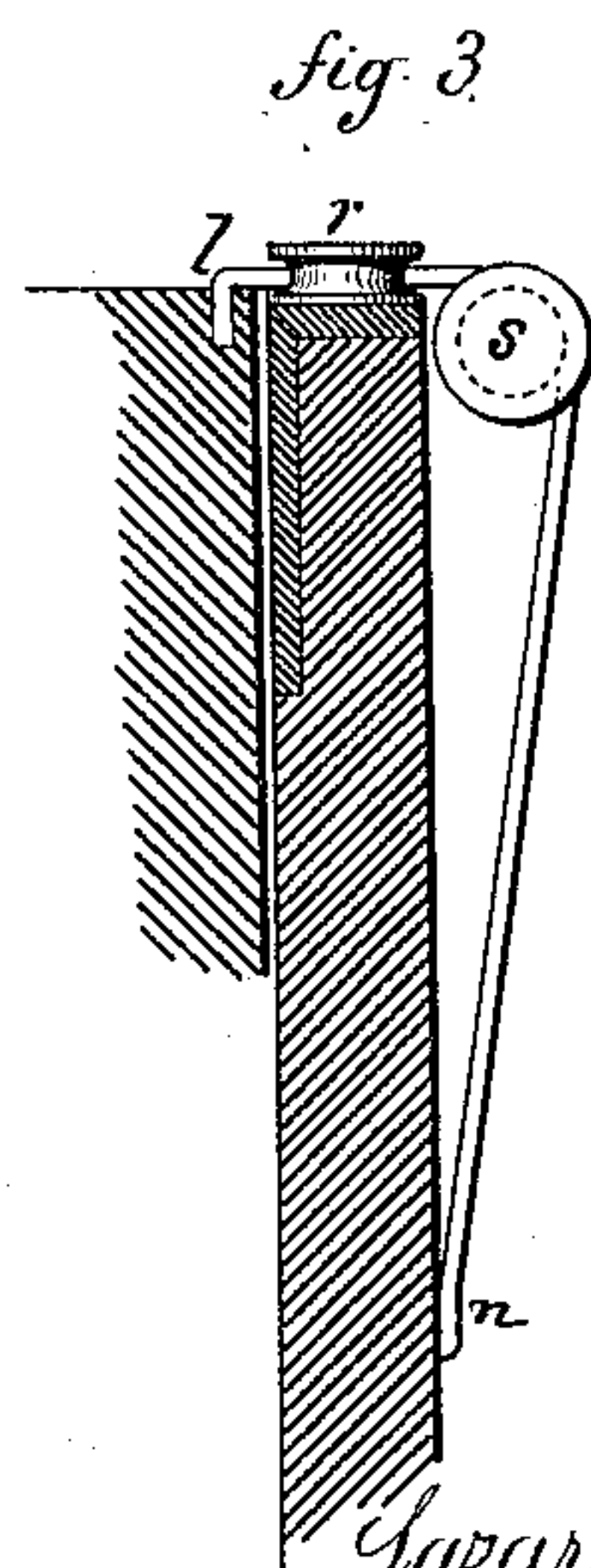
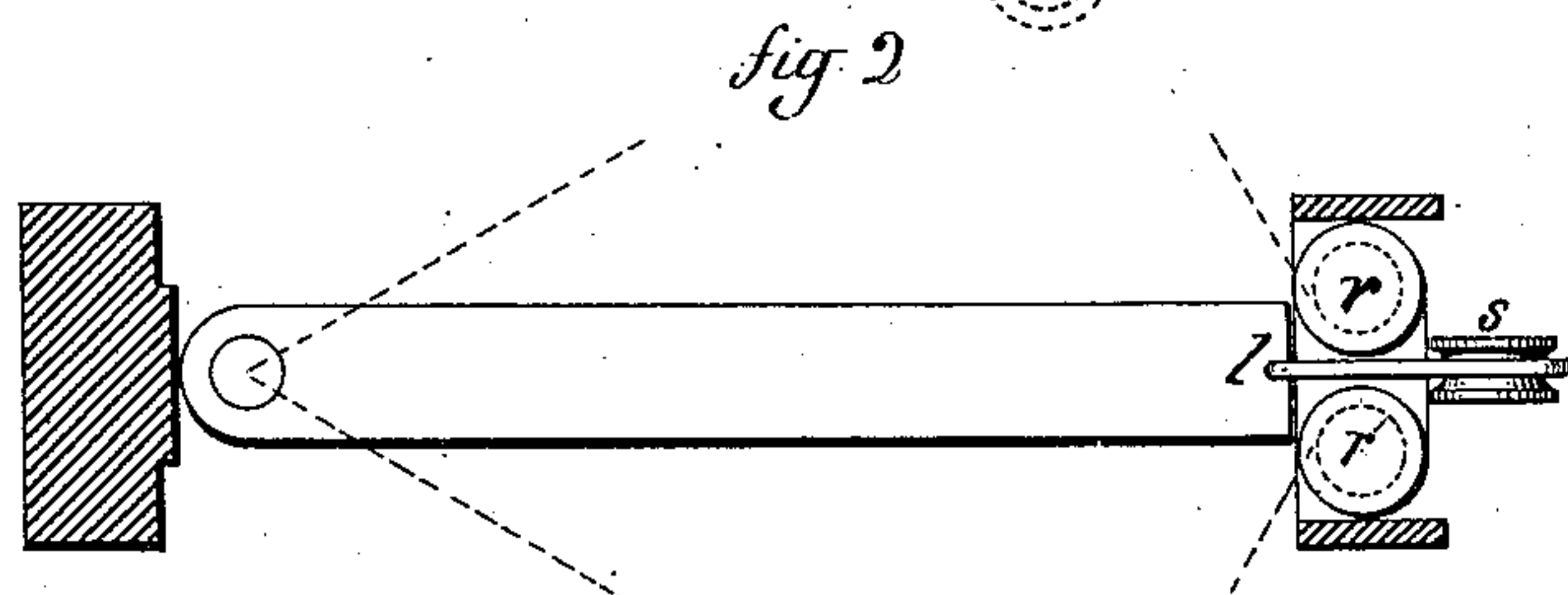
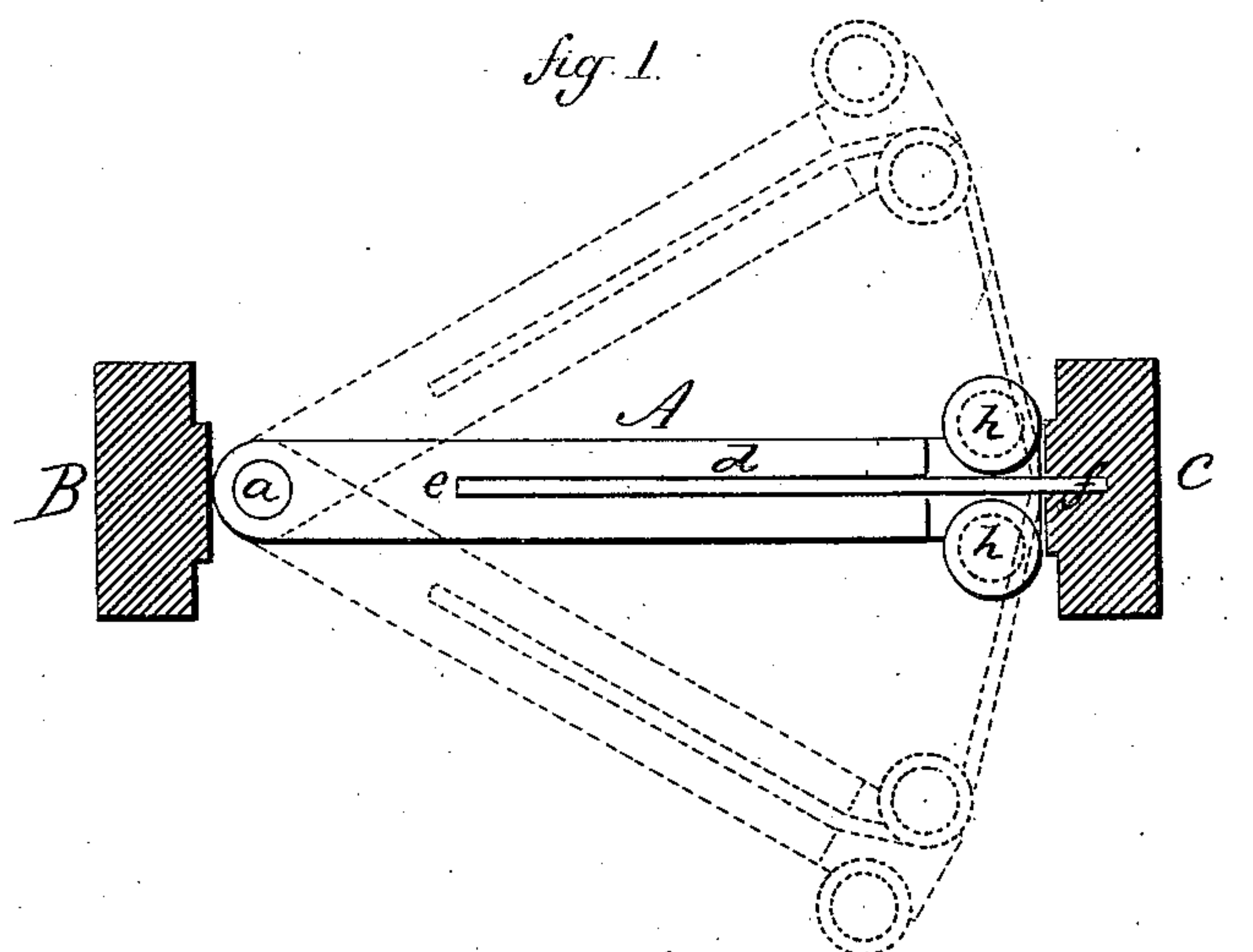


L. THRELFALL.
Door-Spring.

No. 200,107.

Patented Feb. 5, 1878.



Witnesses.
J. H. Shumway
H. A. Atson

Lazarus Threlfall
By atty. *Inventor*
John E. Earle

UNITED STATES PATENT OFFICE.

LAZARUS THRELFALL, OF COLNE, ENGLAND.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **200,107**, dated February 5, 1878; application filed November 9, 1877; patented in England, April 24, 1874.

To all whom it may concern:

Be it known that I, LAZARUS THRELFALL, of Colne, in the county of Lancaster, England; have invented a new Improvement in Door-Springs; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of the top edge of a door illustrating the invention, and Figs. 2 and 3 modifications of the same.

This invention relates to an improvement in automatic closing devices for doors, specially adapted to doors which swing both ways, but applicable to those which swing but one way; and it consists in an elastic cord or strap attached to both the door and jamb at points at a considerable distance from each other, and taking its bearing on both the door and jamb at the opening edge, or opposite the hinged edge, with a roll or bearing around which the said cord or strap will work and extend as the door is opened, and when the door is free will automatically contract to close the door, as more fully hereinafter described and claimed.

A represents the door, showing the upper edge only; B, one jamb, and C the other, the door represented as hung on a pivot, *a*, at top and bottom, and so as to open to the right or left from the jamb C.

In the upper edge of the door a groove is formed, extending toward the pivot, but from the opposite edge, and into this groove an elastic cord or strap, *d*, is placed, secured to the door at its inner end *e*, and its other end, *f*, secured to the jamb from which the door opens. At the edge of the door there is arranged a pulley or anti-friction roll, *h*, one at each side, and between which the elastic cord *d* passes; hence, when the door is opened in one direction, one roll will bear against the cord, and in the other direction the other roll, which will allow the cord to extend freely, drawing entirely between its two ends, and

when the door is free from the power which opened it the cord will, in its turn, bear upon the roll and force the door to its closed position, and this whether the door be opened from one direction or the other.

If the door be constructed to open only in one direction, it will be understood that only one of the rolls would be necessary.

Instead of arranging the elastic strap or cord in a groove in the door, it may be attached to the door near its opening edge, as at Figs. 2 and 3, and pass into the jamb, and extend downward a sufficient distance to give the requisite elasticity, as at *n*, Fig. 3. To do this, there are arranged in the jamb two pulleys or rolls, *r r*, in a horizontal plane, between which the elastic cord passes, and a third pulley, *s*, in a vertical plane between the two, over which the cord will pass; hence, as the door opens, the cord will be accordingly extended and drawn over one of the pulleys *r*, and when free the elastic cord, contracting, will close the door.

This invention was patented in England April 20, 1874, No. 1,357.

I do not wish to be understood as broadly claiming an india-rubber strap attached to the door and jamb as a means for closing the door, as such is well known, (see the Patent No. 102,029, 1870;) but such attachment has been made at the hinged edge of the door, thereby permitting but a very short strap, and applying the power at the least effective point.

I claim—

In combination with a swinging door, an elastic cord or strap, attached to the door and to the jamb, and taking its bearing at the opening edge of the door and corresponding jamb, and a pulley or pulleys between the two attached points, and around which said elastic cord will work, substantially as and for the purpose described.

LAZARUS THRELFALL.

Witnesses:

JOHN LEWIS,
CHARLES B. MASSEY.