

SOCKET FOR INCANDESCENT ELECTRIC LAMPS.

1,055,062.

Julius K. Lux,

UNITED STATES PATENT OFFICE.

JULIUS K. LUX, OF SYRACUSE, NEW YORK, ASSIGNOR TO PASS & SEYMOUR, INC., OF SOLVAY, NEW YORK, A CORPORATION.

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To all whom it may concern:

Be it known that I, JULIUS K. LUX, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented new and useful Improvements in Sockets for Incandescent Electric Lamps, of which the following is a specification.

My invention relates to key-sockets for incandescent electric lamps, and particularly to those having the switch operated by a reciprocating, or push-button mechanism, in distinction to a rotary mechanism. Heretofore and at present, the large majority of such key sockets are operated by rotating keys and thumb-pieces, which are well enough when the socket is supported on an electrolier, or other fixed support, but when, as is common, the socket is on the end of pendent conductors, it is inconvenient and difficult to turn the switch, without the use of both hands to hold and steady the socket.

My invention will be understood from the drawing herewith in which the reference letters and numerals of the description indicate the corresponding parts in all the views.

Figure 1 is a side elevation of the socket herewith. Fig. 2 is a similar elevation with the inclosing shell in section and portions broken away. Fig. 3 is an elevation substantially at a right angle to Fig. 2, with the shell removed, and a portion broken away. Fig. 4 is a longitudinal section of my socket. Fig. 5 is a similar section at a right angle to Fig. 4. Fig. 6 is a bottom plan of the upper block, with a portion of the main spring broken away. Fig. 7 is a top plan of the lower block with the attached parts. Fig. 8 is a perspective view of the switch mechanism detached.

The insulating base or body of the socket is composed of the upper and lower blocks A and B of porcelain, or other suitable insulating material, which blocks are set together and secured by suitable screws, 1, and 2, to form a substantially cylindrical base, carrying the switch, wire terminals, and lamp terminals, and largely protecting those metallic parts.

To describe the various details of construction of the device here shown, which embodies in a strong, compact, practical and desirable form, the various features of my invention—I have here shown the elements of the switch secured on the upper block by

short screws, 3 and 4. These parts or elements are the yoke piece 6 provided with the short arm 8 and the long arm 9, having the integral wire terminal 10. Between these arms is journaled the spindle, or shaft, 12 carrying at its center a fixed pinion 13, at one end of the collar 14 for maintaining the spindle in its bearings and at the other end a loose block or cam 15, having a notch 16 on its inner edge, in which is arranged a small pin 17 in the shaft whereby the cam is turned and maintained in position at the end of the spindle. On the long arm is secured a flat contact spring 19, which extends toward the other arm where its enlarged end is arranged over the cam, a notch 20 at the end of recess 48 being formed in the lower block to receive said end and cam. The yoke carrying these parts is secured in the transverse groove 22 by the said screws 3 and 4; this groove has the exterior enlargement 23 at one end to receive the wire terminal 10. In a slot 25 transverse to said groove is arranged the bar rack 26 engaging with the pinion, for the purpose of rotating the cam a quarter turn and moving the spring in and out of contact. On each end of the rack are the insulating thumbpieces 27 extending outwardly through the usual inclosing shell. Curved notches 29 are formed in the block A at each end of the slot 25 to receive the thumb pieces, when alternately in inward position, and to limit their movement.

The lower block is formed on its lower surface with the annular groove 31, between the margin 32 and the central stud 33. This annular groove is to receive the flange 35 of the outer lamp terminal 36, secured in place by the screws 1 and 2, inserted from the upper surface of the upper block. In a depression in said annular groove is arranged in contact with said lamp terminal the curved contact piece 38, also held in place by screw 1. From said contact piece the integral wire terminal 40 extends through groove 41 in the lower block into notch 42 in the upper block.

43 and 44 are external grooves in the upper block for the wires to the respective wire terminals.

On the stud 33 is secured the resilient, central lamp terminal 45 by the screw 46 (and nut) which extends through the upper block, and carries on its upper end the small

flat spring 47 arranged in the cross recess 48 in the upper surface of the lower block where it makes contact with the main spring 19 when the latter is forced down by the cam. Said central terminal and the two springs are preferably made of copper.

The aforesaid parts are supported in the usual brass shell composed of cap 51 and body 52 having opposite slots 53 for the thumb-pieces.

54 is the usual insulating fiber lining for the cap and 55 for the upper part of the shell.

56 is a fiber bushing secured around the outer lamp terminal.

The operation of the switch will be evident from this description. The socket hanging on the end of the conductors may be taken between the fingers of one hand and by pressing one thumb-piece, being the one then outwardly extending beyond the shell, the rack is moved and the cam given a quarter turn to move the main spring down against the small flat spring, whereby the circuit is made; pressing the other thumb-piece breaks the circuit. The fact that the notch 16 in the cam is larger than the spindle pin 17 permits the cam to escape from the control of the hand and make a spring break.

This form of switch is particularly adapted to pendent work, where a rotary switch is undesirable because not convenient to operate with one hand. When the rotary switch of a socket hung on conductors is operated without both hands, the socket and lamp are tilted with the effect of breaking or weakening the conducting cords at the point entering the socket. It is common also to turn the key too far to overcome the weight of the socket and the lamp, thus rendering necessary more than one attempt to turn on the current.

Having thus fully described my invention what I claim and desire to protect by Letters Patent is:

1. In a key socket for an incandescent electric lamp, the combination with an insulating base having a transverse slot and recessed portions at either end of said slot, a bar arranged in said slot and adapted to be reciprocated alternately in opposite directions, a contact spring forming one leg of the circuit arranged on the base, said spring tending to spring out of circuit, engaging means operated by said bar when reciprocated in one direction to actuate the spring piece to complete the circuit and insulated thumb pieces on either end of the bar operating within said base recesses whereby the exposed portion of the bar will be constantly contained within the base said thumb pieces being adapted to engagement with the base to limit the reciprocal movement of the bar.

2. In a key socket for an incandescent elec-

tric lamp the combination of an insulating base having a transverse slot enlarged at its opposite ends, a bar arranged in said slot and adapted to be reciprocated alternately in opposite directions, a contact spring secured on the base and arranged to form part of the circuit, a rotating part adapted to engage with the spring and operate it to make and break the circuit, connections between the bar and the rotating part to rotate the latter into and out of engagement with the spring as the bar is moved in one direction or the other and insulating thumb pieces arranged on the bar ends and operating within said slot enlargements whereby the exposed portion of the bar will be constantly within the base, said thumb pieces being adapted to engage the base to limit the reciprocal movement of the bar.

3. In a key socket for an incandescent electric lamp the combination with a base composed of two blocks of insulating material having a transverse cross groove and a slot arranged at right angles to each other said slot being enlarged at its opposite ends and being formed in the surfaces in contact of the two blocks, a contact spring forming part of one leg of the circuit arranged on the base, said spring tending to spring out of circuit, a spindle suitably journaled in the groove, a bar arranged in the slot, a cam hung loosely on the spindle, a pin on the spindle and arranged within a notch in the cam whereby the cam is moved into and out of engagement with the spring, a connection between the bar and the spindle whereby the spindle is rotated as the bar is reciprocated, and insulated push buttons on the bar operating within said slot enlargements whereby the exposed portion of the bar will be constantly within the base, said thumb pieces being adapted to engage the base to limit the movement of the bar.

4. In an incandescent electric lamp socket, the combination with a base composed of two blocks of insulating material set in contact said blocks being formed with transverse openings between their engaging surfaces, the opening of one block being enlarged at its opposite ends, of wire and lamp terminals suitably arranged on the base, a contact spring piece carried on the base, a yoke carried on the base, one wire terminal being on the yoke, a contact spring on the yoke adjacent to the spring piece and normally out of contact therewith, a spindle journaled in the yoke, a cam on the spindle arranged to engage with the contact spring and force said spring into engagement with the spring piece when the spindle is rotated, a pinion on the spindle, a rack bar in engagement with the pinion and extending through the body and thumb pieces on the ends of the rack bar operating within the enlarged portion of the block

opening whereby the exposed portion of the rack bar will be constantly within the body, said thumb pieces being adapted to engage the base to limit the movement of the bar substantially as described and shown.

insulating material set in contact, said base having a transverse cross-groove and a transverse slot, said groove and slot being arranged at a right angle to each other, each extending through the base from side to side and being formed in the surfaces in contact of the two blocks, a contact spring forming part of one leg of the circuit arranged on the base, said spring tending to spring out of circuit, a spindle suitably journaled in the groove, a bar arranged in the slot, a cam hung loosely on the spindle, a pin on the spindle, and arranged in a notch in the cam, whereby the cam is moved into and out of engagement with the spring, a connection between the bar and the spindle, whereby the spindle is rotated forward and back as the bar is reciprocated, and push buttons on the ends of the bar, the movement of the bar in either direction being limited by the engagement of the push buttons with the base, to permit a quarter turn of the spindle forward and back.

8. In an incandescent electric lamp-socket, the combination with a base composed of two blocks of insulating material, set in contact, said blocks being formed with openings between their engaging surfaces, of wire and lamp terminals suitably arranged on the base, a contact spring piece carried on the base, and connected to the inner lamp terminal, a yoke carried on the base, one wire terminal being on the yoke, a contact spring on the yoke adjacent to the spring piece and normally out of contact therewith, a spindle journaled in the yoke, a cam on the spindle arranged to engage with the contact spring and force said spring into engagement with the spring-piece when the spindle is rotated, a pinion on the spindle, a rack bar in engagement with the pinion and extending through the body and thumb pieces on the ends of the rack-piece, whereby the rack-bar may be moved in one direction to force the spring and spring piece into contact to complete the circuit and in the other direction to permit breaking of the circuit, said spring piece, yoke, spring spindle, cam, pinion and rack-bar being arranged in said openings, substantially as described and shown.

9. In a key-socket, for an incandescent electric lamp, a base of insulating material composed of two blocks set in contact and being formed with a transverse slot, a transverse groove, a central chamber in their contacting surfaces, said slot and groove bisecting each other, of inner and outer lamp terminals on the lower surface of the lower block, a contact piece extending from the central lamp terminal through the lower block into the chamber, a wire terminal connected to the outer lamp terminal, a metallic yoke secured in the groove, a second wire terminal on the yoke, a spindle jour-

5 5. In a key-socket for an incandescent electric lamp, a base of insulating material composed of two blocks set in contact and having a central chamber between their contact faces, the upper block being formed on its lower surface with a cross-groove, with a slot transverse to the groove and with notches at the ends of the slot, of inner and outer lamp terminals on the lower surface of the lower block, a contact piece extending from the central lamp terminal through the lower block into the chamber, a wire terminal connected to the outer lamp terminal, a metallic yoke secured in the groove, a second wire terminal on the yoke, a spindle journaled in the yoke, a contact spring at one end of the yoke, tending to contract and break contact with the contact piece, a cam hung on the spindle adjacent to the free end of the spring, a pinion on the spindle, a rack arranged in the slot and engaging with the pinion and a thumb-piece on each end of the rack, whereby the rack is moved longitudinally in either direction, substantially as described and shown.

6. In a key-socket for an incandescent electric lamp, a base of insulating material composed of two blocks set in contact, the upper block being formed on its lower surface with a cross-groove, with a slot transverse to the groove and with notches at the ends of the slot, and the lower block with a recess on its upper surface corresponding to the groove of inner and outer lamp terminals on the lower surface of the lower block, a contact piece extending from the central lamp terminal through the lower block into the recess, a wire terminal connected to the outer lamp terminal, a metallic yoke secured in the groove, a second wire terminal on the yoke, a spindle journaled in the yoke, a contact spring secured on one arm of the yoke and having its free end extending toward the other arm, said spring tending to contract and break contact with the contact piece, a cam hung loosely on the spindle adjacent to the free end of the spring, a pin on the spindle engaging in a notch in said cam, a pinion on the spindle, a rack arranged in the slot and engaging with the pinion and a thumb-piece on each end of the rack, whereby the rack is moved longitudinally in either direction, said thumb-pieces being arranged to engage with the inner walls of the notches and limit the movement of the rack, the spindle and the cam, substantially as described and shown.

7. In the switch mechanism of an incandescent electric lamp socket, the combination with a base composed of two blocks of

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naled in the yoke, a contact spring on the yoke, tending to contract and break the circuit, a cam hung on the spindle adjacent to the free end of the spring, a pinion on the spindle, a rack arranged in the slot and engaging with the pinion, and a thumb-piece on each end of the rack, whereby the rack is moved longitudinally in either direction to rotate the spindle and force the spring against the contact piece by the cam, substantially as described and shown.

10. In the switch mechanism of an incandescent electric lamp, the combination with a base of insulating material having a cross-groove and a slot transverse to the groove, a contact spring forming part of one leg of the circuit arranged on the base, said spring tending to spring out of circuit, a spindle suitably journaled in the groove, a bar arranged in the slot, a cam hung loosely on the spindle, a pin on the spindle, and arranged in a notch in the cam, whereby the cam is moved into and out of engagement with the spring, a connection between the bar and the spindle, whereby the spindle is rotated forward and back as the bar is reciprocated, and push buttons on the ends of the bar, the movement of the bar in either direction being limited by the engagement

of the push buttons with the base, to permit a quarter turn of the spindle forward and back.

11. In a key socket for incandescent electric lamps, two porcelain blocks set in contact and having a recess between them for the make-and-break mechanism, and said mechanism in said recess comprising a contact piece secured on the upper surface of the lower block, a yoke secured on the lower surface of the upper block, a contact spring secured on the yoke, a spindle journaled in the yoke, a cam loosely journaled on the spindle adjacent to the spring, a pinion fixed on the spindle, and a rack arranged transversely of the spindle in engagement with the pinion, said rack having opposite ends extending outside of the socket for reciprocating the rack to rotate the cam to move the spring into contact with the contact piece and to permit it to retract out of contact therewith.

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

JULIUS K. LUX.

Witnesses:

B. E. SALISBURY,
W. B. HUDSON.

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