(No Model.)

T. A. EDISON.

FIXTURE AND ATTACHMENT FOR ELECTRIC LAMPS.

No. 248,420. Patented Oct. 18, 1881.

Fig. 1.

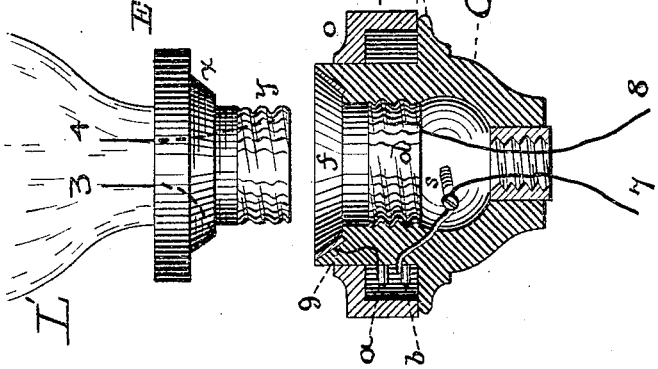

Fig. 2.

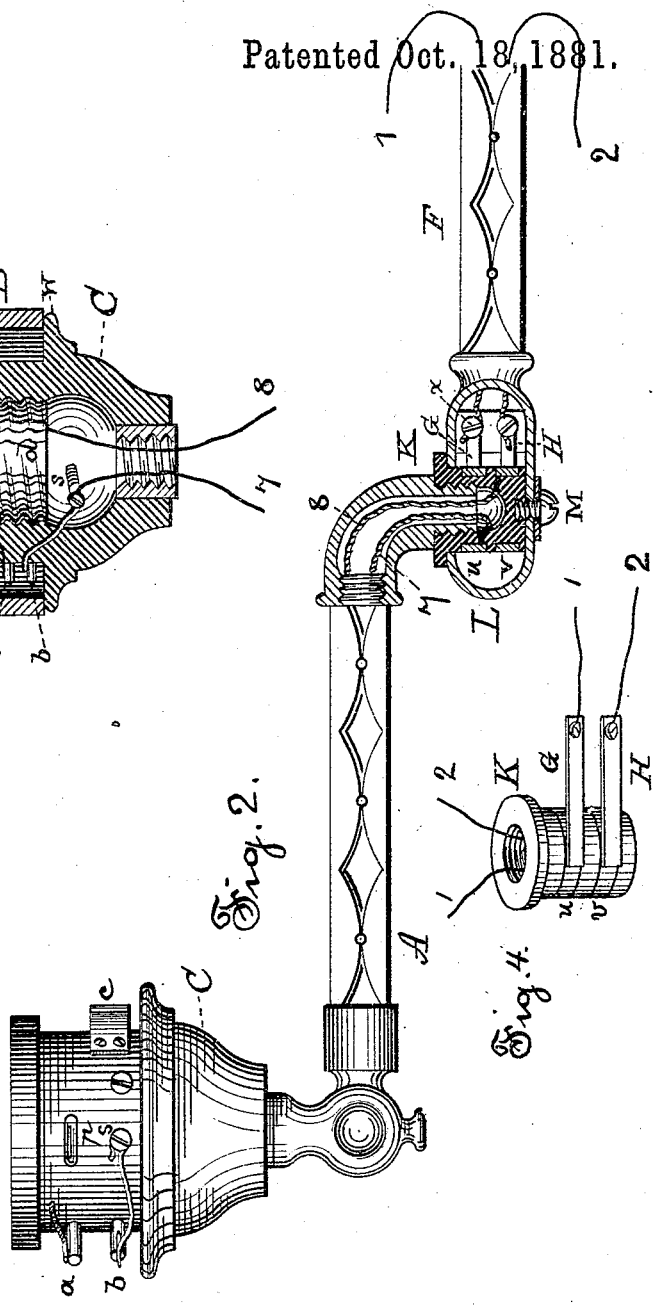

Fig. 3.

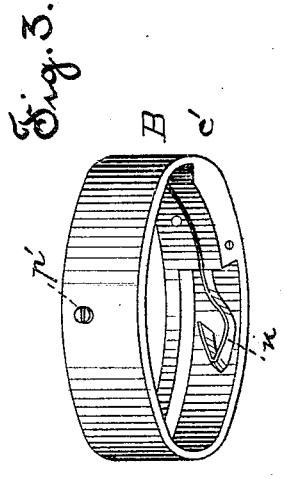

Fig. 4.

Attest:

O. D. Mott-
H. W. Seely

per:

Inventor:

T. A. Edison

by his Attys. Wilkinson

Attys.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY, ASSIGNOR TO THE EDISON ELECTRIC LIGHT COMPANY, OF NEW YORK, N. Y.

FIXTURE AND ATTACHMENT FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 248,420, dated October 18, 1881.

Application filed March 26, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Fixtures and Attachments for Electric Lamps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In a system of electric lighting such as I have shown, wherein the lamps are intended to normally give only the volume of light of a standard sixteen-candle power gas-jet, it is desirable that fittings for carrying and supporting the lamps should be devised as nearly resembling those which experience has shown to be most desirable in gas-lighting as the differences in the lighting agents will admit.

One of the most useful devices in gas-lighting systems is the swinging bracket, as it gives a degree of adjustability to the position of the light. Where it has been attempted for any purpose to run an electric circuit through such a fixture in such manner that the circuit should be preserved in any relative position of the arms of the bracket or of a single arm to its base the connections for such purpose have been exposed. Such an arrangement is defective in that there is danger of accidental connection or short-circuiting, and liability to deterioration of electrical contact from dust and dirt settling upon the contact-surfaces.

One object of this invention, therefore, is to provide a swinging or hinged bracket-arm for carrying and supporting an electric lamp, arranged to preserve the electric circuit in any relative position of the arms to each other, and of an arm to the base, and in which the connections are incased, so as to be preserved from danger of accidental electrical connection, and so as to be protected from dust or dirt. This I accomplish as follows: One of the arms is provided with a box or case of suitable size at its end, in which the pivot proper is to turn. To the other arm is secured the pivot, made of insulating material, upon which are secured two separate metal bands or rings, which form the terminals of the conductors passing through this arm. The pivot passes into the interior of the box or case on the other arm through an aperture in its top, the sides of the aperture forming a bearing for the pivot, the bottom of the pivot resting upon the bottom of the box or case, and there secured by a screw passing through the bottom of the box into it and forming a center upon which it may turn. The conductors in the arm carrying the box pass through the arm into the box and terminate therein, each in a spring, the two springs being insulated from each other and secured at one end to the interior of the box, from which they are also insulated, their other ends bearing upon the metal bands or rings of the pivot, one on each. As each spring then bears upon its ring or band during the entire rotation of the arm it is evident that the circuit is always completed from one arm to the other, irrespective of their relative positions, and so an electrical lamp-bracket is made possible. The bracket may consist of any number of such arms, pivoted together in like manner.

Instead of springs within the box an insulating cylinder with interior metal rings arranged to coincide with the rings upon the pivot may be used, or the box itself may be of insulating material, with such rings in its pivotal cavities, or to an insulated pivot or spindle springs may be fixed to bear upon rings upon the interior of an insulated cylinder or pivot-receptacle, or one ring and one spring may be used, a single conductor passing through the bracket, the metal of the bracket and system of pipes being used for the other conductor; but such modifications would only be equivalents of the springs and rings, as described.

Instead of having a circuit-controller located upon the fixed support of the bracket, as is the gas-cock upon a gas-light bracket, it may be preferable to have it at the lamp itself. In such case a projecting key or circuit-controller such as I have shown in other applications would be in danger of accidental displacement or breakage.

One object of this invention is to provide a circuit-controller which shall have no projecting parts, and in which all the electrical connections are so placed as to be protected and

to be free from all danger of accidental displacement or contact. To this end a circuit-controller is made in which the movable part accessible to the user is simply a plain band or ring of insulating material.

A socket for the lamp is used, such as I have shown in other applications, consisting of a piece of insulating material hollowed out from the top and provided at its base with means for its attachment to a pipe, bracket, or chandelier arm. Upon the interior of the socket are two metal rings or bands or plates, forming terminals of the conductors leading through the pipe or otherwise to the socket. Upon the neck or base of the lamp are two rings, sockets, or plates forming terminals to the conductors leading from the incandescing conductor of the lamp, and so arranged that they coincide with the rings, bands, or plates of the socket when the lamp is placed therein, so that the circuit is completed, except as modified by the circuit-controller by the act of placing the lamp in its socket. The conductor leading to one of the rings, bands, or plates of the socket is interrupted or broken, the conductor leading to a pin upon the exterior of the socket, while a second pin is placed above and contiguous thereto, which is connected to one of the rings, bands, or plates of the socket. The socket is shouldered upon the exterior, and upon this shoulder rests a ring of insulating material larger than the part of the socket it incloses, but with a flange extending inwardly at the top, so as to approach closely the upper part, a chamber being formed thereby, the socket forming its inner wall, the shoulder its base, and the flange its top. Upon the interior of this ring is fixed a wedge which may be solid, but which is preferably made of a springy piece of metal bent back upon itself, and of such size that its extreme edges contact with and close circuit between the two pins before noted.

Upon the socket within the ring a spring-pawl may be fastened, taking into recesses cut upon the interior of the ring, so as to limit the movement of the ring upon the socket and also indicate by the click of the pawl passing into a recess when the necessary amount of movement has been given; or a screw may pass through the ring and play in a slot in the socket, or vice versa, to determine the movement which may be given the socket. By this arrangement a reliable circuit-controller is furnished, which may be placed at the lamp itself or in exposed situations without danger of accidental manipulation or breakage. These various arrangements are clearly illustrated in the drawings, in which—

Figure 1 is a view of the socket and controller in section and of the base or neck of the lamp in elevation; Fig. 2, a view of a bracket-arm, partly in section, with socket thereon, the movable circuit-controller ring being removed therefrom, while Fig. 3 shows the removed ring in perspective, and Fig. 4 shows the pivot, rings, and springs.

A F, Fig. 2, are two arms of a bracket, of which A supports at its outer end the lamp-socket C, while at its inner end there is secured to it the pivot K, of insulating material, upon which are the metal bands or rings *u v*, the conductor 7 being attached to *u*, and 8 to *v*. This pivot is placed and rotates in a box or casing, L, upon the end of the arm F, being secured thereto by a screw, M, passing through the bottom of the box or casing into the pivot K, the screw M serving as a center of motion therefor.

To the interior of the box are secured, insulated from it and each other, the springs H G, to which are secured the conductors 1 2, as shown, 1 to G and 2 to H. This relation of the springs and rings is clearly shown in Fig. 4. It is evident from this that 1 G *u* 7 are always electrically connected, and that so are 2 H *v* 8, no matter what the relative positions of A and F may be. It is evident, also, that as many arms as desired may be connected in this way, and that they may be connected to work at right angles, so that the lamps may be placed in any desired position within the limits of the net length of the bracket-arms. It is also evident that the modifications and changes hereinbefore noted may be made without departing from the spirit of this portion of the invention.

E is the base or neck of the lamp L″, (partly shown,) of insulating material, and having upon it the metal plates *x y*, to which are connected, respectively, the conductors 3 4, leading to the incandescing conductor. Of these *y* is formed into a screw-thread to engage with *d* upon the interior of the socket C, so that the lamp will be positively held therein. One of the main conductors, 8, leads and is connected to *d*, so that when the lamp is in position one portion of the circuit is completed via 8 *d y* 4.

The socket is formed with a shoulder, W, extending out from it, as seen in Figs. 1 and 2. Upon the exterior of the socket, and one above the other, are two pins, *a b*, the main conductor 7 leading and connected to *b*, while *a* is connected to the plate *f* within the socket, with which *x* contacts when the lamp is in position upon the socket. Upon the shoulder is placed a ring, B, having at its top an inwardly-extending flange, *o*, closing round the top of socket, a chamber being left between the flange *o* and shoulder *w*. Upon the interior of the ring is secured a wedge, *n*, (seen in Fig. 3,) which may be solid metal, but which is preferably, as shown, made of a strip of springy metal bent back upon itself, and of a size to fill the space between *a* and *b* and make contact with both when forced between them.

To determine the movement of the ring B and to hold it from coming off a screw, *p′*, passes therethrough and plays in a slot or recess, *p*, cut in the side of C.

If desired to indicate audibly when the proper amount of movement has been given B, a spring-pawl, *c*, with beveled or wedge-shaped end, may be attached to C, and corresponding re-

cesses c' cut in the interior of B at proper points, whereby the movement of B would be limited, as well as an audible indication given.

As before stated, when the lamp is in position the connection 8 d y 4 is complete, but the connection 7 b a f x 3 is broken between a and b. If, now, the ring B be turned in the proper direction, (and from the limiting action of p p' or of c c', if the latter be used, it can be turned in no other direction,) the spring-wedge n is carried between the pins a b, electrically connecting them and completing the connections 7 b a f x 3, while movement in the other direction removes the spring-wedge from between them and breaks the circuit.

As the manipulative part of the circuit-controller is a simple ring, B, with no projecting parts to receive a blow or to catch upon or be caught by anything, there is no danger of accidental operation or disarrangement of the circuit-controller.

What I claim is—

1. The combination of two bracket-arms, and a pivotal connection therefor, arranged to constantly maintain electrical connection from a conductor in one arm to a conductor in the other, and a casing attached to one arm and inclosing and protecting the pivotal connection, substantially as set forth.

2. The combination of two bracket-arms, one pivoted upon or within the other so as to rotate freely, and means, substantially as described, for constantly maintaining electrical connection between a conductor or conductors in each arm, and a casing attached to one arm and inclosing and protecting the pivotal connection, substantially as set forth.

3. The combination of a bracket arm provided with an insulated pivotal piece having thereon one or more metal rings, and a bracket-arm having a box or casing to receive the pivotal piece, and provided with a spring or springs constantly bearing upon the ring or rings, and electrical connections from the spring or springs and ring or rings, and a casing inclosing and protecting the springs and rings, all arranged substantially as set forth.

4. A swinging electrical-lamp bracket composed of two or more arms provided with means for constantly maintaining the proper electrical connections therethrough, and a casing inclosing and protecting the said means, substantially as set forth.

5. A circuit-controller for an electric lamp in which the manipulative portion is a band or ring of insulating material mounted directly upon the lamp-socket, substantially as set forth.

6. The combination, with a broken electrical circuit, of a circuit-closer attached to the interior of a band or ring of insulating material mounted upon the base of the lamp, substantially as set forth.

7. The combination, with the socket of an electric lamp, of a circuit-controller operated by a ring or band of insulating material encircling the socket, substantially as set forth.

8. The combination, with an electric circuit, of two pins, whereat the circuit is broken, and a wedge for closing such break, attached to the interior of a band encircling and hiding the pins and circuit-connections, substantially as set forth.

9. The combination, with a circular or ring circuit-controller, of means for limiting its motion, substantially as set forth.

10. The combination, with a circular or ring circuit-controller, of means for audibly indicating when the proper amount of movement has been given, substantially as set forth.

This specification signed and witnessed this 7th day of March, 1881.

THOS. A. EDISON.

Witnesses:
H. W. SEELY,
S. D. MOTT.