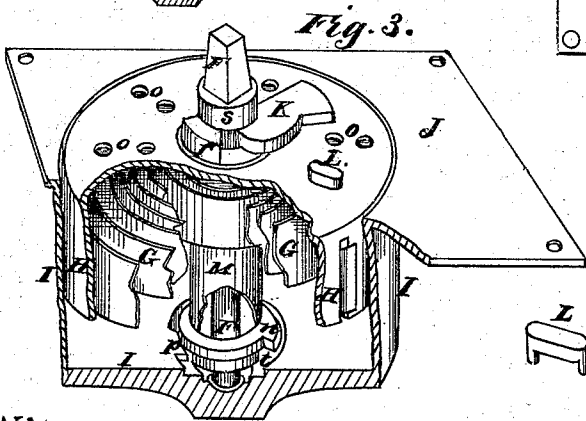
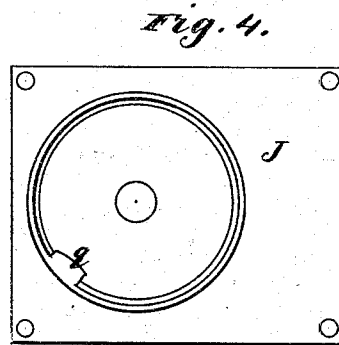
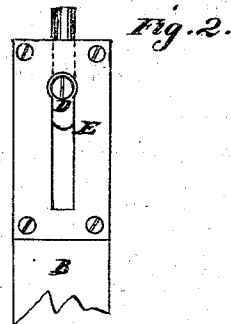
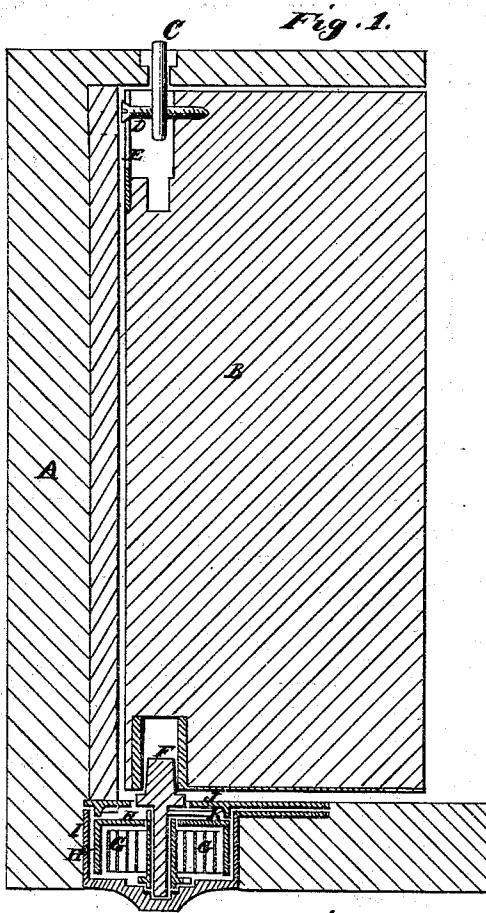


J. STEED & C. NASH.
Door-Springs.

No. 154,097.

Patented Aug. 11, 1874.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN STEED AND CHARLES NASH, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **154,097**, dated August 11, 1874; application filed June 23, 1874.

To all whom it may concern:

Be it known that we, JOHN STEED and CHARLES NASH, of San Francisco city and county, State of California, have invented an Improved Door-Spring; and we do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use our said invention or improvement without further invention or experiment.

Our invention relates to certain improvements in that class of coiled springs which are employed to operate upon doors for the purpose of keeping them closed, the door being allowed to swing in either direction, and we are enabled to dispense with the costly double hinges ordinarily necessary. Our invention consists in the employment of two cylinders or drums, one of which is contained within the other, the inner one serving as a case for the spring, which operates a door turning on pintles at top and bottom, and also of certain details, as hereinafter more fully described. This inner drum is provided with an adjustable stop or lug, which can be moved at pleasure, so as to adjust and regulate the stiffness of the spring to the door without any change in the position of either of the drums. A lug at the bottom of the outer drum serves as a stop to hold the inner end of the spring, and a lug upon the top or cover of the outer drum holds the inner drum with the outer end of the spring as the door swings to one side or the other, respectively. The outer drum or case is set into the floor below the door, and, being perfectly tight, can be filled with oil for the purpose of lubrication, which will not need renewing for years.

Referring to the accompanying drawings for a more complete explanation of our invention, Figure 1 is a sectional elevation, showing a door with our spring attached. Fig. 2 shows the upper edge of the door with its pintle. Fig. 3 is an enlarged perspective view of our spring and cases. Fig. 4 is the cover or top plate.

A is a door-frame, within which swings the door B. This door has a pintle, C, at the top, which slides up and down, and is secured in its proper place by a screw, D, which passes through a slotted plate, E, upon the back edge

of the door, near the top. A shallow square socket is made in the bottom of the door, in a vertical line with the pintle at the top, both being close to the back edge, and a short shaft or spindle, F, which passes down into the spring-box, has its upper end fitted to the square socket, so that the spring, acting upon the spindle, will move the door.

It will readily be seen that by turning the door to a position at right angles with its place when closed, the screw D can be loosened, and the pintle C slipped down until it is free from the casing at the top of the door-frame, when the door can be tipped out a little and lifted off the spindle F, thus removing it at any time without interfering with the spring.

The spring G is contained within a short cylinder or drum, H, open at the bottom, and closed at the top, and this drum is fitted to turn within another drum or outer case, I, which is closed at the bottom, and is let into the floor so that its cover J is just flush with the floor. Through this cover and the top of the inside drum H the spindle F passes, as before described. Just above the top of the inner drum H a lug, K, projects at right angles to the spindle, to which it is secured. The top of the drum H has a number of pairs of holes, *o o*, pierced around it, and the stop L is made with two short projections or legs, which fit into any pair of the holes. Against this stop the lug K rests, and when the door is opened in one direction it turns the spindle F and lug K, which, pressing against the stop, causes the drum to turn, and this coils the spring from the outside. The inner end of the spring is secured to a sleeve, M, which surrounds the spindle, and a lug, N, on the bottom of this sleeve rests against a stop, *p*, in the bottom of the outer cylinder, so that it will not be allowed to turn while the door is opening, as above described. When the door is to be opened in the opposite direction, the stop L, resting against the stop *q* upon the cover J of the outer case, will prevent the drum H from turning, and the spindle F will then turn the sleeve M by means of a lug, *r*, against which the arm K presses, thus coiling the spring from the inside.

In order to increase or decrease the tension of the spring, we move the stop L, and place

it in any pair of holes *o*, and the lug *K*, resting against it, and in turn holding the lug *r* of the sleeve, determines the tension, which can always be altered without removing the spring from its case, or altering the position of the case with reference to the door. As the whole weight of the door must be supported upon the spindle, we provide a shoulder or flange, *s*, upon it, just above the lug *r*, upon which it rests, while the lug *K* rests upon the top of the sleeve *M*, and thus a part of the weight is transferred to the sleeve *M*, which is extended at the bottom, so as to rest upon a washer in the step *t*, which is formed in the bottom of the outer case. The end of the spindle also rests upon a washer at the bottom of the step, and the whole case is filled with oil, and the cover or top *J* is screwed down, making the device dust and water tight.

By the use of the cylinder *H* to inclose the spring *G*, we are enabled to move our spring without friction, and thus its full power operates upon the door.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In combination with the spring *G*, the containing-drum *H* and the outer drum *I*, with the spindle *F* and sleeve *M*, when provided with the lugs *K*, *N*, and *r*, and the stops *L*, *p*, and *q*, the whole operating substantially as and for the purpose herein described.

2. In combination with the double-acting spring *G*, with its inclosing-drum *H*, spindle *F*, and lug *K*, the perforations *o o* in the drum, and the movable stop *L*, for the purpose of regulating the tension of the spring, substantially as herein described.

3. The outer case *I*, with its stop at the bottom, in combination with the spindle *F* and sleeve *M*, when both are supported upon the stop *t*, and thus relieve the weight of the door, substantially as herein described.

In witness whereof we hereunto set our hands and seals.

JOHN STEED. [L. S.]

CHARLES NASH. [L. S.]

Witnesses:

JOHN L. BOONE,

C. M. RICHARDSON.