J. A. ROBBINS.

DOOR-SPRING.

No. 171,171. Patented Dec. 14, 1875.

Fig. 1.

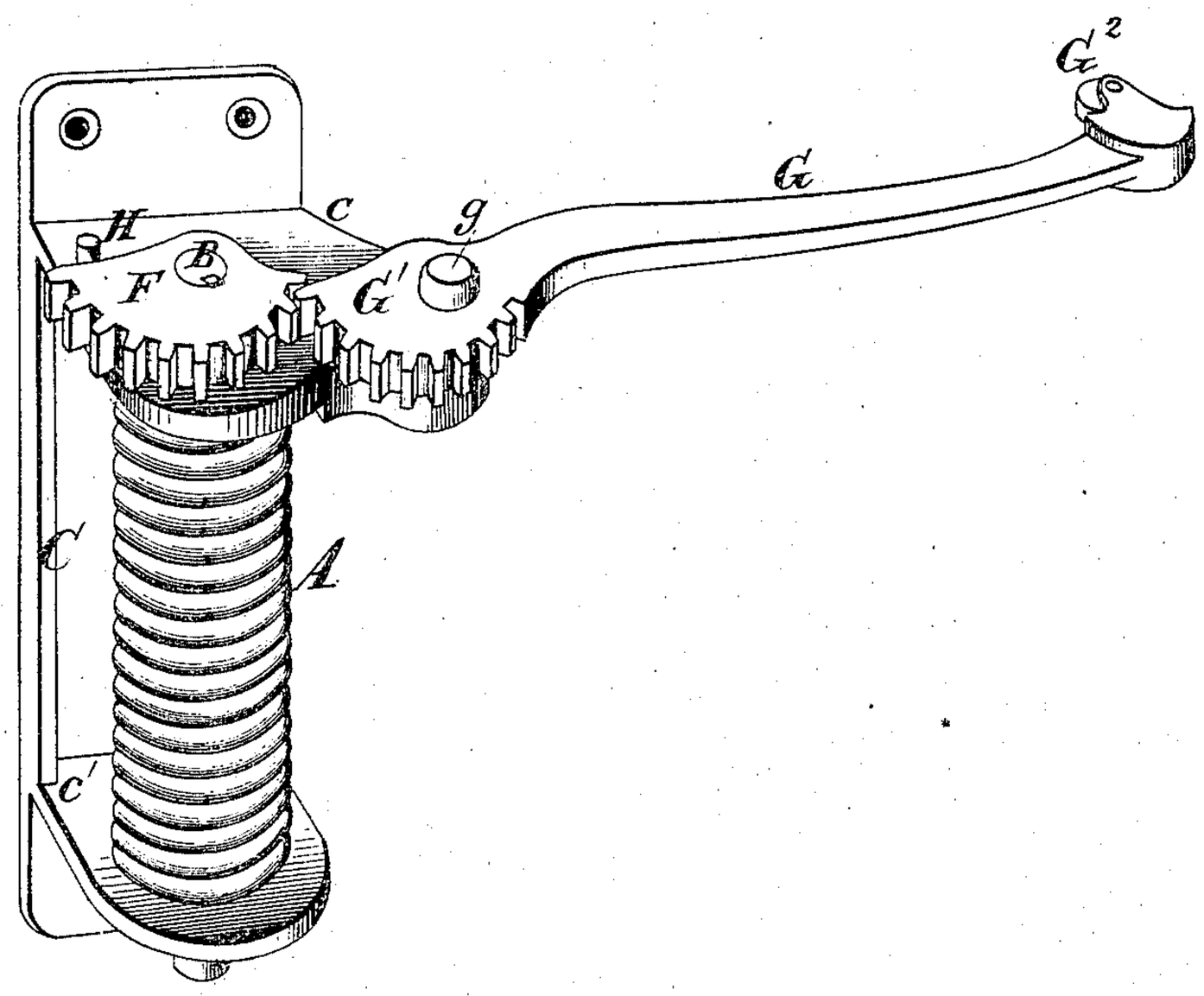
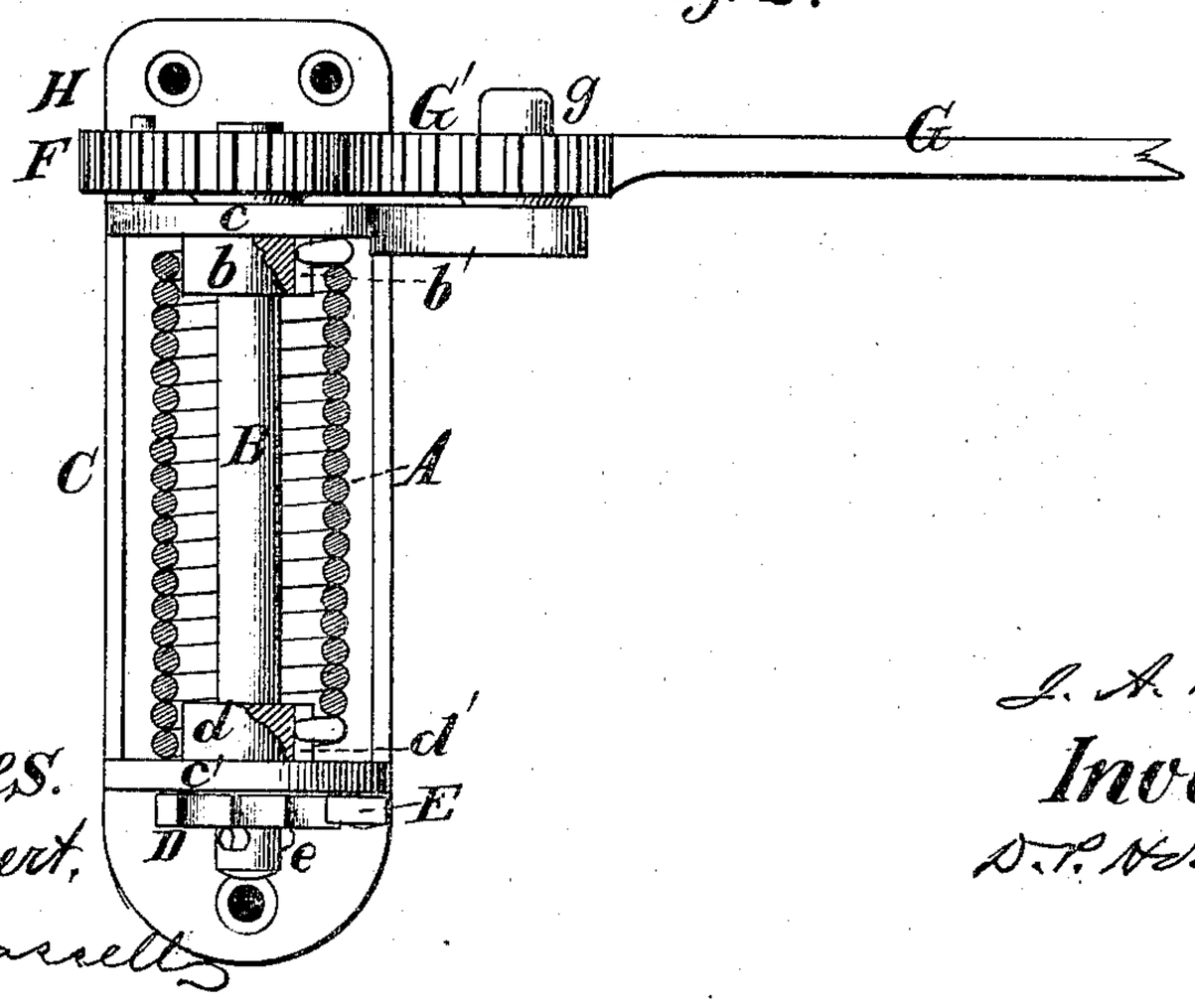


Fig. 2.



Witnesses.
A. Ruppert.
A. L. Barrett

L. A. Robbins
Inventor:
D. P. Holloway & Co.
Atty.

UNITED STATES PATENT OFFICE.

JOSEPH A. ROBBINS, OF BOSTON, MASS., ASSIGNOR TO NATHANIEL CORNING, OF NORTH LONDONDERRY, N. H., D. W. B. JACKSON, OF BOSTON, GEORGE W. HOBBS, OF UXBRIDGE, AND WILLIAM KEACH, OF MILFORD, MASS.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **171,171**, dated December 14, 1875; application filed October 11, 1875.

To all whom it may concern:

Be it known that I, JOSEPH A. ROBBINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Door-Springs, of which the following is a specification:

This invention relates to door-springs composed essentially of a spiral spring, which is carried in a frame fastened to the jamb, and operates on the door by means of an arm or lever.

My improvement consists in connecting the spring and the lever-arm by intermediate eccentric cogged segments so disposed that the leverage of the arm on the spring shall be least when the door is closed, and increase as the spring is wound up on opening the door, in consequence of which arrangement the relative power of the spring will increase as the door closes, though its positive power decreases.

In the annexed drawings, Figure 1 is a perspective view of my improved door-spring. Fig. 2 is a sectional elevation thereof.

The same letters of reference are used in both figures in the designation of identical parts.

The spring A encircles a stem, B, between the lugs *c* and *c'* of the frame C. Its upper end is bent inward and engages a groove, *b'*, in a collar, *b*, on the stem, while its lower similarly-bent end enters a slot, *d'*, in the hub *d* of a ratchet-wheel, D, which encircles stem B, and is located beneath lug *c'* and controlled by a pawl, E, its hub passing through an opening in the lug *c'*. A pin, *e*, is passed through stem B below the ratchet-wheel to retain it in position. The upper end of the stem B carries an eccentric cogged segment, F, which meshes into an eccentric cogged segment, G^1, on the lever G, pivoted on the lug *c* at *g*. The extreme end of the lever carries an anti-friction roller, G^2, to reduce the friction between it and the door. A fixed stud, H, on the lug *c* of the frame limits the motion of segment F due to the recoil of the spring.

Fig. 1 shows the position of the parts when the door is closed, the short limb of segment F engaging the long limb of segment G^1 with the effect already spoken of.

The power of the spring may be easily regulated by means of the ratchet-wheel and pawl.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with the spiral spring A, encircling stem B, between the lugs *c* and *c'* of frame C, of the eccentric cogged segment F on said stem, and the eccentric cogged segment G^1 on lever G, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH A. ROBBINS.

Witnesses:

B. EDW. J. EILS,

JNO. D. PATTEN.