

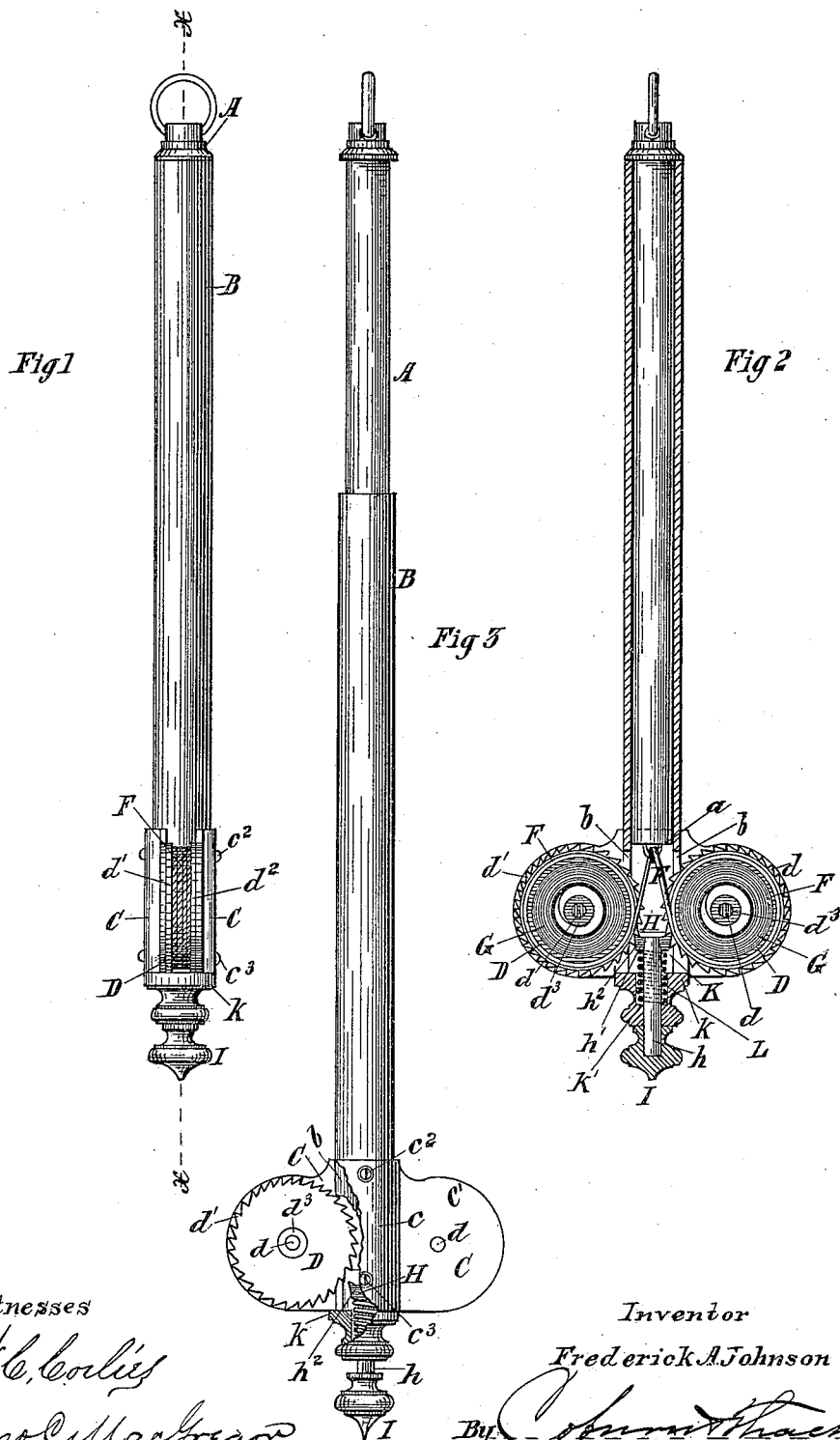
(No Model.)

2 Sheets—Sheet 1.

F. A. JOHNSON.
EXTENSION CHANDELIER.

No. 249,057.

Patented Nov. 1, 1881.



Witnesses

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Jno. C. Macgregor

Inventor

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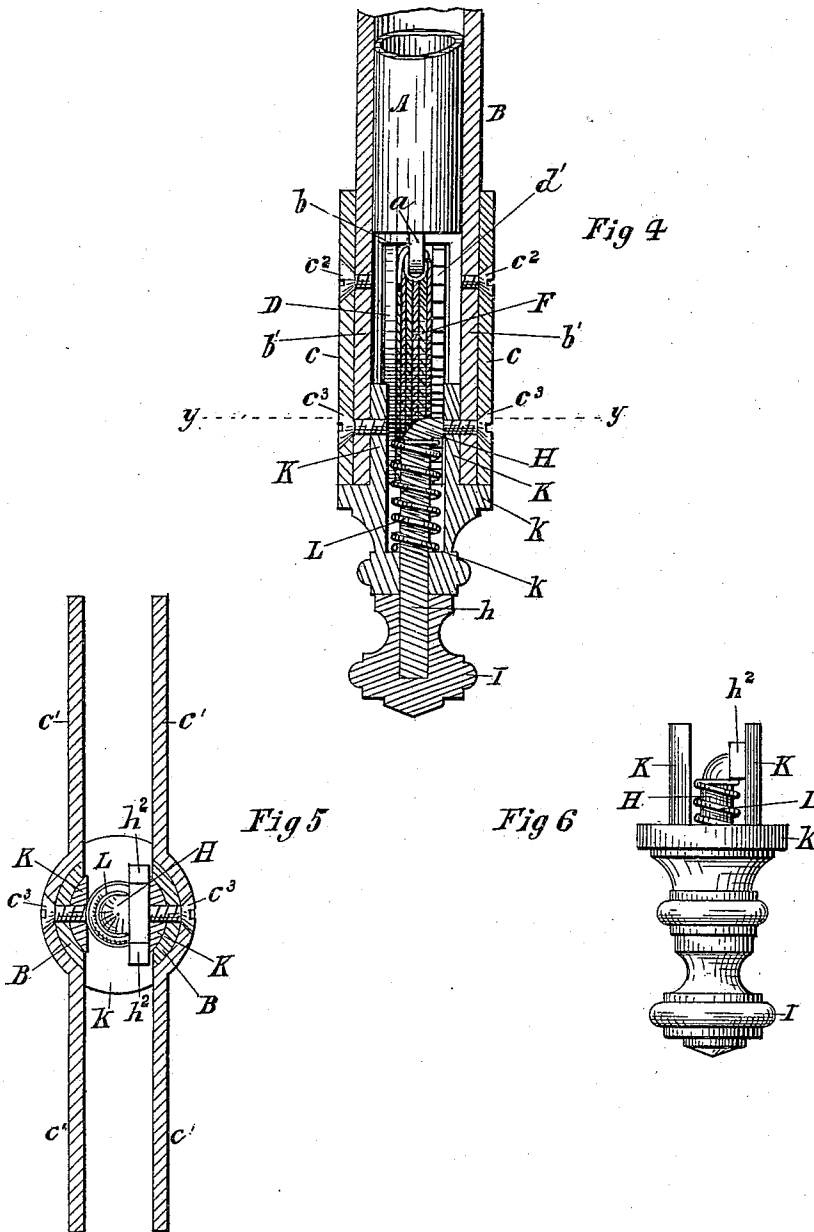
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UNITED STATES PATENT OFFICE.

FREDERICK A. JOHNSON, OF CHICAGO, ILLINOIS.

EXTENSION-CHANDELIER.

SPECIFICATION forming part of Letters Patent No. 249,057, dated November 1, 1881.

Application filed August 23, 1880. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. JOHNSON, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Extension-Chandeliers, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of my improvement, the point of view being opposite one end or edge of the revolving drums. Fig. 2 is a vertical section of the same on the line *xx* in Fig. 1; and Fig. 3 is a side elevation, the point of view being opposite the flat surfaces of the revolving drums, the shield outside of the drums being partly broken away, and the cylindrical sleeve below them being also partly broken away in front. Fig. 4 is a detailed and enlarged vertical section of the lower part of the apparatus on a plane at right angles to that of Fig. 2. Fig. 5 is a horizontal section on the line *yy* in Fig. 4. Fig. 6 is a detailed and enlarged elevation of the dog, its sleeve, and its handle or thimble, the plane of projection being parallel to that of the section shown in Fig. 4.

The same letters denote the same parts in all the figures.

My invention relates to apparatus for raising and lowering pendent lamps. The object of it is to provide a simple and compact mechanism for lowering the lamp by means of a tube sliding telescopically on a fixed shaft and connected therewith by cords wound around one or more revolving drums, which turn by the uncoiling of an inner spring; and it consists in the several devices and combinations of devices for the improvement of mechanism of this class, which will be fully described hereinafter, and pointed out definitely in the claims.

In the drawings, A denotes the suspension shaft or tube, which is attached to the ceiling or other support in any suitable way. The length of this shaft is somewhat greater than the distance through which the lamp is to be raised and lowered. A lamp-carrier, B, of somewhat greater length than the suspension-shaft, is fitted to it so as to slide closely but smoothly up and down on it. In the drawings it is represented as a cylindrical sheath inclosing

the suspension-shaft, and this will ordinarily be the preferable construction. At its lower end the sheath B has in its periphery two equal slots, *b*, diametrically opposite, and extending vertically for a distance equal to the excess of the length of the sheath B over that of the suspension-shaft A. On each of the remaining portions *b'* of the periphery of the lower part of B is set a bearing-shield, C, having a curved middle portion, *c*, corresponding in form to the portion of the periphery on which it is set, and two equal flat wings, *c'*, coinciding in direction with a plane passing through the straight edges of *c*. The form of each wing is nearly semi-elliptical, its curved end being outward. The two shields C are secured to the lower part of B by the screw-bolts *c²* and *c³*, the former passing through from shield to shield. The two shields will evidently be parallel to each other as respects their wings. Each of the wings *c'* is perforated in its center, so as to support one end of the axle *d* of a drum, D, of suitable altitude to turn smoothly between the two shields, and of such base-diameter as to leave a little space between the nearest points of the circumferences of the two drums. The bases of each drum project beyond the rest of the cylindrical periphery, so as to form flanges *d'* and *d²*, (the former toothed, so that the base to which it belongs is virtually a ratchet-wheel,) making a channel on the convex surface of each drum of sufficient depth to contain a chain, cord, or band, F, equal in length to the distance through which the lamp is to be made adjustable, added to about half the lesser circumference of the drum. One end of this band is made fast to the lesser periphery of the drum at a point which, when the band is drawn out to the utmost by the lowering of the lamp-carrier B, will be a little below the horizontal diameter and on the outer side of the vertical diameter. From this point the band passes along the under side of the drum, and after winding around it once or more, or not at all, according to the position of the lamp, is made fast at its other end, in any suitable way, to the lower end of the suspension-shaft A at *a*. Each drum has a cylindrical nave or tubular shaft, *d³*, by means of which it is capable of turning on the axle *d*. To the periphery of this shaft is attached one end of the

coiled spring G, the other end being attached to the concave surface of the drum, so that the unwinding of the band F from the drum will coil the spring, and the uncoiling, if not counteracted by exterior force, will wind the band around the drum again. The elasticity of the two springs together should be of force sufficient to overbalance the weight of the movable parts.

10 A dog, H, consisting of an upright rod, h , and a horizontal cross-bar, h' , at its upper end, with a tooth, h^2 , projecting upward from each end of the cross-bar, is set at the bottom in a thimble or handle, I, and is inclosed for the rest of its length in a sleeve, K, of generally cylindrical form, in which the rod h has room for a longitudinal motion. The upper part of the sleeve is of a size to fit into the lower end of the sheath B, into which it is inserted far enough to bring the teeth h^2 between the teeth of the flange d' . A collar or shoulder, k , setting against the bottom of B prevents it from going farther. The portion of the sleeve which enters B is slotted to correspond with the slots in the lower part of B, and is made fast to B by the screws c^3 , which help to hold the bearing-shields C in place. A spiral spring, L, surrounds the upper portion of the stem h of the dog, the cavity of the sleeve being enlarged for a sufficient distance vertically to give room for it. The narrowing of the sleeve below the lowest coil of the spring forms a shelf, k' , on which the spring rests. The elasticity of the spring holds the dog H up, so that its teeth h^2 are kept interlocked with the teeth of the flange d' ; but by pulling the thimble I the dog may be drawn down to a distance limited by the length of the slots in the sleeve K, the cross-bar h' resting on their lower edges. As soon as the pull ceases the elasticity of the spring, which should be of greater force than the weight of the sliding parts of the apparatus, thrusts the dog up again, so that its teeth engage with those on the drums.

45 In order to the operation of the devices which I have now described the bands must be wound around the drums to their utmost extent, the spring G within each drum remaining uncoiled. The lamp-carrier or sheath B will then coincide in height with the suspension-shaft A, the drums, which are rigidly connected with B by the shields C, being held as near as possible to the bottom of A by the bands, which are prevented from unwinding by the elasticity of the springs G, as well as by the engagement of the teeth h^2 of the dog with the teeth on the drums. The lamp will then be in its highest position. If, now, it is desired to lower the lamp, the thimble I is pulled down, the effect being, first, to draw the teeth of the dog out of the way of the teeth on

the drums, and, next, to draw down the lamp-carrier B itself with the drums, whose bearings are rigidly connected with it, the cord F necessarily unwinding from the drums, and in that operation turning them and coiling the springs G within as the lamp-carrier slides down along the suspension-shaft. When the lamp has thus been drawn down to the point desired the dog is released, when the spring L immediately forces it up again, so that its teeth once more engage with the drums, whose turning is thus arrested, so that the cord can neither be unwound nor wound any farther. If, now, it is desired to return the lamp to the highest position, the handle or thimble I is drawn down with just force enough to disengage the teeth of the dog from the teeth of the drums without drawing on the lamp-carrier, when the uncoiling of the springs G within the drums will turn them, so as to wind the cord upon them, and thus draw them up to the bottom of the suspension-shaft.

A single chain or band might be used, instead of two, its ends being attached to the two drums respectively, and its middle part being secured to the lower end of the suspension-shaft, as shown in Fig. 2 of the drawings.

Ordinarily it will not be necessary to have two heads or bases for the drum, the place of the base not toothed being supplied by the wings of the shield C, the convex surface of the drum being extended to meet it, and the flange d^2 resting on the periphery of that surface.

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

1. The suspension-shaft A, in combination with the lamp carrier B, provided with the slots b at its lower end, the bearing-shields C, attached to the lower end of B, the pair of flanged and toothed drums D, having their bearings in the shields and provided with the springs G, the cord F, secured at its ends to the two drums respectively, and suspended in the middle from the lower end of the shaft A, and the dog H, provided with the teeth h^2 and spring L, and arranged to engage at once with both of the toothed drums D, substantially as and for the purpose described.

2. The suspension-shaft A, in combination with the lamp-carrier B, the bearing-shields C, the flanged and toothed drums D, the springs G, the cords F, and the dog H, provided with the sleeve K and spring L, all constructed, arranged, and operating substantially as described.

FREDERICK A. JOHNSON.

Witnesses:

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