(No Model.)

W. S. BARLOW.

DOOR SPRING.

No. 270,368. Patented Jan. 9, 1883.

Fig. 1.

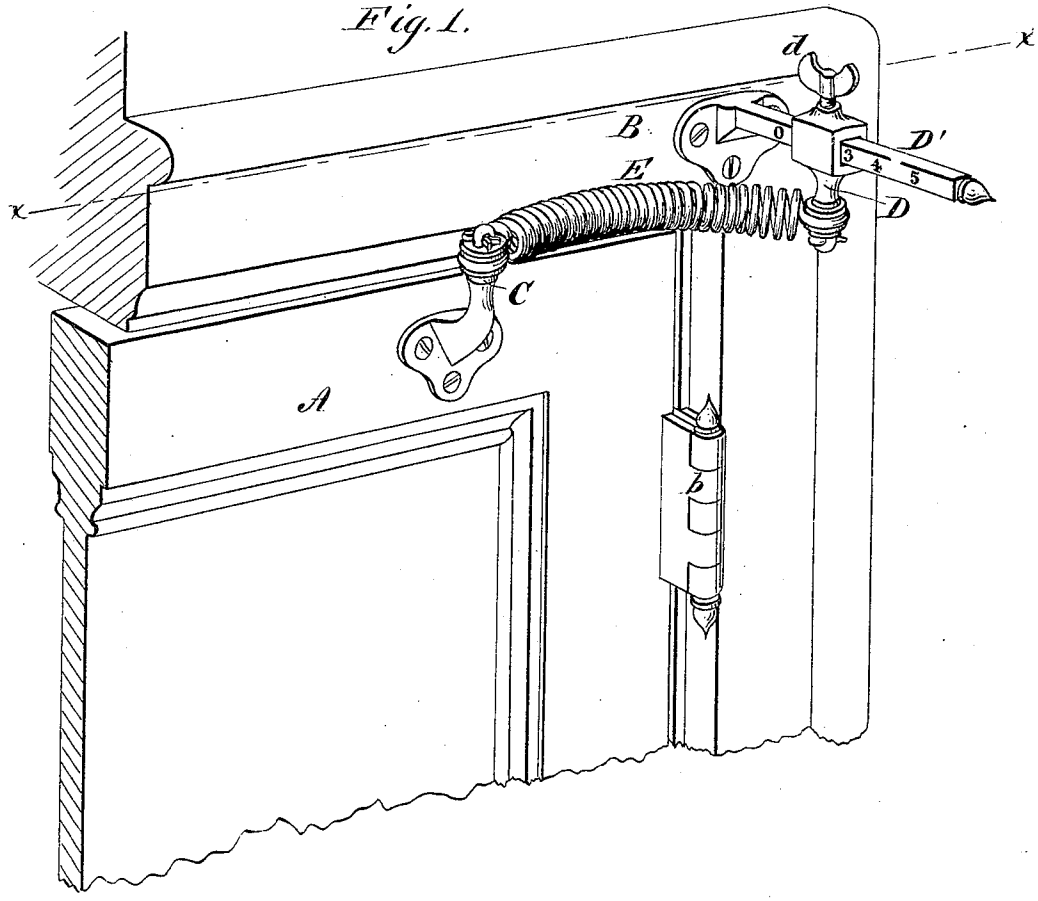
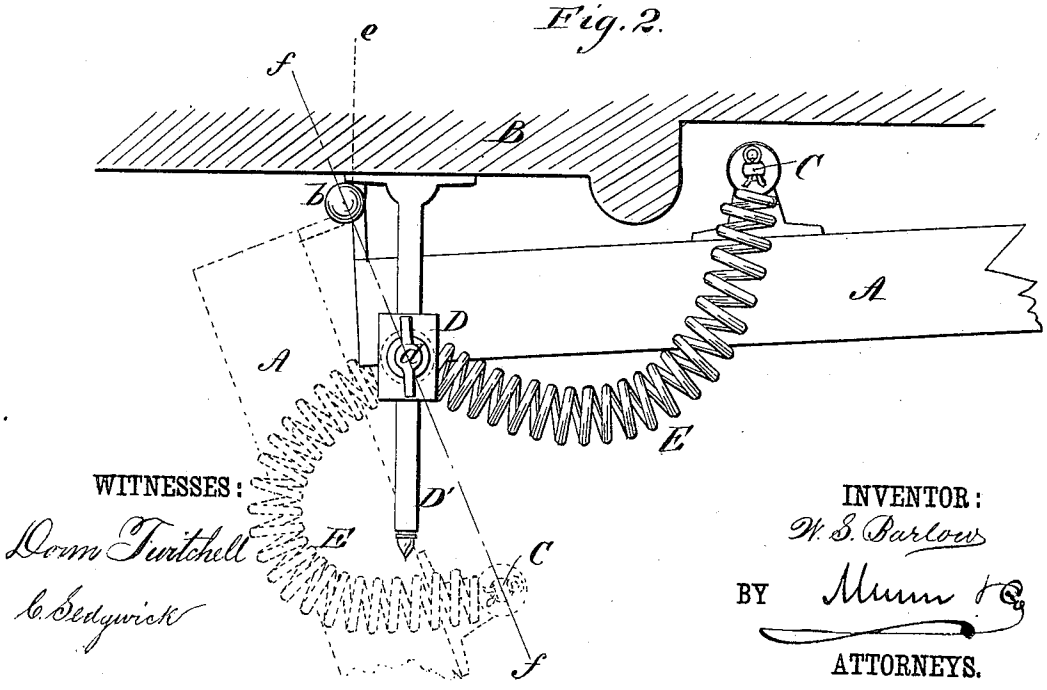


Fig. 2.



WITNESSES:

Donn Twitchell

C. Sedgwick

INVENTOR:

W. S. Barlow

BY Munn & Co.

ATTORNEYS.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

WARREN S. BARLOW, OF PATERSON, NEW JERSEY.

DOOR-SPRING.

SPECIFICATION forming part of Letters Patent No. 270,368, dated January 9, 1883.

Application filed September 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, WARREN S. BARLOW, of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Door-Springs, of which the following is a full, clear, and exact description.

This invention relates to door-springs, also applicable to hinged blinds or shutters and other like devices, which operates not only to close the door, but to hold it open when moved back.

The invention consists in a combination of three leading elements—namely, a spiral or other spring, a stud to be applied to the side of the door facing the direction in which the door moves when opening, and a stud carried by an arm or bar to be applied to the jamb of the door or other fixed portion, said spring being fitted to freely turn at its ends on or with the two studs which act as pivots, and being so arranged that it is bent or doubled in direction of its length when opening or closing the door—substantially as hereinafter described

The invention also comprises a special construction and arrangement of parts for varying the force of power of the spring on the door and for changing the points at which it operates to hold the door open, the same including a bar along which the stud connected with the door-frame is made adjustable.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 represents a view in perspective of a door and door-frame in part with my improved spring applied thereto. Fig. 2 is a horizontal section of the same, taken as indicated by the line *x x*, Fig. 1.

A indicates the door, and *b* one of its hinges.

B is the door-frame.

C is an upright stud, bent or constructed in the form of a bracket, for attachment by screws or otherwise to the side of the door facing the direction in which the door moves when opening and at a suitable distance from the hinges of the door.

D is another stud, which is also vertical, and is carried by an arm or bar, D′, fast to the jamb of the door or door-frame B, and arranged to stand out or project from it on the same side of the door as the stud C on or to one side of the door-hinges.

E is a spiral metal spring, fitted to freely turn at its ends upon the studs C D as pivots, and of such a length that when the door is closed it will be more or less under tension and assume a curved position in direction of its length, substantially as shown in Fig. 1, such curvature of the spring being preferably inward toward the door; but it may be outward. The stud D is represented as constructed in the form of a slide adjustable along the bar D′, by which it is connected to the door-frame, and on which it is secured at any desired point by a thumb-screw, *d*. This adjustable attachment of the stud D provides for increasing or diminishing the effective force or power of the spring on the door, and by arranging a scale on the bar D′, for determining the position of the sliding stud D, as shown in Fig. 1, this adjustment may be regulated to the greatest nicety. When opening the door A, as illustrated by dotted lines in Fig. 2, (the line *e* indicating the hinged side of the doorway,) the spring E, which mainly operates on the door by the bending of it longitudinally rather than by its tension as due to the expansion and contraction of its coils, is carried around the outside of the pivot D, and continues to exert a closing force on the door until the pivot C lies in the same vertical plane as the hinges *b* of the door and fixed stud D, as shown by the intersecting line *f*. The door is then on its dead-center, and the spring E exerts no force either to open or close it. When, however, the door is farther opened, and so that its attached stud or pivot C crosses or passes backwardly beyond the line *f*, then the spring E, by its longitudinal curvature and slight distention, exerts an opening force on the door and holds it thrown back or open against any suitable stop. This is the position of the parts as represented by full lines in Fig. 2. By varying the position of the scale-bar D′ more or less to the right or left relatively to the hinges of the door the angle of the door when the dead-center is reached will be changed accordingly. The position of the adjustable stud D on the bar D′ has also a like controlling effect. Furthermore, instead of the spring E being carried around the outside of the pivot

D when the door is opened, it may be carried around on the inside thereof by using a longer scale-bar, D′, or arranging the stud D to extend farther out from the door-frame and the stud C on the door nearer the hinges thereof; but such arrangement I do not regard as desirable as the one here shown.

Instead of the spring E being spiral, it may be of flat construction, but must be similarly arranged to turn upon the pivots C D.

It will here be observed that the spring E during its operation upon the door is flexed longitudinally in reverse directions, as clearly shown in Figs. 1 and 2 of the drawings.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the studs C D and a spiral spring arranged to turn on or with both of said studs, whereby the spring will hold the door open or closed, as described.

2. The combination, with a door-spring, of a rigid bar, D′, and a stud, D, adapted to slide on and be clamped thereto at different points, whereby the tension of the spring may be regulated, as described.

WARREN SUMNER BARLOW.

Witnesses:
EDGAR TATE,
EDW. M. CLARK.