

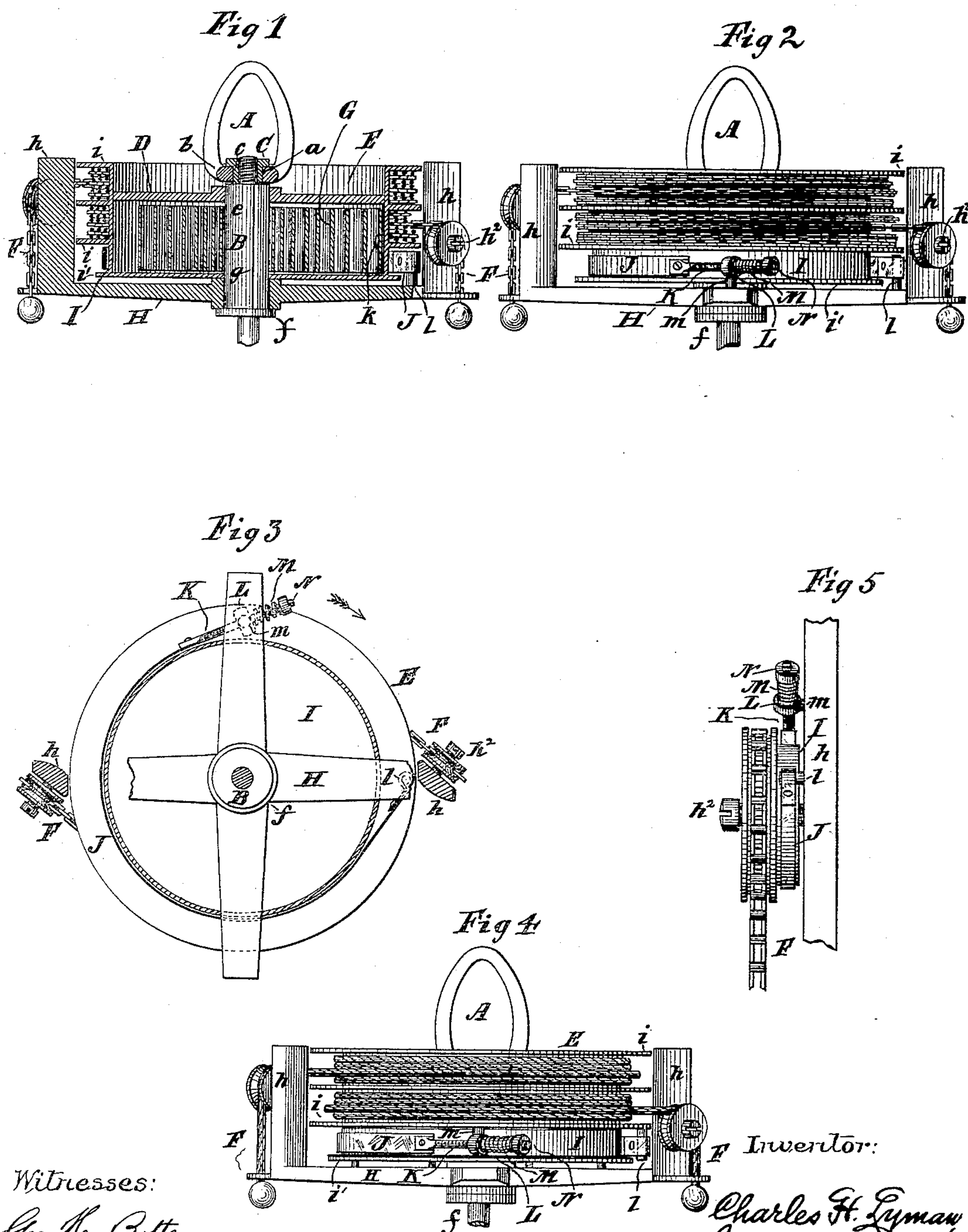
(No Model.)

C. H. LYMAN.

SUSPENSION DEVICE FOR LAMPS.

No. 318,431.

Patented May 19, 1885.



Witnesses:

Geo. H. Bots

Edward T. Goche

Inventor:

Charles H. Lyman,
by his attorneys,
Gifford & Brown.

UNITED STATES PATENT OFFICE.

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

SUSPENSION DEVICE FOR LAMPS.

SPECIFICATION forming part of Letters Patent No. 318,431, dated May 19, 1885.

Application filed January 27, 1885. (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
5 new and useful Improvement in Suspending Devices for Lamps and other Articles, of which the following is a specification.

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

In the accompanying drawings, Figure 1 is a vertical section of a suspending device embodying my improvement. Fig. 2 is a side elevation thereof. Fig. 3 is a bottom plan thereof, a certain flange, which forms a part
15 of the drum, being removed to enable other parts to be exhibited. Fig. 4 is a view of a modification thereof, and Fig. 5 is a view showing another modification.

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

Referring first to the example of my improvement which is illustrated in Figs. 1, 2, and 3, A designates a loop, which may be hung on a
25 hook or other appendage of a ceiling or other object. This loop is connected to an arbor, B. As shown, the arbor B has at the upper end a neck, *a*, or portion of smaller diameter than the portion below it, and the loop A has
30 a hole or eye, *b*, which receives the neck *a* within it. The neck is externally screw-threaded, and has a nut, C, applied to it. The nut C, as shown, has a cylindric body, *c*, which extends into the hole or eye *b* of the loop A,
35 and a flange which extends above the lower portion of the loop A, containing the hole or eye *b*. After the nut has been applied to the neck *a* of the arbor, the end of the neck will preferably be upset to preclude the nut from
40 coming off. Thus the nut and arbor are secured together with a swivel-joint. The arbor can be turned around relatively to the loop without becoming detached from it.

Immediately below the neck *a* of the arbor
45 B said arbor is provided with a cylindric body, *e*. The body is provided with a longitudinal groove, *g*. At the lower end of the body *e* is a nut, *f*. All the parts of the arbor B may be made integral. The drum E is of cylindric
50 form, and has flanges *i*, between which are

wound upon it cords or chains F, whereby a lamp or other article may be suspended. This drum, as shown, is open at the top, and is provided with a spider, D, having a number of
55 arms extending from a common central portion, in which is an aperture, by means of which the same is fitted upon the arbor B. The spider forms a hub for the drum. In lieu of this spider, the drum may have a closed top fitting the arbor. Said drum is closed at the
60 bottom, with the exception of a central hole, enabling it to fit upon the body *e* of the arbor B. The drum E rotates freely upon the arbor B. The drum is rotated by the unwinding of the cords or chains F from it. A counter-
65 balance is intended to be combined with the drum for the purpose of resisting the unwinding of the cords or chains, and thereby sustaining the article attached to the cords or chains. In this example of my improvement the counter-
70 balance consists of a convolute spring, G. One end of this spring is bent back to form a hook, which engages with the groove *g* in the body of the arbor. The other end is bent to form a hook, *k*, which engages with the drum. 75
When the drum is rotated in one direction, the spring will be coiled up more closely. When relieved of the force which coiled it up and kept it coiled up, it uncoils and rotates the drum in a reverse direction. 80

H designates a frame, (here shown as spider-shaped, or having a number of arms extending from a common center.) This frame is fitted about the arbor B, below the drum E, by means of an aperture in the common central
85 portion, and is prevented from rotary motion thereon by means of a feather or spline. The nut *f* on the arbor B prevents the frame H from moving off from the arbor B. Two of the arms of the frame H are provided with
90 upturned ends or portions *h*, which extend beyond the peripheries of the flanges *i* on the drum E.

Arranged in suitable positions on the portions *h* of the frame H are guides, (here shown
95 as pulleys,) over which the cords or chains F pass to the lamp or other article to be suspended. Said pulleys turn freely upon pins or studs *h*², made fast in the portion *h* of the frame H.

Below the drum E, and between it and the frame H, is a cylinder, I. In this example of my improvement I have shown said cylinder as rigidly secured to the drum and rotating with it. This cylinder is provided with a flange, *i*.

J is a brake bearing upon the periphery of the cylinder I. As shown, said brake consists of a flat strip or band of metal. One end of said strip is rigidly secured by a loop or otherwise to an upwardly-extending pin or stud, *l*, upon one of the arms of the frame H outside the cylinder I. The other end of said brake has a loose connection with a pin or stud, *m*, extending upwardly from another of the arms of the frame H outside the cylinder I.

I prefer to make the loose connection between the brake and stud *m* as follows:

K is a rod secured at one end by rivets or otherwise to the brake J near its free end. This rod passes loosely through a loop or aperture, L, in the stud *m*, and is retained within said aperture by means of a spring M, coiled about said rod and abutting at one end against the stud *m* and at the other against a nut, N, fitting upon said rod. A portion of the latter is screw-threaded to receive it. By tightening or loosening the nut N the force with which the brake J will bear upon the cylinder I may be varied.

It will be observed that neither the drum E nor the arbor B need have any vertical movement relatively to each other. The drum E is supported by the cylinder I upon the arbor B; but the same may be supported in any other suitable manner.

When the weight of the lamp or other article is brought to bear upon the cords or chains F, it operates to rotate the drum E in the direction of the arrow shown in Fig. 3 of the drawings. As the brake J bears against the periphery of the cylinder I, which latter is of course also rotating in the direction indicated, it operates by friction to "drag" the brake forward, or in the direction of the rotation of the cylinder I, thus causing it to bind more tightly upon the cylinder I. When the rotation of the drum is reversed to rewind the cords or chains, the action of the cylinder I is accordingly reversed, and it then operates by friction to "push" the brake J backward, or in the direction of the reversed motion of the cylinder I, and consequently loosens its hold upon the brake. When the rotation of the drum and cylinder I have ceased, the spring M will then operate to return the brake J to its normal position. It will be seen that this brake is applied and released automatically by the rotation of the drum and cylinder I.

In the example of my improvement shown in Fig. 4 I have shown the cylinder I as disconnected from the drum E, and fast upon the frame H in such manner that it is incapable of rotary motion. The pins or studs *l* *m* are arranged to extend downwardly from below the lower of the flanges *i* on the drum E.

When the drum is rotated to unwind the cords or chains F, it carries the brake J with it, which drags, as before, upon the cylinder I, retarding the unwinding of the cords or chains. When the drum is rotated to wind the cords or chains, the brake is released, because then the drag on the cylinder I will be such as to cause the brake J to be slackened.

In the example of my improvement shown in Fig. 5 I have shown my braking device as applied to the pulleys over which the cords or chains pass. In this case the pulleys would be somewhat larger than those in the examples of my improvement shown in Figs. 1, 2, 3, and 4, and would preferably be in the form of sprocket-wheels, having upon their sides nearer the portions *h* of the frame H cylinder I, rigidly affixed and adapted to rotate therewith. The studs *l* and *m* would here be arranged upon the portion *h* of the frame H, and the brake J would act upon the cylinder I on the pulleys.

Instead of employing two cords or chains together with the accompanying guides, I may use only one, or I may use more than two, if desired.

All the various parts of the suspending device may be made of metal.

The connection of one end of the brake with the frame H through the intervention of a spring prevents the brake from holding the drum with undue force at any time, even when the drum has been so rotated by the unwinding of the cords or chains F as to greatly augment the force exerted by the spring G.

I consider the combination of a brake and a spring for attaining this result, broadly considered, a feature of my improvement, and wish therefore to be protected in the various modifications which may be made in such combination.

On the 30th day of October, 1884, I filed an application for Letters Patent, numbered 146,832, and on the 12th day of December, 1884, I filed an application for Letters Patent, numbered 150,165, for suspending devices severally having an arbor, a drum adapted to rotate upon the arbor, cords or chains wound upon the drum, passing thence over guides to the article which they are to suspend, a convolute spring coiled within the drum and serving to counterbalance the weight of an article suspended by the cords or chains, and a brake which is rendered effective when the drum is rotated in such direction as to unwind the cords or chains. Thus, generally considered, these suspending devices and the one which is the subject of my present application bear a resemblance.

The suspending device which is the subject of my application No. 146,832 has the guides for the cords or chains arranged upon a frame which is capable of sliding toward and from the drum, and when slid toward the drum by a force acting upon the cords or chains renders the friction-brake effective. In that suspending device a spring was employed for

moving the frame away from the drum whenever the cords or chains were relieved of strain. I do not in my present application lay claim to any of these features. The suspending device which is the subject of my application No. 150,165 has the guides for the cords or chains arranged upon levers fulcrumed upon upright standards, so as to be capable of swinging toward and from the drum, and provided with brakes for acting upon the periphery of the drum. A feature of some importance in the suspending device consists in forming sheet-metal flanges on the drum and providing them with broadened rims at the peripheries. Another feature of that suspending device consists in providing levers which are combined with the drum with brake-pieces movable lengthwise of the levers, so that the retardation of the drum produced by the brake may be regulated to a nicety. I do not in my present application lay claim to any of these features.

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

1. In a suspending device for a lamp or other article, the combination of an arbor, a non-rotary frame upon the arbor, a rotary drum upon the arbor, one or more cords or chains wound upon the drum, a counterbalance-spring acting in conjunction with the drum, and one or more guides upon the frame, over which the one or more cords or chains pass to the lamp or other article to be suspended, the drum and frame being provided one with a cylinder or cylindric portion and the other with a brake-band surrounding the cylinder, and connected at one end with an unyielding support and at the other end with a yielding support, substantially as specified.

2. In a suspending device for a lamp or

other article, the combination of an arbor, a non-rotary frame upon the arbor, a rotary drum upon the arbor, one or more cords or chains wound upon the drum, a counterbalance-spring acting in conjunction with the drum, and one or more guides upon the frame, over which the one or more cords or chains pass to the lamp or other article to be suspended, the drum and frame being provided one with a cylinder or cylindric portion and the other with a brake-band surrounding the cylinder, and connected at one end with an unyielding support and at the other end with a yielding support consisting of a spring interposed between this end of the brake-band and the part with which it is connected, substantially as specified.

3. In a suspension device for a lamp or other article, the combination of an arbor, a non-rotary frame upon the arbor, a rotary drum upon the arbor, one or more cords or chains wound upon the drum, a counterbalance-spring acting in conjunction with the drum, and one or more guides upon the frame, over which the one or more cords or chains pass to the lamp or other article to be suspended, the drum and frame being provided one with a cylinder or cylindric portion and the other with a brake-band surrounding the cylinder, and connected at one end with an unyielding support and at the other end with a yielding support consisting of a spring interposed between this end of the brake-band and the part to which it is connected, and a nut for varying the resistance of the spring, substantially as specified.

CHARLES H. LYMAN.

Witnesses:

A. S. TERRY,
CHAS. C. BLAIR.