

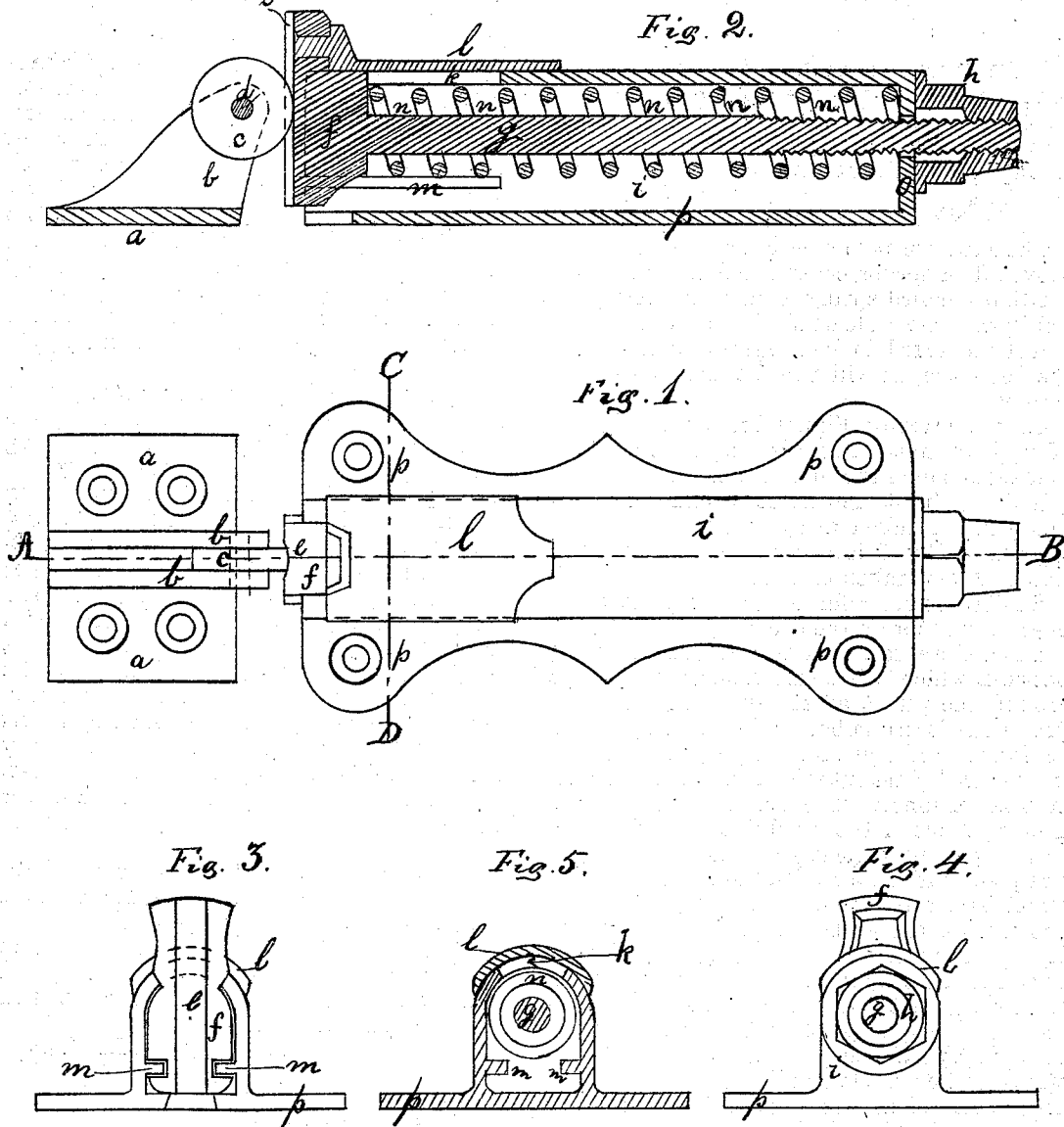
(24.)

FRANCIS GARDNER.

Improvement in Door Springs.

No. 122,316

Patented Jan. 2, 1872.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANCIS GARDNER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. 122,316, dated January 2, 1872.

I, FRANCIS GARDNER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements on Door-Springs, of which the following is a specification:

Nature and Objects of the Invention.

The nature of my invention relates to an improved door-spring, constructed in such a manner that a coiled spring is made to press powerfully on a movable head that rests on a small wheel supported in bearings and attached to the door-sash, as will now be shown and described.

On the drawing, Figure 1 is a ground plan of my invention. Fig. 2 is a central longitudinal section over the line A B taken on Fig. 1. Fig. 3 is a front view as seen with the wheel and bearing taken away. Fig. 4 is an end view, and Fig. 5 is a cross-section over the line C D, also taken on Fig. 1.

Similar letters refer to similar parts wherever they occur on the drawing.

a is a plate, to which are cast bearings *b b*, between which the small roller *c* is movable around the pin *d*, as shown. The plate *a* is provided with a number of holes, through which screws are to be put for the purpose of securing the said plate onto the door-frame in a substantial manner. The roller *c* works in a groove, *e*, cut in the head *f*, as shown on the drawing. To the head *f* is secured, or cast in one piece with it, a rod, *g*, the extreme end of which is screw-threaded. A nut, *h*, fits over the screw-threaded part of the rod *g*, as shown in Fig. 2. The head *f* and rod *g* are inclosed in a metallic casing, *i*, the upper side of which has a slot, *k*, cut therein for the head *f* to move in when the spring is operated. The slot *k* is covered by a shield-plate, *l*, riveted or otherwise attached to the head *f*, by which arrangement dust and dirt are prevented from entering the casing *i*. The sides of the slot *k* provide guides for the head *f* to move in, as shown in

Fig. 3. The lower part of the head *f* is provided with grooves, shown on Fig. 3, that embrace the guides *m m*, whereby the lower end of the head *f* is guided steadily. A coiled spring, *n*, surrounds the rod *g*, and bears with one end against the inside of the head *f* and with the other end against the bottom *o* of the casing *i*, through which a hole is made for the rod *g* to pass, as shown in Fig. 2. The casing *i* has a sole-plate, *p*, cast thereon, provided with holes for screws to pass through for the purpose of securing the plate *p* and casing *i* to a door.

Should the coiled spring be too strong or too weak for any particular door, I can easily adjust its strength by unscrewing or tightening the regulating-nut *h* in a convenient way.

The operation of my improved door-spring is as follows: The plate *p*, with its casing *i*, head *f*, rod *g*, and coiled spring *n*, is to be attached to the side of a door where the hinges are; and the plate *a*, with its bearings *b b* and roller *c*, is to be attached to the frame of a door, so that the roller *c* will bear against the head *f* in a manner as shown on Fig. 2. If the door is opened the coiled spring *n* is consequently compressed, and when the door is left alone the force of the spring will gradually close the door in an easy and gentle manner. The relative positions of the plates *a* and *p* may be reversed, and the spring will work to equal advantage.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

The combination of the head *f*, bolt *g*, coiled spring *n*, nut *o*, shield-plate *l*, plate *a*, and roller *c*, all constructed and arranged as and for the purpose set forth.

FRANCIS GARDNER.

Witnesses:

ALBAN ANDRÉN,
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