

B. G. Fitzhugh.

Improvement in Door Springs.

100388

PATENTED MAR 1 1870

Fig. 1.

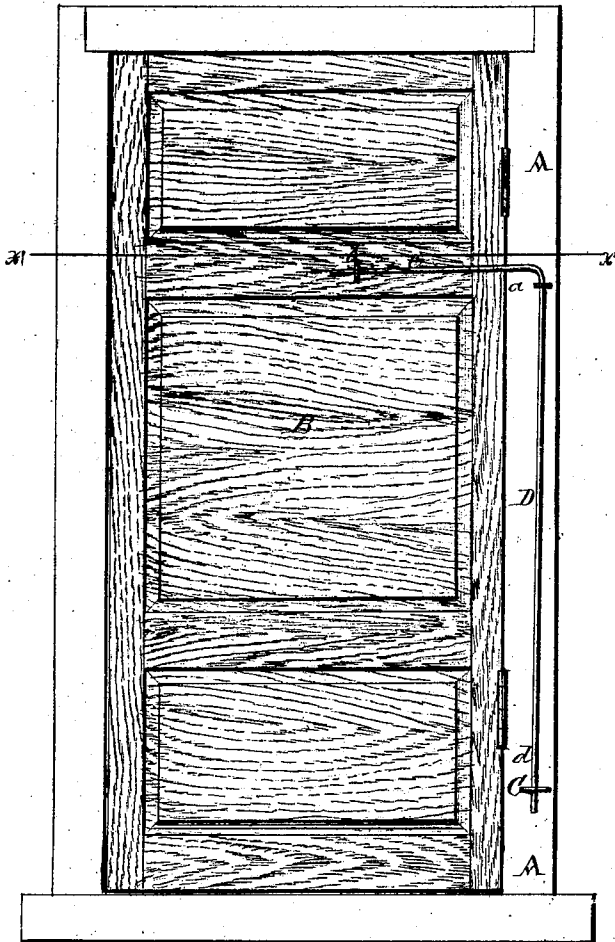


Fig. 2.

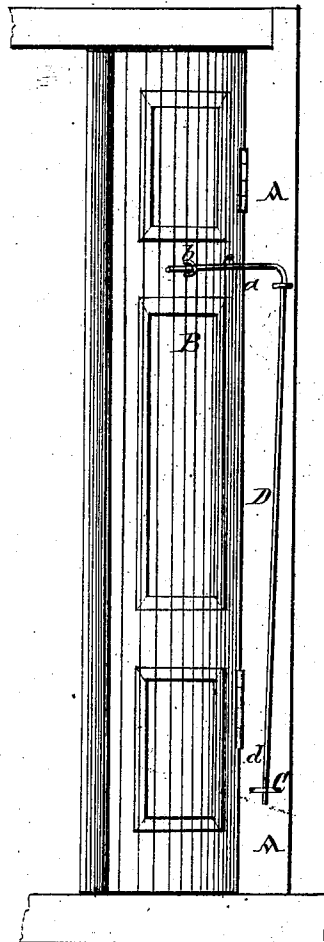


Fig. 3.

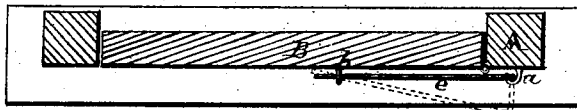


Fig. 4.



Witnesses:
Henry J. Street
Henry Johnston

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His Attorneys.

United States Patent Office.

BENJAMIN G. FITZHUGH, OF FREDERICK, MARYLAND, ASSIGNOR TO
JACOB BYERLY, OF SAME PLACE.

Letters Patent No. 100,388, dated March 1, 1870.

IMPROVEMENT IN DOOR-SPRINGS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, BENJAMIN G. FITZHUGH, of the city and county of Frederick, and State of Maryland, have invented a new and useful Improvement in Door-Springs; and I do hereby declare the following to be a full and correct description of the same, sufficient to enable others skilled in the class to which my invention appertains to fully understand the same, reference being had to the accompanying drawings which make part of this specification, and in which—

Figure 1 is a front elevation of a door with my improved spring attached, the spring holding the door shut.

Figure 2 is a similar view, part of the frame being broken away, with the spring arranged to hold the door open;

Figure 3 is a top view of fig. 1; and

Figure 4 is a detached view of the piece holding the lower square end of the spring.

Like letters of reference indicate like parts in the several figures.

The nature of my invention consists in a door-spring consisting of a bent wire rod passing with its lower squared end through a square opening in a plate secured to the door-post or frame, while its upper end, bent at right angles, or nearly so, to the lower part of the rod, passes through a loop secured in the upper part of the door, the spring of the rod, or the force with which it keeps the door either open or shut, being obtained by pressing its bent part under a hook secured in proper position on the door-post or frame.

In the drawings—

A represents the frame, to which the door B is hinged.

On the lower part of frame A is secured a plate, C, shown detached in fig. 4, in which two square openings, *c*, are formed, one being turned an eighth of a revolution from the other, so that in placing the lower end of the spring-rod D alternately into one and the other opening, *c*, it will be shifted eight times during one complete revolution of the rod. The lower end of this latter is made square, so as to fit into the openings *c* of plate C, while its upper part *e* is bent at right angles, or nearly so, to the lower part *d*.

Thus, when the part *d* is placed into one of the openings *c*, the part *e* will extend across the door.

A loop, *b*, is secured in a suitable position on door A, through which the end of part *e* passes freely to and fro as the door is opened and shut.

The end of part *e* may be provided with a roller, and a metal plate may be secured on the door on which the end *e* is to move; but these are unessential to my invention.

Secured in a proper position on the frame A relatively to the plate C and loop *b* is a hook, *a*, under which the bent part or bend of spring-rod D is pressed after the part *d* has been placed in one of the openings *c* and the part *e* passed through loop *b*.

The operation of my improved door-spring is very simple and easily understood.

The rod D can be made of wire and its square part consist of a piece of iron welded on, as a wire end squared off would wear out too soon by reason of its softness.

The square end of the spring-rod is placed through one of the openings *c*, in such a manner that part *e* points toward the door, as shown in dotted lines in fig. 3.

This end, *e*, is then passed through loop *b*, and the bend of the rod pressed under hook *a*.

By passing the bend under the hook, spring is given to the rod D, its end *e* pressing against the door; and when the latter is opened, the force of the spring is increased, by reason of the twisting of rod D, through its part *e*, and the force is again diminished as the door is shut.

If it is desired to give more force to the spring, the rod is removed from under hook *a*, and from loop *b*, and the square end shifted from one opening, *c*, to the other in the direction of the force required, after which the part *e* and bend are replaced in loop *b* and under hook *a*.

It will be readily understood that by placing the square end of rod D in an opening, *c*, so that part *e*, points away from the door, the action of the spring is reversed, and is made to keep the door open.

The great advantage of my improved door-spring is its great simplicity, enabling any one to attach, change, and shift it without requiring the aid of a mechanic; an increase or decrease in the force of the spring being effected without the use of tools or devices, which are liable to get out of order, by merely shifting the lower end of the rod in the openings *c*, or from one to the other.

Another great advantage is its cheapness.

Should the square end of the rod wear off its edges a new rod can be supplied for a less sum than its repair would cost, and the other parts, if out of order or broken, can be replaced in the same way.

If a rod door-spring, as now known and in use, or any part of the same, break, all the parts have to be replaced with a new rod.

Having thus described my invention,

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

1. The plate C for holding the square end of rod D, when provided with two square openings, *c*, which are placed in such position to each other that when

the rod D is shifted from one to the other an eighth revolution is given to the rod, substantially as and for the purposes described.

2. The combination of bent rod D; plate O, with its openings c, hook a, and loop b, arranged so that the rod D can be shifted or entirely released at both ends without the necessity of removing screws, nails, &c., substantially as and for the purposes described.

The above specification of my improvement in door-springs signed this 28th day of December, 1869.
B. G. FITZHUGH.

Witnesses:

HENRY J. ARET,
HENRY A. JOHNSTON.