

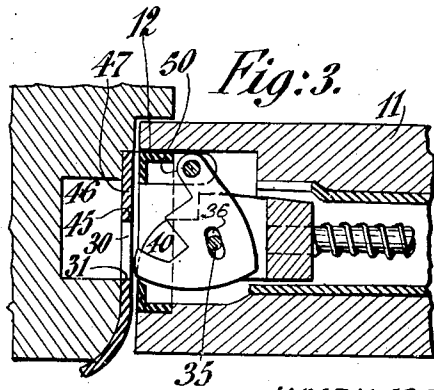
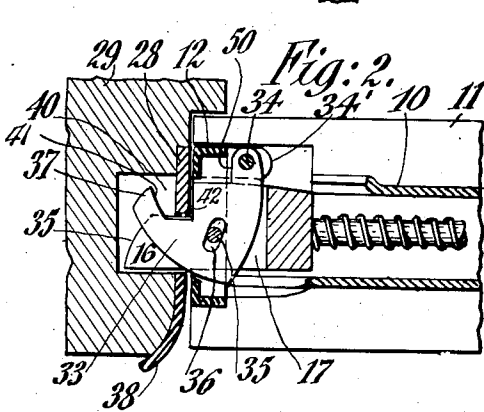
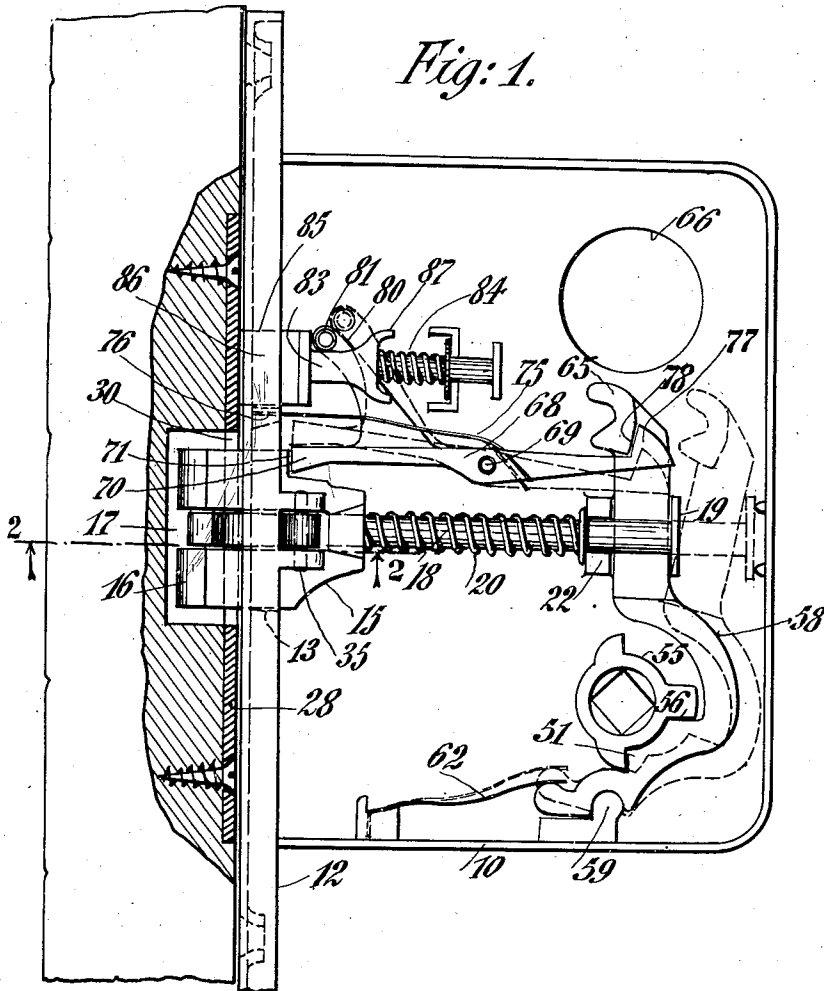
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JIMMYPROOF LOCK-LATCH

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JIMMYPROOF LOCK-LATCH

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9 Claims. (Cl. 292—192)

This invention relates to door locks and latches, and more particularly to latches having antifric-tion devices for retracting the latch when the door is closed, though it is noted that the inven-tion as claimed in some of the claims is not lim-ited to antifric-tion devices nor to latches, nor to bolts.

One object of the invention is to provide an apparatus or device of this kind having means for automatically locking the latch in the opening of its striking plate, to prevent the door from being forced by forcing the door and jamb apart, to make the latch and door jimmy proof.

Another object of the invention is to provide an improved jimmy-proof latch similar to that shown in my co-pending application, Serial No. 364,650, filed May 20th, 1929, and allowed Febru-ary 9th, 1932, which will cost practically no more than similar latches which are not jimmy-proof which are now successfully on the market and in wide use.

Another object of the invention is to provide an arrangement whereby the above means may have a broader application than in association with latches.

Another object of the invention is to provide a good looking jimmyproof latch suitable for mor-tise locks.

Other objects of the invention are to improve generally the simplicity and efficiency of such latches, and to provide a device of this kind which is safe, durable and reliable in operation, and economical to manufacture.

Still other objects of the invention will appear as the description proceeds; and while herein details of the invention are described and claimed, the invention as claimed in the broader claims is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed in said broader claims.

The inventive features for the accomplishment of these and other objects are shown herein in connection with an improved dead locking latch which, briefly stated, includes a yieldably projected latch slidable in a casing and having an antifric-tion lever-receiving recess in which is received a center antifric-tion lever having its forward end pivoted to the casing, and provided inter-mediatly with a radial slot in which is engaged a vertical pin fast in said head.

The active forward edge portion of said anti-friction lever is provided with a large deep cut extending vertically through the lever, and form-

ing a recess having its outer face co-axial with the lever.

The striking plate latch receiving opening is made narrower from front to rear than is usual, and narrower than the hole in the door jamb, thereby to provide an inner shoulder intermedi-ately of the forward edge of the latch-receiving opening, so that said edge is adapted to be re-ceived in said deep recess when the latch and lever are projected. Automatic dogging means are pro-vided whereby the latch and lever are automati-cally locked in projected position when the door is latched closed, thus preventing the forceful sep- aration of said lever and latch from the striking plate, even should the striking plate become de- tached.

In the accompanying drawing:

Fig. 1 is a rear elevation of the lock with the cover plate removed; and

Figs. 2 and 3 are fragmental horizontal sec-tional views, partly in plan, showing the latch and anti-friction lever in different positions, the section being taken substantially on the line 2—2 of Fig. 1, looking in the direction of the arrows of said line.

My invention is shown in combination with a lock, having casing 10 adapted to be secured in a door 11 (Figs. 2 and 3), and having at its outer edge a face plate 12 having a latch opening 13, receiving a latch 14, slidable in said casing, and having a forwardly beveled split bolt-head 16, providing a centre anti-friction-lever-receiving recess 17, and provided with a rearwardly project-ing shank 18, having a rear head 19.

Spring means for projecting the latch comprises a helical spring 20 on said shank, compresses between the head 16 and guide lugs 22, between which the rear of the shank is guided.

A striking plate 23 (Fig. 2), adapted to be se-cured to a door jamb 24, is provided with a single latch-receiving locking-opening 30 (Fig. 3), having a rear locking edge 31, against which the latch head 16 engages to hold the door closed.

An anti-friction lever 33 is disposed in said recess 17, and has its forward end pivoted on the pin 34, carried by lugs 34' in the face plate.

A vertical pin 35, fast in said head, passes through a radial slot 36 in the anti-friction lever, whereby when the forward active face 37 of the lever projecting forward of the beveled face 38 of the latch strikes the backwardly curved face 39 of the striking plate, as the door closes, a wall of said slot 36 presses said pin to retract the latch approximately to the position of Fig. 3.

The active face part 37 of the anti-friction

lever is provided with a large, deep cut, from top to bottom, forming a recess 40, having its outer face 41 substantially co-axial with the pin 34, and its inner face 42 normally flush with the outer face of the face plate 12, as in Fig. 2.

The striking plate 28 has the forward edge 45 (Fig. 3) of the opening 30 overhanging the adjacent portion of the opening 46 in the jamb, and is thereby adapted to be received in said recess 40 (Fig. 2) when the door is latched, whereby the overhanging part 37 of the anti-friction lever, engages behind the inner shoulder-face 47 of the striking plate, when the door is latched, thereby to prevent the withdrawal of the part 37 from behind the shoulder face 47, except when the latch is withdrawn by the key or knob.

Suitable dogging means, later to be described, automatically locks the latch in projected position when the door is latched closed, whereby the bolt-head 16 and the anti-friction lever 33 are locked in their projected position, and held against removal from the locking opening, the latch head holding the lever 33 with its recess 40 received on the edge 45, the front part of the lever being shouldered as at 50, to engage the inner part of the face plate 12, to help hold the lever in the casing, if the pin 34 should bend.

Any suitable latch operating and dogging means may be used, the one illustrated being merely by way of example.

A knob-shaft-receiving split hub 55 (Fig. 1) below the latch, is provided with active shoulders 56, 57 engaging a latch-retracting-lever 58 pivoted at 59 and disposed forward of the rear head 19, whereby the latch may be pushed back independently of the retracting lever 58, and whereby the latch may be pushed back by the retracting lever. The spring 62 restores the lever 58.

The upper end of the retracting lever has an off-set head 65, engageable by the roll back of a cylinder lock (not shown) carried in the circular opening 66, for retracting the lever and latch to the position of the dotted lines of Fig. 1.

A dogging lever 68, intermediately pivoted on the pin 69, carried by the casing above the latch, is provided with a front abutment end 70, adapted, when lowered to the position of the dotted lines, to rest upon the head 16, if the latch is retracted, and to engage behind the dogging shoulder 71 of the head, as shown by the full lines, to deadlock the latch, if the latch is projected.

A spring 75, carried by said lever 68, and engaging in a seat 76 on the face plate, yieldably presses said abutment end 70 downward. The rear end of the dogging lever is provided with an upturned end 77, engageable with the rear cam face 78 of the head 65 when in dogging position, whereby retracting movement of the retracting lever 58 raises said abutment end 70 before the shoulder 71 reaches the end 70.

An upturned branch arm 80 on said dogging lever carries an off-set roller 81 on the upper end of the arm, disposed a considerable distance above said abutment end 70, and above a guard latch 83, guided and yieldably forwardly pressed by a spring 84 through an opening 85 in the face plate, and provided with a forwardly beveled projectable end 86, engageable with the striking plate remote from the opening 30 therein. Said guard latch has on its upper part an upwardly and rearwardly inclined cam 87, adapted to raise said roller 81 and the dogging lever when the door is open and the guard latch 83 projected, and to move to the position of Fig. 1, out of con-

tact with said roller, when the door is closed and the guard latch pushed back, thereby to permit said abutment end 70 to drop to the dogging position shown by the full lines. Said latch 83 holds the end 70 raised from the shoulder 71 whenever the door is open, thereby to allow the latch to retract when the door is moving to closed position.

The operation of the latch is very simple, as is obvious from the foregoing, and now need be only briefly summarized.

When the door is in normal locked position, the parts are as shown in the full lines of Fig. 1.

When the door is slammed closed, the active face 37 (Figs. 2 and 3) of the anti-friction lever 33 strikes the curved face 38 of the striking plate and forces the lever 33 and latch back.

Before the guard latch 83 has struck the striking plate, the shoulder 71 has moved back under the abutment end 70, and when the guard latch 83 is retracted by the striking plate and the cam 87 moves from under the roller 81, the abutment end 70 merely rests on the top face of the retracted head 16.

Further closing movement of the door then pushes the latch and anti-friction lever back almost to the position of Fig. 3; and when the door is completely closed these snap to the position of Fig. 2, and the abutment end 70 snaps to the solid-line position of Fig. 1.

Thus the latch is positively held in projected position by the dogging lever 68; and the pin 35, being rigid on the latch, positively holds the anti-friction lever in projected position. In this locked position, the pin 35 prevents the anti-friction lever from pivotally moving from around the edge 45; the edge 45 prevents the anti-friction lever from being pulled perpendicularly from the opening 30, and the dogged latch head 16 and the pivot 34 prevent the anti-friction lever 40 from moving toward the edge 31.

Thus the head 16 and anti-friction lever cannot be removed from the opening 30, without breaking the lock.

When it is desired to open the door by the key or knob, initial movement of the retracting lever 58, before the shoulder 71 reaches the end 70, causes the cam face 78 to depress the end 77 and raise the end 70, thus undogging the latch, whereupon further movement of the lever 58 retracts the latch to the position of the dotted lines of Fig. 1 and of the full lines of Fig. 3.

The recess 40 may be applied to any latch of the anti-friction-lever type herein shown, without other change.

It is noted that the anti-friction lever is not controlled by the projecting part of the latch head 16, and that the invention, as claimed in some of the claims, is not limited to the presence or absence of a latch. The use of the expressions "front", "rear", "above" and the like, are for designations only, and it is understood that the claims are to be construed broadly for purposes of protection when possible.

It is noted that all of the herein mentioned objects and advantages are accomplished by an assembly which does not depart from standard practice in latches, except for the provision of the recess 40, and making the opening 30 narrower than heretofore, which can be done practically without increasing the cost of the latch. Thus a successful non-jimmy-proof latch now successfully on the market, is made into a jimmy-proof latch practically without increased cost.

I claim as my invention:

1. A door latching means adapted to be secured to a door for use with a striking member having an outer engagement portion facing in door opening direction and at the part most remote from said portion an inner shoulder facing away from the door, said member having a locking edge facing in door closing direction between said shoulder and said portion; said latching means comprising a casing; a yieldably projected member carried by the casing and engageable with said engagement portion as the door moves to closing position to automatically retract the member into the casing as the casing moves to latching position; said member being engageable with said locking edge and having a projection disposable far behind said shoulder when the member is projected and the casing is in latched position; and means for positively holding said member behind said shoulder.

2. A door latching means adapted to be secured to a door for use with a striking member having an outer engagement portion facing in door opening direction, a bolt receiving opening having a locking edge nearest said portion and having at the part most remote from said portion an inner shoulder facing away from the door; said latching means comprising a casing; a bolt slidable therein and adapted to engage said locking edge; an additional yieldably projected member carried by the casing and connected with the bolt and engageable with said engagement portion as the door closes to automatically retract the additional member and the bolt into the casing as the casing moves to latching position; said member being engageable behind said shoulder when the member is projected and the latch is in latched position; and means for positively holding said member behind said shoulder.

3. A door-latching and locking means adapted for cooperation with a striking plate having an outer engagement portion facing in door opening direction, and having a bolt-receiving opening, the outer edge of said opening nearest said engagement portion being adapted to engage a latch bolt when in locking position, to prevent opening movement of the door, the inner edge of said opening most remote from said engagement edge portion forming an inner shoulder faced away from the door; said latching and locking means comprising a lock casing; a yieldably projected bolt, slidable in the casing and adapted to engage said outer edge; a yieldably outwardly pressing retaining member pivoted directly to the casing and connected to the bolt and formed with an engagement portion engageable with said engagement portion during the door closing movement, to automatically retract the member and the bolt, and adapted to move into said opening when locking position is reached, said member having an undercut part disposable far behind said inner shoulder when locked position is reached and said bolt is engaged against said outer edge, whereby said bolt and retaining member are automatically, whenever the door slams, moved to position to hold the casing from being forced perpendicularly away from the striking plate; and automatic dogging means for positively locking the bolt and said lever, in locked position relative to the striking plate, with said undercut part engaging said inner shoulder, thereby automatically rendering the door jimmy-proof whenever the door slams.

4. A door latching means adapted for use with a striking plate substantially perpendicular to

the door when closed having an outer engagement edge portion facing in door opening direction, said plate having a bolt receiving opening having a locking edge nearest said portion and having at the part most remote from said portion an inner shoulder facing away from the door, the major portion of said plate and the portion at said locking edge and shoulder lying in the plane of the plate; said latching means comprising a casing; a bolt slidable therein and adapted to automatically engage said locking edge as the door is closed; an additional member carried by the casing and having a projection automatically disposable far behind said shoulder when the latch is automatically moved to latched position; and means for positively holding said member behind said shoulder.

5. A door latching means adapted to be secured to a door for use with a striking plate having an outer engagement portion facing in door opening direction, said plate having a bolt receiving opening having a locking edge nearest said portion and having at the part most remote from said portion an inner shoulder facing away from the door; said latching means comprising a casing; a pivot means fixed on the casing; a yieldably projected member adapted to engage said locking edge and pivotally mounted directly on said pivot means and engageable with said engagement portion with an approximately rolling non-sliding initial engagement to retract the member into the casing as the casing moves to latching position; said member being adjacent to said locking edge, and said undercut part automatically disposable far behind said shoulder when the member is projected and the latch is in latched position.

6. In a door locking means, a lock casing adapted for mortising in a door; a yieldably projected bolt slidable in the casing; a striking plate adapted to be attached to the door jamb substantially perpendicular to the bolt when in locking position and having an outer engagement portion facing in door opening direction; said plate being provided with an opening receiving the bolt, the outer edge of said opening nearest said engagement portion engaging the bolt when in locking position, the inner edge of said opening most remote from said engagement portion facing in door opening direction and forming an inner shoulder faced away from the lock casing; a pivot means fixed on the casing; and a lever pivoted to the pivot means and connected to the bolt and formed with an engagement portion engageable with said engagement portion during door closing movement to automatically retract the lever and bolt, and adapted to snap into said opening when locking position is reached, said lever having a forwardly open recess forming an undercut part disposable far behind said inner shoulder when locked position is reached and said bolt is adjacent to said outer edge; said plate being thinner than said recess.

7. In a door locking means, a lock casing adapted for mortising in a door; a yieldably projected bolt slidable in a casing; a striking plate adapted to be attached to the door jamb substantially perpendicular to the bolt when in locking position and having an outer engagement portion facing in door opening direction and curved away from the door and the plane of the plate and provided with an opening receiving the bolt and having a locking edge nearest said engagement face for engaging the bolt when in locking position, the inner edge of said opening most remote from said engagement edge facing

in door opening direction and forming an inner shoulder faced away from the lock casing; and a lever pivoted directly to the casing and connected to the bolt and formed with an engagement portion engageable with said outer engagement portion during door closing movement to automatically retract the lever and the bolt, and adapted to snap into said opening when locking position is reached, said lever having an undercut part disposable far behind said inner shoulder when locked position is reached and said bolt is adjacent to said locking edge, said curved portion preventing the undercut part from catching on the outer edge of the plate as the door closes.

8. A door-locking means adapted for cooperation with a striking plate having an outer engagement portion facing in door opening direction, and having a bolt-receiving opening having an outer locking edge nearest said engagement portion, the inner edge of said opening most remote from said engagement edge portion forming an inner shoulder faced away from the door; said locking means comprising a lock casing; a yieldably projected bolt, slidable in the casing and adapted to engage said outer edge; a yieldably outwardly pressing antifriction retaining member pivoted to the casing and connected to the bolt and formed with an undercut part engageable with said engagement portion during the door closing movement, to automatically retract the member and the bolt, and adapted to move into said opening when locking position is reached, said undercut part projecting far behind said inner shoulder when locked position is reached and said bolt is engaged against said

outer edge, whereby said bolt and lever are automatically, whenever the doors slams, moved to position to hold the casing from being forced perpendicularly away from the striking plate; said antifriction member serving the multiple function of automatically retracting the bolt, and the antifriction member, decreasing the friction of latching, holding said casing from movement perpendicularly from the striking plate when in locked position and automatically directing the undercut part into said holding position.

9. A door latching means adapted to be connected to a door for use with a striking plate having an outer engagement portion facing in door opening direction, said plate having a bolt receiving opening having a locking edge nearest said portion and having at the part most remote from said portion an inner shoulder facing away from the door; said latching means comprising a casing; a yieldably projected bolt slidable therein and adapted to engage said locking edge; an additional yieldably projected member carried by the casing and having a projection engageable behind said shoulder when the member is projected and the latch is in latched position; means for positively holding said member behind said shoulder; means for automatically simultaneously withdrawing said bolt and member as the door closes and automatically simultaneously projecting said bolt in said opening and said projection behind said shoulder as latching position is reached; and means for at will simultaneously withdrawing said bolt and member from latching position.

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