(No Model.)

J. G. LANE.

LATCH.

No. 523,218. Patented July 17, 1894.

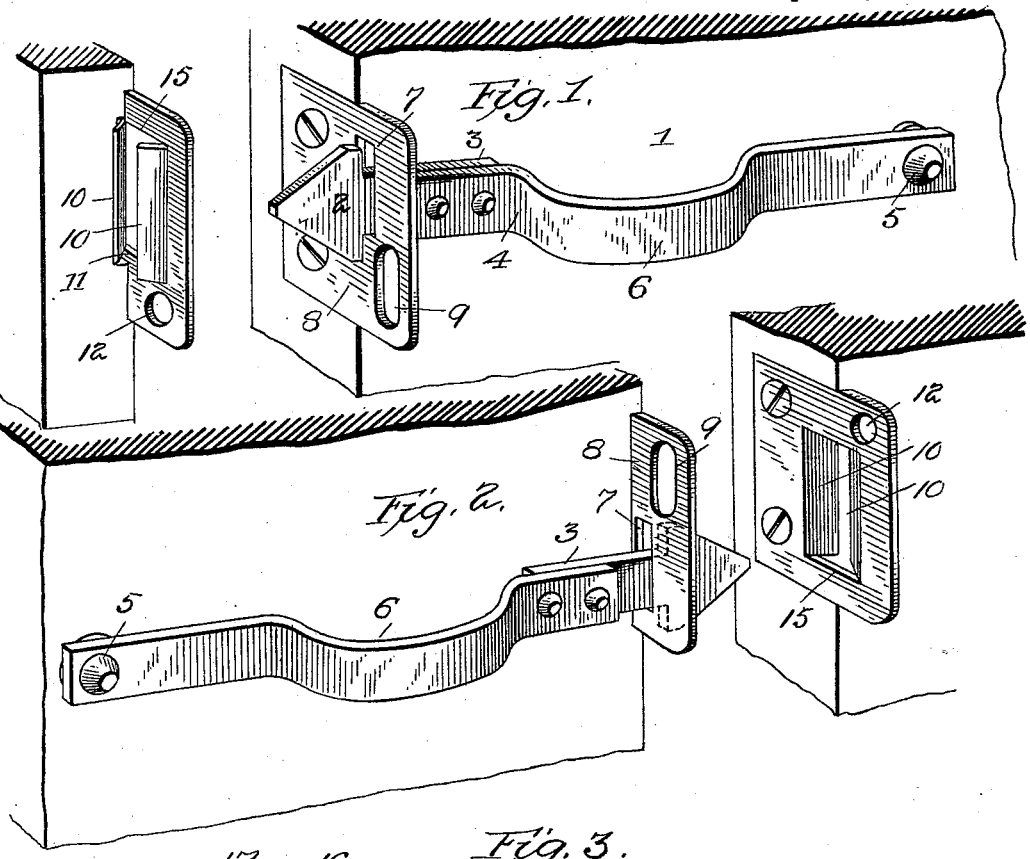

Fig. 1.

Fig. 2.

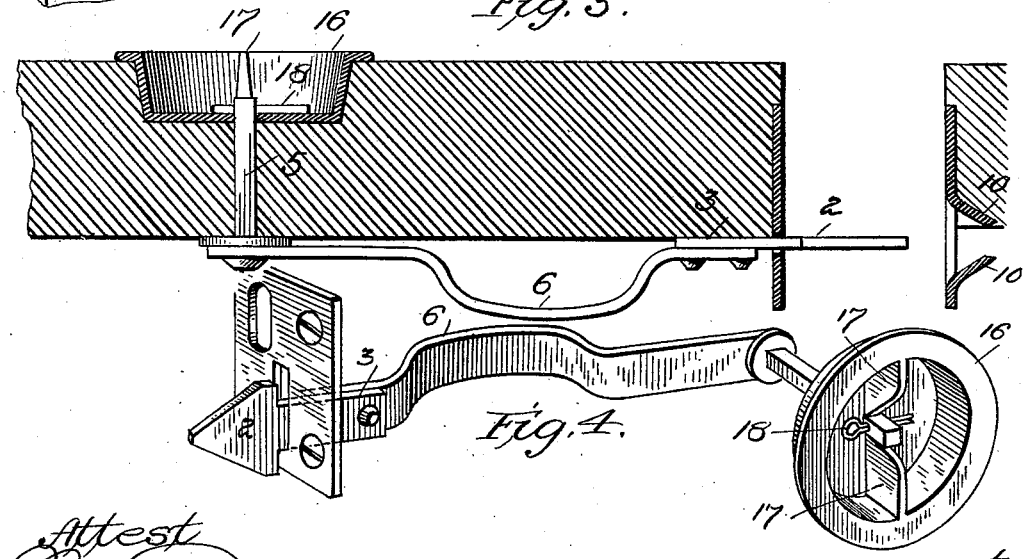

Fig. 3.

Fig. 4.

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LATCH.

SPECIFICATION forming part of Letters Patent No. 523,218, dated July 17, 1894.

Application filed November 24, 1893. Serial No. 491,913. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. LANE, a citizen of the United States of America, residing at Poughkeepsie, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Door-Latches, of which the following is a specification.

It is the object of my invention to provide a latch device for sliding doors comprising a latch proper, a latch plate and a catch plate which elements shall be reversible and therefore adapted for application to either the right or left hand edge of a door or for securing double doors together upon either the inside or outside thereof. All sliding doors are allowed more or less lateral play in sliding and it is therefore of great importance that the latch be guided to the opening in the catch plate with certainty, in order to avoid the annoyance and damage arising from the latch striking the plane surface. I therefore form the catch plate with inclined guiding faces which act to guide the latch laterally to the catch slot.

Other features of the invention relate to a flush or countersunk handle for operating the latch from the inside of the door, and adapted to operate the latch by the torsional strain of the connection between them which connection preferably consists of a square or angular pivot pin; further to the relative lengths and arrangement of the slots in the latch and catch plates in order to prevent the latch, when lifted to disengage the catch plate, from engaging with the upper part of the same and thus requiring extra care on the part of the operator; and the invention includes other features hereinafter pointed ont.

In the drawings:—Figure 1, is a perspective view of a part of a door with my invention applied. Fig. 2, shows the parts in reversed position. Fig. 3, is a sectional view through the door along the line of the latch pivot showing the countersunk handle connected thereto. Fig. 4, represents details of the latch.

The door 1, is representative of any well known form of sliding door whether double or single. The latch 2 comprises the arrow shaped head, the shank 3 of which is formed with or riveted to the body portion 4 pivoted at 5 to the door. This body portion consists of a flat bar bent outwardly at 6 from the face of the door to be conveniently grasped by the hand for operating the latch or sliding the door. The shank 3 works in a narrow slot 7 of the latch plate 8 and this slot limits both the upward and downward movement of the latch head.

The latch plate is held by screws in the mortise in the door edge and consists of a perfectly flat plate having the narrow slot mentioned and also the elongated opening 9 for receiving a padlock, these openings being formed in the portion of the plate projecting from the door and at right angles to the face thereof. The catch plate is likewise formed from a flat plate, its slot for receiving the latch being made by striking the flanges 10, 10 back from the face of the plate in inclined position. The narrow space between the rear edges of these flanges or lips receives the arrow head of the catch to hold it with the door in correct position laterally. These flanges flare outwardly toward the front of the plate and consequently the opening at the face is of considerable width for receiving the catch with certainty notwithstanding any lateral oscillation the door may have in sliding. The catch on striking the inclined flanges or faces is positively directed to a central position where it is held by the flanges engaging its sides. The catch drops by gravity and engages the edge 11 of plate and it is thus held securely. All danger of the latch striking the plane surface is prevented and thus all the annoyance and damage arising therefrom avoided, and it requires no care on the part of the operator in order to insure proper engagement of the latch with the catch plate. The flat surfaces of the catch and latch plates come together on closing the door and the screws securing them in place are thus covered and rendered inaccessible from the outside. The catch plate has an opening 12 in one corner and a padlock may thus be used to fasten the door by passing the padlock bolt through the openings 9 and 12, in the latch and catch plates respectively.

Fig. 2, shows the position of the parts reversed from the position of Fig. 1, and it will be noticed that in both positions the elongated opening in the latch plate will register with the opening in the catch plate. In both

positions also the arrow head of the latch will be guided by the inclined faces of the catch plate and in the reversed position the arrow head will engage with the upper edge 15 (Fig. 1) of the catch plate.

As before stated the slot in the latch plate is of such length to allow the latch only a limited movement, sufficient to allow the latch to free itself from the catch plate. The opening in the catch plate is longer than that in the latch plate and these plates are so arranged with reference to the relative positions of the slots that on closing the door the latch may enter and engage the catch and upon lifting the catch for opening the door it will be limited by the short slot in the latch plate and will not catch again at the upper end of the longer slot in the catch plate. This arrangement presents the advantage that the latch can be quickly lifted and the door set in motion without requiring any special care on the operator's part and from the foregoing it will be seen that in both opening and closing special provision has been made for the correct and certain operation of the parts.

The particular arrangement of slots in the plates is the same whether they be in the position of Fig. 1 or the reversed position of Fig. 2, and the same result is accomplished.

In order to operate the latch from the back or inside of the door the pivot bolt 5 is extended through the door and thus serves the twofold purpose of pivot bolt and operating connection or spindle. This bolt may be secured to the latch body in any desired manner in order to secure a rigid connection adapted to withstand the torsional strain when the spindle is turned from the inside but I prefer to use a square pivot bolt passing through a square hole in the latch and having its head seated against the outside of the same and with a washer on the bolt between the latch and the face of the door.

The handle for turning the spindle or pivot bolt consists of a cup shape shell 16 having a flange adapted to bear and turn against the face of the door or against a block secured thereto while the cup shaped part of the handle fits in a socket formed in the door or the block thereon. The bottom of the handle has a square hole through which the square spindle passes and when this handle is turned by the operator grasping the finger pieces 17 in the cup, the cup will be turned and with it the spindle and latch carried thereby. This handle being counter-sunk as shown is out of the way and does not offer any portion projecting from the face of the door which would prevent its complete movement. The handle is secured to the square spindle by the split pin 18 passing through the spindle.

The cup shaped handle on the one face and the bent body part of the latch on the other face of the door affords convenient hand holds for sliding the door in either direction or from either face.

Instead of the single elongated opening in the latch plate two holes may be made instead.

I claim—

1. In combination in a latch, the latch piece, the latch plate, the catch plate both of said plates consisting of the plain pieces adapted to fit face to face between the edge of the door and frame, said catch plate having rearwardly extending converging flanges forming a flaring guiding opening for the latch, an edge 15 to engage the latch and having also a slot between the rear edges of the flanges for the passage of the latch, substantially as described.

2. In combination, in a latch, the latch piece and catch plate having the opening for receiving the latch the inclined faces converging rearwardly to guide the latch and sliding door laterally, the slot at the rear edges of said faces for the passage of the latch and the edge 15 at the front of the plate to engage the latch substantially as described.

3. In combination in a latch, the latch piece and the catch plate having an opening in its face and the flanges struck out of the catch plate and inclining toward each other with a narrow opening between their rear edges, substantially as described.

4. In combination, the latch piece, the pivot bolt passing through the door, and the handle adapted to be counter sunk and consisting of the cup shaped piece secured on the pivot bolt to turn thereon substantially as described.

5. In combination, the latch piece, the door, the countersunk handle consisting of the rotary cup shaped piece with finger bearings therein and the connection from said handle to the latch piece.

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

JOHN G. LANE.

Witnesses:
G. H. SHERMAN,
J. W. RUST.