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H. HUBBELL.
INCANDESCENT LAMP CLUSTER.
APPLICATION FILED OCT. 15, 1904.

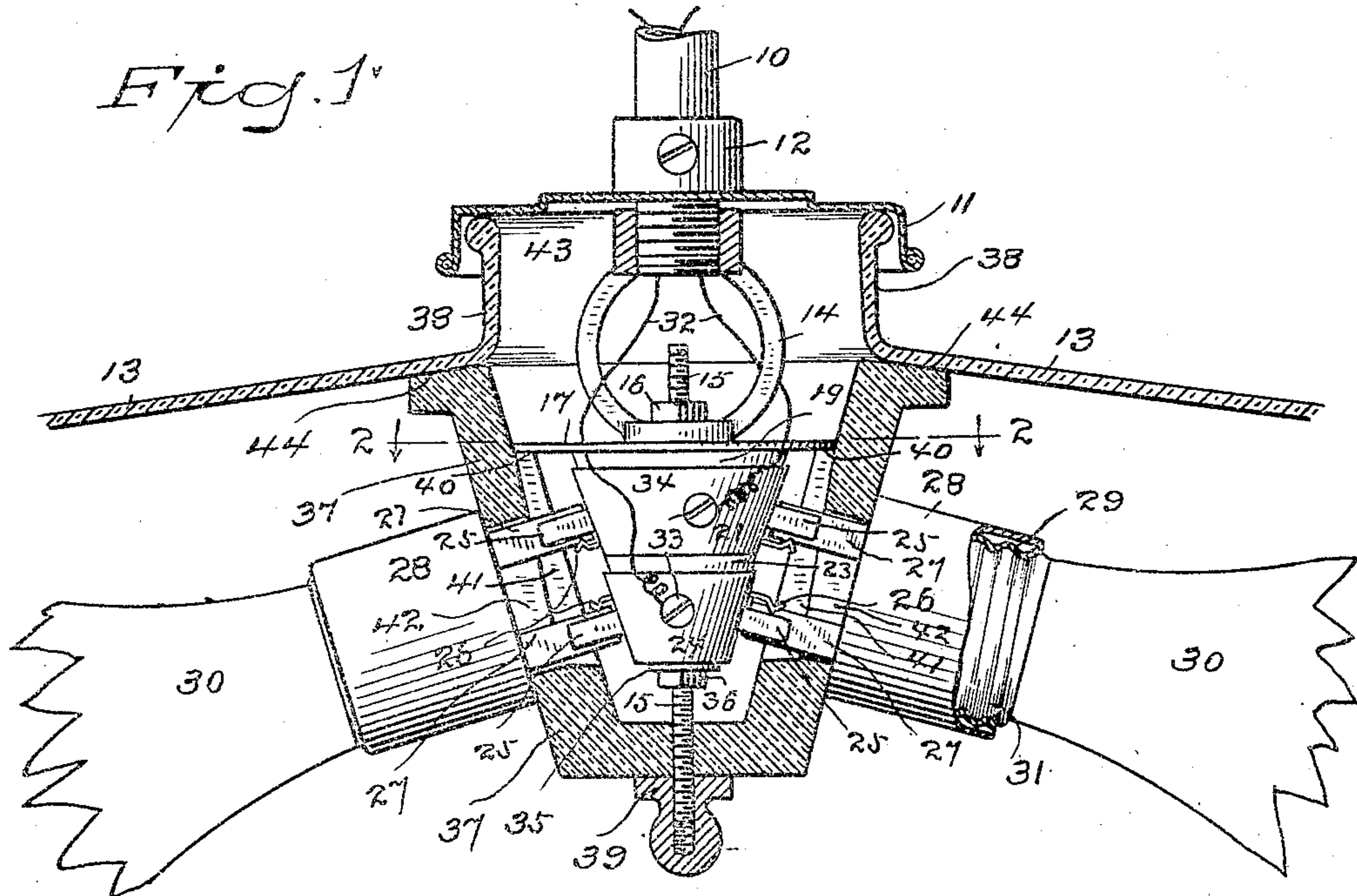


Fig. 2.

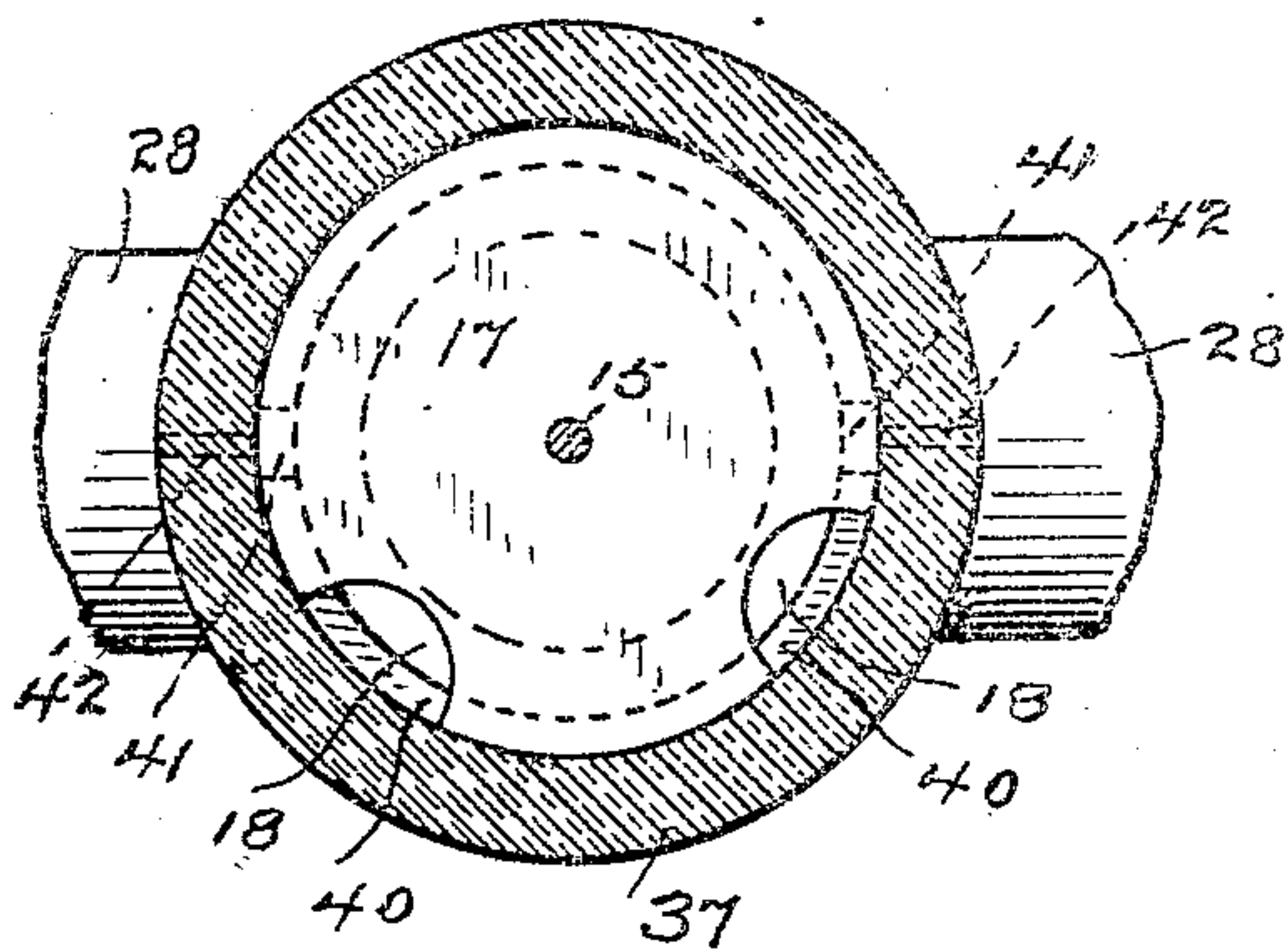


Fig. 3.

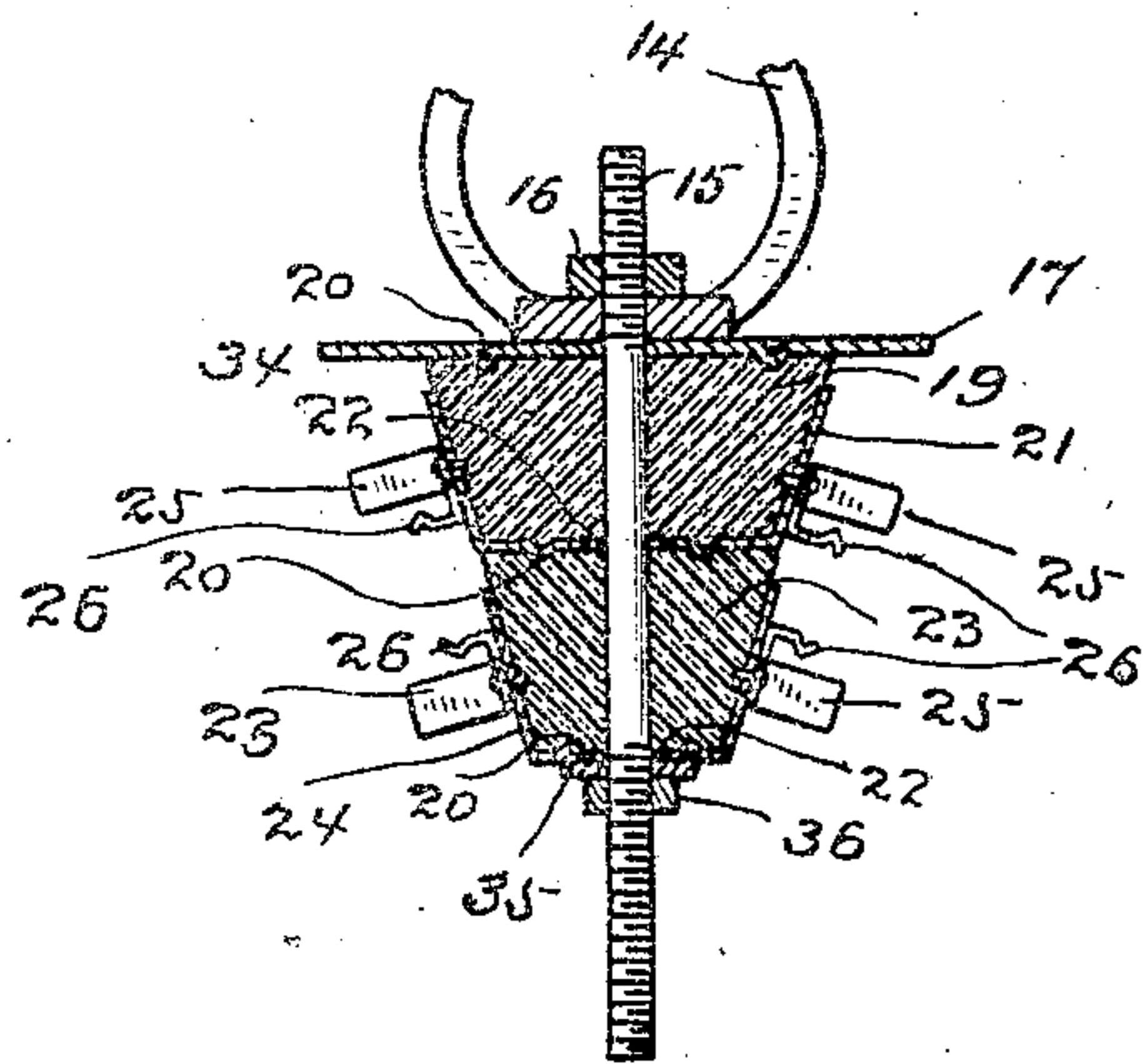
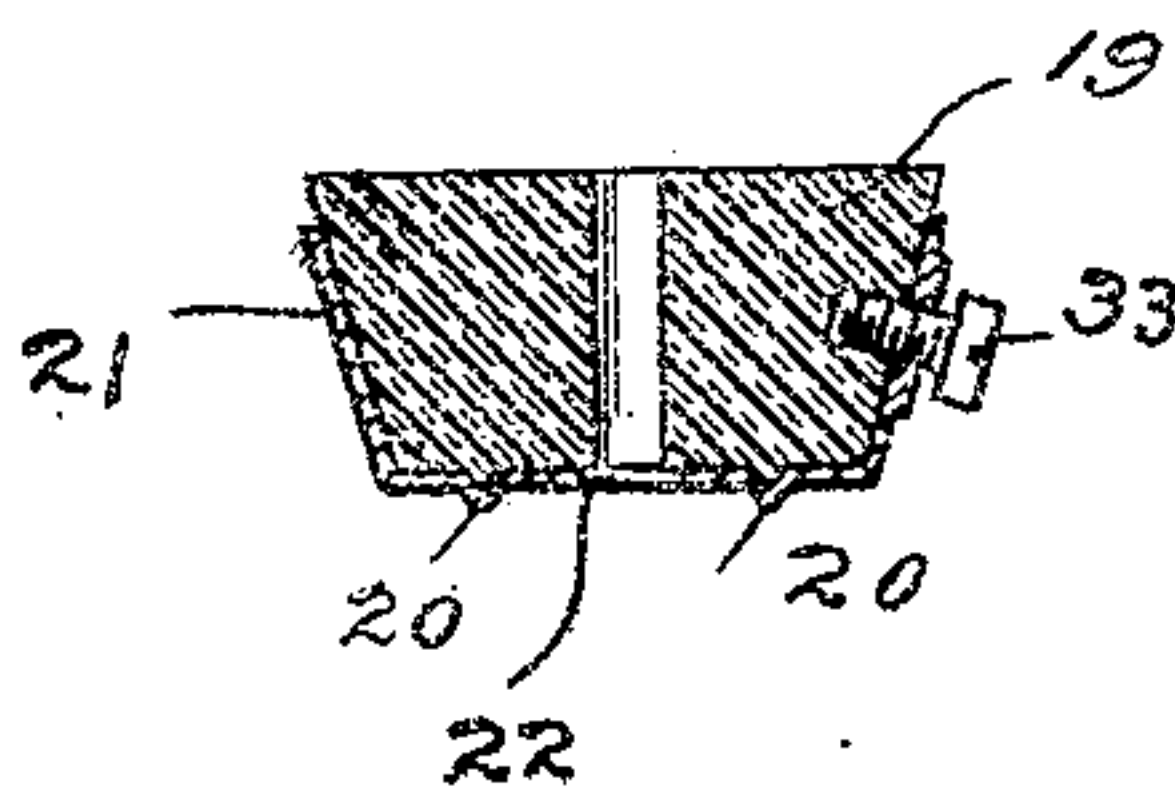


Fig. 4.



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INCANDESCENT-LAMP CLUSTER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARVEY HUBBELL, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented a new and useful Incandescent-Lamp Cluster, of which the following is a specification.

My invention has for its object to produce an incandescent-lamp cluster which shall be so constructed as to permit the attachment and detachment of commercial shades of the size in general use, as the replacing of a broken shade by any person who may be wholly unskilled as an electrician without detaching or in any way disturbing the electrical connections and without the use of any tools whatever. This result I am enabled to accomplish owing to the fact that the cluster-body is so constructed as to enable it to be permanently connected to a support and to be made small enough to permit ordinary commercial shades to be passed over it and over the contact-springs which it carries, and the lamps are connected to the body by means of attachment-plugs having contact-plates which engage the contact-springs upon the body.

With the above and other objects in view I have devised the novel incandescent-lamp cluster which I will now describe, referring to the accompanying drawings, forming a part of this specification, and using reference characters to indicate the several parts.

Figure 1 is a view, partly in elevation and partly in section, illustrating my novel cluster set up and retaining a shade as in use; Fig. 2, a section on the line 2 2 in Fig. 1 looking down; Fig. 3, a detail sectional view of the body complete—that is, the upper and lower insulating and current-carrying cones—the contacts appearing in elevation; and Fig. 4 is a section of the upper insulating and current-carrying cones detached on a line showing one of the binding-screws.

10 denotes the stem; 11, the shade-holder, which is provided with a slip-ring 12, by which it is secured to the stem; 13, the shade; 14, the hickey, which is secured to the stem, and 15 the center-screw, which engages the hickey and is shown as locked thereto by a nut 16. Just below the hickey on the center-screw is a centering-disk 17, shown as provided with openings 18, through which the electrical connections may be passed. Below the centering-disk is an insulating-cone 19, which for convenience I will term the

“upper insulating-cone.” This cone is shown as retained securely in position relative to the centering-disk by means of lugs or registering points 20, struck out from the centering-disk and engaging the cone.

21 denotes a current-carrying cone, which for convenience I will term the “upper current-carrying cone,” and which partially incloses the upper insulating-cone, but does not contact with either the centering-disk or the center-screw, as clearly shown in Fig. 3, a central opening 22 being provided in the bottom of said cone through which the center-screw passes, but without contact with the cone, leaving said cone 21 insulated from both the centering-disk and the center-screw. Below the upper insulating and current-carrying cones are lower insulating and current-carrying cones, (indicated, respectively, by 23 and 24.) The lower insulating-cone is shown as locked relative to the upper current-carrying cone, and the lower current-carrying cone is shown as locked relative to the lower insulating-cone by means of lugs or registering points 20, struck out from the current-carrying cones and engaging the insulating-cone, as clearly shown in Fig. 3. The lower current-carrying cone, as well as the upper current-carrying cone, does not contact with the center-screw, a similar central opening 22 being provided in the bottom of the lower current-carrying cone, through which the center-screw passes, but without contact therewith, leaving said lower current-carrying cone insulated from the screw. The lower current-carrying cone furthermore does not contact with the upper current-carrying cone, thus leaving the two current-carrying cones insulated from each other as well as from the center-screw and the centering-disk. Both of the current-carrying cones are provided with a plurality of contacts, in the present instance contact-springs 25 and locking-springs 26, which are adapted to be engaged by the contact-plates 27 of attachment-plugs 28. It will be understood, of course, that the attachment-plugs and contacts may be of any ordinary or preferred construction.

In the drawings I have illustrated ordinary Edison screw-shells and an attachment-plug specially designed for this purpose, the screw-shell of an attachment-plug being indicated by 29, lamps carried by the attachment-plugs by 30, and the screw-shell of a lamp-base by 31. It will be obvious, however, that the principle of the invention is equally appli-

cable to T. H. or any of the other well-known types of attachment-plugs and screw-shells.

32 denotes electrical connections, and 33 binding-screws, by which current is carried to the current-carrying cones. For convenience in description the upper and lower insulating-cones and current-carrying cones may be collectively termed the "body," the body as a whole being indicated by 34. The body is permanently connected to the stem by means of the center-screw and hickey. In the present instance it is shown as retained in place on the center-screw by means of a nut 36, an insulating-washer 35 being interposed between said nut and the lower insulating-cone.

It will be noted in Figs. 1 and 3 that the hickey, centering-disk, and the body as a whole are locked in place on the centering-screw by being clamped between nuts 16 and 36.

37 denotes a non-conducting casing by which the body is inclosed. This casing is shown as made in the form of an inverted cone, the base of the cone resting upon the under side of the shade and the flange 38 of the shade lying between the base of the cone and the shade-holder, as clearly shown in Fig. 1. The lower end of the center-screw passes through the bottom of the casing and is engaged below the casing by a locking-nut 39. The casing is shown as provided with an internal shoulder 40, which engages the under side of the centering-disk, with grooves 41, which receive the contacts extending from the body, and with slots 42, through which the contact-plates of the attachment-plugs are passed in connecting lamps to the cluster. An important feature of construction is that the extreme diameter of the body, including the contacts which extend therefrom, is less than the diameter of the ordinary opening (indicated by 43) in a shade, so that a shade may be easily passed over the body in attaching or removing it.

The mode of assembling, as in removing or attaching a shade, will be readily understood from Fig. 1. Suppose the parts to be assembled as in Fig. 1 and that it is desired to replace a broken shade. The operator first removes the lamps from the cluster by detaching the attachment-plugs from the body and then turns off locking-nut 39, which leaves the casing and shade unattached and free to be removed downward over the center-screw and body. The new shade is then passed over the body, the upper end of the flange of the shade resting in the shade-holder. Then the casing is passed over the body, the grooves in the casing receiving the contacts, the shoulder of the casing lying against the centering-plate, and the shade being held between the shade-holder and the base of the casing, (indicated by 44,) as clearly shown. The parts are then secured in place by turning the lock-

ing-nut onto the lower end of the center-screw, the face of the nut bearing against the bottom of the casing and acting to retain both casing and shade in place, the latter being clamped between the base of the casing and the shade-holder.

Having thus described my invention, I claim—

1. An incandescent-lamp cluster comprising a body having a plurality of contacts, a shade-holder, a casing for the body and attachment-plugs having contact-plates which pass through the body and engage the contacts, said shade-holder and casing being constructed to clamp a shade having an opening through which the body may be passed when the casing is removed.

2. In an incandescent-lamp cluster, the combination with a shade-holder and a body carrying contacts, of an insulating-casing adapted to inclose the body and in connection with the shade-holder to retain a shade which is removable over the body, said casing being provided with slots through which contact-plates may be passed to engage the contacts on the body.

3. In an incandescent-lamp cluster, the combination with a shade-holder and a body carrying contacts, of an insulating-casing adapted to inclose the body and having slots through which the contact-plates of attachment-plugs may be passed into engagement with the contacts, said casing and shade-holder being adapted to retain a shade which is removable over the body.

4. In an incandescent-lamp cluster, the combination with a shade-holder and a body comprising upper and lower insulating-cones and upper and lower current-carrying cones provided with contacts, of an insulating-casing adapted to inclose the body and in connection with the shade-holder to retain a shade which is removable over the body.

5. In an incandescent-lamp cluster, the combination with a shade-holder and a body comprising upper and lower insulating-cones and upper and lower current-carrying cones provided with contacts, of a center-screw, an insulating-casing adapted to inclose the body and in connection with the shade-holder to retain a shade which is removable over the body and means for locking the casing to the center-screw.

6. A body for incandescent-lamp clusters consisting of upper and lower insulating-cones and upper and lower current-carrying cones, substantially as shown and described.

7. A body for incandescent-lamp clusters consisting of upper and lower insulating-cones and upper and lower current-carrying cones having registering points engaging the insulating-cone, whereby said parts are retained in position relative to each other.

8. In an incandescent-lamp cluster, the combination with a center-screw and a body

consisting of upper and lower insulating-cones and upper and lower current-carrying cones, of a removable insulating-casing and means for locking the casing to the center-screw.

9. In an incandescent-lamp cluster, the combination with a stem, a hickey and a body, of a shade removable over the body and an insulating-casing adapted to inclose the body and to clamp a shade between its base and the shade-holder.

10. In an incandescent-lamp cluster, the combination with a stem, a shade-holder, a hickey and a center-screw, of a centering-disk and body carried by the center-screw, and an insulating-casing having a shoulder to engage the centering-disk.

11. In an incandescent-lamp cluster, the combination with a center-screw, and a centering-disk and a body having contacts carried thereby, of an insulating-casing having a shoulder to engage the centering-disk, grooves to receive the contacts and slots through which the contact-plates of attachment-plugs may be passed into engagement with the contacts.

12. In an incandescent-lamp cluster, the combination with a shade-holder, a hickey and a center-screw, of a body permanently secured to the center-screw and carrying contacts and a removable casing which coacts with the shade-holder in retaining a shade that is removable over the body.

13. In an incandescent-lamp cluster, the combination with a shade-holder, a center-screw and a body permanently secured thereto, of electrical connections extending to the body and an insulating-casing removably secured to the screw and acting in connection with the shade-holder to retain a shade which is removable over the body.

14. In an incandescent-lamp cluster, the combination with a shade-holder and a body carrying contacts, of an insulating-casing provided with slots and adapted to inclose the body and retain a shade which is removable over the body and an attachment-plug having a screw-shell to receive a lamp-base and contact-plates adapted to pass through the slots and engage the contacts on the body.

15. A cluster-fixture, comprising a central supporting-spindle adapted at its upper end for attachment to a pipe, insulation carried by the spindle, and a metallic ring on the exterior of said insulation, providing one set of contacts for a number of lamps in combination with another set of contacts for said lamps also on the exterior of said insulation.

16. A cluster-fixture, comprising a central supporting-spindle, insulating-bushings mounted on the spindle and carrying two sets of contacts for a number of lamps and an inclosing casing.

17. A cluster-fixture comprising a central supporting-spindle, having at its upper end means for attachment to a pipe, insulating-bushings mounted on the spindle and carrying two sets of contacts for a number of lamps, and an inclosing casing.

18. A cluster-fixture, comprising a central supporting-spindle, insulating-bushings mounted on the spindle, two rings carrying two sets of contacts for a number of lamps, and a nut to hold these bushings and rings assembled on the spindle.

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

HARVEY HUBBELL.

Witnesses:

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