 having a tail 15 whereby it is readily retracted by a cam 16 forming part of a thumb turn 17 on the inside of the door. Through means of a standard type of cylinder lock 18 and its cam 19, the latch bolt 14 may be retracted from the outside of the door 11. Those skilled in the art will readily appreciate that what has so far been described is merely the usual type of night latch construction, and it is to this type of construction that my invention is best applied. It may, however, be applied to latch bolts of mortise and other types of locks, all of which will be clearly understood by those skilled in the art.

In Fig. 6 I show a dog 20 substantially U form, with the legs 21 of the U equipped with locking detent portions 22. Each of the legs is bored at 23 whereby through pins 24, the dog 20 may be mounted on the latch bolt 14 as illustrated in the several figures of the drawing. The latch bolt 14 is centrally bored at 25*a*, and mounted within this bore is a spring 25 which presses against the dog 20 urging it to its position of Fig. 1, in which the bar portion 20*b* of the U dog 20 is in protective relation to the beveled face 14*b* of the latch bolt 14. The lugs 26 on the latch bolt 14 limit the movement of the dog 20 under the pressure of the spring 25, to the position of Fig. 1.

Referring now to Fig. 3 it will be noted that a jimmying tool 27 is in position between the door 11 and the jamb 13, it being the purpose of the jimmying tool to separate the door and jamb and to force the latch bolt 14 out of the strike 12. It will be noted however, that the jimmying tool 27 impinges against the protective bar portion 20*b* of the U dog 20 moving the dog to the position illustrated, against the force of spring 25, and bringing the detent portions 22 of the dog 20 against locking shoulders 28 formed on the strike 12. It is now quite obvious that the latch bolt 14 and its dog 20 are completely interlocked with the strike 12, so that it is impossible to jimmy the lock in the usual manner in which locks of this type are attacked.

Those skilled in the art will fully appreciate that it is necessary to provide means whereby the latch bolt 14 and its dog 20 may move into the lock casing 10 when the dog and latch bolt impinge against the strike in the closing movement of the door 11. This action is clearly illustrated in Fig. 5, in which the dog 20 is shown against the cam surface 12*b* of the strike 12, and acting

against the latch bolt to retract it into the casing 10.

In the particular position, the latch bolt 14 has actually been retracted into the casing 10 about one half the required distance, and the spring 25 between the dog 20 and the latch bolt has been compressed. It will now be noted that the casing 10 is provided with slots or grooves 30 into which the detent portions 22 of the legs of the U shaped dog 20 may enter to permit retraction of the latch bolt and the dog into the casing when the dog 20 is in its relation to the latch bolt shown in Fig. 5. In Fig. 4 the slots 30 are illustrated as forming extensions of the main opening 31 in the casing 10 through which the bolt 14 and its dog 20 are projected.

I believe that the construction of my invention will now be quite clear to those skilled in the art.

I now claim:

1. In a lock of the class described, a latch bolt, a strike into which said latch bolt enters, a unitary dog pivoted on said latch bolt for integral sliding movement therewith while adapted for limited pivotal movement relatively to said latch bolt, and a detent surface formed as a part of said unitary dog adapted to interlock with said strike when movement relatively to said latch bolt is imparted to said dog as by a jimmying tool.

2. In a lock of the class described, a latch bolt, a strike into which said latch bolt enters, a unitary dog pivoted on said latch bolt for integral sliding movement therewith while adapted for limited pivotal movement relatively to said latch bolt, a spring maintaining said dog in a predetermined position in which it does not interfere with the sliding movement of the latch bolt, and a detent surface formed as a part of said unitary dog adapted to interlock with said strike when said dog is moved relatively to said latch bolt against the pressure of said spring as by a jimmying tool.

3. In a lock of the class described, a latch bolt, a strike into which said latch bolt enters, a unitary dog pivoted on said latch bolt for integral sliding movement therewith while adapted for limited pivotal movement relatively to said latch bolt, said dog having a protective surface adapted to overlie the usual strike contacting beveled surface of the latch bolt, a spring maintaining said dog in a predetermined position with its protective surface spaced from said latch bolt beveled surface whereby a jimmying tool will move said dog against the pressure of said spring to force said protective surface against the beveled latch bolt surface, and a detent surface on said unitary dog adapted to interlock with said strike when said dog is so moved.

4. In a lock of the class described, a casing, a strike, a latch bolt slidable in said casing and adapted to enter said strike, a unitary dog pivoted on said latch bolt for integral sliding movement therewith into the strike while adapted for limited pivotal movement relatively to said latch bolt, a spring maintaining said dog in a predetermined position in which it does not interfere with the sliding movement of the latch bolt out of said strike, and a detent surface on said unitary dog adapted to interlock with said strike when said dog is moved relatively to said latch bolt against the pressure of said spring as by a jimmying tool.

5. In a lock of the class described, a casing, a strike, a latch bolt slidable in said casing and adapted to enter said strike, a unitary dog pivoted on said latch bolt for integral sliding movement therewith into the strike while adapted for limited pivotal movement relatively to said latch bolt, said dog having a protective surface adapted to overlie the usual strike contacting beveled surface of the latch bolt, a spring maintaining said dog in a predetermined position with its protective surface spaced from said latch bolt beveled surface, a strike engaging surface on said unitary dog maintained out of strike engaging position when said dog is in said predetermined position, said casing having openings to accommodate said strike engaging surface whereby to permit retraction of said bolt and said dog into the casing when said dog is moved relatively to the latch bolt as it impinges against the strike when the lock casing is moving into locking alignment with said strike, said dog being in said predetermined position when said bolt enters said strike, said strike engaging surface of said unitary dog engaging said strike to lock said latch bolt against movement when said dog is moved as by a jimmying tool.

6. In a lock, a casing, a latch bolt slidable in said casing, a strike into which said bolt enters, a U shaped dog pivoted on said latch bolt, the legs of said U dog being adapted for interlock with said strike when said bolt and dog are in said strike, the bar portion of said U dog overlying the usual beveled strike contacting portion of the latch bolt, a spring maintaining said dog in a predetermined position with its bar portion spaced from said latch bolt beveled surface whereby a jimmying tool will move said dog against the pressure of said spring to force said bar portion against the beveled latch bolt surface, the legs of said U dog then interlocking with said strike.

7. In a lock, a casing, a latch bolt slidable in said casing, a strike into which said latch bolt enters, a U shaped dog pivoted on said latch bolt, the legs of said U dog having detent portions adapted to interlock with said strike and the bar portion of said U dog overlying the usual beveled strike contacting portion of the latch bolt, a spring maintaining said dog in a predetermined position with its bar portion spaced from said latch bolt beveled surface, the strike interlocking legs of said U dog being maintained out of strike interlocking position when said dog is pressed by said spring into said predetermined position, said casing having slots to accommodate said legs whereby to permit retraction of said latch bolt and said dog into the lock casing when said dog and latch bolt impinge against the strike as the lock casing is moving into locking alignment with said strike, said bolt and dog sliding thereafter into said strike, said interlocking legs of said U dog interlocking with said strike thereafter when said dog is moved as by a jimmying tool relatively to said latch bolt.

ROY C. SPAIN.