April 5, 1938. J. P. PETERSON 2,113,121

LOCK

Filed June 22, 1934 2 Sheets-Sheet 1

FIG. 1

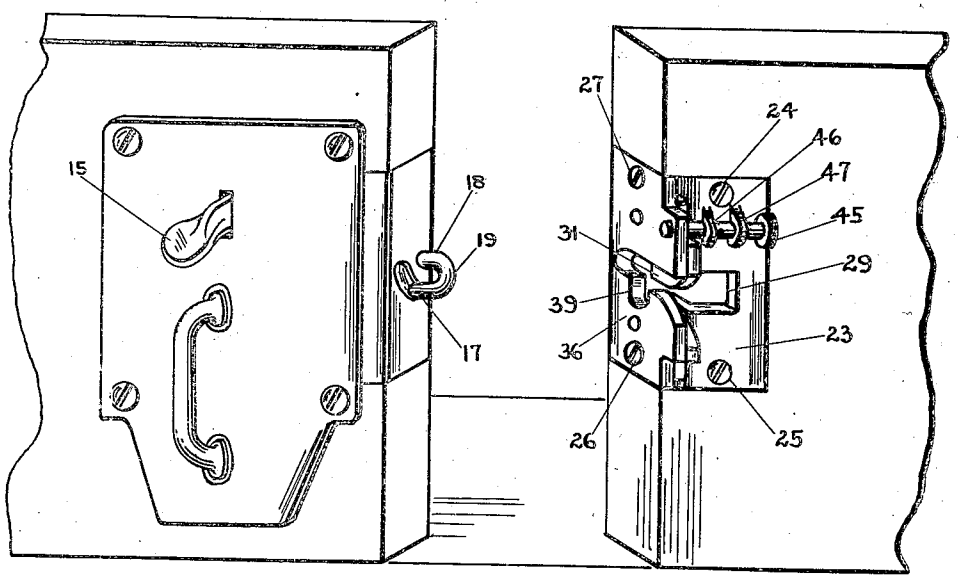


FIG. 2

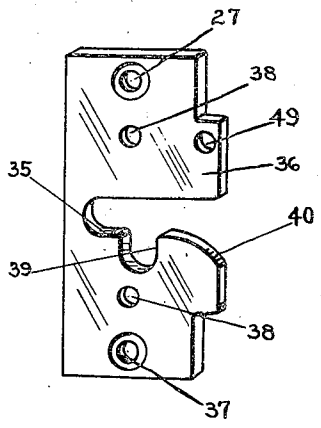


FIG. 3

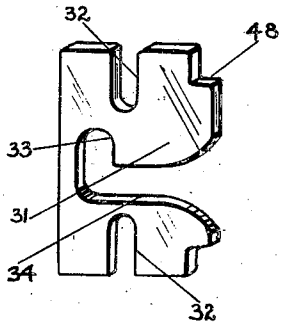
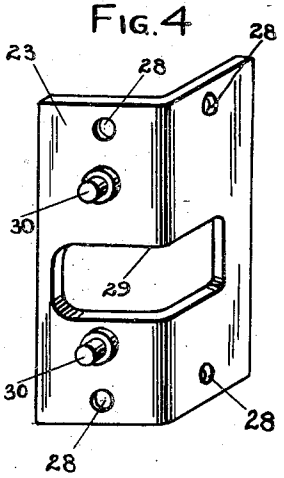


FIG. 4



INVENTOR
J. P. Peterson

BY

ATTORNEY

April 5, 1938. J. P. PETERSON 2,113,121

LOCK

Filed June 22, 1934 2 Sheets-Sheet 2

FIG. 5

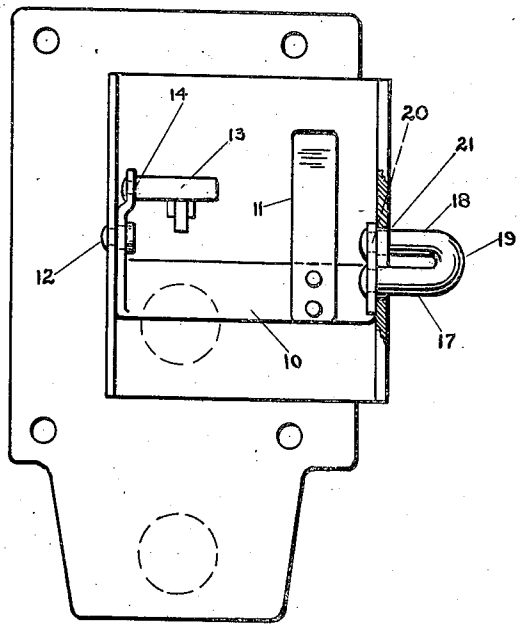


FIG. 6

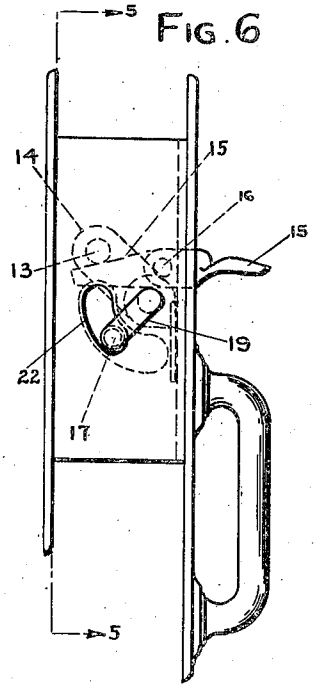


FIG. 9

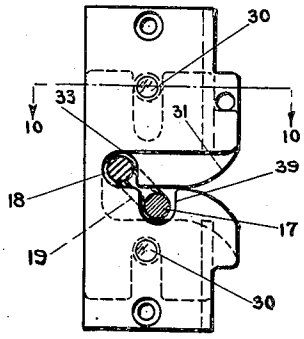


FIG. 8

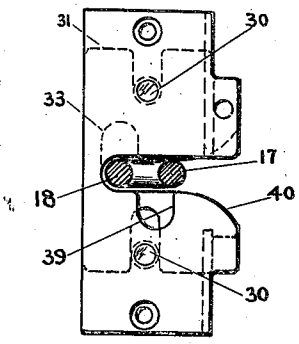


FIG. 7

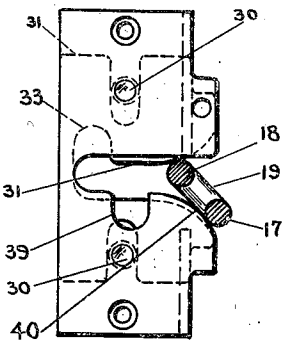
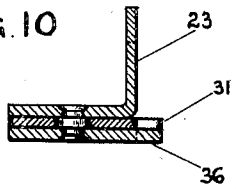


FIG. 10



BY

INVENTOR
J. P. Peterson
A. H. Golden
ATTORNEY

Patented Apr. 5, 1938 2,113,121

UNITED STATES PATENT OFFICE

2,113,121

LOCK

Jonas P. Peterson, Hallock, Minn., assignor to The Yale & Towne Mfg. Co., Stamford, Conn., a corporation of Connecticut

Application June 22, 1934, Serial No. 731,849

21 Claims. (Cl. 292—226)

This invention relates to locks, and more especially to locks of the type in which the bolt is adapted to interlock with the strike so as to form a jimmy-proof and deadlocking connection therewith.

More particularly, my invention relates to a lock having a bolt which is rotatable into and out of locking engagement about a fixed axis which is preferably the longitudinal axis of the bolt. Preferably, the bolt consists of a plurality of locking bolt portions which are arranged parallel to the axis of rotation. More in detail, the invention comprises a lock having a bolt which has a pair of parallel leg portions connected by an arcuate portion, this bolt being cooperable with a strike for locking the parallel leg portions thereto, and preferably forming a jimmy-proof engagement with the arcuate portion. In operation the bolt is adapted to impinge against a strike, and to be rotated on its longitudinal axis so as to enter a slot in the strike, and then to assume a rotated locking position relatively to a cooperating portion of the strike, the bolt being releasable therefrom by rotation on its axis out of the cooperating portion of the strike.

The construction of the strike in its preferred embodiment also forms a part of my invention and comprises a pair of relatively movable portions, each of which is adapted to interlock with the bolt. In detail, the strike comprises a fixed portion and a second portion slidable relatively thereto. The fixed portion is adapted to cam the bolt relatively to the strike and into a position wherein the bolt will be spring pressed into a locking slot of the strike. As the bolt moves into this locking slot, it is adapted to actuate the movable strike portion so that it in turn will also move into interlocking relation with the bolt. In the actual lock, the fixed strike portion locks one leg of the bolt while the movable portion locks the other leg. It will be quite obvious that the underlying principle of my invention may be applied to various shapes and types of dead bolts as well as latches, and that the strike used may also take various forms.

Referring now more particularly to the drawings, Fig. 1 is a perspective view of the strike and lock with the lock moving in a direction to interlock with the strike. Fig. 2 is a perspective view of the fixed portion of the strike while Fig. 3 is a perspective view of the movable portion of the strike, and Fig. 4 is a perspective view of the mounting portion of the strike upon which the fixed and movable portions are mounted. Fig. 5 is a view along the lines 5—5 of Fig. 6 and shows the inside mechanism of the lock. Fig. 6 is a side view and illustrates the latch operating mechanism. Figs. 7, 8 and 9, in the order indicated, illustrate the operation of the strike and bolt. Fig. 10 is a view along the lines 10—10 of Fig. 9.

Referring now more particularly to the drawings, and especially Figs. 5 and 6, reference numeral 10 indicates a bolt adapted to be spring pressed by a leaf spring 11 into a locking position. Naturally, other types of spring mechanism are available. The bolt is pivotally mounted at 12 on the casing and carries an extension member 13 riveted thereto at 14, which extension member is operable by the thumb operated lever 15 pivoted at 16, in a manner well known to the art. The bolt 10 has a pair of parallel locking portions 17 and 18 interconnected by an arcuate portion 19, the two bolt portions being also connected and braced by the bar member 20. The bolt portion 18 acts additionally as a bearing for the entire bolt 10, being mounted for this operation in the bearing portion 21 of the casing.

It is thus readily seen that the bolt 10 is actually supported on the casing at points 12 and 21 so as to rotate on a fixed axis, which axis is incidentally the axis of the locking portion 18 of the bolt. It will be appreciated that the spring 11 will be adapted to actuate the bolt into its position of Figs. 5 and 6 from which position it will be movable by the thumb lever 15, this movement being limited by the extent of the slot 22 relatively to which the bolt portion 17 rotates.

The strike with which my locking bolt is adapted to cooperate is best shown in Figs. 1, 2, 3 and 4. The strike comprises a base or mounting member 23 shown in Fig. 4 which is held by screws 24, 25, 26 and 27 in fixed relation to the door jamb, these screws cooperating with the holes 28 in the strike portion. The base or mounting member 23 is preferably slotted as at 29 for the entrance of the bolt and is equipped with a pair of supporting studs 30.

Mounted on these supporting studs 30 is the movable portion 31 of the strike which is maintained in sliding relation to the stud 30 by its slots 32. This portion 31 of the strike has a locking slot 33 for locking cooperation with the bolt, and has a bolt opening 34 which is adapted to be aligned with the bolt opening 35 of the fixed strike portion 36 illustrated in Fig. 2. This fixed strike portion is adapted to be held by the screws 26 and 27 cooperating with the holes 37, in fixed relation to the mounting member of Fig. 4. The portion 36 is also drilled as at 38 for mounting on the fixed studs 30, and when so mounted will maintain the

movable portion 31 in sliding relation thereto. Preferably, the relation of the fixed and sliding members 36 and 31 respectively, is such that the member 31 will be maintained frictionally between the mounting member 23 and the fixed strike member 36, but will be at liberty to slide when properly actuated as will be indicated later on. The fixed strike member 36 is also equipped with a locking slot 39 whose function will be shown presently.

Referring now to Figs. 7, 8 and 9, I illustrate the operation of my mechanism. In Fig. 7 the bolt 10 with its locking portions 17 and 18 and with its arcuate portion 19, are shown in contacting relation to the strike. It will be observed that the fixed strike portion 36 will be contacted at its cam sector 40 and will cam the bolt against the pressure of the spring 11 into the position of Fig. 8. As soon as the bolt reaches the position of Fig. 8, it will be observed that the locking slot 39 of the fixed strike member 36 will be just below the portion 17 of the bolt and in a position for the bolt to interlock with it when normally rotated under the influence of spring 11. This rotation will obviously be about the axis of the other bolt portion 18 which will be maintained in the entry groove 35 of the fixed strike portion 36. It will also be noted in Fig. 8 that the bolt portion 17 will be obstructed in its downward movement by the outline surface of the entry slot 34 of the movable strike member 31, and that in moving into slot 39, the bolt portion 17 must necessarily move the sliding member 31.

The movement of the bolt portion 17 under the influence of spring 11 is best illustrated in Fig. 9, where it will be seen that the bolt portion 17 is now located in the slot 39 of the fixed member. At the same time, it will readily be observed that this movement has caused the sliding member 31 to move into a downward position wherein its locking portion 33 encompasses the bolt portion 18. It will now be readily observed that the two locking portions 33 and 39 cooperate quite well to prevent outward movement of the bolt relatively thereto. Of course, the fixed member 36 and its surface 39 would really be effective to lock the bolt without the assistance of the sliding portion 31, but the cumulative effect of the two parts is naturally superior to the operation of but one.

It will be interesting to note that in the position of the parts in Fig. 9, not only will the bolt be locked to the strike against outward movement relatively thereto, but the arcuate portion 19, shown in dotted lines, will be cooperable with the relatively movable portions of the strike, so as to interlock the strike against jimmying or endwise separation of the bolt relatively to the strike. Again I should like to indicate that this would be true even if the movable strike portion were eliminated, but that the cumulative effect of the two portions is naturally much superior. Thus, by my invention, I obtain not only a deadlocking and interlocking of the strike and bolt against ordinary relative horizontal unlocking movement, but I obtain an interlocking of the strike and bolt against endwise or jimmying separation. This improvement is obviously of considerable merit.

If, in the position of the members of Fig. 9, it is desirable to release the bolt from the strike, it is merely necessary to operate the thumb piece 15, which will rotate the bolt from its position of Fig. 9 about the axis of its portion 18. This will operate to move the sliding part 31 of the strike back to its position of Fig. 8, and the bolt will then be withdrawable to the position of Fig. 7, as will be quite clearly understood.

In order to maintain the bolt and strike deadlocked, I prefer to employ a sliding detent member 45 best illustrated in Fig. 1 which is mounted for sliding movement relatively to brackets 46 and 47 carried by the mounting member 23. This sliding member is adapted to deadlock the movable member 31 by cooperation with the shoulder 48 and by further entry into the drilled hole 49 in the fixed member 36. It will be readily appreciated that when the member 45 occupies a position over the shoulder 48 and within the drilled hole 49, it will prevent relative sliding movement between the members 31 and 36 and rotary movement of bolt so that it will maintain the parts securely locked.

While I have illustrated only one particular embodiment of my invention, I believe that I have made a real contribution to the art which is extremely broad. I append hereto claims covering my invention which claims should be given a scope and interpretation commensurate with the contribution I have made.

I claim:

1. In a lock, a bolt rotatable about an axis parallel thereto, a strike having means adapted to interlock with said bolt, and additional means in said strike movable by said bolt and adapted to interlock with said bolt.

2. In a lock, a bolt rotatable about an axis parallel thereto, a strike, said bolt being adapted to interlock with said strike, said strike having cam means adapted to rotate the bolt into a position to permit entry thereof into the strike, spring means adapted to rotate said bolt into interlocking engagement with the strike once it enters said strike, and movable means on said strike actuable by said bolt as it moves to interlocking position for additionally locking said bolt to the strike.

3. In a lock having a bolt formed like a U with a pair of arc connected locking legs, said bolt being rotatable about an axis parallel to its leg portions, a strike with which said bolt is adapted to interlock, cam means on said strike adapted to rotate the bolt into a position to permit its entry into the strike, said bolt being rotatable by spring means so that one of its legs interlocks with the strike once the bolt passes said cam means, and movable means on said strike movable by said bolt to interlocking position with the other leg, said movable strike portion and the fixed strike portion being cooperable also with the arc part of the bolt for interlocking said strike and bolt against jimmying endwise separation.

4. In a lock, a strike, a bolt formed like a U with a pair of arc connected locking legs adapted to interlock with said strike, said bolt being rotatable about the axis of one of said leg portions, said strike having cam means adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt so that one of its legs interlocks with the strike once the bolt passes said cam means, and movable means on said strike movable by said bolt to interlocking position with the other leg, said movable strike portion and the fixed strike portion being cooperable also with the arc part of the bolt for interlocking said strike and bolt against jimmying endwise separation.

5. In a lock, a bolt formed like a U with a pair of arc connected locking legs, said bolt being rotatable about an axis parallel to its leg portions

and adapted to interlock with a strike, said strike having parallel relatively sliding parts each equipped with a locking slot and having aligned openings into which the bolt is cammed by the front of the strike, rotation of the bolt being adapted to position one leg in the locking slot of one of said relatively sliding parts, and to actuate the other of said relatively sliding parts to bring its locking slot into interlocking relation with the other leg, said relative movement of the sliding parts being effective to disalign the openings and to form a blocking portion cooperable with the arc part of the bolt for interlocking said strike and bolt against jimmying endwise separation.

6. In a lock having a bolt comprising a pair of parallel locking portions and rotatable about an axis parallel to said locking portions, a strike with which said bolt is adapted to interlock, cam means in said strike adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt upon its entry into the strike so that one of its parallel portions interlocks with the strike, and movable means on said strike actuable by said bolt as it so moves, said movable means being adapted to interlock with the other of said parallel portions.

7. In a lock, a bolt comprising a pair of parallel locking portions, means mounting said bolt for rotation about the axis of one of said parallel portions, a strike with which said bolt is adapted to interlock, said strike having cam means adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt upon its entry into the strike so that one of its parallel portions interlocks with the strike, and movable means on said strike actuable by said bolt as it so moves, said movable means being adapted to interlock with the other of said parallel portions.

8. In a lock, a bolt comprising a pair of parallel locking portions, means mounting said bolt for rotation about an axis parallel to said locking portions, a strike with which said bolt is adapted to interlock, said strike having parallel relatively sliding parts each equipped with a locking slot and having aligned openings into which the bolt is cammed by a front camming portion of the strike, rotation of the bolt upon its entry into the strike being adapted to position one of said parallel locking portions in the locking slot of one of said relatively sliding parts and to actuate the other of said sliding parts to bring its locking slot into encompassing blocking relation with the other locking bolt portion, said relative sliding movement being effective to disalign the openings of said sliding strike parts.

9. In a lock having a bolt rotatable about an axis parallel thereto, a strike with which said bolt is adapted to interlock, cam means on said strike adapted to rotate the bolt into a position to permit entry thereof into the strike, said lock having spring means adapted to rotate said bolt into interlocking engagement with the strike once it passes said cam means, movable means on said strike actuable by said bolt as it moves to interlocking position for additionally locking said bolt to the strike, said lock having means for rotating said bolt when it is interlocked with said strike for moving the movable portion of the strike into release position and for withdrawing the bolt from locked relation to the fixed strike portion.

10. In a lock, a bolt formed like a U with a pair of arc connected locking legs, said bolt being rotatable about an axis parallel to its leg portions, a strike with which said bolt is adapted to interlock, cam means on said strike adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt so that one of its legs interlocks with the strike once the bolt passes said cam means, movable means on said strike movable by said bolt to interlocking position with the other leg, said movable strike portion and fixed strike portion being cooperable also with the arc part of the bolt for interlocking said strike and bolt against jimmying endwise separation, and means for rotating said bolt when it is interlocked with said strike for moving the movable portion of the strike into release position and for withdrawing the bolt from locked relation to the fixed strike portion.

11. In a lock, a strike, a bolt formed like a U with a pair of arc connected locking legs adapted to interlock with said strike, said bolt being rotatable about the axis of one of said leg portions, cam means on said strike adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt so that one of its legs interlocks with the strike once the bolt passes said cam means, movable means on said strike movable by said bolt to interlocking position with the other leg, said movable strike portion and fixed strike portion being cooperable also with the arc part of the bolt for interlocking said strike and bolt against jimmying endwise separation, and means for rotating said bolt when it is interlocked with said strike for moving the movable portion of the strike into release position and for withdrawing the bolt from locked relation to the fixed strike portion.

12. In a lock, a bolt formed like a U with a pair of arc connected locking legs, said bolt being rotatable about an axis parallel to its leg portions, a strike with which said bolt is adapted to interlock, said strike having parallel relatively sliding parts each equipped with a locking slot and having aligned openings into which the bolt is cammed by the front of the strike, rotation of the bolt being adapted to position one leg in the locking slot of one of said relatively sliding parts, and to actuate the other of said relatively sliding parts to bring its locking slot into interlocking relation with the other leg, said relative movement of the sliding parts being effective to disalign the openings and to form a blocking portion cooperable with the arc part of the bolt for interlocking said strike and bolt against jimmying endwise separation, and means for rotating said bolt when it is interlocked with said strike for moving the movable portion of the strike into release position and for withdrawing the bolt from locked relation to the fixed strike portion.

13. In a lock, a bolt comprising a pair of parallel locking portions, means mounting said bolt for rotation about an axis parallel to said locking portions, a strike with which said bolt is adapted to interlock, cam means on said strike adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt upon its entry into the strike so that one of its parallel portions interlocks with the strike, movable means on said strike actuable by said bolt as it so moves, said movable means being adapted to interlock with the other of said parallel portions, and means for rotating said bolt when it is interlocked with said

strike for moving the movable portion of the strike into release position and for withdrawing the bolt from locked relation to the fixed strike portion.

14. In a lock, a strike, a rotary bolt comprising a pair of parallel locking portions adapted to interlock with said strike, means on said strike adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt upon its entry into the strike so that one of its parallel portions interlocks with the strike, movable means on said strike actuable by said bolt as it so moves, said movable means being adapted to interlock with the other of said parallel portions, and means for rotating said bolt when it is interlocked with said strike for moving the movable portion of the strike into release position and for withdrawing the bolt from locked relation to the fixed strike portion.

15. In a lock, a strike, a bolt comprising a pair of parallel locking portions adapted to interlock with said strike, said bolt being rotatable about an axis parallel to said locking portions, said strike having parallel relatively sliding parts each equipped with a locking slot and having aligned openings into which the bolt is cammed by a front camming portion of the strike, rotation of the bolt upon its entry into the strike being adapted to position one of said parallel locking portions in the locking slot of one of said relatively sliding parts and to actuate the other of said sliding parts to bring its locking slot into encompassing blocking relation with the other locking bolt portion, said relative sliding movement being effective to disalign the openings of said sliding strike parts.

16. In a lock, a strike having a fixed and a movable portion, a spring pressed latchbolt adapted to be latched back into release position against its spring pressure upon contacting said strike, a locking slot into which the bolt springs upon entering the strike, said movable strike portion being arranged for movement by said bolt as it springs into locking position, said movable strike portion when so moved being then adapted to interlock with a portion of said bolt.

17. In a lock having a bolt rotatable about an axis parallel thereto and adapted to interlock with a strike, cam means on said strike adapted to rotate the bolt into a position to permit entry thereof into the strike, said bolt being rotatable by spring means into interlocking engagement with the strike once it enters said strike, and a movable locking member on said strike movable by the entry of the bolt into the strike and adapted to further interlock the strike with the bolt.

18. In a lock, a bolt formed like a U with a pair of arc connected locking legs, said bolt being rotatable about an axis parallel to its leg portions, and adapted to interlock with a strike, said strike having cam means adapted to rotate the bolt into a position to permit its entry into the strike, spring means adapted to rotate said bolt about its axis so that one of its legs interlocks with the strike once the bolt passes said cam means, and manually operated means for rotating said bolt out of interlocking engagement with said strike, the arc portion of the bolt being cooperable with the strike to interlock said strike and bolt against jimmying endwise separation.

19. In a lock, a bolt formed like a U with a pair of arc connected locking legs adapted to interlock with a strike, said bolt being rotatable about an axis parallel to said legs, said bolt being rotatable into a position to permit its entry into the strike, said strike having an opening to permit the entry of said legs when they are properly aligned therewith, spring means adapted to rotate said bolt so that one of its legs interlocks with the strike when the bolt has entered said strike, and means whereby the arc portion of said bolt interlocks with a portion of the strike to prevent endwise separation therefrom.

20. In a lock, a strike, a bolt rotatable about an axis parallel thereto and adapted to interlock with said strike, cam means on said strike adapted to rotate the bolt into a position to permit entry thereof into the strike, said bolt being rotatable by spring means into interlocking engagement with the strike once it enters said strike, and a movable locking member on said strike movable by the entry of the bolt into the strike to interlock the bolt with the strike to prevent axial jimmying separation of the bolt from the strike.

21. In a lock, a strike, a rotatable bolt adapted to interlock with said strike, cam means on said strike adapted to rotate the bolt into a position to permit entry thereof into the strike, spring means for rotating said bolt into interlocking engagement with the strike once it enters said strike, and a movable locking member on said strike movable by entry of the bolt into the strike to interlock the bolt with the strike to prevent axial jimmying separation of the bolt from the strike.

JONAS P. PETERSON.