L. C. AND F. S. EMERSON.

DOOR LATCH.

APPLICATION FILED OCT. 23, 1920.

1,407,395.

Patented Feb. 21, 1922.

Fig. 1.

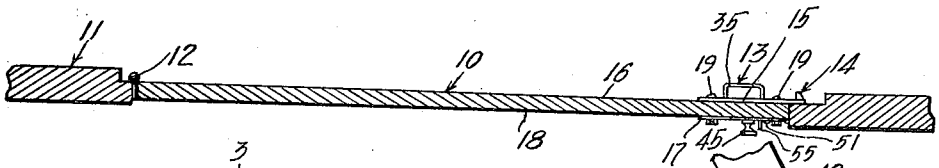



Fig. 2.

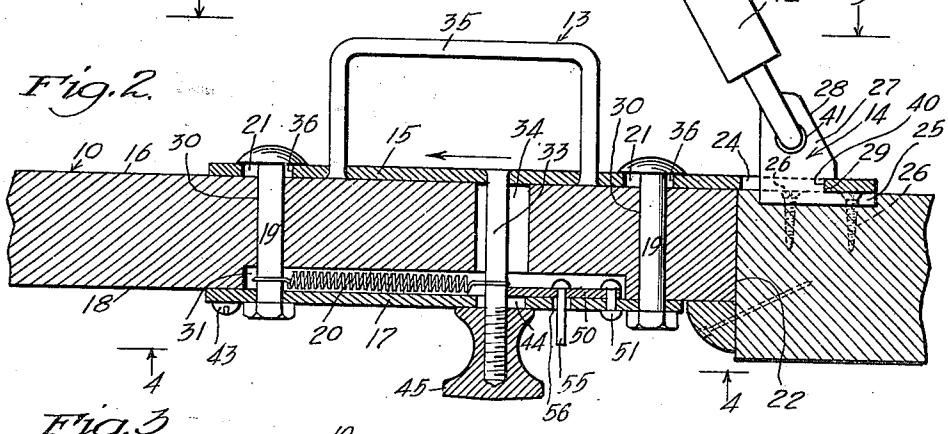



Fig. 3.

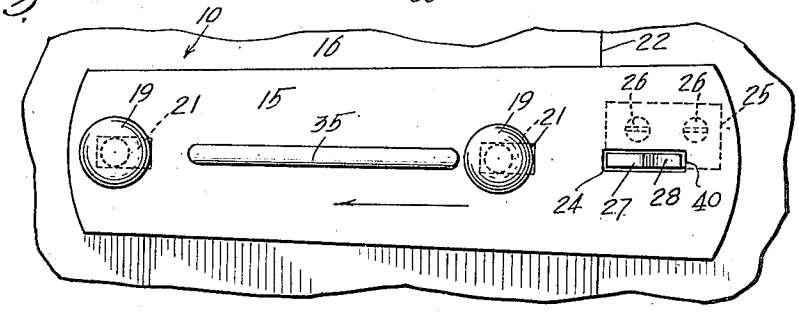
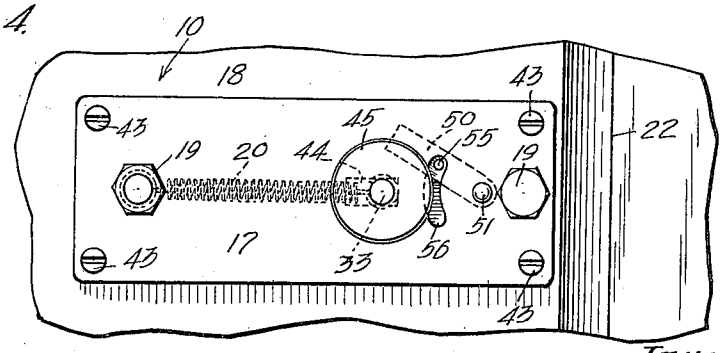



Fig. 4.




Inventor
Loender C. Emerson.
Fred S. Emerson.

By James H. Berkeley.

their Attorney.

# UNITED STATES PATENT OFFICE.

LOENDER C. EMERSON AND FRED S. EMERSON, OF LOS ANGELES, CALIFORNIA.

## DOOR LATCH.

1,407,395. Specification of Letters Patent. Patented Feb. 21, 1922.

Application filed October 23, 1920. Serial No. 418,936.

*To all whom it may concern:*

Be it known that we, LOENDER C. EMERSON and FRED S. EMERSON, citizens of the United States, residing in Los Angeles, county of Los Angeles, State of California, have jointly invented new and useful Improvements in Door Latches, of which the following is a specification.

This invention has to do with a door latch and it is an object of the invention to provide an extremely simple, effective and easily operated device of this character.

The nature of the present invention is such as to render it applicable to various classes and forms of doors, and the like, although it is possibly best adapted for use on screen doors, garage doors, etc., or on doors, and the like, which are of comparatively light construction. The invention provides an extremely simple and inexpensive latch which can be operated from either side of the door and which will automatically catch when the door is closed.

An important and distinctive feature of the invention is the general construction of the various parts and portions of the latch. This feature is important in that it renders the latch simple in operation, inexpensive in construction, sightly and durable.

The various objects of the invention will be best and more fully understood from the following detailed description of a preferred embodiment of the invention throughout which reference is had to the accompanying drawings in which—

Fig. 1 is a transverse sectional view through a typical door and casing equipped with the latch provided by the present invention; Fig. 2 is an enlarged longitudinal sectional view through the latch showing it locked from both sides of the door; Fig. 3 is a face view of the outer side of the latch being a view taken as indicated by line 3—3 on Fig. 2; and Fig. 4 is a face view of the inner side of the latch being a view taken as indicated by line 4—4 on Fig. 2.

Throughout the drawings numeral 10 designates a typical door hung in a suitable casing 11 on hinges 12. The latch mechanism 13 provided by the present invention is mounted at the outer edge portion of the door 10 and is adapted to cooperate with a suitable striking plate 14 mounted on the casing 11. The latch mechanism 13 comprises generally, a latch 15 arranged at the outer side 16 of the door 10, a stationary plate 17 arranged at the inner side 18 of the door 10, bolts 19 arranged through the door 10 to connect the plates 15 and 17, and a spring member 20 adapted to normally hold the latch mechanism in its latched position. The latch plate 15, of the latch mechanism 13, is preferably a flat metal plate formed with slots 21 to receive the bolts 19 and arranged to extend beyond the outer edge 22 of the door 10 in the manner clearly shown in Figs. 2 and 3 of the drawings. An opening 24 is formed in the extended portion of plate 15 to receive and cooperate with the striking plate 14.

The striking plate 14 has a base portion 25 secured to the casing 11 by suitable screws 26, has a beveled side or edge 28, and is formed with a notch 29 adjacent to the base 25. The striking plate 14 is preferably formed of sheet metal as such construction is particularly effective and is inexpensive. The opening 24 in the latch plate 15 is made sufficiently wide and long to freely receive the striking plate, and is located in the latch plate 15 so that when the plate 15 is moved to the position shown in Fig. 3 the door may be swung so that the projection 27 will pass freely through the opening 24, and so that when the door is closed the plate 15 is in the position shown in Fig. 2 a part of the latch plate extends into the notch 29. The opening 24 is preferably made sufficiently wide to allow for some sagging of the door. It is obvious of course that the plate 15 can be easily moved to the positions just referred to because of the fact that the bolts 19, which are permanently carried in bores 30 in the door 10, are carried in or extend through slots 21 in the plate 15.

The spring 20 is carried in a recess 31 formed in the door 10 under the plate 17, and is arranged to connect one of the bolts 19 and a pin 33, which extends inwardly from the latch plate 15 through a suitable slot 34 in the door 10, to normally move the plate 15 in the direction indicated by the arrows in Figs. 2 and 3. It will be readily understood how the spring 20 will hold the plate 15 in the position shown in Fig. 2 so that a portion of the plate 15 will be carried in the notch 29, and how it is possible to manually move the plate to the position shown in Fig. 3 so that no part of the plate is in the notch 29, thereby making it possible to swing the door open. A suitable handle 35 is provided on the plate 15 in order that

it may be conveniently moved or manipulated. It will be particularly noted from inspection of Fig. 2 of the drawings that the plate 15 is not moved so that the ends 36 of the slots 21 are in engagement with the bolts 19 when the plate 15 is fully seated in the notch 29. This construction allows for shrinkage of the door and assures proper seating of the plate 15 in the notch 29 and prevents looseness in the connection between the plate 15 and striking plate 14.

When the door 10 is in an open position the spring 20 moves the plate 15 in the direction indicated by the arrows in Figs. 2 and 3 until the ends 36 of grooves 21 are in engagement with the bolts 19. If the door is then swung inwardly, or to a closed position, the end wall 40 of opening 24 will engage and cooperate the beveled or wedge like edge 28 of the striking plate to move the plate 15 in the direction opposite to that indicated by the arrows in Figs. 2 and 3 until the door is completely closed and the plate 15 has become opposite the notch 27 and has seated therein, as shown in Fig. 2 of the drawings. In other words, the opening 24 is so located in the plate 15 and the striking plate 14 is so arranged that the end wall 40 of the opening 24 will cooperate with the beveled edge 28 of the striking plate to move the plate 15 against the action of spring 20 so that it will be caught in the notch 29. It is perfectly obvious that the door is firmly and securely held closed at such times when the plate 15 is seated in the notch 29.

In order that the latch may be positively locked from the outside of the door so that the door cannot be opened, an opening 41 is formed in the striking plate to receive a padlock 42. It is obvious how the padlock 42 when arranged in the opening 41 positively prevents opening of the door even though the plate 15 can be moved out of engagement with the notch 29.

The plate 17, at the inner side 18 of the door 10, is preferably a flat plate secured to the door 10 by the bolts 19 and also by suitable screws 43. The plate 17 is formed with a slot 44 to carry the pin 33. A knob 45 is mounted on the pin 33 at the outside of plate 17, providing a member by which the plate 15 may be operated from the inside of the door.

In the preferred form of construction a dog 50 is connected to the inner side, or face, of the plate 17 by a pivot pin 51 and is adapted to be positioned to engage the pin 33 when the mechanism is in the position shown in Fig. 2 of the drawings. The dog 50 when positioned to engage the pin 33 acts to positively lock the mechanism and prevent movement or manipulation of plate 15 such as would cause the plate to become disengaged or removed from the notch 29. In order that the dog 50 may be manipulated, or actuated, from the inside of the door a pin 55 extends from it through a suitable curved slot 56 formed in the plate 17. In Fig. 2 of the drawings the dog 50 is shown in a position to engage the pin 33, while in Fig. 4 of the drawings the dog 50 is indicated in a position where it will not engage the pin 33 and will not interfere in any way with manipulation of the plate 15.

From the foregoing description it will be obvious how the present invention may be very easily and inexpensively manufactured, how it may be very quickly and easily installed, and how it is simple and effective in operation. It may be particularly pointed out how the present invention may be employed in connection with very thin doors without rendering them unsightly and without mounting a casing or other protruding structure on either side of the door. In a construction provided by the present invention the only parts which extend or protrude from the door are those which control the operation of the mechanism.

Having set forth only a preferred embodiment of our invention we do not wish to limit or restrict ourselves to the specific details hereinabove set forth but wish to reserve to ourselves any changes or variations that may appear to those skilled in the art or that may fall within the scope of the following claims.

Having described a preferred form of our invention, we claim:

1. In combination, a door having a recess and a slot, a fixed striking plate having a notch, a flat latch plate slidably mounted on the one side of the door and having an opening adapted to receive the striking plate, a stationary flat plate mounted on the other side of the door and formed with a slot, a handle on the outside of the latch plate, a pin on the inside of the latch plate and extending through the slot in the door and the slot in the stationary plate, a spring arranged in the recess in the door and connected to the pin to normally hold the latch plate in position to extend into the notch when the door is closed, and means for moving the latch plate so that the striking plate will be received by the opening upon closing of the door.

2. In combination, a door having a recess and a slot, a fixed striking plate having a notch, a latch plate slidably mounted on one side of the door and having an opening adapted to receive the striking plate, a stationary plate mounted on the other side of the door and formed with two openings, a handle mounted on the outside of the latch plate, a pin mounted on the inside of the latch plate and arranged through the slot in the door and through one

of the openings in the stationary plate, a spring arranged in the recess in the door and connected to the pin to normally hold the latch plate in position to extend into the notch, a surface on the striking plate to engage the latch plate upon closing of the door to move the latch plate so that the striking plate will be received by the opening, a dog pivotally mounted on the inner side of the stationary plate and adapted to be moved to engage the pin and hold the latch plate in its normal position, and a pin extending from the dog through the other opening in the stationary plate.

In witness that we claim the foregoing we have hereunto subscribed our names this 16th day of October, 1920.

LOENDER C. EMERSON.
FRED. S. EMERSON.

Witness:
VIRGINIA BERINGER.