

A. T. BALLANTINE.

Door-Spring.

No. 159,785

Patented Feb. 16, 1875.

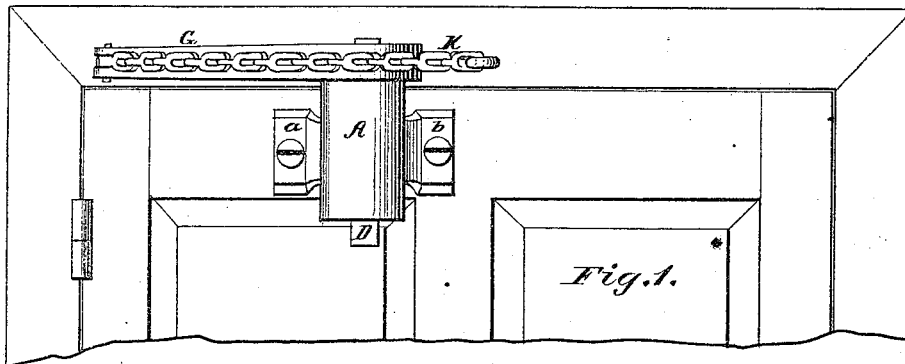


Fig. 1.

Fig. 2.

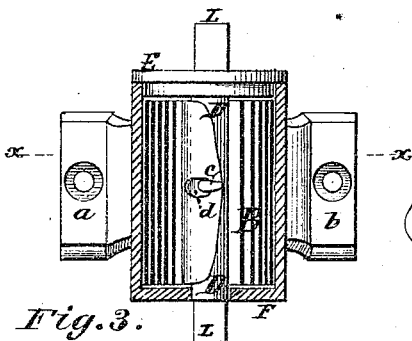
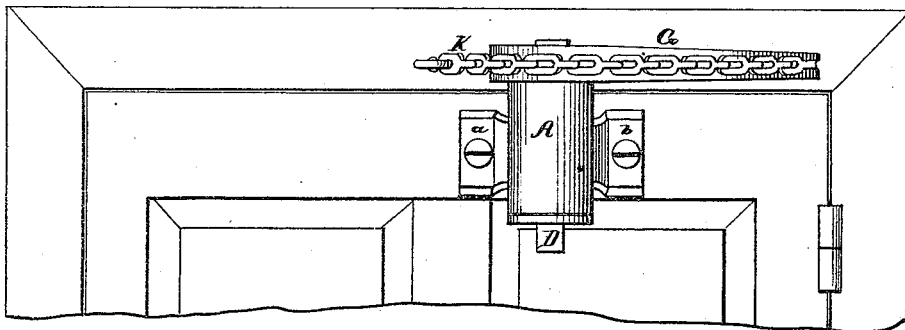


Fig. 3.

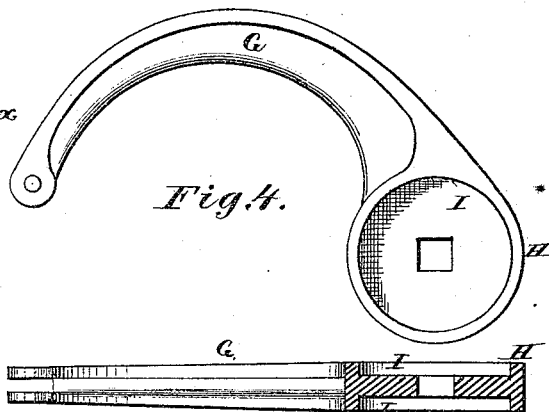
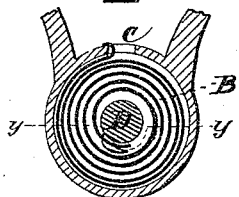


Fig. 4.



Witnesses.
W. L. Perine
Wm. J. Peyton.

Inventor.
Alex. T. Ballantine.
Per. James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

ALEXANDER T. BALLANTINE, OF TITUSVILLE, PENNSYLVANIA.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. 159,785, dated February 16, 1875; application filed May 13, 1873.

CASE B.

To all whom it may concern:

Be it known that I, ALEXANDER T. BALLANTINE, of Titusville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Door-Springs, of which the following is a specification:

This invention is an improvement on the Letters Patent granted to me April 29, 1870, and numbered 102,197, with a view to render the same more effective and of more general application.

The invention consists of a reversible vibrating lever-arm, having seats or bearings and carrying a chain, and combining therewith a drum containing a slotted spring, an arbor, having a pin, projecting shanks, and a cap-plate, the construction and operation of which will be fully hereinafter described.

In the drawings, Figure 1 is a view representing the position of the parts when in use on a right-hand door. Fig. 2 is a similar view of the parts when applied to a left-hand door. Fig. 3 is a vertical sectional view through the spring-drum, and Fig. 4 is a detail view of the reversible vibrating arm.

A designates a drum or barrel, which is cast or formed with extension-arms and flanges *a b*, the latter provided with suitable openings for the passage of screws, which serve to rigidly secure the drum to the door at or near its upper end and on the sides at which the hinges are located. The drum A incloses a coiled or plate spring, B, the outer extremity of which projects through an elongated slot, C, in the drum, and is clinched or turned down laterally in order to secure it in position. A stem or arbor, D, passes centrally through the spring-drum, and is provided with a cap-plate, E, rotating on and serving to close the open end of the drum, through which the spring is inserted, the opposite end of the drum being closed, as shown at F, by a solid head formed with the same. The arbor or stem D is connected to the inner end of the spiral spring by means of a pin, *c*, on the stem, which is inserted into a key-hole slot, *d*, formed through the inner portion or leaf of the spring. A curved or segmental arm, G,

provided at its inner end with a hub or circular enlargement, H, with seats or bearing-surfaces I I, is susceptible of being applied to either of the ends of the arbor or stem D, and said arm has attached to its outer end a chain, K, the opposite end of which is secured to the door-frame.

In operation the vibrating arm is designed to extend in the direction of the hinges, and to move in an opposite direction to that in which the door is moving, and for attaining such a result I render the vibrating arm capable of being readily reversed together with the spring-case, such a disposition of the parts being permitted or rendered possible by the two projecting shanks L L of the arbor D, which are designed, respectively, for the reception of the vibrating arm when used in connection with a right or left hand door. The hub or enlarged inner portion of the vibrating arm is provided with the double seats, as above described, which embrace or extend down beyond the cap-plates of the spring-drum to insure a perfect bearing-surface, and centrally through said hub portion is made an opening for the passage of either of the shanks of the revolving arbor, a pin passing transversely through the shanks serving to secure the vibrating arm in position.

With a spring attachment constructed as above described the door will, when opened, cause the vibrating arm to move outward, but in a reverse direction from that in which it is moving, thereby winding up the spring, which, by its relative force, will, when the door is released, cause the same to immediately close or shut, and the chain or equivalent connecting device be caused to hug the convex side of the vibrating arm.

The advantages or superiority of the present device over others heretofore offered to the public is its adaptability for use in connection with doors moving in reverse direction, simplicity in construction, a more effective operation, and a greater resistance to wear or prolonged use.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The reversible vibrating arm G, having bearings I I, and carrying the chain K, in combination with the drum A, slotted spring B, arbor D, with its pin e, projecting shanks L L, and cap-plate E, all constructed and arranged for operation as herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of May, 1873.

A. T. BALLANTINE.

Witnesses:

W. H. FOWLER,
SAMUEL GRUMBINE.