

M. K. SNYDER.
DOOR CLOSER.
APPLICATION FILED OCT. 14, 1909.

959,175.

Patented May 24, 1910.

FIG. 1

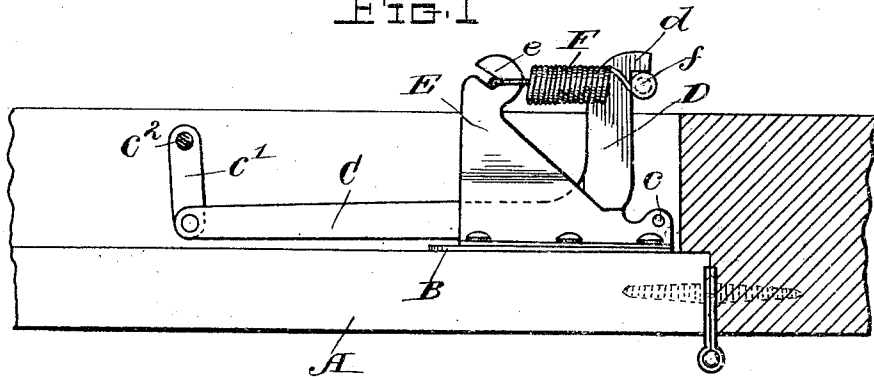


FIG. 2

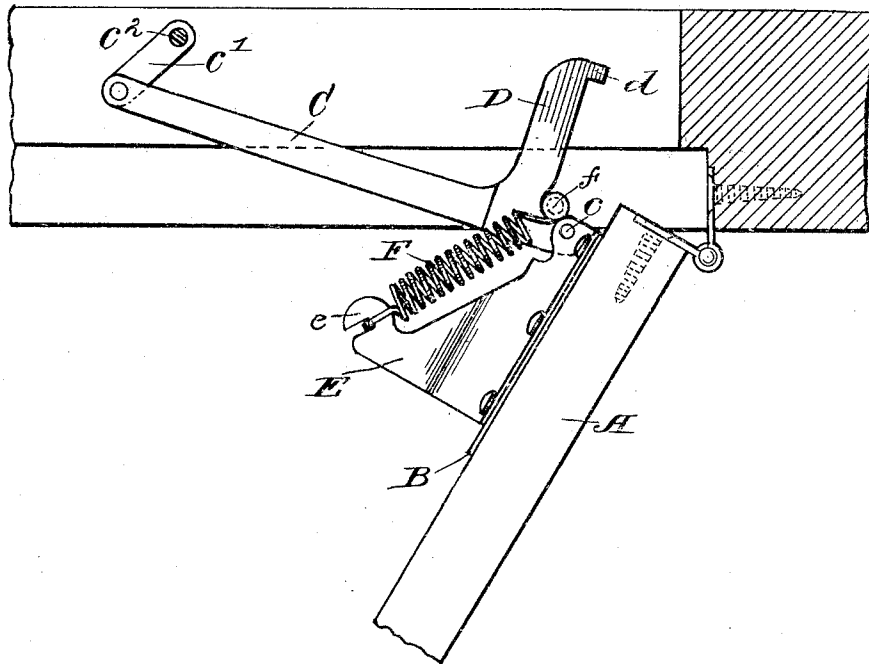
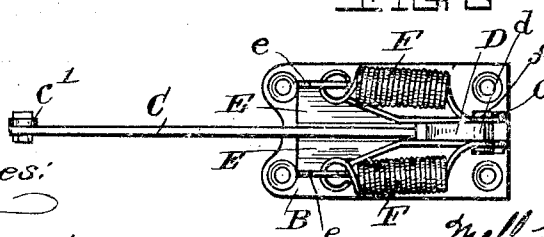


FIG. 3



Witnesses:

J. C. Turner
Robert M. See

Inventor:

M. K. Snyder
by J. B. Fay
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UNITED STATES PATENT OFFICE.

MELL K. SNYDER, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO WILLIAM D. ROYCE, OF CLEVELAND, OHIO.

DOOR-CLOSER.

959,175.

Specification of Letters Patent.

Patented May 24, 1910.

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To all whom it may concern:

Be it known that I, MELL K. SNYDER, a citizen of the United States, and a resident of Detroit, county of Wayne, and State of Michigan, have invented a new and useful Improvement in Door-Closers, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to spring mechanisms and has particular regard to a spring actuated door closer. Closers heretofore provided for this purpose have been more or less complicated, and have contained parts which were subject to extraordinary strains during the operation of the mechanism.

The objects of my invention are to provide a closer whose action in closing a door will be positive, and yet one which is so designed as to have no parts subject to such great strain as to require the provision of those parts with great size and strength.

Another object of the invention is to provide a closer which will be extremely simple in its operation and one which may be manufactured with comparatively little expense.

To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described, and particularly pointed out in the following claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is a plan of my improved closer, as it will appear when the door is closed; Fig. 2 is a similar view showing the parts when the door is partly opened; and Fig. 3 is a side view thereof.

The closer consists primarily of a metal plate B provided with screw holes whereby it may be attached to the door A. It will be understood, of course, that this plate will be attached near the upper hinged corner on the front side of the door. Two vertically spaced parallel plates or projections E extend horizontally from plate B, which practically are riveted to the plate B. At their

outer ends the two projections E are provided with similar hooks *e*. A lever C is pivoted between the two spaced projections E at *c*, at the end of the plate B next the door hinge. This lever in the claims is referred to as being fulcrumed upon the plate, which phrase is intended to embrace any construction, whereby the lever is pivoted adjacent to the plate, so that it fulcrums substantially on the plate. The lever C is adapted to move in a plane parallel to that of the two spaced projections E, and in the preferred construction is straddled by the two projections. Adjacent to its fulcrum *c*, the lever C is provided with a right-angled arm D, which extends parallel to the projections E, and is of substantially the same length as the distance from the plate B to the hooks *e* on the spaced projections E. To the outer or free end of the lever C is pivotally attached a link *c'*, and the end *c''* of the link *c'* is adapted to be connected with the top of the door-case. Two spiral springs F are hooked one to each of the hooks *e* on the spaced projections E. At their other ends the springs F are connected with the respective ends of a roller *f* which has a bearing on the distant surface of the post D. A projection *d* at the top of the post D retains the roller *f* against movement therebeyond.

From this description an understanding of the operation and advantages of my closer may be had. The springs normally retain the lever parallel to the door plate. Opening of the door swings the lever on its fulcrum, and this action is resisted by the two springs against whose tension the rigid arm on the lever will move. The roller bearing, however, during the opening of the door will move down the bearing surface of the arm toward the lever proper, and in this way tends to produce an equilibrium in the mechanism, so that the door may be easily swung, although the tension of the springs constantly tends to return the arm and lever to their normal position, and hence to close the door. Upon the door being released, this action is reversed and the roller bearing again returns to the outer end of the arm and the lever to its normal position, thereby closing the door.

It will, then, be seen that my complete spring actuated mechanism consists of very

few parts, and these parts are not subjected to any extraordinary strains. The various parts may be manufactured with comparative cheapness and may be readily assembled into the complete structure which, in turn, may be quickly installed upon a door. The operation of the closer allows the door to be easily opened without the requirement of any undue effort, and yet its action is such as to quickly and positively close the door after its release.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. A door closer, comprising a plate adapted to be attached to a door, a projection provided on the face of the plate, a lever fulcrumed on the plate and adapted to have its free end connected to a door-case and provided with an angularly disposed arm adjacent its fulcrum, a spring attached to the outer end of said projection, and means for movably connecting said spring to said arm.
2. A door closer, comprising a plate adapted to be attached to a door, a lever fulcrumed on the plate and normally extending parallel thereto and adapted to have its free end connected to a door-case, said lever being provided with an angularly disposed arm adjacent its fulcrum, two spaced projections provided on the face of the plate intermediate of the free end of the lever and the arm when the lever is in its normal position, said lever lying between the spaced projections, two springs respectively attached to the outer ends of said projections, and means

for movably connecting said springs to said arm.

3. A door closer, comprising a plate adapted to be attached to a door, a lever fulcrumed on the plate and normally extending parallel thereto and adapted to have its free end connected to a door-case, said lever being provided with an angularly disposed arm adjacent its fulcrum, two spaced projections provided on the face of the plate intermediate of the free end of the lever and the arm when the lever is in its normal position, said lever lying between the projections, a roller adapted to have a bearing on one face of said arm, and two springs respectively attached to the outer ends of said projections and respectively connected with the ends of said roller.

4. A door closer, comprising a plate adapted to be attached to a door, a lever fulcrumed on the plate and normally extending parallel thereto, said lever being provided with an angularly disposed arm adjacent its fulcrum, a link pivoted to the free end of said lever and adapted to be pivoted to a door-case, two spaced projections provided on the face of the plate intermediate of the free end of the lever and the arm when the lever is in its normal position, said lever lying between the projections, and said projections being formed at their outer ends with a hook, a roller adapted to have a bearing on one face of the arm, and two springs respectively connecting said hooks with the ends of said roller.

Signed by me this 8th day of October, 1909.

MELL K. SNYDER.

Attested by—

OTTO STOLL,
MARY STOLL.