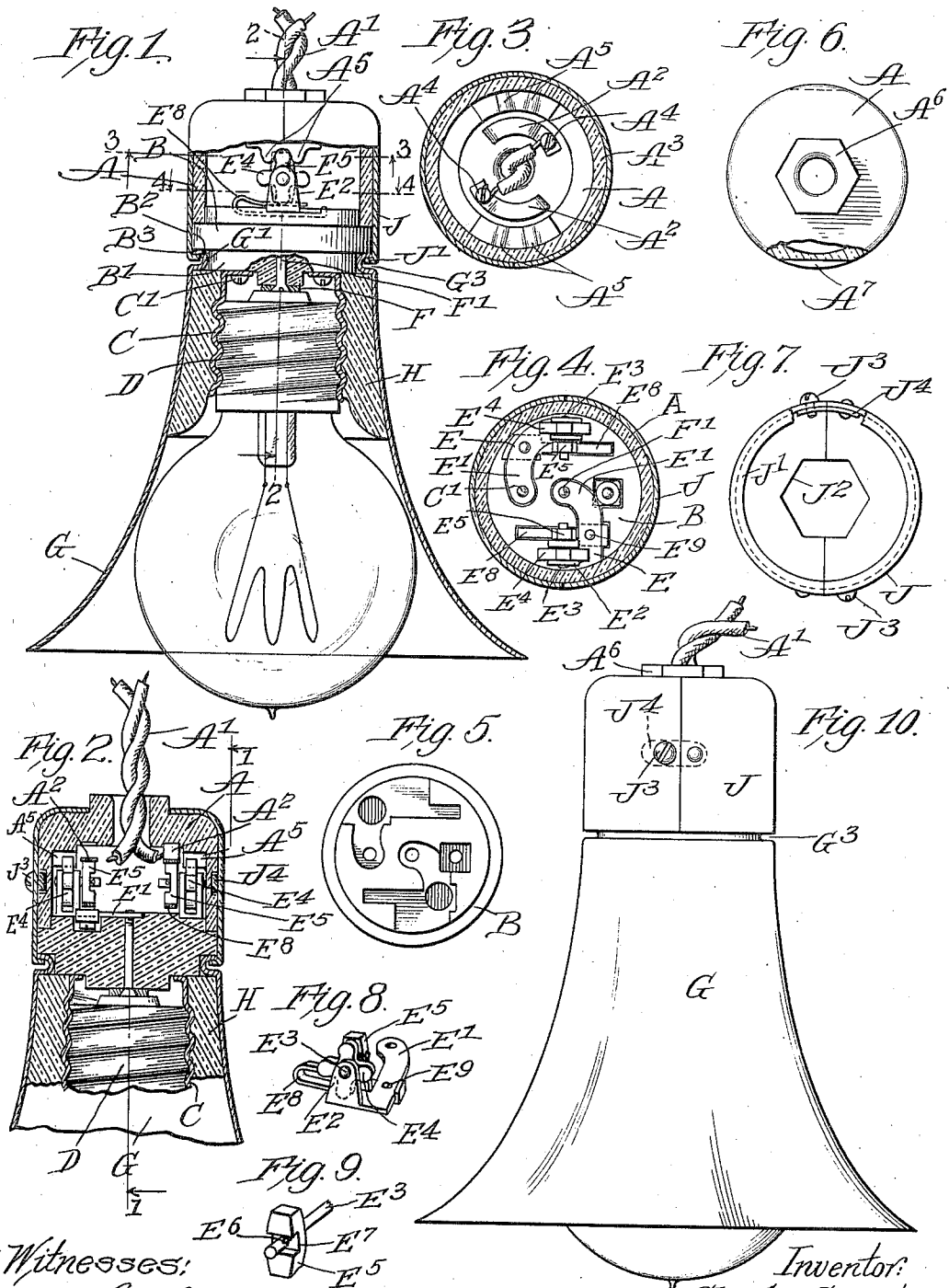


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LAMP SOCKET AND SWITCH DEVICE.
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UNITED STATES PATENT OFFICE.

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LAMP-SOCKET AND SWITCH DEVICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES G. BURTON, a citizen of the United States, residing at Peru, in the county of Miami and State of Indiana, have invented new and useful Improvements in Lamp-Sockets and Switch Devices, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved form of electric lamp socket which shall contain a circuit-controlling switch and shall be particularly adapted to serve the purpose of a portable shop lamp.

It consists of the features and elements described and shown in the drawings as indicated in the claims.

In the drawings:—Figure 1 is an elevation partly in section, of a socket embodying this invention, section being taken as indicated at line 1—1 on Fig. 2. Fig. 2 is a partly sectional view taken as indicated at line 2—2 on Fig. 1. Fig. 3 is a bottom plan view of the upper porcelain element, A. Fig. 4 is a section at line 4—4 on Fig. 1 showing the element, B, and the switch devices mounted thereon. Fig. 5 is a top plan view of the porcelain element, B, with metallic parts removed. Fig. 6 is a top plan view of the element, A, partly in section. Fig. 7 is a bottom plan view of the metal cap for the element, A. Fig. 8 is a detail perspective view of one of the switch devices carried by the element, B. Fig. 9 is a detail perspective view of the contact piece, E⁵, and its spindle, E³. Fig. 10 is a side elevation of the socket and lamp shown in Fig. 1.

Briefly, the device shown in the drawings consists of two principal parts, namely, a terminal piece, A, to which the lead wires, A¹, are secured, and a lamp-bearing element, B, these parts, A and B, being provided with mutually engageable electric contact devices, and also with mutually engaging actuating devices therefor, operable by the relative movement of the two parts. Comparison of Figs. 1 and 3 shows that the element, A, comprises a cylindrical porcelain shell centrally apertured to admit lead wires, A¹, which are secured in a familiar manner each to one of the contact pieces, A², mounted upon the inner top wall of the shell, A. These contact pieces, A², are formed and arranged as diametrically opposite segments of the same circle, this cir-

cle being described about the axis of the shell, A. It may be understood that the middle portion of the piece, A², is upraised above the end portions so that its surface will be above the head of the binding screw, A⁴, which is thus prevented from interfering with the operation of any circuit-closing device intended to contact with the upraised surface of the terminal. The shell, A, is further provided with two pairs of diametrically disposed teeth, A⁵, preferably formed in the porcelain and extending downwardly toward the element, B, as seen in Fig. 1; these teeth constitute the actuating means for the circuit-closing devices carried by the element, B, and hereinafter described.

The element, B, comprises a circular porcelain block mounted co-axially with the shell, A, and having secured to its under side the familiar form of metallic contact shell, C, screw-threaded to hold the threaded base, D, of an ordinary incandescent lamp. The upper face of the block, B, carries a pair of circuit-closing devices, E, which differ in form only so far as is necessary to adapt one of them to be electrically connected with the metallic shell, C, by means of its securing screw, C¹, while the other is in similar communication with the central contact block, F, through its securing screw, F¹. The operating parts of the devices, E, are exactly similar and only one of them will be referred to in the following description.

The moving parts are mounted upon a base comprising a tail piece, E¹, which serves as an electrical conductor, and the upstanding brackets, E², apertured to receive a spindle, E³. Between the brackets, E², the spindle, E³, carries rigidly a four-toothed pinion, E⁴, while upon the projecting end of the spindle, E³, there is mounted a circuit-closing tumbler, E⁵. The tumbler, E⁵, is carried loose on the spindle, E³, but is engaged for rotation therewith by a cross pin, E⁶, projecting from the spindle, E³, in a transverse notch, E⁷, in the tumbler, E⁵. This arrangement which is illustrated in detail in Fig. 9 permits a limited amount of play or lost motion between the tumbler and its spindle, and assists the tumbler to make a quick break in the circuit under the influence of the spring, E⁸, which owing to the approximately rectangular shape of the tumbler, tends to throw the latter around,

ahead of its actuating spindle, when the latter has rotated the tumbler far enough to release its flat end from the retaining pressure of the spring, E^8 . The spring, E^8 , is preferably made separate from the base of the device and is retained in place thereon by a screw, E^9 . The contact devices, E , are arranged diametrically opposite upon the upper side of the block, B , with their pinions, E^4 , equi-distant from the axis of the block. As may be seen from Fig. 5, the surface of the block, B , is provided with recesses in which the faces and springs of the circuit-closing devices, E , are lodged, so as to be secured against rotation or displacement upon the block, B .

A shade or guard, G , preferably made of metal, and shown in the drawings as having the shape of a bell, is clamped to the element, B , by a securing sleeve, H , of porcelain, threaded to engage exteriorly the metal shell, C , so as to screw on to the latter as a nut and engage the in-turned flange, G^1 , of the guard, G . This flange, G^1 , seats around the reduced portion, B^1 , of the block, and against the shoulder, B^2 , which is provided with a series of lugs, B^3 , adapted to engage notches, G^2 , in the flange, G^1 , so as to render the guard, G , practically rigid with the block, B , for rotating it.

Since the flange, G^1 , is rolled in the guard, G , it results in the formation of a peripheral groove, G^3 , which by engagement with a flange, J^1 , of the metallic jacket, J , serves to connect the parts, A and B , and journal them, one upon the other for relative rotation. This jacket, J , is made in two halves so as to be easily and disengageably applied to the element, A , and its rigidity with said element is insured by a hexagonal boss, A^6 , engaging the hexagonal aperture, J^2 . The two halves of the shell, J , are connected together by screws, J^3 , engaging lugs, J^4 , which project from the shell members, and these lugs and screws by occupying recesses, A^7 , in the cylindrical wall of the shell, A , further insure the simultaneous movement of the shell and its metal jacket.

With the parts constructed and arranged as above described, it will be seen that a quarter turn of the guard, G , with respect to the jacket, J , will cause each of the pinions, E^4 , to be rotated a quarter turn, throwing their respective contact tumblers, E^5 , out of the engagement with the contacts, A^2 , which is illustrated in Figs. 1 and 2. If the parts are left stationary after the completion of this half turn, it will be seen that the contact tumblers, E^5 , being angularly removed from the vicinity of the contacts, A^2 , both sides of the circuit will be effectively broken and no current can pass through the lamp. Since the mere relative rotation of the parts, A and B , serves to remove their respective contact elements

from each other, the additional rotation of the tumblers, E^5 , upon their spindles, E^3 , would seem superfluous, but the purpose of this movement is to insure a quick breaking of the circuit, and is necessary to the safe operation of the device. Furthermore, by employing the relative rotation of the two portions of the shell for operating the switch mechanism, a lamp socket is produced which presents a smooth and regular exterior, with no projecting parts which might be injured in rough usage, such as it might undergo in shop use. Another quarter turn of the guard, G , with respect to the shell, J , will effect the engagement of each of the pinions, E^4 , by one of the teeth, A^5 , resulting in sufficient rotation of the spindles, E^3 , to bring the contact tumblers, E^5 , again into contact with the terminal pieces, A^2 , permitting the current to again flow through the lamp.

I claim:—

1. A lamp socket comprising two members of insulating material, a terminal piece for one of the lead wires, and a corresponding contact device mounted, respectively, on the proximate faces of the two members, a metallic shell secured to one member for rotation therewith and provided with an annular flange, a metallic shell secured to the other member for rotation therewith, having an annular groove adapted to receive the flange of the first mentioned shell for guiding the rotation of said proximate faces past each other for causing engagement and disengagement of the terminal piece and contact device, a pair of lamp contacts on one member, one of which is electrically connected with the contact device thereon, and means for electrically connecting the other lamp contact with the other lead wire.

2. A lamp socket comprising two members of insulating material, a terminal piece for one of the lead wires, and a corresponding contact device mounted, respectively, on the proximate faces of the two members, an annular metallic flange secured to one member for rotation therewith, the other member being provided with an annular metallic lined groove adapted to receive said flange for connecting the two members together and permitting the rotation of their proximate faces past each other for causing engagement and disengagement of the terminal piece and contact device, a pair of lamp contacts on one member, one of which is electrically connected with the contact device thereon.

3. A lamp socket comprising two members of insulating material, a terminal piece for one of the lead wires, and a corresponding contact device mounted, respectively, on the proximate faces of the two members, an annular metallic flange secured to one member for rotation therewith, the other member be-

ing provided with an annular groove adapted to receive the said flange, a metallic lining for said groove secured to the member for rotation therewith, said metallic lining being extended in the form of a guard or shade for the lamp, a pair of lamp contacts on the shade-carrying member one of which contacts is electrically connected with the switch device thereon, and means for electrically connecting the other lamp contact with the other lead wire.

4. A lamp socket comprising two members, contact devices on the two members, respectively, positioned for registration and mutual engagement during the relative rotation of the members, the contact devices of one member being adapted for connection with the circuit lead wires, lamp-holding means on the other member electrically connected with the said contact devices thereof, the lamp-holding member being provided with an annular groove and a metallic lining therefor, and a metallic shell for the other member having an annular flange adapted to engage said groove for guiding the relative rotation of the members, said shell comprising two parts separably for releasing the groove of the one member from the flange of the shell.

5. A lamp socket comprising two parts and means connecting them together adapted to permit their relative rotation in either direction, contact devices on the two members, respectively, adapted for mutual engagement and abrupt disengagement during such relative rotation of the members in either direction, a pair of lamp contacts on one member, one of which is electrically connected to the contact device thereon, means for attaching one of the circuit lead wires to the other contact device, and means connecting the other lamp contact with the other lead wire.

6. A lamp socket comprising two parts and means connecting them together for relative rotation, a screw-threaded socket on one member adapted to receive a lamp base and comprising a pair of lamp contacts, a terminal piece for one of the circuit lead wires on the other member, a contact device on the lamp-holding member adapted to engage the lead wire terminal piece and operable therefor by the relative rotation of the members in either direction, means electrically connecting the other lamp contact with the other circuit lead wire, and a guard or shade rigidly secured to the lamp-holding member for rotation therewith and adapted to be grasped for rotating the one member on the other.

7. A lamp socket comprising two members and means connecting them together for relative rotation, a screw-threaded socket on one member adapted to receive a lamp base, terminal pieces for the circuit lead wires on

the other member and contact devices on the lamp-holding member adapted to be moved into contact with one of the lead wire terminals and operable by the relative rotation of the members in either direction, and a guard or shade secured to the lamp-holding member for rotation therewith and adapted to be grasped for rotating the one member on the other.

8. A lamp socket comprising two members, a terminal piece for one of the circuit lead wires and a corresponding contact device mounted, respectively, on the proximate faces of the two members, means connecting said two members together and adapted to permit the rotation of said proximate faces past each other for causing engagement and disengagement of the terminal block and contact device, a lamp guard rigidly secured to one member for rotation therewith, a pair of lamp contacts on said member one of which is electrically connected with the contact device thereon, and means for electrically connecting the other lamp contact with the other lead wire.

9. A lamp socket comprising two members, a terminal piece for one of the circuit lead wires and a corresponding contact device mounted, respectively, on the proximate faces of the two members, means connecting said two members together and adapted to permit the rotation of said proximate faces past each other for causing engagement and disengagement of the terminal piece and contact device, a lamp guard rigidly secured to one member for rotation therewith, a pair of lamp contacts on said member one of which is electrically connected with the contact device thereon, means for electrically connecting the other lamp contact with the other lead wire and a shell for the other member disengageably secured thereto for rotation therewith.

10. A lamp socket comprising two members, a terminal piece for one of the circuit lead wires and an interrupted crown gear on one of said members, a pair of lamp contacts on the other member and a rotatable contact tumbler mounted on said member and electrically connected with one of said contacts, means for electrically connecting the other lamp contact with the other lead wire, a pinion operatively connected with the tumbler for rotation therewith, and means connecting the two members together and adapted to permit their relative rotation, the pinion on the one member being positioned to mesh with the interrupted gear on the other member during such rotation.

11. A lamp socket comprising two members, terminal pieces for the circuit lead wires diametrically disposed on one member with respect to the axis thereof, said member being provided with an interrupted crown gear concentric with said axis and

composed of two pairs of teeth diametrically disposed upon the member, lamp-engaging means and a pair of contact devices on the other member adapted to communicate through said lamp-engaging means with the respective terminals of the lamp therein, said contact devices each comprising a rotatably mounted contact tumbler and a four-toothed pinion operatively secured thereto, said contact devices being diametrically disposed with respect to the axis of the member upon which they are mounted, and means co-axially connecting the two members to-

gether for relative rotation about their common axis, the contact tumblers and their pinions being positioned on one member to register, respectively, with the terminal pieces and gear teeth on the other member during such relative rotation. 15

In testimony whereof I have hereunto set my hand at Peru Indiana this 3d day of August 1911. 20

CHAS. G. BURTON.

Witnesses:

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