

(No Model.)

C. A. CHUTE.
REGULATING SOCKET FOR ELECTRIC LAMPS.

No. 566,892.

Patented Sept. 1, 1896.

Fig. 1.

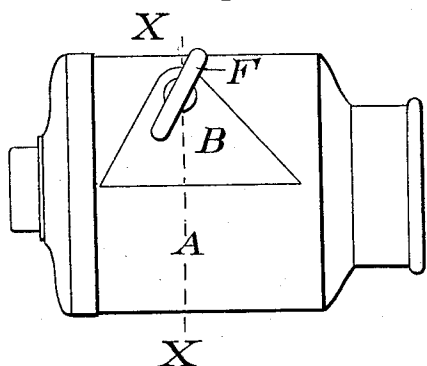


Fig. 2.

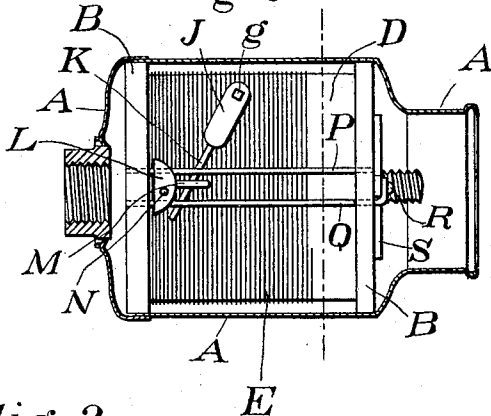


Fig. 3.

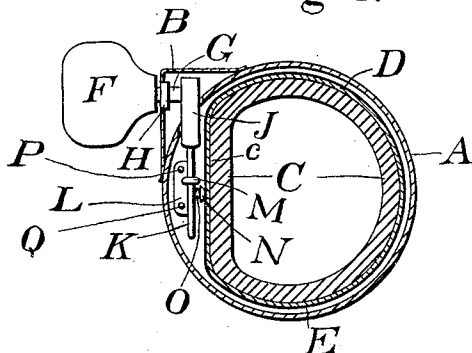


Fig. 4.

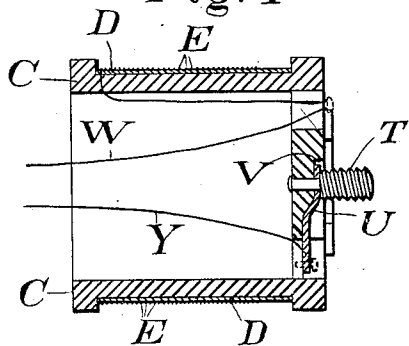
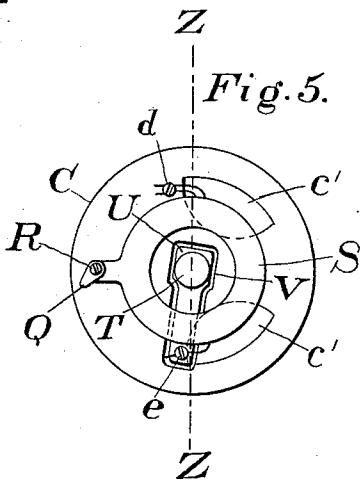


Fig. 5.



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UNITED STATES PATENT OFFICE.

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REGULATING-SOCKET FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 566,892, dated September 1, 1896.

Application filed February 8, 1896. Serial No. 578,463. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE A. CHUTE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Regulating-Sockets for Electric Lamps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to sockets for incandescent electric lamps, and has for its object the combination, with a socket arranged to bring the terminals of the filament of a lamp and line-wires into conducting contact, of a rheostat whereby the light-giving power of the lamp may be varied between certain limits. This object I accomplish by employing a spool-insulator having a flattened portion, by winding thereupon a wire, usually of German silver, possessing the desired resistance to the passage of current electricity, by insulating each coil of the wire from every other one, by providing a slide bearing a spring-operated contact-pin and means for operating the slide whereby more or less of the resisting-wire can be included in the local lamp-circuit. Each constituent element of my invention is described in detail, and the mode of operation fully explained hereinbelow.

Referring to the accompanying drawings, wherein like letters designate like parts in the several views, Figure 1 represents a side view of the exterior of my device, showing the key and the triangular extra casing supporting it. Fig. 2 represents a side view of the working parts, one-half of the casing and the key having been removed. Fig. 3 represents a vertical cross-section upon line X X of Fig. 1. Fig. 4 represents a vertical longitudinal sectional view of my invention, omitting the casing and following a median line Z Z of the final Fig. 5, which represents an end view, casing omitted, taken from beyond the right-hand end of Fig. 2.

Considering Fig. 1, A designates the casing; B, the triangular addition thereto; C, the

porcelain or hard-rubber spool, having a flat side *c* and one end closed with the exception of the ventilating-apertures *c' c'*; D, a hollow form of asbestos or other yielding insulating material closely fitting the spool exteriorly, and directly upon which the resistance-wire E is wound.

F marks the thumb-piece of a key having a stem G, which is supported in an orifice through a block H, suitably fixed to the extra casing B. The stem possesses a square shoulder at its extremity, which engages a corresponding orifice *g* in the body of arm J. The arm is elongated into a rod K, constructed to pass through and engage a loop of wire M, suitably attached to a slide L. Movable within an orifice in the slide, yet in electrical contact therewith, is situated the headed pin N, and encircling the shank of the pin is a coiled spring O, as my device is commonly constructed. A metallic contact between pin and slide is essential, and the wire composing the spring may be used to supplement the movable connection, thus avoiding unnecessary resistance to the current by soldering one end of the spring-wire to each part mentioned. The construction of pin and spring involves no departure from common forms and require no further description.

P and Q designate the rigid wires or rods upon which the slide is caused to travel. The rods pass through parallel orifices bored to fit them closely, and, while the slide may be readily operated, a sufficiently effective metallic contact is maintained with the rods throughout its movement. The extremities of P are embedded and fixed in the flanges of the spool, as is one end of rod Q. The remaining end of Q passes through the flange of the spool, where it is flattened and pierced with an orifice through which a set-screw R passes.

S designates a conducting-ring provided with a projection having an orifice of the same size, substantially, as that drilled through the flat end of rod Q. The ring is attached concentrically upon the outer surface of the closed end of the spool, with the projection arranged in such position that the orifice in rod Q may be brought immediately over it, and through both orifices the screw R engages a threaded aperture in the end of the spool.

The end of rod Q is thereby pressed upon the projection of the ring and a sufficient connection for the passage of electricity maintained between them.

5 T marks a metal screw fixed in the center of the end of spool C, and it is, therefore, insulated from ring S by the intervening material of the spool. (See Figs. 4 and 5.) Before being riveted into its final position the
10 rivet of screw T is passed through an orifice in a bent metal strip U, which fits the bottom of a recess V, formed radially in the closed end of the spool for its reception. When screw T is fixed in position, care is taken to
15 provide a clean metallic contact with the bent strip, one end of which is thereby fixed in the recess, the remaining end of the strip being fixed by set-screw *e*. (Best shown in Fig. 5, and again referred to hereinafter.) In Figs.
20 4 and 5 it is plainly shown that ring S passes over recess V and above strip U, contact between strip and ring being thus guarded against. W and Y mark the two line-wires extending from the main or service wires
25 through the fixtures into the casing by way of the interiorly-threaded nipple centrally attached to the casing, as shown in section in Fig. 2. Continuing the wires pass through the hollow in the spool, through the ventilating-orifices *c' c'*, whereupon wire Y is connected
30 with metal strip U by set-screw E, and therefore with metal screw T. Wire W is conducted to set-screw *d*, which engages a threaded aperture in the end of the spool, and
35 the office of screw *d* is to join, metallically, the ends of the wire W and resistance-coil D. The connections are plainly presented in Figs. 4 and 5.

The operation of my invention may be described as follows: It will be observed that
40 wire W, Fig. 4, has been connected with the lowest coil of the resistance-wire, which coil was continued through the spool to screw *d*. It will also be noted that one line-wire terminal has been established at the screw T.
45 The second line-wire terminal remains to be accounted for. As the slide L is moved up and down by the key and its attachments, as shown in Figs. 2 and 3, it maintains a metallic
50 connection with both metal guide-rods P and Q. The former being entirely insulated, no electricity can be conducted out of the system in that direction. The latter, however,
55 is at once recognized as the second line-wire terminal. As the resistance-wire is coiled on the asbestos form about the spool, there results upon the flat side *c* a series of parallel
60 wires, each fixed in position upon a plain surface. It is upon this side of the spool that guide-wires and slide are situated, and the rounded head of pin N is held by spring O in constant contact with the series of parallel
65 wires as the slide is raised and lowered. By winding the resistance-wire upon a hollow form of insulating material possessing the yielding character of asbestos paper these several

coils of the wire sink slightly into the surface of the form. The position of each coil is thus permanently fixed, while projecting beyond the
70 form sufficiently for adequate contact with the pin N. Were not the coils thus fixed and separated in some such manner by insulation, the moving pin might eventually dis-
75 place them, cutting out the resistance altogether. If wound upon the bare spool tightly enough to maintain its place, too great strain would be thrown upon the wire. If the slide
80 rests near the lowest coil of the resistance, (see Fig. 2,) but little obstruction is offered to the current from wire W through a short
length of coil E by way of pin, slide, and rod Q to ring S; but should the slide be raised, bringing the pin into contact with the upper
85 coil, practically the entire resistance would be thrown into circuit, reducing the condition of a lamp-filament from brilliant incandescence to a minimum glow. It is obvious
90 that the candle-power of a lamp may be varied between the limits described. While my invention could be employed in connection
with alternating-current generators, it has been designed particularly for service in direct-current system.

I am aware that rheostats have been constructed wherein a greater or less length of
95 resisting-wire is thrown into circuit by a movable arm and sliding contacts, and I do not claim that feature broadly.

Having thus described my invention, what
100 I claim, and desire to protect by Letters Patent, is—

1. A regulating-socket for electric lamps having in combination with an insulating-
105 spool, a wire capable of resisting the passage of electricity and adapted to be wound helically upon said spool, metallic guide-rods attached to said spool, a metallic terminal or
pole plate, means for connecting one of said rods and said plate, a metallic slide constructed
110 to engage said guide-rods and to be moved up and down thereupon, a spring-operated contact-pin in metallic connection with the slide, and mechanism for operating the
115 slide, substantially as described.

2. A regulating-socket for electric lamps having in combination with an insulating-
120 spool possessing a flat side, a hollow form of yielding insulating material adapted to closely fit the spool exteriorly, a wire capable of resisting the passage of electricity and adapted
to be wound helically upon said form and spool, metallic guide-rods attached to said
125 spool, a metallic terminal or pole plate, means for connecting one of said rods and said plate, a metallic slide constructed to engage said
rods and to be moved up and down thereupon, a spring-operated contact-pin in metallic
130 connection with the slide, mechanism for operating said slide, a second terminal or pole piece adapted for attachment to a line-wire, and means borne by the spool for attaching said resisting-wire to a line-wire, substantially as described.

3. A regulating-socket for electric lamps having in combination with a suitable casing, an insulating-spool, C, a form, D, of yielding insulating material, a resistance-wire, metal
5 guide-rods fixed upon the spool, pole-plate S having an extension adapted for connection with one of said rods, metal slide, L, having a wire loop and a spring-operated contact-pin, N, key, F, having shank G supported by
10 an extension of said casing, arm J adapted for attachment to the shank of said key and provided with a pin constructed to engage the loop of said slide, a second terminal or pole piece adapted for attachment to a line-wire, and means borne by the spool for attaching
15 said resisting-wire to a line-wire, substantially as described.

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

CLARENCE A. CHUTE.

Witnesses:

FRANK C. JONES,
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