

(No Model.)

J. R. GRAY.

DOOR LATCH.

No. 302,397.

Patented July 22, 1884.

Fig. 1

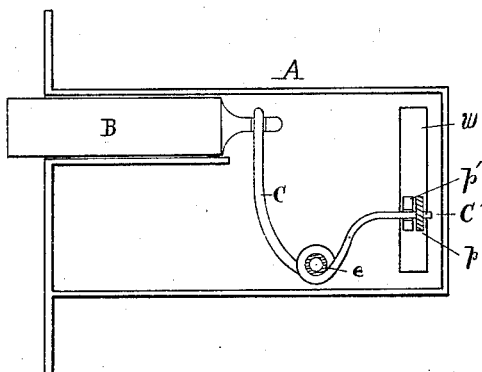
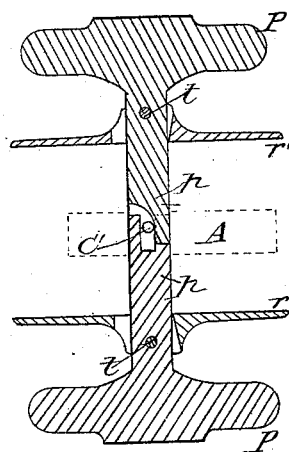


Fig. 2



Witnesses:  
*George H. Allen*  
*Jacob Appell*

Inventor:  
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# UNITED STATES PATENT OFFICE.

JAMES R. GRAY, OF AYER, MASSACHUSETTS.

## DOOR-LATCH.

SPECIFICATION forming part of Letters Patent No. 302,397, dated July 22, 1884.

Application filed April 10, 1884. (No model.)

### *To all whom it may concern:*

Be it known that I, JAMES R. GRAY, a citizen of the United States, residing at Ayer, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Door-Latches; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which constitute a part of this specification.

My invention relates to that class of door-latches in which the bolt moves horizontally, and has for its object to provide a latch that shall be drawn back by an upward motion of the knob or pull, instead of a rotary one, as heretofore, and shall be closed or forced forward solely by the weight of the knob or pull, returning to its normal position by the action of gravity and without the aid or use of springs.

Referring to the drawings, Figure 1 is a plan or side view of the case A, having the usual construction, the cap or removable side being omitted to show the interior arrangement of parts, consisting of the bolt or latch B, the angle-lever or elbow C, which operates the bolt B, and the vertical slot W, which admits the arms  $p p'$  to the interior of the case. Fig. 2 is a vertical cross-section showing the knobs or pulls  $P P'$ , the collars  $r r'$ , and the manner of interlocking the inner ends of the arms  $p p'$  with the end  $C'$  of the elbow C.

In Fig. 1 it will be observed that in order to throw the bolt B back and forth it is only necessary to work the elbow C on the fixed stud  $e$ . The pulls  $P P'$ , Fig. 2, being pivoted at  $t t$  to the collars  $r r'$ , each pull becomes a lever, the inner arms,  $p p'$ , of which are interlocked with the arm  $C'$  of the elbow C by means of the slots in the ends of the arms  $p p'$ , as shown. When either of the pulls  $P P'$  is raised, its inner end or arm is correspondingly depressed, carrying with it the arm  $C'$  of the elbow C, and the bolt B is drawn back.

45 When the hand is withdrawn from its pull, it returns to its normal position by its own gravity, and the bolt B is thrown forward.

In order that the bolt B may yield back more

readily when its beveled face strikes the guard on the adjacent casing, and thus require less force to close the door by pushing against it, the arm  $p'$  may be cut away on its under side, as shown, so that it only acts upon the elbow  $C'$  in one direction, and the weight of the pull  $P$  alone forces the bolt B forward or resists its backward movement when pressing against the guard. The arm  $p'$  need not be thus cut away, however, if the knobs are made sufficiently light.

The elbow or angle-lever C is shown as made from wire coiled one or more times around the fixed stud  $e$ , but may be cast or punched from sheet metal, if preferred.

In carrying out that part of my invention which consists in utilizing the weight of one or both knobs to throw forward the bolt, I do not limit myself to an angle-lever as a means of connecting or combining such knob and bolt, as I am aware that the inner arms,  $p p'$ , could be connected to the bolt B by other convenient means than the angle-lever C, and which would draw the bolt back as the arms  $p p'$  moved downward; but I have only shown that form which I regard as best adapted to accomplish the result described.

Having thus described my invention, what I claim is—

In a door-latch, the combination, with latch-case, of a sliding bolt, a door-pull fulcrumed within the rose and adapted to be raised for the purpose of retracting the bolt, and an intermediate angle-lever fulcrumed within the latch-case, one arm of such lever being interlocked with said bolt, and the other arm being interlocked with the inner end of said pull, whereby the bolt shall be retracted by the elevation of the pull, and then forced forward by such pull, returning to its normal position by the action of gravity, as set forth.

In testimony whereof I have affixed my signature hereunto in the presence of two subscribing witnesses.

JAMES R. GRAY.

Witnesses:

GEORGE H. ALLEN,  
JACOB APPELL.