No. 692,458. Patented Feb. 4, 1902.

S. A. KOLTONSKI.

ELECTRIC LAMP SOCKET.

(Application filed Dec. 1, 1899.)

(No Model.)

FIG. 1.

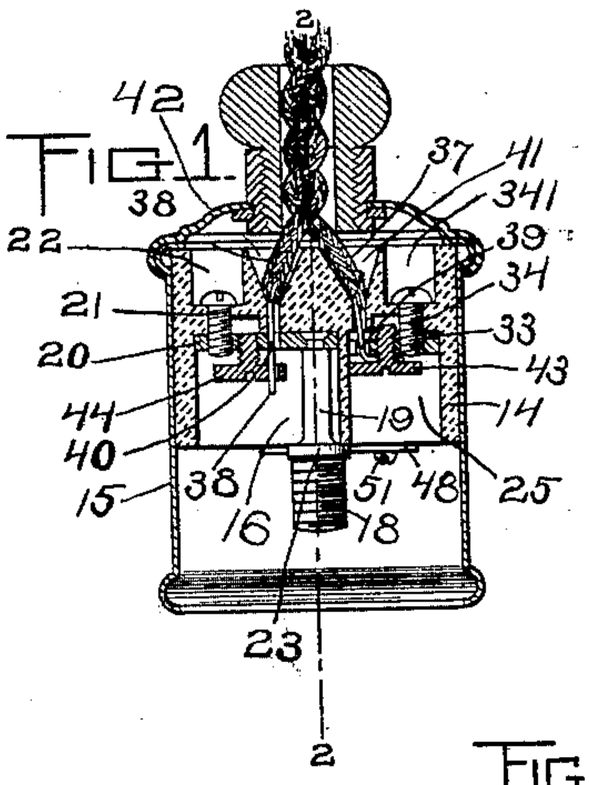


FIG. 2.

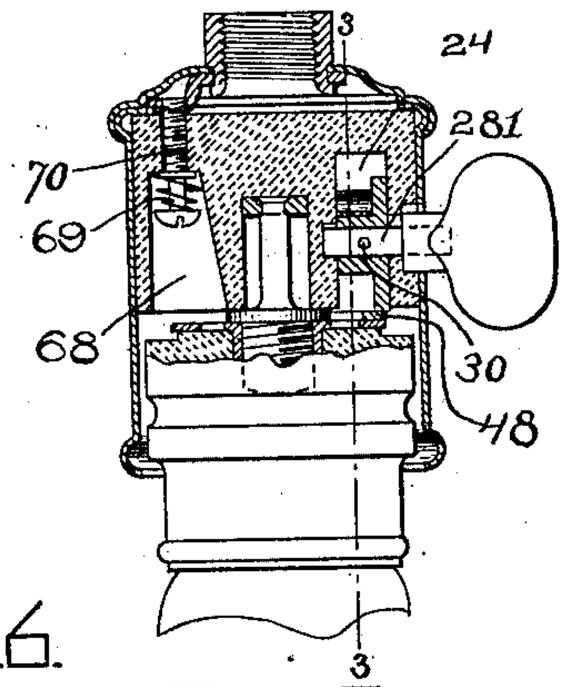


FIG. 3.

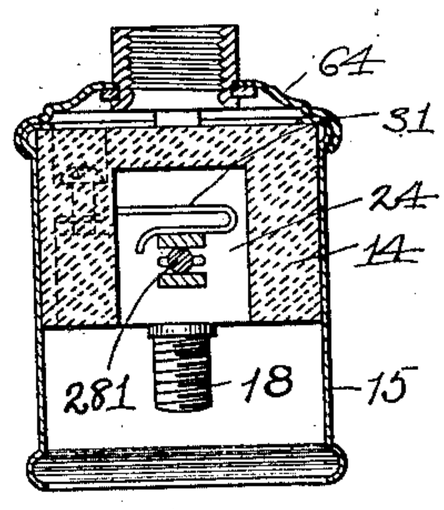


FIG. 6.

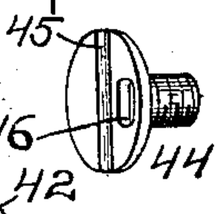


FIG. 4.

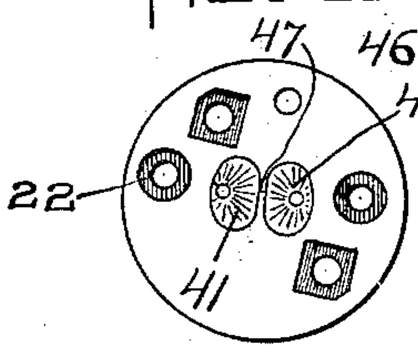


FIG. 10.

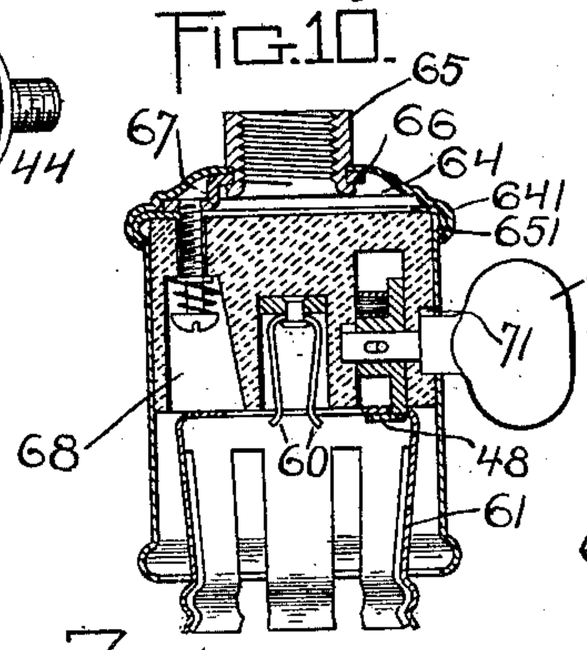


FIG. 11.

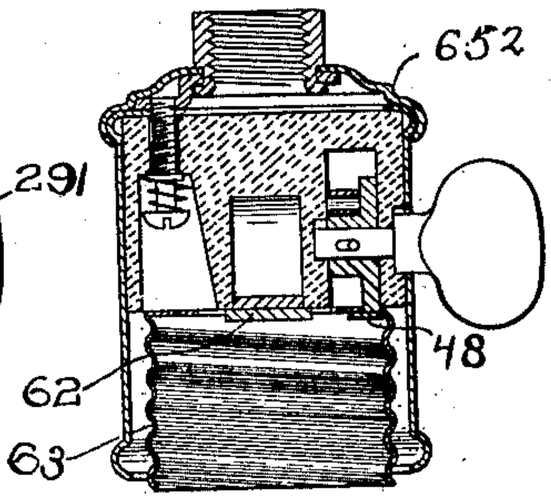


FIG. 5.

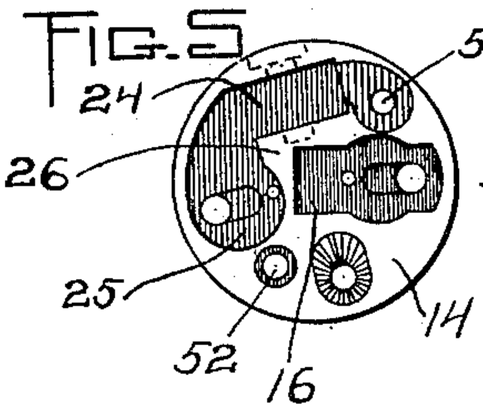


FIG. 7.

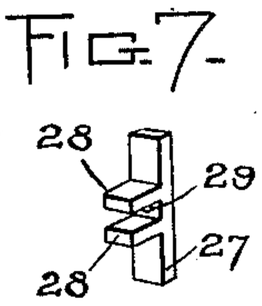


FIG. 8.

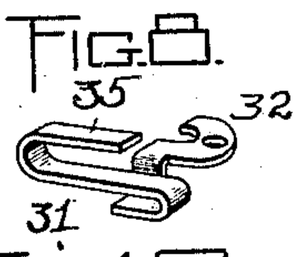


FIG. 9.

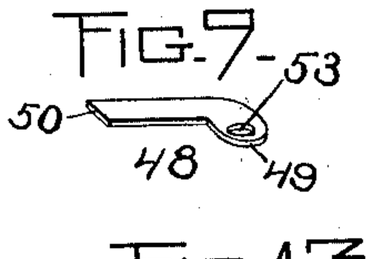


FIG. 12.

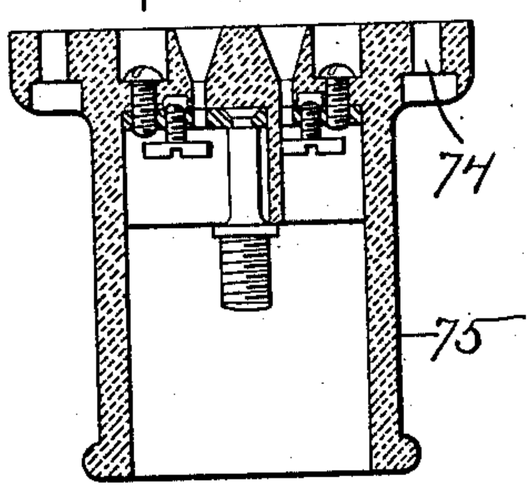
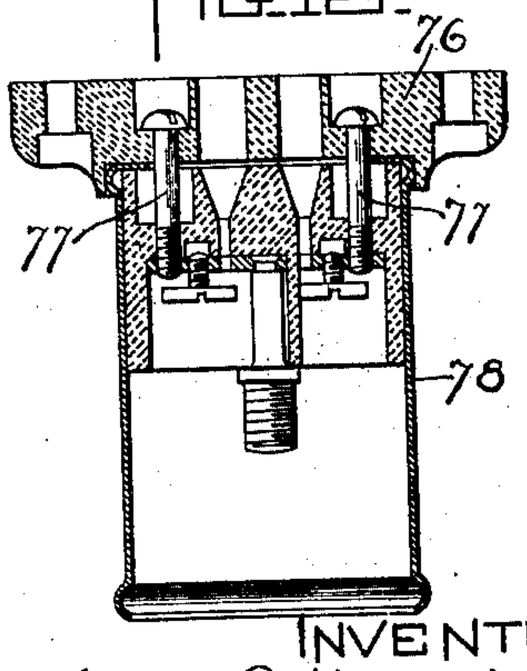


FIG. 13.



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by Wright Brown & Quinby

his attys

UNITED STATES PATENT OFFICE.

STANISLAUS A. KOLTONSKI, OF BOSTON, MASSACHUSETTS.

ELECTRIC-LAMP SOCKET.

SPECIFICATION forming part of Letters Patent No. 692,458, dated February 4, 1902.

Application filed December 1, 1899. Serial No. 738,759. (No model.)

To all whom it may concern:

Be it known that I, STANISLAUS A. KOLTONSKI, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electric-Lamp Sockets, of which the following is a specification.

This invention has relation to sockets for incandescent electric lamps, its objects being, first, to simplify the construction of sockets of the character referred to; second, to so construct, connect, and relate the parts thereof that after they have been once assembled the sockets may be secured in place ready for use without displacing them or separating the parts thereof; third, to render the said sockets safer and less liable to short-circuiting of the current than heretofore; fourth, to provide them with means accessible from the open end, whereby the conductor-wires may be attached in place without removing the insulating-block from the casing; fifth, to obviate the necessity of employing a separable two-part casing or shell, which, as is well known, is liable to be displaced by vibration, and thereby cause the shades to be displaced and thrown against the electric-light bulb, and, sixth, to adapt the sockets for use in connection with any one of the well-known or standard lamps.

To these ends the invention consists of a socket possessing certain features of construction and relative arrangement of parts, as illustrated upon the drawings, described in the following specification, and set forth with particularity in the appended claims.

Referring to the said drawings, upon which similar reference characters indicate similar parts or features, as the case may be, wherever they occur, Figure 1 represents in section a socket embodying my invention. Fig. 2 represents a section on the line 2 2 of Fig. 1. Fig. 3 represents a section on the line 3 3 of Fig. 2. Fig. 4 represents the closed or inner end of the insulating support or block. Fig. 5 represents the open or outer end of the same. Fig. 6 represents one of the binding-screws. Fig. 7 represents the switch. Fig. 8 represents in perspective view the spring which bears against the switch. Fig. 9 represents a spring-contact. Fig. 10 represents a socket as adapted for use in connection with a Westinghouse lamp. Fig. 11 represents the same arranged to receive an Edison lamp. Figs. 12 and 13 represent the invention adapted for use as a wall-socket.

Referring more particularly to Figs. 1 to 9, inclusive, 14 indicates the cylindrical insulating block or support, which may be made of any suitable insulating material, such as glass or porcelain, and fits within a metallic casing 15, to be subsequently described in detail. For the purpose of receiving the central contact—such as a screw in a Thomson-Houston lamp, a spring-clip in a Westinghouse lamp, a solid contact in an Edison lamp—the block is formed with a central chamber 16, which is extended radially for the reception of one of the binding-screws. In the Thomson-Houston lamps a screw 18 is employed, as shown in Figs. 1, 2, and 3, and it is formed with a shank 19, riveted in a metallic base or strip 20. This base or strip lies in the bottom of the chamber 16, as shown in Fig. 1, and it is secured in place by a screw 21, passed through the closed or inner end of the support and having its head lying in a hole 22. The screw 18 is formed with a shoulder 23, so that when the lamp is secured in place it abuts against the shoulder and not against the edge of the support, so as to draw the contact out of its proper position. For the purpose of completely insulating the switch mechanism and the other lamp-engaging contact from the contact 18 the support is provided with a chamber 24, projecting inward from its open end, said chamber being of the shape shown in Fig. 5. This chamber communicates with a second chamber 25, substantially diametrically opposite the chamber 16. The chambers 24 and 25 are separated from the chamber 16 by an irregular wall 26, of insulating material, as clearly illustrated in the said last-mentioned figure.

The switch mechanism consists of a switch or a movable member 27, which is oblong in shape, with two projecting lugs 28 28 on both sides of the central aperture 29, as shown in Fig. 7. The pintle 281, on which the key 291 is secured, projects laterally into the block through the chamber 24, and upon it is loosely journaled the switch member 27. A small pin 30 is passed through said pintle between the lugs 28 28, so that said member may be

rotated by the key, while at the same time it has a loose movement relatively thereto, said pin preventing the removal of the pintle and key when said pin is in place. A spring 31, having an enlarged end 32, is arranged in the chambers 24 and 25, its enlarged end being rigidly secured in the chamber 25. A small metallic strip 33 is placed in the end of the chamber 25, and a screw 34, passed into a hole 341, is employed for securing it in place and also fastening the end 32 of the spring thereto, as indicated in Fig. 1. The spring is twice doubled or bent upon itself, as shown in Fig. 8, its bent end 35 resting against one or both (as the case may be) of the lugs 28 on the movable switch member. By doubling the spring upon itself it becomes possessed of great resiliency and does not lose its elasticity or become set, since it is elastic at both bends.

The conductor-wires, which are indicated at 37 38, are electrically connected with the strips 33 and 20, respectively, by binding-screws, said strips being provided with apertures 39 and 40 to receive them. The wires are inserted through the apertures in the closed end of the block, said apertures being indicated at 41 42, respectively, and being tapered, as shown, whereby said wires can be pushed into place with the greatest facility. The binding-screws are indicated at 43 44, respectively, one of them being shown in detail in Fig. 6. They are inserted from the front or open end of the block and are located in the chambers 16 and 25, respectively. Each screw is provided with a flat head having a groove 45 for the reception of a screw-driver and also with a segmental slot 46, extending clear through the head for the reception of the end of the wire. In order to secure the wire 37, for instance, to the strip 33, the screw 43 is turned until its head 46 is in alinement with the aperture 39. Then the wire is projected forwardly through the hole 41, the hole 39, and the slot 46. The screw 43 is then rotated and the end of the wire is carried and coiled around the shank of the screw until its end slips from the slot and the screw is driven home to bind it firmly against the strip 33 in one case or the strip or base 20 in the other case.

I have stated that the apertures 41 42 are tapering, and it will be seen from an inspection of Figs. 1 and 4 that the mouths of said apertures are elongated, so as to leave a narrow web 47 of insulating material between them, whereby said wires may be easily guided into place. The two mouths of the apertures form a circle coincident with the end of the coupling to be described, whereby the ends of the conductor-wires may be inserted in place with great ease.

The outer or spring contact, which is engaged by the lamp, is indicated at 48 in Figs. 1, 2, and 9. One end 49 is laterally extended, so as to bear flat against the end of the support, the part 50 lying directly above the switch member, so as to be engaged by the end of the latter when it is turned in proper position to close the circuit between the conductor-wire 37 and the outer contact of the lamp. At its end the contact has an aperture 53 to receive a screw 51, which is passed into a hole 54 in the block. On the closed end of the block the holes 52 54 are enlarged to receive nuts, by means of which the screws are held in place. Now it will be seen that when a lamp is placed in the socket and the key turned to bring the switch member into engagement with the spring-contact 48 the current will be turned through the lamp-filament.

Where the lamp to be used is what is known as a "Westinghouse" lamp, the inner contact is formed with two spring members 60 60, as shown in Fig. 10, and is arranged in the aperture 16, being secured to the base or strip 20, while the outer contact 61 is secured to the open end of the socket by screws passed through the holes 52 54. The inner and outer contacts 62 63 for an Edison lamp may be secured in place in a similar way. Consequently by constructing the socket as herein described it is readily adapted for use with all of the standard lamps.

The insulating-support is arranged in a casing 15, as previously set forth, and it will be noted that said casing is peculiarly constructed. Heretofore, so far as I am aware, the casings have been always made in two parts detachably secured together, whereas by providing the mechanism accessible at the open end of the block for attaching the conductor-wires in place I am enabled to provide a casing constructed of two permanently-connected parts, one adapted to rotate relatively to the other. Said casing or shell is open at one end and is closed at the other end by an inwardly-projecting flange 64, rigidly secured to a coupling-sleeve 65 and having a flange 641 to embrace a bead 651 on the casing. The end of the sleeve is reduced to receive the end of the shell and also a collar 66, after which the metal is upset, so as to rigidly secure said parts in place. The sleeve is internally threaded, whereby it may be attached to a bracket or fixture. The shell projects for some distance beyond the open end of the block to receive the metallic portion of the lamp. Inasmuch as the shell is usually formed of very thin stock and is unable to properly support the lamp and socket, the collar 66 is provided with a bent arm 67, by means of which the block or support is supported. The open end of the support is provided with a tapering aperture 68, through which a screw 70 is inserted to bind said arm and support together, as shown in Fig. 2. The screw is encircled by a spring 69, which frictionally holds it from dropping when it is unscrewed. The screw is shouldered, as shown, and when in place locks the two parts of the shell together and also secures them to the support.

In the side of the casing is an aperture 71,

through which the pintle and the hub of the key are passed prior to the pin 30 being inserted in the pintle. Both the aperture in the casing and that in the block through which the key and pintle are inserted are larger than the last-mentioned parts, so that they are capable of yielding when the switch member engages the outer contact of the lamp.

It is evident that the socket may be employed without a key and without a casing, as shown in Fig. 12, in which case it is laterally extended at its closed end to provide space for screw-holes 74, through which screws may be passed to secure it in place. In such event it is also provided with an annular flange 75 to receive the end of the lamp. If desired, however, the insulating-support may be secured to an insulating-base 76 by screws 77 77 and may be incased within a metallic shell or casing 78, as shown in Fig. 13, without departing from the spirit of the invention.

The socket as I have thus described it is simple and prevents short-circuiting of the current. The various metallic parts are well insulated from each other by walls of insulating material, and inasmuch as the parts are all assembled before the socket is sent from the shop there is no danger of the parts being misplaced or mislaid by a novice or unskilled workman. It is unnecessary for the artisan employed to attach the sockets to the bracket, to take them apart, or remove any of the parts thereof, for after having been once assembled they need never be unloosened. The switch mechanism or movement is completely inclosed in the insulating-support and is not only protected, but is completely insulated from the casing which surrounds said support. I consider the binding-screws, which are accessible from the open end of the block, to be of importance and to be highly desirable, as they not only wrap the ends of the conductor-wires around their shanks, but effectually cause their contact with the parts with which they should be connected. By forming the apertures 41 42 with enlarged mouths and contracted inner portions the insulation on the wires is engaged, since it is too large to pass through said contracted inner portions, and the said wires are stopped from entering said apertures beyond a predetermined distance. After the conductor-wires have been inserted through the apertures in the block or support the coupling may be screwed upon the bracket, while the block is held against rotation. By this means the wires do not become twisted. The spring 69 for the screw 70 performs two important functions—to wit, it withdraws the screw when the block is reversed from the position shown in Fig. 1 to secure it to an upright bracket and prevents it from engaging the arm 67 as the part 64 is being rotated, and it also prevents the screw from dropping out when the socket is being secured upon a pendent bracket. The spring itself is spiral, and its large coils engage the walls of the aperture 68, while its smaller coils engage the screw between its head and shoulder.

Having thus explained the nature of my invention and described a way of constructing and using the same, although without having attempted to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A socket for electric lamps comprising an insulating-support; lamp-contacts on said support adapted to engage and sustain the lamp and being disposed with relation to said support whereby one is located in the median line thereof, a casing inclosing said support and having an apertured permanently-closed end and provisions whereby conductor-wires inserted through the said apertured end may be secured in place by an instrument inserted in the open end of said casing.

2. A socket for electric lamps comprising an insulating-support, having apertures extending from rear to front and completely separated from each other by a wall of insulating material for the reception of the conductor-wires, lamp-contacts at the front of the support, a switch mechanism connected to one of said contacts, a casing inclosing the support, and means accessible through the open end of the casing for connecting the conductors to the other of said contacts and to the switch mechanism respectively.

3. A socket for electric lamps comprising an insulating-support having two apertures completely separated by a wall for the reception of the conductors, switch mechanism mounted on said support and including a detachable key, lamp-contacts carried by said support of which one is connected with the switch mechanism, means accessible from the front end of the support for connecting the conductor to the switch mechanism and the other of said lamp-contacts, and a coupling and casing permanently connected together and inclosing the support, said casing having an aperture to receive the said switch-key.

4. A socket for electric lamps including an insulating-support having a chamber, switch-mechanism located in said chamber and including a pintle projecting laterally from said support through the walls of the chamber, lamp-engaging contacts carried by said support, and a non-separable casing inclosing said support and having a flanged end bearing thereagainst, said casing having an aperture for the switch-pintle whereby said casing is held against removal when the switch-pintle is in place.

5. A socket for electric lamps comprising lamp-engaging contacts, an insulating-support therefor having separated apertures for the insertion of conductor-wires from the rear end, screws for securing the conductor-wires to said contact, each screw having provisions for coiling a conductor-wire therearound and clamping it firmly to its contact, and an inclosing casing having a permanently-closed

rear end provided with a coupling in alinement with said apertures.

6. An electric-lamp socket, comprising lamp-engaging contacts, an insulating-support therefor having an aperture for the insertion of a conductor-wire from the rear end, a casing inclosing said support and a screw arranged longitudinally of the support and casing, and accessible from the front end of said support without removing said casing, said screw having means whereby when it is rotated, the wire is wrapped about the shank thereof and electrically engaged with one of said contacts.

7. An electric-lamp socket, comprising a cylindrical insulating-support having a chamber at one end, a part of which is located in the median line of the support, said support also having a second chamber in said end separated by a wall from the first said chamber, an inner lamp-engaging contact located in the first-mentioned chamber, at the inner part thereof and in the median line of the said support, a switch mechanism located in the second-mentioned chamber, and longitudinally-arranged screws in said chambers for connecting conductor-wires to the said contact and the said switch mechanism.

8. An electric-lamp socket comprising an insulating-support having in one end two chambers completely separated by a wall and in the other end two holes leading into said chambers, a switch mechanism located in one chamber, a lamp-engaging contact located in the other chamber in the median line of the support, and longitudinally-arranged screws in said chambers for securing conductor-wires passed through said holes into said chambers to said switch mechanism and contact respectively.

9. An electric-lamp socket, comprising an insulating-support having in one end two chambers completely separated by a wall, and in the other end two holes leading into said chambers for the conductor-wires, a switch mechanism located in one chamber, a lamp-engaging contact located in the other chamber, and means located in said chambers and accessible from the front of the support for connecting the conductors to the lamp-engaging contact and the switch mechanism respectively.

10. An electric-lamp socket, comprising a lamp-engaging contact, a switch mechanism, and an insulating-support having separate chambers for said contact and mechanism, metallic strips in said chambers electrically connected with said contact and said switch mechanism respectively, and a screw in each of said chambers for connecting a conductor-wire to the metallic strip therein, said screws being accessible from the front end of the support.

11. An insulating-support for an electric-lamp socket, consisting of a cylindrical body having in one end two chambers separated by a wall and in the other end two tapering apertures leading into said chambers, said support having two additional screw-receiving apertures leading from said last-mentioned end into said chambers.

12. The combination with an insulating-support having lamp-engaging contacts, of a shell or casing inclosing said support formed of two permanently-connected parts of which one is rotatable with relation to the other, and means located within said casing for securing the support thereto.

13. The combination with an insulating-support having lamp-engaging contacts, of a shell or casing inclosing said support, said shell being formed of two permanently-connected parts, a coupling rigidly secured to said shell, and means connected independently of the casing to said coupling for securing said support thereto.

14. The combination with an insulating-support having lamp-engaging contacts, of a shell or casing inclosing said support, a coupling rigidly secured to said shell, and an arm inside the casing and connected independently of the casing to said coupling and support for securing them together.

15. In combination, a support having two separated centrally-located longitudinal apertures for the conductor-wires, and spaces communicating with said apertures and separated by a wall of insulating material, for the reception of the lamp-engaging contacts; a casing inclosing the support and having a coupling in alinement with the said apertures; and provisions accessible from the front end of the casing and of the support for attaching the conductor-wires to the lamp-engaging contacts.

16. In combination, a casing having a coupling; lamp-engaging contacts; an insulating-support having at the front end spaces separated by a wall of insulating material for the reception of the lamp-engaging contacts, and also having separate apertures leading from said spaces rearward to communicate with the said coupling, whereby wires may be insulated through the coupling, and apertures into the said spaces; and means for attaching the conductor-wires to the lamp-engaging contacts, without removing the casing from the support.

17. A two-part casing for an electric-lamp socket, comprising a cylindrical portion for inclosing the support, and a closed end part undetachably and rotatively connected to the said portion and means in the casing for connecting said parts rigidly and non-revolubly together.

18. A two-part casing for an electric-lamp socket, comprising a part for inclosing the support, and a closed end part permanently and rotatively connected to the said part, and means located entirely within and concealed by said casing for rigidly connecting said parts together.

19. A block for an electric-lamp socket having at one end the chamber 16, and the cham-

bers 24 and 25 separated therefrom by a wall, one of said chambers extending into the middle portion of said block, said chambers having at the other end the holes 42, 41, leading into said chambers 16 and 25.

20. An electric-lamp socket having a block with an aperture, a screw in said aperture, and a coiled spring for frictionally holding said screw in said aperture.

21. An electric-lamp socket having a block with an aperture, a casing, a screw in said aperture for securing said block to said casing, and means in said aperture for holding the screw yieldingly therein when it is inoperative.

22. An electric-lamp socket, comprising a block or support formed in a single piece, lamp-engaging contacts on said support, a casing, and means inside the casing and accessible only from the open end of the support, for securing said casing and support together, said means including an arm attached to the casing and a screw for securing the arm to the support.

23. An electric-lamp socket comprising a block or support having longitudinal apertures for the reception of conductor-wires and chambers communicating with said apertures for the reception of lamp-contacts, one of said contacts being located in the median line of said support, a casing inclosing said insulated support and having a permanently-undetachable closed end, and means accessible from the open end of the casing for securing the conductor-wires to the lamp-contacts, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

STANISLAUS A. KOLTONSKI.

Witnesses:

MARCUS B. MAY,

C. C. STECHER.