

J. W. HAGEARTY.
DOOR CLOSER.
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898,736.

Patented Sept. 15, 1908.

Fig. 1.

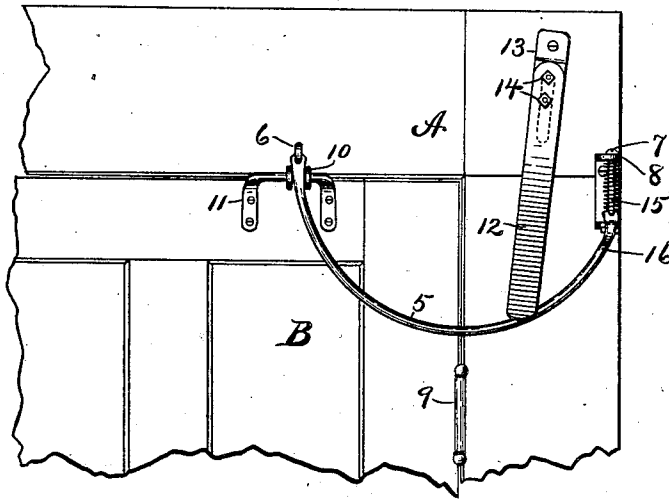


Fig. 2.

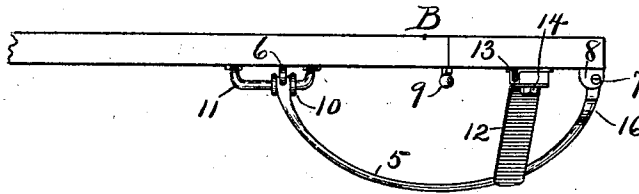


Fig. 3.

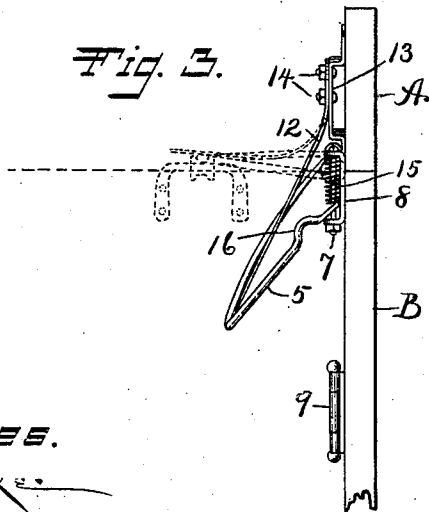
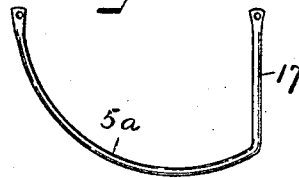


Fig. 4.



Witnesses.

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DOOR-CLOSER.

No. 898,736.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN W. HAGEARTY, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Door-Closers, of which the following is a specification.

My invention relates to improvements in door closers and the objects of my improvement are simplicity in construction and efficiency in operation.

In the accompanying drawing:—Figure 1 is a front elevation of my door closer together with a part of a door and frame on which it is mounted. Fig. 2 is a plan view of the same. Fig. 3 is a side or edge view of the same. Fig. 4 is a plan view of the swinging bail of my door closer in a modified form.

A curved lever in the form of a swinging bail 5 is pivotally mounted by one end to an eye or staple 6 on the frame A, above the door B, while its opposite end is loosely mounted by a vertical rod 7 secured in a bracket 8 on the frame A with the opposite ends of the said swinging bail 5 about equal distances from the hinged edge of the door. The upper hinge 9 is shown in the drawing. Each end of the swinging bail has a hole through it as shown in Fig. 4. The eye or staple by which the left hand end of the bail is pivotally mounted, is threaded through the hole in that end of the bail, while the vertical rod 7 passes through the hole in the other end of the bail. Both connections are loose enough to permit the bail to swing freely while the bracket 8 and rod 7 are of a length to permit the end of the bail that is mounted thereon, to slide up and down on the said rod all as shown by full and broken lines in Fig. 3. As shown, the rod 7 is in the form of a bolt having a head and nut for convenience in threading the rod through the ears of the bracket and the end of the bail. I prefer to place a light spiral spring 15 on the vertical rod 7 above that end of the swinging bail. Upon the door near the top is a suitable guard for the under side of the swinging bail to engage as the door is opened and closed. Instead of a fixed guard I prefer to form a roller guard 10 having a peripheral groove and mounted between two brackets on a horizontal rod 11 so that the bail may rest in the grooved roller and in case there is any variation in the curve of the bail the roller may travel a little on its axis from side to side. Upon the frame A over the door B,

I secure a sheet metal spring 12, which is adjustably secured to a vertically slotted bracket 13 by means of bolts 14, the slot in the bracket being indicated by broken lines in Fig. 1. The lower end of this spring bears upon the swinging bail at a point a little to one side of the door hinges 9, and in front of the frame, with a constant tendency to force the said bail downwardly and inwardly towards the door. The swinging bail is so mounted that the right hand end as shown in Figs. 1, 2 and 3, is a little lower than the other end and a little lower than the top of the guard roller on the door. It is also so mounted with reference to the roller guard that as it bears on the said guard and the door is closed, it will slant downwardly and stand nearly at an angle of forty five degrees to the face of the door, as shown in Fig. 3.

The spring, when the bail stands in the position shown in Fig. 3, tends to force the long end of the lever downwardly while the shorter end bears upon the roller as a fulcrum with a tendency to hold the door in its closed position. Upon opening the door the bail is swung outwardly and upwardly against the spring 12, putting the said spring under greater tension. At the same time, that end of the swinging bail which is mounted in the bracket 8 is gradually raised as the door is opened, the spiral spring 15 yielding as the said end is raised. When the door is opened so as to stand at an angle of about ninety degrees to the door frame, the swinging bail and spring will be in about the position indicated by broken lines in Fig. 3. As soon as the door is released, the spring and bail act to close the door. The pressure on the door is the greatest as the door reaches the jamb or frame.

In passing through the door it will seldom be opened beyond ninety degrees. If desired an offset or upward bend 16 may be made in the bail 5 so as to let the said bail drop a little and receive the guard roller into the said recess as the door is swung back to nearly one hundred and eighty degrees, and thus hold the door wide open and out of the way.

A modified form of swinging bail 5^a is shown in Fig. 4. Instead of being curved for its whole length a straight portion 17 is formed at the end designed to be received in the bracket 8. Such a bail may be used on doors that open only one hundred and thirty degrees or less.

I claim as my invention:—

1. In a door closer, the combination of a bail pivotally connected by its ends to a door frame, with one of the said connections above the door and with that end of the said bail bearing downwardly and inwardly on the door, and a spring acting on the said bail between its ends to force it downwardly and inwardly and keep the said bail bearing on the door.
2. In a door closer, the combination of a swinging bail of a curved form adapted to be pivotally connected by its ends to a door frame, with a roller guard loosely mounted by a horizontal axis on the door for engaging the under side of the said bail, and a spring for forcing the said bail downwardly and inwardly.
3. In a door closer, the combination of a swinging bail adapted to be pivotally connected by its ends to a door frame, one of the said ends being above the door, with a spring acting to force the said bail downwardly and inwardly, a roller guard on the door for engaging the under side of the said bail and an offset in the under side of the said bail, for receiving the said roller guard to hold the door open.
4. In a door closer, the combination of a swinging bail adapted to be pivotally con-

nected by its ends to a door frame, with a bracket adapted to be mounted on the said door frame, and a sheet metal spring adjustably mounted upon the said bracket by one end and with its other end bearing on the said bail for closing the door.

5. In a door closer, the combination of a swinging bail pivotally connected by one end to a door frame over a door, a vertical rod and bracket mounted on the said frame to one side of the said door, the other end of the said swinging bail being loosely mounted on the said rod, and a spring for forcing the said bail downwardly and inwardly against a guard at the upper end of the door.

6. In a door closer, the combination of a swinging bail pivotally connected by one end to a door frame over a door, with a vertical rod and bracket to which the other end of the said bail is connected to the door frame at one side of and below the top of the door, a spiral spring on the said rod for forcing that end of the said bail downwardly, and a spring bearing on the said bail for forcing it downwardly and inwardly for closing the door.

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Witnesses:

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