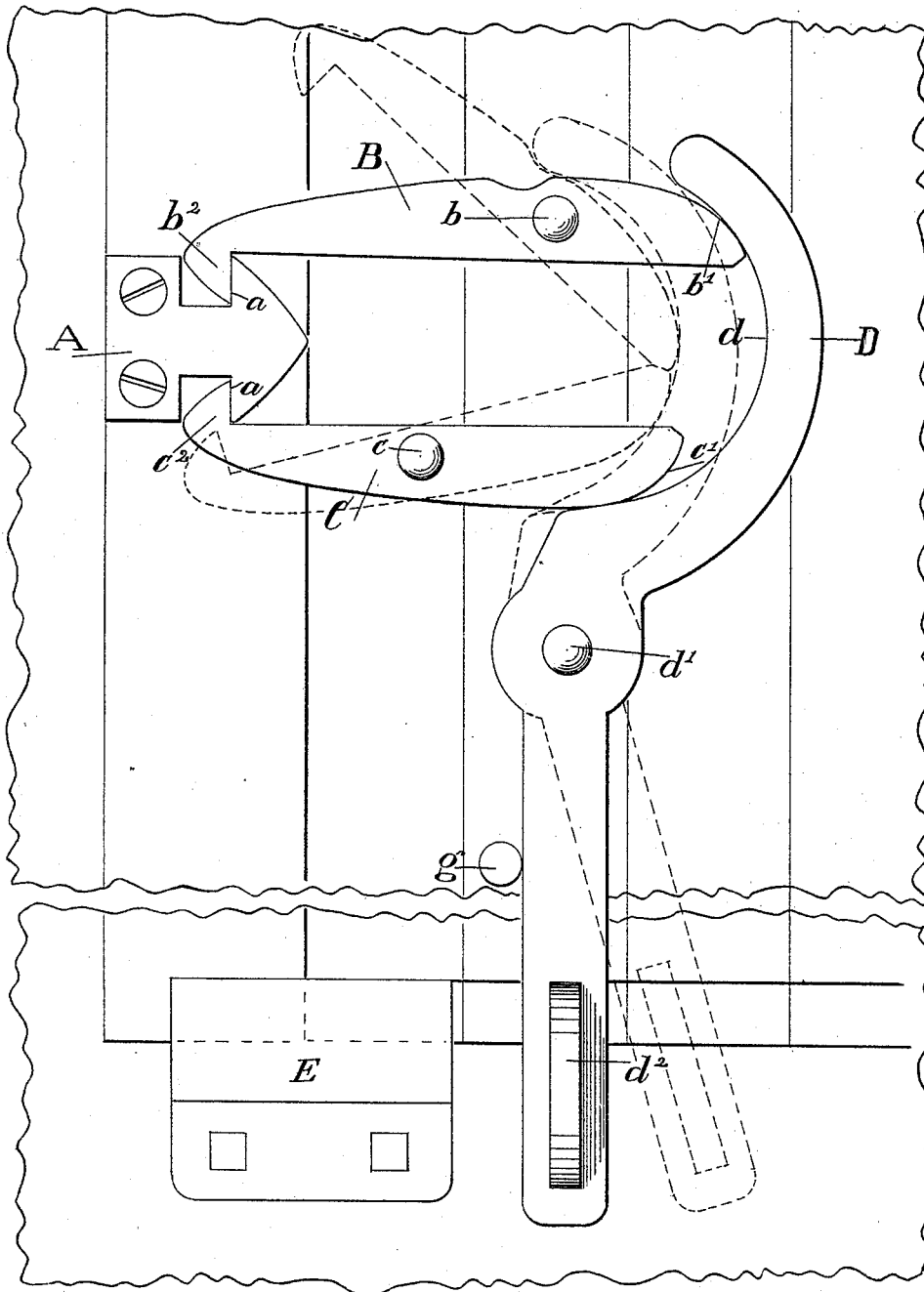


(No Model.)

G. D. MERRILL.
DOOR LATCH.

No. 419,966.

Patented Jan. 21, 1890.



WITNESSES:

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GILBERT D. MERRILL, OF MECHANICSVILLE, NEW YORK.

DOOR-LATCH.

SPECIFICATION forming part of Letters Patent No. 419,966, dated January 21, 1890.

Application filed October 9, 1889. Serial No. 326,523. (No model.)

To all whom it may concern:

Be it known that I, GILBERT D. MERRILL, a citizen of the United States, residing at Mechanicsville, in the county of Saratoga and 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.

My invention is applicable to doors and gates generally, but is especially adapted to be used on sliding doors of freight-cars, and has for its objects, first, to provide a latch which is automatic in its action in locking; second, to provide such a latch with means adapted to unloosen the latch and move the door by the same operation. These objects I accomplish by the means illustrated in the accompanying drawing, and hereinafter described.

A represents a keeper secured to the door stop or casing of a car in any suitable manner. The upper and lower edges of the keeper are provided with notches *a*. The forward portions of these edges incline toward and meet each other, making the forward edge of the keeper wedge-shaped.

B represents an arm arranged horizontally and supported freely by a pivot *b*. The forward end of this arm is provided with a projection *b*² extending downward, adapted to engage the upper notch *a* of the keeper.

C represents an arm similar in general construction to the arm B, supported freely by the pivot *c*. The forward end of the arm is provided with the projection *c*², which is adapted to engage with the lower notch *a* of the keeper.

The pivot *b*, which supports the upper arm B, is located back of the center of gravity of the arm, so that the forward end of the arm will tend to drop downward and hold the projection *b*² in engagement with the upper notch *a*. The pivot *c* is located forward of the center of gravity of the arm C, in order that the forward end of the arm may have an upward tendency, so as to cause the projection *c*² to automatically enter the lower notch *a*.

D represents a vertically-disposed arm or lever, supported by means of the pivot *d*'. The upper end of this arm is curved in front and engages the correspondingly-curved ends

of the horizontal arms B and C. The lower end of the arm serves as a lever for unloosening the latch, and is provided with a handle of any ordinary construction, such as is represented by *d*², adapted to serve as means for sliding the door.

In the drawing the several parts are shown in the position assumed by them when the door is closed. When it is desired to open the door, the lower portion of the arm D is moved by means of the handle *d*² until the handle takes the position substantially indicated by the dotted lines shown in the drawing. A backward movement of the lower end of the vertical arm D causes the upper end of said arm to move forward, and the curved forward edge *d*, acting upon the curved rear ends of the arms B and C, causes the forward ends of these arms to separate from each other and to disengage from the notches *a* of the keeper. The door is then free to be opened by a continuation of the backward movement of the handle *d*². To close the door the handle *d*² is drawn forward. The forward ends of the arms B and C, which have a tendency to come together in consequence of the position of their supporting-pivots, are separated by coming in contact with the inclined front edge of the keeper A, and when the door is closed the projections *b*² and *c*² of the arms B and C automatically engage with the notches *a* of the keeper.

Means of any suitable construction may be used for preventing the forward end of the arm B from dropping below the central point of the front edge of the keeper A and also for preventing the forward end of the arm C from rising above said point. A stop *g* may be used to prevent the lower end of the vertical lever from being drawn too far forward. When such a stop is used, the upper curved end of the lever holds the horizontal arms B and C in place. Any other means having similar capabilities may be used, however, without departing from my invention.

A single arm B may be used, if desired, without the lower arm C; but I prefer the construction herein shown, because of its increased strength and security. The horizontal arms B and C and the vertical arm D may be attached to a plate, which may be secured to the car-door; or they may, if desired, be

pivoted directly and independently to the door, as shown.

What I claim is—

1. In a door-latch, the combination, with a
5 notched keeper, of horizontally-disposed pivoted arms provided with curved rear ends, and a vertically-disposed pivoted arm having a curved upper end adapted to engage the curved rear ends of the horizontal arms, sub-
10 stantially as shown and described.

2. In a door-latch, the combination, with a notched keeper, of horizontally-disposed pivoted arms, the upper arm being pivoted back of its center of gravity and the lower arm forward of its center of gravity, and a vertically-
15 disposed pivoted arm having a curved upper end adapted to engage with the ends of the horizontal arms, substantially as shown and described.

3. In a door-latch, the combination, with 20 the keeper A, provided with a notch *a* on its upper edge and having the forward portion of said upper edge inclined, of the horizontally-disposed lever B, pivoted back of its center of gravity, and the vertically-disposed 25 centrally-pivoted lever D, having the forward edge of its upper end curved to correspond with the curved upper edge of the rear portion of the lever B, substantially as shown and described.

In testimony whereof I affix my signature 30 in presence of two witnesses.

GILBERT D. MERRILL.

Witnesses:

ROBERT W. HARDIE,
JOHN H. WALRATH.