

C. W. MANSUR.
 LOCKING DEVICE FOR ARC LAMP HANGERS.
 APPLICATION FILED MAR. 5, 1910.

1,006,766.

Patented Oct. 24, 1911.

2 SHEETS—SHEET 1.

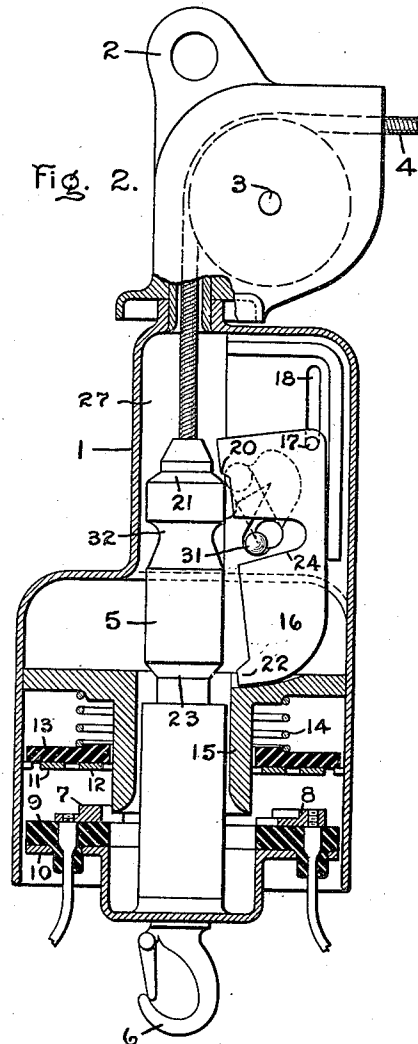
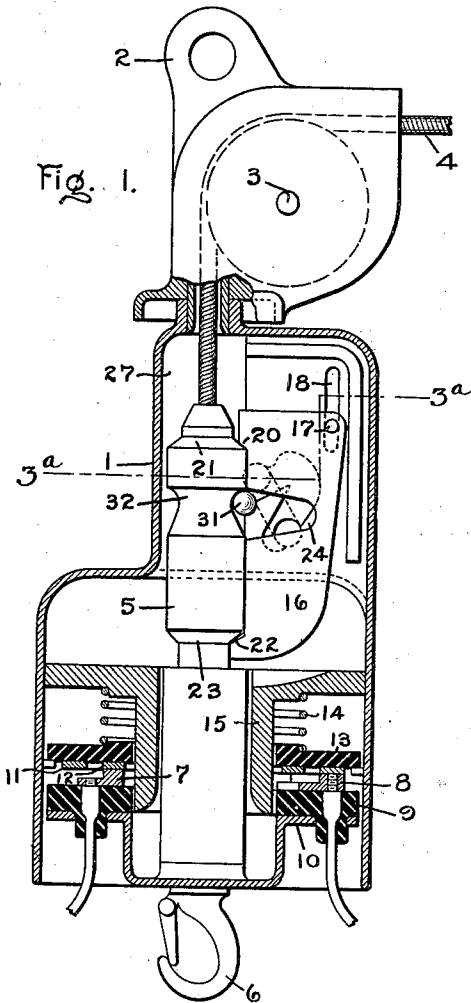


Fig. 3.

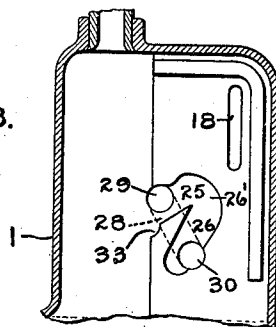
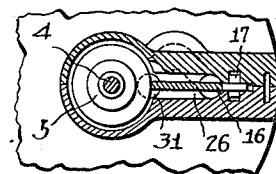


Fig. 3a.



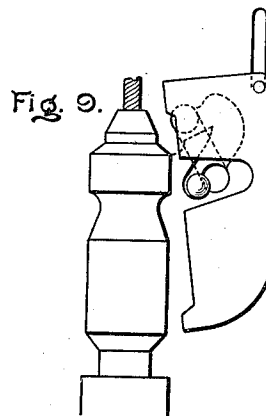
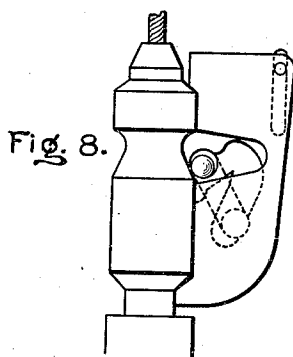
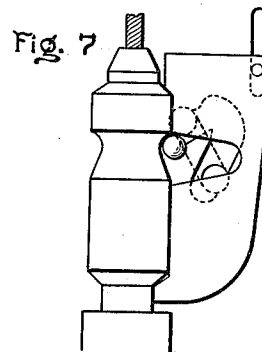
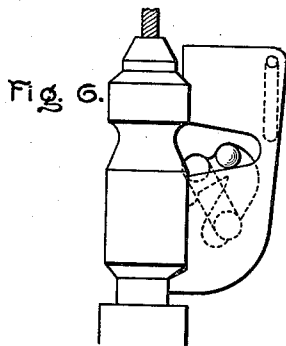
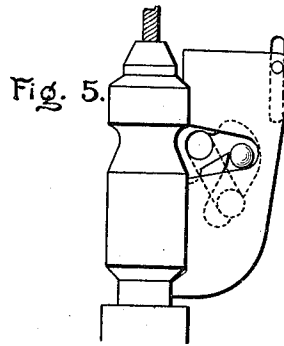
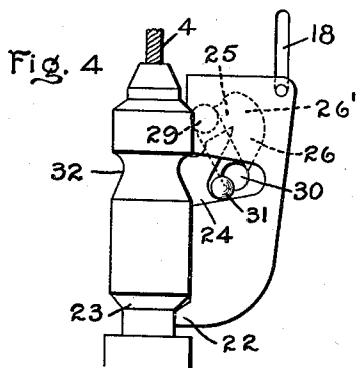
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WITNESSES:
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UNITED STATES PATENT OFFICE.

CLARENCE W. MANSUR, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

LOCKING DEVICE FOR ARC-LAMP HANGERS.

1,006,766.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed March 5, 1910. Serial No. 547,423.

To all whom it may concern:

Be it known that I, CLARENCE W. MANSUR, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Locking Devices for Arc-Lamp Hangers, of which the following is a specification.

This invention relates to arc lamps, and its object is to provide an improved automatic locking device for the hanger by which such a lamp is suspended.

Various schemes have been proposed for enabling the hanger to be locked and unlocked by successive pulls on the suspending rope, and my invention aims to accomplish this result by a simple and efficient mechanism not heretofore employed for this purpose.

It consists in brief of a plug or plunger attached to the lamp and having the hoisting rope attached to its upper end; a sliding and pivoted plate containing a slot; a loose ball engaged by said slot and adapted to be caught under a shoulder on the plunger; and a suitable raceway for said ball to enable it to escape from engagement with the plunger and be returned thereto by the movements of the plate.

The raceway comprises an inverted-U-shaped portion on one plane and a diagonal passage in another plane connecting the ends of the legs of the U-shaped portion.

In the accompanying drawings, Figure 1 is a vertical section of an arc lamp hanger embodying my invention, the parts being shown in locked position. Fig. 2 shows in a similar view the same parts unlocked. Fig. 3^a is a transverse view on line 3^a—3^a of Fig. 1. The remaining figures show in progressive detail the various steps in the locking and unlocking operations.

The hanger comprises a stationary body or casing 1 which can be suspended from a pole or other suitable support, as by means of the eye 2. It carries a pulley journaled on the shaft 3 and supporting the hoisting rope 4, which is attached to the upper end of the plunger 5 whose lower end is provided with a hook 6 on which the lamp is hung. The lamp terminals are connected respectively to the contacts 7 8 which are

mounted on an annular plate 9 of insulating material resting on a collar 10 secured to the lower portion of the plunger. These contacts cooperate with annular contact rings 11 12 fastened to the under side of a follower 13 of insulating material received in the body of the hanger and yieldingly supported by a spring 14. The follower, like the plate 9, is annular and is arranged concentric to a stationary tubular guide 15 forming part of the hanger body and serving to position the plunger when it enters the hanger casing to engage with the locking devices.

At one side of the hanger casing and out of line with the path of the plunger is a flat upright chamber in which is located a carrier, preferably the plate 16, which is adapted to slide vertically in said chamber, and is also pivotally supported on a transverse pin 17 which engages with vertical slots 18 in the side walls of said chamber. The length of said slots determines the range of vertical movement of said plate which stands radially to the plunger, with the pivot pin at its upper corner farthest from said plunger. The upper corner adjacent to said plunger has a lip 20 which projects over and is adapted to be engaged by a shoulder 21 at the upper end of said plunger, so that when so engaged the plate will be lifted by the upward movement of the plunger. The lower corner of the plate nearest to the plunger is also preferably provided with a lug 22 adapted to engage with a groove 23 in said plunger.

Midway of the plate and extending in from that side next to the plunger, is a slot 24, whose edges diverge slightly toward the plunger. In one wall of the flat chamber in which the plate 16 is located is one part of a raceway of peculiar shape, best seen in Fig. 3. It may be roughly described as an inverted U comprising two leg portions 25, 26, running upwardly away from the plunger and somewhat converging, their upper ends being connected by a rounded portion 26'. The lower end of the upper leg 25 opens into the chamber 27 in which the plunger plays up and down, but the lower end of the other leg 26 terminates near said chamber 27. The body of the casing 1 contains

a diagonal passage 28 which connects with the leg 25 by means of a port 29 at the intersection of the chamber 27 and the chamber in which the plate 16 is located. The lower end of the passage 28 connects by a port 30 with the leg portion 26 of the raceway, but at a point a little above its lower end, as clearly shown in Fig. 3.

The raceway is of such dimensions as to permit a steel ball 31 to run freely along through it, and it is by means of the actions of this ball that the plunger can be locked and unlocked, the operation being as follows: Assume the parts to be in the disengaged position shown in Fig. 2, with the plunger just entering the chamber 27. The upper shoulder 21 of the plunger engages with the lip 20 of the carrier plate 16, and swings this plate into the position shown in Fig. 4, so that the lug 22 engages the groove 23, and the groove 32 in the plunger comes into line with the slot 24 of the plate. The continued lifting of the plunger carries up the plate with it, and the lower edge of the slot 24 pushes the ball 31 up along the leg portion 26 of the raceway to the rounded portion 26', from which it runs into the leg 25 (see Figs. 5 and 6). Meanwhile, the contacts 7 8 11 12 have come together, and the spring 14 permits the plate 9 and the follower 13 to rise until the plunger and the plate 16 reach the top of their movement, as shown in Fig. 6. The operator then slacks off the rope 4, and the plunger and plate descend, the ball rolling down the leg 25 of the raceway until it lodges in a little notch 33 at the lower end of said leg. In this position, it projects into the chamber 27 and is engaged by the upper shoulder of the groove 32 in the plunger, so that said plunger is prevented from dropping any farther, and the lamp hangs suspended, as shown in Fig. 1 and Fig. 7. To unlock the lamp, the rope 4 is again pulled upward, lifting the plunger and the plate 16, the latter carrying with it the ball 31 until the port 29 is reached, when the ball drops through said port into the passage 28 (Fig. 8) and runs diagonally down to the port 30, which is at this time covered by the plate 16. The operator then slacks off the rope, and the plunger is free to drop down out of the casing 1, the plate 16 swinging back and disengaging through lug 22 from the groove 23. As the slot 24 comes in line with the port 30, the ball emerges into the portion 26 of the raceway, and runs down to its lower end, as shown in Figs. 2 and 9, where it remains until the plunger is once more pulled up into the casing.

It will be observed that the ports 29 30 do not extend entirely across the portions of the raceway in which they are located, but that there is a narrow space above the port 30 and below the port 29 along which the

ball can run without tending to enter said ports.

I do not desire to restrict myself to the particular construction or arrangement of parts herein described and shown in the drawings, since it is apparent that they may be changed and modified without departing from my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. An arc lamp hanger comprising a casing, a plunger adapted to enter the same, and provided with a shoulder, a loose ball in said casing adapted to engage under said shoulder and support said plunger, and means for automatically bringing said ball into engaging and disengaging positions by successive upward movements of said plunger.

2. An arc lamp hanger comprising a casing, a plunger adapted to enter the same and provided with a shoulder, a loose ball in said casing adapted to engage under said shoulder and support said plunger, a raceway arranged to guide said ball into engaging and disengaging positions, and a carrier actuated by said plunger for moving said ball upwardly along portions of said raceway.

3. An arc lamp hanger comprising a casing, a plunger adapted to enter the same and provided with a shoulder, a loose ball in said casing adapted to engage under said shoulder and support said plunger, a raceway comprising an inverted-U-shaped portion in one plane and a connecting passage in another plane, and a carrier actuated by said plunger and adapted to move said ball upwardly along the legs of the inverted-U-shaped portion.

4. An arc lamp hanger comprising a casing having a chamber, a plunger adapted to enter said chamber and provided with a shoulder, a loose ball in said casing adapted to engage under said shoulder and support said plunger, a raceway comprising an inverted-U-shaped portion in one plane having one leg opening into said chamber, a passage in another plane connecting the ends of the legs of said U-shaped portion, and a carrier actuated by said plunger for moving the ball upwardly along the legs of said U-shaped portion.

5. An arc lamp hanger comprising a casing, a plunger adapted to enter the same and provided with a shoulder, a loose ball in said casing adapted to engage under said shoulder and support said plunger, a raceway comprising an inverted-U-shaped portion in one plane and a connecting passage in another plane, and a carrier plate actuated by said plunger and containing a transverse slot to engage with said ball.

6. An arc lamp hanger comprising a casing, a plunger adapted to enter the same

and provided with a shoulder, a loose ball
in said casing adapted to engage under said
shoulder and support said plunger, a race-
way comprising an inverted-U-shaped por-
5 tion in one plane and a connecting passage
in another plane, and a vertically-movable
and pivoted carrier plate containing a trans-
verse slot adapted to engage with said ball,

said plate being provided also with a lip
to be engaged by said plunger.

In witness whereof, I have hereunto set
my hand this second day of March, 1910.

CLARENCE W. MANSUR.

Witnesses:

JOHN A. McMANUS, Jr.,

CHARLES A. BARNARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."