

R. B. BENJAMIN.
CLUSTER LAMP SOCKET.
APPLICATION FILED APR. 14, 1908.

950,652.

Patented Mar. 1, 1910.

3 SHEETS—SHEET 1.

Fig. 1

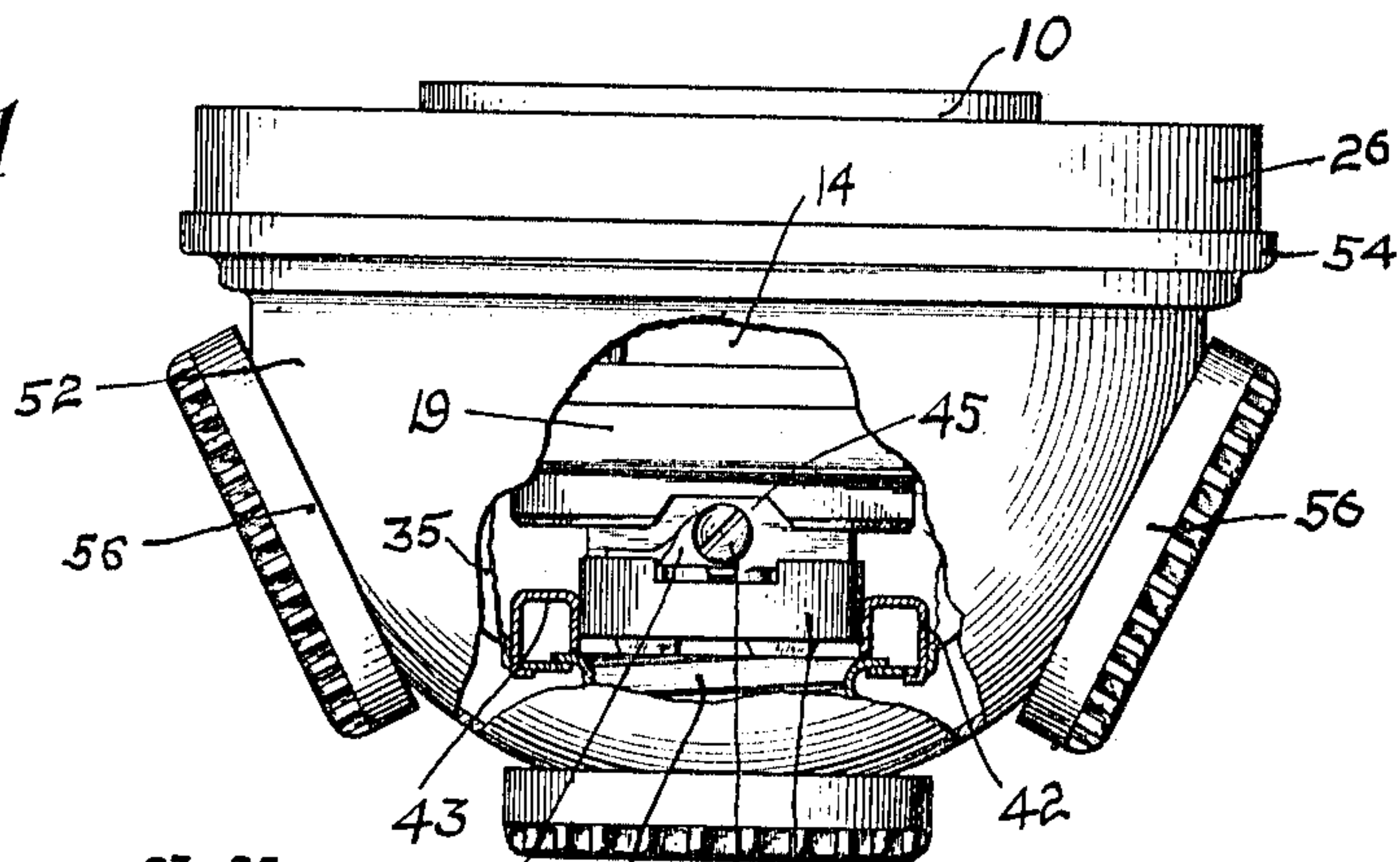


Fig. 5

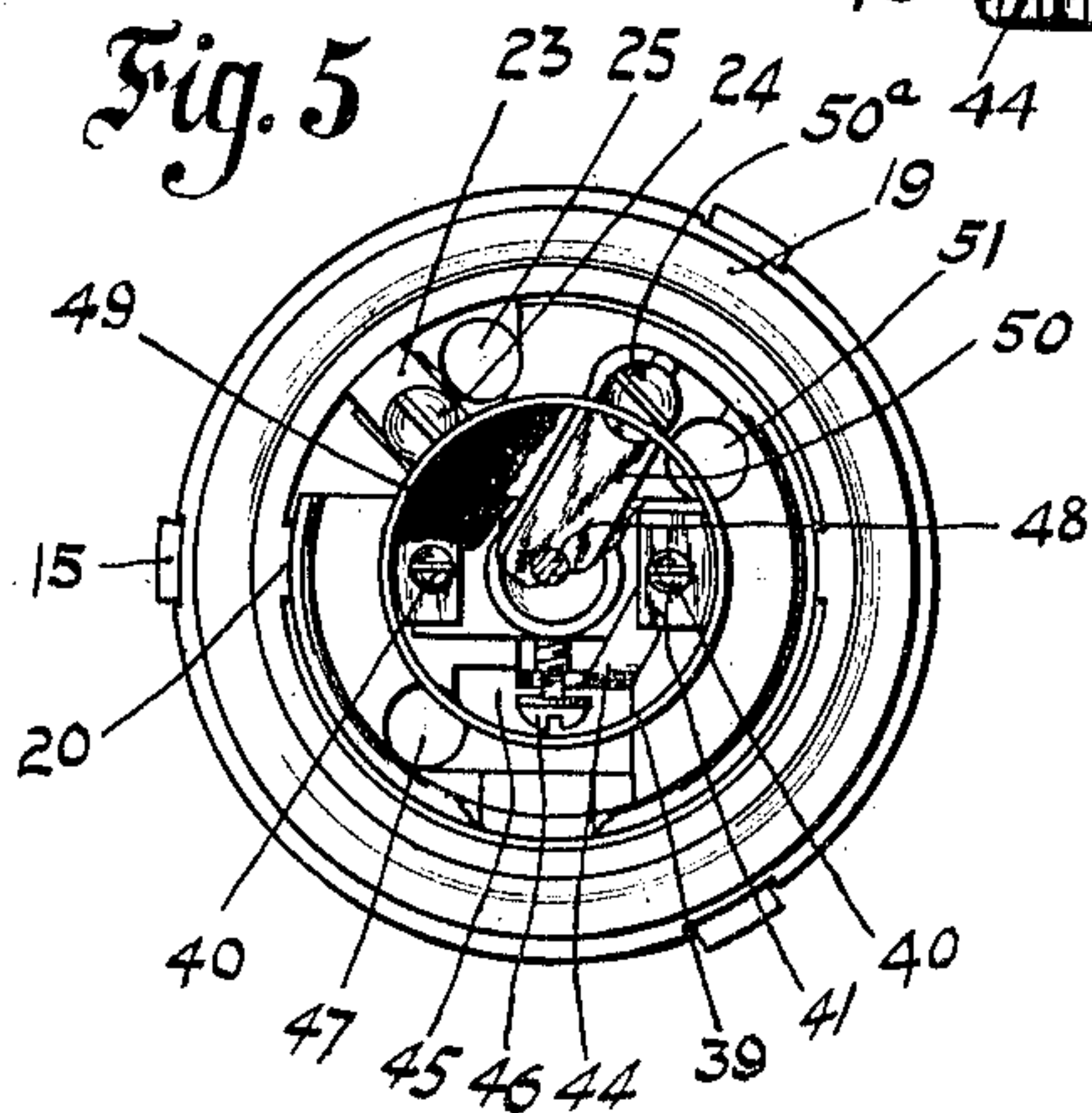


Fig. 7

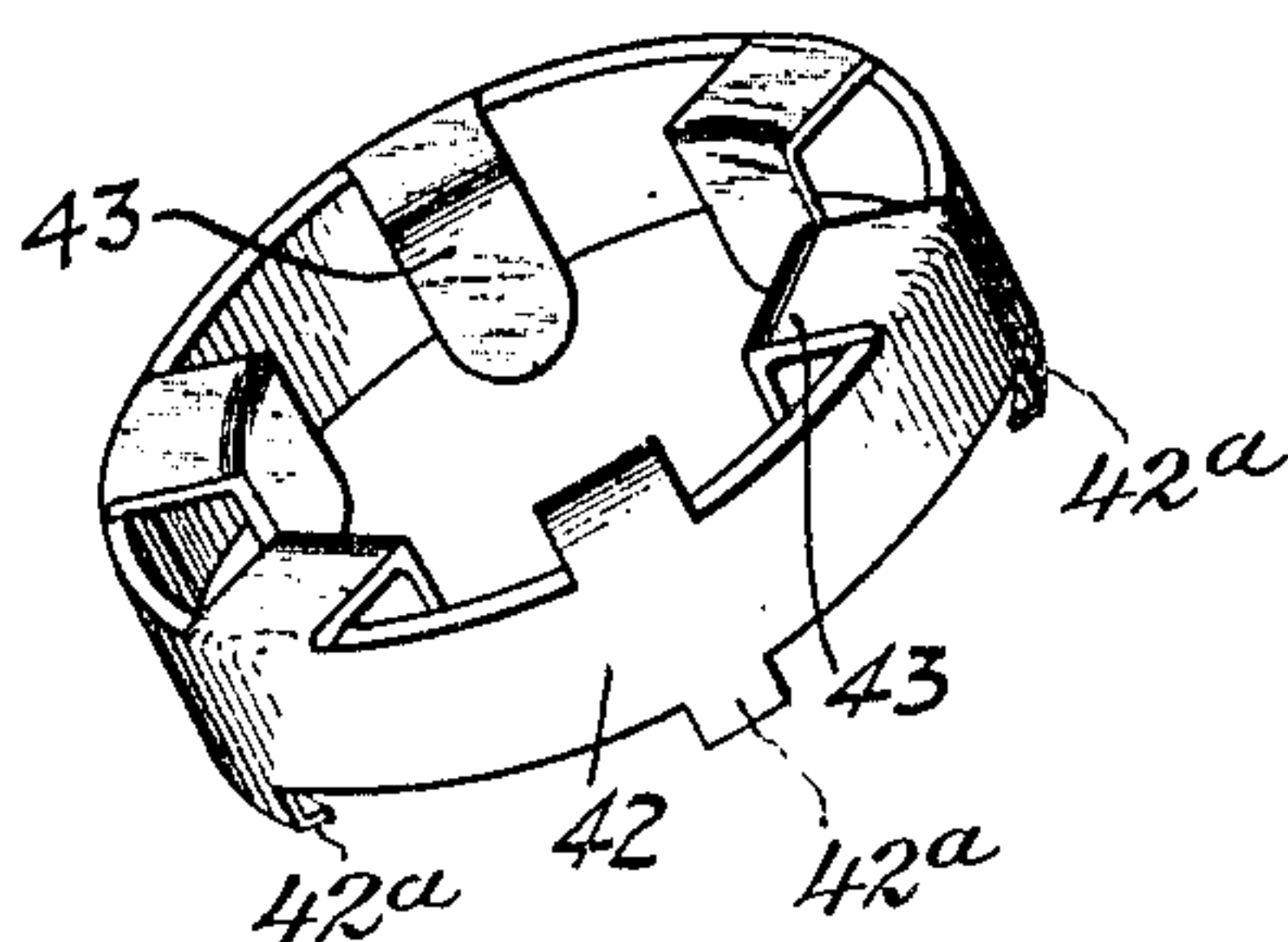
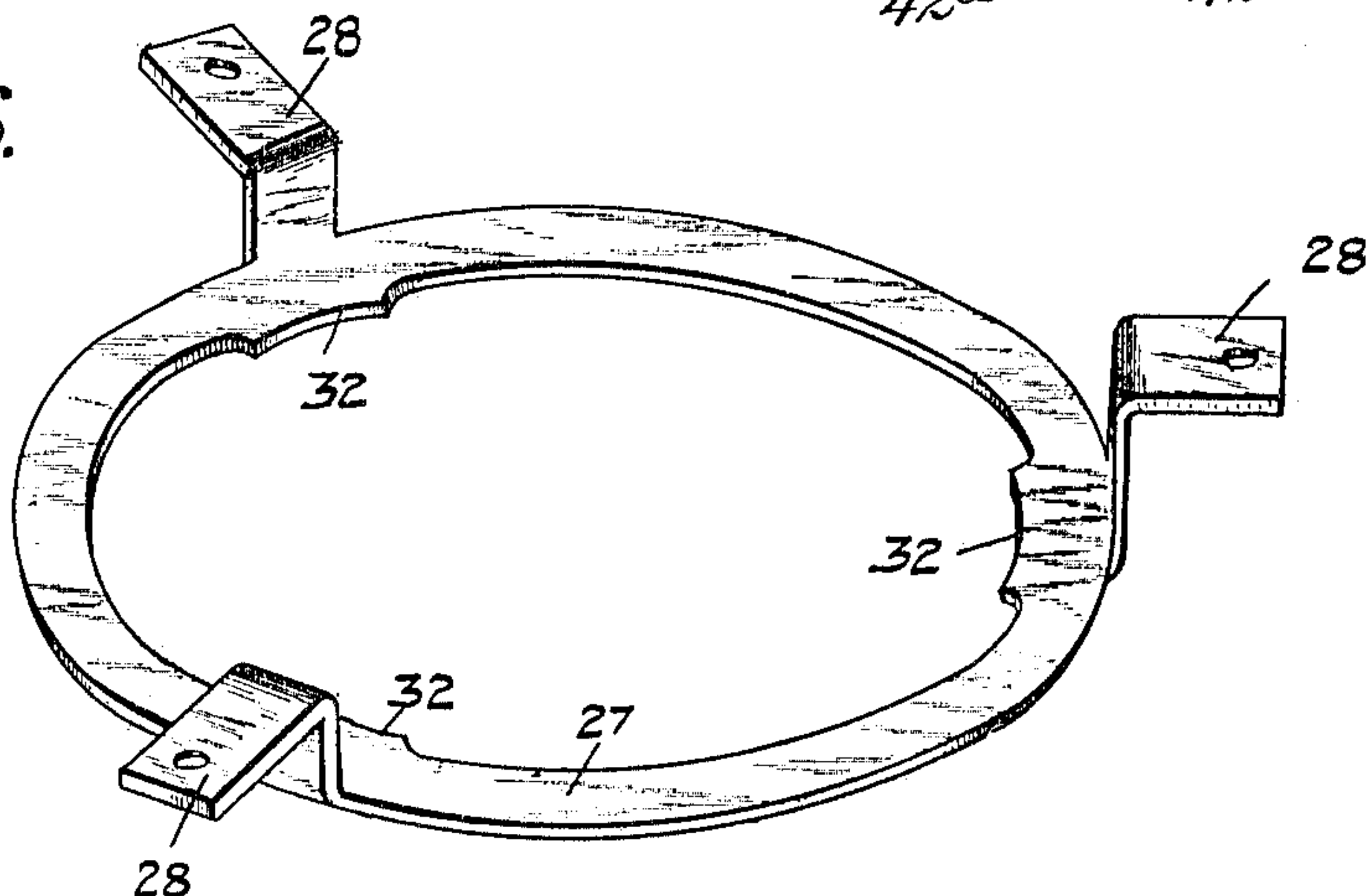


Fig. 6



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3 SHEETS—SHEET 2.

Fig. 3.

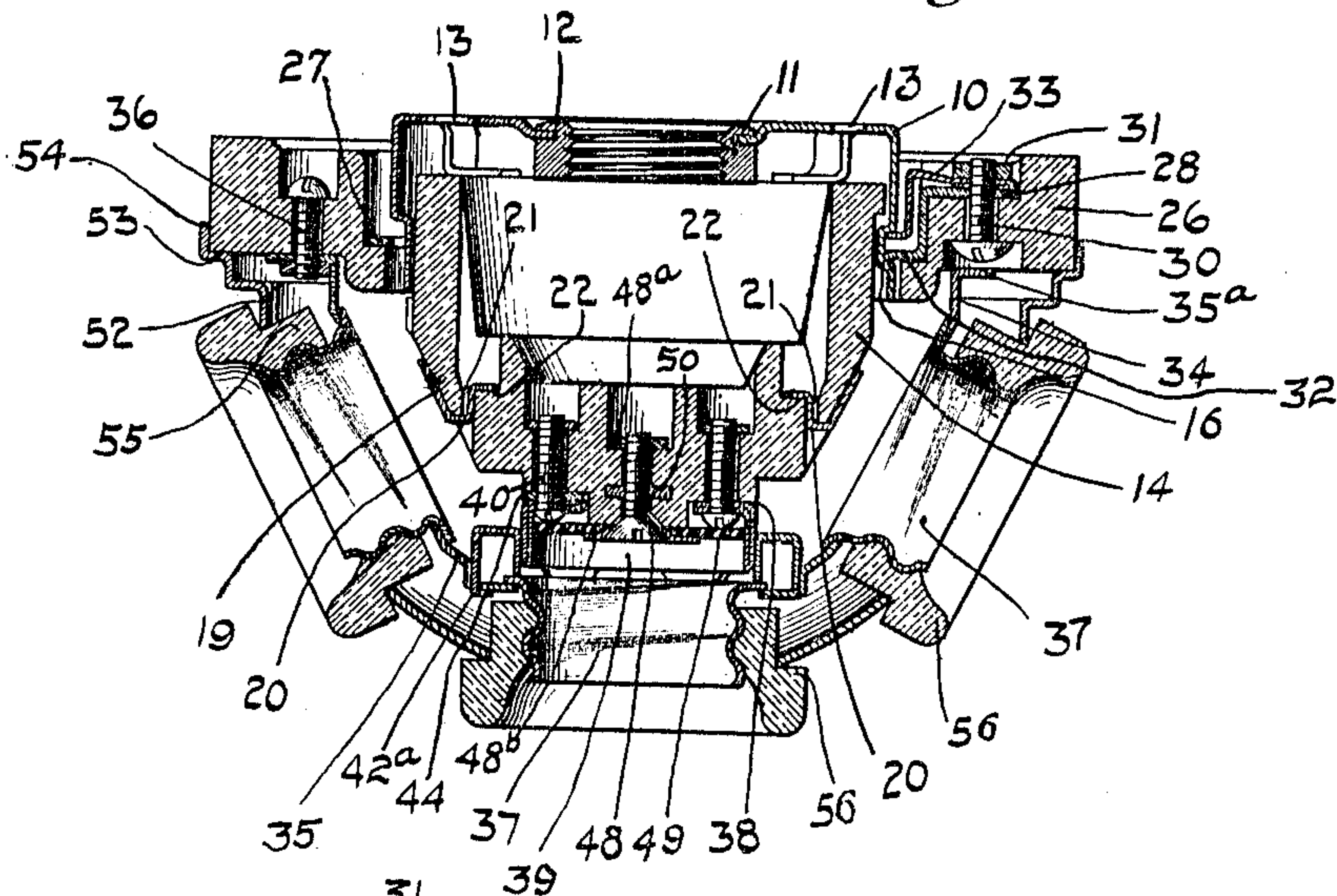
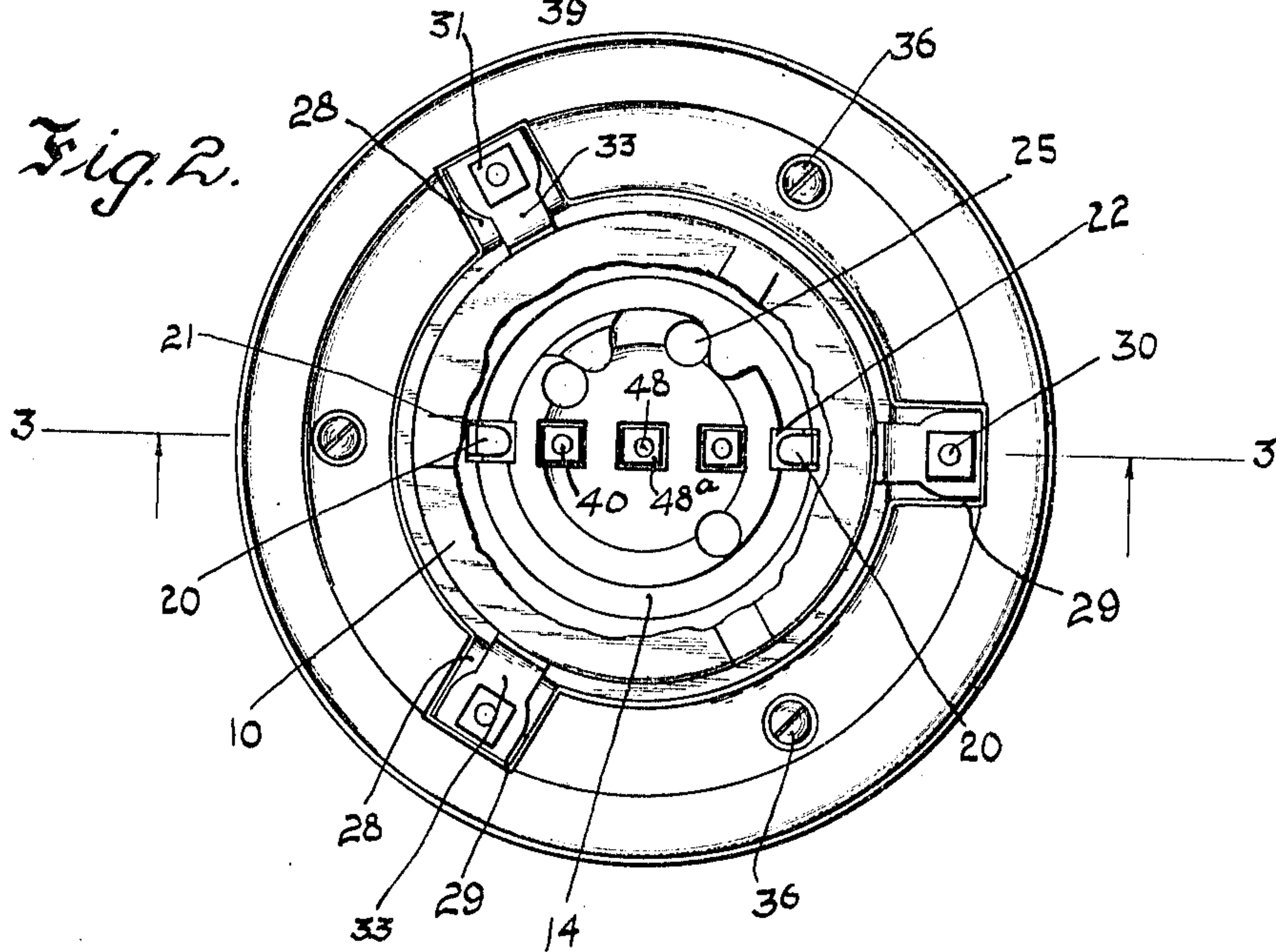


Fig. 2.



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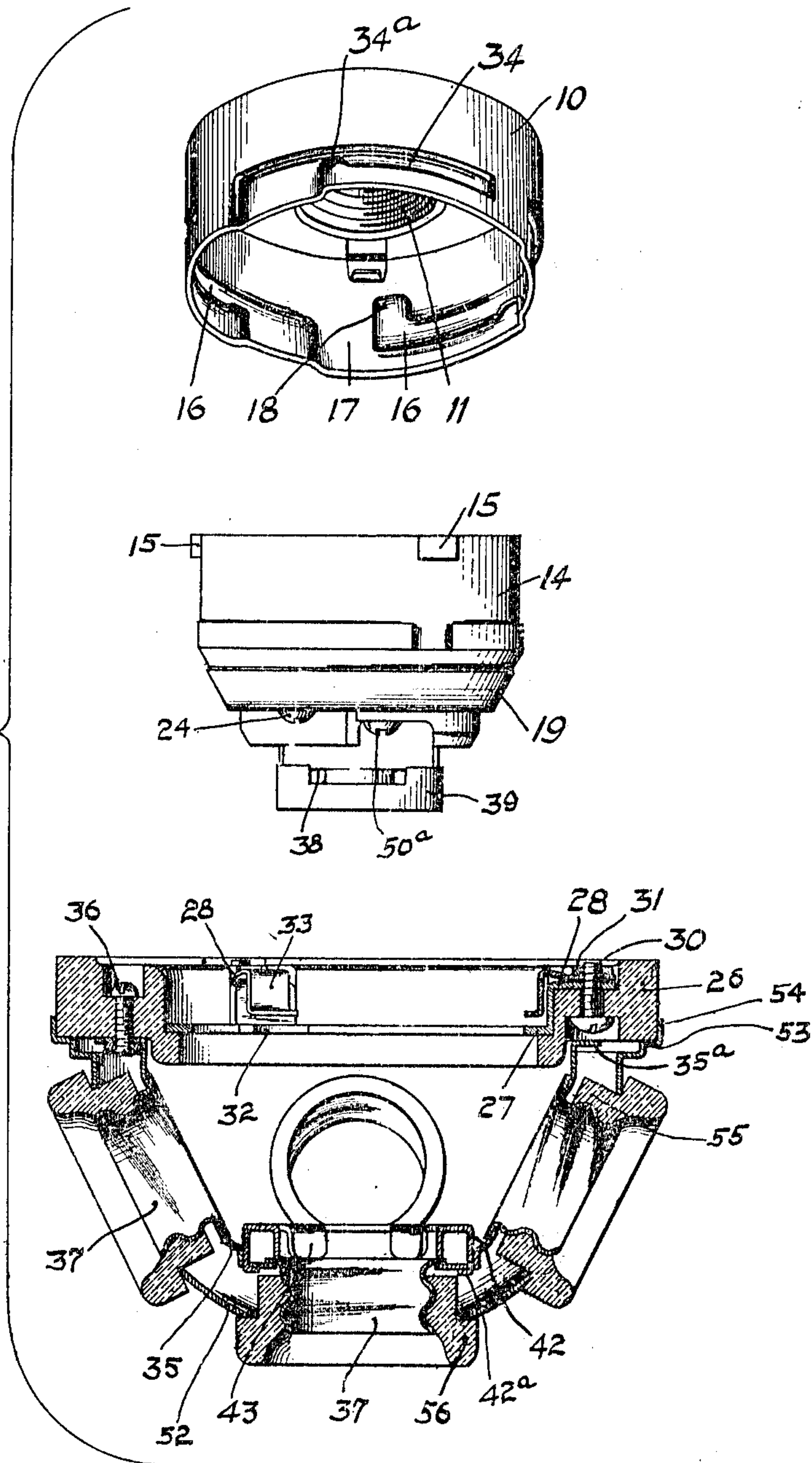
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3 SHEETS—SHEET 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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CLUSTER LAMP-SOCKET.

950,652.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed April 14, 1908. Serial No. 426,940.

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 incandescent lamp cluster devices and has for its object the provision of a cluster wherein the electrical connections with the supply circuit may be made readily and conveniently and which is of such construction that an ornamental shade or reflector may be put in place thereon or removed therefrom without disturbing the wiring.

My invention is further directed toward securing a device of simple construction and good appearance and one which may be mounted in place in a convenient manner.

The broad principle of my invention lies in structural improvements, whereby the desirable results hereinbefore pointed out are obtained, and consists in forming the device of two readily separable units. One of these structural units is adapted to be permanently mounted upon an original support, such as a ceiling or a conduit extending therefrom, and carries the electrical binding terminals to which the leading-in conductors are attached; the other unit carries the lamps and means is provided whereby the lamp contacting members of the device may be properly connected with the binding terminals when the separable units are brought together. This feature of having the electrical binding terminals permanently mounted is particularly useful, as it is of great assistance when the electrical connections are being made and avoids the necessity of employing slack wire which is always undesirable in electrical wiring.

As before broadly pointed out, this invention is particularly directed toward embodying the features just mentioned in a construction which is well adapted to accommodate a reflector or ornamental shade, and to this end I construct the permanently mounted unit of the device of such size that an ordinary reflector or shade may pass over the

same, the other unit being of such size and construction as to surround the first-named unit and to support the reflector or shade. Thus the separation of one unit from the other permits taking down the reflector or shade conveniently and admits of access to the interior of the device for the purpose of making the electrical connections.

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

Figure 1 is an elevational view thereof, parts being broken away to expose to view the interior construction; Fig. 2 is a plan view thereof, parts being broken away to reveal the interior construction; Fig. 3 is a cross-sectional view on the line 3—3 of Fig. 2, looking in the direction indicated by the arrows; Fig. 4 is a view illustrating the two structural units of my device disconnected, the separable parts of one of said units being further disconnected; Fig. 5 is a bottom plan view of that structural unit which is adapted to be permanently mounted; Fig. 6 is a perspective view of one of the members which I employ to secure mechanical connection between the separable units; and Fig. 7 is a detail view illustrating, in perspective, one of the contact members through which communication is established between the current-carrying parts on the respective units.

Like reference numerals are applied to the same parts throughout the various figures.

The device is supported by means of the supporting cap 10 which is in the shape of an inverted dish and is secured to a suitable support such as a ceiling or a pipe or conduit extending therefrom. The supporting cap is conveniently stamped from sheet metal and is therefore provided with a central opening in which is disposed a bushing 11 of more substantial material. This bushing has a shoulder encountering the inside of the cap and is secured in place by being burred over as shown at 12. The inside of this bushing is screw-threaded so that it may receive the lower end of a pipe or conduit extending from a ceiling or other similar support, and through which the leading-in wires are led. In case the device is to be secured directly to a ceiling or the like, supporting screws are passed from the inside through the openings 13, 13 in the cap.

Held inside this supporting cap 10 is an

insulating member 14 which forms the inner base of the device and, together with the cap, constitutes the permanently mounted structural unit. As a means for retaining this insulating base within the supporting cap 10, I have shown lugs 15, 15 extending laterally from the sides thereof, these lugs being adapted to engage over ribs 16, 16 pressed inwardly from the cap 10. These ribs appear as grooves in the outer surface of the supporting cap, and these grooves constitute part of the means for securing separable connection between the two main structural units, as will be hereinafter fully pointed out. These pressed-in portions extend around the supporting cap except at the spaces 17, 17 which are disposed to coincide simultaneously with the projections 15, 15 on the base 14; thus, when the base is inserted within the cap, the projections 15, 15 pass up through the spaces 17, 17 and when the base is given a slight rotation they pass over the ribs. One or more of said ribs may be provided with an upwardly extending part 18 which may act as a stop to be engaged by the respective projection 15, thus locking the base against further rotation. The base 14, which is hollowed out as shown in the drawings, is of general frusto-conical contour and disposed thereon is the correspondingly shaped electrically isolated contact ring 19. This ring is held in place by means of oppositely disposed lugs 20, 20 extending therefrom and passing through adjacent slots 21, 21 into the hollowed out portion of the base, being bent over upon respective shoulders 22, 22. The contact ring 19 is also provided with the inwardly projecting toe 23 which carries the binding screw 24, to which one of the supply conductors, leading through a proximate opening 25 in the base may be connected.

Adapted to surround and be supported by the supporting cap 10 is an annular insulating member 26 which forms the outer base and, together with the parts carried thereby, constitutes the other structural unit of the device. The upper side of this outer insulating base is hollowed out at its inner periphery and an annular preferably metallic plate 27 is disposed in this hollowed out portion. This annular plate is provided with a plurality of outwardly extending lugs 28, 28 resting in respectively disposed pits 29, 29 in the outer base, and is firmly held in place by means of screws 30, 30 passing upwardly through the base and having threaded engagement with nuts 31, 31 on the opposite side thereof. The heads of these screws are preferably sunk in the base, as shown in the drawings to escape the current conducting parts of the structure. The annular plate 27 is also provided with a plurality of inwardly extending lugs 32, 32 which are so disposed as to correspond with

and engage in the bayonet grooves made by pressing in the metal to form the ribs 16, 16 in the cap 10. These inwardly extending lugs 32, 32 register simultaneously with the vertical portions of the bayonet grooves and thus, when the outer base is placed about the supporting cap, the lugs 32 pass up in these vertical portions, the base then being given a slight rotary motion to set the lugs in the horizontal portions thereof. I have provided a plurality of spring members 33, 33, clamped between the respective lugs 28, 28, which are conveniently coincident with the inwardly projecting lugs 32, 32, and the nuts 31, 31. These spring members extend into the bayonet grooves with the respective lugs 32, 32 and tend to press the lugs downwardly against the lower walls of the grooves, thus forming a positive connection between the outer base and the supporting cap and preventing rattling of the structure and the liability of disarrangement. In order to lock the lugs within the bayonet grooves, I have slightly widened the horizontal portions of the grooves at their inner ends as shown at 34 in Fig. 4; this leaves a stop 34^a projecting into the bayonet groove and it is evident that such an arrangement will prevent disengagement of the outer base 26 from the supporting cap unless a sufficient rotary force be applied thereto to compress the spring members.

Mounted upon the under side of the annular base is an electrically conductive bowl-shaped shell 35 having an outturned flange 35^a at the upper edge thereof which encounters said base and through which bolts 36, 36 extending through the base, may pass to secure the shell firmly in place. This bowl-shaped shell is provided with a plurality of circularly arranged openings and, if desired, a central opening, at which outwardly extending lamp-receiving contact sleeves 37, 37 are secured. The circularly arranged threaded sleeves are in such position that the center terminals of lamps inserted therein may engage with the electrical contact ring 19, and, in view of the fact that the contact sleeves are all interconnected by the shell 35, the outer terminals of these lamps will be electrically united.

The inner base 14 is provided with a downwardly facing shoulder 38 upon which a ring contact member 39 is secured by means of screws 40, 40 passing through lugs 41, 41 extending inwardly therefrom. This ring contact member 39 extends into a contacting contact member 42 which is centrally disposed inside the shell 35 and is secured in place thereon by means of lugs 42^a, 42^a which are passed through openings in the shell and are bent over upon the outside of the shell as shown in Figs. 3 and 4. The contact member 42 is provided with a plurality of spring angle lugs 43 extending in-

wardly therefrom, this arrangement providing for good electrical contact between the related current carrying parts when the structural units of the device are brought together.

Clamped between the base 14 and one of the lugs 41 on the contact member 39 is a plate 44 which is twisted upwardly into a pit 45 in the base, and at the end of this plate is disposed a binding-screw 46. Proximate to this binding-screw is an opening 47 in the base, through which a leading-in conductor may be passed for connection thereto, this binding-screw thus forming the circuit terminal for all the outer contacts in the cluster. As a center contact for association with the centrally disposed contact sleeve 37, I have provided the screw 48 passing upwardly through the base and having engagement with a nut 48^a on the opposite side thereof; this screw together with the cone plate 48^b, which it retains in place, forms the contact for engagement by the center terminal of a lamp inserted in said central sleeve. Between the cone plate 48^b and the base an insulating disk 49 is clamped for obvious purposes. As shown in the drawings, this center contact is disposed upon a small extended portion of the base 14 and, as illustrated in Figs. 3 and 5, this extended portion is provided with a slot leading from the outside thereof to the central aperture through which the screw 48 passes. In this slot is disposed an electrically conductive plate 50 with which the screw 48 has threaded engagement; this plate extends outwardly upon the base and is provided at its end with a binding terminal 50^a to which a separate leading-in wire, entering the device through an opening 51 in the base, may be attached. Thus it appears that with proper switching mechanism exteriorly situated, the centrally disposed lamp may be separately controlled; should collective control be desirable, a permanent conductor may be placed across the binding terminals 24 and 50^a to secure the desired result.

Surrounding the shell 35 and the various lamp-holding devices carried thereby is a bowl-shaped casing 52 which has an annular shoulder 53 and a rim flange 54 for encountering the annular base 26, as shown in the drawings. This casing is provided with a plurality of openings registering with the various lamp-holding contact sleeves carried by the shell 35, these openings being of such size that insulating bushings 55, 55 having threaded engagement with the outside of the sleeves, may be passed therethrough. Each of these insulating bushings is provided with an enlargement 56, thus forming a shoulder which engages the outside of the casing to retain the same in place, as shown in the drawings.

Thus it becomes apparent that my device

comprises essentially, two structural units: first, the inner base 14 which is adapted to be permanently supported and which carries lamp contacting means and the binding terminals of the device; and, second, the structure comprising the annular insulating base, the shell carrying the contact sleeves, and the casing. The last-named unit is detachably secured to the first-named unit so as to admit of ready removal therefrom, and it is apparent that when so removed all the lamps in the cluster will be carried therewith and the permanently mounted binding terminals of the device will be exposed to access. The easily separable connection between the inner base and the cap, which together comprise the first-named unit, facilitates the original mounting of the structure. The permanently mounted unit is of such size that it may readily pass through the usual opening in reflectors or ornamental shades; thus, the shade may be supported entirely by and be removable with the larger element. The co-acting contact members 39 and 42 provide for the proper connections between the current carrying parts of the separable members, and are of such construction as to permit of the necessary relative rotation of the parts when brought together.

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

1. In a lamp socket, the combination of a supporting cap, an insulating base insertible into said cap and supported thereby, binding terminals carried by said base, a lamp-engaging contact also carried by said base, a second insulating base detachably secured to said supporting cap, a lamp-receiving shell carried by said second base, means arranged to establish electrical communication between said shell and a binding terminal when said second base is secured in position, and a casing shell carried by said second base and electrically insulated thereby.

2. In a lamp socket, the combination of a supporting cap, a base insertible into said cap and supported thereby, binding terminals carried by said base, a lamp-engaging contact also carried by said base, a ring-shaped insulating base arranged to extend around said cap, means for detachably securing said ring-shaped base to said cap, and a lamp-holder carried by said ring-shaped base and arranged to support a lamp in position to engage said contact.

3. In a lamp socket, the combination of a supporting cap having ribs on its interior, a base sustained upon said ribs, binding terminals carried by said base, a ring-shaped insulating base extending around said cap, said cap having grooves on its exterior, means resting in said grooves for sustaining said ring-shaped base, a lamp-holding device carried by said ring-shaped base, and

means for establishing electrical connection between a terminal of a lamp and one of said binding terminals when said ring-shaped base is secured in position.

5 4. The combination of a supporting member, an insulating base detachably secured thereto, binding terminals carried by said base, a second base detachably secured to said supporting member, a conducting shell
10 carried by said second base, a lamp-holder carried by said shell, a casing shell supported by said lamp-holder, and means for establishing electrical communication between a lamp in said holder and one of the
15 binding terminals when said second base is secured in position.

5. The combination of a supporting member, an insulating base carried thereby, binding terminals carried by said base, a second
20 base detachably secured to said supporting member, a conducting shell secured to said second base, a lamp-receiving shell carried by said conducting shell, means for establishing electrical communication between
25 said conducting shell and one of the binding terminals when said second base is secured in position, and a casing supported by said lamp-receiving shell.

6. In a cluster lamp socket, the combination
30 with an insulating base, of a second insulating base detachably secured thereto, lamp-holding and contacting means carried by said second-named base, a binding terminal carried by said first-named base, means for
35 establishing electrical connection between said lamp-contacting means and said binding terminal when said bases are brought together, and a casing carried by said second-named base.

40 7. In a cluster lamp socket, the combination with a supporting member, of an insulating base detachably carried by said supporting member, a second insulating base detachably secured to said supporting member,
45 lamp-holding and contacting means carried by said bases, and binding terminals for said contacting means carried by said first-named base.

8. In a cluster lamp socket, the combination
50 with a supporting member, of an insulating base detachably carried thereby, a second insulating base surrounding said first-named base and detachably secured to said supporting member, lamp-holding and
55 contacting means carried by said bases, and binding terminals for said contacting means carried by said first-named base.

9. In a cluster lamp socket, the combination
60 with a supporting member, of an insulating base carried thereby, a second insulating base, a bayonet joint arrangement between said second-named base and said sup-

porting member, and lamp-holding and contacting means carried by said bases.

10. In a cluster lamp socket, the combination
65 with a supporting cap having inwardly punched portions, of an insulating base having portions thereof engaging over said punched portions so that it may be supported by said cap, a second insulating base,
70 parts on said second-named base for disposition within bayonet slots formed in said cap by said punchings, and lamp-holding and contacting means carried by said bases.

11. The combination of a supporting member,
75 an insulating base carried thereby, binding terminals carried by said base, a lamp-engaging contact carried by said base, a second insulating base detachably secured to said supporting member, a conducting shell
80 and a casing shell carried by said second base, and insulated from each other thereby, a lamp-receiving shell electrically connected with said conducting shell, and means for establishing electrical connection between
85 said conducting shell and a binding terminal when said second base is secured in position.

12. In a cluster lamp socket, the combination
90 with an inner insulating base, of an outer insulating base detachably secured thereto, a contact piece on said inner base, a binding terminal for said contact piece carried on the under side of said inner base, a conducting shell carried on the under side
95 of said outer base, lamp-contacting means carried by said shell and means whereby said shell is electrically connected with said contact piece when said outer base is in position on said inner base.

13. In a cluster lamp socket, the combination
100 with an insulating base, of a second insulating base detachably secured thereto, a plurality of circularly arranged lamp-holding sleeves carried by said second-named base, a contact member disposed on said
105 first-named base and arranged in position for engagement by the center terminals of lamps inserted in said circularly arranged sleeves, a binding terminal for said contact member disposed on the under side of said
110 first-named base, a separate contact member carried by said first-named base in position for engagement by the center terminal of a lamp inserted in said centrally disposed sleeve, and a binding terminal for said separate
115 contact disposed on the under side of said first-named base.

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

REUBEN B. BENJAMIN.

Witnesses:

ARTHUR H. BOETTCHER,

M. L. FARRAR.