L. A. WARNER.

Door-Spring.

No. 167,284. Patented Aug. 31, 1875.

Fig. 1.

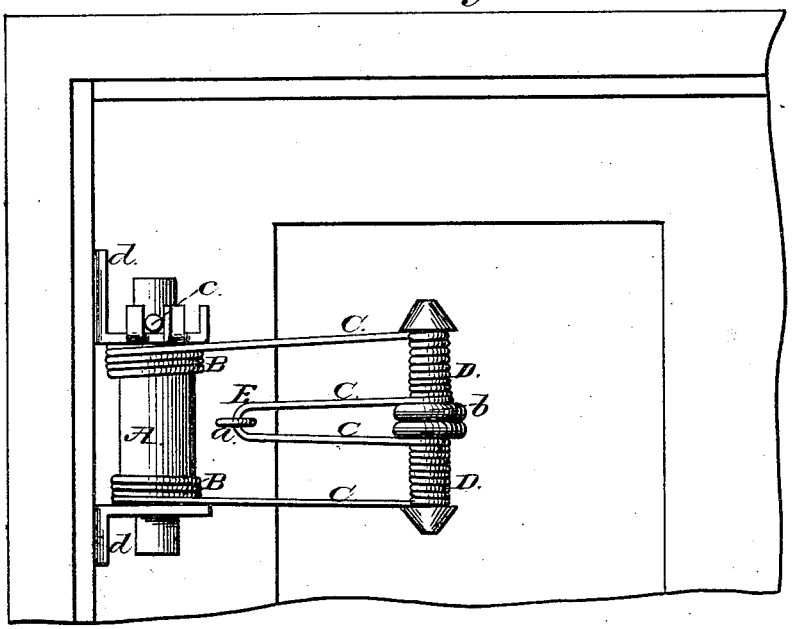
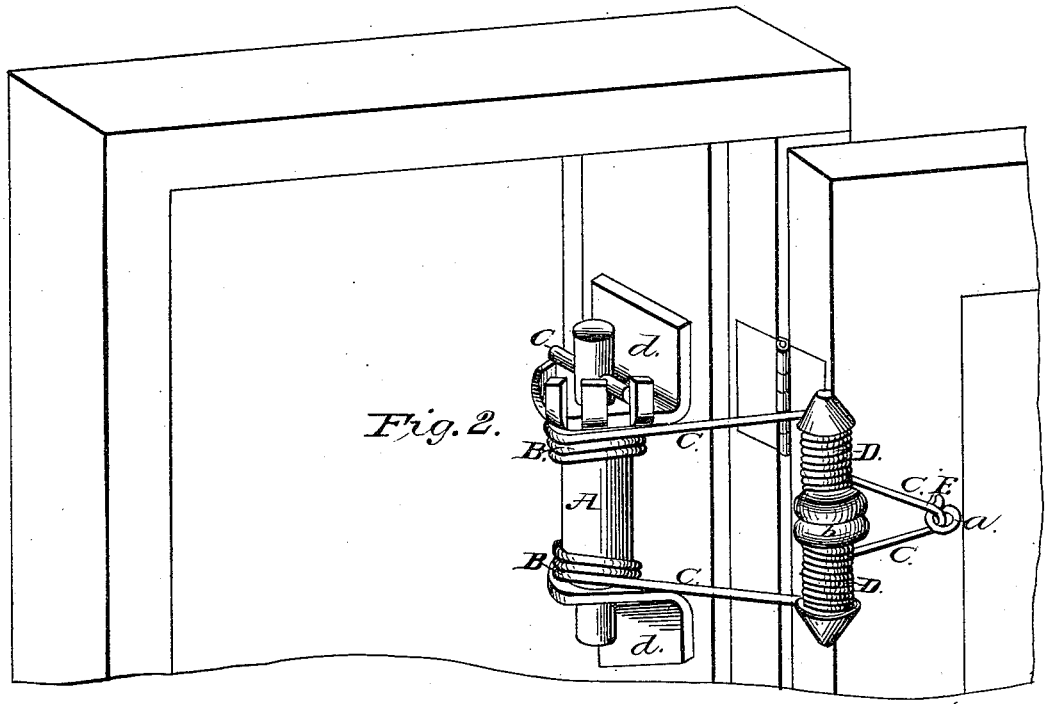


Fig. 2.



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UNITED STATES PATENT OFFICE.

LEMAN A. WARNER, OF FREEPORT, ILLINOIS.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **167,284**, dated August 31, 1875; application filed April 12, 1875.

To all whom it may concern:

Be it known that I, LEMAN A. WARNER, of Freeport, in the county of Stephenson and State of Illinois, have invented a Door-Spring, adapted to closing doors, grates, shutters, screens, &c., and holding them closed, of which the following is a specification:

My invention consists mainly in the peculiar construction of an intermediate elastic elbow-joint, as will be hereinafter more fully described.

In describing my invention I refer to drawings which accompany and form part of this specification, in which Figure I shows the device in position with the door closed, and Fig. II shows the same when the door is swung open.

In the drawings, A represents a shaft or stud, around which is coiled a spring, B. The spring-coils and arms, being double, are referred to as in the singular number. C represents the arm or lever of the spring. D is an intermediate coil-spring formed in the arm C, constituting an elastic joint or elbow. E is a loop or eye at the end of the arm by which the spring is attached to the door. *a* is a hook made fast to the door. *b* is a stud or pin passing through the coil D, having caps over the ends and an enlargement in the middle, for the purpose of keeping the coil in place and in line. *d d* are brackets or lugs fitted to receive the journals of the shaft A, and by which the whole device is fastened to the door jamb or ca ing. The upper lug is fitted with notches to receive the pin *c*, Fig. I. *c* is a pin passing through a hole in the shaft A, and which, dropping into a notch in the lug, holds the spring to as high a tension as is desired.

The device is constructed as follows: The shaft A being provided with holes, the spring-wire is cut the proper length and doubled, forming the loop E in the center. The ends are inserted in the holes in the shaft A and coiled round it, forming the spring B, the remaining portion of the wire forming the arm C. At a proper distance from the loop E the coil D is formed in the arm C, being coiled in the opposite direction from the spring B, and forming an elastic joint or elbow, (somewhat like a table-hinge, the portion of the arm on either side forming the flaps,) which opens and closes with the door when in use, thus lengthening the arm C when the door opens, and accommodating itself to the angle formed by the door and door-jamb, and allowing the door to swing open one hundred and eighty degrees, while the arm C is turned only about ninety degrees. The advantage gained is that the spring may be tightened, so as to hold the door firmly shut without danger of bending or breaking when the door is opened one hundred and eighty degrees.

The method of application is shown in Fig. 2. The lugs *d d* are screwed to the door-jamb, and the loop E is passed between the two portions of the arm C and attached to hoop *a*. The strain is regulated by means of the pin *c*. The loop E is readily detached from the door when desired. The device may be applied to the other side of the door by placing it above, and attaching it by means of a bracket hook or pin, extending up from the door far enough to receive the end of the spring.

What I claim as my invention is—

1. The coil-spring D composed of two equal parallel coils, formed in the two parts of the arm or lever C, with suitable fastenings for the ends of the arms, in the manner described and in connection with the pin *b*, constituting an elastic elbow-joint, whereby the arm is folded up when the door is closed, and is allowed to open and lengthen out when the door is opened, constructed and operating substantially as described and shown, for the purpose specified.

2. The improved door-spring, consisting of the shaft A, or its equivalent, the spring B, the arm or arms C C, the loop E, and the coil-spring D, all substantially as described, and for the purpose specified.

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