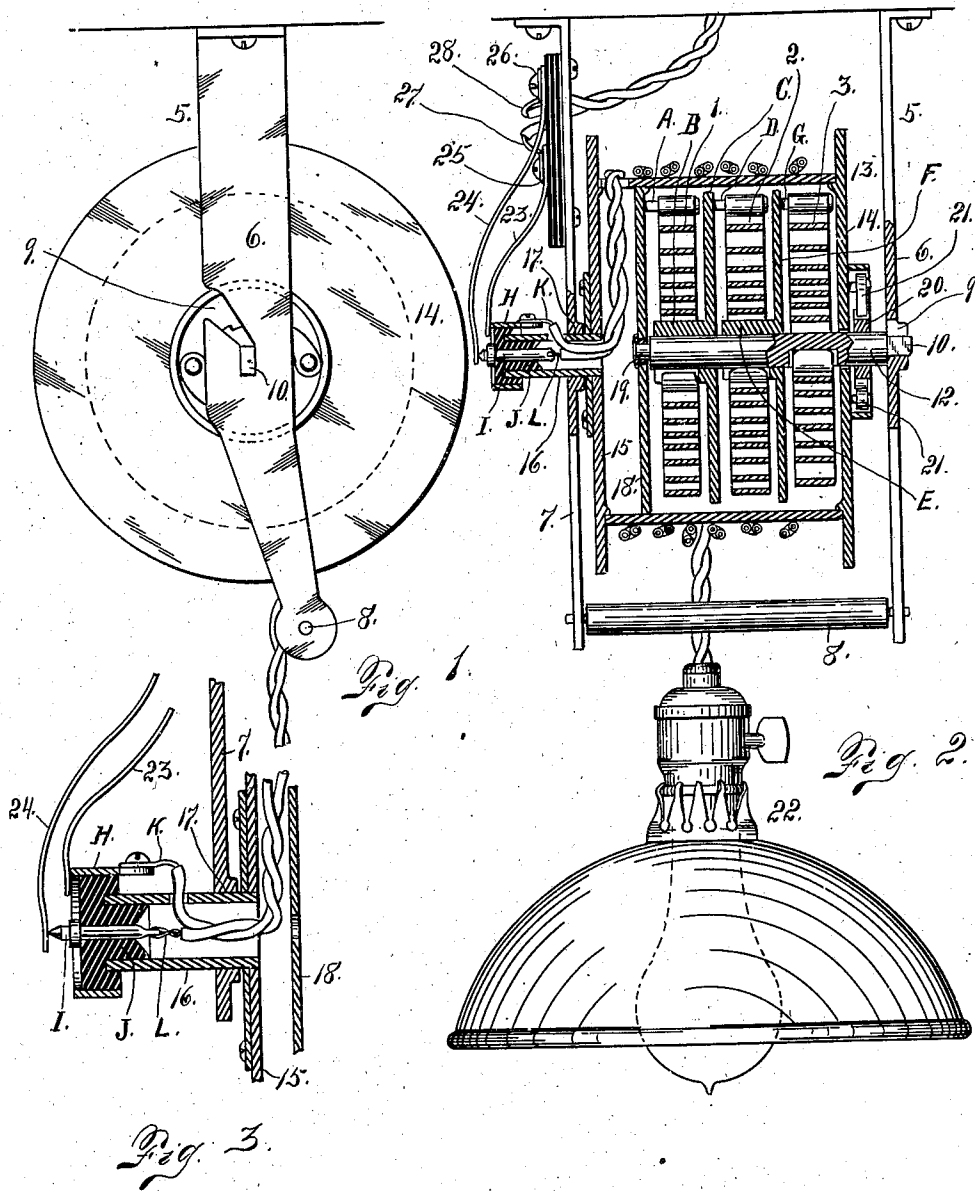


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A. HOPKINS.
ADJUSTABLE ELECTROLIER.
APPLICATION FILED MAR. 24, 1905.



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ADJUSTABLE ELECTROLIER.

No. 815,830.

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To all whom it may concern:

Be it known that I, ALTON HOPKINS, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Adjustable Electroliers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in adjustable electroliers, my object being, primarily, to provide a simple and efficient device for the vertical adjustment of an electric lamp or other suitable or similar device which it is desired to suspend from the ceiling of a room or other suitable support.

Generally speaking, the mechanism comprises a suitable depending stationary support in which is revolubly mounted a spring-held drum, upon which the electric conductors leading to the incandescent lamp are wound, any desired number of convolutions being employed, depending on the degree or range of vertical adjustment which it is desired to allow the lamp. The extremities of the conductors remote from the lamp are respectively connected with electrodes insulated from each other and mounted to rotate with the drum, the revoluble electrodes being in engagement, respectively, with two contacts mounted on the stationary support and insulated from each other, the said contacts being respectively connected with conductors leading to the poles of the source of current-supply. The spring mechanism connected with the drum is believed to be novel and consists of a number of springs and a number of disks provided with hubs mounted on the stationary axle of the drum. The outer extremity of one spring is connected with the drum, while its inner extremity is connected with the hub of the first disk, the said hub being revoluble on the axle. The outer extremity of the next spring is connected with the first disk at a point suitably remote from the axle, while its inner extremity is connected with the hub of a second disk. The outer extremity of the third spring is connected with the second disk at a suitable distance from the axle, while its inner extremity is connected directly with the sta-

tionary axle. It will thus be understood that as the drum is rotated what I will term the "first" spring will be placed under tension by the movement of its outer extremity in a direction to tighten the spring or place it under tension. The tension of this spring will act on the hub of the first disk and have a tendency to move the disk C, acting on the second spring to place it under tension, and its tension will act on the second disk to place the third spring under tension. It is evident that my multiple-spring mechanism may be carried to any desired extent—that is to say, any suitable number of springs may be employed.

Having briefly outlined my improved construction, as well as the function it is intended to perform, I will proceed to describe the same in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of my improved adjustable electrolier, the conductors being broken above the lamp. Fig. 2 is a section taken through the drum-and-spring mechanism with the lamp shown in place. Fig. 3 is an enlarged fragmentary sectional view taken through the electrodes and illustrating their relation with the spring-contacts.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a suitable hanger composed of two depending arms 6 and 7, in the lower extremity of which is journaled a roller 8. In a slot 9, formed in one of these arms, is inserted the extremity 10 of the stationary axle 12. This extremity of the axle is angular in cross-section, and the slot is shaped to fit the same, whereby the axle is prevented from rotating with the drum. The drum 13 is mounted to rotate on this axle and also in the stationary arm 7. The head 14 of the drum is in direct engagement with the axle 12, while to the head 15 of the drum is made fast a hollow journal 16, which engages a bearing 17, formed in the bracket-arm 7. The drum is also provided with a plate 18 intermediate its head, which engages the extremity 19 of the axle remote from the extremity 10, the said extremity 19 being cylindrical, whereby the plate 18 turns freely thereon.

The axle near one extremity thereof is provided with a ratchet 20, which is engaged by pawls 21, pivotally mounted on the drum.

These pawls are adapted to lock the drum when the lamp is in any desired position or vertical adjustment; but by a quick downward pull the pawls may be disengaged from the drum and the latter allowed to reverse under the influence of its springs on the same principle as an ordinary curtain-roller mechanism.

Between the head 14 and the plate 18 of the drum is located a number of springs, which for convenience of description I will designate as 1, 2, and 3, though they are all of substantially the same construction. The outer extremity of the spring 1 is connected with a pin A, made fast to the plate 18, while its inner extremity is connected with a hub B of a disk C, the hub being revoluble on the axle 12. The outer extremity of the spring 2 is connected with a pin D, fast on the disk C, while its inner extremity is connected with the hub E of a disk F, the hub being also revoluble on the axle. The outer extremity of the spring 3 is connected with a pin G, fast on the disk F, while its inner extremity is connected directly with the axle 12.

Mounted in and upon the hollow journal 16 of the drum are two electrodes, (designated H and I, respectively.) These electrodes are separated from each other by suitable insulating material J. The extremities of the electrical conductors K and L remote from the lamp 22 are respectively connected with the electrodes H and I. These conductors, as shown in the drawings, are provided with suitable insulating covering and are twisted together in the usual manner and wound upon the cylindrical part of the drum located between the two heads 14 and 15. It is evident that if the lamp is pulled down the drum will be rotated, together with the electrodes H and I. These electrodes are respectively in engagement with spring-contacts 23 and 24, the latter being connected, as shown at 25 and 26, with the inner extremities of the conductors 27 and 28 of the external circuit, the said conductors being insulated from each other, as shown in Fig. 2.

From the foregoing description the use and operation of my improved adjustable electrolier will be readily understood. Whether it is desired to lower or raise the lamp the drum is rotated in the one instance by the force applied by the user to pull the lamp downwardly and in the other case by the recoil of the multiple-spring mechanism connected with the drum, as heretofore explained. As the drum rotates the electrodes H and I are also rotated; but this does not interfere with their proper engagement with the spring-contacts 23 and 24, since the electrode H is cylindrical and concentric with the drum's axis, while the electrode I is located at the center of the drum's movement or in line with its axis. Hence it is evident that the drum may be rotated at pleas-

ure, while the circuit remains intact. The roller 8 acts as an antifrictional guide, being engaged by the lamp-conductors as the lamp is raised and lowered.

Having thus described my invention, what I claim is—

1. In an adjustable electrolier, the combination with a stationary support, a drum revoluble thereon, spring mechanism connected with the drum and consisting of a number of coil-spring members occupying parallel planes, the inner extremity of one outside spring being connected with the stationary support, and the outer extremity of the other end spring connected with the drum, disks having hubs revolubly mounted on the support, the inner extremities of all the springs except the first-named end spring being respectively connected with the hubs of the said disks, and the outer extremities of all the springs except the other end spring, respectively connected with the disks at points suitably distant from the hubs, internal circuit-conductors wound on the drum, external circuit-conductors, electrodes connected with the internal circuit-conductors and revoluble with the drum, and stationary contacts connecting the electrodes with the external circuit-conductors.

2. The combination with a stationary support, conductors forming the internal circuit, and conductors forming the external circuit, of an axle fast in the stationary support, a drum journaled on the axle, coil-spring mechanism comprising a number of individual coil-springs occupying parallel planes, the inner extremity of one end spring being connected with the axle, the outer extremity of the other end spring being connected with the drum, hubs journaled on the axle and provided with parts extending outwardly therefrom, the inner extremities of all the springs except the first-named end spring being connected with the said hubs, and the outer extremities of all the springs except the other end spring being connected with the parts extending outwardly from the hubs, the conductors of the internal circuit being mounted on the drum, and suitable connections between the internal and external circuits, substantially as described.

3. In an adjustable electrolier, the combination with a stationary support provided with an axle, a spring-held drum journaled on the axle and provided with a hollow journal engaging the stationary support in line with the axle, internal circuit-conductors wound on the drum, the latter being provided with an opening through which the said conductors may pass to allow them to leave the drum through a hollow journal of the latter, an external circuit, electrodes mounted on the hollow journal with which the internal circuit-conductors are connected, both electrodes being located on the same

side of the drum and one being surrounded by the other, and stationary contacts connecting the said electrodes with the external circuit-conductors, substantially as described.

- 5 4. In a device of the class described, the combination with a suitable stationary support, an axle mounted on said support whereby it is locked against rotation, a ratchet fast on the axle, a drum journaled on the axle and
10 provided with a hollow journal engaging the stationary support in line with the axle, pawls carried by the drum and engaging the ratchet on the axle, a spring connection between the drum and the axle, internal circuit-conductors wound on the drum, the lat-

ter being provided with an opening to allow the said conductors to pass inwardly and through the hollow axle of the drum, electrodes mounted on the hollow journal and with which the internal circuit-conductors 20 are connected, external circuit-conductors and contacts connecting the electrodes of the internal circuit with the external circuit-conductors, substantially as described

In testimony whereof I affix my signature 25
in presence of two witnesses.

ALTON HOPKINS.

Witnesses:

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