

E. H. COLLINS.
 DOOR CLOSING DEVICE.
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1,217,414.

Patented Feb. 27, 1917.

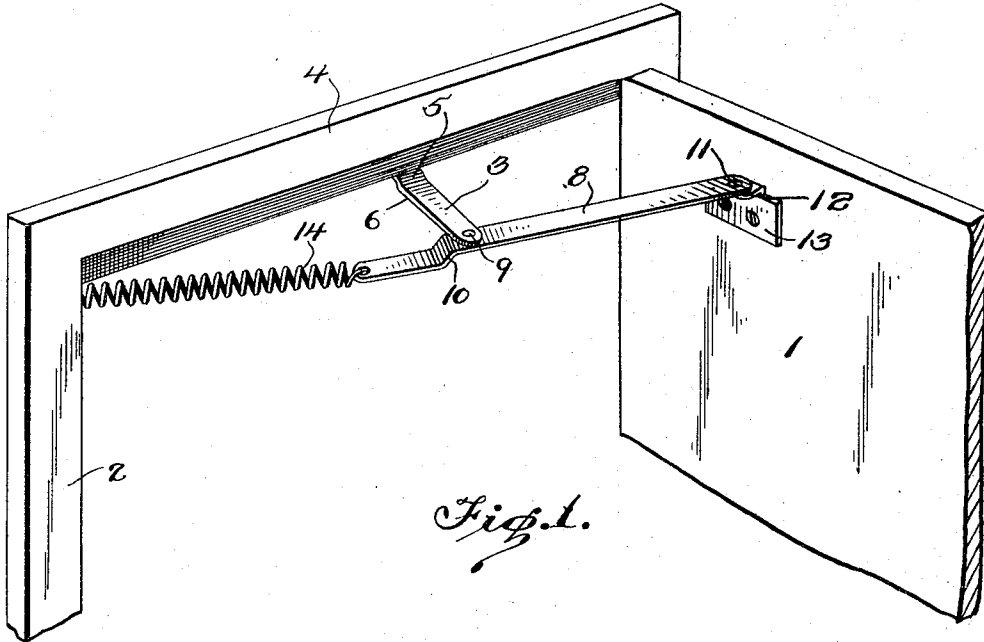


Fig. 1.

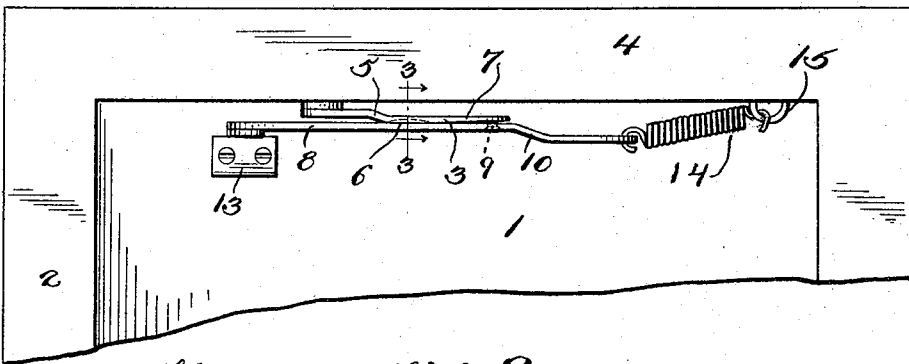


Fig. 2.

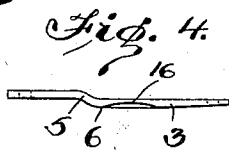


Fig. 4.



Fig. 3.

WITNESSES:

Howard J. Costello
W. H. Babcock,

INVENTOR

Edward H. Collins

BY

Richard E. Owen,

ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD H. COLLINS, OF SIOUX FALLS, SOUTH DAKOTA.

DOOR-CLOSING DEVICE.

1,217,414.

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To all whom it may concern:

Be it known that I, EDWARD H. COLLINS, a citizen of the United States, residing at Sioux Falls, in the county of Minnehaha and State of South Dakota, have invented certain new and useful Improvements in Door-Closing Devices, of which the following is a specification.

This invention relates to door closing devices, and more particularly to such devices provided with means for preventing the violent closing or slamming of doors.

One object of the invention is to provide a simple and easily constructed device for closing doors. A further object is to provide a device of the character stated which, while acting to close the door, will automatically exert a braking effect as the door swings to its closed position thus preventing violent closing or slamming of the door.

In the drawings:—

Figure 1 is a perspective of the invention as applied to a door in open position,

Fig. 2 is an inside perspective view of the invention as applied to a door in closed position,

Fig. 3 is a section on line 3—3 of Fig. 2, and

Fig. 4 is a detail of the arm pivoted to the door casing.

The door 1 is hingedly mounted on a door frame 2 to swing outwardly in the usual manner. An arm 3 is pivotally connected at its inner end to the under face of the top beam 4 of the door frame. This arm has its inner end part offset as at 5, and the body part of the arm adjacent the offset 5 is thickened, as at 6. The body of the arm decreases in thickness outward from the thickened portion 6 to the outer end of the arm. This provides a resilient section 7.

A link 8 is pivotally connected at 9 to the outer end of arm 3, intermediate its ends, and has its inner end portion offset relatively to the body of the link, as at 10. The outer end of the link is pivotally connected at 11 to an ear 12 carried by a plate 13 secured to the inner face of the door. The inner end of the link is provided with a perforation through which is secured the outer end of a coil spring 14 the inner end of which is secured to a staple 15 secured in the top beam 4 of the door frame 2 at a point remote from the hinge point of the door.

When the door is in open position, as in Fig. 1, the spring 14 exerts tension on the link 8 which tends to return the door to closed position. When the door is released the action of spring 14 will swing the door into closed position, the link 8 fitting snugly under the arm 3 when the door is entirely closed, as in Fig. 2. In this connection it is to be noted that reliance is not placed upon the spring 14 alone in closing the door, as the door will attain an appreciable momentum as it swings shut on its hinges which will materially assist in the closing operation.

If there were not some braking means provided the action of the spring and link would be such as to cause a more or less violent slamming of the door resulting in quickly destroying the same, or in the case of doors having glass panels, breakage of the glass. To overcome this difficulty I have provided an arm with the aforementioned thickened part 6. This thickened part or projection extends somewhat below the normal level of the upper surface of link 8. As the link moves into position beneath the arm the projection 6 engages frictionally with the upper surface of the link and exerts a braking effect on the same. The resilient part 7 of the arm permits a certain flexing or bending which makes it possible for the link to move under the arm and also maintain the pressure of the projection 6 upon the link. To avoid stopping the door suddenly when it approaches closed position, the projection 6 has its outer side beveled upwardly and outwardly, as at 16. As the link moves under the arm the tendency is to raise the outer end of the arm up when the projection 6 engages the upper surface of lever 8. This upward movement of the arm is prevented by the pivot 9 the head of which is spread in the usual manner. A certain amount of give is permitted, however, by the resilient section 7 of the arm, so that the lever may be moved under the arm and yet be subject to the braking effect of the projection 6 as above described.

My device is especially adapted for use in connection with storm and screen doors, but it will be clear that it can be used for many other purposes.

My invention is, of course, subject to slight variations in details, and I intend to

include all such variations within this application, as fall within the scope of the appended claims, in which the preferred form only of my invention is disclosed.

5 What I claim, is:—

1. In a door closing device, the combination of an arm, and a link pivotally connected to the arm intermediate its ends, said arm being provided with means adapted to frictionally engage the link for checking the movement of the same as it moves into parallelism with the arm.

2. In a door closing device, the combination of an arm, a link pivotally connected to the arm intermediate its ends, said arm being provided with means adapted to engage the link for checking the movement of the same as it moves into parallelism with the arm, and means for moving said arm and link into parallelism.

3. In a door closing device, the combination of a link, an arm pivotally connected at one end to the link intermediate its ends, said arm having an intermediate thickened portion adapted to frictionally engage the link, and means carried by the link for exerting tension thereon.

4. In a door closing device, the combination of a link, an arm pivotally connected at one end to the link intermediate its ends, said arm having an intermediate thickened portion adapted to frictionally engage said link, the said thickened portion being beveled upward and outward on its outer side,

and a coil spring secured to the outer end of the link. 35

5. The combination of a door frame, a door hingedly mounted thereon, an arm pivoted to the top beam of the door frame, a link pivoted to the arm intermediate its ends and to the door at one end, and means for exerting tension on said link connected thereto and to the door frame. 40

6. The combination of a door frame, a door hingedly mounted thereon, an arm pivoted to the top beam of said frame, a link pivoted to the arm intermediate its ends and to the door at one end, and a coil spring connected to the other end of the link and to the door frame. 45

7. The combination of a door frame, a door hingedly mounted thereon, an arm pivoted at its inner end to the door frame and having an intermediate thickened part and an outer part thinner relatively than the rest of the arm, a link pivoted to the outer end of the arm intermediate its ends and having its outer end pivotally connected to the door, and a coil spring having one end secured to the inner end of the link and the other end secured to the door frame. 50

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

EDWARD H. COLLINS.

Witnesses:

E. H. HYDE,
W. B. LACKEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."