C. FERCHLANDT.
Door Spring.

No. 202,099. Patented April 9, 1878.

Fig: 4

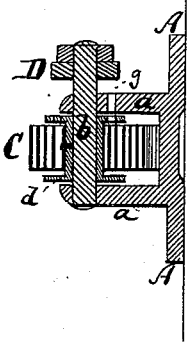


Fig: 1

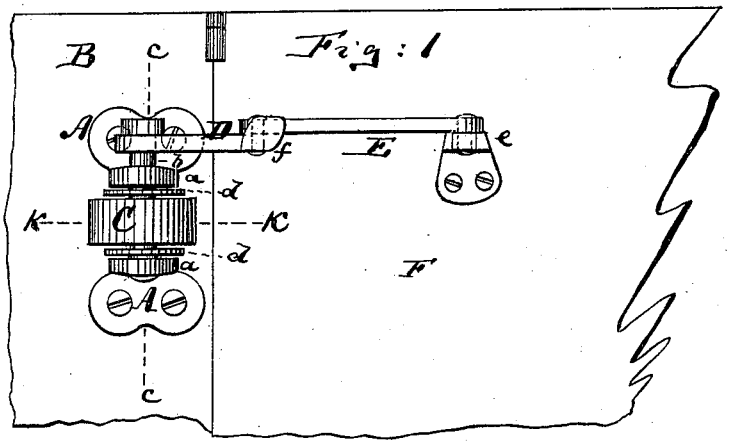


Fig: 2

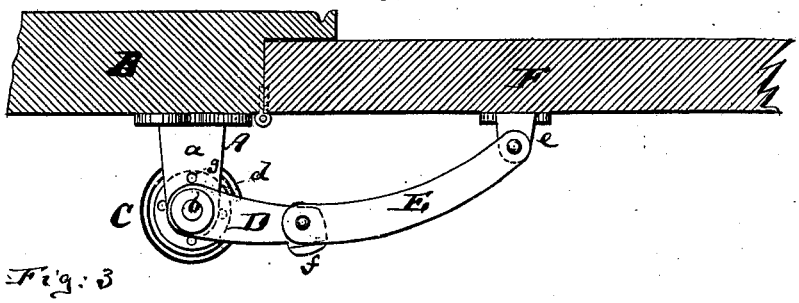


Fig: 3

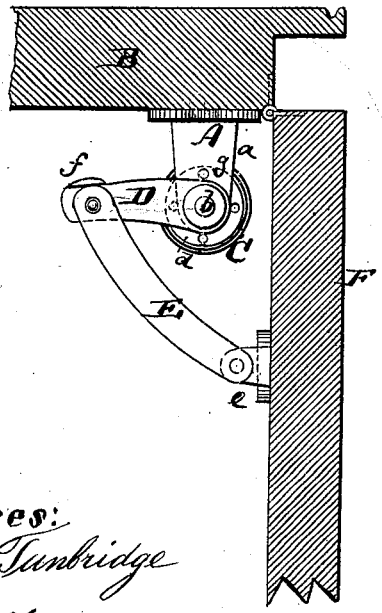
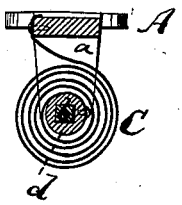


Fig: 5.



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UNITED STATES PATENT OFFICE.

CARL FERCHLANDT, OF NEW YORK, N. Y.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **202,099**, dated April 9, 1878; application filed February 15, 1878.

To all whom it may concern:

Be it known that I, CARL FERCHLANDT, of New York city, county and State of New York, have invented a new and useful Improvement in Door-Springs, of which the following is a specification:

Figure 1 is a face view of my improved door-spring, showing it applied to the door. Fig. 2 is a top view of the same, showing the door and door-frame in section. Fig. 3 is a similar top view thereof, showing the door-spring open. Fig. 4 is a detailed vertical section of the spring proper, the line *c c*, Fig. 1, indicating the plane of section. Fig. 5 is a horizontal section through the spring on the plane of the line *k k*, Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to an improved door-spring, which is so constructed as to apply considerable power to the closing of heavy doors, and which is readily adjusted and inexpensive in construction. The spring is a coiled spring, and is so connected with the door that the lever extending from the spring will describe a circle twice as large as that described by the door, so that thus the full power of the spring is utilized, while usually heretofore the coiling or uncoiling of the spring was in the same ratio as the motion of the door itself.

The invention consists in combining a coiled spring, hung in a bracket, with two levers, of which the lever that connects with the door is twice as long as the lever that connects with the spring.

It also consists in providing the shorter lever with a lip, to constitute a stop, all as hereinafter more fully described and claimed.

The letter A in the drawing represents a bracket, which is to be attached to the door-frame B, and which, between two projecting horizontal lips, *a a*, carries an upright shaft or arbor, *b*, which is to be affected by the spring. Upon this shaft or arbor *b* is mounted, between the two lips *a*, a flanged drum, *d*, to which, between the flanges, is attached the inner end of the coiled spring C. The outer end of this coiled spring is fastened to the back or upright of the bracket, as shown in Fig. 5.

The turning of the shaft or arbor *b* necessitates the coiling or uncoiling of the spring which is attached to the drum that is securely fastened to said shaft or arbor. The flanges of the drum *d* partly protect and cover the coils of the spring, and prevent dust from entering between them. The upper squared end of the shaft or arbor *b* carries a projecting lever, D, to the outer end of which is pivoted a longer lever, E, which is joined to a lug, *e*, that projects from the door F. The lever E is, in fact, twice as long as the lever D.

A lip, *f*, which is formed on the lever D, bears against the outer side of the lever E when the door is shut, as shown in Fig. 2, and therefore takes the strain off the casing, against which the doors are usually slammed in shutting them, and prevents the joined ends of the levers from being carried against the door.

It will be perceived, by a comparison of Figs. 2 and 3, that the lever E describes an arc of one hundred and eighty degrees, while the door moves only ninety degrees, and that thus a full sweep of the spring is utilized in acting upon the door. This effect is obtained by the peculiar lever-connection with the shaft or spring-arbor *b*, as stated.

For the purpose of adjusting the power of the spring, the connection between the levers D and E is first interrupted, and the lever D then swung to bring the spring to the proper strain. A pin is then passed through a hole, *g*, which is formed in one of the lips *a a* of the bracket, and thence into a hole formed in one of the flanges of the drum *d*. This pin locks the spring in the position to which it has been set, and permits the lever D to be taken off the squared part of the shaft or arbor *b*, and to be set at any other suitable angle onto such squared end as will be necessary for utilizing the new power of the spring.

Instead of attaching the spring to the door-frame and the lug *e* to the door, the position of these parts may, of course, be reversed, if desired.

I claim—

1. The combination of the coiled spring C

and its bracket A with the shaft or arbor *b*, levers D and E, hinged together, the lever E, which connects with the door, being made twice as long as the lever D, so that the lever D will describe half a circle whenever the door is moved ninety degrees, substantially as herein shown and described.

2. In combination with the bracket A, shaft or arbor *b*, and spring C, the lever D and lever E, said levers being joined together, and the lever D being provided with a lip, *f*, which constitutes a stop, substantially as herein shown and described.

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