(No Model.) 2 Sheets—Sheet 1.

W. H. SIDENSTRICKER.

DOOR SPRING.

No. 474,268. Patented May 3, 1892.

Fig. 1.

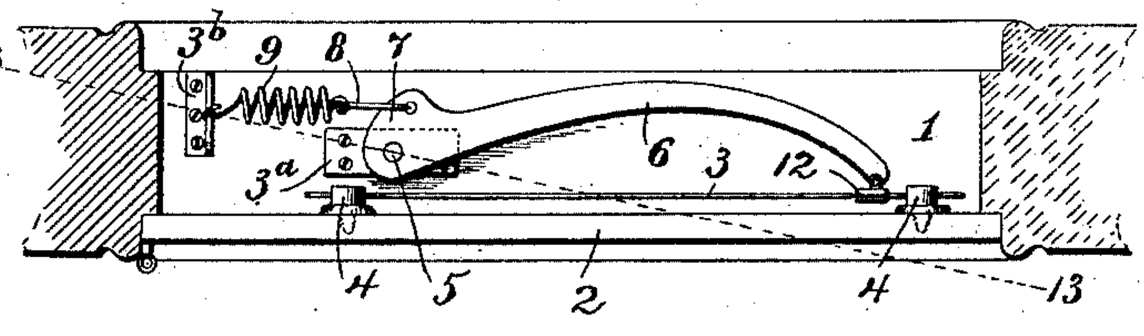


Fig. 2.

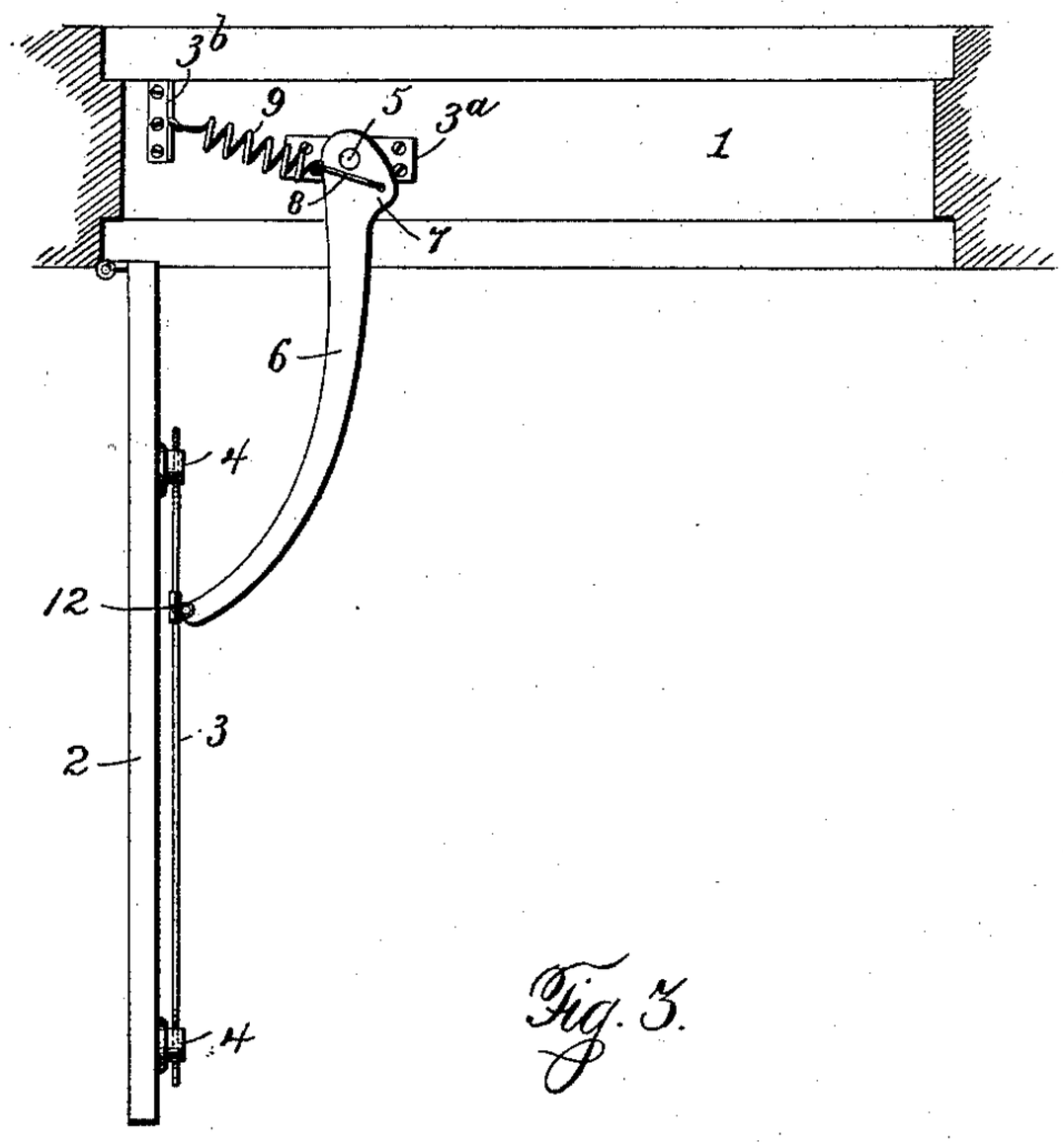
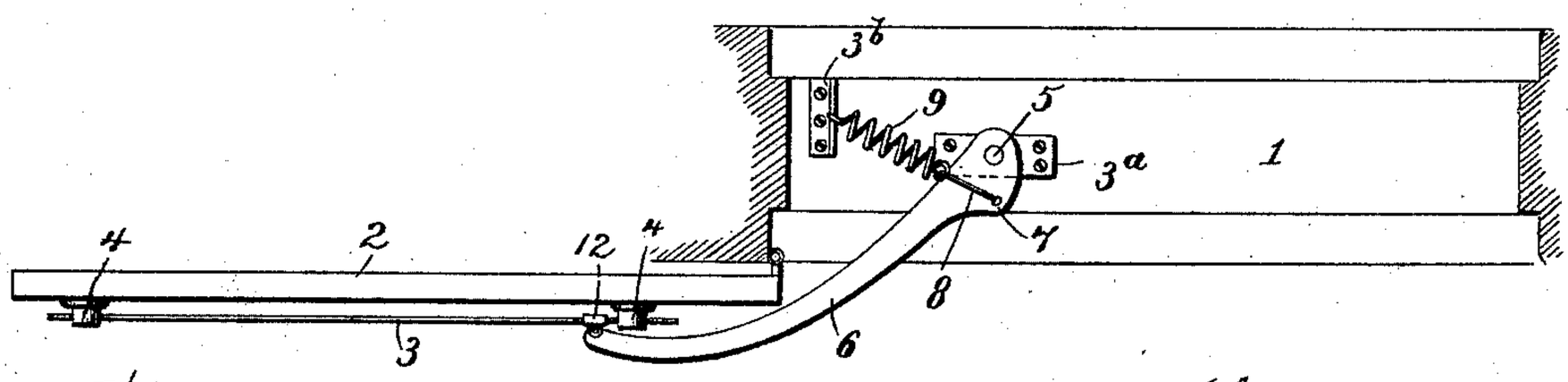


Fig. 3.



Witnesses:
Jas. E. Hutchinson.
J. A. Rutherford.

Inventor.
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By James L. Norris.
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(No Model.) 2 Sheets—Sheet 2.

W. H. SIDENSTRICKER.

DOOR SPRING.

No. 474,268. Patented May 3, 1892.

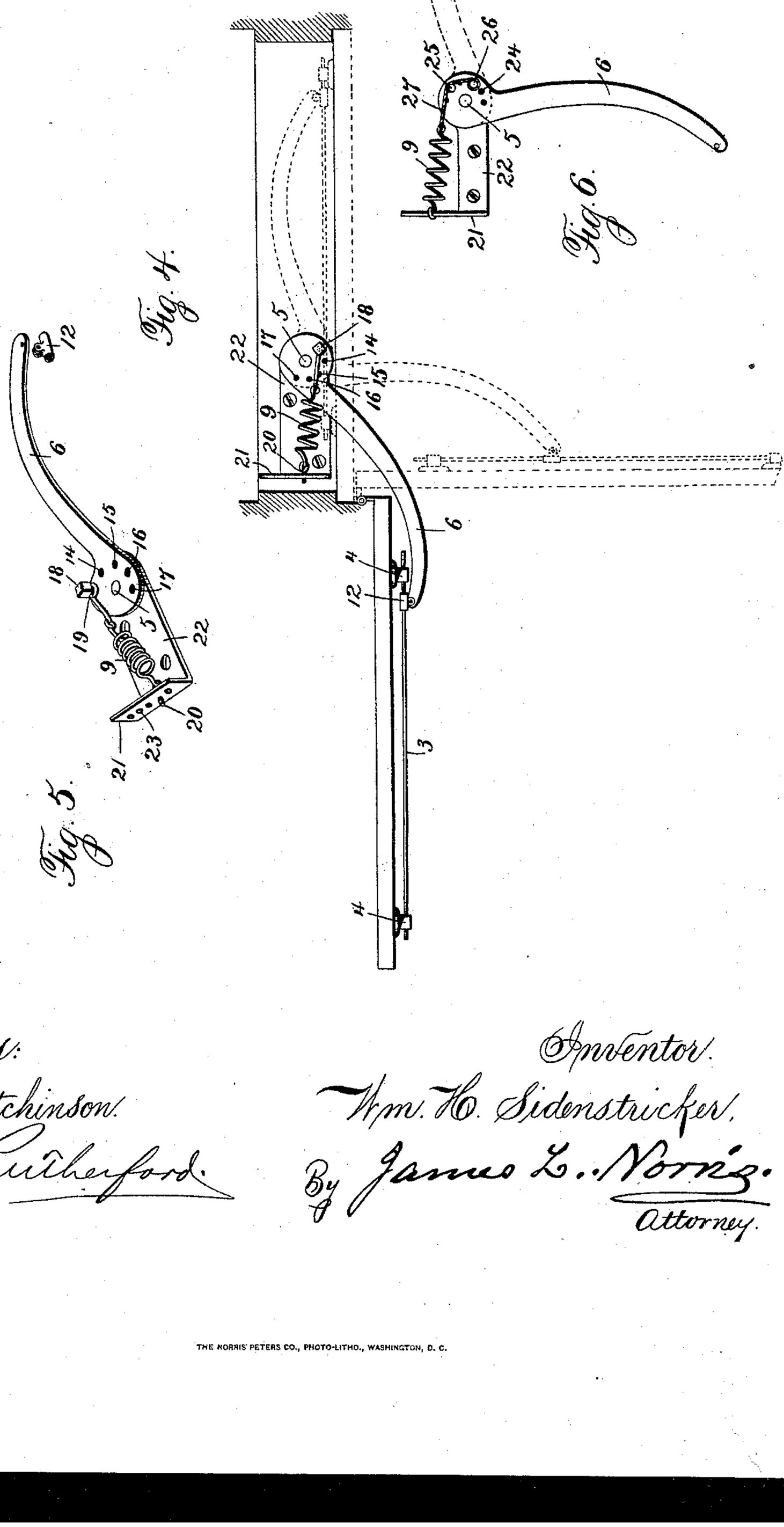

Fig. 5.

Fig. 4.

Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM H. SIDENSTRICKER, OF MOBERLY, MISSOURI.

DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 474,268, dated May 3, 1892.

Application filed June 30, 1891. Serial No. 398,023. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SIDENSTRICKER, a citizen of the United States, residing at Moberly, in the county of Randolph and State of Missouri, have invented new and useful Improvements in a Combined Door Spring and Check, of which the following is a specification.

This invention has for its object to provide a novel, simple, economical, and efficient door spring and check; and it consists in the combination, with a door and a door-lintel, of a pair of studs secured to the top portion of the door, a horizontal guide-rod connected with the studs and adjustable in one of the same, a bracket secured to the door-lintel, a bell-crank lever having its two arms arranged in the same plane and its long arm provided with a pivotally-attached guide which moves along the horizontal guide-rod between the studs, and a spring connected at one end with the short arm of the lever and at its opposite end with a bracket on the door-lintel.

The invention also consists in the combination, with a door and a door-frame, of a guide-bar attached to the door-frame, a pivoted swinging lever provided with a series of orifices or recesses, a pin or bolt adjustable into any one of the orifices or recesses, a guide on the lever, adapted to move along the guide-bar, and a spring connected at one end with the pin or bolt and at its opposite end with the lintel of the door-frame.

Figure 1 is a plan view showing my invention applied to the lintel of a door. Fig. 2 is a similar view showing the door held in an open position at right angles to the door-frame. Fig. 3 is a similar view showing the door completely open. Fig. 4 is a similar view showing a modification of the invention. Fig. 5 is a detail perspective view of the lever, spring, and supporting-plate represented in Fig. 4; and Fig. 6 is a detail plan view showing another modification.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the lintel of a door-frame, and 2 the hinged door, having in juxtaposition to its top edge a horizontal guide-bar 3, connected at its extremities with studs 4, which are provided with screw-threaded shanks by which to attach them to the door. The guide-bar 3 is screw-threaded at its extremities to adjustably engage the screw-threaded orifices in the studs 4.

To a supporting-plate 3^a, attached to the lintel of the door-frame, is connected, as at 5, what may be properly termed a "bell-crank lever" 6, having its short arm 7 connected by a link 8 with one extremity of a spiral or other suitable spring 9, the opposite extremity of the spring being suitably attached to an angular plate or bracket 3^b. The extremity of the long arm of the lever is provided with a pivoted guide 12, which moves along the guide-bar 3, and, as here shown, this guide is composed of a tubular portion encircling the guide-bar and having ears for pivoting it to the lever. The resiliency of the spring 9 tends to draw the short arm of the lever and thereby cause the long arm thereof to pull the door to its closed position, where the door is held by the power of the spring; but as the door is opened by the application of force the guide 12, attached to the long arm of the lever, slides along the guide-bar 3, and obviously, as the short arm of the lever describes a circle in this opening movement of the door, the spring is extended lengthwise and thereby placed under increased tension, so that if the door be released prior to its being wide open, as in Fig. 2, the spring will automatically close the door and hold it in such position, or if released after being opened farther than shown in Fig. 2 the spring will automatically open the door completely, as in Fig. 3, and hold it in this position.

The construction and arrangement described and shown constitute a very simple and economical door spring and check which holds the door positively closed or open and in opening the door places only that amount of increased tension on the spring as is required to automatically close the door without slamming it with sufficient force to break glass. It will be obvious that after the pivotal point of attachment of the link 8 to the short arm 7 of the lever moves outward past the dotted line 13 the power of the spring is not further increased, which is a desirable feature in that

it avoids undue spring-power, which might slam the door closed with such force as to be very objectionable.

In the modification exhibited by Figs. 4 and 5 the lever is provided in proximity to its pivot-pin with a row of orifices or recesses 14, 15, 16, and 17, arranged concentric to the pivot-pin, and into any one of which may be screwed a pin or bolt 18, to which one end of the spring 9 is attached by a hook or eye connection 19 or otherwise. The spring is provided with a screw-threaded stem 20, capable of lengthwise adjustment in the flange 21 of the right-angled supporting-plate 22 for the purpose of varying the tension of the spring. The flange 21 is preferably provided with a series of orifices 23 along its length, into any one of which the stem 20 can be screwed for changing the position of the spring relatively to the supporting-plate and lever.

By the construction shown in Figs. 4 and 5 a door may be made to occupy many different positions. For example, if the pin or bolt 18 be adjusted into the orifice or recess 17 the door, even when closed, will be automatically opened, and the wider it is opened the more firmly it will be held until the spring passes to a weak position or its tension is reduced. Obviously the door will be held open until intentionally closed by exerting such force or pressure as will overcome the power of the spring.

The modified construction, Figs. 4 and 5, is desirable for doors used in the summer season, especially on doors having restricted opening movement.

In the modification Fig. 6 the lever 6 is provided with a row of orifices or recesses 24 concentric with its pivot-pin 5, and a supplemental pin or bolt 25 is employed in addition to the pin or bolt 26, to which the spring is connected by a flexible link or connection 27 in such manner that when the door is opened the flexible link or connection 27 will bear against the supplemental pin or bolt 25 and assume the angular position shown. If the pin or bolt 26 is secured in an orifice, as shown in Fig. 6, and the supplemental pin or bolt 25 is detached or not in use, the door will come to a position of rest just before it reaches a right angle relatively to the door-frame; but if the supplemental pin or bolt 25 be screwed into one of the orifices 24, as shown in Fig. 6, it acts as an abutment to the link or connection 27 between the pin or bolt 25 and the spring, in consequence of which the door will not come to a position of rest until it is moved to an angle greater than the right-angled position above mentioned.

By adjusting the pin or bolt 25 from one orifice to another the door can be made to come to a position of rest at several different angles relatively to the door-frame. By properly reversing the position of parts the door check and spring can be adapted to a left-hand door and operate the same as on a right-hand door.

The novel construction described and shown provides a simple, economical, and efficient door check and spring which can be employed for the purpose of holding a door when wide or completely open and automatically closing the same if only partially open.

Having thus described my invention, what I claim is—

1. The combination, with a door and a door-lintel, of a pair of studs secured to the top portion of the door, a horizontal guide-rod connected with the studs and adjustable in one of the same, a bracket secured to the door-lintel, a bell-crank lever having its two arms arranged in the same plane and its long arm provided with a pivotally-attached guide which moves along the horizontal guide-rod between the studs, and a spring connected at one end with the short arm of the lever and at its opposite end with a bracket on the door-lintel, substantially as described.

2. The combination, with a door and a door-frame, of a guide-bar attached to the door-frame, a pivoted swinging lever provided with a series of orifices or recesses, a pin or bolt adjustable into any one of the orifices or recesses, a guide on the lever, adapted to move along the guide-bar, and a spring connected at one end with the pin or bolt and at its opposite end with the lintel of the door-frame, substantally as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

WILLIAM H. SIDENSTRICKER. [L. S.]

Witnesses:

J. W. DORSEY,

J. H. BROWNFIELD.