(No Model.)

W. C. SMITH.

DOOR SPRING.

No. 454,078. Patented June 16, 1891.

Fig. 1.

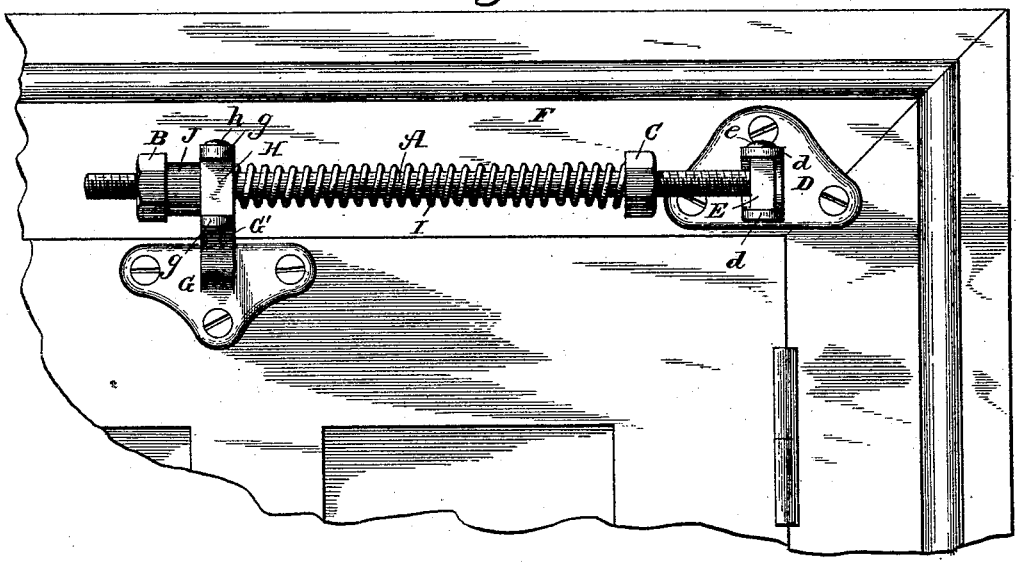

Fig. 2.

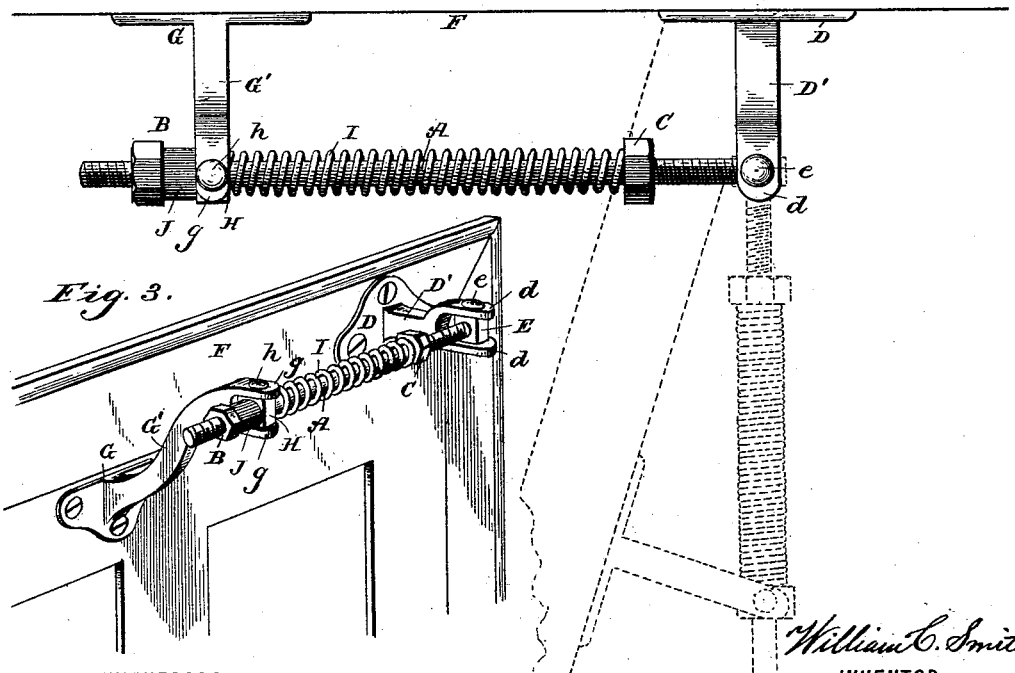

Fig. 3.

WITNESSES:

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WILLIAM C. SMITH, OF WARSAW, MISSOURI.

DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 454,078, dated June 16, 1891.

Application filed June 26, 1890. Serial No. 356,806. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. SMITH, a citizen of the United States, residing at Warsaw, in the county of Benton and State of Missouri, have invented certain new and useful Improvements in Spring Door-Closers; 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.

This invention appertains to door-springs, and has particular relation to the means for mounting and securing the spring to the door and to the casement or jamb of the door, whereby simplicity and economy of construction is attained with efficiency and satisfactory results.

The object of the invention is to utilize the spring in the dual capacity as a means for opening the door and closing the same; also, to construct the fixtures so that there will be no interference between them, thereby permitting the door to be opened to its fullest extent.

A further object of the invention is to obviate the slamming of the door and the consequent jar and annoyance experienced thereby.

Another object of the invention is to hold the door open at any required angle and to improve the general construction of the device, whereby its usefulness is increased to an eminent degree and it will be positive in its action.

The improvement consists of the novel features and the peculiar constructions and combinations of parts, which hereinafter will be more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a front view of the upper corner of a door and its casement, showing the application of the invention. Fig. 2 is a top plan view showing the door open and the spring about on a dead-center by dotted lines. Fig. 3 is a perspective view of the door-spring and as much of the door and casement as seen in Fig. 1.

Similar letters denote corresponding parts in the several figures of the drawings.

Referring to the parts by letter, A represents a rod, which is threaded for a short distance from each end, and which is provided with nuts B and C at its respective ends, for the purpose hereinafter more particularly referred to.

The bracket D is forked at its outer end, and between the parallel arms or members *d d* thereof is placed the nut or stop E, which is pivotally connected with the arms *d d* by the pivot *e*. This bracket is designed to be secured to the casement F of the door, and the reach D′ thereof is straight. The bracket G differs from said bracket D only in having its reach G′ curved, giving the bracket the form of an ogee in side elevation, as most clearly shown in Fig. 3. The stop H is held between the parallel arms *g g* of the bracket by the pivot *h* and forms an abutment for one end of the spring I, which is mounted on the rod A, the other end of the spring obtaining a purchase on and limited in its movement by the adjustable stop or nut C. The rod A passes loosely through the stop H, and is provided on the end projecting beyond the stop H with the nut B and with the cushion or bumper J, the latter being of rubber or other yielding substance, or a spring. This bumper is held between the nut B and the side of the bracket G and serves to prevent the door closing with a loud noise or bang.

In practice the bracket D is secured to the casement and the bracket G to the door, and the parts are so adjusted as to close the door when it shall be opened a certain limit and released, and open the said door after it has passed the said limit. On opening the door the spring is compressed, and if the door is released before it reaches a certain limit the spring will expand and close the door. If the door be opened sufficiently wide to pass this limit, the expansion of the spring will throw the door in the opposite direction and open it. By adjusting the stop B on the rod A the door may be held open at any located position or desired angle. The tension of the spring I may be increased or diminished by adjusting the nut C on the rod A.

The advantage derived from having the stop H loosely held in the bifurcated end of the ogee-curved reach is that in opening and closing the door the spring-rod is permitted to have easy movement, and there is less liability of the same binding, as would happen at times if the said stop were fixed or rigid.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

In a door-spring, the combination, with a bracket to be secured to the casement, having a straight reach and a bifurcated end, and the bracket to be secured to the door having an ogee-curved reach and bifurcated at its outer end, of stops pivotally connected with the bifurcated ends, respectively, of said reaches, a rod secured to the stop on the casement-bracket and having its other end passing loosely through the stop on the door-bracket, and the two independent springs mounted on the said rod, substantially as shown, for the purpose set forth.

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

WILLIAM C. SMITH.

Witnesses:
E. EVERETT ELLIS,
W. CURTIS LAMMOND.