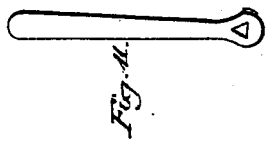
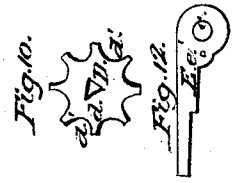
W. Ross.

Door Spring.

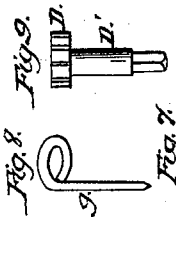
No. 88,985. Patented Apr. 13. 1869.

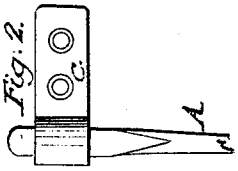




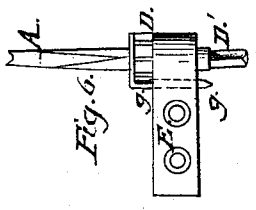


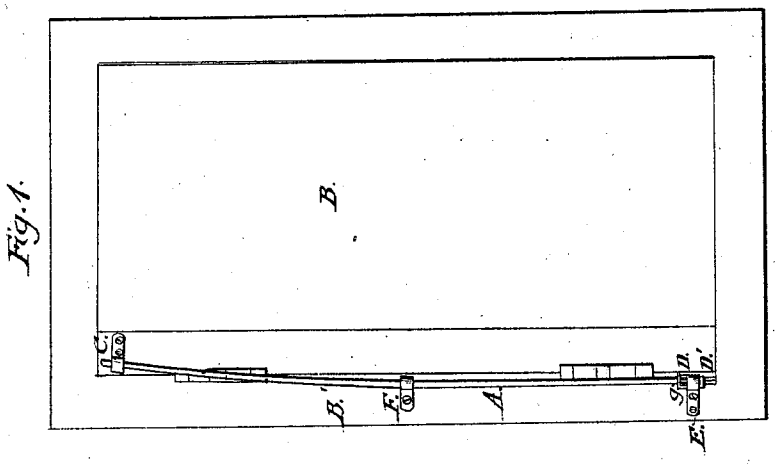












Witnesses:
P. F. Larner
John Wiedersheim

Inventor:
Wm. Ross
By, Wiedersheim & Co.
Attys.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

United States Patent Office.

WILLIAM ROSS, OF BALTIMORE, MARYLAND.

Letters Patent No. 88,985, *dated April* 13, 1869.

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 known that I, WILLIAM ROSS, of the city and county of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Door-Springs; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is a side elevation of a door with my improved spring applied.

Figures 2 to 11, inclusive, are views of the parts in detail.

Similar letters denote the same parts in the different figures.

This invention relates to the upright-rod spring, whose resilience and consequent capability of closing the door are due to the torsion to which it is subjected by the opening of the door.

I am aware that the rod-spring has been long known and made use of for the purpose in question, and I am likewise acquainted with the construction of and mode of applying different devices for attaching the spring, and regulating the resilient power of the same, such devices having been made the subject-matter of several patents.

My invention has for its object the production of appliances for attaching and regulating the power of the spring, which shall be at once more effective, more easily manufactured, and applied in use, simpler, and less liable to derangement than those heretofore employed.

In order that others skilled in the art to which my invention appertains, may be enabled to fully understand and use the same, I will proceed to describe it in connection with the drawings.

In fig. 1, A represents an upright torsional rod-spring, of steel, which is preferably triangular, in transverse section, at both ends.

At top, the spring A is attached to the door B, by means of a plate, C, which has a triangular socket, *c*, fig. 3, into which the corresponding end of the rod A is inserted, as shown in fig. 2.

The plate C is screwed fast to the door B.

The spring H cannot turn within the socket *c*.

The lower end of the spring A is inserted into a correspondingly triangular or trigonal socket *d*, fig. 10, which extends axially through the notched wheel D, and partially through the stem or shank D′.

The wheel D and the stem D′ are cast together, and the stem D′ has a round portion, and a square, or angular portion, the round part being fitted in a corresponding socket, *e*, in the plate E, which is screwed fast to the door-frame B′, and the angular part protruding below said socket, as shown in fig. 6, to admit of the application to said stem of a wrench, fig. 11, for a purpose to be explained.

The socket-plate E is provided with an aperture, *e′*, figs. 7 and 10, to receive a movable pin, *g*, which, being made to occupy one of the notches in the periphery of wheel D, will lock the wheel D in the desired position to which it may be turned.

The pin *g* is a separate unattached part; it is provided at one end with a loop, (see fig. 8,) which fits over the lower end of the rod-spring A, and rests upon the wheel D, it being thus supported and retained in its locking position, as shown in fig. 6.

The spring A is held and prevented from bowing out at the centre by means of the socket-plate F, figs. 4 and 5, which is screwed fast to the door-frame, and in which the spring A is free to turn.

It is to be particularly noticed that the lower end of the spring A does not protrude below the socket-plate E; that the lower end of the spring A occupying the socket in the wheel D, and its stem D′, serves to hold the wheel in proper position upon the socket-plate E, by preventing the upward movement or displacement of said wheel; and that in consequence of this construction of the appliances, a double-jawed socket-plate, to hold the wheel D in position, is dispensed with.

In operation, while the lower end of the spring A is held against turning, by the devices D D′ E *g*, the upper end of the spring is turned, when the door is opened, by reason of its attachment to the same; hence the spring is twisted to such an extent that when the door is released, the resilient power of the spring restores it to its closed position.

To set the spring so as to increase or diminish its resilient power, the pin *g* is withdrawn, the wrench, fig. 11, is applied to the stem D′, and the latter, together with the wheel D and spring A, being turned, till said spring has the desired degree of torsion, the pin *g* is reinserted, and the spring thus retained in the position to which it was turned by the wrench.

The wheel D, as heretofore made, has rectangular notches between the peripheral teeth, or projections, by reason of which the teeth are easily and frequently broken off by the pressure they have to endure.

The wheel thus made is thereby rendered ineffective, and has to be replaced.

To obviate this breaking off of the teeth, I give to the notches, in the process of casting the wheel, the circular form shown at *d*, fig. 1, whereby I obtain a broad base for the teeth or projections, and render them less liable to break off.

Having thus described my invention,

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

The notched wheel D, and two-part stem D′, cast together, in combination with the pin *g*, socket-plate E, and spring A, said stem having a rounded part for entering the socket-plate, and an angular part protruding therethrough, all as and for the purpose described.

To the above specification of my improvement in door-springs, I have signed my hand, this 5th day of June, A. D. 1868.

WILLIAM ROSS.

Witnesses:

CHAS. D. SMITH,

P. F. LARNER.