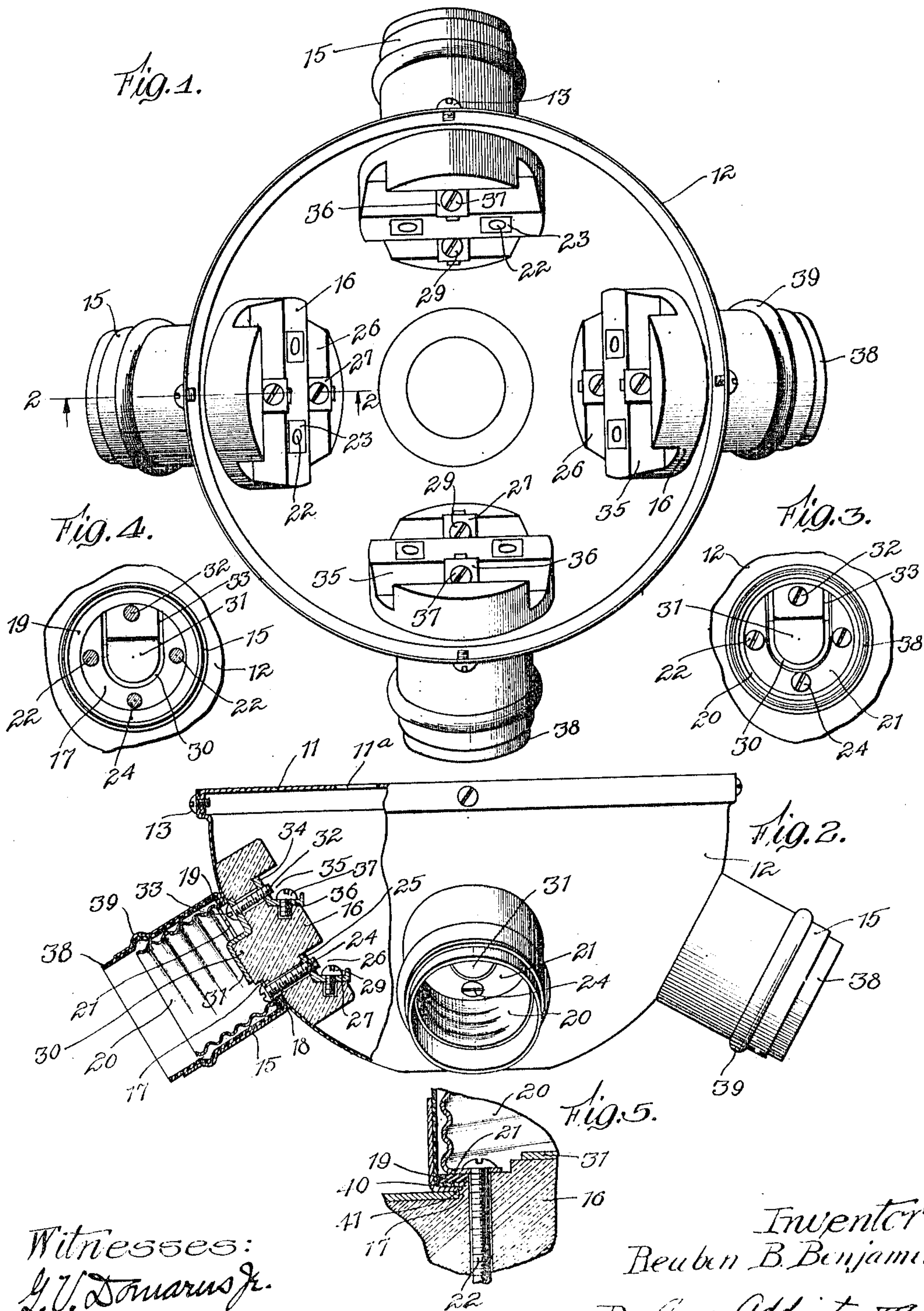


R. B. BENJAMIN.
CLUSTER LAMP SOCKET.
APPLICATION FILED FEB. 8, 1908.

950,650.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.



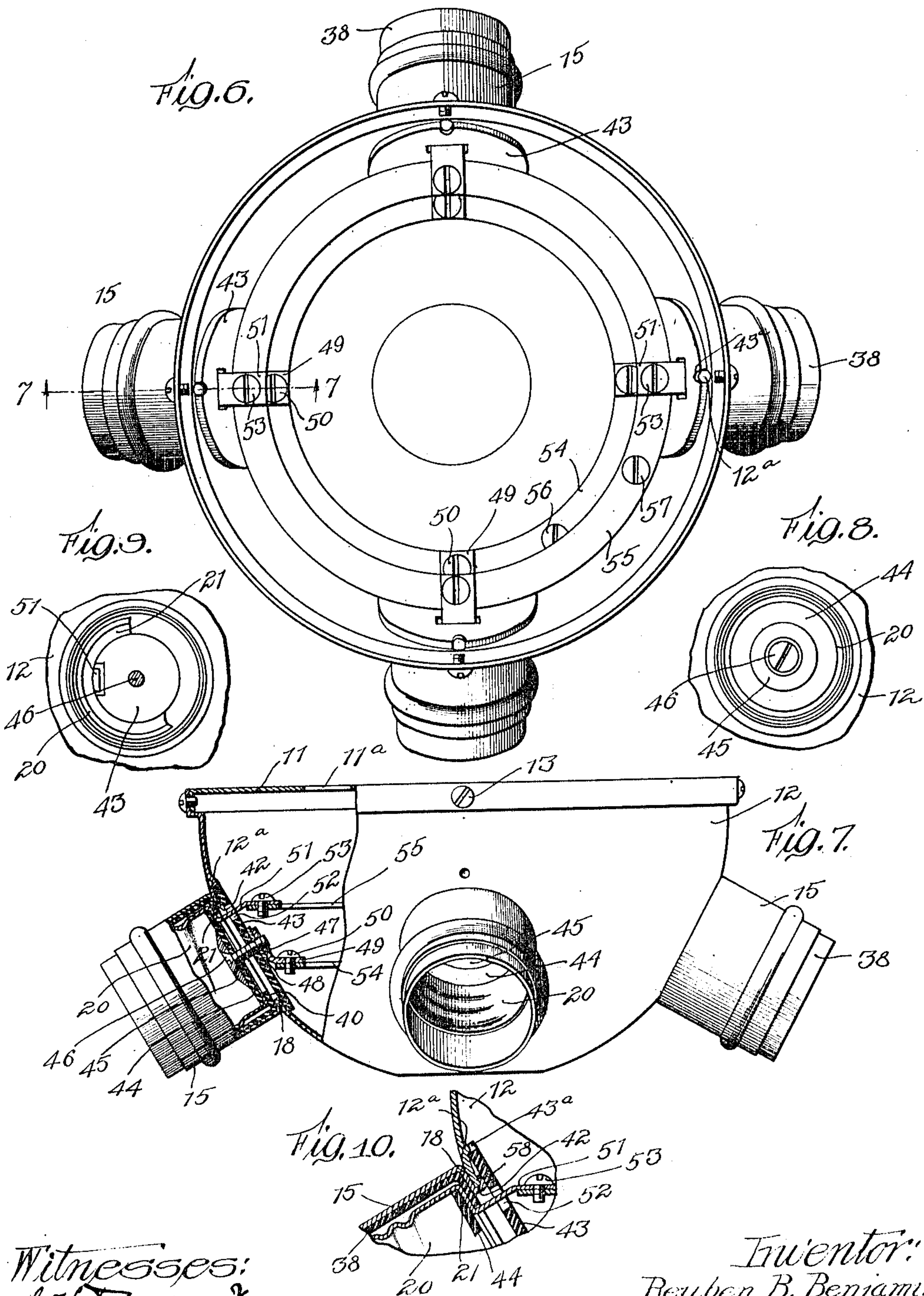
Witnesses:
G. V. Donatus Jr.
Arthur H. Boettcher,

Inventor:
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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.

CLUSTER LAMP-SOCKET.

950,650.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed February 8, 1908. Serial No. 414,990.

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 Cluster 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 electric lamp-holding structures, more particularly cluster lamp sockets, and contemplates improvements whereby a device of this character may be economically constructed and conveniently assembled.

Furthermore, my invention is directed toward securing for the device a simple interior construction, to lessen the danger of circuit crosses and short circuits, and to enable the electrical connections to be made readily and conveniently.

My invention finds particular embodiment in cluster devices wherein a plurality of lamp-holding structures are carried by and extend radially from the casing, and the objects thereof are to provide simple means whereby these lamp-holding structures may be attached to the casing, and to provide an arrangement wherein the number of parts is reduced to a minimum.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of one form thereof, the back plate being removed to reveal the interior construction; Fig. 2 is an elevational view of the device shown in Fig. 1, partly in transverse section taken on the line 2—2 of Fig. 1 and looking in the direction indicated by the arrows; Fig. 3 is a view looking into one of the individual lamp-receiving sockets employed in this form of my invention; Fig. 4 is a view similar to Fig. 3 except that the threaded shell has been removed; Fig. 5 is an enlarged transverse sectional view of part of one of the individual lamp-receiving sockets, illustrating a slightly modified arrangement; Fig. 6 is a plan view of another form of my invention, the back plate being removed to reveal the interior construction; Fig. 7 is an elevational view of the form shown in Fig. 6, partly in transverse section taken on the line 7—7 of Fig. 6 and looking in the direction indicated by the arrows; Fig. 8 is a

view looking into one of the lamp-receiving sockets employed in this form of my invention; Fig. 9 is a view similar to Fig. 8 except that the center contact and part of the threaded shell have been removed; and Fig. 10 is a view illustrating a modified arrangement for securing the sleeves upon the casing, particularly applicable to the form of my invention illustrated in Figs. 6 to 9, inclusive.

The same reference characters are applied to like or similar parts throughout the various figures.

Referring, first, to the form of my invention illustrated in Figs. 1 to 4 inclusive, the structure consists primarily of a metallic back plate 11, which is attached to a primary support in any suitable manner, and a bowl-shaped metallic casing 12 secured to the back plate 11 by means of screws 13, 13. The casing 12 is provided with a plurality of circularly arranged openings at which the radially extending lamp-receiving sleeves 15, 15 are secured. A plurality of insulating blocks 16, 16 are provided, one for each of the lamp-receiving sleeves, and are disposed against the inside of the casing proximate to the openings at which the respective sleeves are secured. Each sleeve with its respective insulating block and the directly associated parts, as will be hereinafter described, constitutes an individual lamp-receiving socket. The arrangement relative to the casing and the construction of each of said lamp-receiving sockets is as follows: The insulating block has a central part 17 extending into and fitting snugly within the opening at which it is placed, this arrangement preventing any lateral displacement of the block. The sleeve 15 has its end turned inwardly to form the flange 18, and this flange is arranged to encounter the outside of the casing and to fit closely about the extending part 17 of the insulating block 16, as clearly illustrated in Fig. 2. Upon the inwardly extending flange 18 rests an insulating ring 19, preferably of fiber or hard rubber, adapted closely about the extending part 17 and being of such thickness as to be approximately flush with the surface of the extending part of the block. Disposed within the sleeve 15 is a threaded contact shell 20, which, as is usual in the art, is adapted for the reception of and to make electrical contact with the threaded base of an ordinary incandescent

lamp. The end of the contact shell is turned inwardly to form the flange 21, and this flange is arranged to rest against the insulating ring 19 and to extend considerably over onto the extending portion 17 of the insulating block. Screws 22, 22 are passed through this flange and through registering openings in the insulating block and have threaded engagement with nuts 23, 23 disposed on the opposite side of the block and preferably slightly sunk therein to prevent rotation thereof when the screws are manipulated. It is now apparent that, when the screws 22 are screwed in place, the casing 12, the inwardly extending flange 18 of the associated sleeve 15 and the insulating ring 19 are all securely clamped between the inwardly extending flange 21 of the contact shell 20 and the body of the respective insulating block 16, thus holding the entire individual lamp-receiving socket together and rigidly upon the casing. An auxiliary screw 24 is passed through the flange 21 of the shell 20 and through a coincident opening in the insulating block, and has threaded engagement with a plate 25 disposed on the opposite side of the block in a transverse groove 26. This groove has one of its sides inclined relatively to the axis of the block so that, when the block is in proper position upon the casing, a lug 27 extending from the plate 25 and resting on said inclined side may present a binding screw 29 carried thereby to convenient access, as clearly illustrated in Figs. 1 and 2. The insulating block 16 is provided with the central boss 30, extending beyond the portion 17 thereof, and upon this boss is disposed a contact member 31 arranged for the engagement of the center contact of an incandescent lamp inserted in the contact shell 20. This contact member 31 is held in place by means of a screw 32 passing through an extended and off-set portion thereof sunk in a pit 33 in the insulating block, the flange 21 of the shell 20 being cut away to accommodate the same, as shown in Figs. 3 and 4; the screw 32 passes through a registering opening in the insulating block 16 and has threaded engagement with a plate 34 disposed in a transverse groove 35 in the opposite side of the block. Similarly to the groove 26 in the block, relative to which it extends parallel, and for the same purpose, the groove 35 has one of its sides inclined relative to the axis of the block. Thus, the lug 36 extending from the plate 34 and lying upon the inclined side of the groove, presents its binding screw 37, as shown in the drawings, to ready approach when it is desired to make the electrical connections. The leading-in or supply conductors may be led into the device through a conduit carrying and having a common axis with the lamp-holding structure as is usual in the art, or they may be led through

one or more openings 11^a in the back plate, whichever method is most convenient according to the particular way in which the structure is mounted. The leading-in conductors may then be connected with the binding terminals of the individual lamp-receiving sockets, either collectively or individually or in a modified manner. In collective wiring the conductors are conveniently placed in the transverse grooves 26 and 35 of the successive insulating blocks and connected to the respective binding screws 29 and 37 which form the terminals for the outer and center contacts, respectively, of the individual lamp-receiving sockets. An insulating lining 38 is interposed between the sleeve 15 and the threaded shell 20 for obvious purposes, this lining being rolled out at 38^a into an annular groove 39 in the sleeve to retain the same in place.

In Fig. 5 I have illustrated a slightly modified arrangement. In the structure shown in this figure the insulating lining 38 has its end intumed to form the flange 40 which, when the clamping screws are screwed into place, is held firmly between the inwardly extending flange 18 of the sleeve 15 and the insulating ring 19. This arrangement supports the lining within the sleeve and the annular bead 38 may be eliminated.

As a further modification which I have illustrated in Fig. 5, the inner diameter of the insulating ring 19 is less than the diameter of the respective opening in the casing so that the ring extends onto a shoulder 41 upon the extended portion 17 of the insulating block 16. Thus, when the ring is clamped between the inwardly extending flange 21 of the contact shell and the insulating block by the clamping screws 22, the inwardly extending flanges of the lining and the sleeve, respectively, and the casing are all securely held between the insulating ring and the block.

In Figs. 6 to 9, inclusive, I have illustrated another form of my invention, wherein the clamping arrangement for holding the parts of an individual lamp-receiving socket together and for attaching the same to the casing, is simplified. In this embodiment of my invention, as in that heretofore described, the bowl-shaped casing 12 is carried by the back plate 11 and is provided with a plurality of circularly arranged openings at which the radially extending sleeves 15, 15 are secured. Each of the sleeves 15 is intumed at 18 to form a shoulder which encounters the outer surface of the casing 12 and an off-set rim 42 is provided extending from this shoulder and adapted to be disposed within the respective opening to prevent any lateral displacement of the sleeve when the same is secured to the casing by the clamping arrangement to be de-

scribed. Each of the sleeves 15 with its associated parts, as will be pointed out, forms an individual lamp-receiving device and is constructed and clamped to the casing as follows: The insulating lining 38, which fits snugly within the sleeve 15, has its end inturned to form the flange 40, as hereinbefore described with reference to Fig. 5, and this flange is disposed against the inwardly extending portion 18 of the sleeve. The threaded contact shell 20 is disposed within the sleeve and has its inwardly extending flange 21 resting against the inwardly extending flange 40 of the insulating lining 38. In this form of my invention the insulating blocks 16 are dispensed with, and a plurality of insulating disks 43, 43 are provided, one of these disks being disposed against the inner surface of the casing over each of the openings therein; these disks form the inner clamping members to which the associated parts, on the outside of the casing, are secured. Disposed upon the inwardly extending flange 21 of the threaded contact shell 20 is an insulating disk 44, and upon this disk, centrally disposed relative to the shell, is a plate 45 which, with the head of the screw 46 passing therethrough and through the disk 44, forms the center contact for engagement by the center terminal of an incandescent lamp inserted in the contact shell 20. The screw 46 passes through the disk 43 and has threaded engagement with a plate 47 on the opposite side of the disk 43, a washer 48 being interposed between the plate 47 and the disk 43. When the screw 46 is screwed tightly in place, the insulating disk 44 will be clamped against the inwardly extending flange 21 of the contact shell 20, which in turn will be clamped against the inwardly extending flange 40 of the insulating lining 38; and between the flange 40 and the insulating disk 43, the inwardly extending part 18 of the shell 15 and the casing are rigidly secured. To prevent rotation or other displacement of the disk 43, a notch 43^a is cut therein and into this notch an inwardly extending protuberance 12^a punched from the casing 12, is adapted to extend. The plate 47 forms the terminal for the center contact of the lamp-receiving device and is provided with a lug 49 extending outwardly so that the binding screw 50 carried thereby will be disposed to easy access. The contact shell 20 is provided with a tongue 51 extending inwardly through an opening 52 in the disk 43 and carrying a binding screw 53 on its inner end. Each of the individual lamp-receiving devices being provided with independent terminals, the leading-in conductors, which are led to the device either through a conduit, as hereinbefore described with reference to the other form of my invention, or through the openings 11^a in the back plate 11, may be con-

nected thereto in any way desired, and the individual lamp-receiving devices may be wired individually, collectively, or in a modified manner, to secure any particular circuit arrangement. To facilitate collective wiring, connecting rings 54 and 55 may be provided to electrically unite the center contact terminals and the outer contact terminals, respectively, of all the individual lamp-receiving devices in the cluster. The ring 54, as illustrated, is of such diameter that it may be secured to all the outwardly extending lugs 49 by the screws 50 and the ring 55 is of such diameter that it may be secured to all the tongues 51 by means of the screws 53. Any one of these screws on the respective rings may then be used as a common binding terminal, or auxiliary binding screws 56 and 57 may be provided for the center and outer contact connecting rings, respectively.

In Fig. 10 I have illustrated a slight modification particularly applicable to the form of my invention just described. This modification consists in making the rim 43, extending from the inwardly extending portion 18 on the sleeve 15, slightly longer than the analogous member shown in Fig. 7, and in bending it back upon itself on the inside of the casing, as shown at 58. This arrangement assists in securing the firm mechanical attachment of the sleeves upon the casing, and is particularly useful as an aid when the structure is being assembled.

I claim as new and desire to secure by Letters Patent:

1. In a cluster lamp socket, the combination with a casing having an opening therein, of a sleeve extending outwardly from said opening and having an inwardly extending flange, a lamp-holding shell disposed in said sleeve against said inwardly extending flange, a clamping member disposed on the inside of said casing over said opening, and means passing through said opening for connecting said shell with said clamping member to clamp said flange and said casing between said shell and said clamping member.

2. In a cluster lamp socket, the combination with a casing having an opening therein, of a sleeve extending outwardly from said opening and having an inwardly extending flange encountering the outside of said casing, a clamping arrangement in said sleeve, a clamping member disposed inside said casing over said opening, and means passing through said opening for connecting said clamping member with said clamping arrangement to secure said sleeve upon said casing.

3. In combination, a sleeve having an inwardly extending portion, an electrically contacting lamp-holding shell disposed within said sleeve and having an inwardly extending portion, and an insulating lining

interposed between said shell and said sleeve and having an inwardly extending portion clamped between the inwardly extending portions of said sleeve and shell respectively.

5 4. In a cluster lamp socket, the combination with a casing having an opening therein, of a metallic sleeve extending outwardly from said opening and having an inwardly flanged end, an electrically contacting lamp-
10 holding shell within said sleeve, an insulating lining interposed between said shell and said sleeve and having a portion thereof formed upon said inwardly flanged end, a clamping member disposed inside said casing over said opening, and means for connecting said shell with said clamping member to clamp said portion of said insulating
15 lining between said shell and said inwardly flanged end and to hold said shell within said sleeve and said sleeve upon said casing.

5. In a cluster lamp socket, the combination with a casing having an opening therein, of a metallic sleeve extending outwardly from said opening, and having an inturned
25 end resting against said casing, a lamp-holding shell in said sleeve, a clamping member in said shell, a clamping member disposed inside said casing and over said opening, and means passing through said opening for connecting said clamping members
30 to secure said shell within said sleeve and said sleeve upon the casing.

6. In a cluster lamp socket, the combination with a casing having an opening therein, of a sleeve extending outwardly from
35 said opening and having an engaging surface, a lamp-holding shell disposed in said sleeve against said engaging surface and having an engaging surface, a clamping member disposed in said shell against its
40 said engaging surface, a clamping member disposed inside said casing over said opening, said sleeve having a shoulder at its rearward end, and means passing through
45 said opening for connecting said clamping members together to secure said shell within said sleeve and said sleeve upon said casing with its shoulder against said casing.

7. In a cluster lamp socket, the combination with a casing having an opening therein, of a sleeve extending outwardly from
50 said opening and having an inwardly extending flange engaging said casing, a lamp-holding shell disposed in said sleeve over said flange and having an inwardly extending
55 flange, a clamping member disposed in said shell against its said flange, a clamping member disposed inside said casing over

said opening, and means passing through said opening for connecting said clamping
60 members together to secure said shell within said sleeve and said sleeve upon said casing.

8. In a cluster lamp socket, the combination with a casing having an opening therein, of a sleeve extending outwardly from
65 said opening and having a reduced portion extending into said opening, thereby forming a shoulder encountering the outside of said casing, a clamping arrangement disposed within said sleeve against said shoulder, a clamping member disposed on the
70 inside of said casing over said opening, and means passing through said opening for connecting said clamping arrangement with said clamping member to hold said sleeve
75 upon said casing.

9. In a cluster lamp socket, the combination with a casing having an opening therein, of a sleeve extending outwardly from
80 said opening and having a reduced portion extending into said opening, thereby forming a shoulder encountering the outside of said casing, said reduced portion being turned back on the inside of said casing, a clamping arrangement disposed within said
85 sleeve against said shoulder, a clamping member disposed on the inside of said casing over said opening, and means passing through said opening for securing said clamping arrangement to said clamping
90 member.

10. In a cluster lamp socket, the combination with a casing having an opening therein, of a clamping member disposed inside
95 said casing over said opening, an electrically contacting lamp-holding shell disposed on the outside of said casing, an insulating clamping member engaging in said shell, means for connecting said clamping members together to hold said shell upon said
100 casing, said means being electrically conductive and provided with a binding terminal accessible from the inside of said casing, and a tongue extending from said shell through said clamping member on the
105 inside of said casing and provided with a binding terminal accessible from the inside of said casing.

In witness whereof, I have hereunto subscribed my name in the presence of two
100 witnesses.

REUBEN B. BENJAMIN.

Witnesses:

C. L. HOPKINS,

ARTHUR H. BOETTCHER.