

A. HAYDEN KNAPP.  
Improvement in Curtain Fixtures.  
No. 118,725.  
Patented Sep. 5, 1871.

Fig. 1.

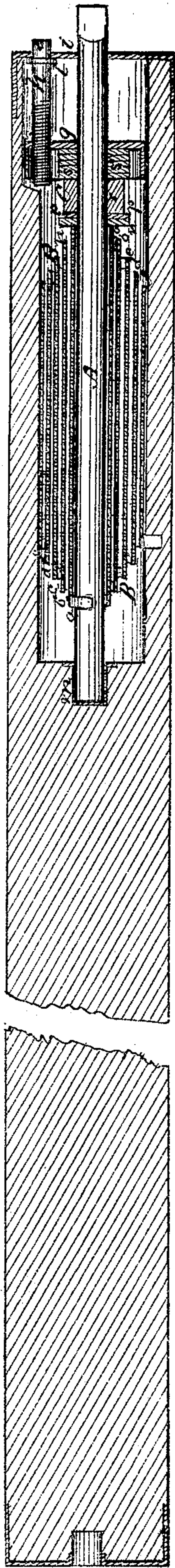


Fig. 2.

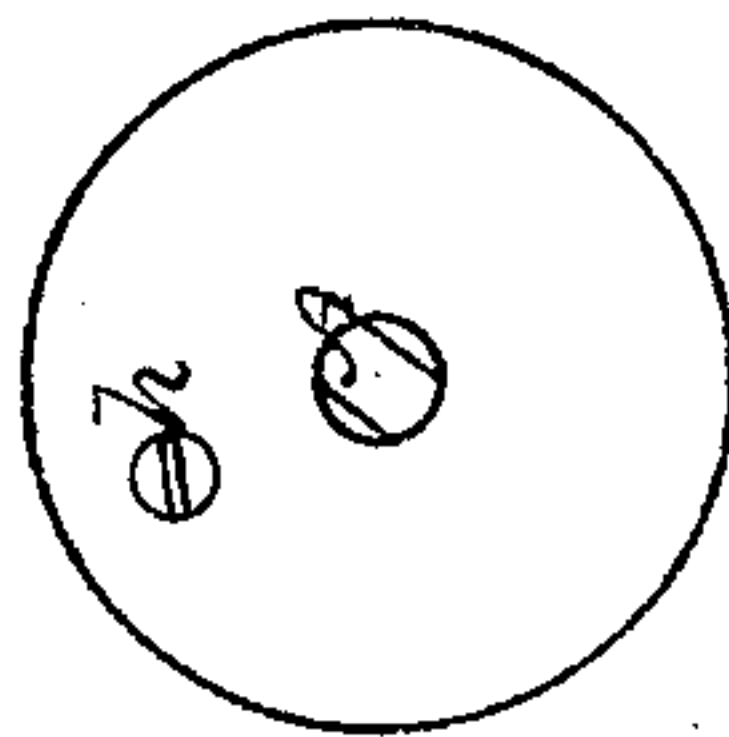


Fig. 3.

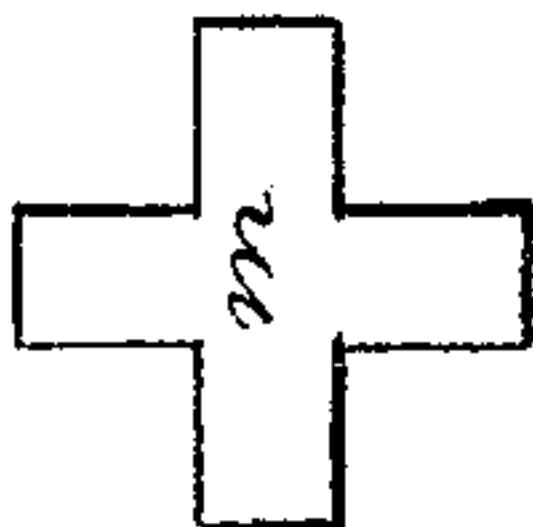


Fig. 4.



Fig. 5.



Witnesses,  
W. J. Brown  
R. D. Smith

A. Hayden Knapp,  
By his attorney,  
J. S. Brown.



# UNITED STATES PATENT OFFICE.

A. HAYDN KNAPP, OF NEWTON CENTRE, MASSACHUSETTS.

## IMPROVEMENT IN CURTAIN-FIXTURES.

Specification forming part of Letters Patent No. 118,725, dated September 5, 1871.

*To all whom it may concern:*

Be it known that I, A. HAYDN KNAPP, of Newton Centre, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Curtain-Fixtures; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification—

Figure 1 being a central longitudinal section of a curtain provided with my improvement; Fig. 2, an end view of the same; Figs 3, 4, and 5, different views of a part detached.

Like letters designate corresponding parts in all of the figures.

Let A represent the shaft or spindle on which one end of the roller turns, and to which the winding-spring B of the fixture has its fixed attachment, the flattened or angular projecting end of the shaft resting in a notch of the bracket to hold it stationary while the spring coils and the roller turns thereon. The spring B which I use in this fixture is composed of several redoublings or layers, *a b c d f*, one within or concentric with another, and all formed or connected together so as to compose one spring, such as claimed by me in a previous patent of the United States granted to me. My present improvement in the spring consists in making the redoublings or layers *a b c d f* of the same successively shorter from the inner to the outer, preferably about as shown in Fig. 1—that is, each preceding outer layer being one coil at each end shorter than the next preceding inner layer. This construction gives greater steadiness to the spring and greater uniformity to its action. It also keeps the spring in position better, and enables the following device to be more conveniently applied. At the outer end of the spring B is located an elastic washer or brake, C, to bear against the end of the said spring with an adjustable force, in order to restrain and control the spring after the shade is raised or lowered, and prevent its drawing the same out of position if too strong, or letting it down too low if too weak to fully sustain the same. This brake is centered upon the shaft or spindle A, on which it slides. It has a metallic holder or case, *g*, at its outer end, and a washer

or two washers, *n p*, one of pasteboard, leather, or other comparatively soft or frictional material, for the end of the inner layer *a* of the spring to bear against, and the other a metallic washer, next to the former, to give strength and firmness. Between the said washers and the holder *g* is a block, *r*, of India rubber, or an equivalent spring, and there may be a block or washers, *s*, between the elastic block and the holder, for adjusting the thickness of the brake. A screw, *h*, turns in one side of the holder *g*, which has a screw-thread to receive it. The screw extends out through a hole in the end *i* of the ferrule of the fixture far enough to be reached by a screw-driver. An enlargement or shoulder, *l*, on the screw, just inside of the ferrule, prevents the screw from being driven out through the same. By turning the screw one way the brake C is driven inward and bears with increased force and friction against the spring B; and by turning the other way the force and friction are diminished, and thus the action of the brake is easily adjusted. The spring is fastened at the inner end, so that it cannot slide endwise on the spindle. Two adjusting-screws might be employed, respectively, on opposite sides of the spindle, but one serves the purpose, and is more simple and convenient than two.

The spring B and brake C operate together so as effectually to overcome a difficulty in working all balance-spring fixtures, namely, that the spring is not the same in its action when the shade is nearly wound up as when drawn down, being generally strongest in proportion when the shade is drawn down. But by the present improvement, when the shade is drawn down and the spring therefore is coiled most forcibly, the increased tension of the spring, pressing inward, operates to spread and lengthen the inner layer *a* thereof especially, and thereby to cause it to press with more force and friction against the brake, and vice versa. Thus the difficulty is fully obviated and the shade works uniformly. The brake also enables the spring to be kept at somewhat excessive tension, so that it never fails to carry up the shade automatically.

The inner bush or lining *m* of the shaft or spindle A is cheaply and easily made of sheet metal,

first cut into the form of a cross, as in Fig. 3, and then stamped by dies into the cup-shaped form represented in Figs. 4 and 5.

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

1. The spring B, formed of two or more redoublings or layers, *a b c d f*, when the next outer is successively shorter than the adjacent inner layer, as and for the purpose herein specified.

2. The elastic friction-brake C and its adjusting-screw *h*, in combination with the spring B and spindle A, substantially as and for the purpose herein specified.

A. HAYDN KNAPP.

Witnesses:

N. C. BERRY,  
THOMAS F. MAGUIRE.