

(No Model.)

J. P. HARRISON.

DOOR SPRING.

No. 376,435.

Patented Jan. 17, 1888.

Fig. 1.

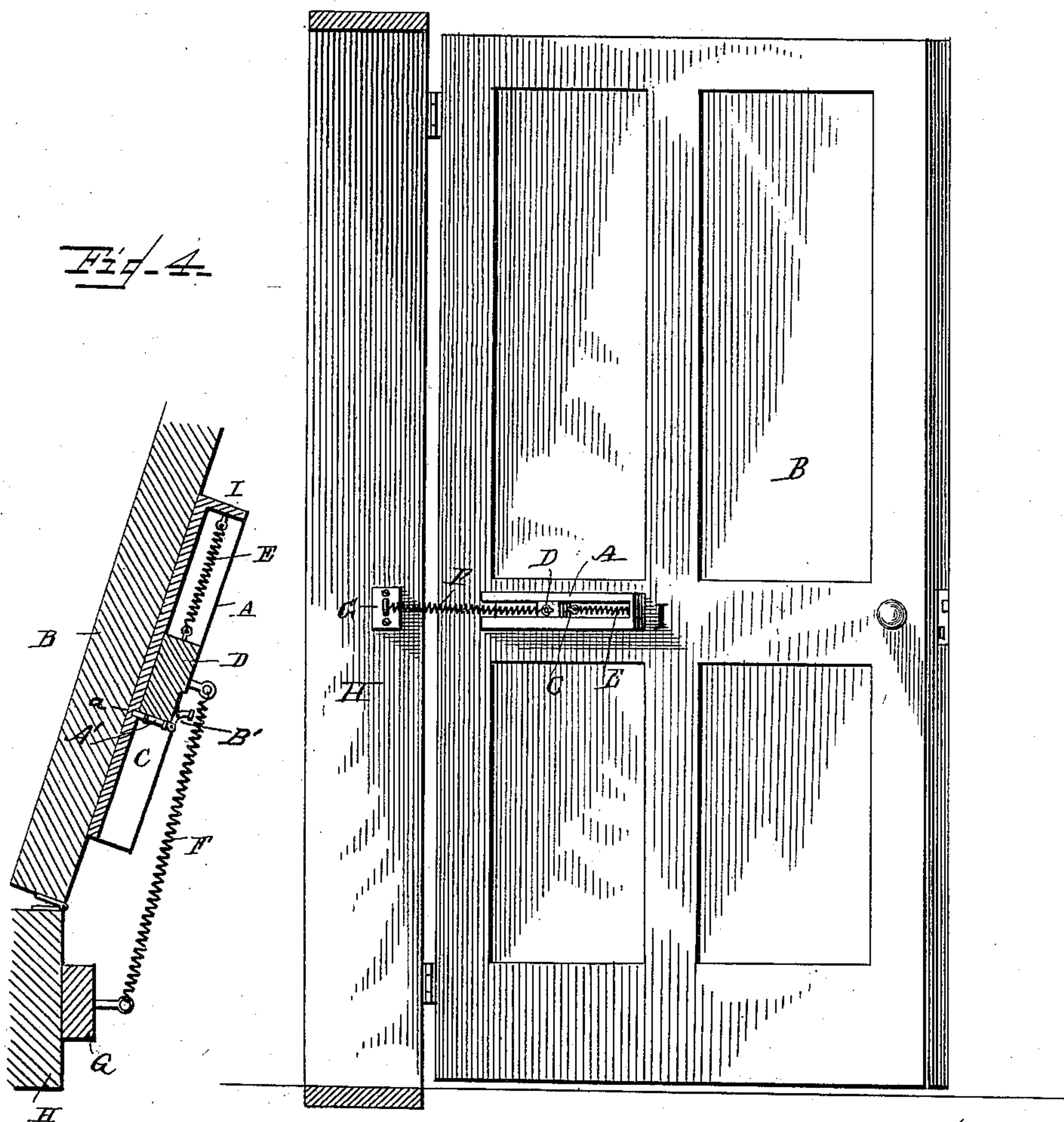


Fig. 2.

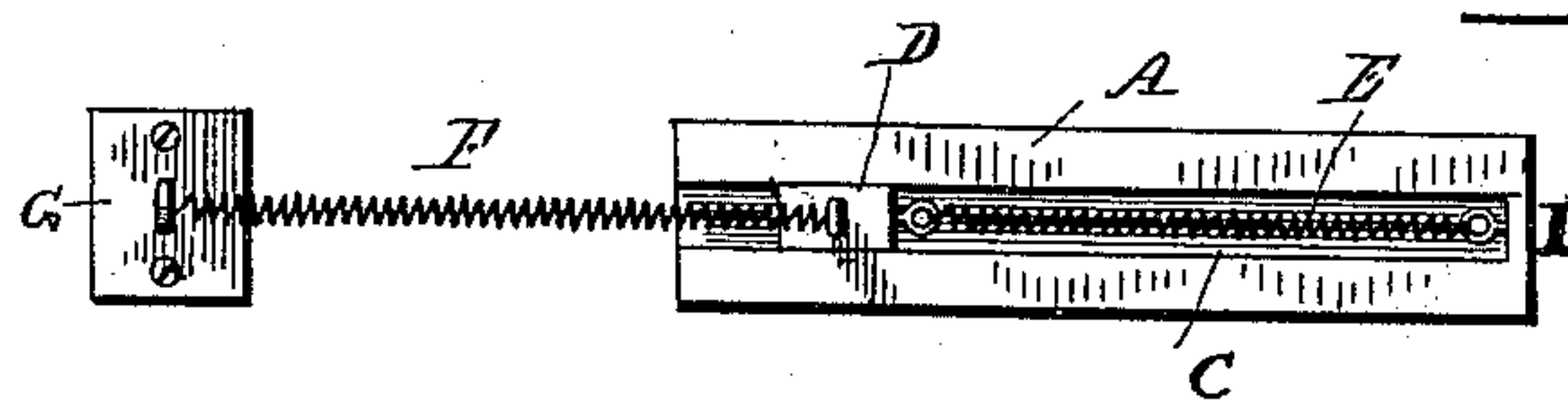


Fig. 3.



WITNESSES

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DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 376,435, dated January 17, 1888.

Application filed April 20, 1887. Serial No. 235,493. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. HARRISON, a citizen of the United States, residing at Danville, in the county of Pittsylvania, State of Virginia, have invented certain new and useful Improvements in Door-Springs, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in door-springs.

The object of my invention is to provide a cheap and reliable spring which will close the door at all times without slamming, as will more fully hereinafter appear.

Referring to the drawings, Figure 1 is a view in elevation of a door and door-frame with my improved spring secured thereto. Fig. 2 is a front view of my improved spring. Fig. 3 is a sectional end view of the spring-containing block, showing a dovetailed groove for the reception of a dovetailed block. Fig. 4 is a sectional plan view showing a bolt for locking the sliding block until the springs are in alignment, when the bolt will be disengaged and the block released.

A indicates a block which is secured to the door B near the hinged side, and in the face of said block is formed a dovetailed groove, C, said groove being designed to receive a dovetailed block, D, adapted to move back and forth in said groove.

E is a spiral spring, one end of which is secured to the block A at the end of the dovetailed groove and adapted to lie in said groove, while the other end of said spring is secured to the front end of the sliding block D.

F is a spiral spring, one end of which is secured to the sliding block D, while the other end is attached or secured to the block G, which in turn is secured to the casing of the door H.

The operation of my improved spring is as follows: When the door is being opened, the spring F is extended and the sliding block is drawn toward the rear end of the dovetailed groove. The tension of this spring when the door is being opened is at an angle to the groove C, which tends to pull the sliding block forward, and the frictional contact of the block with the sides of the groove prevents said block from moving to any great extent in the groove

until the spring F is on a line parallel with the groove C. At this point the block D is drawn toward the rear end of the groove by the spring F, but its movement is resisted by the spring E, said spring being distended as the block D is forced back by the continued pressure exerted in opening the door. When the door is released, the recoil of the spring F allows the block to be drawn back in the slot C by the tension of the spring E.

The opening of the door does not distend the spring E to any great extent until it is opened beyond the exact alignment. When the spring F does little work, E comes into play, so that when the force of the spring F has been expended and the tension of the spring E has been relaxed said spring will act as a buffer to prevent the further forward movement of the block D, and in this way the door is freed from the action of the springs and prevented from being brought too rapidly against the casing of the door.

It is not essential that the groove should be dovetailed; but any kind of slot or groove may be used which will answer the purpose.

In some cases the groove in the block A may be provided with notches and the block D with projections on its top to fit into the notches in the groove, so that the block A will be held in position by the direct strain of the spring F until said spring F is brought into alignment and exerts its power in the direction of the length of the block A. Then the spring E will have a tendency to draw the block D down to the bottom of the groove and release it from the notches, thus transferring a portion of the strain exerted on the spring F to the spring E, and in this manner divide the strain.

In Fig. 4 I have shown a modification in which the block D is held by a bolt, A', which engages with a hole, a, in the bottom of the groove C until the door is nearly open, when the spring F will impinge on the lever B' of the bolt A' to raise said bolt and unlock the block D.

The bolt A' may be provided with a spring or other suitable device for forcing it back into the hole a, when the block is returned to its normal position.

The springs E and F may be provided with

any suitable device for tightening them when they become weakened by constant or continued use.

Having thus described my invention, what I
5 claim, and desire to secure by Letters Patent, is—

1. In a door-spring, a block to slide or be moved in ways on the door or casing, in combination with springs to act upon the block
10 upon both sides and in both directions, substantially as set forth.

2. In a door-spring, the combination of the

dovetailed grooved block A, sliding block D, fitting within the groove, spring F, secured to the sliding block and to the door-frame, and 15 the spring E, also secured to the sliding block and to the grooved block A, all substantially as and for the purpose set forth.

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

JAMES P. HARRISON.

Witnesses:

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