F. W. & I. PORTER.

DOOR-SPRING.

No. 180,632. Patented Aug. 1, 1876.

Fig. 1.

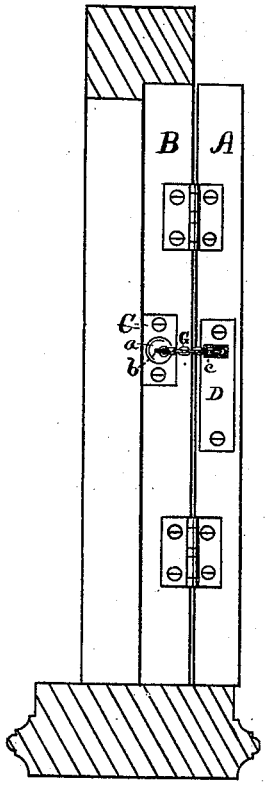
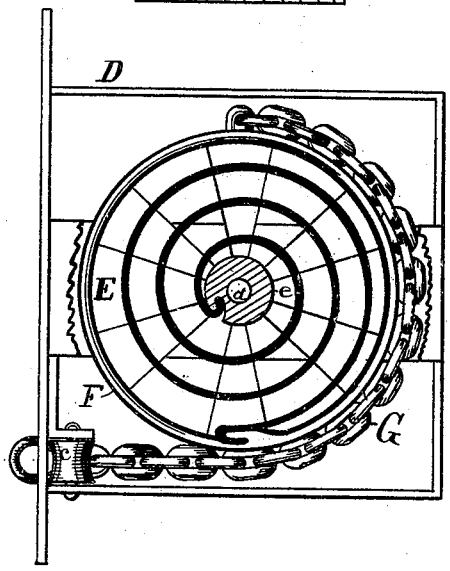


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

FREDERICK W. PORTER AND ISAAC PORTER, OF NEW BRITAIN, CONN.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **180,632**, dated August 1, 1876; application filed February 9, 1876.

To all whom it may concern:

Be it known that we, FREDERICK W. PORTER and ISAAC PORTER, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in a Device for Closing Doors, of which the following is a specification:

Our invention consists of an improved device for closing doors, gates, &c., composed of a scroll-spring secured within a rotating barrel, which barrel carries a chain that passes over a friction-pulley in its case to a plate on the door-jamb, all as hereinafter described.

In the accompanying drawing, Figure 1 is a view showing our improved device for closing doors as applied to a door and its frame, and Fig. 2 is a side elevation of said device as detached from the door.

A designates the door, and B its casing. Upon the casing or frame B we place a plate, C, having a depression, *a*, in its face, in which depression is a hook or staple, *b*. Within a mortise at the hinge-edge of the door B we place the case D, which case is flat and thin, like the case of a mortise-lock and latch, so that it may be let into very thin doors without injury to the door, and so that no part of it is visible except the flanged plate or face-plate, as shown at D, Fig. 1, and that part visible only when the door is open, so as to expose its hinged edge. Within the case D is a concealed spring and barrel, (hereinafter described and shown in Fig. 2,) from which a chain, G, extends through an orifice in the edge of the case D, and to the plate C, where it is secured. At one side of the orifice, in the face-plate of the case D, is a friction-roller, *c*, hung on a vertical axle-pin—that is, an axle which stands at right angles to the axle of the barrel F—whereby, when the case is set edgewise in a door, a chain or cord, which runs out of the case on a horizontal plane at an angle to the door, may bear upon the roller.

The case should be so set within the door that the chain G will run over the friction-pulley *c* upon the side farthest from the axis upon which the door swings. This can easily be done in both right and left handed doors by merely placing the case in the door, with the friction-pulley uppermost or lowermost, as occasion requires.

In the act of opening the door the chain pulls on the spring, and as the door moves away from the plate C the chain is unwound from its barrel and the spring contracted. When the force which opened the door is released therefrom the spring expands and rewinds the chain, thereby closing the door. The details of the spring and barrel are shown in Fig. 2, in which E designates the spring, which is a scroll-spring fitted within a barrel or pulley, F, arranged on a shaft, *d*, so as to rotate within the case D. The outer end of the spring E is secured, by a hook or other proper means, to the barrel F, and the inner end to the sides of the case D. In the drawing the portion of the case D immediately in front of the inner end of the spring is removed, in order to better show the parts, but the hub *e*, which is a part of the case D, is shown in its proper position. One end of the chain G is secured to the barrel F, as shown in Fig. 2, and the other end is secured to the hook *b* in the depression *a* of the plate C. The friction-roller *c* prevents the chain from coming in contact with the case D.

By making the chain shorter or longer more or less force may be applied to close the door.

The size of the barrel may vary according to the size of the door and its hinges, and we prefer to make it of such size that it will in no case make quite one revolution in the act of opening the door.

We claim as our invention—

The combination of the case D, adapted to be mortised and concealed within a thin door, the spring E, the rotating barrel F surrounding said spring, the chain G, the friction-roller *c* hung on a vertical axle within the main case D, and the plate C, with its depression and hook *a b*, all substantially as described, and for the purpose set forth.

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Witnesses:
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