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(No Model.)

2 Sheets—Sheet 1.

J. F. McLAUGHLIN.
INCANDESCENT LAMP SOCKET.

No. 493,109.

Patented Mar. 7, 1893.

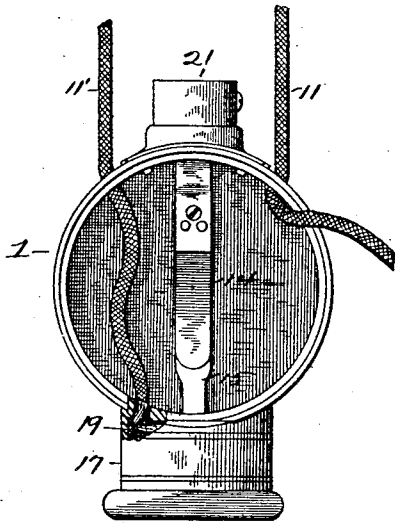


Fig. 2.

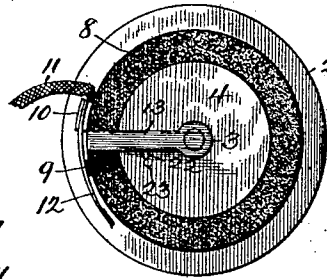


Fig. 3.

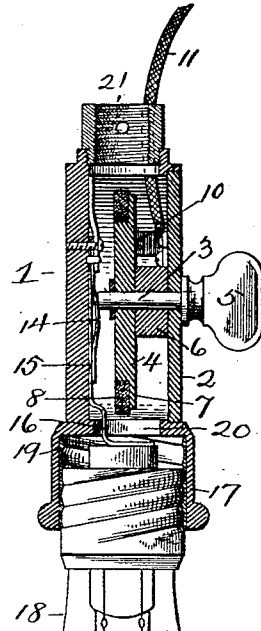


Fig. 1.

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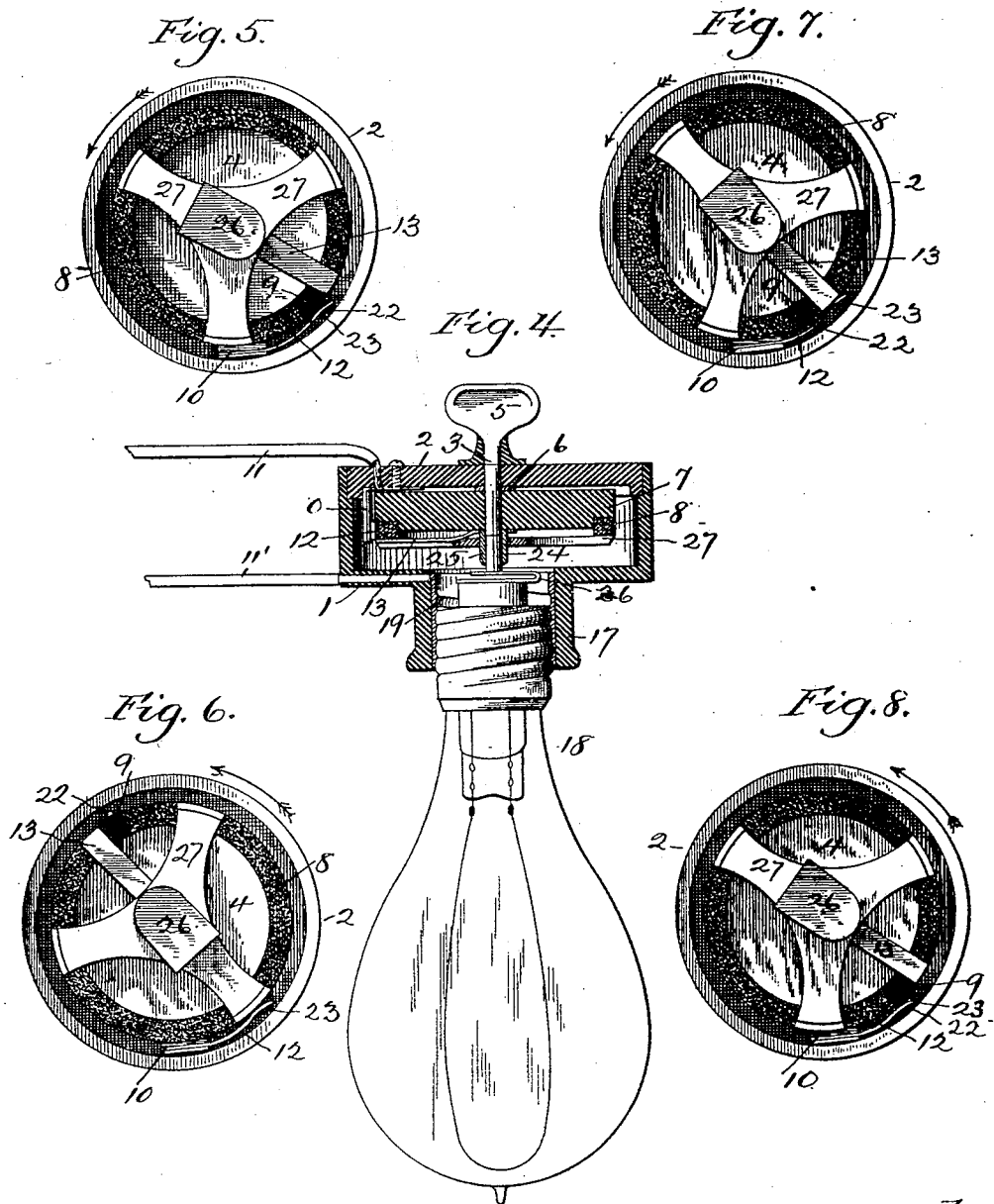
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JAMES F. McLAUGHLIN, OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 493,109, dated March 7, 1893.

Application filed September 13, 1892. Serial No. 445,785. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McLAUGHLIN, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sockets or Holders for Incandescent Electric Lamps, of which the following is a specification.

This invention has reference to improvements in sockets or holders for incandescent electric lamps, its object being to inclose in the socket or holder, a regulator for controlling, at will, the degree of incandescence of the lamp filament, so that the lamp may be made to glow either with its full brilliancy, or at any degree of brilliancy between the maximum and the desired minimum. This is accomplished by providing the socket or holder with an artificial resistance which will oppose the flow of the current to the lamp, and which may be included in series with the lamp filament and which is also provided with means for gradually cutting the said resistance in or out of the circuit by continuously succeeding infinitesimal increments or decrements, and for breaking the lamp circuit, either when the resistance is all in or all out.

Forms of the socket or holder embodying the invention are illustrated in the accompanying drawings, forming part of this invention, and in which,

Figure 1 is a vertical section through the improved socket, with an incandescent electric lamp in place. Fig. 2 is a view of the socket with the cap piece and parts connected therewith removed, to show the interior. Fig. 3 is an inner-face view of the cap, removed from the socket shell. Fig. 4 is a vertical section through a modified form of socket, embodying the invention and Figs. 5 to 8 are plan views of the inner face of the cap, with the resistance conductor in different positions.

Like numerals of reference designate like parts throughout all the drawings.

Referring to the drawings, there is shown a cylindrical shell 1, of insulating material one side 2, of which is removable and constitutes a cap or closure for the shell, so that the inside of the shell is readily accessible.

Journalled in the center of the cap 2, and

extending therethrough is an arbor 3, near the inner end of which is secured a disk 4, of insulating material, and the other end of the arbor, at the outer face of the cap, is provided with a manipulating button or thumb piece 5, by means of which the arbor and disk may be rotated. A washer, 6, is interposed between the disk 4, and cap 2. The edge of disk 4, is reduced in thickness to form a ledge 7, for a ring 8, preferably of carbon, but which may be made of other suitable material, which, when introduced into the circuit, will offer sufficient resistance for the purposes of the present invention. The ring 8, is not a complete circle, a small section being removed, and a block 9, of insulating material is inserted in place thereof, and projects a short distance beyond the outer edge of the ring 8.

Secured to the inner face of the cap 2, there is a metal post or block 10, to which is connected one of the leading-in wires 11, and this post 10, carries a leaf-spring brush 12, which bears against the periphery of the ring 8, and thus completes the circuit between the leading-in wire and the said ring.

As shown in Fig. 1, the arbor 3, is electrically connected to the carbon ring, at or near one of its ends, by a metal arm 13, and the end of the arbor, when the cap is in place bears upon a spring contact plate 14, which in turn is fastened at one end to a metallic strip 15, which latter terminates in a spring contact finger 16.

Formed on the shell 1, is a socket-neck 17 for receiving the base of the lamp 18, and this socket-neck is provided with a threaded metallic lining 19, to which the other leading-in wire 11', is connected as shown. An opening or passage 20, is provided between the socket-neck and shell 1, and through this passage extends the finger 16, making contact with the center terminal of the lamp 18, when the latter is screwed into the socket-neck 17, the other terminal making contact with the lining 19, in the usual manner. The shell may be provided with the usual bracket connection 21, if desired. The disk 4, with the carbon ring 8, may be rotated through one revolution in either direction, until a stop pin 22, on the disk comes in contact with another stop pin 23, on the cap.

The construction shown in Figs. 4 to 8, dif-

fers but in unimportant details from that shown in Fig. 1. In Fig. 4, the socket-neck 17, is directly opposite the cap, and the arbor carries at its inner end a small metallic cup 24, in which is inserted a pin 25, carrying at its outer end a leaf-spring 26, bent on itself and bearing on the center terminal of the lamp when the latter is inserted in the neck 17. This spring 26, rotates with the arbor and disk 4. The carbon 8, is also strengthened by a spider 27, of insulating material fixed at the center to the arbor, and connected to the carbon ring 8, at the ends of its arms. When the lamp is burning the circuit is through one leading-in wire to the brush 12, and carbon ring 8, or a portion thereof, by the plate 13, to the arbor; thence by the spring contact 16, as in Fig. 1, or the spring contact 26, as in Fig. 4, to and through the lamp filament and thence to the socket-neck lining 19, and out through the other leading-in wire. When the stops 22, and 23, are in contact, the insulating block 9 is under and against the brush 12, and since the block projects for a distance beyond the periphery or contact face of the carbon ring 8, the brush will be lifted away from the carbon ring and the circuit through the lamp will be broken.

The operation of the regulator is as follows:—Assuming that the carbon ring is in the position shown in Fig. 5, the brush will rest on the insulating block 9, and the circuit through the lamp will be broken. By turning the disk 4 in the direction of the arrow, the block 9 will ride from under the brush and the latter will then make contact with the carbon ring at a point farthest from the conducting arm 13, and consequently the entire effective length of the carbon ring will be included in the circuit; this will offer enough resistance to the current to reduce the glow of the lamp to the desired minimum. If a brighter light is desired, the carbon ring is turned, until enough of the resistance is cut out to bring the lamp up to the required brilliancy; such a position of the carbon ring is shown in Fig. 6, where only about one half of it is included in the circuit.

To obtain the full brilliancy of the lamp, the carbon ring is rotated until, as shown in Fig. 7, the brush is opposite the arm 13, in which case the resistance is all cut out, and the full current flows to the lamp. If the rotation of the carbon ring is continued, the brush will again ride upon the insulating block 9, and the circuit will be broken, when further movement in this direction is pre-

vented by the stops. A reverse movement of the carbon ring will then light the lamp at full brilliancy and gradually dim it until finally it is again extinguished. Thus the light may be regulated from minimum to maximum, or the reverse, and passing through all intermediate stages and extinguished at either point, as desired.

The regulator is shown in the drawings provided with a socket-neck of the Edison type, but it may be readily adapted to socket-necks adapted to lamp bases of other types.

The regulator is applicable to lamps included in circuits charged with either direct or alternating electric currents.

In the foregoing description the carbon ring is described as rotating while the brush remains stationary, but it will be readily understood that the carbon ring may be held stationary and the brush be caused to travel over it; also the resistance may be formed in other shapes than that of a simple ring, since any resistance housed within the socket will serve the same purpose, so long as by the movement of the lamp key or other part the resistance is gradually cut in or out by insensible degrees.

Having thus fully described the invention, I claim and desire to secure by Letters Patent—

1. A light regulating socket for incandescent electric lamps, having an incomplete carbon ring housed within the socket, and provided with an insulating portion projecting beyond the periphery of the ring, and a brush bearing upon the carbon ring in the path of the insulating block, substantially as described.

2. A light regulating socket for incandescent electric lamps, having a rotatable member housed within the socket and carrying an incomplete carbon ring provided with an insulating portion projecting beyond the periphery of the ring; a stationary brush bearing upon the ring in the path of the insulating block, and stops for arresting the movement of the rotatable member when the brush bears on the insulating portion, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAS. F. McLAUGHLIN.

Witnesses:

MICHAEL G. PLUNKETT,
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