# L. P. SHERMAN & H. E. SMITH.

## Door-Springs.

No. 151,722. Patented June 9, 1874.

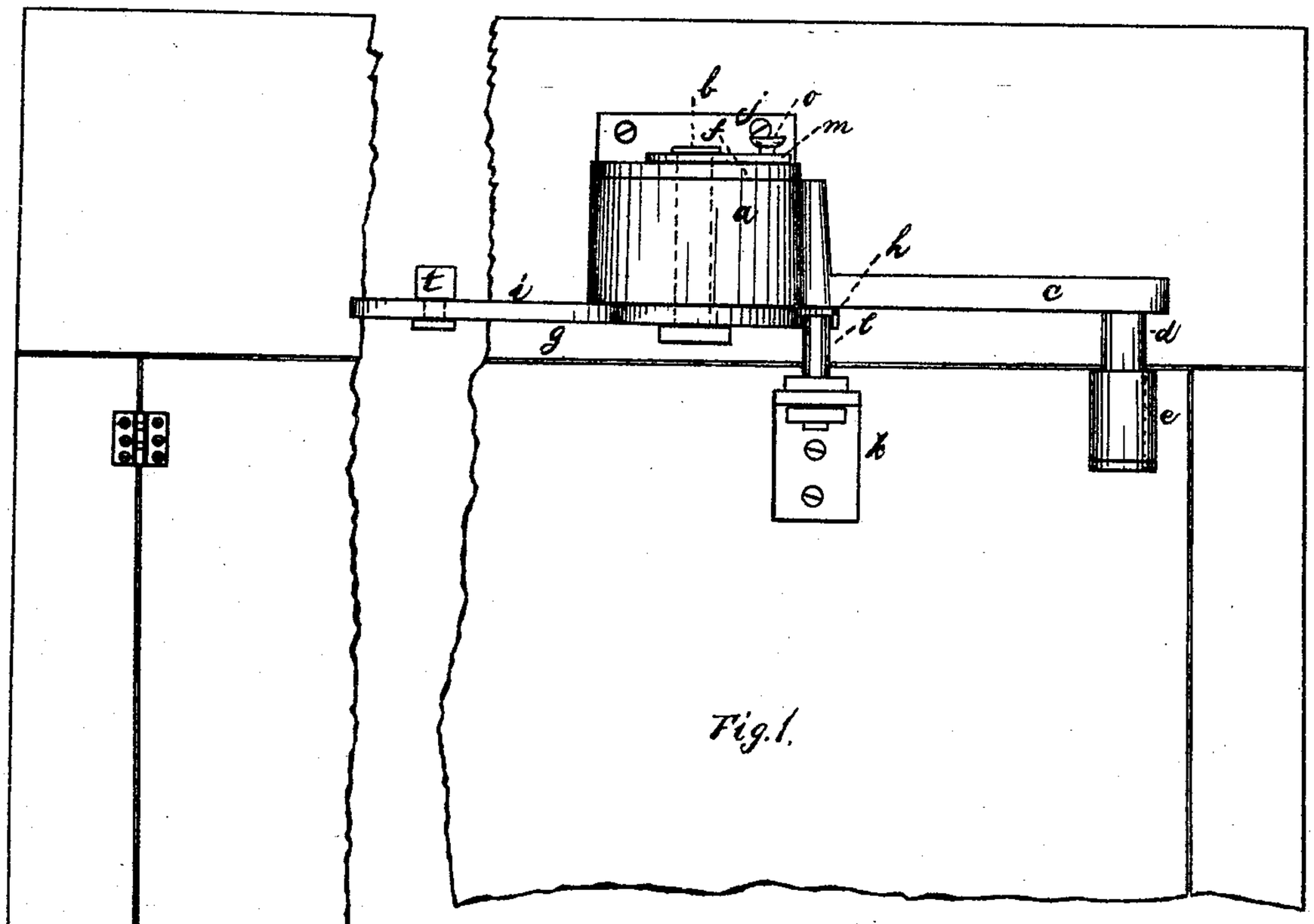
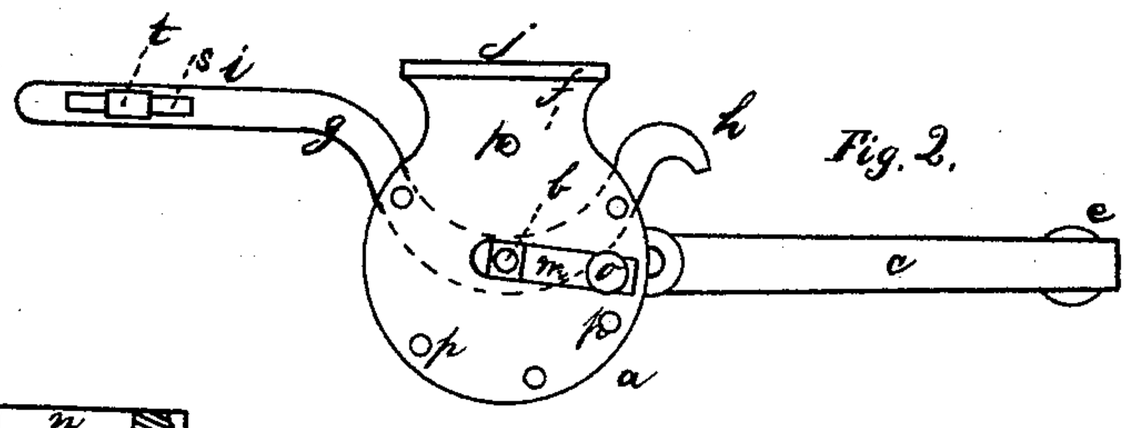
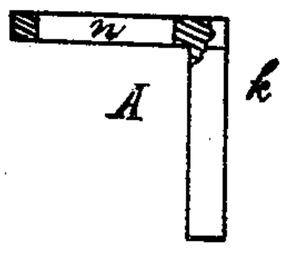



Fig. 1.




Witnesses:—
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# UNITED STATES PATENT OFFICE.

LEWIS P. SHERMAN AND HENRY E. SMITH, OF BIDDEFORD, MAINE.

## IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **151,722**, dated June 9, 1874; application filed May 11, 1874.

*To all whom it may concern:*

Be it known that we, LEWIS P. SHERMAN and HENRY E. SMITH, of Biddeford, in the county of York and State of Maine, have invented certain new and useful Improvements in Door-Closing Devices; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of a door and casing, parts broken out with our devices attached thereto. Fig. 2 is a top plan of the device that is attached to the casing.

Same letters show like parts.

The purpose of our invention is to produce a device to effect the automatic closing of a door, and at the same time to prevent the disagreeable slamming of the door when thus closing. We cause the door to close of itself by means of a coiled spring connected with the rotating cylinder *a*, and placed within it, the other end of the coil being attached to a central and fixed shaft, *b*. Attached to the outside of the cylinder *a* is the arm *c*, with the vertical projection *d* carrying a roller, *e*. The top plate *f* is fixed to the door-casing, and the central shaft *b* passes through it and through the bottom of the cylinder *a*, thus allowing the cylinder to rotate independently of the top plate *f* and the central shaft *b*. On the lower end of the central shaft, immediately beneath the bottom of the cylinder, and free on the shaft, is the arm *g*, having the hook *h* and the straight part *i*. This cylinder, with the accompanying devices thus described, is fastened to the casing above the door by means of a flange, *j*, on the top plate *f*. The device is so placed that the projection *d* shall pass down the side of the door, and bring the roller *e* against the same. When the door is opened, the arm *c*, turning with it, rotates the cylinder *a*, contracts the coiled spring around the central shaft within the cylinder, and thus, when the door is let go, provides a force which closes the door. Upon the side or face of the door is placed the device *k*. This has a projecting bolt, *l*, which rises sufficiently above the top edge of the door to strike the hook *h* on the arm *g*. This arrangement is intended to produce a counteracting force sufficient to prevent the slamming of the door, while at the same time it does not prevent the shutting of the door. The bolt *l* is rendered adjustable in a slot, *n*, so that the amount of the counteracting force can be accurately adjusted. The arm *g* can be arranged in either of two ways. It may have a spiral or other spring extending from the straight part *i*, and connected with the door-casing, so that the force of this spring, when the bolt *l* strikes the hook *h*, shall prevent slamming of the door; or, as shown in the drawing, the arm *g* may be made fast on the central shaft *b*, and then, when the bolt *l* strikes the hook *h*, the throwing backward of this hook will tend to contract the coiled spring within the cylinder, which spring is being unwound by the closing of the door. In Fig. 2 is shown the arm *m* with a thumb-piece, *o*, and also holes *p* in the top plate. The thumb-piece projects through the arm *m*, and fits into these holes. The arm *m* is rigidly connected with the central shaft *b*. By screwing out the thumb-piece so that its end shall not project below the lower side of the arm *m*, the arm can then be turned around, and, carrying with it the central shaft, wind up the coiled spring within the cylinder to the desired tension. The thumb-piece can then be screwed downward over, and so as to sink into, one of the holes in the top plate, and thus hold the spring wound up. The arm *g* can, if desired, have in its straight part *i* a slot, *s*, in which may work an adjustable stop, *t*, for the door to strike against when opened. A is a side view in section of the device attached to the door, showing the slot in which works the adjustable projecting bolt *l*.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, in a door-closing device, of the cylinder *a*, shaft *b*, arm *c*, projection *d*, roller *e*, the coiled spring-arm *g* with

its hook *h*, and the device *k* with its bolt *l*, all arranged to operate as herein described.

2. In combination with the cylinder *a*, containing the coiled spring, the shaft *b* and carrying the arm *c*, with its adjuncts, as described, the arm *m*, with its thumb-piece, and the holes in the top plate for the described purposes, as herein set forth.

In testimony that we claim the foregoing as our own, we have affixed our signature in presence of two witnesses.

LEWIS P. SHERMAN.
HENRY E. SMITH.

Witnesses:
TIMOTHY ELLIOTT,
CYRUS P. BERRY.