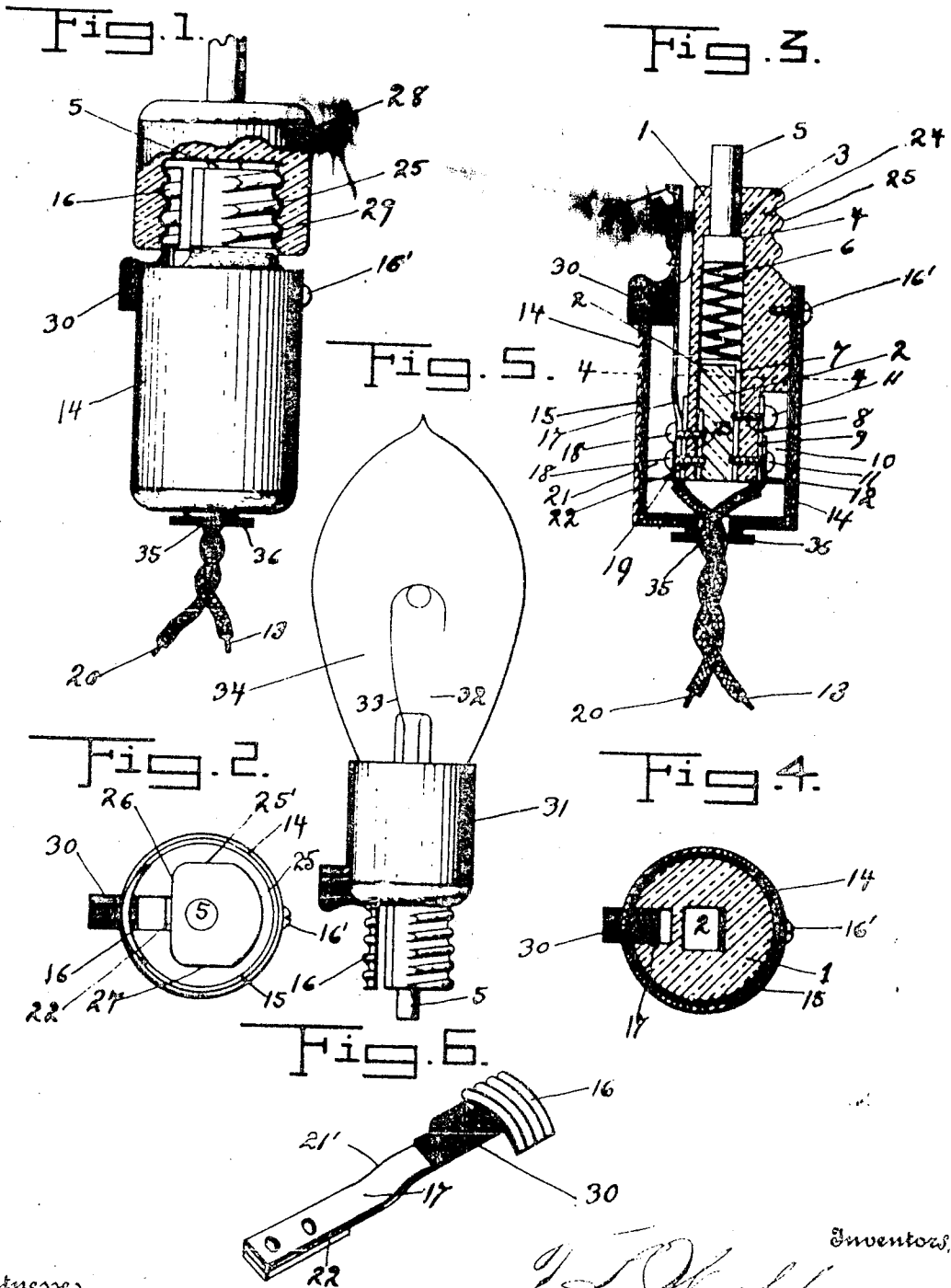


F. L. WASHBURN & G. E. LAWRENCE.
ELECTRICAL CONNECTOR.
APPLICATION FILED JAN. 13, 1910.

959,977.

Patented May 31, 1910.



Witnesses

L. Claude Newman.
M. E. Lowry.

Inventors,

F. L. Washburn,
G. E. Lawrence,
J. D. Ryer, Attorney.

UNITED STATES PATENT OFFICE.

FRANK L. WASHBURN AND GEORGE E. LAWRENCE, OF LOS ANGELES, CALIFORNIA.

ELECTRICAL CONNECTOR.

959,977.

Specification of Letters Patent.

Patented May 31, 1910.

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To all whom it may concern:

Be it known that we, FRANK L. WASHBURN and GEORGE E. LAWRENCE, citizens of the United States, residing at Los Angeles, 5 in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Electrical Connectors, of which the following is a specification.

10 Our invention relates to improvements in electrical connectors and more especially to such connectors designed for use as plugs and lamp bases.

15 For use both as a plug and as a lamp base, we provide a connector that may be instantly and conveniently attached to and detached from the fixtures ordinarily used for lighting purposes. It will be found that 20 each form of the invention is of simple construction and is easy and inexpensive to manufacture. As a connection plug, one is provided which renders it unnecessary and impossible to twist the cord while inserting the plug for purposes of connection to the 25 source of electrical supply, in a lamp socket such for instance as the standard Edison lamp socket.

30 Aside from the above advantages, the present invention provides a plug connection, which is connected and disconnected by the pressure of a button and without the necessity of turning or screwing the plug itself. This results in preventing injurious strain to the fixtures themselves as well as 35 the socket and its connection.

40 A further object of the invention is the provision of two spring-pressed contacts, one of which is a central terminal under the influence of a coil spring while the other is a side terminal influenced by a leaf-spring, while the relative positions of the two contacts or terminals render the direction of the line of force of the respective springs at 45 right angles to each other.

50 A still further advantage of this connection resides in the fact that although the mechanism provided is sufficient to retain the connection in the socket under all ordinary conditions, yet, should the connection or the cord or lamp secured thereto, be subjected to any excessive jerk or strain and substantially in the direction of the longitudinal axis of the connection, the device will automatically release its hold upon the 55 fixture, and thus save the fixture or arm from being bent or broken.

With these general objects in view and others that will appear as the nature of the invention is better understood, the device consists in the novel combination, arrangement and assemblage of parts as will be hereinafter fully described, illustrated in the accompanying drawing and pointed out in the appended claims.

60 In the drawings forming a part of this application, and in which like reference numerals designate corresponding parts throughout the several views, Figure 1 is a side elevation of the device showing the same positioned in a lamp socket, the latter being 65 partly broken away, Fig. 2 is a plan view of the device separated from the socket, Fig. 3 is a vertical longitudinal section taken of Fig. 1, Fig. 4 is a horizontal sectional view taken on line 4-4 of Fig. 3, Fig. 5 is an 70 elevation of the device showing its use as a lamp base, and, Fig. 6 is a detail view of the side contact and its spring mounting.

Referring in detail to the drawings, the connection device in the main, consists of a 75 block or body-portion 1, which is constructed of an insulating and heat-resisting medium, and preferably porcelain. A central longitudinal bore 2 being provided through said body portion, is provided with 80 a reduced end 3 which forms an abutment or shoulder 4 and positioned within this bore is the central contact 5 which is maintained normally in an outward or projected position by the coil or helical spring 6 which is 85 seated upon the L-shaped metallic frame 7 also positioned within said bore and secured to the body member by means of the hold-fast devices 8 which project through the side wall of the bore and secure a second plate 90 9 to the exterior thereof at a cut-away portion 10 in the outer periphery of the body-portion. The outer ends of said hold-fast devices 8 are provided with heads 11 which act as binding posts for securing the end 100 of the line wire or conductor 12. It will thus be clear that a perfect metallic electric connection or circuit is established between the line wire 12 and the central contact or terminal 5 and such connection may be rendered 105 more perfect by uniting the several metallic parts together by the use of solder, before the same have been assembled. The body 1 and the terminals are positioned within a suitable casing 14 which may be of 110 any insulating material such as porcelain, but is here shown as being formed of

stamped or spun brass, which is only provided with an insulated fiber lining 15, the body-portion being secured within said casing by means of the screw 16'.

5 The second terminal is what may be termed a side contact and is in the form of a "worm segment" 16 mounted at the outer end of a metallic leaf-spring 17 through which electrical connection is communicated
10 by means of the screws 18 which act as binding posts for securing the bared end 19 of the other conductor or line wire 20, said spring 17 being so positioned in the slot 21 at one side of the body member 1 is provided with a slightly outward bend as at
15 21' and has a block 22 positioned between the same and the outer side of the body member, while the screws 18 are screw-threaded into another block 23 which is positioned within the bore 2 of the body member.
20 Thus the establishment of the complete metallic circuit between the line wires 20 and 13 and the side contact 16 and the central contact 5 respectively is clearly and simply
25 effected.

The insulated body portion being provided with a reduced outer end 24 and upon one side of which and opposite to the side terminal 16, the said end having an interrupted threaded portion 25, while the remainder of the periphery of the reduced outer end consists of flat surfaces 25', 26 and 27, the operation of the device will be clearly apparent, when reference is had especially to
30 Fig. 1 showing the device in use as a connection plug, and secured to an ordinary lamp socket 28. Said socket 28 is provided with the ordinary internal screw-threads 29 by means of which the ordinary plug or
40 lamp base, which is provided with corresponding external screw-threads, is secured in the ordinary manner by the coaction of said screw-threads. By providing the present improved construction however, and securing the insulated block or push-button 30
45 upon the spring member 17, it will be apparent, that a slight pressure exerted upon said button 30, will reduce the diametrical distance between the segmental threaded
50 portion 16 and the interrupted threads 25 sufficiently to allow the free entrance of the plug member within the threaded socket 28, whereupon a releasing of the button 30, results in the exertion of an outer pressure by
55 the spring 17 and thus locks the plug within said socket and said threadings in engagement one with the other. During such insertion of said plug within the socket, it is apparent that the central contact 5 is forced
60 against the inner face of the socket 28 and thus the spring 6 is slightly compressed and provides a firmer contact between the terminal 5 and one terminal of the electrical supply within the base 28, while the side
65 contact 16 engaging the screw-threaded por-

tion 29 of the base, makes contact with the corresponding terminal therein.

It is to be noted that while Figs. 1 and 8 illustrate the device as used as a plug, and in which the same is merely an electrical
70 connector between the source of electrical supply and the line wires 13—20 which lead to a distance where the electrical energy is to be communicated, as for instance to a lamp or an electric motor, still it will be
75 seen, by referring to Fig. 5, that the entire invention is equally as applicable to an incandescent lamp, in which the casing might be shortened as at 31, and but short circuit wires employed, in lieu of lines 13 and 20, so
80 which would make direct connection between the binding posts 11 and 18 and the respective sides 32 and 33 of the carbon filament of the incandescent lamp 34.

As minor details of construction, it will
85 be noted that the inner bore 2 is substantially square while the reduced end opening 3 is circular in cross section; the casing 14 having an exit opening 35 for the line wires 13 and 20 is preferably provided with a vul-
90 canized rubber bushing 36, while said casing may have an oval end as shown in Fig. 1 or squared end as shown in Fig. 3. It will be also apparent that any extreme pull exerted upon the casing 14 will remove the
95 connector from the socket 28 without pressing the push-button 30 by consequence of such pull overcoming the pressure exerted by the spring 17. It will be further noted that although the screw-threaded portion 25
100 of the body 1 contacts the metallic threading 29 of the socket 28, there is no electrical connection made by reason of the fact that such body portion is composed of insulating material, while this is not true with respect to
105 the segmental threads 16, which are formed of a brazen body or other conductive material.

While the forms of the invention herein shown and described are what are believed
110 to be preferable embodiments thereof, it is nevertheless to be understood, that minor variations may be made in form and proportion and the minor details without departing from the spirit and scope of our invention
115 as set forth in the appended claims.

To further prevent a short circuit, the space in the bottom portion of the bore 2 as noted may be filled with a suitable non-conducting substance such as sealing wax,
120 to prevent any possible short-circuiting but which substance will not interfere with the action of the springs as positioned.

Having now fully described our invention and the manner in which the same is
125 designed for use, what we claim and desire to secure by Letters Patent of the United States is:—

- 1. In combination with an incandescent lamp bulb, of a base, an insulated body se-
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cured in said base, said body having a longitudinal bore and a central contact member positioned therein, a bracket positioned within said bore, a helical spring positioned upon said bracket, and normally projecting said central contact, electrical connection between said bracket and a line wire, a leaf-spring positioned upon one side of said insulated body, segmental threads positioned upon said leaf-spring, a push-button positioned upon said leaf-spring, said spring having electrical connection with another line wire, a carbon filament within said bulb and said line wires in circuit therewith.

2. A device of the class described comprising an incandescent lamp bulb, an insulating body secured thereto and provided with a bore extending therethrough, a contact member positioned in said bore, electrical connection between said member and a line wire, a spring secured to said body, a push button positioned upon said spring, the latter having electrical connection with another line wire, and a carbon filament within said bulb and said line wires in circuit therewith.

3. A device of the class described comprising an insulated body, said body having a longitudinal bore and a central contact member positioned therein, a bracket positioned within said bore, a helical spring positioned upon said bracket and normally pro-

jecting said central contact, electrical connection between said bracket and a line wire, a leaf spring positioned upon one side of said insulated body, segmental threads positioned upon said leaf spring, a push button positioned upon said leaf spring, said spring having electrical connection with another line wire and said wires adapted to form an electrical circuit.

4. A device of the class described comprising an insulated body, said body provided with a longitudinal bore, a resiliently mounted central contact positioned in said bore, said bore substantially filled with an insulating material, a leaf spring secured to the side of said insulated body, a conducting threaded portion secured to said spring and electrical connection between said spring and another line wire, a tubular casing for said body and provided with a cut-out portion, and a push button carried by the spring and projecting through said cut-out portion beyond the plane of the exterior of said casing.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK L. WASHBURN.
GEORGE E. LAWRENCE.

Witnesses:

D. L. SCOTT,
G. W. GIBSON.