D. R. LEWIS.

Door-Spring.

No. 169,110. Patented Oct. 26, 1875.

Fig 1.

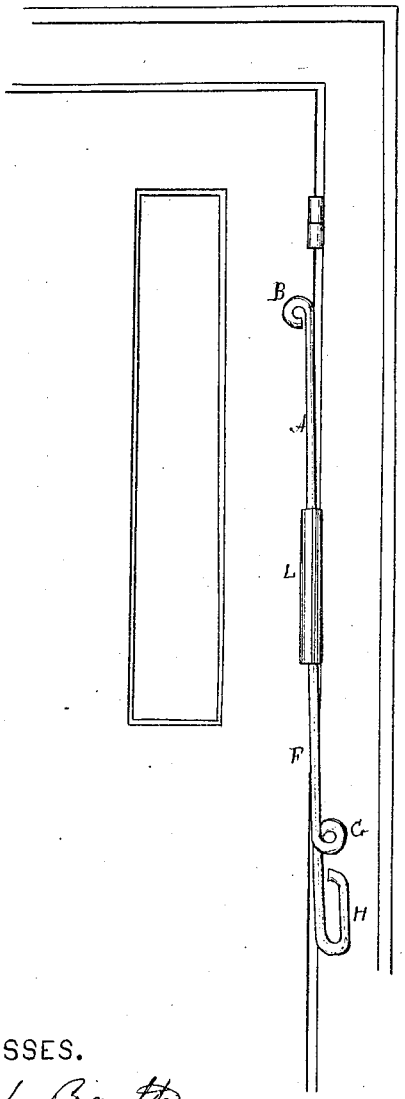
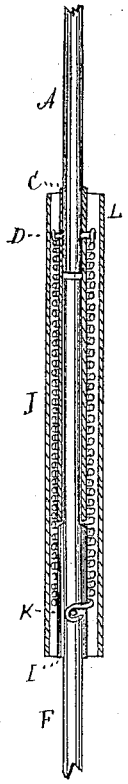


Fig 2.



WITNESSES.

Joseph Barth.

Wm H Seaman

David R. Lewis

By his Atty J. Dennis Jr

UNITED STATES PATENT OFFICE.

DAVID R. LEWIS, OF MANCHESTER, IOWA.

IMPROVEMENT IN DOOR-SPRINGS.

Specification forming part of Letters Patent No. **169,110**, dated October 26, 1875; application filed May 11, 1875.

To all whom it may concern:

Be it known that I, DAVID R. LEWIS, of Manchester, Delaware county, in the State of Iowa, have invented certain new and useful Improvements in Door-Springs; and I hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings forming part of this specification.

The nature of my invention consists in two rods, one fastened to the door and the other to the door jamb or casing. The opposite ends of these rods meet in a cylinder surrounded by two intercoiled springs, having their opposite ends hitched to the above-mentioned rods, together with certain adjusting and keying-up devices for the spring.

In the accompanying drawings, Figure 1 is an elevation of a door-spring with my improvements. Fig. 2 is a vertical section of the same.

In the above-mentioned drawings, A is the upper rod, provided with an eye, B, for the screw that is to fasten it to the door-frame. To the lower end of the rod A I apply the cylinder C, of sheet metal, and fasten it to the rod by the pin D. This cylinder C is made to extend a proper distance below the rod A to receive the upper end of the lower rod F, which enters the cylinder C to hold the rods A and F in line with each other. The end of the rod F turns freely in the cylinder C. The rod F extends down from the cylinder C, and is provided with an eye, G, for a suitable pin or key to wind or key up the springs, and below the eye G there is a lengthened eye or slot, H, for the screw, which is to fasten it to the door after the rod A has been fastened to the frame. The slot H is designed to facilitate the fastening the spring to the door and save the necessity of making the hole in the door so accurate as would be necessary if there were no slot, and it also allows the rod to traverse on the door and bring or transmit the friction to the ends of the rods in the cylinder. The rod F has a short cylinder, I, applied to it, to make the space on the rods for the spiral springs J uniform in size where they are surrounded by the springs. The cylinder I is fastened by the pin K, which passes through the rod and cylinder, and has the spiral springs J hooked upon it, (the pin K.) The opposite ends of the springs are hooked to the pin D in the rod A. After the springs are hooked on the cylinder L may be applied to cover the springs.

I deem it important to state that to make my spring work successfully the ends of the rods A and F should come together in the cylinder C and sustain the end pressure of the springs as they are wound or keyed up.

To wind the springs, I use a mandrel about the size of the cylinder C, and wind two wires spirally around it, parallel one to the other, close together, forming two intercoiled springs about three-fourths of an inch shorter than the space between the pins D and K. When the wires are cut off the springs recoil, and unwind and shorten themselves on the mandrel, and increase in diameter. I now form a hook on both ends of each spring, and put the springs on the cylinders C and I, and hook them on the pins D and K, and in doing so have to pull and extend the springs lengthwise on the cylinders, so that the tendency is to draw the rods A and F together.

By the use of the two intercoiled springs hitched or fastened to the opposite sides of the rods, the tension and torsion are so nearly balanced there is very little tendency to draw the rods out of line one with the other.

What I claim as my invention is—

1. The rods A and F, in combination with the cylinders C and I, and the intercoiled springs J, hitched or fastened to the opposite ends of the rods, to balance tension and torsion, and lessen the tendency to twist the rods out of line, substantially as shown and described.

2. The lengthened eye or slot H in the rod F, to allow it to traverse on the screw that fastens it, substantially as specified.

3. The eye G on the rod F, for inserting a suitable pin or lever to wind or key up the spring, substantially as described.

DAVID R. LEWIS.

Witnesses:

R. W. TIERILL,

M. O. WARNER.