(No Model.)

C. H. LYMAN.

SUSPENSION DEVICE FOR LAMPS.

No. 365,481. Patented June 28, 1887.

Fig. 1.

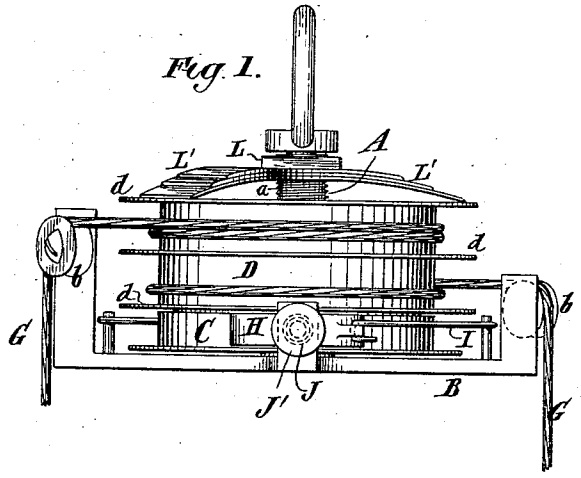


Fig. 2.

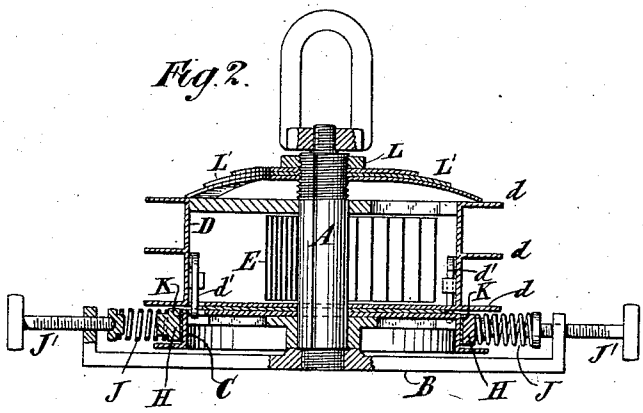


Fig. 3.

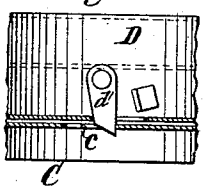


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES H. LYMAN, OF ANSONIA, CONNECTICUT, ASSIGNOR TO THE ANSONIA BRASS AND COPPER COMPANY AND WOLCOTT A. HULL, BOTH OF NEW YORK, N. Y.

SUSPENSION DEVICE FOR LAMPS.

SPECIFICATION forming part of Letters Patent No. 365,481, dated June 28, 1887.

Application filed January 28, 1886. Serial No. 190,053. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. LYMAN, of Ansonia, in the county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Suspending Devices for Lamps and Analogous Articles, of which the following is a specification.

I will describe a suspending device embodying my improvement, and then point out the various novel features in claims.

In the accompanying drawings, Figure 1 is a side view of a suspending device embodying my improvement. Fig. 2 is a vertical section of the same, taken in a plane at right angles to Fig. 1. Fig. 3 is a vertical section of certain parts, illustrating means whereby a spring-drum comprised in such device may be connected to a cylinder arranged adjacent to the same. Fig. 4 is a plan or top view of the device.

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

A designates a stationary shaft or arbor. At the lower end it has affixed to it a frame, B. This frame may be secured in place by screwing it onto the lower end of the arbor or in any other suitable manner. It is intended to remain immovable on the arbor.

C designates a cylinder, which may be made of metal and of any suitable construction. It is mounted loosely on the arbor A. Above it a drum, D, is mounted on the arbor. Inside this drum is coiled a convolute spring, E, one end being affixed to the arbor and the other to the interior of the drum. Cords or chains G are wound upon the exterior of the drum D, between flanges *d*, with which the latter is provided. Leaving the drum, these cords or chains pass around guides preferably consisting of wheels or pulleys *b*, arranged upon studs projecting from upright arms or standards, which form part of the frame B. The upper surface of the cylinder C has a number of slots, *c*, formed in it. The drum D has pivotally connected to its inner surface a number of pawls, *d'*, which extend through slots arranged in the bottom of the drum immediately below it. These pawls are adapted to engage with the slots *c* in the cylinder C. When the drum is rotated in such direction as to unwind the cords or chains G, the pawls *d'* will engage with some of the slots in the top of the cylinder C, and thereupon the drum and cylinder will be locked together, so that the drum cannot rotate in the direction to unwind the cords or chains without causing the cylinder to rotate with it in the same direction. It will be seen, therefore, that whenever the weight of a lamp or other suspended article exerts a tendency to unwind the cords or chains that tendency will act not only in such way as to effect the rotation of the drum but also so as to rotate the cylinder. When the drum rotates in the reverse direction under the influence of the spring E, the pawls D will become disengaged from the cylinder C, and therefore the latter will remain stationary.

H designates brake-shoes, which bear against the exterior of the cylinder C. As shown, two of these brake-shoes are employed, and they are arranged opposite to each other. Rods or links I connect the brake-shoes with the frame B, so that when the cylinder C is rotated with the drum D by the unwinding of the cords or chains G the brake-shoes will be prevented from moving with the cylinder. They will therefore resist the rotation of the cylinder, and, as the cylinder moves only with the drum, the brake-shoes will of course also resist the rotation of the drum at the same time. The brake-shoes are held against the cylinder by means of springs J. These springs at the outer ends bear against blocks which have a swiveling connection with screws J', that work in tapped holes in arms or standards erected upon the frame B. These screws may extend out to a position where they may be conveniently reached, and when an ornamental shell is used outside the suspending device proper these screws will extend out beyond such shell. By adjusting these screws the pressure with which the springs act upon the brake-shoes may be varied, so as to alter the resistance which the brake-shoes will offer to the rotation of the cylinder and drum. The rotation of the drum in the direction to wind the cords or chains will be resisted in the present example of my improvement by the cylinder C,

which at that time will be held stationary by the brake-shoes. In order that the cylinder may effectively operate in this way to resist the rotation of the drum in the direction for winding up the cords or chains, I preferably interpose between its top and the bottom of the drum a disk of soft friction-generating material, such as leather, rubber, or paper, K.

The object of resisting the rotation of the drum in the direction to wind up the cords or chains is to prevent the convolute spring E from exerting an undue force to rotate the drum in the direction to wind up the cords or chains. Obviously when the cords or chains are unwound to any great extent, the tendency of the convolute spring to rotate the drum in the direction to wind them up again is very seriously increased. This is objectionable. I therefore wish to employ a brake which will vary in its force as the convolute spring varies in its action, the brake being adapted to increase its resistance to the rotation of the drum in the direction to wind up the cords or chains in the same proportion that the force of the convolute spring increases, and to decrease its resistance proportionally as the force of the convolute spring decreases. I use the cylinder C as the brake to resist the rotation of the drum D in the direction to wind up the cords or chains in conjunction with a device whereby the pressure with which the drum is forced toward the cylinder will be varied as the force of the convolute spring varies. This pressure-varying device consists of a nut, L, arranged upon a fine screw-thread of slight pitch, *a*, formed upon the upper portion of the arbor A. From this nut extend springs or resilient arms L′, which impinge upon the upper surface of the drum or the topmost flange of the latter. The friction between the drum and these springs or resilient arms L′ causes them to move with the drum when the latter rotates. This movement will cause the nut L to work upon the screw-thread *a* on the arbor.

When the drum rotates in the direction to unwind the cords or chains, the nut will travel downward along the arbor, and the pressure of the springs or resilient arms L′ will increase. The reverse will result from the rotation of the drum in the opposite direction. It will therefore be seen that the pressure with which the drum is forced toward the cylinder will become greater when the action of the spring E becomes stronger, owing to the pulling down of the cords or chains and the winding up of the spring E, and that as the spring E becomes weaker the resistance offered by the cylinder C to the rotation of the drum in the direction to wind up the cords or chains decreases.

I have filed another application for United States Letters Patent, September 15, 1886, Serial No. 213,599, which application is a division of this. I do not herein wish to claim that which is claimed therein.

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

1. In a suspending device, the combination of an arbor, a spring-drum mounted on said arbor, and cords or chains wound upon the drum, with two automatic brakes in constant operative position, one of said brakes acting to resist the movement of the drum in one direction and the other its movement in the opposite direction, substantially as described.

2. In a suspending device, the combination, with an arbor, a spring-drum mounted on said arbor, and cords or chains wound on said drum and passing to the article or articles to be suspended, of two brakes in constant operative position and resisting the movement of the drum in opposite directions, one of said brakes comprising a movable part bearing against one end of the drum, said arbor and the said movable part being provided the one with a cam-surface and the other with a projection engaging the same, substantially as described.

3. The combination, with an arbor provided with arms constituting the frame of the device, a spring-drum mounted on said arbor, and chains or cords wound upon the drum and passing to the article to be suspended, of a cylinder beneath said spring-drum having a frictional contact therewith, a brake connected to the frame and resisting the movement of the cylinder in one direction, and pawls attached to said spring-drum and engaging said cylinder when the spring-drum is rotated in one direction, substantially as described.

4. In a suspension device, the combination of a frame, an arbor connected to the frame, a rotary drum mounted upon the arbor, a cord or chain wound upon the drum and passing downwardly to an article to be suspended, a spring resisting the rotation of the drum in a direction to unwind the cord or chain, a cylinder, as C, arranged adjacent to one end of the drum and constituting a brake, another brake in contact with the cylinder, a connection between the drum and the cylinder operating when the drum is rotated in one direction to lock the brake and cylinder together, and a nut, as L, working upon a screw-threaded portion of the arbor and having connected to it springs that bear upon the drum, substantially as specified.

5. In a suspension device, the combination of an arbor, a frame secured to the said arbor, a rotary cylindric part, a brake-shoe connected with the frame by a tangential connection, a spring bearing radially upon the brake-shoe, and an adjusting-screw bearing upon said spring, substantially as described.

CHARLES H. LYMAN.

Witnesses:
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L. H. HOLMES.