

April 28, 1953

A. H. GROEGER
RELEASABLE STRIKE MECHANISM

2,636,767

Filed June 23, 1948

3 Sheets-Sheet 1

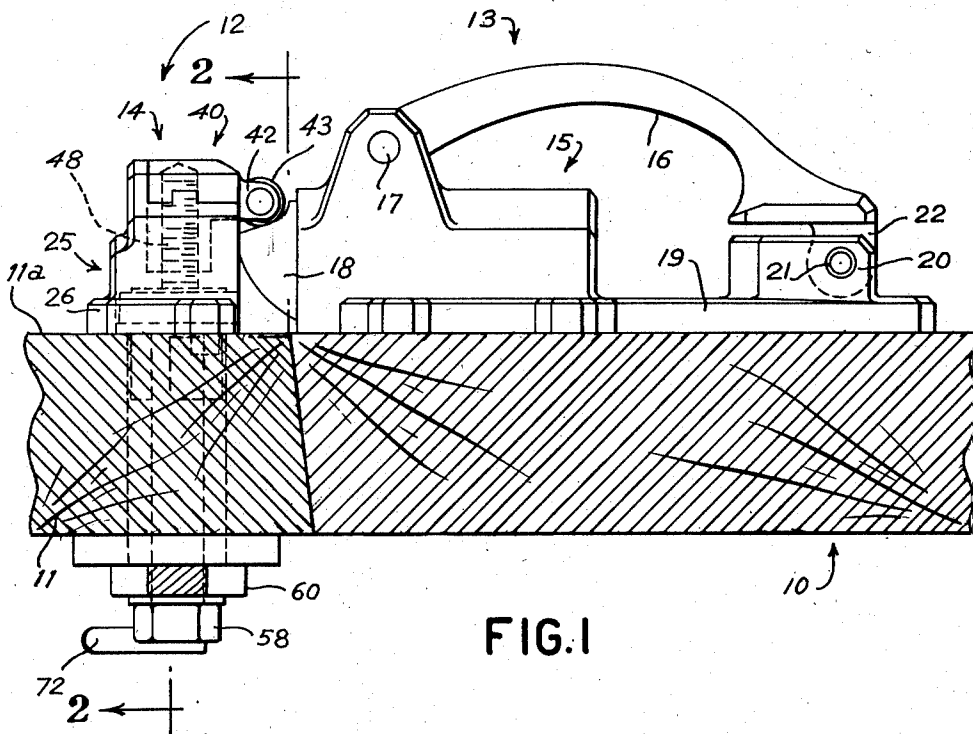


FIG. 1

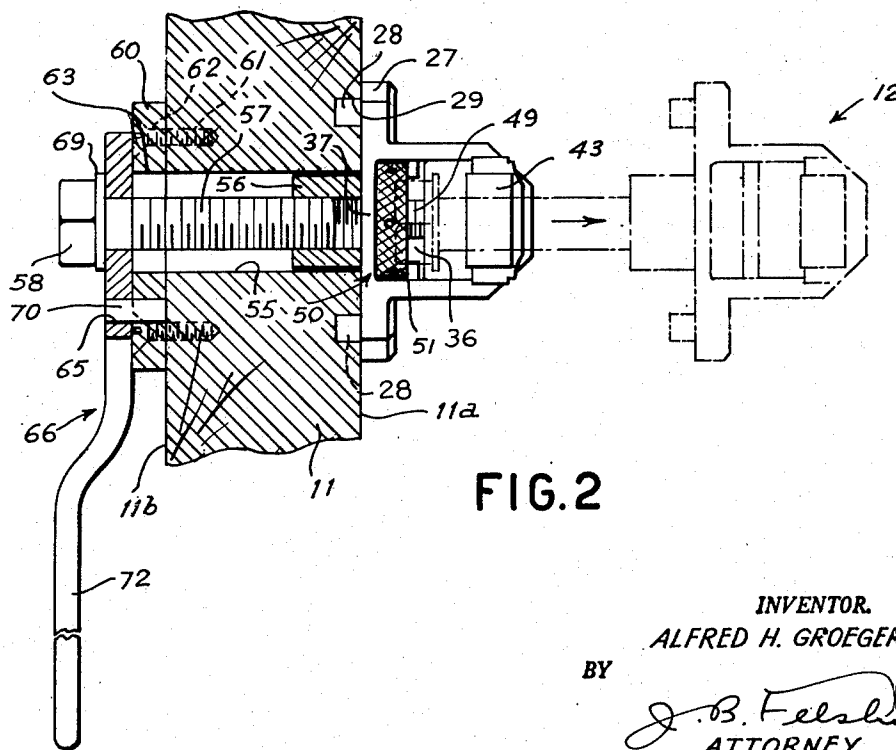


FIG. 2

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3 Sheets-Sheet 2

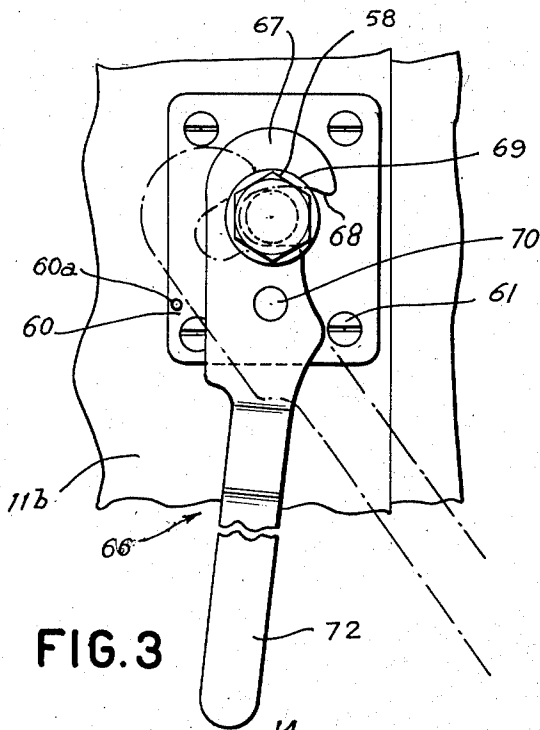


FIG. 3

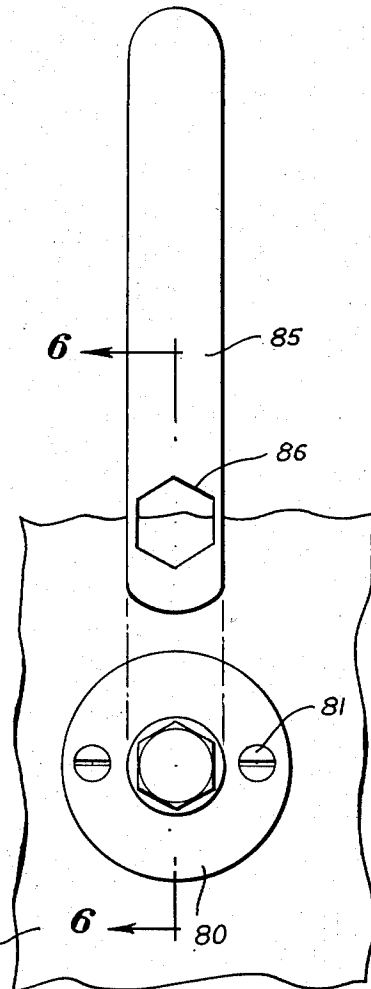


FIG. 5

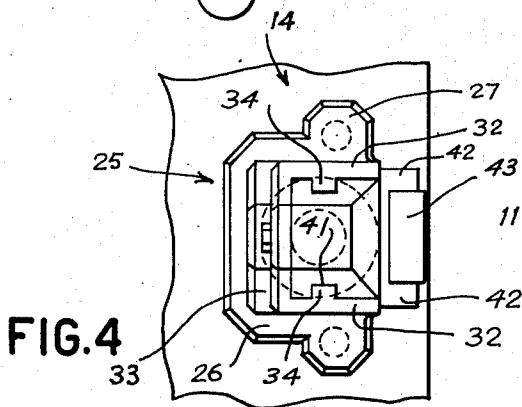


FIG. 4

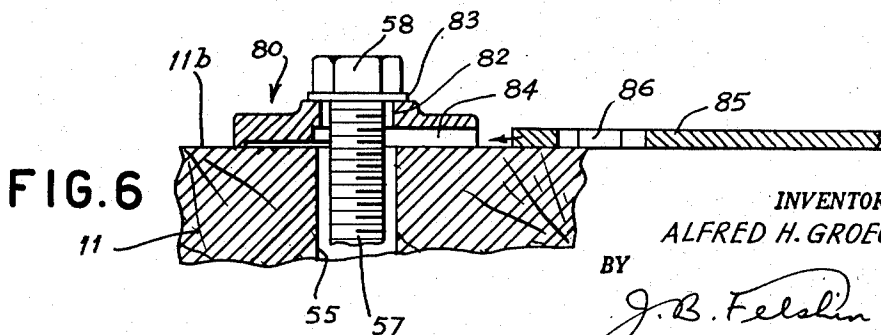


FIG. 6

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3 Sheets-Sheet 3

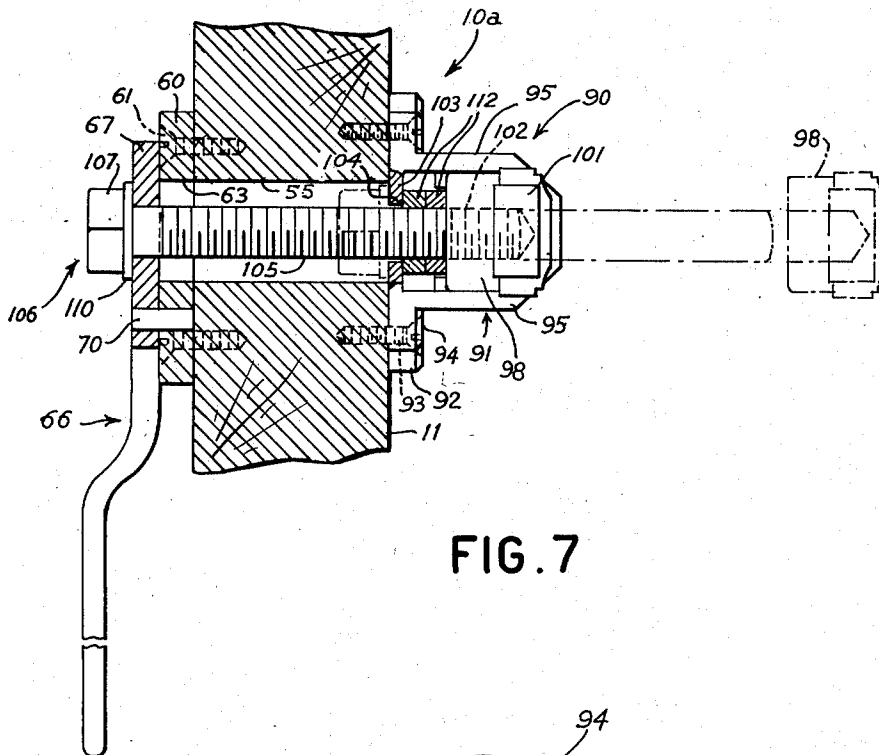


FIG. 7

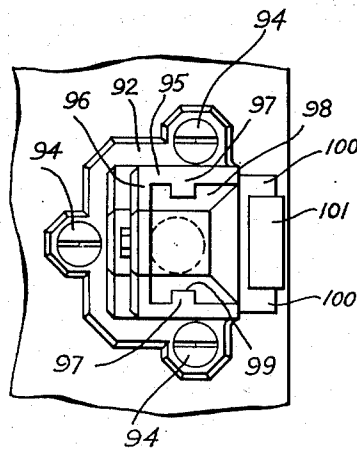


FIG. 8

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RELEASABLE STRIKE MECHANISM

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15 Claims. (Cl. 292—341.18)

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This invention relates to safety releasable strike mechanism for door locks, particularly locks for doors of refrigerated trucks, refrigerators or cabinets. Most locks for refrigerators are provided with a handle for retracting the door latch which engages the strike, to open the door, means have been provided for pushing the handle to retracting position by a push rod passing through a hole in the door. Such handles often have apertured ears registering with an aperture on the lock casing to receive a padlock, so that the refrigerator door could be locked from the outside. It has occurred that a person opening the refrigerator door and going into the refrigerator finds that the door has slammed shut and the lock handle locked so that it cannot be pushed open. Thus sometimes a thief who locks a person in a refrigerator will put a nail through the apertured ear in the handle and the aperture on the lock housing registering therewith, to prevent the door from being unlocked from the inside. In my Patent No. 2,415,587 there is disclosed safety means to permit pushing open of the door handle from the inside of the refrigerator even though it is thus held against swinging open. In accordance with the present invention, means is provided to permit the strike to be pushed out of place from the inside of the refrigerator should the door be locked or retained against opening. An object of this invention is to provide a safety release strike mechanism including means for normally locking the strike in operative position but requiring only a turn of a handle at the inside of the refrigerator to release the strike so that the entire strike may be pushed out of place to permit opening of the door from the inside.

In my above mentioned prior patent, the safety release mechanism included a wrench and a bolt that had to be unscrewed by the wrench. Often when a person is locked in a refrigerator, for example, a refrigerated truck, he finds that it is dark in the refrigerator, and sometimes the size of the refrigerator is such as to make movement of the person inside difficult and for this reason it might be difficult to find the wrench and manipulate it in the dark and in cramped quarters sufficiently to unscrew the bolt. It is hence another object of the present invention to provide safety release mechanism of the character described, which does not require any unscrewing of a bolt or manipulation of a wrench, but which may be accomplished by a simple movement easily accomplished even in the dark and in close quarters so as to make it easy for a person trapped in the refrigerator to release himself.

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Yet another object of this invention is to provide a strong rugged and durable lock construction of the character described, including a strike releasable from the inside of the refrigerator and which shall be relatively inexpensive to manufacture, easy to assemble and manipulate and which shall yet be practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown various possible illustrative embodiments of this invention,

Fig. 1 is a transverse cross sectional view of a door and door jamb provided with lock mechanism embodying the invention,

Fig. 2 is a cross sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is an inside elevational view showing the safety release mechanism;

Fig. 4 is an outside elevational view of a strike;

Fig. 5 is an inside elevational view illustrating safety release mechanism embodying the invention and illustrating a modified construction;

Fig. 6 is a cross-sectional view taken on line 6—6 of Fig. 5.

Fig. 7 is a cross-sectional view similar to Fig. 2 but illustrating a modified construction, and

Fig. 8 is a top plan view of a strike or keeper shown in Fig. 7.

Referring now in detail to the drawing, 10 designates a door and 11 a door jamb. The same may be part of a refrigerator, refrigerated truck of any cabinet, closure or room, for example one large enough so that a person may get into it. In the drawing 12 designates locking mechanism for locking the door to the door jamb and includes a latch lock 13 on the door 10 and a strike 14 on the door jamb 11. The lock 13 may be of any usual construction and includes a housing 15 to which is pivoted a handle 16. The handle 16 is pivoted to the housing by pivot 17 and is provided with usual means for retracting a spring pressed latch 18. Extending from the housing 15 is a plate 19 provided with ears 20 formed with openings 21. The handle 16 may include an apertured ear 22 formed with the usual opening registering with the openings 21 to receive a padlock for locking the handle against opening movement.

Sometimes a nail is inserted into the registering openings in the ears 20—22 locking a person inside the refrigerator or cabinet or enclosure so that the lock cannot be opened from the inside. In accordance with the present invention, the strike 14 is so constructed and mounted as to permit the strike to be pushed out of place from the inside of the refrigerator or cabinet to permit the door to be pushed open from the inside to release a person trapped within the refrigerator or cabinet. To this end the strike 14 comprises a strike housing 25 having a bottom plate portion 26 contacting the outer surfaces 11a of the door jamb 11. The plate 26 has upwardly and downwardly extending ears 27 formed with integral pins 28 projecting in the openings 29 in the door jamb 11 formed to receive said pins. The strike housing 25 is formed with side walls 32 and a rear wall 33. The side walls 32 are formed with inwardly extending parallel ribs 34, and said ribs have horizontal flanges 36 spaced from a bottom wall or web 37 which interconnects the side and rear walls and contacts surface 11a of the door jamb 11. Slidably mounted on the housing 25 is a member 40 formed with parallel grooves 41 to receive the ribs 34. Said member 40 has a pair of projecting apertured ears 42, and thereon is carried a roller 43 adapted to be engaged by the tongue of the latch 18. Member 40 is formed with an internally screw threaded opening 48 to receive the threaded shank of a screw 50. The screw 50 has a knurled wheel 51 disposed between the flanges 36 and wall 37 so that rotation of the wheel 51 will adjust the position of member 40 on the strike housing. The construction of member 40 and the strike housing is well known except that heretofore the strike housings have been fixed to the door jamb by screws whereas in the present case the strike housing is formed with the pins 28 received in the openings 29 in the door jamb for the purpose hereinafter appearing.

In accordance with the present invention, the door jamb 11 is formed with a through opening 55, preferably cylindrical or tubular in shape. Extending from the surface of the housing which contacts surface 11a is an internally screw threaded boss 56, which projects into the opening 55 in the door jamb. The boss 56 may be coaxial with the screw 50. Screwed within the internally threaded opening in the boss 56 is a bolt 57 having a head 58 at its outer end. The shank of the bolt 57 extends entirely through the opening 55 and therebeyond.

Contacting the inner surface 11b of the door jamb is a plate 60 attached to said surface by means of corner screws 61. The plate 60 is formed with suitable countersunk screw threaded openings 62 to receive the screws 61. Plate 60 is formed furthermore with a central opening 63 registering with the through opening 55 of the door jamb and substantially of the same diameter. Plate 60 is furthermore formed with a through opening 65 disposed below the opening 63 and preferably in vertical alignment therewith.

Pivoted to the plate 60 is a releasable locking level member for holding the strike firmly clamped to the door jamb. Said member is designated by numeral 66 in the drawing and comprises a hook-shaped portion 67 formed with a notch 68 to engage the shank of the bolt 57. Washer 69 may be interposed between the head 58 of the bolt and the hook portion 67 member

66. Said member 66 is provided with a pin 70 projecting into the opening 65 of plate 60 to serve as a fulcrum for member 66, the latter being in the form of a lever as shown in Figs. 3 and 4 of the drawing. The lever 66 is formed with a downwardly extending inwardly offsetting handle 72. The head 58 of the bolt, as well as the washer 69, are of such dimension that they may readily pass through the opening 63 in plate 60 and opening 55 in door jamb. When the strike is in operative position as shown in full lines of Fig. 3, the lever 66 retains the strike firmly clamped against the door jamb with the pins 28 received within openings 29 so that the strike cannot rotate.

Should a person be locked within the cabinet or refrigerator, he may release himself by merely turning the handle 72 in a counterclockwise direction, looking at Fig. 3, disengaging the hook portion 67 from the bolt. The bolt may then merely be pushed to the right, looking at Fig. 2, loosening the strike from the door jamb, so that the door can be opened by merely pushing it outwardly from the inside. It will be noted that the releasing manipulation is extremely simple, requiring only turning of the handle 72 and pushing outwardly on the bolt head 58.

Affixed to plate 60 is a stop pin 60a to limit rotary movement of the lever 66 in a counterclockwise direction looking at Fig. 3 of the drawing.

In Figs. 5 and 6 there is shown a modified form of the invention. In the modified form of the invention the strike 12 and lock 13 are exactly the same as in Figs. 1 to 4. The door jamb 11 is likewise formed with a through opening 55 through which the bolt 57 passes. The bolt is also provided with a head 58. Attached to the inner surface 11b of the door jamb, however, is a plate 80. Plate 80 is formed with suitable openings through which may pass screws 81 which attach said plate to the door jamb. The plate 80 is furthermore formed with an axial through opening 82 through which the shank 57 of the bolt passes. Interposed between the head 58 of the bolt and plate 80 is a washer 83. The plate 80 is furthermore formed at its inner surface with a radial slot 84 which extends from the central opening upwardly. Inserted into the slot 84 is the lower end of a wrench 85. The wrench 85 is formed with the wrench opening 86 adapted to receive the head 58. The upper end of the wrench projects above plate 80. Thus if a person is trapped in the refrigerator, he may remove the wrench 85, engage the head 58 and unscrew the bolt 57. The door may then be pushed outwardly and the strike will merely fall out of place as it will not be attached to the door jamb once the bolt 57 is unscrewed.

In Figs. 7 and 8 there is shown a safety lock construction 10a embodying the invention and illustrating a modified construction.

In Figs. 7 and 8 the door jamb 11 is formed with a through opening 55. Attached to the inside of the door jamb is plate 60, similar to the plate shown in Figs. 1 to 4. The plate 60 likewise has a through opening 63 registering with the opening 55. Plate 60 is attached to the door jamb 11 by means of the screws 61.

Attached to the outside of the door jamb 11 is a strike or keeper 90. The same comprises a keeper housing 91, shown in Figs. 7 and 8. The housing 91 comprises a flange 92 contacting the outer surface of the door jamb, and the same is formed with countersunk openings 93

to receive screws 94 for attaching the housing 91 to the door jamb. The housing 91 is furthermore formed with a parallel side walls 95 and a back wall 96. The side walls 95 are formed with parallel ribs 97 at their inner sides. Slidably mounted within the housing and between the side walls 95 is a slidably mounted member 98 formed with parallel grooves 99 to receive the ribs 97. Member 98 is formed with parallel ears 100 carrying a transverse shaft on which is mounted a strike roller 101 adapted to be engaged by the latch 15 on the door lock. Member 98 is formed with a central screw threaded opening 102 at its inner side. The housing 91 is formed with a bottom wall 103 contacting the outer surface of the door jamb. Wall 103 is formed with a central through opening 104. Extending through openings 63 and 55 is the shank 105 of a bolt or stud 106 having a head 107 at its outer side. The inner end of the shank 105 is screwed into the opening 102. The shank 105 passes through opening 104 in wall 103.

Pivoted to plate 60 on pivot pin 70 is a lever 66 similar to that shown in Figs. 1 to 4. The hook 67 of the lever engages between the head 107 of the stud and plate 60. The washer 110 may be interposed between the head 107 and the upper end of the lever 67. Interposed between plate 103 and member 98 are one or more washers or shims 112. The proper sized washers or shims are used so as to locate the roller 101 in desired position.

It will now be understood that when the lever 66 is rotated in a position for disengaging the stud 106, said stud may be pushed through the openings 63 and 55 so that the stud together with member 98 are pushed forwardly to the dot-dash line position shown in Fig. 7, thereby permitting the door to open without retracting the latch 15 or pulling back the handle 16.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the condition of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to claim by Letters Patent:

1. In combination, a strike comprising a strike housing and a latch engaging strike member adjustably mounted on the housing, said housing being adapted to contact the outer side of a door jamb, a bolt screwed to the strike housing and adapted to pass through said jamb and provided with a head, a plate adapted to be fixed to the inside of the door jamb and having an opening, a lever pivoted to said plate and formed with a hook engaging the shank of the bolt so as to be disposed between the head of the bolt and said plate, and a handle on said lever whereby the lever may be rotated to disengage the hook from the bolt and means to adjust said latch engaging member relative to said housing independently of said bolt.

2. In combination, a strike adapted to contact the outer side of a door jamb, a bolt screwed to the strike and adapted to pass through said jamb and provided with a head, a plate adapted to be fixed to the inside of the door jamb and having an opening, a lever pivoted to said plate

and formed with a hook engaging the shank of the bolt so as to be disposed between the head of the bolt and said plate, and a handle on said lever whereby the lever may be rotated to disengage the hook from the bolt, and said strike being formed with means adapted to project into spaced openings in the door jamb to prevent rotation of the strike relative to the door jamb.

3. In combination, a strike adapted to contact the outer side of a door jamb formed with a through opening, a plate means to attach said plate to the inside of the door jamb and said plate being formed with an opening adapted to register with said through opening, a member connected to the strike and adapted to pass through said through opening and through the opening in said plate, and means to releasably engage said member for retaining the strike against said door jamb, said engaging means being disengageable from the inside of the door jamb to release the strike from the door jamb.

4. In combination, a strike adapted to contact the outside of a door jamb, a plate adapted to be attached to the inside of the door jamb, a member on said strike and adapted to pass through said door jamb, and through said plate, means on said plate for releasably clamping said strike to said door jamb, said clamping means being releasable from the inside of the door jamb, and means to prevent rotation of said strike relative to said door jamb.

5. In combination, a strike, a bolt screwed to said strike, a plate having an opening through which said bolt passes, a lever pivoted to said plate on an axis offset from the bolt, and having a hook engaging said bolt to clamp said strike relative to said plate.

6. In combination, a strike, a bolt screwed to said strike, a plate having an opening through which said bolt passes, a lever pivoted to said plate on an axis offset from the bolt, and having a hook engaging said bolt to clamp said strike relative to said plate, and a pin on said strike offset from said bolt to prevent rotation of said strike.

7. In combination, a strike, a bolt screwed to said strike, a plate having an opening through which said bolt passes, a lever pivoted to said plate on an axis offset from the bolt, and having a hook engaging said bolt to clamp said strike relative to said plate, said lever having a handle adapted to be grasped for turning said lever.

8. In combination, a strike, a bolt screwed to said strike, a plate having an opening through which said bolt passes, a lever pivoted to said plate on an axis offset from the bolt and spaced below the bolt, and having a hook engaging said bolt to clamp said strike relative to said plate, said lever having a downwardly extending handle adapted to be grasped for turning said lever, said strike being formed with a pair of pins offset from the bolt.

9. In combination, a strike adapted to contact one side of a door jamb, a member on said strike and adapted to pass through an opening in said door jamb, a plate adapted to contact the other side of the door jamb and having a through opening to receive said member, and means to clamp said member to said plate, said means being releasable from the plate side of the door jamb.

10. In combination, a strike comprising a strike housing, means to affix the strike housing to a door jamb, a latch engaging strike member on said housing, a bolt loosely passing through said

housing and screwed to said member, a plate having an opening through which said bolt passes, a lever pivoted to said plate on an axis offset from the bolt, said lever being provided with means to engage the bolt in one position thereof and to release said bolt in another position thereto.

11. In combination, a strike housing adapted to be fixed to the outer side of a door jamb, a latch engaging strike member slidably mounted in said housing and formed with a screw threaded opening, a plate adapted to be fixed to the inner side of the door jamb and formed with an opening, and a lever pivoted to said plate and provided with a hook at one end and a handle at the other end, a bolt having a shank passing through the opening in the plate and adapted to pass through the door jamb and being screwed to the threaded opening in said strike member, and the hook end of the lever being engageable between the head of the bolt and said plate, said bolt loosely passing through said housing.

12. In combination, a strike housing adapted to be fixed to the outer side of a door jamb, a latch engaging strike member slidably mounted in said housing and formed with a screw threaded opening, a plate adapted to be fixed to the inner side of the door jamb and formed with an opening, and a lever pivoted to said plate and provided with a hook at one end and a handle at the other end, a bolt having a shank passing through the opening in the plate and the opening in the door jamb and being screwed to the threaded opening in said strike member, and the hook end of the lever being engageable between the head of the bolt and said plate, said strike housing having a bottom wall contacting the outer surface of the door jamb through which said shank loosely passes, and a washer interposed between said wall of said housing and said strike member.

13. In combination a strike adapted to be placed against the outer side of the door jamb, a bolt screwed to the strike and adapted to extend through an opening in said door jamb, a head on said bolt adapted to be located at the inside of the door jamb, a plate adapted to be fixed to the inside of the door jamb, a lever pivoted to said plate and located at the inside of the door jamb and formed with a hook engaging the head of the bolt for retaining said strike against the door jamb, and said lever being ro-

tatable to disengage said hook from said head to release the bolt so that the bolt and the strike may be pushed out of place with respect to the door jamb.

14. In combination a strike adapted to be placed against the outer side of the door jamb formed with an opening, said strike having an internally threaded sleeve projecting into said opening, a bolt adapted to extend through the opening in said door jamb and screwed to the sleeve, a head on said bolt adapted to be located at the inside of the door jamb, a plate adapted to be fixed to the inside of the door jamb, a lever pivoted to said plate and located at the inside of the door jamb and formed with a hook engaging the head of the bolt for retaining said strike against the door jamb, and said lever being rotatable to disengage said hook from said head to release the bolt so that the bolt and the strike may be pushed out of place with respect to the door jamb, said plate being formed with an opening and said bolt passing through said opening in said plate.

15. In combination a strike adapted to be placed against the outer side of the door jamb, a bolt screwed to the strike and adapted to extend through an opening in said door jamb, a head on said bolt adapted to be located at the inside of the door jamb, a plate adapted to be fixed to the inside of the door jamb, a lever pivoted to said plate and located at the inside of the door jamb and formed with a hook engaging the head of the bolt for retaining said strike against the door jamb, and said lever being rotatable to disengage said hook from said head to release the bolt so that the bolt and the strike may be pushed out of place with respect to the door jamb, said plate being formed with an opening and said bolt passing through said opening in said plate, said opening being large enough to permit said head to pass therethrough when said hook is disengaged therefrom.

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