(No Model.)

2 Sheets—Sheet 1.

H. F. SHAW.

GRAVITATING DOOR CHECK AND CLOSER.

No. 365,491. Patented June 28, 1887.

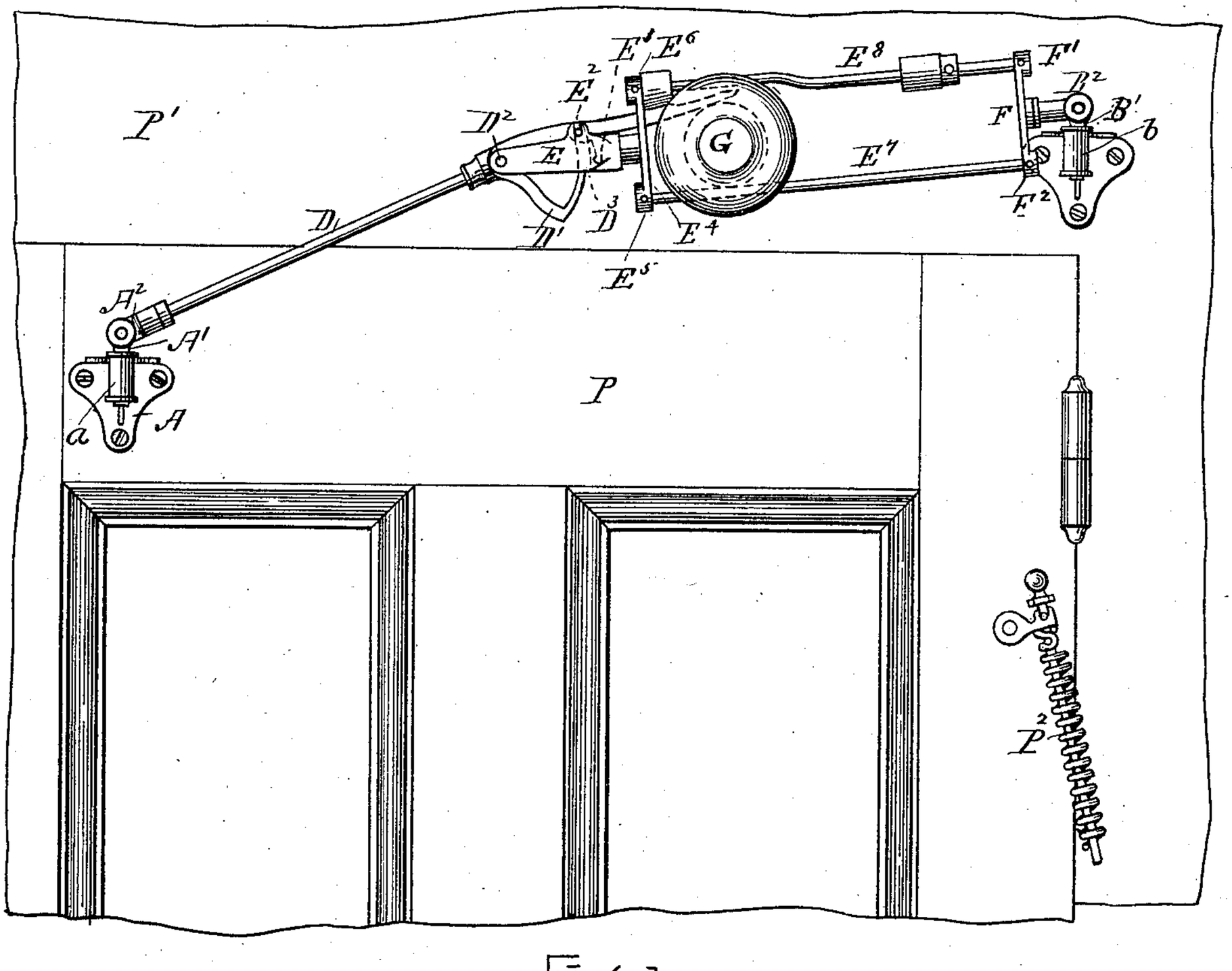

Fig. 1.

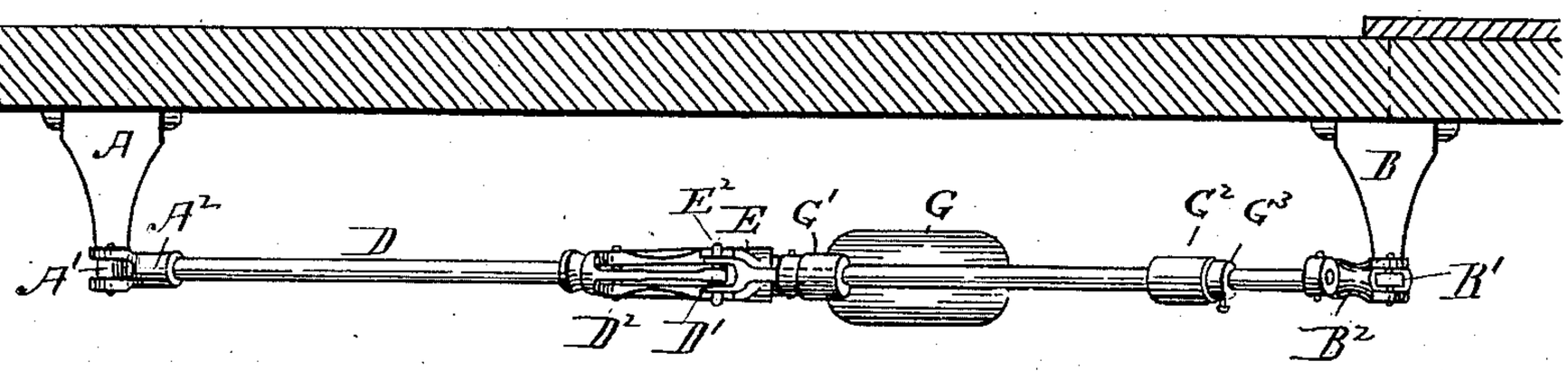

Fig. 2.

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Frank G. Parker
Wm. A. Wilson

INVENTOR,
Henry F. Shaw

(No Model.) 2 Sheets—Sheet 2.

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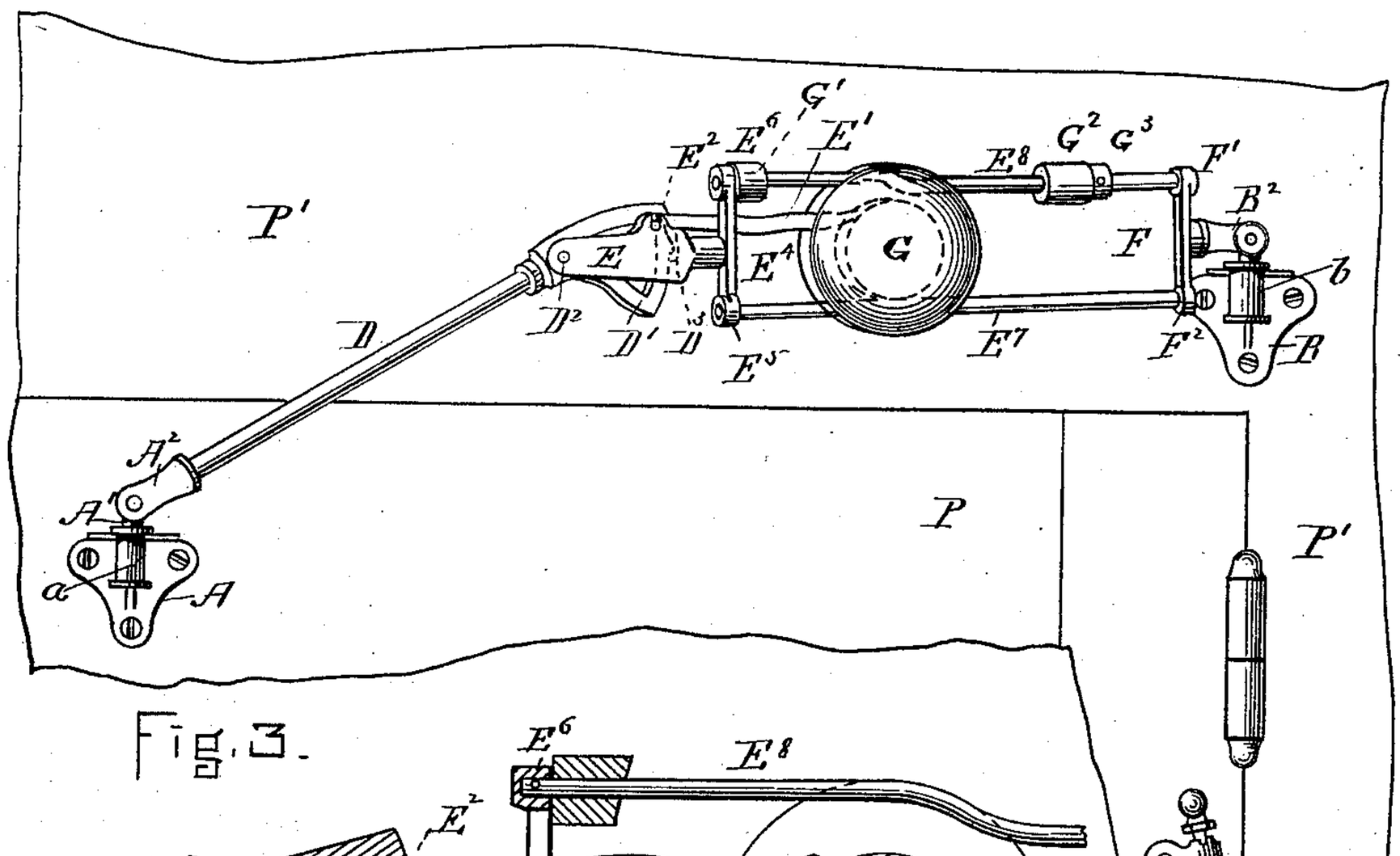

Fig. 3.

Fig. 5.

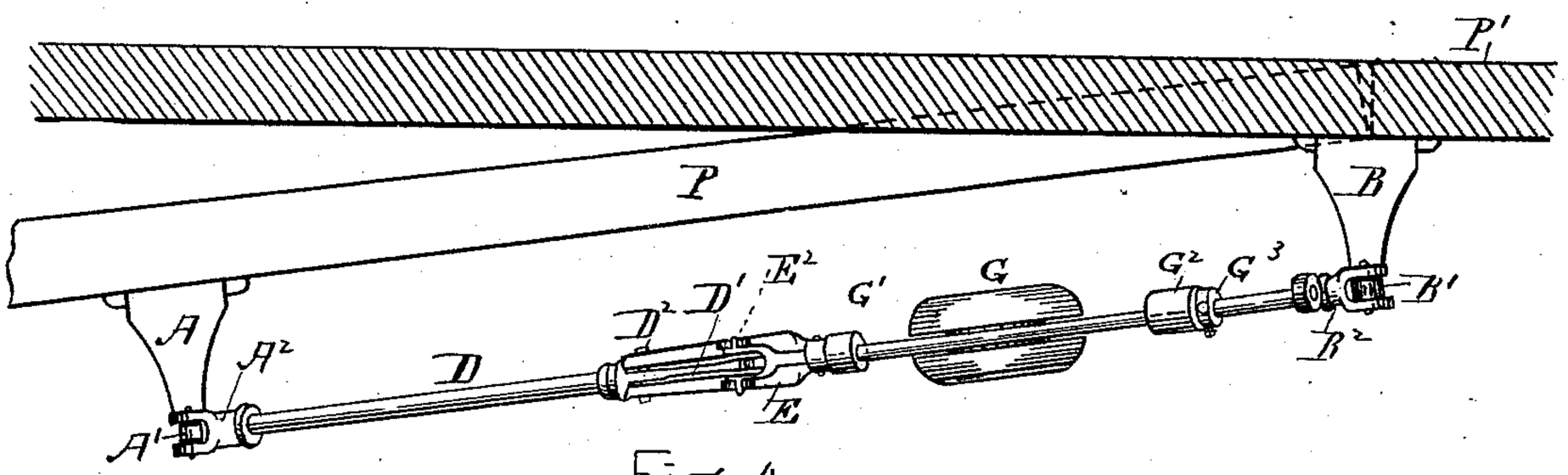

Fig. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

HENRY F. SHAW, OF BOSTON, MASSACHUSETTS.

GRAVITATING DOOR CHECK AND CLOSER.

SPECIFICATION forming part of Letters Patent No. 365,491, dated June 28, 1887.

Application filed April 27, 1887. Serial No. 236,357. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. SHAW, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Door-Checks, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of door-closing attachments which while closing the door promptly check its motion to prevent slamming.

The object of this invention is to provide a simple, durable, and inexpensive article, not liable to get out of order, as do those which act by pneumatic pressure, and at the same time easily attachable, and when the door is swung back acting as a weight to hold it open. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the door-check attached to the door, represented as closed. Fig. 2 is a plan of the same. Fig. 3 is an elevation showing the door in the position when checked in its closing motion—that is, when nearly closed, Fig. 4 being a plan of the same; and Fig. 5 is an enlarged section of a detail of the same.

P represents the door hung to the casing P′ in the ordinary manner, and actuated by a closing-spring P^2 of any desired pattern. The door-check is attached to the door by the bracket A and to the casing by the bracket B, each bracket having a socket, *a* or *b*, into which the pivotal pins A′ and B′ are dropped but not fastened, thereby allowing an easy detachment of the door-check. These pivotal pins are connected at their upper ends to the actuating mechanism by means of swinging arms A^2 B^2, and through them the motion of the door acts on and is governed by the check. A flexible steel rod, D, is secured on the arm A^2, and a segment, D′, has its center at the pivot D^2, which pivot is fixed in the slotted arm E. The segment D′ has a notch, D^3, in its periphery. A bent lever, E′, is pivoted upon the slotted arm E at E^2, having a projection, E^3, Fig. 5, which engages with the notch D^3 on the segment-piece D′. The arm E is provided with a cross-arm E^4, (see Figs. 1, 3, and 5,) to which is fastened at E^6 and E^5 two steel rods, E^7 and E^8, having their other ends fastened in a similar manner to the cross-arm F at F′ and F^2. The upper rod, E^8, is provided with elastic stops G′ and G^2. The cross-arm F is connected by the swinging arm B^2 to the pin B′. The actuating frame being pivoted at A^2 B^2, and having a joint at D^2, forms a toggle-joint having its center at D^2, and as a whole swinging with the door. Between the rods E^7 and E^8 is placed a rolling weight, G, grooved on its periphery and rolling on the rod E^7, the rod E^8 acting as its guide to keep it perpendicular. The opening of the door shortens the distance between the bearings A^2 and B^2, and thus elevates the center of the toggle, whereby the weight G is by gravity rolled backward against the elastic stop G^2. When properly affixed to the door and casing, the brackets must have such a relative height as will cause the weight G to roll toward the center pivot, D^2, when the door is about four inches open. This elastic stop G^2 is fixed on the rod E^8 by the movable collar and set-screw G^3, the purpose of which will be explained farther on. When the weight G is rolled backward from the center, the lever E′ drops by gravity, and the tooth E^3 thereby engages with the notch D^3 in the segment D′, Fig. 5, thus preventing the segment D′ from turning, thereby holding the joint D^2 rigidly. The rods D F^8 F^7 and connecting parts then become as a single bent rod, with an angle at D^2, and any further motion of the door tends to straighten the angle and lengthen the distance between A^2 and B^2. When the door is within about four inches of closing, were all the parts rigid the door would come to a dead stop; but the resilience of the rod D allows considerable more closing motion to take place, and then draws back (toward opening) the door with a rebound. The weight G in the meantime rolls forward against the lever E′ and raises it, unlatching the projection E^3 and allowing the joint D^2 to straighten and the door to gently close. To do this properly the set-screw G^3 is set at such a point as to time the motion of the weight and to meet the rebound of the door when the lever is being raised. The weight then acts on the toggle-joint to supplement the action

of the spring C in closing the door, which always occurs when the parts are properly adjusted.

I claim –

1. In a door-check, the combination of the pivotal joint B′ B², frame F E⁷ E⁸ E⁴, and arm E, with rolling weight G, lever E′, having a projection, E³, the segment D, having a notch, D³, the resilient rod D, and the pivotal joint A² A′, all operating together, substantially as described, and for the purpose set forth.

2. In a door-check, the combination of a weight-guiding frame F E⁷ E⁸ E⁴ with a mechanism for connecting the same to a resilient rod, D, and the resilient rod D, all arranged to operate substantially as described, and for the purpose set forth.

HENRY F. SHAW.

Witnesses:
FRANK G. PARKER,
WM. A. WILSON.