Dec. 14, 1926. 1,610,511

R. E. GLAVIN

HANGING AND RELEASING DEVICE

Filed Jan. 22, 1924 2 Sheets-Sheet 1

Fig. 1.

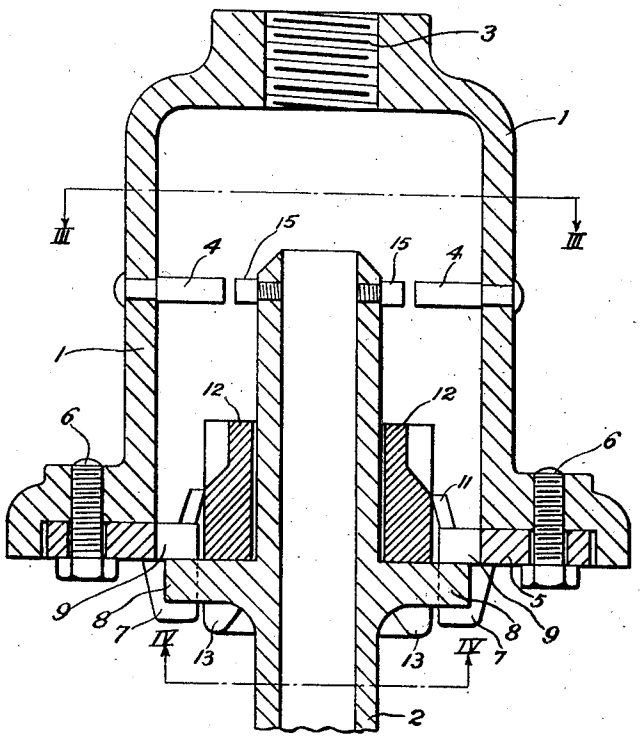
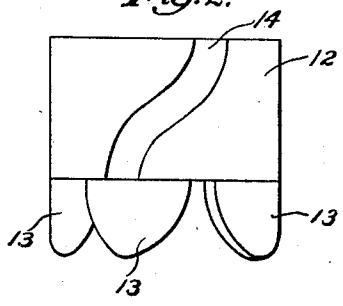


Fig. 2.



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Fig. 3.

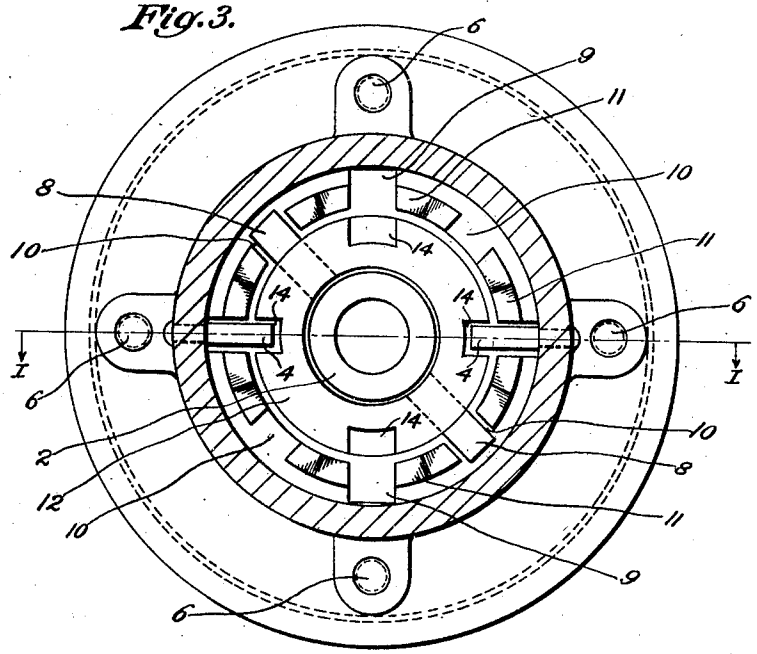
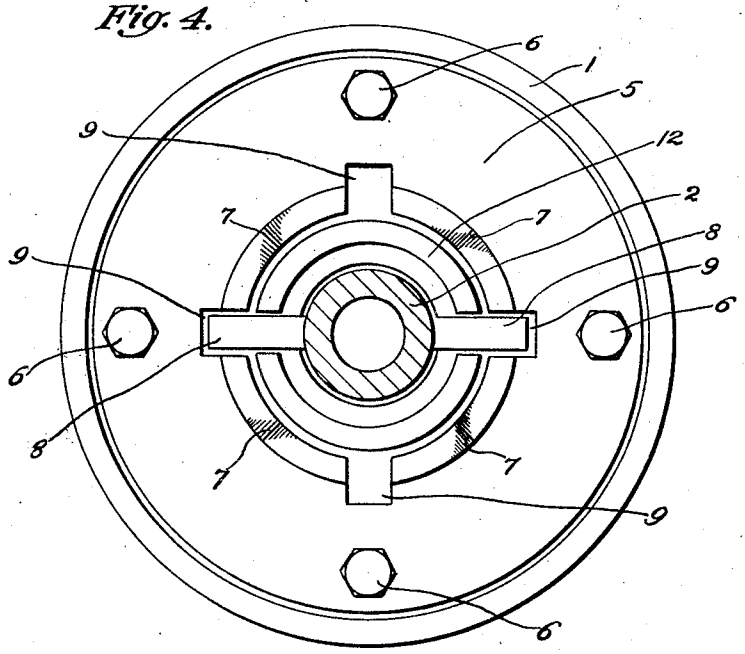


Fig. 4.



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UNITED STATES PATENT OFFICE.

ROLAND E. GLAVIN, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

HANGING AND RELEASING DEVICE.

Application filed January 22, 1924. Serial No. 687,733.

My invention relates to lighting fixtures and particularly to suspending and releasing devices for lamp hangers which are operated from a remote point by means of a cord.

One object of my invention is to provide a suspending and releasing device which shall comprise a small number of movable parts that are comparatively strong and are inexpensive to manufacture.

Another object of my invention is to provide a suspending and releasing device which shall be positively operated from a distant point by means of a flexible member and shall automatically operate to turn the movable parts into consecutive locking and unlocking positions by the repetition of a straight line movement.

In the drawings, constituting a part hereof, in which like characters designate like parts,

Figure 1 is a cross-sectional view of my device taken along the line I—I of Fig. 3;

Fig. 2 is an elevational view of the cam member thereof;

Fig. 3 is a cross-sectional view taken along the line III—III of Fig. 1; and

Fig. 4 is a bottom plan view of my device partially in section taken along the line IV—IV of Fig. 1.

The device comprises a stationary member 1 of bell-shape and a movable spindle member 2. The stationary member 1 is adapted to be attached to a pole or an overhead bracket by means of a threaded portion 3 and is provided with inwardly-projecting pins 4 and an apertured ring 5 attached thereto by means of bolts 6. The ring 5 is provided with cam shape projections 7 on the outer surface thereof for guiding spindle arms 8 into openings 9 in the apertured ring and, on the other side, with saddle members 10 for retaining the spindle arms 8 and with cam shape guide members 11 for directing the spindle arms into the openings 9 therein.

A ring 12 is provided with cammed projections 13 on its normally lower end forming openings for accommodating arms 8, and with cam slots 14 in its outer surface for engaging pins 4 in the stationary member 1. The ring is mounted on the spindle 2 and adapted to move freely on the spindle between arms 8 and pins 4. When the ring 12 is raised into a position such that the pins 4 engage the slot 14 and the arms 3 are seated between the projections 3, the ring is locked between the arms and pins and a further upward movement of the spindle causes the spindle and ring to turn as a unit through an arc, the turning being in proportion to the distance the spindle is advanced vertically. As soon as a downward movement is imparted to the spindle, the ring tends to be suspended on the pins 4 and the arms move vertically without turning. If the ring moves simultaneously with the arms, it will return more slowly in a vertical direction than the arms, since it must return in a screw-like manner and since the cam-shaped faces of the projections 13 will slide on the arms 8 when the arms 8 are not pressed upwardly in the openings between projections 13.

The lamp spindle 2 is raised and lowered into the overhead stationary member by means of a rope or cord attached thereto and operated over pulleys or other suitable devices, from a point on the ground. The arms 8 on the lamp spindle support the loose cam-ring 12 thereon which is provided with cam shape projections 13 for gripping the arms 8 when a downward pressure is exerted on the ring. The cam-ring 12 has screw-like or helical slots 14 therein adapted to cooperate with the pins 4 on the fixed member and cause the ring and spindle to turn through an angle of 45° at each upward, straight-line movement of the spindle when both the pins 4 and arms 13 are in engagement with the ring 12.

In raising the spindle into the position shown in Fig. 1, the arms thereon are guided by means of the projections 7 into a pair of the radial openings 9 in the circular apertured plate, which is attached to the stationary member. Upon further movement of the spindle, the pins 4 in the stationary member enter the screw-shaped slots 14 of the cam ring. The progressive movement of the spindle tends to hold the projections 13 of the cam ring in engagement with the spindle arms 8 and to turn the cam and spindle as one member. In the extreme position, when the pins 4 are at the bottom of the slots 14, the arms 8 are entirely above the apertured ring 5 and will have been turned through an angle of 45°; then, by releasing the rope, and relieving the downward pressure of the cam ring 12

on the arms 8, the arms 8 drop vertically into the saddle portions 10 of the apertured ring and support the spindle and lamp thereby.

Upon dropping the spindle into the saddle, there is a tendency for the cam ring 12 to be supported on the pins 4, but when the ring finally travels back in a screw-like manner and drops onto the spindle arms 8, a new set of projections 13 on cam ring 12 will surround the arms. In order to release and lower the spindle, the spindle 2 is again lifted vertically and the action of the cam 14 and pins 4 turns the spindle another 45° in the manner already described. Then, upon release, the spindle 2 slips vertically downward through the cam ring 12 and the arms 8 are guided into the radial openings 9 of the apertured ring by means of guides 11 on the inside thereof. A pair of pins 15 screwed in the end of the spindle retain the cam ring on the spindle.

My invention provides an automatically operating locking and unlocking device comprising a small number of parts which are of relatively rugged construction. Means in the cam-ring and arms on the spindle co-operate with pins in the stationary member to turn the arms each time that the spindle is given an upward straight-line motion and then to lower the spindle, each time that it is given a downward straight-line motion. A suitable apertured plate on the stationary member is provided with guides and stops, which co-operate with the movable members to lock and release the spindle.

Although I have described a specific hanging and releasing device embodying my invention, I do not wish to be limited thereto as the details of my device, such as the form and shape of the cams, the spindle and the stationary member, may be varied. Other variations will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is defined in the annexed claims.

I claim as my invention:

1. A lamp hanging device comprising a stationary member, a spindle, means for turning said lamp spindle through an angle each time it is moved in a straight line in one direction and to return independently of turning movement when moved in the opposite direction, said means including a movable cammed ring mounted on said spindle, arms on said spindle, an apertured ring on said stationary member, means in said ring and spindle for retaining said spindle when in one position and means in said ring for guiding and releasing said arms when said spindle is turned at an angle.

2. A lamp hanging device comprising a stationary member, a spindle, means for turning said spindle through an angle of 45° each time it is moved in a straight line in one direction and to return when moved in the opposite direction, arms on said spindle, an apertured ring on said stationary member, means on both sides of said ring for guiding said arms through said apertured ring and means on one side of said ring for retaining said arms.

3. A lamp hanging device comprising a stationary member of bell-shape, a movable suspended member, an apertured ring in said stationary member, arms on said movable member arranged to support said movable member from a portion of said apertured ring, means on said stationary member coacting with means on said movable member for turning said movable member by means of a straight line movement into a locking position and for turning said movable member by a like movement into an unlocking position.

4. A lamp hanging device comprising a stationary member of bell-shape, a movable suspended member, an apertured ring in said stationary member, arms on said movable member arranged to support said movable member from a portion of said apertured ring, pins on said stationary member coacting with a cam-ring on said movable member for turning said movable member by means of a straight line movement into a locking position and for turning said movable member by a like movement into an unlocking position.

5. A lamp hanging device comprising a stationary member, a movable suspended member, an apertured ring in said stationary member provided with radial slits therethrough, guide members on both sides and saddle members on one side thereof, supporting arms on said movable member, a cam-ring supported by said arms, means in said ring and stationary member for turning said movable member into a locking position by a straight line movement of the movable member and means in said cam-ring for engaging said arms before locking and for releasing said arms after locking said arms, said cam-ring and turning means acting to return said movable member into the release position by repeating said straight line movement.

6. A lamp hanging device comprising a stationary member, a movable suspended member, an apertured ring in said stationary member provided with radial slits therethrough, guide members on both sides and saddle members on one side thereof, supporting arms on said movable member, a cam-ring supported by said arms, means in said ring and stationary member for turning said movable member through an angle of 45° into a locking position by a straight line movement of the movable member and means in said cam-ring for engaging said

arms before locking and for releasing said arms after locking said arms, said cam-ring and turning means acting to return said movable member into the release position by repeating said straight line movement.

7. A locking and releasing device comprising a relatively stationary member having an apertured plate thereon, a projection on the inner surface of said member, a relatively movable member provided with an arm adapted to pass through the opening in said plate when in one position and to engage said plate when in another position, a ring loosely supported on said movable member, said ring having a screw-like channel in the surface thereof adapted to cooperate with said projection and cammed projections on said ring for gripping said arms when the movable member is actuated in one direction and for permitting slippage between said arm and ring when actuated in the opposite direction.

In testimony whereof, I have hereunto subscribed my name this 7th day of January, 1924.

R. E. GLAVIN.