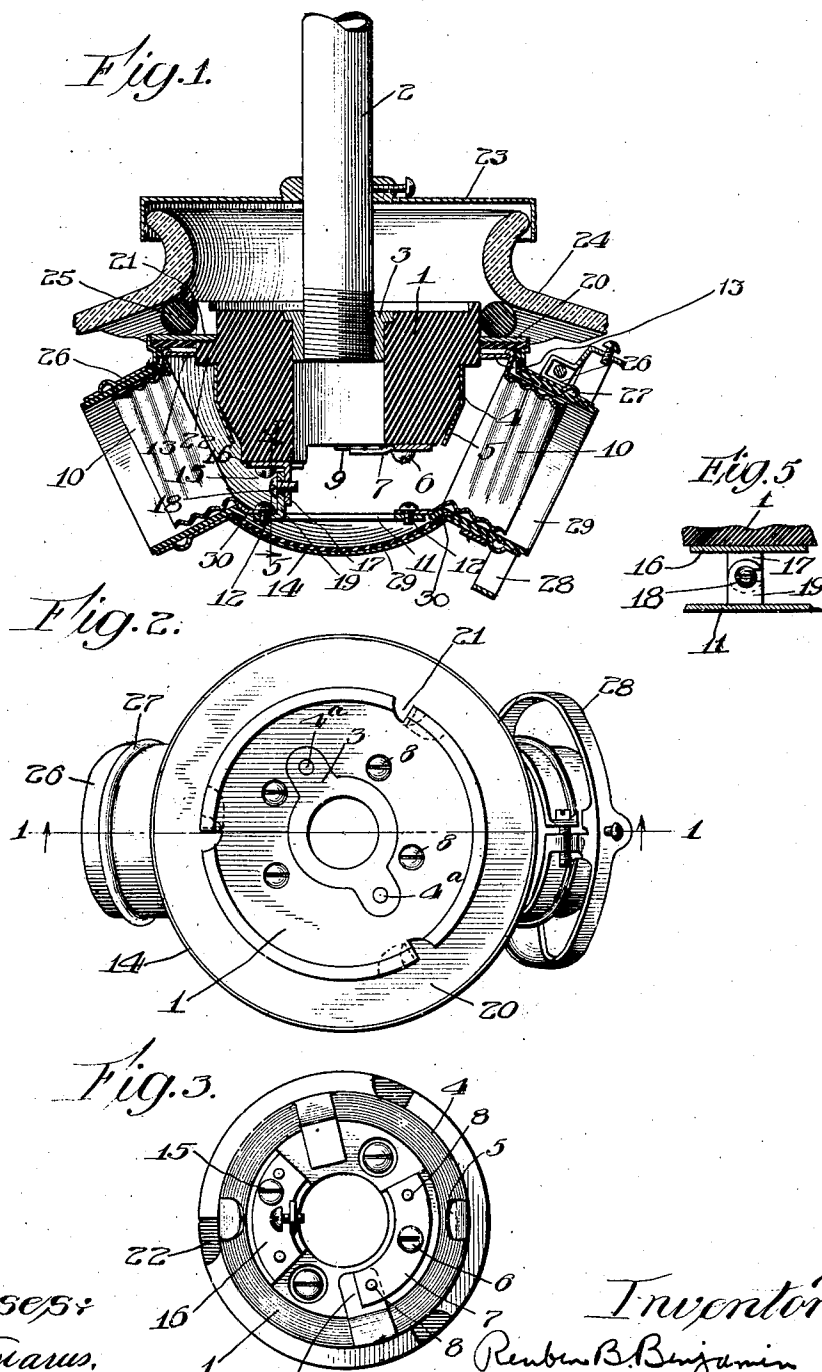


R. B. BENJAMIN.
PLURAL LAMP SOCKET.
APPLICATION FILED OCT. 17, 1904.

931,721.

Patented Aug. 24, 1909.

3 SHEETS—SHEET 1.



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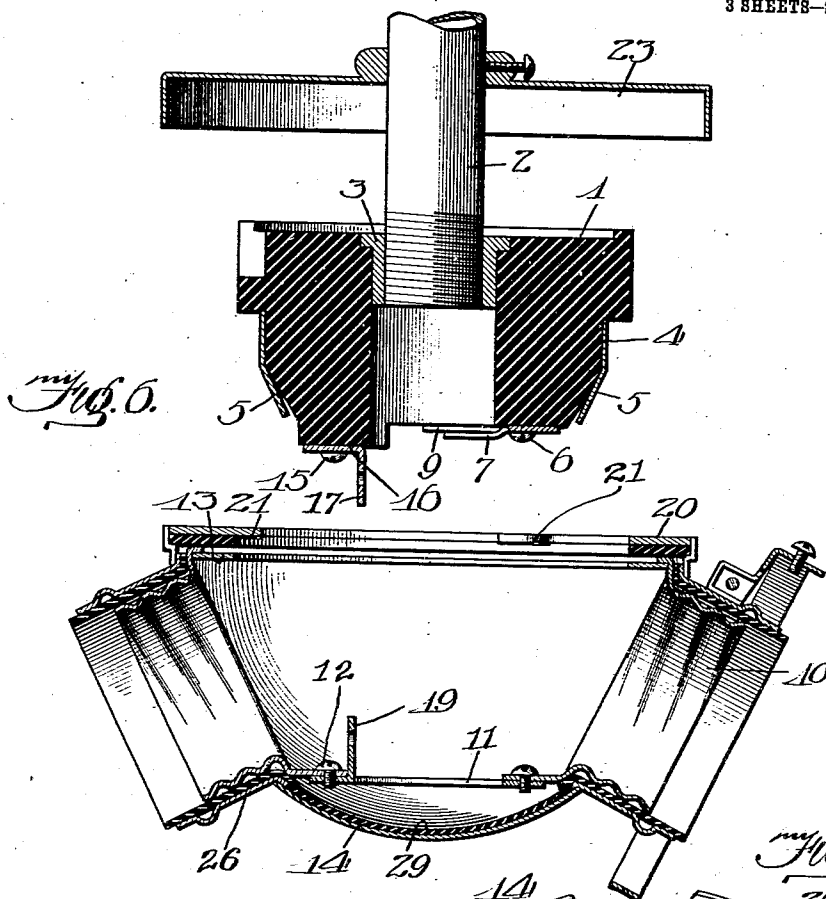
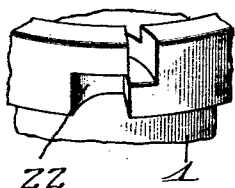
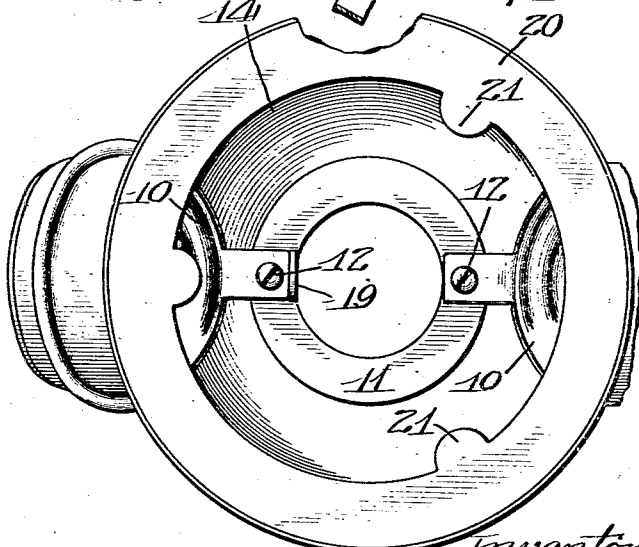


Fig. 4.



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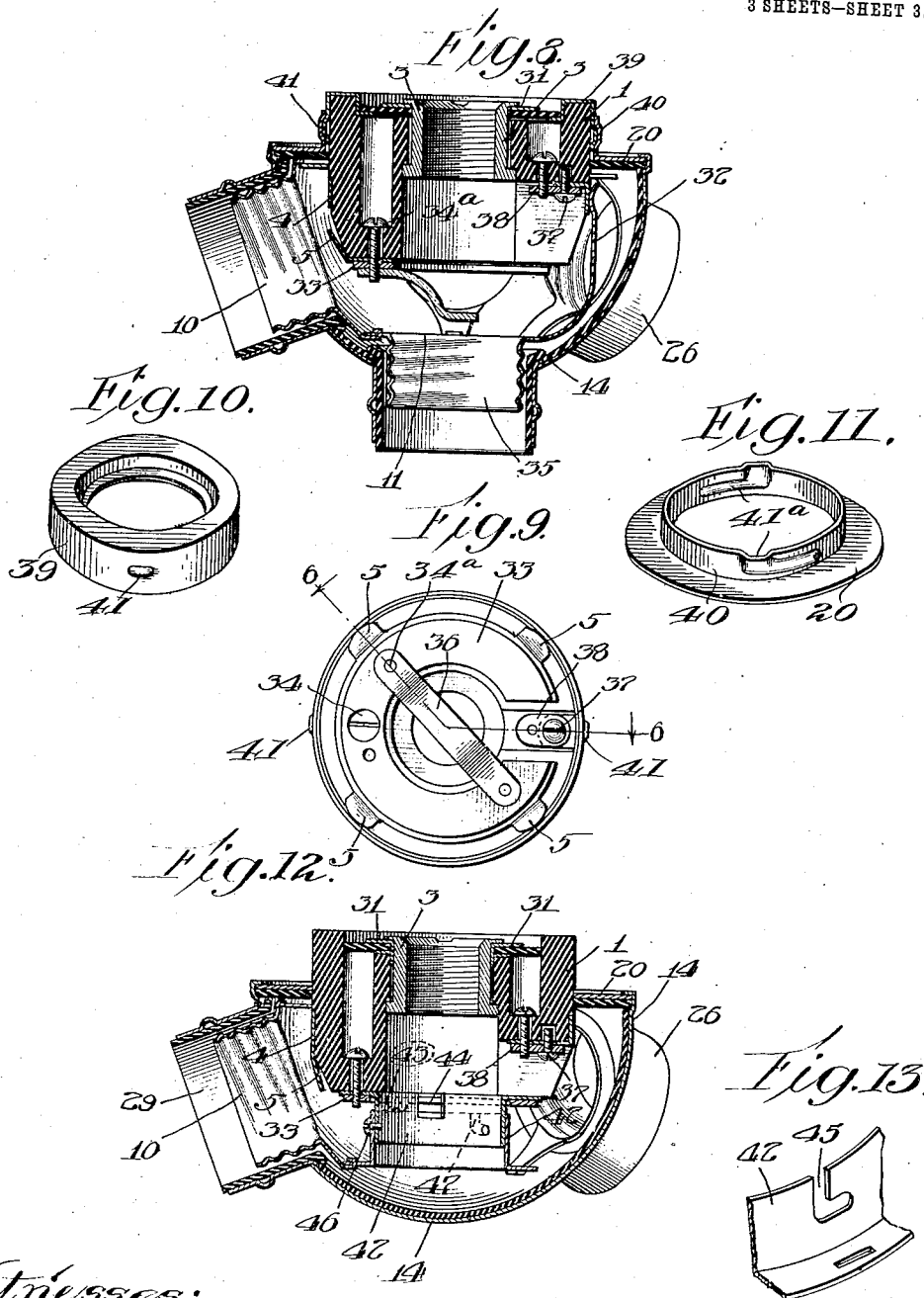


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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

REUBEN B. BENJAMIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO BENJAMIN ELECTRIC MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PLURAL LAMP-SOCKET.

931,721.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed October 17, 1904. Serial No. 228,891.

To all whom it may concern:

Be it known that I, REUBEN B. BENJAMIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Plural Lamp-Sockets, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to plural lamp sockets, and has for one of its objects the provision of a plural lamp socket or cluster in which the socket shade may be removed therefrom for the purpose of cleaning, without disturbing the electrical connections of the device.

Another object of my invention is the provision of a plural lamp socket in which a minimum sized insulating base for the lamp contacts may be used, in a socket adapted to accommodate a comparatively large number of lamps.

Another object of my invention is the provision of means whereby a comparatively small body portion for the socket may be employed without reducing the number of the lamps.

Another object of my invention is the provision of improved means for supporting the lamp contacts and casing of the socket in position and for connecting the lamps in circuit.

The other novel features of my invention will clearly appear from the following description and the accompanying drawings in which like reference numerals are used to designate like parts in the several figures, and in which;

Figure 1 is a diametrical sectional view of a plural lamp socket embodying my invention, the section being taken on the line 1—1 of Fig. 2, looking in the direction indicated by the arrows; Fig. 2 is a top plan view of the form of device shown in Fig. 1, omitting the shade and shade-holder; Fig. 3 is a bottom plan view of the insulating block or base, with the contacts, conducting plates and the like secured thereto; Fig. 4 is a perspective view of a portion of the base, this portion constituting one member of a bayonet joint for securing the body of the device to the base; Fig. 5 is a view of a detail, partly sectional on the line 5—5 of Fig. 1; Fig. 6 is a sectional view similar to Fig. 1,

but showing the body of the device detached from the base; Fig. 7 is a top plan view of the body of the device detached from the base; Fig. 8 is a vertical sectional view of a modified form of device embodying my invention; Fig. 9 is a bottom plan view of the insulating base of this form of the device; Fig. 10 is a perspective view of a cap or ring which surrounds the upper portion of the base and is provided with suitable means for detachably engaging corresponding means on the body portion of the device when the parts are put together; Fig. 11 is a perspective view of a ring or plate which forms the upper side of the body of the device; Fig. 12 is a vertical sectional view of a further modified form of device; Fig. 13 is a perspective view of a detail.

In the form of my invention shown in Figs. 1 to 7, inclusive, I provide a small insulating base or block 1, made of porcelain or other suitable insulating material, preferably secured to a suitable conduit or pipe 2, the screw-threaded end of said pipe being arranged to engage a bushing 3 secured to the base 1 in a suitable manner, as by the screws or bolts 4^a, 4^a. It will be seen that the screw-threaded bushing 3 may be removed, and the insulating base be secured to the ceiling or other suitable support by screws or bolts, without the intervention of the conduit or pipe 2. The supporting pipe 2, is adapted to serve also as a conduit or channel for the leading-in wires. The center contacts for the lamps are carried upon the insulating block or base 1, and preferably consist of a band or ring 4, having extended portions or fingers 5, one of said fingers being disposed opposite each of the lamp receivers, and forming a spring contact for engagement with the center contact of the lamp. The center contacts are connected with one of the leading-in wires by means of the binding screw 6, mounted upon a suitable contact plate 7, secured to the base by the screws or bolts 8, and having the end thereof overlapping and forming electrical contact with an extended portion 9 of the center contact band or ring 4, as shown in Fig. 3.

The screw-threaded lamp receiving shells 10, 10, or other suitable lamp receivers are mechanically secured together and electrically connected one with the other by means of a suitable ring or plate 11, said

shells being preferably secured thereto by the screws 12, 12, passing through small lugs or ears formed integral with said lamp receivers. A second ring or plate 13, secured in any suitable manner to the opposite sides of said lamp receivers aids in holding the same in a rigid position at their upper ends. The lamp receivers thus rigidly secured together by the rings or plates 11 and 13, are disposed within the inclosing casing or shell 14 which forms the body portion of the device. A binding screw 15 is carried upon a suitable contact plate 16 mounted upon the insulating block or base 1, for electrically connecting the lamp receiving shells 10, 10, with one of the leading-in wires. The contact plate 16 is shown as electrically connected with the contact plate or ring 11, by means of a downwardly extending lug 17, formed thereon and connected by a screw 18 with a corresponding lug 19 carried by the contact plate or ring 11 a transverse slot being formed in the lug 19 for receiving the screw. The lugs 17 and 19 and the screw 18 are adapted to electrically connect the contact plates 16 and 11 and to lock the bayonet joint for securing the inclosing casing 14 and its contained parts to the insulating block or base 1, as hereinafter described. Soldered or otherwise suitably secured to the periphery or open end of the substantially semi-spherical casing 14, is a metallic ring 20, carrying a series of interior projections 21, arranged to enter cut-out portions or apertures 22 formed in the periphery of the insulating block or base 1. The projections or lugs 21 carried by the ring 20 co-act in the cut-out portions in the insulating base 1 to form a bayonet joint by means of which the inclosing casing or shell 14 and its contained parts are supported upon the insulating block or base 1. Any suitable fastening device may be substituted for the bayonet joint herein shown and described. The screw 18 carried by the lug 17 formed upon the contact plate 16 is adapted to enter the open slot formed in the lug 19 carried by the contact plate or ring 11 when the casing is slightly rotated to the right to lock the bayonet joint consisting of the lugs 21 and cut-out portions 22 of the insulating base. It will be seen, therefore, that after the casing is locked in position upon the base 1, by means of the bayonet joint, the screw 18 may be driven home and serve the double purpose of locking the bayonet joint to securely hold the casing in position, and of forming an electrical connection between the lamp receiving shells and the contact plate 16.

A suitable shade holder 23 is preferably secured to the pipe or conduit 2, and secures in position over the socket a cluster shade 24 which is shown in the drawing with the outer part thereof broken away. A ring 25 of rubber or other resilient material is pref-

erably disposed between the socket and the shade 24, for the purpose of protecting the shade from jolts and jars.

By the use of the plate or ring 20 it is made possible to use a contact-carrying base of considerably smaller diameter than the bases used in older forms of devices, wherein the edge of the hemispherical shell forming the casing engages directly with the base. By this means I am enabled to so far reduce the diameter of the base as to permit it to pass through the opening in the shade when the latter is passed on or off after the body portion of the device is removed. As the binding-screws 6 and 15 are carried by the base, the removal of the body portion of the device can be effected without disturbing the connection between the leading-in wires and these binding-screws. When the casing is thus removed, it carries with it the lamp-receivers 10, 10 and when the casing is again placed in position the electrical connection between the leading-in wires and the contacts of the lamp-holders is automatically made simultaneously with the mechanical securing of the parts together. When the casing is removed in this manner the shade 24 may be passed off over the base without disturbing the electrical connections between the leading-in wires and the binding-screws.

Small metallic sleeves 26, 26, for protecting the lamp receiving shells 10, 10 are soldered or otherwise suitably secured to the inclosing casing 14, whereby a much smaller sized inclosing casing 14 may be used than if said casing was adapted to inclose the outer edges of the lamp receiving shells 10, 10, the inclosing casing 14 being comparatively close to the insulating block or base 1. A neater and more compact cluster or plural lamp socket is secured. The sleeves 26, 26 are of suitable size to receive individual shade holders 28, as shown in Figs. 1 and 2, a bead 27 being formed upon each of the sleeves for preventing the shade holder from slipping therefrom after the same has once been placed in position. Any suitable means may be provided in lieu of the annular beads 27 for securing the individual shade holders 28 in position. By this arrangement the individual shades may be used upon the socket in addition to the cluster shade 24.

An insulating lining 29 preferably of fiber or other suitable material, is provided for the inclosing casing 14, and for the sleeves 26, 26, secured thereto. A portion of said insulating lining is also preferably disposed upon the interior of the ring 20, as shown in Fig. 1. The lining 29 may be secured in position in any suitable manner, and has overlapping edges 30 at the joints thereof, as shown, in order to more thoroughly insulate the live parts of the socket from the casing,

and the other non-current carrying parts thereof.

Referring now to the form shown in Figs. 8 to 11, the screw threaded bushing 3 is preferably inserted from the front of the insulating block 1 and has the edge thereof turned over a suitable compression washer 31, although this is not essential. The contact band or ring 4 is adapted to form electrical contact with the lamp receiving shells 10, 10 by means of a prong or upwardly extending arm 32, formed integrally with the contact ring or plate 11. If desired, one or more of said prongs 32 may be provided for engaging the contact ring or band 4 at suitable places upon its periphery. The center lamp contacts 5, 5, are carried upon the front face of the insulating block or base 1, and are held in position by a segmental plate 33, secured in position by screws 34^a, 34^a, or in any suitable manner. A binding screw 34 is carried by said plate 4, for connecting the center contacts with one of the leading-in wires. An arched plate 36 spanning the segmental contact plate 33, forms the center contact of a centrally disposed lamp receiving shell 35. A binding screw 37 is carried by the contact plate 38 for making connection with the other leading-in wire, and is arranged in a recess or cut out portion in the insulating base or block 1. The binding screw 37 is adapted to electrically connect the lamp receiving shells 10 and 35 in the electric circuit by means of the upwardly extending prong or arm 32. A metal cap 39 surrounds and partly covers the rear portion of the base 1, and between this cap and the body of the device connection is made by means of a form of bayonet joint. The cap 39 is provided with a pair of projections 41 which take into corresponding depressions 41^a in an upwardly extending ring 40 which surrounds the opening in the plate 20. When the body of the device, comprising the casing and lamp-receivers, is to be secured to the base, this body is put up in position and rotated to carry the projections 41 to the inner ends of the grooves or depressions 41^a. The placing of the body in position causes the arm 32 to engage the ring 4, whereby electrical connection is made between the binding-screw 37 and the outer contacts of the lamp-holders. It will be seen that the leading-in wires are secured to the binding screws 34 and 37 carried by the insulating base 1 and that the casing 14 and its contained parts may be readily removed from the base 1, without in any way disturbing the electrical connections of the socket.

In the form of my invention shown in Fig. 12, the binding screw 37 carried by the contact plate 38 disposed within a cut out portion formed in the base 1, is adapted to electrically connect the center lamp contacts

5 with one of the leads, said contacts being secured in position by the contact band or ring 4 carried by the base. The outer lamp contacts or receivers 10, 10 are electrically connected by means of telescoping sleeves 42, one of said sleeves being carried by the contact ring or plate 33, the other of said sleeves being connected with the lamp receiving shells 10, 10. Electrical connection of the other lead is made with the lamp receiving shells through the sleeves 42, 42, by means of a binding screw 43, carried upon the contact plate or ring 33, an aperture 44 being provided, in said sleeves through which the leading-in wire is adapted to pass. The sleeves 42, 42 are not only adapted to electrically connect the lamp receiving shells 10, 10, but are adapted to mechanically support the inclosing casing 14, and its contained parts in position upon the insulating base or block 1. A suitable bayonet joint 47 is provided for mechanically uniting said sleeves, a screw 46 being adapted to lock said bayonet joint and to prevent the inclosing casing 14 from being shaken or accidentally loosened from the base 1. An L-shaped slot 45 is formed in one of the sleeves 42, said slot permitting the sleeves 42 to be disconnected one from the other after the screw 46 has been loosened, without removing said screw from said sleeves. Access to the screw 46 may be had through one of the lamp receiving shells 10. It will be understood that any suitable mechanical supporting means carried upon the front of the insulating block or base 1, and adapted to mechanically support the inclosing casing 14 and its contained parts upon the insulating base, may be adopted in lieu of the telescoping sleeves 42, 42.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a plural lamp socket, the combination with a casing comprising a substantially hemispherical shell having a plurality of openings and a sleeve surrounding each of said openings and fixed to said casing, of a lamp-receiving shell disposed within each of said sleeves, said shells being supported by said casing and having each an ear, a plate to which said ears are secured whereby said shells are electrically connected with each other, binding-screws within said casing, and means for making electrical connection between one of said binding-screws and said plate.

2. The combination of a casing having a plurality of openings, a sleeve secured in each of said openings, a lamp-receiving shell in each of said sleeves, and a lining ring within each sleeve for insulating the shell from the sleeve, said rings having their inner ends outwardly flanged to prevent withdrawal from the sleeves.

3. In a plural lamp socket, a base, contacts carried thereby, a casing forming the body portion of the device and carrying other contacts, a shade provided with an opening of a diameter not less than that of said base to permit the shade to be passed on over said base, and means for detachably securing said body portion to said base after said shade is in position.
4. In a plural lamp socket, the combination with an insulating block, of lamp contacts carried by said block, a suitable inclosing casing for the socket, lamp receivers carried by said casing, suitable terminals carried by said block for making connection with the leading-in wires, a suitable bayonet joint for securing said casing upon said block, and means for electrically connecting one of said terminals upon the block with said receivers, and for mechanically locking said bayonet joint in position.
5. A cluster fixture, comprising a central supporting spindle, insulating material carried thereby, a ring on the exterior of the insulation, providing one set of contacts for a number of lamps, with another set of contacts for said lamps, also carried by the insulation, and an inclosing casing.
6. In a plural lamp socket, a casing of general hemispherical form having a plate disposed therein, said plate lying in a plane at right angles to the axis of said casing and being formed with a central opening, an insulating base insertible into said opening, lamp-engaging contacts carried by said base, and means for detachably securing said casing and base together.
7. In a plural lamp socket, a casing of general hemispherical form, lamp-holding devices carried by said casing, one of the contacts of each of said lamp-holding devices being carried by the casing, said casing being provided with a wall disposed in a plane at right angles with the axis of said casing and provided with an opening, an insulating base insertible into said opening, other lamp-engaging contacts carried by said base, circuit terminals carried by said base, means for securing said casing and base together, and means for simultaneously completing the electrical circuit.
8. In a plural lamp socket, a casing of general hemispherical form, lamp-holding devices carried by said casing, a contact carried by said casing for each of said lamp-holding devices, said casing having a wall disposed in a plane at right angles with the axis of said casing and provided with an opening, an insulating base insertible into said opening, other lamp-engaging contacts carried by said base, circuit terminals carried by said base, means for securing said casing and base together and means simultaneously establishing electrical communication between the lamps and the circuit terminals.
9. In a plural lamp socket, a casing constituting the body portion of the device, and an insulating base arranged therein and carrying lamp-engaging contacts, said casing having an annular plate disposed within its larger portion and extending from said casing toward said base.
10. In a plural lamp socket, the combination of a base, lamp-engaging contacts carried thereby, a body portion carrying the lamps, a shade having an opening of sufficient diameter to permit the base to be passed therethrough, and means for detachably securing said body portion to said base.
11. In a plural lamp socket, a base carrying lamp-engaging contacts and circuit terminals, a casing forming the body portion of the device and carrying the lamps, said casing having a member extending inward toward said base, a shade arranged above said body portion, and a resilient ring disposed between said shade and said inwardly-extending member.
12. In a plural lamp socket, the combination of a base, lamp-engaging contacts carried thereby, a metallic casing, threaded lamp-receiving shells carried by said casing and insulated therefrom, a shade having an opening of sufficient diameter to permit the base to be passed therethrough, and means for detachably securing said casing to said base.
13. A multiple cluster socket comprising a casing, a plurality of threaded shells, a ring and plate separate therefrom, said ring and plate being attached to said shells to secure them together, bushing for securing said shells in said casing, and a common central terminal.
14. A multiple cluster socket comprising threaded shells having ears, a ring and a plate coaxial with one another and attached to said shells, and a common central terminal.
- In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.
- REUBEN B. BENJAMIN.
- Witnesses:
C. B. CAMP,
E. A. OLSEN.