

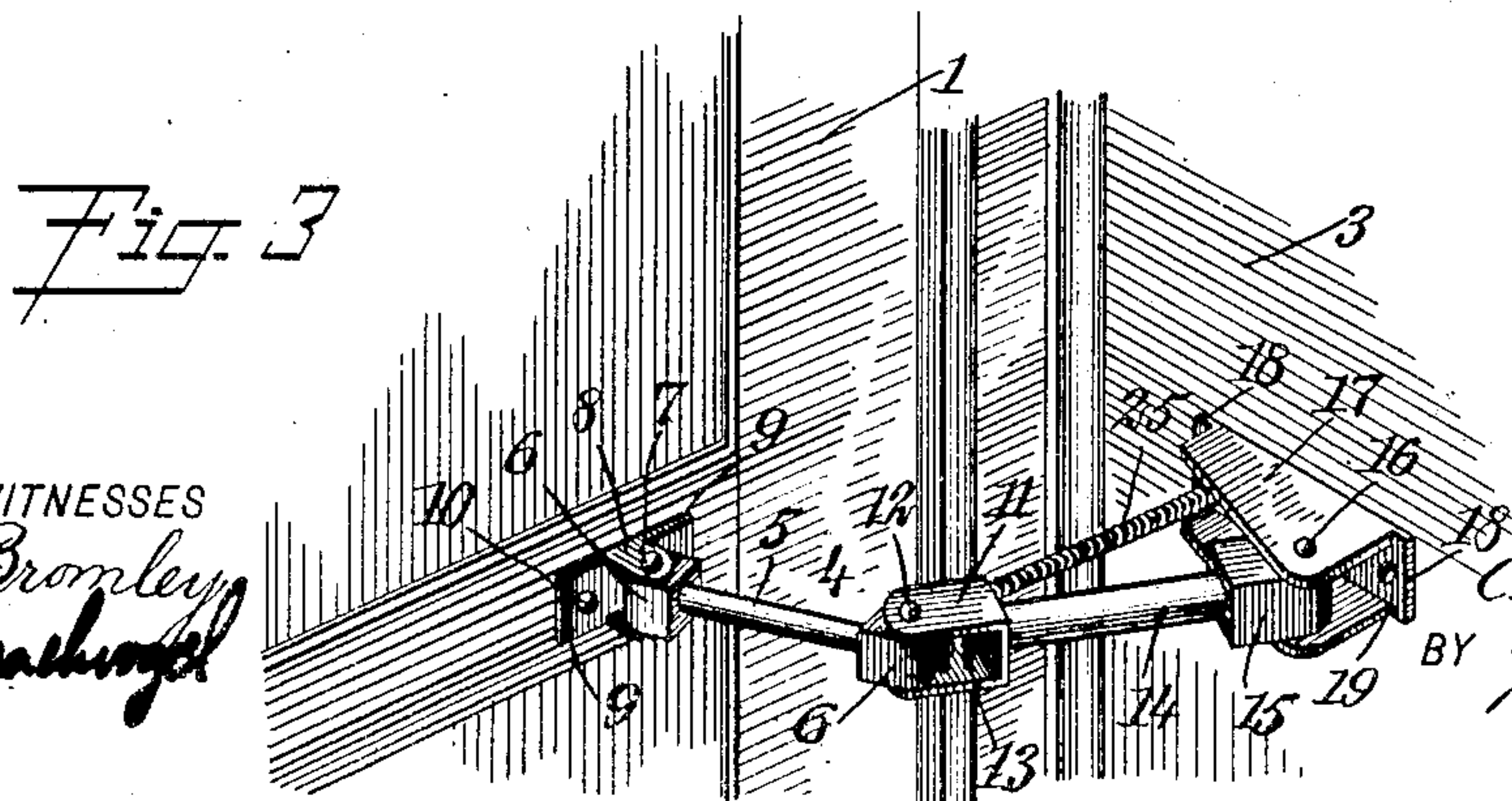
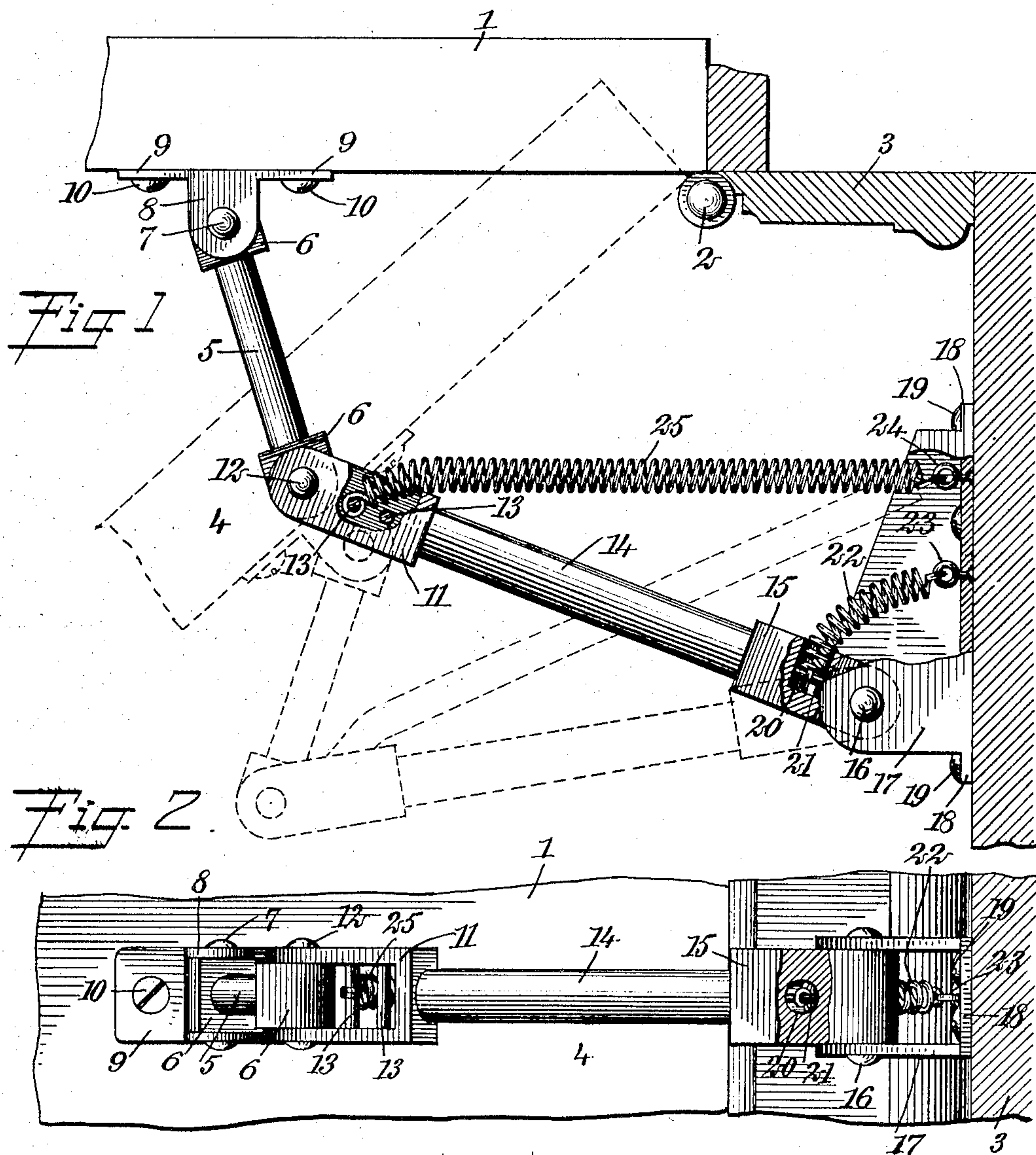
No. 888,368.

PATENTED MAY 19, 1908.

C. TRUDE.

CLOSER FOR DOORS, SHUTTERS, GATES, AND THE LIKE.

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WITNESSES

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CLOSER FOR DOORS, SHUTTERS, GATES, AND THE LIKE.

No. 888,368.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed July 16, 1907. Serial No. 383,964.

To all whom it may concern:

Be it known that I, CHARLES TRUDE, a citizen of the United States, and a resident of St. Marys, in the county of Pottawatomie and State of Kansas, have invented a new and useful Improved Closer for Doors, Gates, Shutters, and the Like, of which the following is a full, clear, and exact description.

This invention relates to closers for doors, gates, shutters and the like, and more particularly to that class of closers in which springs or other resilient means are employed for automatically returning a door or similar barrier to a closed position after the same has been opened.

The object of the invention is to provide a simple, strong and inexpensive door or gate closer, which can be easily and rapidly mounted in position and by means of which the door or gate is automatically returned to the closed position after being opened.

A further object of the invention is to provide a door or gate closer of such construction that the door or gate can be opened with little difficulty against the resistance of the closer, and which automatically operates firmly to close the door or gate but without slamming or jarring the same.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which

Figure 1 is a plan view of the device showing the same mounted in position on a door and a door frame; Fig. 2 is a side elevation showing a part of the device in vertical section; and Fig. 3 is a perspective view representing a portion of a door and a door frame with my door closer attached thereto.

Referring more particularly to the drawings, 1 represents a door of the usual construction mounted by means of hinges 2 upon the door frame or casing 3. It will be understood that while my device is particularly useful in connection with doors, it is equally applicable to other movable barriers of various kinds such as swinging gates, shutters, casing lids and the like. The door closer consists essentially of a toggle lever 4, having the opposite ends suitably attached respec-

tively to a door and a door frame or other adjacent support. The toggle 4 comprises arms 5 and 14 which may be formed from any suitable material such as cast-iron, brass and the like. The arm 5 has similar heads 6 at the ends, one of which is pivotally mounted by means of a rivet 7 between the sides of a suitable bracket 8. The bracket 8 has laterally disposed toes 9 secured by means of screws 10 to a face of the door. The arm 14 has a bifurcated head 11 at one end, between the sides of which a head 6 of the arm 5 is pivotally mounted by means of a rivet 12. The head 6 is secured to the head 11 near the extremities of the sides, so that a space is formed between the head 6 and the back of the head 11. Transverse pins 13 are carried between the sides of the head 11, for a purpose which will appear hereinafter. The arm 14 at the end remote from the head 11 has a second head 15, pivotally mounted by means of a rivet 16 between the separated sides of a bracket 17. The bracket 17 has laterally disposed toes 18, which are secured in position by means of screws 19, upon the door frame or other suitable support adjacent to the door.

The head 15 of the arm 14 has a recess 20 provided with a transverse pin 21. A helical spring 22, has one end secured to the transverse pin 21 and the other end attached to an eye 23, carried by the bracket 17 between the sides thereof. A second similar eye 24, is carried by the bracket 17 and has secured thereto one end of a second helical spring 25. The opposite end of the spring 25 is removably connected to one or the other of the transverse pins 13 of the head 11 of the arm 14.

The springs 22 and 25 tend to swing the arm 14 about its pivotal attachment with the bracket 17, in a direction toward the door 1. The movement of the arm 14 is resisted by the door itself, which is connected with the arm 14 by means of the arm 5. When the door is opened, the length of the toggle lever is shortened as the arms 5 and 14 move toward the position indicated in dotted outline in Fig. 1. The movement of the toggle lever is resisted by the springs 22 and 25, but as the springs are under a slight tension only at the beginning of the movement the resistance offered to the opening of the door is not great. When the door is released the springs act to extend the toggle

lever, thereby swinging the door to return it to the closed position. The tension of the springs decreases as the door more nearly approaches the closed position, so that the door is closed firmly but gently and without slamming. Furthermore, the spring 22 is arranged to act as a resilient buffer to ease the closing of the door.

It will be understood that the tension of the spring 25 can be varied by shifting the outer end from one to the other of the pins 13. The spring 25 is the main operating element, as it exerts a greater leverage by means of the arm 14 than the spring 22, the latter being attached to the arm 14 at a point closer to the pivotal point than the spring 25.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:—

1. In a device of the class described, the combination, with a hinged door and its support, of a toggle lever, brackets for pivotally mounting said toggle lever respectively upon said door and said support, and a plurality of springs connecting one of said brackets and an adjacent arm of said toggle near the opposite ends thereof.

2. In a device of the class described, the combination, with a hinged door and its support, of a toggle lever, brackets for pivotally securing said toggle lever respectively to said door and said support, a plurality of springs connecting one of said brackets and an adjacent arm of said toggle near the opposite

ends thereof, and means carried by said arm for adjusting the tension of one of said springs.

3. In a device of the class described, the combination, with a hinged door and its support, of a toggle lever comprising movable arms, one of said arms having a bifurcated head, brackets for pivotally securing said toggle lever respectively to said door and said support, said bifurcated head having a plurality of pins between the sides thereof, a spring removably secured at one end to one of said pins and at the other end to one of said brackets, and a second spring secured to the same bracket and said arm at its opposite end.

4. In a device of the class described, the combination with a hinged door and its support, of a toggle lever, means for pivotally mounting said toggle lever respectively upon said door and said support, a spring mounted upon said support and adjustably secured to the adjacent arm of said toggle near one end of said arm, and a second spring mounted upon said support and secured to the adjacent arm of said toggle at the opposite end thereof, said second spring being formed to constitute a buffer.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES TRUDE.

Witnesses:

MAURICE MURPHY,
HENRY B. MEES.