P. S. RIEL.

DOOR LATCH.

APPLICATION FILED JULY 28, 1919.

1,368,573.

Patented Feb. 15, 1921.

Fig. 1.

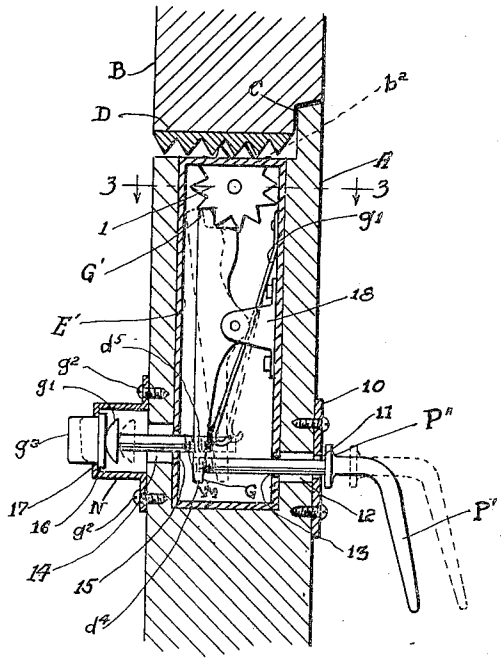


Fig. 2.

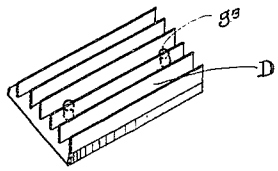


Fig. 3.

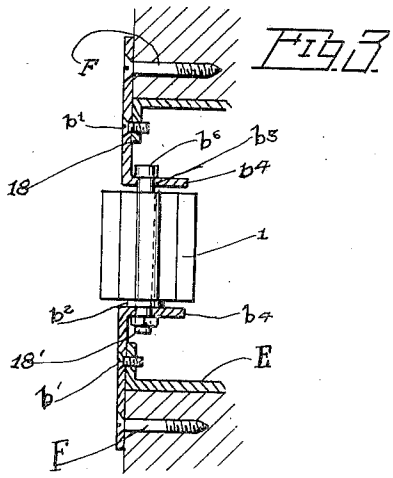


Fig. 4.

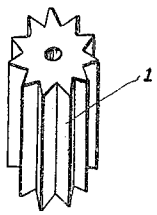
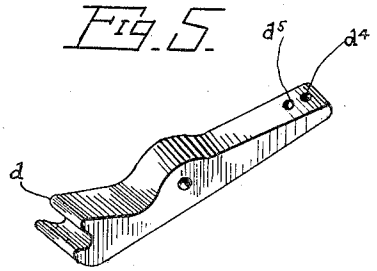


Fig. 5.



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UNITED STATES PATENT OFFICE.

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DOOR-LATCH.

1,368,573. Specification of Letters Patent. Patented Feb. 15, 1921.

Application filed July 28, 1919. Serial No. 313,665.

To all whom it may concern:

Be it known that I, PETER S. RIEL, a citizen of the United States, residing at Rochester, in the county of Monroe, State of New York, have invented certain new and useful Improvements in Door-Latches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in latches and particularly to self-locking latches for doors.

One object of the present invention is to provide a novel and improved device of this character whereby the door is effectively held from accidental opening.

Another object of the invention resides in the provision of novel and improved means for actuating the latch from within and from without.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawing.

In the drawing:

Figure 1 is a horizontal sectional view through a portion of a door and door casing, showing the interior mechanism of my lock in top plan view.

Fig. 2 is a perspective view of the rack bar carried by the door casing.

Fig. 3 is a vertical transverse sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a perspective view of the toothed wheel carried by the lock.

Fig. 5 is a perspective view of the pivoted dog.

Referring particularly to the accompanying drawing, A represents the free edge portion of a door, B the adjacent portion of the door casing, and C the rabbet in the door casing into which the edge of the door engages when in closed position. In the edge of the door there is formed a mortise E into which is seated the lock casing E′. Secured on the edge face of the door casing is a transversely extending toothed plate D the purpose of which will appear more fully hereinafter.

Secured to the outer face of the door is a plate 10 in which is formed a central opening 11 which registers with an opening 12 formed in the door and opening into the mortise E. Through the adjacent side of the lock or latch casing there is formed an opening 13 registering with the openings 11 and 12. In the opposite side of the door, and offset from the opening 12, is an opening 14, the same registering with an opening 15 formed in the adjacent side of the casing of the latch. Secured to the inner face of the door, and covering the opening 14, is an outwardly projecting casing N, in which is disposed a button g^3, the said button being stopped from outward movement by the engagement of its flange 16 with the inturned flange 17 of the casing. This casing is secured to the face of the door by means of the screws g^2.

Secured to the inner face of the inner wall of the casing E′ is a bracket 18 which pivotally supports the central portion of a dog G. One end of the dog is disposed between the openings 12 and 14, and is formed with a pair of threaded openings d^4 and d^5. Disposed through the opening 12 is a rod P the inner end of which is threaded and screwed into the opening d^4. The outer end of this rod P is provided with a radially extending hand lever or arm P′, whereby the rod can be moved outwardly when said arm is grasped by the hand of the operator. A flange P″ is formed on the rod, to prevent the said rod from moving inwardly too far. Through the opening 14 there is disposed a rod M the inner end of which is threaded and engaged in the opening d^5 of the dog G. The outer end of the rod M is provided with a head g' which bears against the inner end of the said button g^3 and holds said button normally outward.

In the outer end of the casing E′ there is formed a slot b^2, and rotating in this slot is a toothed wheel 1 which is mounted on a pivot pin or bolt b^6 supported in the portions b^4 of the angle members b^3. The adjacent end of the dog G is formed with a nose d' which engages with the toothed wheel, as clearly shown in Fig. 1. A leaf spring f' is secured at one end to the casing E′ and has its free end disposed against the apertured end of the dog G whereby said dog is normally rocked into such position that its nose is held in engagement with the teeth of the wheel 1.

Thus when the rod P is pulled outwardly the dog will be rocked on its pivot, against the tension of the spring f' and releases the nose of the dog from the wheel 1. Also when the button g^3 is pushed inwardly, the

rod M will similarly rock the dog and release the nose thereof from the wheel.

Secured to the face of the door casing B is a transversely disposed toothed rack plate D, beforementioned, with the teeth of which the teeth of the wheel 1 are arranged to mesh, and when the dog is in engagement with the teeth of the wheel 1, the rotation of said wheel is prevented and the door held against being pulled or pushed open until the button is pushed inwardly or the rod P is pulled outwardly. Normally the spring pushes the inner end of the dog toward the opening 14 so that the head of the rod M forces the button outwardly against the flange of the casing N.

The plate D is formed with the openings a^3 for the reception of suitable fastening means whereby the plate is secured to the door casing.

The plate b^3 forms the outer end wall of the casing E′ and is secured to the edge face of the door by the screws F, and is also secured to the casing E′ by the bolts b' which pass through said plate and the inturned flanges 18 of the casing E′.

It will thus be seen that when the door is moved toward closed position the wheel 1 will readily turn in mesh with the plate D until the door is closed, but that when it is attempted to open the door the dog engages with the wheel and prevents rotation thereof.

The present device will be found of great benefit when used on house doors, and on automobile and carriage doors. In the latter case, as well as in the former case, the necessity for slamming the door shut to cause the latch to take hold, is obviated. This is more especially noticeable in connection with carriage and automobile doors, it being absolutely necessary to slam or throw the door into closed position to insure the latch taking hold. This, in time, serves to loosen or break both the hinges and the latches of the doors.

With present device, it is only necessary to pull or push the door into closed position when the same is easily and effectively held in such position.

What is claimed is:

In a door latch, the combination with a door and adjacent portion of the casing, of a latch casing seated within a mortise in the edge of the door and having a transverse slot in its outer end, a star wheel mounted in the outer end of the casing and having its periphery rotatable in and through the slot, a toothed plate secured to the door casing for engagement by the toothed wheel, a pivoted detent normally spring urged into engagement with the toothed wheel, a transverse sliding push pin through one side of the door and engaging the other end of the detent for release thereof from the wheel, and a second transverse push pin slidable through the opposite side of the door and secured to the said end of the detent for releasing the detent from the wheel.

In testimony whereof, I affix my signature, in the presence of two witnesses.

PETER S. RIEL.

Witnesses:
HERBERT L. STOCKING,
SADIE E. PATTERSON.