

(No Model.)

C. A. B. HALVORSON.
INCANDESCENT LAMP SOCKET.

No. 475,555.

Patented May 24, 1892.

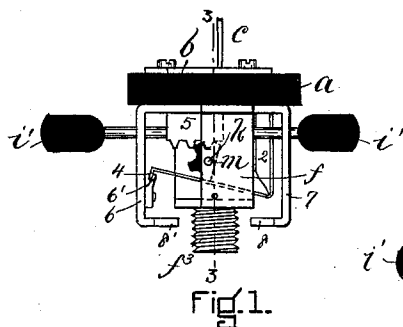


Fig. 1.

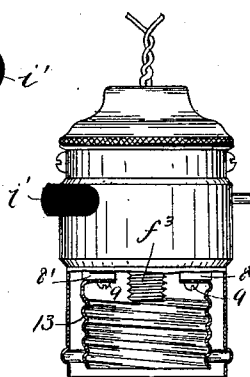


Fig. 5.

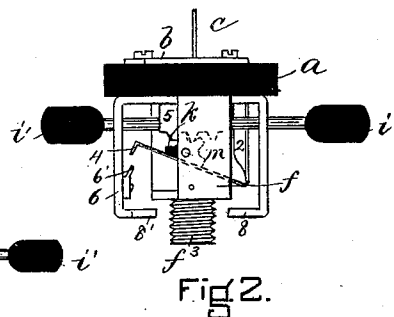


Fig. 2.

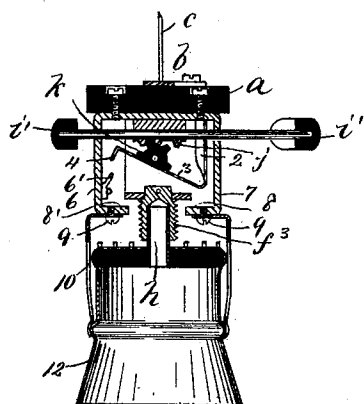


Fig. 6.

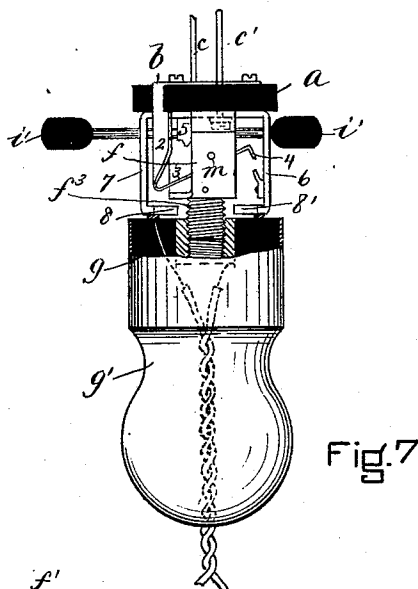


Fig. 7.

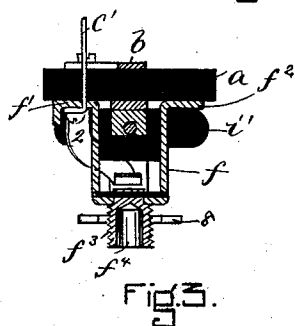


Fig. 3.

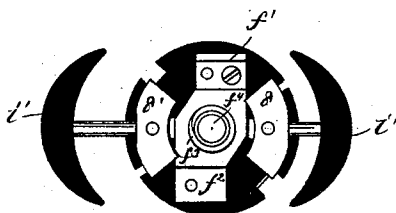


Fig. 4.

WITNESSES.

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INVENTOR.

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UNITED STATES PATENT OFFICE.

CROMWELL A. B. HALVORSON, OF SAUGUS, MASSACHUSETTS.

INCANDESCENT-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 475,555, dated May 24, 1892.

Application filed August 5, 1891. Serial No. 401,761. (No model.)

To all whom it may concern:

Be it known that I, CROMWELL A. B. HALVORSON, of Saugus, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Incandescent-Lamp Sockets, of which the following is a specification.

My invention has reference to means for making and breaking an electric circuit, and particularly to circuit making and breaking devices for use in electric lamps.

The invention has for its object, first, to provide improved means for establishing and maintaining a firm contact between two terminals or contact-pieces for the purpose of closing an electric circuit, and also insuring the quick separation of said contact-pieces when it is desired to break the circuit.

The invention also has for its object to provide an improved holder for attachment to the various well-known forms of incandescent lamps, adapted to be used interchangeably with the Edison, Sawyer & Mann, and Thomson-Houston lamps.

To these ends the invention consists in the improvements which I will now proceed to describe and claim.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of my improved holder, showing the circuit closed. Fig. 2 represents a similar view showing the circuit broken. Fig. 3 represents a section on line 3 3 of Fig. 1. Fig. 4 represents a bottom view. Fig. 5 represents a side elevation, partly in section, of the socket of an Edison lamp applied to my improved holder. Fig. 6 represents a sectional view of the holder and of the socket of a Sawyer & Mann lamp engaged therewith. Fig. 7 represents a side elevation of the holder and a side elevation and partial section of a fixture used with the Thomson-Houston lamp, said fixture being connected by flexible conductors with the lamp.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, *a* represents a block of hard rubber or other insulating material, preferably circular in form.

b represents a metal plate, which is attached to the upper side of the block *a* and is secured in any suitable way to the line or cir-

cuit wire *c*. Said plate *b* is extended at one end to form a contact-spring *b'*, comprising the portion 2, bent substantially at a right angle with the plate and extending across the periphery of the block *a* and below the same, and the inclined portion 3, having at its free end the lip 4.

On the side of the insulating-block *a*, opposite the plate *b*, is a metallic plate or bracket comprising a central portion 5, which is attached to the insulating-block *a*, and two arms 6 7, projecting downwardly from said plate 5, said arms having inwardly-projecting lugs or flanges 8 8' at their lower ends, provided with screw-holes to receive the screws 9 9, which attach to said flanges the socket-holder 10 of the Sawyer & Mann lamp-socket, as shown in Fig. 6, or to the screw-threaded socket 13 of the Edison lamp, as shown in Fig. 5.

f represents a U-shaped bracket or standard having at its ends flanges *f'* *f''*, which are screwed to the under side of the insulating-block *a*. The other line-wire *c'* passes through the insulating-block *a* and is electrically-connected with the flange *f'* in any suitable way, said flange *f'* and the entire bracket *f* being insulated from the plate *b* and line-wire *c* by the block *a*. The bracket *f* is provided at its lower portion with an externally-screw-threaded stud *f''*, which projects below the flanges 8 8' and is adapted to engage the internally-threaded socket *g* of the fixture of the Thomson-Houston lamp, as shown in Fig. 7. The stud *f''* has an internal socket *f'''*, which, when the improved holder is used in connection with the Sawyer & Mann socket, (shown in Fig. 6,) receives the metallic stem *h*, projecting from said socket, as shown in said Fig. 6. The arm 6 is provided with a metallic lip 6', arranged to make contact with the lip 4 when the spring on which said lip 4 is formed is displaced from its normal position by the key or operating device hereinafter described. When the lip 4 is in contact with the lip 6', the circuit through the filament of the lamp is closed, one end of said filament being in electrical connection with the flange 8' and the other with the stud *f''*, said flange 8' being in electrical connection with the line-wire *c* through the plate *b* and springs 2 3 4, lip 6', and arm 6, while the stud *f''* is in

electrical connection with the line-wire c' through the bracket f , to which the last-mentioned wire is connected, as above described. The electrical connection between the flange 5 8' and the stud f^3 will depend upon the form of lamp and socket employed, and as the construction of said devices is well known to those skilled in the art I do not deem it necessary to specifically describe and illustrate 10 the same, it being sufficient for the present purposes to state that whenever the lip 4 is brought in contact with the lip 6' the circuit is closed and the filament of the lamp is rendered incandescent, and when the lips 4 and 15 6' are separated the circuit is broken and the filament is disconnected from the circuit.

The device invented by me for moving the lip 4 into contact with the lip 6', to close the circuit, and for releasing said lip to break the 20 circuit is as follows: i represents a slide which is fitted to move freely in guiding-orifices in the arms 6 7, which are attached to the block a . To said slide is attached at a point between the arms 6 7 a short rack j , the teeth 25 of which engage teeth formed on a pinion-shaped block k of insulating material mounted on an arbor m , which is journaled in bearings formed in the parallel sides of the U-shaped bracket f . One side of the block k is flattened and is arranged to bear on the inclined portion 3 of the spring which carries the lip 4, said flattened side acting as a cam to move or displace said spring when the block k is partially rotated. It will be seen by reference to 35 Fig. 1 that when the slide i is at one end of its movement the block k will be caused by the rack j to depress the lip 4 and hold the same in close contact with the lip 6', and by reference to Figs. 2 and 6 it will be seen that when 40 the slide is at the opposite extreme of its movement the block k will be turned to such position that it will permit the lip 4 to spring upwardly and separate from the lip 6'. When the lip 4 is depressed, the portion 3 of the spring carrying said lip is deflected or pressed downwardly by the block k to such an extent that a very firm contact of the lip 4 with the lip 6' is insured. Hence there can be no possibility of failure to make an operative contact 50 between said lips. The outer ends of the slide i are provided with curved push-pieces i' i'' , which are convex at their outer sides and present extended surfaces, which can be readily pressed by the operator's thumb or finger, the form and arrangement being such that the operator can manipulate the slide i by the thumb or a finger of the hand which holds the socket and holder. It will be observed that when the cam-shaped block is 60 turned to the position shown in Figs. 2 and 4 it instantly releases the spring and allows the lip 4 to quickly separate from the lip 6', and thus instantly break the circuit, a result that is very desirable, a slow or sluggish circuit-breaking movement being particularly objectionable in electric lamps.

Although I have shown my invention as ap-

plied to electric lamps, I do not limit myself to such use, as the means for closing and breaking the circuit may be applied to various electrical switching devices and to either 70 single or double pole-switches.

As will be readily understood, the pinion block or cam k cannot be more than partially rotated in either direction, the engagement 75 of the teeth thereof with the rack j , causing the latter, owing to its limited sliding motion, to act as a stop against excessive motion in either direction. The sliding motion of the rack is limited by the engagement or contact 80 of one or the other push-piece i with the outside of the casing shown in Fig. 5, and in practice the relative proportions of the parts will be such that one tooth of the pinion-block will always be engaged between two 85 teeth of the rack. By this means, if the circuit is intended to be closed, it cannot be accidentally opened after closing, and, *per contra*, if it is intended to open the circuit, it cannot be closed after opening unless intentionally. 90

I claim—

1. In an electric circuit, the combination of a fixed contact, such as 6', a spring affixed to a support which is fixed relatively to said contact and has its free end formed as a con- 95 tact, which is normally separated from the contact 6' by the stress of the spring, a block or cam of insulating material journaled in fixed bearings and bearing on said spring, said block having pinion-teeth, a slide having 100 a rack arranged to engage said teeth, and means for limiting the motion of the slide, as set forth.

2. In an incandescent-lamp socket having suitable electrical connections and a switch, 105 the combination, with the insulating-block a , of a metallic bracket comprising the central portion 5, secured to the block a , and two arms 6, projecting downwardly therefrom and having lugs or flanges 8 8', provided with screw- 110 holes, and the flanged bracket f , also secured to the block a and having the threaded stud f^3 provided with socket f^4 , whereby the said lamp-socket is adapted for use in connection with different constructions of lamps, substan- 115 tially as set forth.

3. An incandescent-lamp socket comprising in its construction an insulating-block, a contact-spring attached to said block and adapted to be connected with one of the circuit-wires, 120 the free end of said spring constituting a contact piece or lip which is normally held in an operative position by the stress of the spring, a metallic arm or bracket affixed to the block and insulated by the latter from said spring, 125 said arm being adapted to be connected with the other circuit-wire and provided with a contact, such as the stud f^3 , constituting a part of the electrical connection between one circuit-wire and one end of the lamp-filament, 130 another metallic arm attached to the insulating-block and arranged to constitute a part of the electrical connection between the other circuit-wire and the other end of the lamp-

filament, said arm being formed to make contact with the spring when the latter is moved from its normal position, a spring-moving cam of insulating material journaled in bearings 5 affixed to said block and provided with pinion-teeth, a slide having a rack engaged with said teeth, and means for limiting the motion of the slide, as set forth.

10 4. A lamp-socket comprising in its construction the insulating-block *a*, the contact-spring affixed to said block, the arms 6 7, affixed to the block and having the flanges 8 8', the bracket *f*, also affixed to the block and having the stud *f*³, and means for moving the contact- 15 spring to close the circuit, as set forth.

20 5. A lamp-socket comprising in its construction the insulating-block *a*, the contact-spring affixed to said block and connected with the circuit-wire *c*, the arms 6 7, affixed to said block and having the perforated flanges 8 8',

one of said arms having also a contact-lip 6', the bracket *f*, also affixed to the block *a* and having the externally-screw-threaded hollow or socketed stud *f*³, the block or cam of insulating material journaled in bearings in said 25 bracket and bearing on the contact-spring, the rack engaged with teeth on said cam, and the slide projecting from opposite sides of the socket and engaged with said rack, said slide having curved push-pieces at its ends, as set 30 forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of July, A. D. 1891.

CROMWELL A. B. HALVORSON.

Witnesses:

C. F. BROWN,

A. D. HARRISON.