

(No Model.)

2 Sheets—Sheet 1.

T. A. WEBER.

SUSPENSION DEVICE FOR LAMPS.

No. 323,089.

Patented July 28, 1885.

Fig. 1.

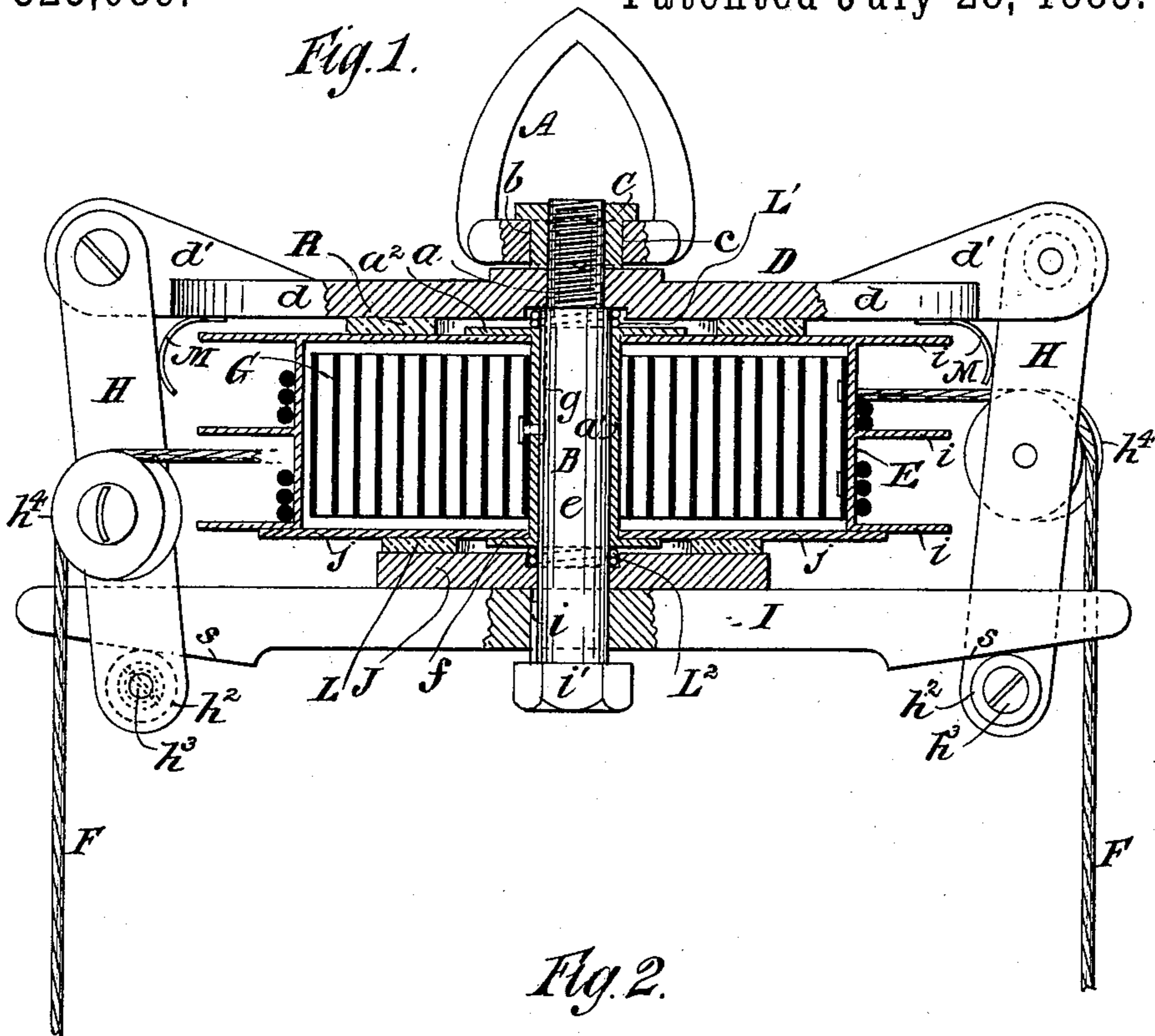
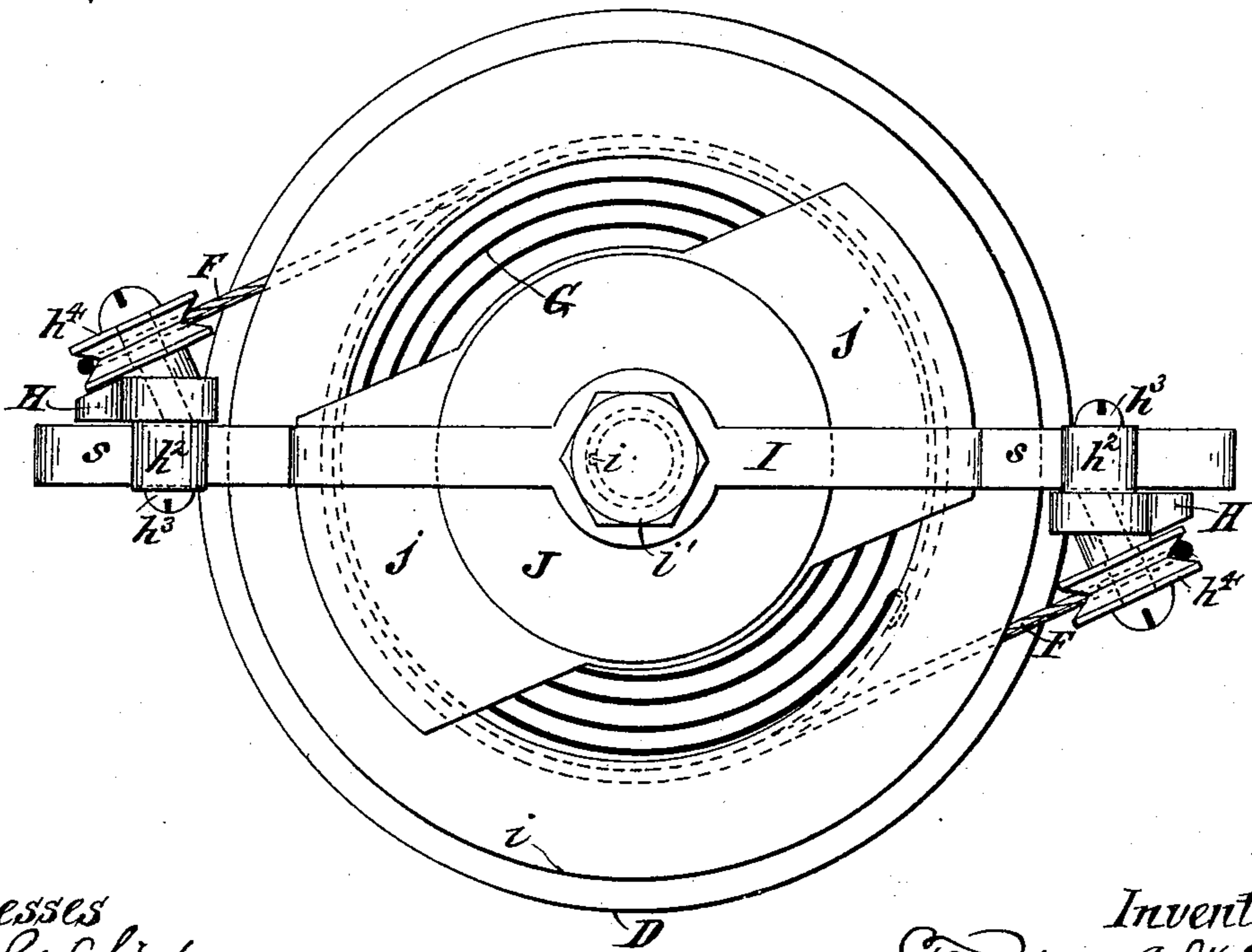


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

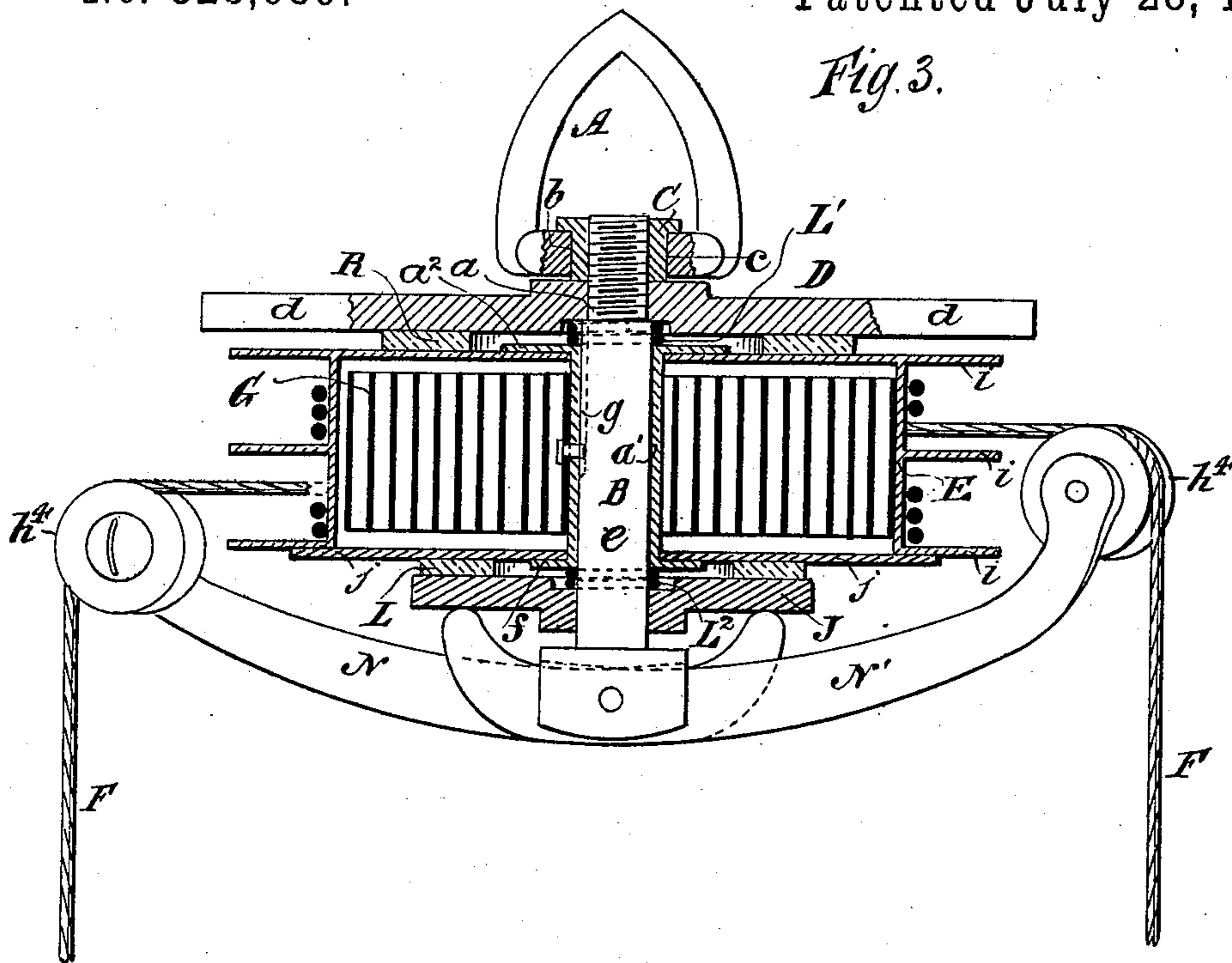
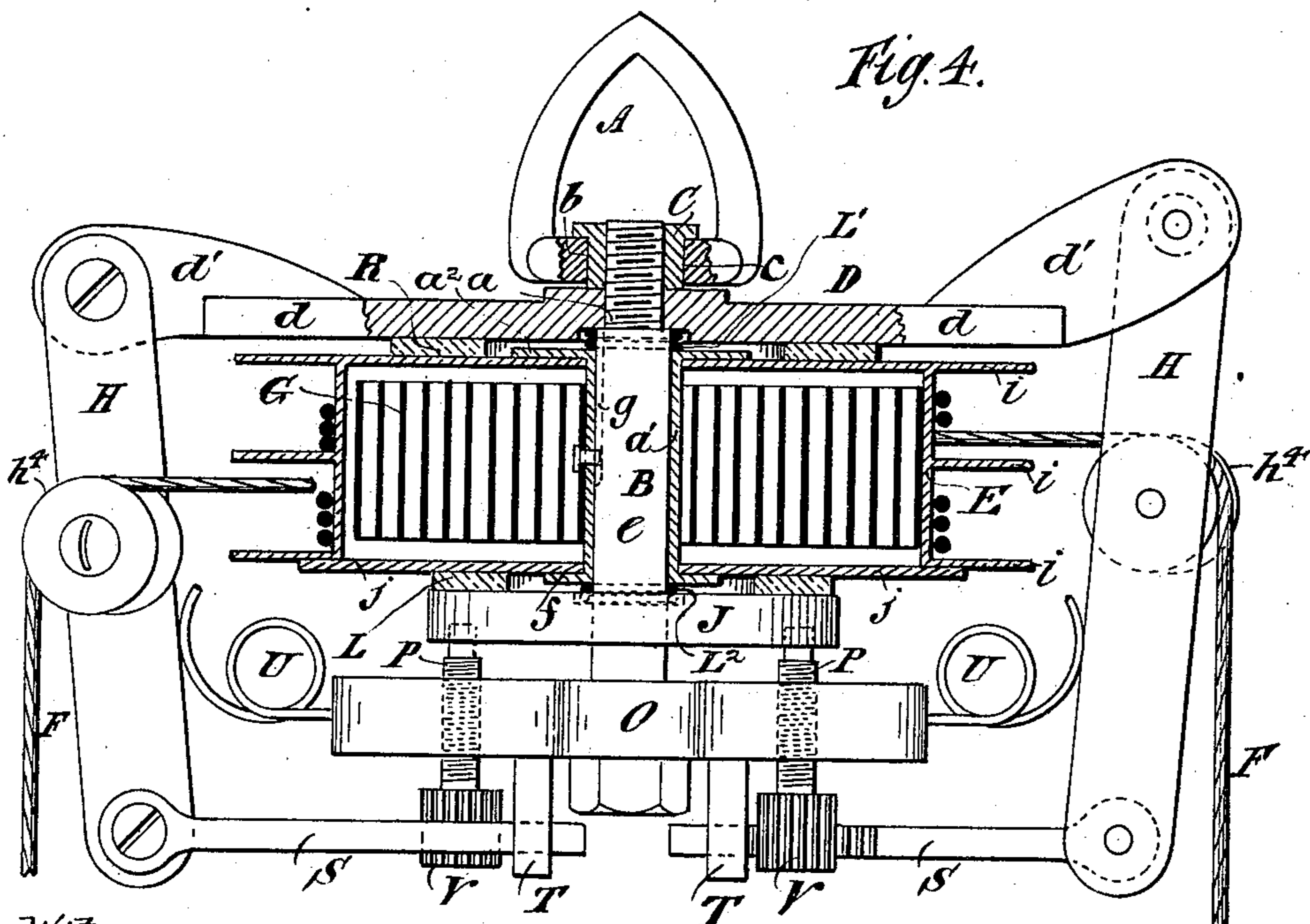


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SUSPENSION DEVICE FOR LAMPS.

SPECIFICATION forming part of Letters Patent No. 323,089, dated July 28, 1885.

Application filed December 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, THEODORE A. WEBER, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Suspending Devices for Lamps, of which the following is a specification.

I will describe a suspension device embodying my improvement, and then point out the improvement in claims.

10 In the accompanying drawings, Figure 1 is a vertical section of a suspending device embodying my improvement. Fig. 2 is an inverted plan of the same. Fig. 3 is a vertical section of a modification of my improvement, and Fig. 4 is a similar view of another modification thereof.

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

15 A designates a loop, which may be hung on a 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 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, and a flange which extends above the lower portion of the loop A. 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 coming off. Thus the loop and arbor are secured together with a swivel-joint. The arbor can be turned around relatively to the loop without becoming detached from it.

20 Immediately below the neck *a* of the arbor B the arbor has a cylindric body, *e*. Said body is provided with a longitudinal groove, *g*. I have shown the body *e* as extending through a sleeve or tube, *a'*. At the upper end said sleeve is provided with a laterally-extending flange or collar, *a''*, rigidly secured thereto. At its lower end the sleeve is provided with a bead or flange, *f*.

D designates a frame, shown as having a

portion, *d*, extending parallel with a drum, E, and arm-like portions *d'*. Near its center the portion *d* is provided with an aperture adapted to receive the neck *a* of the arbor B. By this means the arbor B may be rigidly secured to the frame D, and the frame is supported upon the cylindric portion *e* of the arbor B.

50 E designates a cylindric drum having 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 closed at the top, with the exception of a central hole, enabling it to fit upon the sleeve *a'*. It is provided at the bottom with a cross-piece, *j*, through a central aperture, in which also extends the sleeve *a'*. Said cross-piece is rigidly secured to the drum. Instead of one of such cross-pieces I may use two or more. The bead or flange *f* is below the cross-piece *j*, and in this example of my improvement is unconnected therewith. The drum E is adapted to rotate about the sleeve *a'*, and is capable of a vertical movement upon the arbor B. The drum is rotated by the unwinding of the cords or chains F from it. A counterbalance 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. I have shown in this example of my improvement a counterbalance, G, consisting of a convolute spring. This spring is coiled around the sleeve *a'*. One end is secured to the sleeve *a'* by a rivet or otherwise. The rivet, preferably, extends through the side of the sleeve *a'*, thereby forming a projection within the sleeve, entering the groove *g* of the body of the arbor. The other end of the spring is fastened to the interior of the drum by rivets or otherwise. When the drum is rotated in one direction, the spring will be coiled up more closely. When relieved of the force which coiled it and kept it coiled up, it uncoils and rotates the drum in the reverse direction.

85 H designates levers, fulcrumed near one of their ends to the arm-like portions *d'* of the frame D in such manner as to be capable of a swinging movement thereon toward and from

the periphery of the drum. Guides h^4 , for the cords or chains F, are arranged upon said levers. As shown, these guides consist of pulleys over which the cords or chains pass to the lamp or other article to be suspended. Near their lower ends said levers are provided with rollers or bowls h^2 , adapted to rotate freely upon pins or arbors h^3 . (Shown as made in the form of screws.)

I is a bar provided with inclines, having about midway of its length an aperture by which means it is fitted upon the arbor B. A vertical groove, i , extends through said aperture, and is adapted to receive a projection or rib upon the arbor B. By this means the wedge or bar is capable of a vertical movement upon the arbor B, but is prevented from being turned about thereon. A head or shoulder, i' , on the arbor B prevents a too extended movement of the wedge or bar downwardly. The outwardly-extending portions of the wedge or bar I have upon their under sides inclined surfaces s , which rest or bear upon the rollers or bowls h^2 .

J designates a brake. As shown, said brake consists of a plate surrounding the arbor B. This plate is capable of a vertical movement on said arbor, but will not rotate about the same. To prevent its rotation it may be rigidly affixed to the bar I, which does not turn on the arbor; or its rotation may be prevented by a feather or spline on the arbor. I prefer to use a circular piece or ring of india-rubber, leather, or like material, L, secured to the upper surface of the brake in any suitable manner, which will impinge upon the under side of the drum, and constitutes a brake.

As shown, the portion d of the frame D has upon its under side a circular piece or ring of india-rubber, leather, or like material, R, secured thereto in any suitable manner. Said piece R constitutes a second brake. It will be seen that the weight of the lamp or like article upon the cords or chains F will operate to swing the levers H inward toward the drum. The inclined surfaces s upon the bar I being then operated upon by the rollers or bowls h^2 , the bar will be caused to move bodily upwardly, and in its upward movement to carry with it the brake J and the drum E. Thus it will be seen that when the wedge or bar I has moved upward sufficiently far the drum E will be subjected to the pressure of both of the brakes R and J.

I have shown helical springs L^1 L^2 arranged about the arbor B. The spring L^1 abuts at one end against the frame D, and at the other against the drum. The spring L^2 abuts at one end against the brake J and at the other against the drum. The action of these springs is to relieve the drum from the pressure of the brakes when the weight shall have been relieved from the cords or chains F. I have shown other springs, M, tending to cause the levers H to swing outwardly when the weight of the lamp or other article is removed from the cords or chains F. When the weight of

the lamp or other article is removed from the cords or chains F the drum will be relieved from the action of the brakes, and it may then rotate freely to rewind the cords or chains.

In the example of my improvement shown in Fig. 3, I have shown levers N N' fulcrumed at n to the arbor B near its lower end. The outwardly-extending ends of said levers bear pulleys acting as guides for the cords or chains F, while the inner ends impinge against the under side of the brake J. As shown, the inner ends of these levers are somewhat curved upwardly. The weight of a lamp or other article attached to the cords or chains F operates to force the inner ends of the levers N N' upwardly, so that they will raise the brake J and the drum E.

In the example of my improvement shown in Fig. 4, O is a bar having in it an aperture about midway of its length, by which means it is fitted around the arbor B. Near the ends of said bar are screw-threaded apertures adapted to receive screws P. Preferably the upper ends of these screws will enter recesses in the under side of the brake J. At their lower ends the screws P have affixed to them toothed pinions V. These pinions are operated by toothed rack-bars S, secured at their outer ends to the lower ends of the levers H, and having their inner ends arranged in guides T, shown as extending from the bar O.

Springs U, secured to the bar O, serve to cause the levers H to swing outwardly when the weight is removed from the cords or chains F. The weight of the lamp or other articles causes the levers H to swing inward, carrying with them the rack-bars S. Said rack-bars rotate the pinions V, being so arranged as to rotate them both in the same direction. By this means the screws P are moved upward, so that they will carry with them the brake J, and consequently the drum E. When the weight is removed from the cords or chains F, the rack-bars cause the pinion to rotate in the reverse direction, and thus relieve the pressure exerted by the brakes upon the drum.

In some cases it may be desirable to use but one cord or chain, and then a single lever, H, with the appurtenances acting in conjunction therewith in the respective examples of my invention, can be employed. More than two cords or chains may also be used. In such case a lever, H, and its coacting parts will preferably be employed in conjunction with each cord or chain.

It will be observed that in all the examples of my improvement the brake J has a vertical movement relatively to both the drum E and the frame D.

Obviously, the sleeve a' may be omitted, in which case the counterbalance-spring G would have its inner end secured to the arbor in any suitable manner.

All the various parts of the suspending devices may be made of metal, except possibly the pieces R and L.

The construction of the drum, the support-

ing of the drum on an arbor, the means whereby an article is to be suspended from the drum, and the spring in the drum for counterbalancing the weight of the suspended article are substantially like corresponding parts of a device which is the subject of an application for Letters Patent filed by me on the 12th day of December, 1884, and numbered 150,156, and a device which is the subject of an application for Letters Patent filed by me on the 13th day of December, 1884, and numbered 150,218.

One of the distinctive features of my application No. 150,156 consists in toggles supported by the frame to which the arbor is connected, and guides on the toggles for the suspending cords or chains, whereby the weight of the suspended article is enabled to cause the toggles to apply to the drum a brake arranged above it. Another feature consists in providing for giving the drum a vertical movement, arranging one brake below it and another above it, and causing the toggles to force the upper brake down upon the drum and the drum down on the lower brake, when the suspending cords or chains are subjected to the weight of the suspended article. I do not claim any of these features in the present application.

One of the distinctive features of the apparatus which is the subject of my application No. 150,218 consists in employing levers provided with guides over which the suspending cords or chains pass, and furnished with projections operating with a cam-like action upon a bar arranged above the drum, and the upper brake to force said brake downwardly, when it will exert pressure upon the drum, and a brake arranged below the drum, rendered operative by the drum being forced downwardly upon it by the bar.

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 a frame, an arbor, a rotary drum arranged upon the arbor, a friction-brake made independently of the said frame and arranged upon the arbor so that it may slide along the same toward and from the drum, guides, devices, substantially such as described, for communicating motion from the guides to the brake, and cords or chains wound upon the drum and passing thence around the guides to the lamp or other article to be suspended, substantially as described, whereby the weight of the lamp or other article upon the cords or chains will cause the brake to operate and the same will be released when said weight is removed from the cords or chains.

2. In a suspending device for a lamp or other article, the combination of a frame, an

arbor, a drum adapted to rotate upon and move lengthwise of the arbor, a friction-brake upon the frame above the drum, another friction-brake arranged upon the arbor below the drum and capable of moving toward the drum, guides, devices, substantially such as described, for communicating motion from the guides to the friction-brake which is below the drum, and cords or chains wound upon the drum and passing thence around the guides to the lamp or other article to be suspended, substantially as described, whereby both said brakes are rendered effective by the weight of the lamp or other article upon the cords or chains and released when the weight is removed from the cords or chains.

3. In a suspending device for a lamp or other article, the combination of a frame, an arbor, a rotary drum arranged upon the arbor, a friction-brake made independently of the said frame and arranged upon the arbor so that it may slide along the same toward and from the drum, a wedge or bar having an inclined surface or surfaces, guides, devices, substantially such as described, for communicating motion from the guides to the wedge or bar, having an inclined surface or surfaces, and cords or chains wound upon the drum and passing thence around the guides to the lamp or other article to be suspended, substantially as described, whereby when the cords or chains are subjected to the weight of the lamp or other article attached to them the brake will be applied through the wedge, and when the cords or chains are relieved from the weight of the lamp or other article the brake will be released.

4. In a suspending device for a lamp or other article, the combination of a frame, an arbor, a rotary drum arranged upon the arbor, a brake-bar, a friction-brake between the brake-bar and the drum made independently of the frame and arranged upon the arbor so that it may slide along the same toward and from the drum, swinging arms provided with projections bearing against the brake-bar, and cords or chains wound upon the drum and passing thence over guides upon the swinging arms to the lamp or other article to be suspended, substantially as described, whereby when the weight of the lamp or other article is brought to bear upon the cords or chains the projections upon the swinging arms will cause the brake-bar to operate the brake and retard the rotation of the drum, and when the weight upon the cords or chains is relieved the brake will be released.

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Witnesses:

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