(No Model.)

2 Sheets—Sheet 1.

F. H. ALDRICH.

ELECTRIC LIGHT FIXTURE.

No. 458,769. Patented Sept. 1, 1891.

Fig. 1.

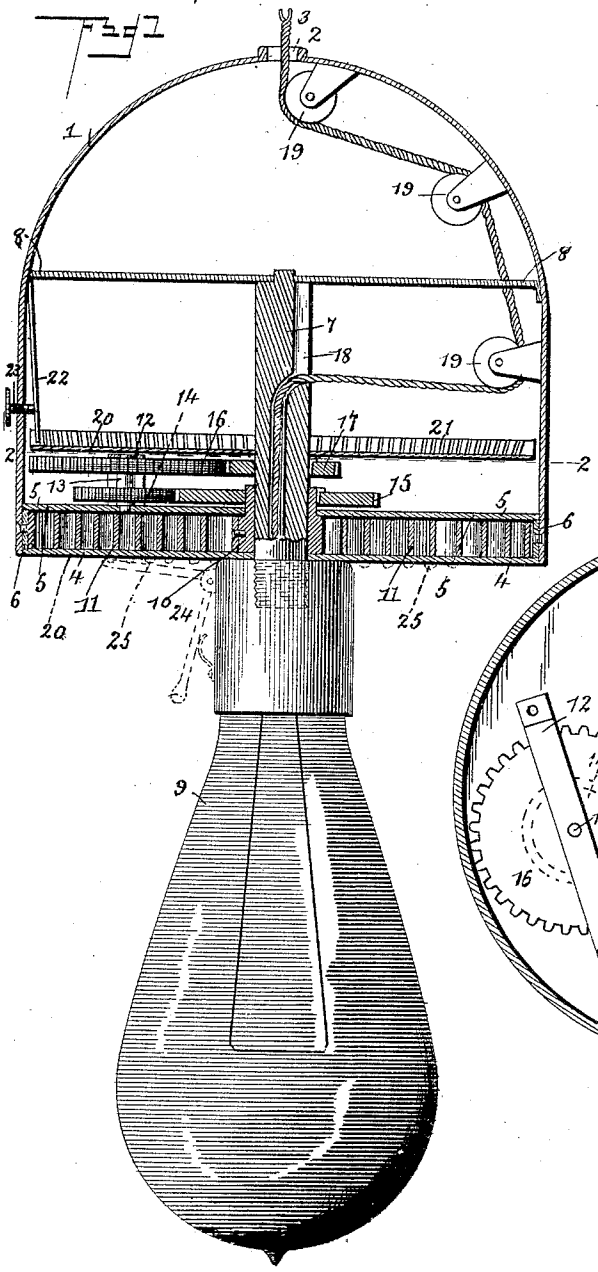
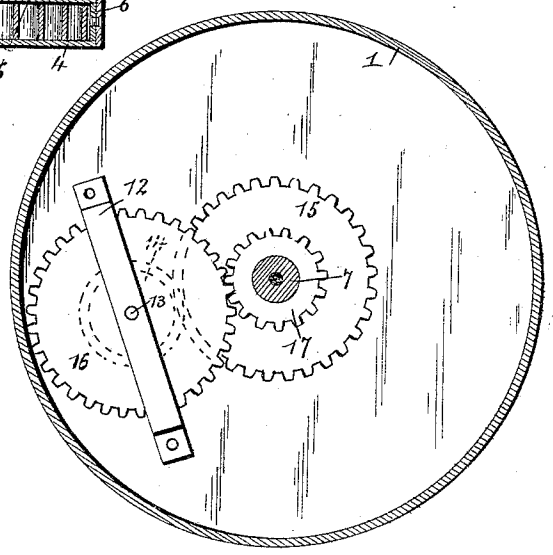


Fig. 2.



Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

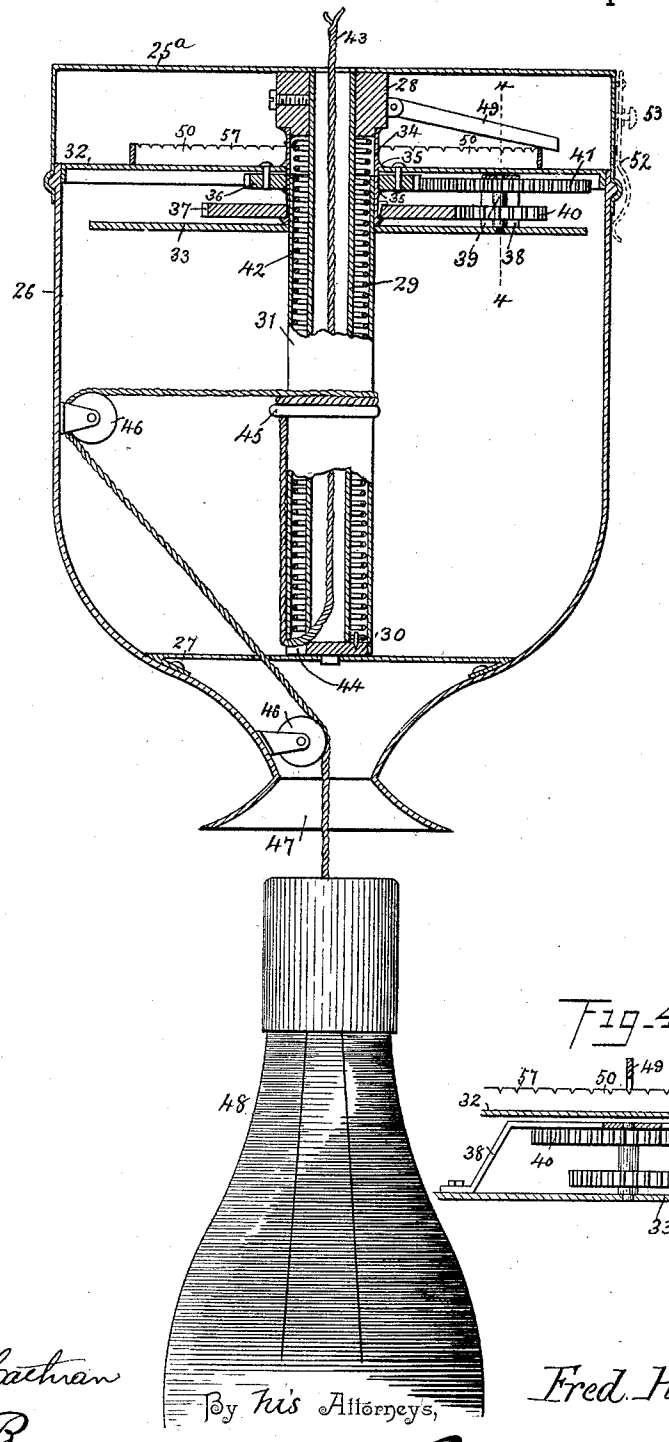

Fig. 4.

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UNITED STATES PATENT OFFICE.

FRED H. ALDRICH, OF CADILLAC, MICHIGAN.

ELECTRIC-LIGHT FIXTURE.

SPECIFICATION forming part of Letters Patent No. 458,769, dated September 1, 1891.

Application filed April 17, 1890. Serial No. 348,326. (No model.)

To all whom it may concern:

Be it known that I, FRED H. ALDRICH, a citizen of the United States, residing at Cadillac, in the county of Wexford and State of Michigan, have invented a new and useful Electric-Light Fixture, of which the following is a specification.

This invention relates to electric-light fixtures or devices for adjusting electric lights to and retaining them in various positions of the kind which has been shown and described in my application for Letters Patent of the United States, Serial No. 324,016, filed on the 16th day of September, 1889, and allowed on the 13th day of January, 1890.

My invention has for its object to provide a mechanism for adjusting electric lights which shall be simple and efficient; and it may be stated to consist in the combination of a shell or casing, a shaft or spool within the same, upon which the conducting-wires may be wound, a spring, connections between the shell, shaft, and spring, whereby the latter may be wound and unwound by the rotation of the shell around the shaft or of the latter within the shell, and the flow and return wires or electrical conductors, said wires forming a single flexible cord adapted to be wound upon the shaft within the shell and connected direct to the electric lamp.

The invention further consists in the construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a vertical sectional view showing one form of my invention. Fig. 2 is a horizontal sectional view taken on the line 2 2 in Fig. 1. Fig. 3 is a vertical sectional view illustrating a modification. Fig. 4 is a sectional view taken on the line 4 4 in Fig. 3.

Like numerals of reference indicate like parts in all the figures.

Referring to Figs. 1 and 2 of the drawings, 1 designates a shell or casing, which may be of any convenient and suitable shape, and which is provided at its upper end with an opening 2 for the admission of the conducting-wires 3.

4 and 5 designate a pair of disks or plates connected at their peripheries by a ring 6, which is suitably secured near the lower edge of the shell or case.

7 is a shaft, the upper end of which is journaled in a cross-bar 8 in the shell 1 and the lower end of which extends through the plates 4 and 5 and carries the lamp 9.

10 is a sleeve mounted loosely upon the shaft 7 between the plates 4 5 and extending somewhat above the latter. A coiled spring 11 is arranged in the casing formed by the plates 4 5 and rings 6, the ends of said spring being attached, respectively, to said ring 6 and to the sleeve 10.

12 designates a brace or bridge-piece which is secured on the upper side of plate 5, and which, together with said plate 5, affords bearings for a short vertical shaft 13. The latter carries a pinion 14, meshing with a spur-wheel 15, which is secured upon the sleeve 10 above plate 5. Shaft 13 also carries a spur-wheel 16, meshing with a pinion 17 upon the shaft 7. It will thus be seen that by rotating the shaft 7 within the shell or the shell around the shaft the spring will be wound or unwound, according to the direction of rotation. The lower end of the shaft 7 is tubular for the passage of the conducting-wires, which make direct connection with the lamp at the lower end of said shaft. The latter is provided with a slot 18 for the passage of the wires, which are carried over guide-pulleys 19, mounted in the shell, and out through the opening 2 at the upper end of the latter. When the shell is made to revolve upon the shaft 7, the number of revolutions will be so small that it will not damage the wires by twisting, as their elasticity will permit of their being twisted or untwisted slightly without damage.

It will be seen that by rotating either the shell or the shaft 7 the wires will be caused to be wound upon or unwound from the shaft, according to the direction of rotation, which should be so arranged that when the wires are unwound from the shaft the spring 11 shall be wound, and vice versa. It will also be observed that by reason of the train of gears employed to transmit motion between the shaft 7 and the spring-winding mechanism several revolutions of the shaft (or of the shell around it, as the case may be) will be required to produce a single additional convolution in the spring or to reduce its tension by a sin-

gle convolution, according to the direction of rotation. By this arrangement the capacity for adjustment of the device is increased without danger of straining the spring by overwinding.

To retain the device at any desired adjustment, any suitable check or brake mechanism may be employed, which, however, must be differently located, according to whether it be desired to cause the rotation of the shaft 7 within the shell or of the shell around the shaft to take place. In the former instance I may provide the shaft 7 with a circular plate or disk 20, having a peripheral series of teeth or cogs 21, engaging a spring-actuated catch 22, pivoted within the shell and having a thumb-piece or handle 23, projecting through a perforation in the said shell.

To operate, the shell is grasped with the hands and the thumb-piece is pressed to disengage the spring-catch from the teeth 21, when by pulling or raising at will the shaft 7 will be rotated to unwind or wind the wires. When it shall be desired to cause the shell to rotate around the shaft, a spring-actuated catch in the shape of a bell-crank lever may be pivoted to the side of the lamp, as shown in dotted lines at 24, Fig. 1. Such a catch may, when the lamp, which, it will be remembered, is attached to shaft 7, is grasped, be readily operated to throw it out of engagement with teeth or projections 25, formed on the under side of the plate 4, which, being part of the spring-case, is attached to the shell, thus permitting the latter to revolve around the shaft.

In Figs. 3 and 4 I have shown a modification of my invention, which mainly consists in substituting for the coiled spring arranged in a separate case a spiral spring arranged within the winding-shaft. By this modification I have furthermore shown the shell or casing to be connected revolubly to the ceiling, (or other point of attachment,) the lamp being suspended adjustably from the same by the conducting-wires.

The construction is as follows: 25^a designates a cap or flanged disk which is permanently secured in any suitable manner to a ceiling or other point of attachment. The shell 26 is connected revolubly to said flanged disk and is provided with a cross-bar 27. The disk 25^a has a central perforated boss or collar 28, from which depends a tubular shaft 29, the lower end of which has a bearing in the cross-bar 27. The lower end of tubular shaft 29 has a plate 30, from which a tube 31 extends upwardly, surrounding the tube 29 and terminating on a line with a circular plate or disk 32, attached to the shell at or near the upper edge of the latter. To the tube 31, near its upper edge, is attached a circular disk 33, and above the latter, upon the tube 31, is journaled or loosely mounted a sleeve 34, which also has a bearing upon the lower end of the boss 28. The sleeve 34 is provided with annular flanges 35, between which is loosely mounted a pinion 36, which is firmly fastened to the disk 32. A spur-wheel 37 is firmly secured upon said sleeve near its lower end. The disk 33 has a brace or bridge-piece 38, thus affording bearings for a shaft 39, having a fixed pinion and spur-wheel 40 and 41, meshing, respectively, with the spur-wheel 37 and pinion 36. A spiral spring 42 occupies the space between the tubes 29 and 31 and is attached at one end to the latter and at its other end to the sleeve 34. The conducting-wires 43 enter through the perforated boss 28 and tube 29 through a notch 44 in the plate 30 at the lower end of said tube, to which they are secured by a band 45. Finally, after being coiled around the said outer tube 31 the conducting-wires pass over a suitable guide pulley or pulleys 46 and out through an opening 47 in the lower end of the shell, below which the lamp 48 is supported by said wires.

To simplify this appliance when it is not desirable to have a great length of wire wound and unwound, the pinions and spur-wheels 36, 41, 37, and 40 and the collar 34 may be dispensed with, and in such case the upper end of the spiral spring is fastened to the disk 32. If it is desired, but one guide-pulley may be used, the wire passing out over the polished surface at the opening of the shell.

It will be readily seen from the foregoing how by simply pulling the lamp the conducting-wires may be unwound from the tubular shaft by a rotary movement of the shell or casing, which, being transmitted to the spring, serves to wind the latter, and vice versa.

To retain the lamp at any desired adjustment I have herein shown an arm or lever 49, connected pivotally to the boss 28 and engaging a series of shallow teeth 50, formed in a flange 57 upon the disk 32 at the upper end of the shell or casing. These teeth should be of such a nature that when the shell or casing is revolved rapidly in either direction the arm or lever 49 shall slip idly over them, while when the movement ceases it shall engage. The lamp may thus at any time be readily lowered by simply pulling it, while in order to cause the spring-actuated mechanism to raise it a preliminary pull in a downward direction is first necessary in order to release the catch.

For the stop mechanism just described, which might be termed a "gravity-latch," a friction mechanism might be substituted, such as shown in dotted lines in Fig. 3, where 52 designates a friction-bar attached pivotally to the flange of the disk or cap 25 and bearing against the upper edge of the shell 26, with which it is held in contact by the action of a screw 53. By properly regulating the tension of said screw this device will be found very useful and efficient for the purpose indicated.

It is obvious that the parts of the devices illustrated in Figs. 1 and 2 and in Figs. 3 and

4 might be very readily interchanged with each other, and that thus, for instance, the spring-case, having the coiled spring shown in the first two views, might be applied to the stationary fixture shown in Figs. 3 and 4, or the tubular shaft containing the spiral spring shown in the latter two views to the movable fixture shown in Figs. 1 and 2, but any such changes and alterations I consider to be within the province of the skilled mechanic, and while I reserve the right to make such changes I do not deem it necessary to describe or to illustrate them in further detail. I likewise reserve the right to use any latch or retaining device that may be found suitable for my purpose, or to dispense with one altogether, which may be done by properly balancing the device or proportioning the strength of the spring relative to the weight to be sustained.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an electric-light-adjusting mechanism, the combination of the shell or casing, a tubular shaft journaled within the casing, a spring, a train of gears arranged to transmit motion to the spring to wind up the same, the conducting-wires comprising the return and flow wires formed into a single flexible cord wound upon the shaft in the casing, depending from the latter and connected direct to the lamp, a catch applied to the transmitting-gearing to lock the shaft to the casing, and an independent catch to lock the casing when it is desired to cause the casing to rotate around the shaft, as set forth.

2. In an electric-light-adjusting mechanism, the combination, with the conducting-wires joined in a single continuous flexible cord, comprising the flow and return wires and directly supporting the lamp, of a shell through which the said conducting-wires are guided, a shaft within said shell, a disk arranged within said shell carrying a bracket, a shaft journaled in said bracket, a gear pinion and wheel mounted upon the shaft, meshing, respectively, with a toothed wheel and pinion arranged to impart motion to or receive motion from the central shaft, and spring-actuated mechanism for operating the gearing to wind the conducting-wires upon said shaft, substantially as set forth.

3. In an electric-light-adjusting mechanism, the combination of a tubular stem or shaft, a tube partially surrounding and connected to the same, a sleeve journaled upon said tube, a spiral spring mounted in the space between the tubular shaft and the tube surrounding the same and attached at its ends to the said tube and to the sleeve journaled thereon, a surrounding shell or casing revoluble with relation to the tubular shaft, means for transmitting motion between said shell or casing and the revoluble sleeve, and the return and flow wires entering through the tubular shaft, connected to and wound upon the tube surrounding the latter, and guided over a suitable pulley or pulleys out through an opening in the lower end of the shell, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

FRED H. ALDRICH.

Witnesses:
LEVI O. HARRIS,
JAMES E. HENDERSON.