

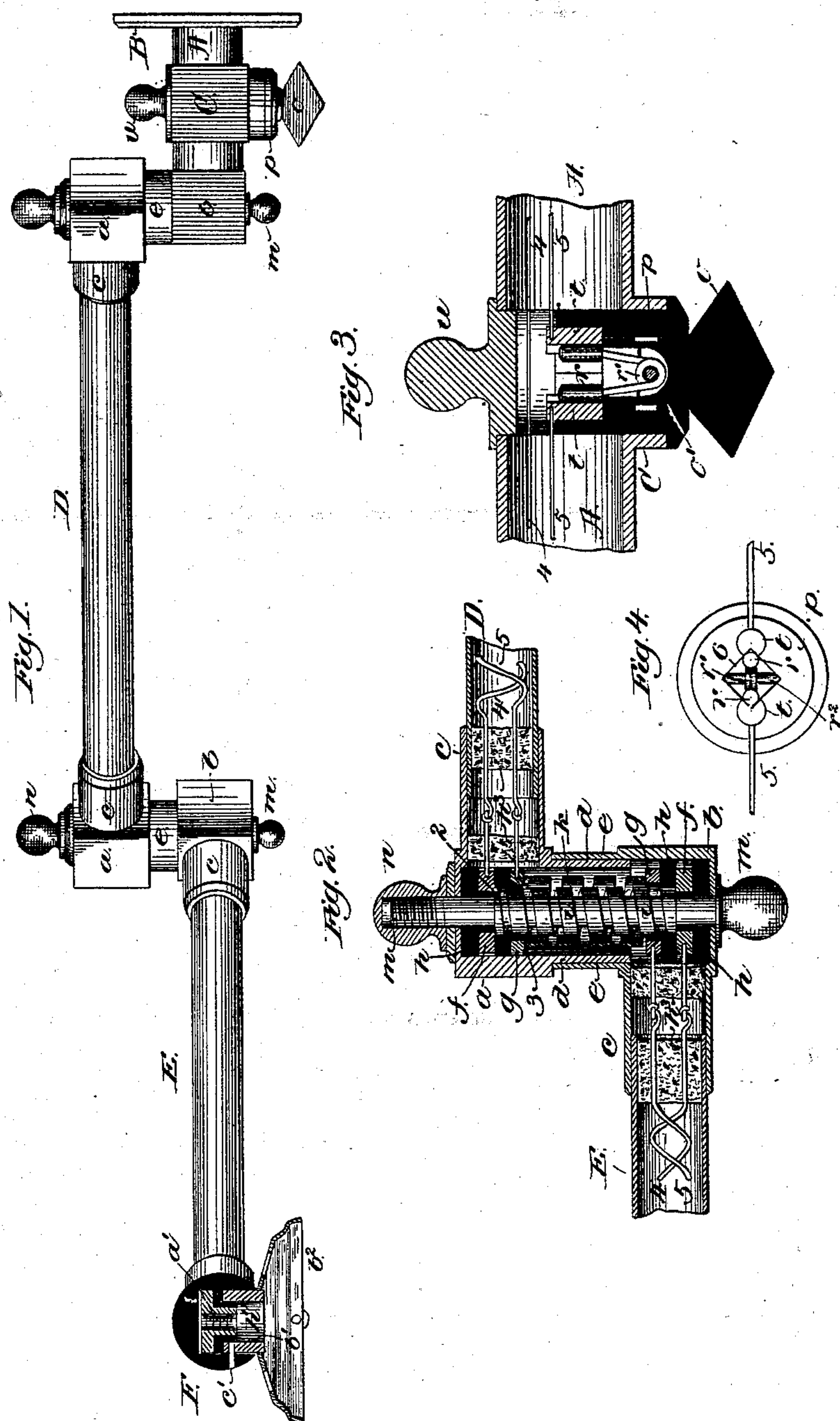
(No Model.)

C. W. HOLTZER.

FIXTURE OR BRACKET FOR ELECTRIC LAMPS.

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Witnesses.
John F. C. P. P. P.
Fred A. Powell.

Inventor:
Charles W. Holtzer
by Crosby & Gregory attys.

UNITED STATES PATENT OFFICE.

CHARLES W. HOLTZER, OF BROOKLINE, MASSACHUSETTS.

FIXTURE OR BRACKET FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 282,521, dated August 7, 1883.

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To all whom it may concern:

Be it known that I, CHARLES W. HOLTZER, of Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Fixtures or Brackets for Electric Lamps, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to a fixture or bracket for supporting an electric lamp, and has for its object to produce a compact and simple joint for enabling the different parts or arms of the bracket to be turned one upon the other without interruption to the electric circuit. The bracket is similar in external appearance to those commonly employed for gas-fixtures, the different arms of the bracket turning in different parallel planes upon axes at right angles to their length. That portion of the joint connected with each arm of the bracket is provided with contact-pieces insulated from one another, and having annular bearing or contact surfaces of different diameter, the said pieces being connected with the two portions or conductors of the circuit passing through the tubular arms of the bracket in the usual manner. The pair of contact-pieces carried by one arm of the bracket are electrically connected with those carried by the other arm by means of concentric spiral springs of different diameter, corresponding with the bearing portions of the two contact-pieces, the said springs surrounding or being concentric with the axis of rotation of one part of the fixture upon the other, and being preferably soldered upon the corresponding contact-pieces carried by one arm, and thus having a continuous bearing or rubbing contact upon the contact-pieces carried by the other arm during the rotary movement of one arm upon the other.

The invention also consists in a novel and simple form of switch for opening and closing the circuit of the lamp.

Figure 1 is a side elevation of a bracket or fixture embodying this invention, the lamp-holder being shown in section; Fig. 2, a longitudinal section thereof, through one of the joints, on a larger scale; Fig. 3, a longitudinal section through the switch, and Fig. 4 a plan view of the switch.

The fixture consists of a short arm, A, and

tubular arms D E, the former having a pivotal joint upon the piece A, and the two arms D E being jointed together, so that the lamp-holder F at the extremity of the latter may have a universal movement in one plane. The arm A has a flange, B, for connection with the building, and contains the switch or circuit-controller C, similar in appearance to the key or stop-cock of a gas-fixture. The joints between the different parts A, D, and E of the fixture consist of two elbow-shaped socket-pieces, *ab*, each having a short tubular socket, *c*, to receive the end of the tubular arms D E of the bracket, the said elbows also having short tubular sockets *d e* at right angles to the sockets *c*, and fitted one within the other, as shown in Fig. 2, to afford a bearing for the rotary movement of one part of the fixture upon the other. Each of the elbow-pieces *ab* contains within it annular contact-pieces *f g*, insulated from one another and from the metal of the fixture by suitable collars or washers of insulating material, *h*, the said contact-pieces having annular bearing or contact surfaces at 2 and 3, of different diameters, but concentric with one another. The contact-pieces *f g* of each portion *a* and *b* of the fixture are connected with the wires 4-5 of the circuit, and it is necessary to provide an electrical connection between the pairs of corresponding contact-pieces, *f g*, which shall remain unbroken during the movement of one portion of the fixture upon the other at the joint *d e*. This connection is made by means of concentric spiral springs *i k*, having their coils flattened, so as to give them a nearly cylindrical shape, the spring *i* pressing against the surfaces of the contact-pieces *f*, and the spring *k* pressing on the surfaces of the contact-pieces *g*; and in order to hold the springs more securely in place, they are preferably soldered at one end to the corresponding contact-pieces, so that the sliding contact is made wholly at the other ends of the said springs when the parts of the fixtures are being turned. The elastic force of the said springs tends to throw the two parts of the fixture apart, or to force the tube *d* out from tube *e*, and this tendency is overcome and the joint completed by means of a bolt, *m*, passing through the middle of the portions *ab* of the fixture, as shown, and provided with a nut or head, *n*, by which the two parts of the fixture are securely fast-

ened together. The springs *i h* are insulated from one another and from the bolt *m* and the adjacent part of the fixture by the air-space surrounding them, and they are maintained in proper concentric position by being fastened at one end to the corresponding contact-pieces, *f g*.

The key or switch by which the current flowing through the fixture is controlled consists of a handle or key, *o*, of insulating material, resembling the usual gas-fixture cocks in shape and operation, it having a stem, *o'*, fitted to rotate in a socket-piece, *p*, of insulating material, inserted in a suitable opening in the portion C of the fixture. (See Figs. 1 and 3.) The said key contains a forked metallic wire, *r*, having a coil or loop, *r'*, surrounding a pin, *r''*, passed transversely through the key *o*, so that as the said key is turned the forked wire will turn with it. The ends of the said wire tend to spring apart and bear against the sides of a square or angular socket, 6, in the socket-piece *p*. The square shape of the socket 6 and the elasticity of the wire *r* tend to check the rotary movement of the key *o* at the end of a quarter-rotation in either direction, with the ends of the wire either transverse to or in line with the axis of the tube A.

One of the wires, as 5, forming the circuit of the lamp, is severed or interrupted at the switch, its two ends being connected with metallic contact-pieces *t*, placed in the opposite corners of the socket 6, and embedded in the insulating material of the socket-piece *p*, but having their metallic surfaces exposed within the corners of the socket, so that when the handle *o* of the key or switch is in the position shown in the drawings, or in line with the axis of the tube A, the wire *r* is in contact with the said contact-pieces *t*, thus connecting the ends of the wire 5 and completing the circuit. When, however, the key is turned at right angles to the position shown, the ends of the wire *r* rest against the insulating material of the socket-piece *p* at the corners of the socket 6 that are not occupied by the contact-pieces *t*, connected with or forming the terminals of the wire 5, which are thus separated by the insulating material of the said socket-piece from one another and from the wire *r*, so that the circuit is interrupted. The opening in the tube A of the fixture, above the socket-piece *p*, for the switch, is closed by a plug, *u*, preferably of insulating material, to correspond in appearance with the key or handle *o*. The sides of the socket 6 are preferably made somewhat convex, so that the key or handle *o* cannot be stopped in any intermediate position. It will be seen that the ends of the spring *r* come to rest at two bearing-points in the terminal contact-pieces *t*, and have a rubbing movement over one side of the contact-pieces as they come into contact therewith, thus greatly reducing the liability of having a speck of dirt or insulating material interposed between the said spring and the contact-pieces—a thing which frequently results in the destruction of switches such as

heretofore employed—the heat produced by an imperfect contact burning the insulating material of the switch. The key or handle is free to turn in either direction, so that it cannot be broken, like some others, by a forcible attempt to turn it in a wrong direction.

The lamp-holder F consists, mainly, of a case or elbow of insulating material attached to the end of the arm E, and containing a metallic nut or flanged tube, *a'*, having a threaded socket to receive one terminal of the lamp, the said nut being separated by a washer, *h'*, of insulating material, from a tubular contact-piece, *b'*, for the other terminal or neck of the lamp. The contact-piece *b'* is fastened in the main portion or case F of the lamp-holder by a screw or pin, *c'*. The lamp-holder is intended to receive a lamp constructed substantially as shown in United States Patent No. 237,198, dated February 1, 1881, in which one terminal of the incandescing filament is connected with a central threaded nipple adapted to enter the nut *a'*, and the other terminal of the said filament has an eccentric contact-piece, which, when the said nipple is screwed into the said nut, will be brought upon the end of the contact-piece *b'*. When the lamp is screwed into place, it merely tends to draw the nut *a'* toward the socket-piece *b'*, thus compressing the washer *h'* of insulating material, but bringing no strain upon the lamp-holder, which merely has to sustain the weight of the lamp. The socket-piece *b'* has a flange, *b''*, to receive a shade for the lamp, if desired.

It will be seen that the herein-described construction affords perfect electrical contact at all points, and that the parts are very simple and few in number. The metallic contact-pieces and washers of insulating material are merely turned to the proper size, and then put together without requiring special skill, as no accurate fitting of parts is necessary. The fixture is consequently much cheaper, and at the same time more efficient and durable, than those heretofore used.

The circuit-wires 4 5, through the tubes D E, consist of the usual insulated wire, which will be coiled so as to give sufficient range of longitudinal movement to enable the ends to be readily soldered to the pieces of wire or rod that are screwed into the contact-pieces *f g*, and which are preferably passed through openings in plugs *h''*, of wood or other cheap insulating material.

By making the spring contact-pieces parallel with the axis of rotation of the joint, as herein shown, and the contact-surfaces annular, the construction of the joint is greatly simplified, and it is rendered more compact and of more pleasing appearance than when springs bearing laterally against the sides of revolving cylindrical surfaces are employed.

I claim—

1. In an electric fixture or lamp bracket, the arms jointed to turn as described, combined with contact-springs pressing in a direction parallel with the axis of rotation, and

means to connect them electrically with the circuit-wires passing through the arm at one side of the joint, and co-operating contact-pieces connected with the circuit-wires passing through the arm at the other side of the said joint, whereby the electrical connection is maintained between the said circuit-wires during the rotary movement of one arm upon the other, substantially as set forth.

10 2. The elbow-pieces jointed together, combined with the insulated contact-pieces and connecting concentric contact-springs, substantially as described.

15 3. The jointed elbow-pieces and insulated contact-pieces therein, combined with the concentric contact-springs and the central bolt, whereby the said parts are fastened together, substantially as described.

20 4. In an electric fixture, the combination of the switch-handle *o*, of insulating material, and the spring *r* therein, with the socket-piece for the said handle, also of insulating material, having a socket for the ends of the said spring, and metallic terminals of one of the
25 circuit-wires at opposite corners of the said socket, substantially as described.

30 5. In an electric fixture, the combination of the switch-handle and spring carried thereby, with the socket-piece of insulating material, having a four-cornered socket or opening, and

the metallic contact-pieces forming two opposite corners of the said socket, substantially as described.

6. In an electric fixture, the combination of the nut or flanged threaded tube *a'*, the contact-piece *b'*, and independent washer *h'*, of insulating material, and the case or elbow therefor, inclosing and concealing the said parts, and the circuit-wires connected therewith, all constituting a lamp-holder, substantially as described. 35 40

7. In an electric fixture or lamp bracket, the arms jointed to turn as described, combined with a contact-spring having electrical connection with a conductor at one side of the joint, and a co-operating contact-piece having electrical connection with the electrical conductor, forming the continuation of the same circuit at the other side of the joint, the said spring pressing substantially in line with the axis of rotation of the said joint, substantially as and for the purpose described. 45 50

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

CHARLES W. HOLTZER.

Witnesses:

JOS. P. LIVERMORE,
W. H. SIGSTON.