

W. K. HENRY.  
HINGE.

APPLICATION FILED MAY 24, 1904.

NO MODEL.

Fig. 1.

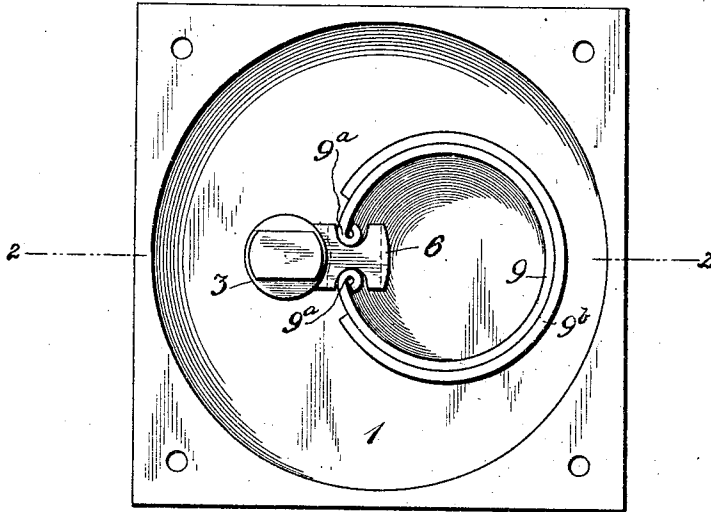


Fig. 2.

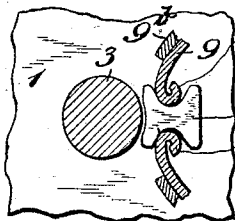
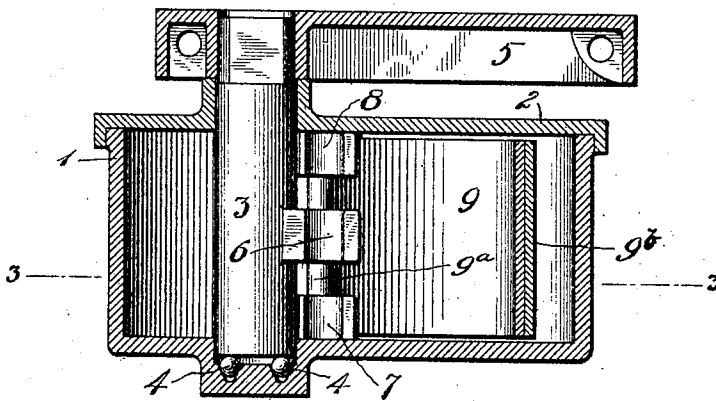


Fig. 3

Witnesses  
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# UNITED STATES PATENT OFFICE.

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## HINGE.

SPECIFICATION forming part of Letters Patent No. 774,878, dated November 15, 1904.

Application filed May 24, 1904. Serial No. 209,442. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM K. HENRY, a citizen of the United States, residing at New Britain, in the county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Hinges, of which the following is a full, clear, and exact description.

My invention relates to self-closing hinges for double swinging doors.

The object of my invention mainly is to provide a simple, inexpensive, and durable structure easy to make, assemble, and apply.

In the accompanying drawings, Figure 1 is a plan view of my invention with the cover or top removed. Fig. 2 is a section of the entire apparatus on the plane of the line 2 2, Fig. 1. Fig. 3 is a fragmentary section on the plane of the line 3 3, Fig. 2.

1 is a box or case.

2 is a cover.

3 is a spindle supported partly in the box 1 and partly in the cover 2.

4 4 are antifriction-balls which may be provided in the lower spindle-bearing, upon which the thrust of the spindle may be taken. The upper end of the spindle 3 is suitably shaped to receive rigidly a plate 5, which extends laterally thereof.

6 is an arm extending laterally of the spindle 3 and arranged to oscillate therewith.

7 8 are lugs secured, respectively, to the box 1 and the cover 2. The opposite surfaces of the arm 6 and the lugs 7 8 are grooved to receive the ends of a spring 9, which, as shown in Fig. 1, is a bowed spring. The ends of the spring 9 are preferably rolled up to form inwardly-projecting knuckles 9<sup>a</sup> 9<sup>a</sup>, which when all of the parts are assembled lie in the aforesaid grooves in the arm 6 and lugs 7 8. Any suitable means may be provided for securing the cover 2 rigidly to the box 1, so that when the parts are assembled it will be practically a part of the box.

Hinges of this kind are usually applied to the lower edge of the door, the box 1 being set down into the floor. The door is secured to the arm 5. Of course the apparatus thus described can be secured to the upper edge of the door and let into the upper part of the door-casing. The door swings on the spindle 3, and the spring 9 serves to close the same irrespective of the direction that the door is swung. When the parts are in their normal position with the door closed, the arm 6 is arranged in line with the lugs 7 8. In the preferred form there are two of these lugs 7 8 with the arm 6 located between them. I have found that by this arrangement the spring is better balanced and less liable to become unseated. The tension of the spring may be increased by a supplemental spring 9<sup>b</sup>, applied to the outside thereof, or a third spring similar thereto may be added, and so on. By forming the knuckles 9<sup>a</sup> on the ends of the spring 9 and rolling them inwardly it will be seen that when the door is opened there is sufficient freedom for the extreme end of the arm to work or swing back of the knuckle. Furthermore, by the presence of these knuckles the danger of the spring slipping off is entirely avoided.

What I claim is—

1. In a device of the character described, a box, a spindle having bearings in said box, an arm projecting therefrom, a stationary lug above and below said arm, and carried by the top and bottom of said box, respectively, a spring coacting against opposite sides of said lugs and said arm and having a tendency to aline said lugs and arm, said spindle being located outside of said spring.

2. In a device of the character described, a spindle, an arm projecting laterally therefrom, grooves in the opposite sides of the same, a stationary bearing for said spindle, lugs carried by said stationary bearing and having grooves in the opposite sides thereof

in line with the grooves in the opposite sides of said arm, and a spring the ends of said spring being engaged in said grooves.

3. In a device of the character described,  
5 a spindle, an arm projecting laterally therefrom and having grooves in its opposite sides, a lug adjacent thereto and having grooves in its opposite sides arranged to register with the grooves in said arm when the spindle is

in its normal position, a spring having inwardly-extending rounded knuckles engaged in said grooves.

Signed at New Britain, Connecticut, this  
20th day of May, 1904.

WILLIAM K. HENRY.

Witnesses:

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LAURA MAE BRAMAN.