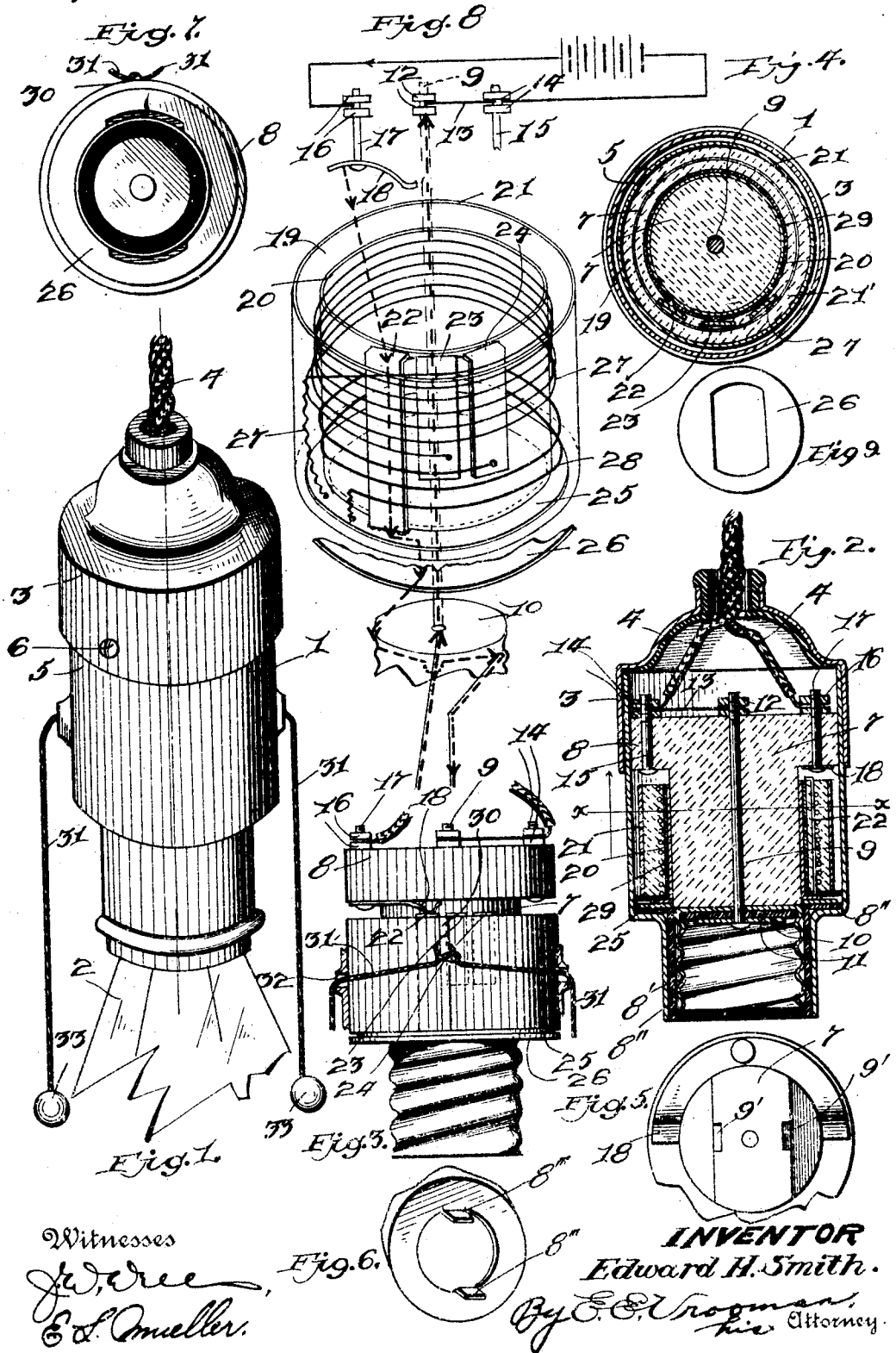


E. H. SMITH.
 REGULATING INCANDESCENT LAMP SOCKET FOR REDUCING THE LIGHT.
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957,806.

Patented May 10, 1910.



Witnesses
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Fig. 6.

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UNITED STATES PATENT OFFICE.

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REGULATING INCANDESCENT-LAMP SOCKETS FOR REDUCING THE LIGHT.

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To all whom it may concern:

Be it known that I, EDWARD H. SMITH, a citizen of the United States of America, residing at Aberdeen, in the county of Chehalis and State of Washington, have invented certain new and useful Improvements in Regulating Incandescent-Lamp Sockets for Reducing the Light, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to incandescent lamp sockets which are provided with means for reducing or dimming the light of an incandescent lamp, and has for its object to provide an improved device of this character by means of which the light may be dimmed or reduced to a greater or lesser extent.

In the accompanying drawings, Figure 1 is an enlarged view in perspective of an incandescent lamp socket and a portion of an incandescent lamp bulb, said socket being provided with means for dimming the light, constructed in accordance with this invention. Fig. 2 is a view in vertical section of an incandescent lamp socket, constructed in accordance with this invention. Fig. 3 is a view in elevation of the interior of the lamp socket, showing the means for dimming the light. Fig. 4 is a horizontal section of the device on the line $x-x$ of Fig. 2. Fig. 5 is a detail view, partly broken away, showing the spring contact switch. Fig. 6 is a detail view in perspective showing the upper end of the tubular threaded socket for engagement with the lamp. Fig. 7 is a plan view of the underside of the socket. Fig. 8 is a diagrammatic view in perspective showing the electric circuit and means for reducing the light. Fig. 9 is a detail view of a ring employed in connection with the socket.

Referring to the accompanying drawings, 1 indicates a lamp socket to which may be attached an incandescent lamp bulb 2, said socket having the usual cap portion 3 through which extends the leading in wires 4, said cap 3 fitting over the usual form of casing 5 and secured thereto by means of screws 6. Within the casing 5 is located a plug 7 of non-conducting material, preferably of porcelain, said plug 7 being formed at its upper end with an annular flange portion 8. By means of the shape of the plug 7, an annular space is formed between the plug 7 and the wall of the casing 5.

Located in the reduced portion of the casing 5 is a threaded annular socket 8' adapted to receive the threaded end of a lamp bulb, said socket 8' being insulated from the casing 5 by insulating material 8''. The tubular threaded socket 8' is held up against the bottom of the plug 7 by means of the metallic rod 9 which extends up through the plug 7 and has mounted on its lower end a metal disk 10 and an insulating disk 11 which bears against the upper end of the tubular socket 8' and holds it against the lower end of the plug 7. The upper end of the rod 9 has mounted thereon a couple of clamping nuts 12 which clamp a wire conductor 13, the other end of which is clamped between clamping nuts 14 on the upper end of a rod or bolt 15 extending through the flanged portion 8 of the plug 7, said clamping nuts 14 also clamping the end of one of the leading in conducting wires 4. The end of the other leading in wire 4 is clamped between a pair of clamping nuts 16 on the upper end of a rod or bolt 17 extending through the flanged portion 8 of the plug 7. On the lower end of said rod 17 is mounted a spring contact arm 18, shown in Fig. 3.

Encircling the plug 7 and rotatable thereon is a rheostat ring 19 constructed as follows: The ring 19 is formed with an inner metallic cylindrical wall 20 and an outer metallic cylindrical wall 21, and the space between said walls is filled with plaster of paris, 21', or other suitable material. Embedded in said plaster of paris and insulated from each other by means of mica and asbestos, or other suitable insulating material, are several metallic contact strips and several helical coils of different degrees of fineness. As shown in Fig. 8, the three metallic contact strips 22, 23 and 24 are employed embedded in the plaster of paris 21' and spaced from each other with suitable insulation of mica and asbestos located between them. The metallic contact strip 22 extends from top to bottom of the ring 19 and has its upper end projecting above the same so as to be adapted to come in contact with the spring arm 18, as shown in Fig. 3. The lower end of the spring contact strip 22 connects with the flat metallic flange 25 of the inner cylindrical wall 21 of the ring 19. The flange 25 rests upon a metallic ring 26 which in turn rests upon the insulation 8'' extending over the reduced annular

portion of the metallic casing 5. The metallic ring 26 is in contact with the upper end of the tubular socket 8' so that an electric circuit is formed, as shown in Fig. 8, from the conducting wire 4, through contact spring arm 18, contact plate 22, flange 25, ring 26, socket 8' and the filament of the incandescent lamp; and back through rod 9 and conductor 13 to the leading in wire 4. Embedded in said filling in the ring 19 are helical coils 27 and 28 which are insulated from each other, the coil 27 being of fine wire, the coil 28 being of coarser wire, one end of the coil 27 being connected to the contact plate 23 which projects through the top of the filling in the ring 19, the other end of said wire 27 being connected to the flange 25. The contact plate 24, the upper end of which projects through the top of the filling in ring 19, has one end of the wire 28 connected to said plate and the other end of said wire is connected to the flange 25. A suitable insulation 29 in said filling of the ring 19 is interposed between said coils and the inner cylindrical wall of the ring 19, and has a lower flanged portion 29' extending over the flange 25 and beneath the outer cylindrical wall 21 of the ring 19. The upper end of the tubular socket 8' is formed with a pair of projections or lips 8³ which are adapted to be inserted into and bend over to engage the recesses 9' in the lower end of the plug 7.

In order to rotate the ring 19, suitable means is provided as, for example, a projection 30 from the side of the ring 19 to which is attached a cord having its depending portions 31 extending through openings 32 on the sides of the casing 5 and provided at their ends with balls 33, or other suitable handles for operating said cord. It will be seen that by pulling on one or the other of the depending portions 31, the ring 19 may be rotated so as to bring one of the contacts 22, 23 and 24 into contact with the spring contact arm 18. As already described, when the contact arm 18 is in contact with the contact strip 22, the current passes directly to the incandescent lamp and back to the main line.

If it be desired to reduce the light of the lamp, the ring 19 is turned until the spring contact arm 18 is in engagement with either contact strip 23 or 24. As the contact strip 23 is connected with the wire 27 which offers great resistance, when the contact 23 is brought into contact with the spring contact arm 18, the light will be dimmed to the lowest point desired. When the ring 19 is turned so as to bring the contact 24 into contact with the spring contact arm 18, the coil wire 28 being thicker than the wire 27, lesser resistance will be offered and a medium of reduction of the light will be obtained. It will be seen that owing to this

construction, the flange 25 on the lower end of the ring 19 serves as a suitable contact bearing on the ring 26, the latter serving as a track for the flange 25 of the ring 19 to move upon.

While I have shown but two contact plates connected with two helical coils of wire of different degrees of thickness and the different windings, any number of such contact plates and windings may be employed as it is desired to vary the reduction of the light.

It will be seen that by means of this invention an improved device is provided by means of which the light may be turned on in full or dimmed or reduced to a greater or lesser extent. Furthermore, the invention provides an improved device in that the means for regulating the light is mounted in a lamp socket of the standard type so that no extra attachment is required which has to be applied to the ordinary form of lamp socket, thereby affording simplicity and economy in construction.

By means of this invention a lamp socket is provided which carries with it means for regulating the light, which can be used with lamps of from the highest to the lowest candle power.

What I claim as my invention is:—

1. In a device of the character described, an incandescent lamp socket, a rotary rheostat ring mounted within the casing of said socket and having a flange at its lower end in electrical connection with the lamp, a number of contact plates mounted in said ring, one of said contact plates extending to the lower end of said ring and in electrical connection with the flange at the bottom of the ring, a number of independent coils of variable resistance, each connected with one of the remaining contact plates and with the flange at the bottom of the ring, and a spring contact arm with which said contact plates are adapted to be severally brought in contact therewith whereby an uninterrupted electric current may be sent directly through the lamp or a series of variable resistances may be interposed in circuit with the lamp.

2. In a device of the character described, an incandescent lamp socket, a plug mounted within the casing of said socket, a rotary rheostat ring located about said plug and having an inner and outer metallic wall, the inner wall having a flange at its lower end, a filling of insulating material located between said walls, a number of contact plates insulated from each other and mounted in said filling, one of said contact plates extending from top to bottom of the ring and in electrical contact with the flange of the inner wall of the ring, a number of independent helical coils of different thickness insulated from each other and mounted in said filling, one end of each of said coils being connected

with one of said plates and the other end being connected with the flange of the inner wall of the ring, a metallic ring located beneath the flange of the rotary ring and in electrical contact therewith and with the threaded tubular socket, and a spring contact arm with which the several contact plates are adapted to be successively brought in contact, for the purpose specified.

3. In a device of the character described, an incandescent lamp socket, a plug of insulating material with an annular flange at its top mounted in the casing of the lamp socket, a rotary rheostat ring encircling said plug and formed with an outer metallic wall and an inner metallic wall having a flange at its lower end, a filling of insulating material within said walls, a number of contact plates insulated from each other and mounted in said filling, one of said contact plates extending to the bottom of said ring and in electrical contact with said inner flange of the ring, a number of helical coils of different resistances embedded in said filling

and insulated from each other, one end of each of said coils being connected with one end of each of the remaining contact plates and the other end of each of said coils being electrically connected with the bottom flange of the ring, a contact plate located beneath and in electrical contact with the bottom flange of the rotary ring, said contact plate being located in electrical connection with the tubular threaded lamp socket connection, and a spring contact arm located above said rotary ring and connected with one of the leading in circuit wires, said contact arm being adapted to contact successively with the contacts on the rotary ring as the latter is rotated to directly turn on the full current in the lamp or to reduce the light to different degrees of dimness.

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

EDWARD H. SMITH.

Witnesses:

R. DORING,

A. D. MUELLER.