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**Wholehan**

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(54) **LIGHT DIFFUSER SUPPORT**

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**F21V 3/02** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **F21V 17/06** (2013.01); **F21V 3/02** (2013.01)

(58) **Field of Classification Search**  
CPC ..... **F21V 17/06**; **F21V 3/02**  
See application file for complete search history.

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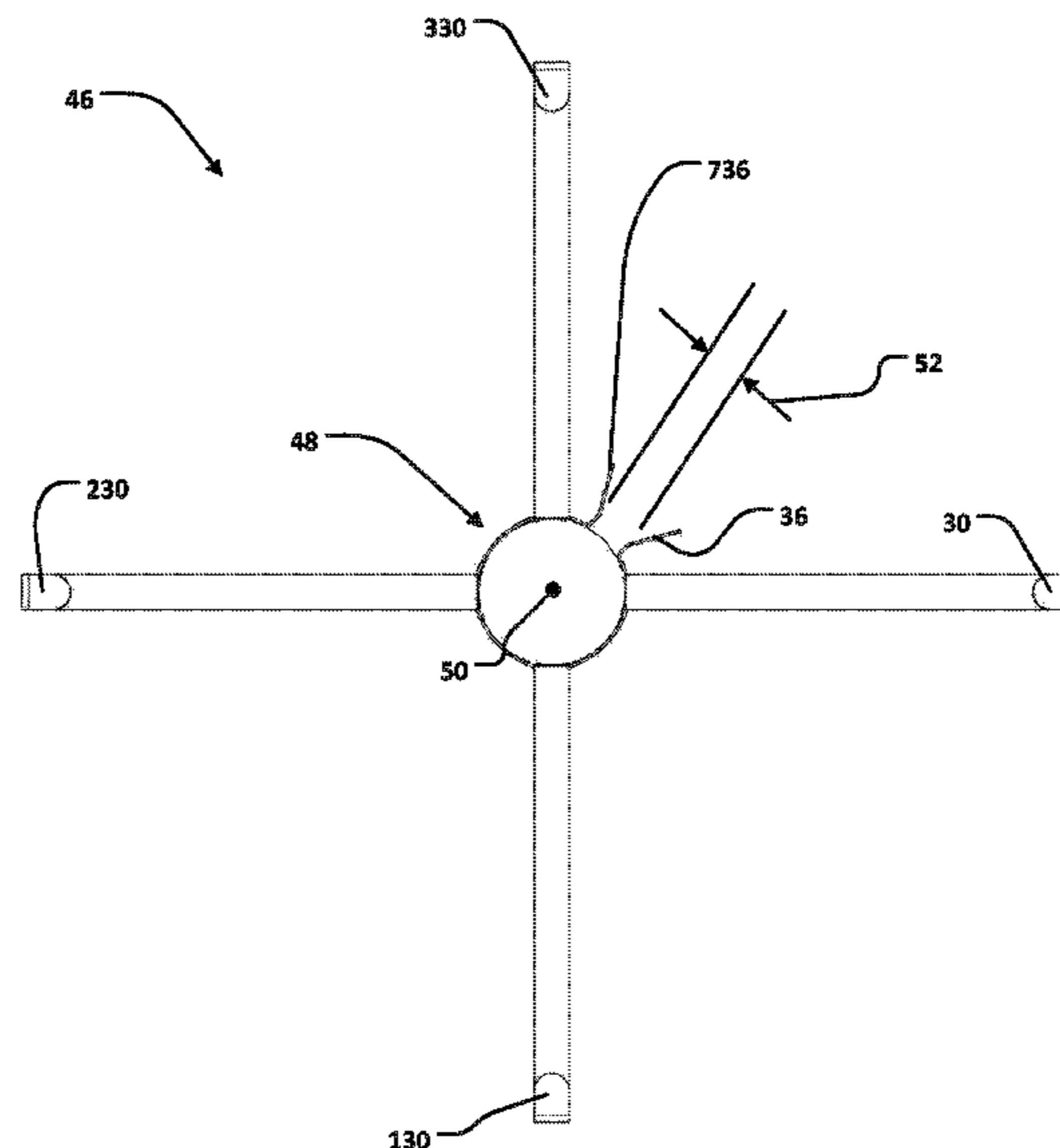
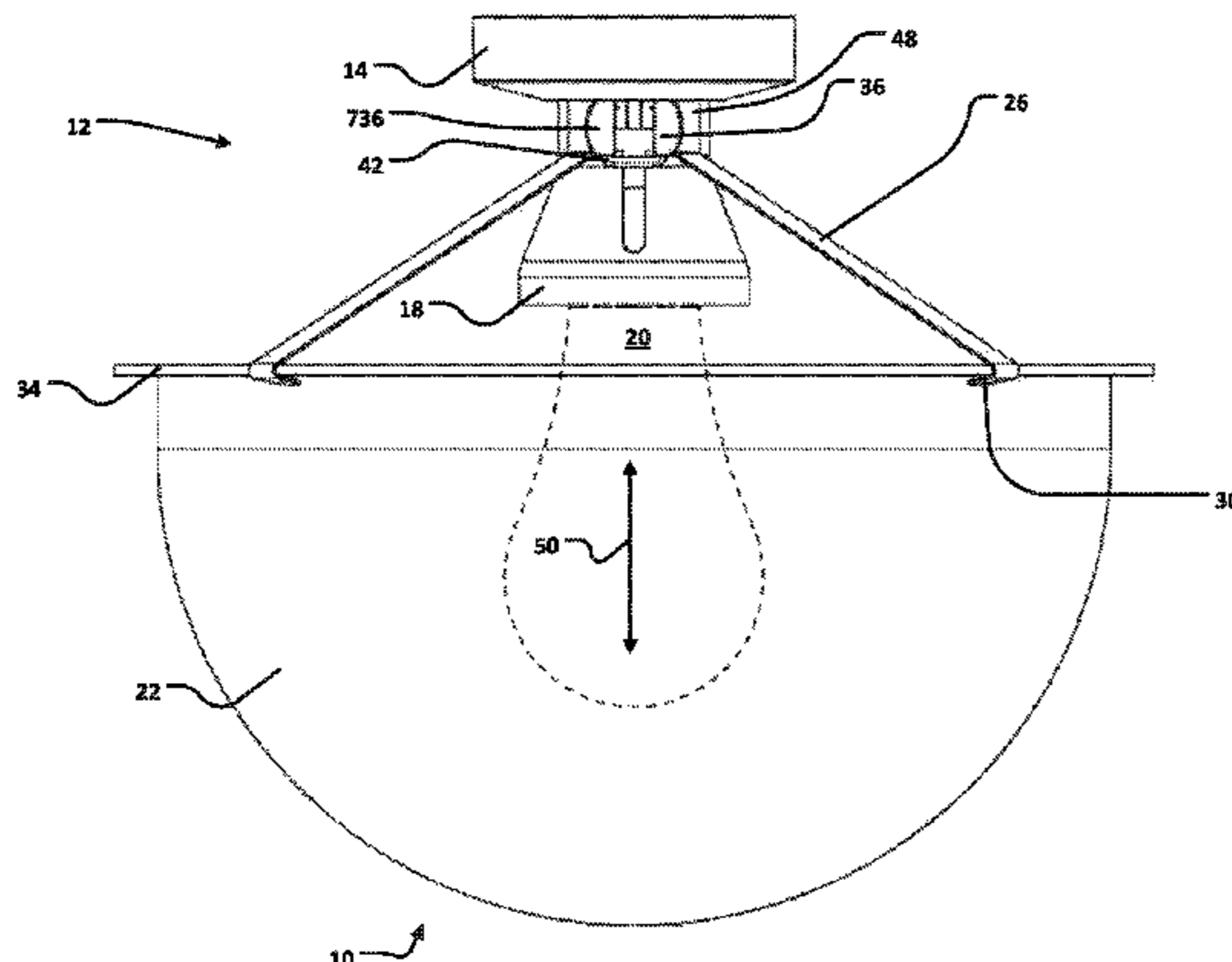
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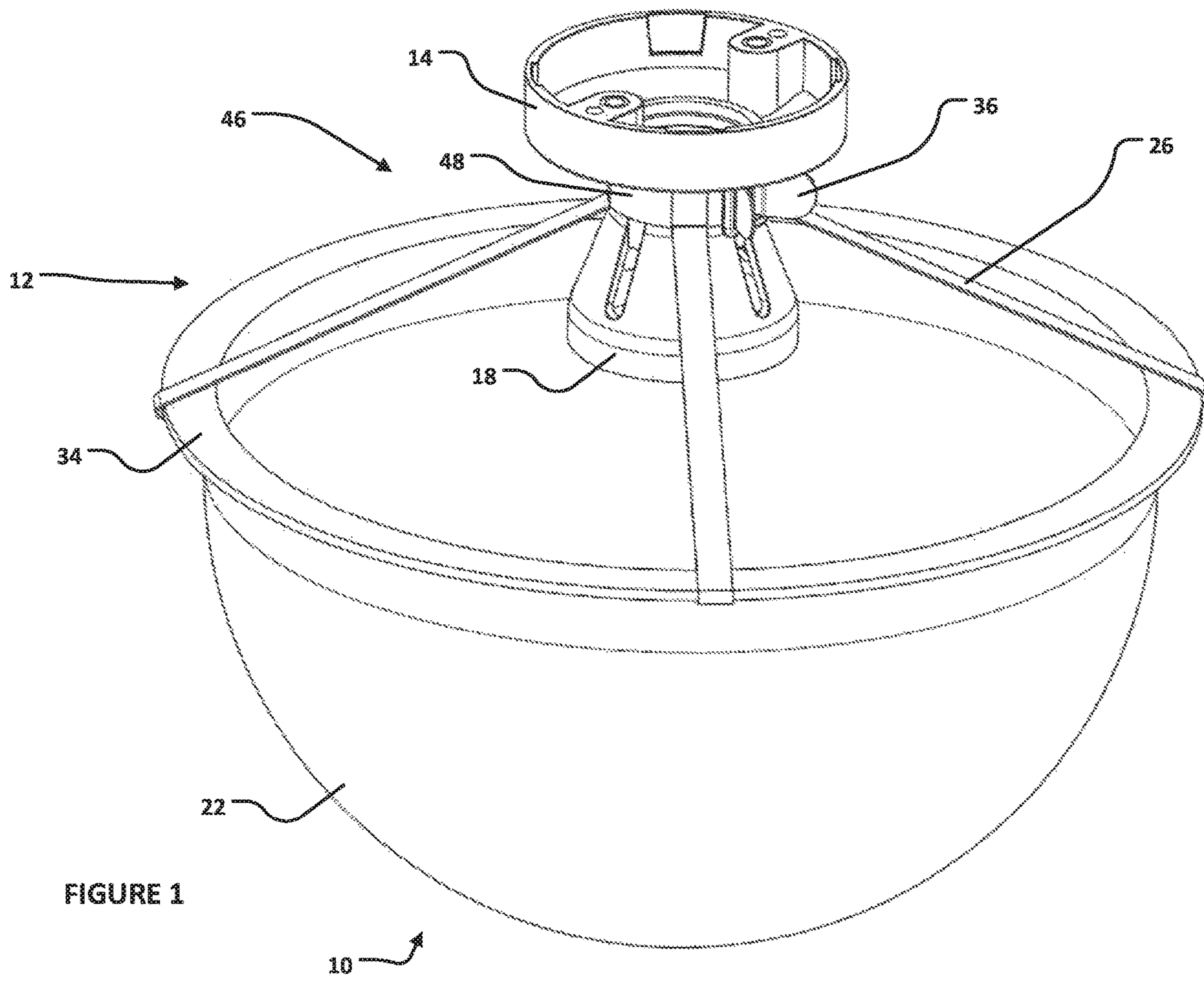
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(57) **ABSTRACT**

A light diffuser assembly for a light bulb fixture can include a retaining member and a diffuser member. The retaining member can include a collar and a plurality of arms. The collar can be configured to be pushed over a socket of the light bulb fixture. Each of the plurality of arms can extend away from the collar and from a central axis to a respective distal end and include a tab at the respective distal end. The diffuser member can include an annular lip that is received by each of the plurality of tabs. The retaining member can also include first and second grips. The first and second grips are graspable and moveable closer together to deform the collar and tighten the collar about the socket of the light bulb fixture.

**5 Claims, 10 Drawing Sheets**





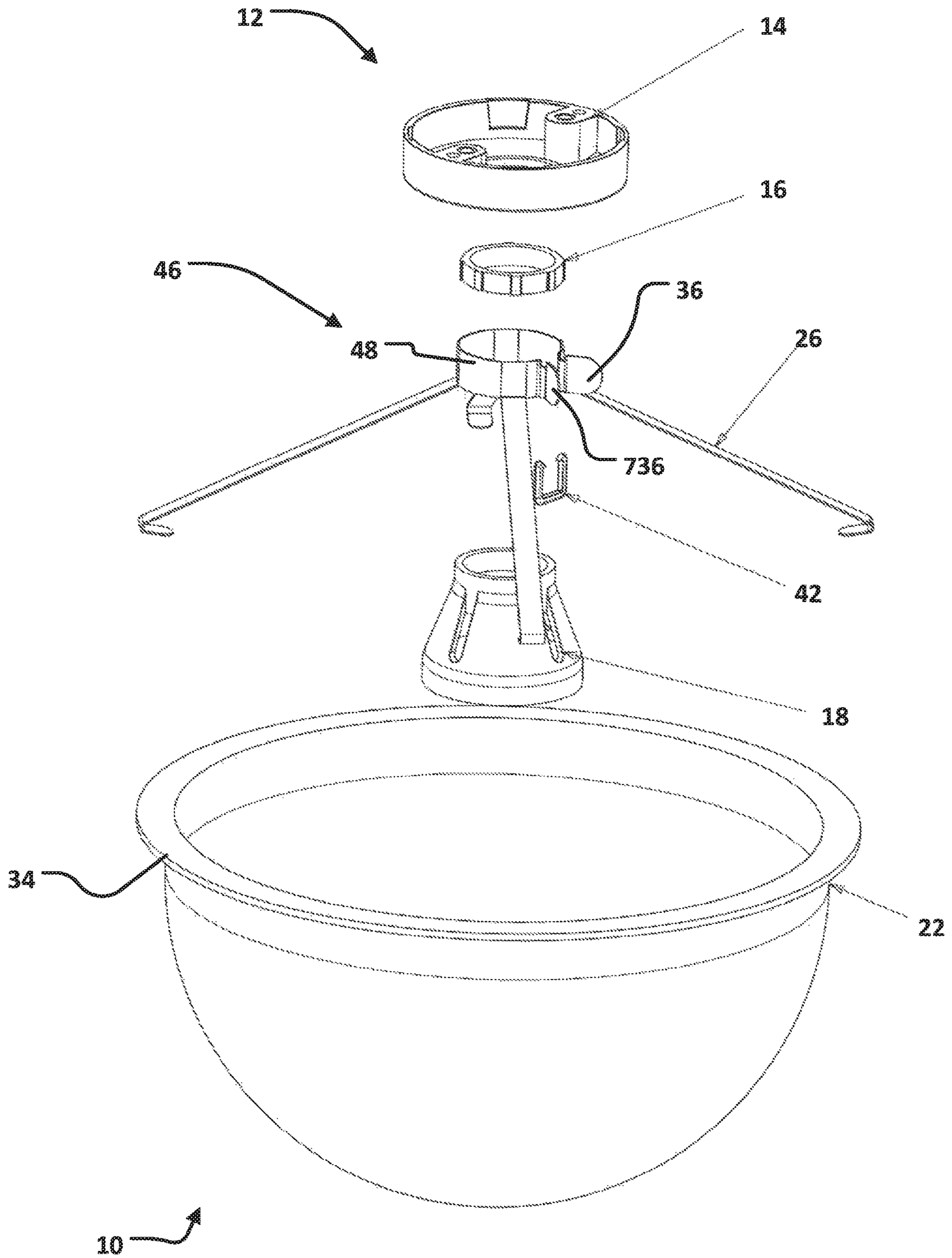
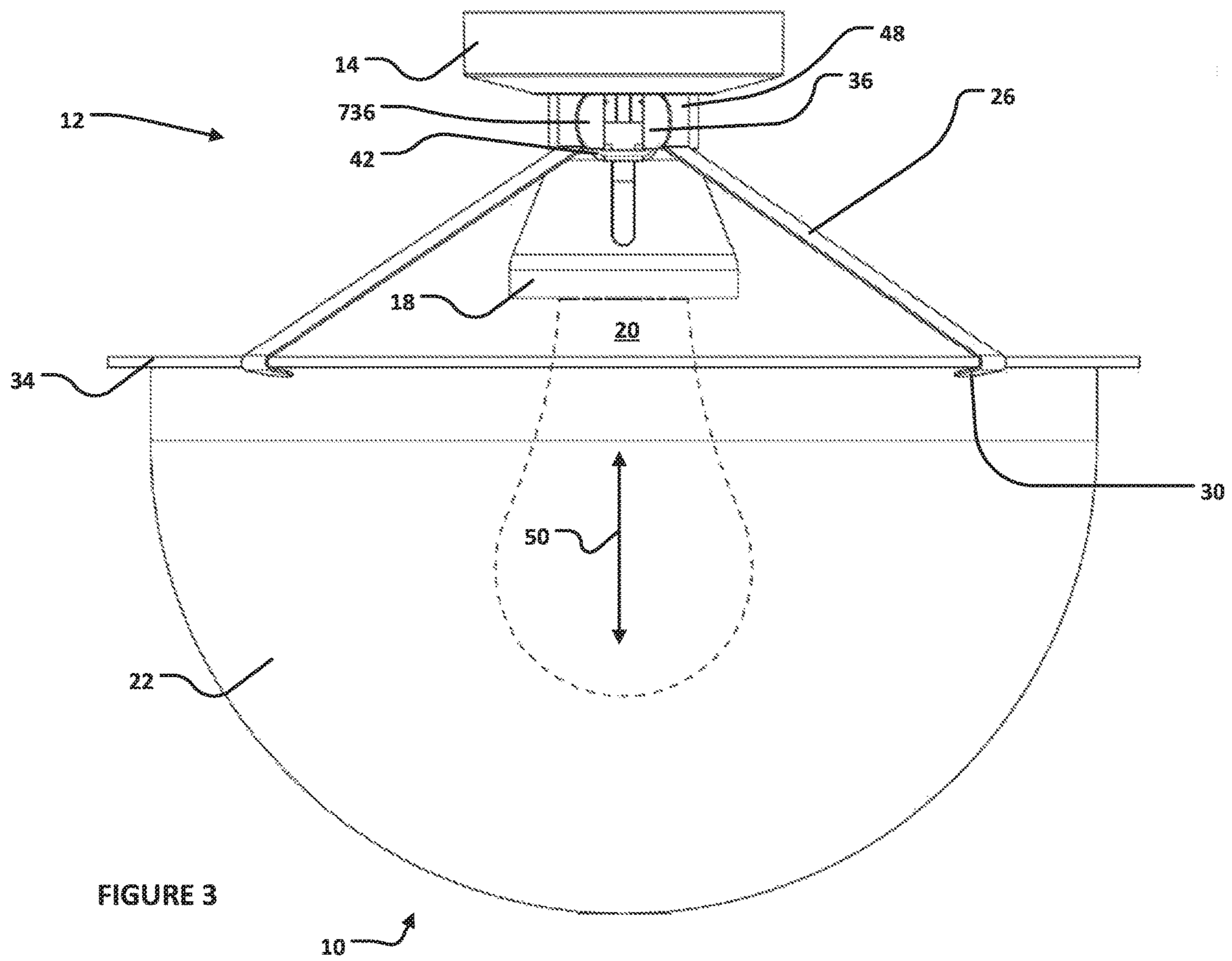
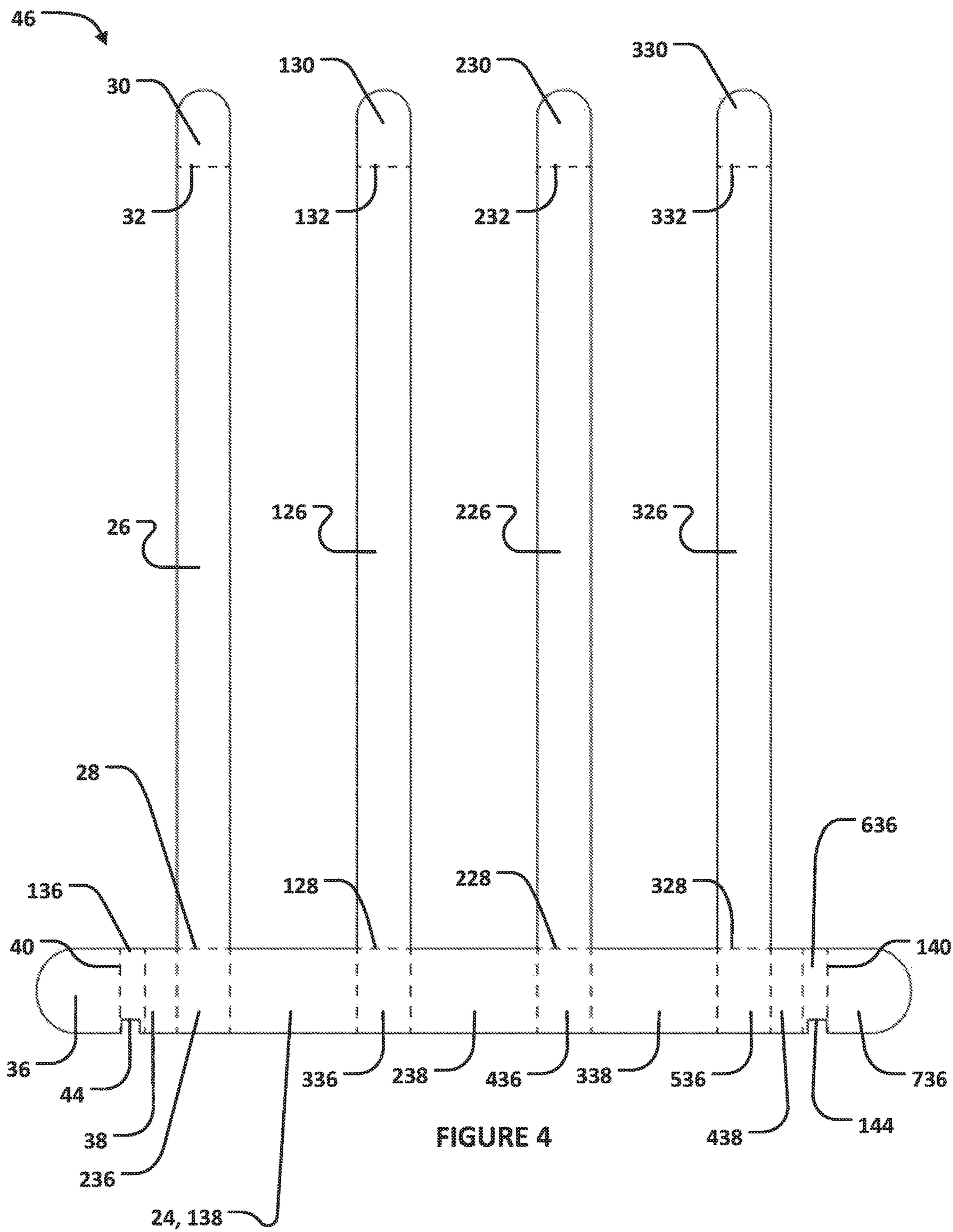


FIGURE 2





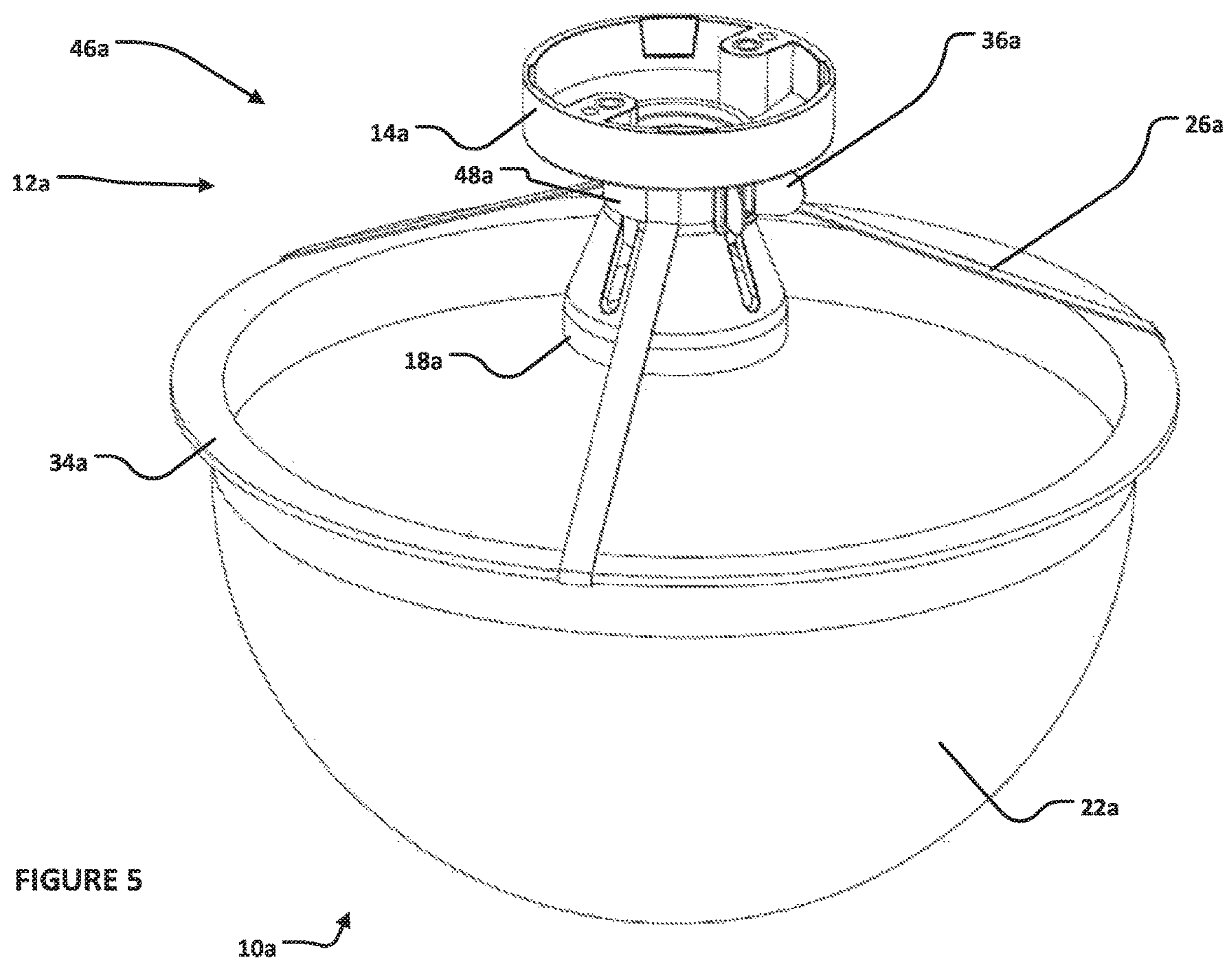


FIGURE 5

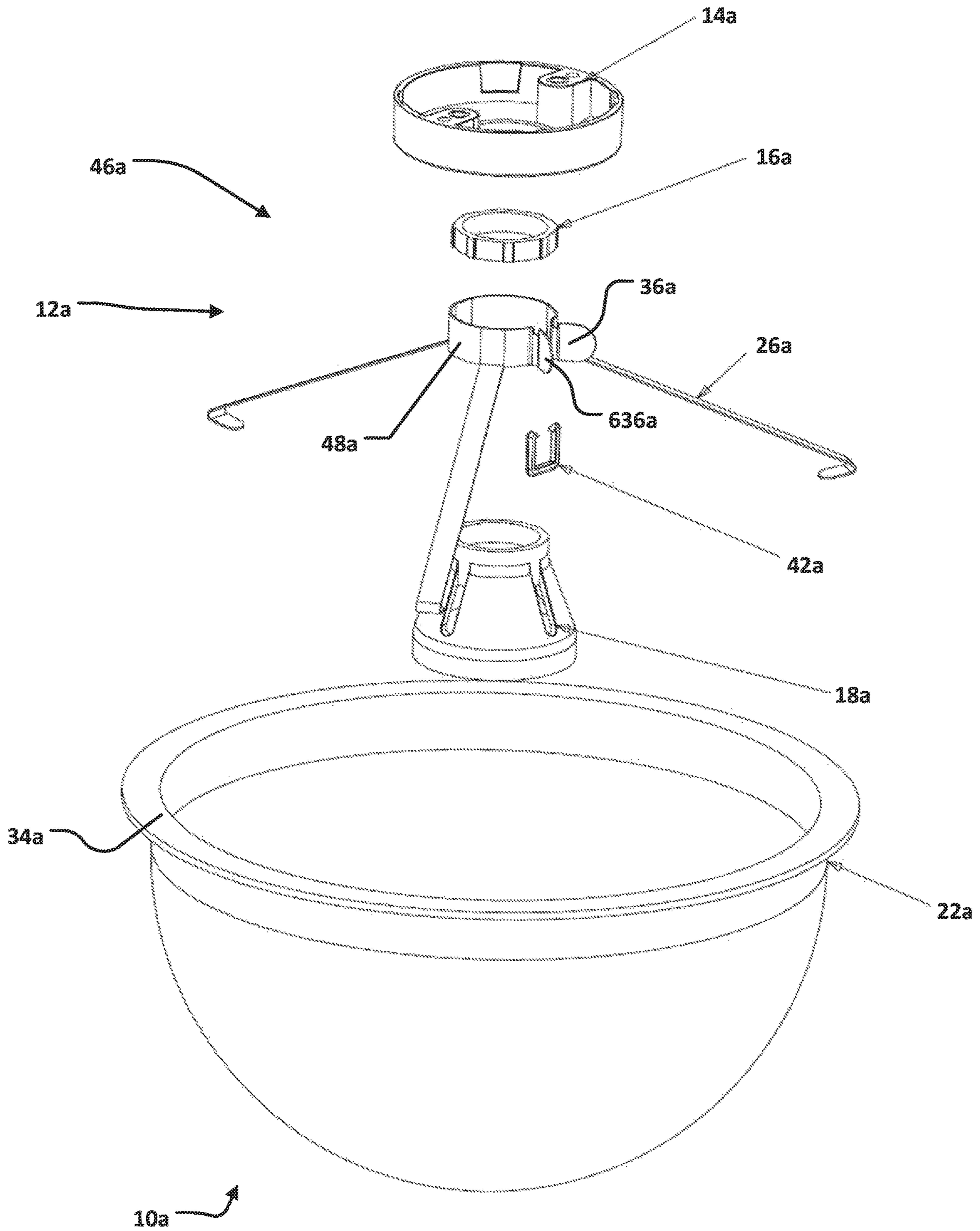


FIGURE 6

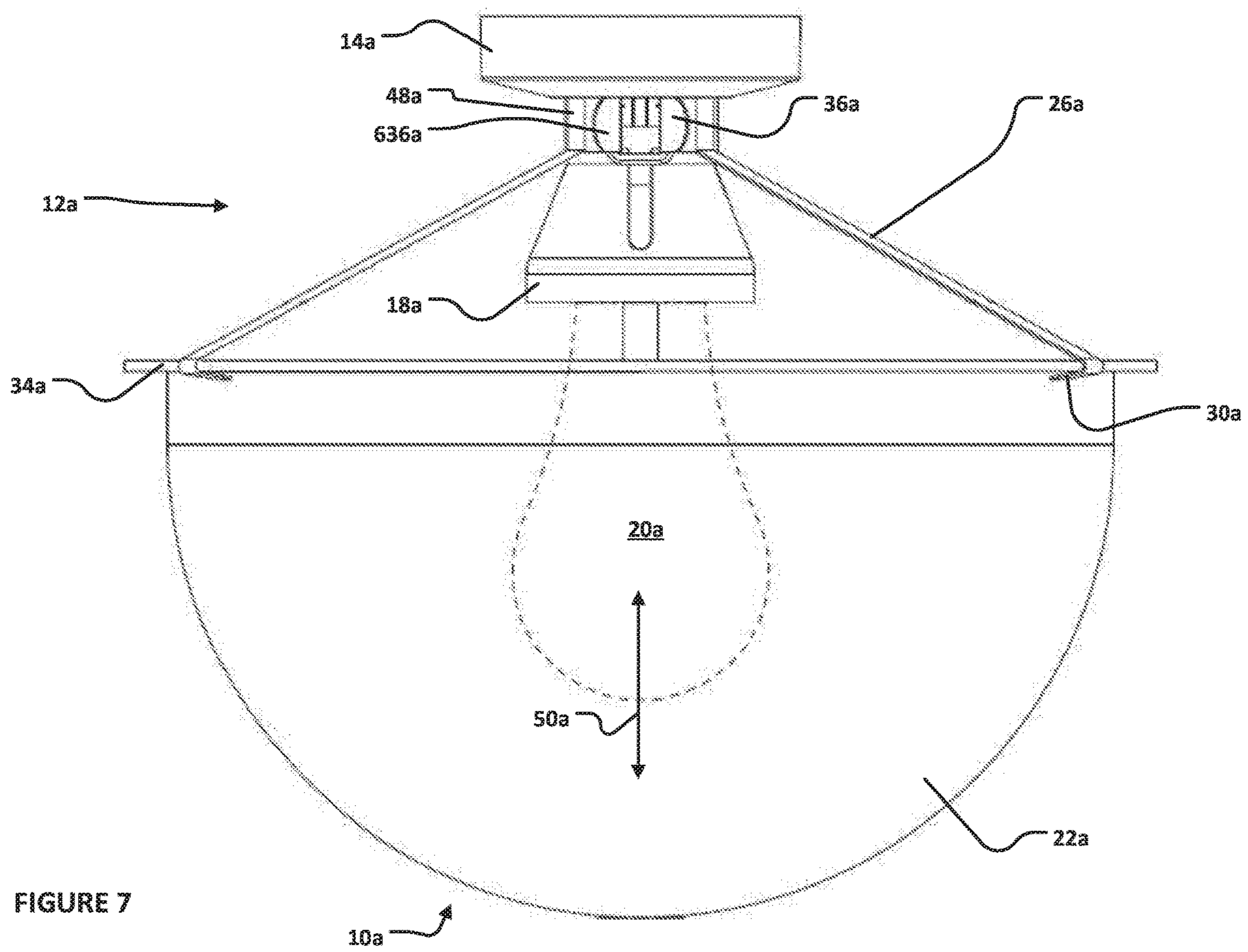


FIGURE 7



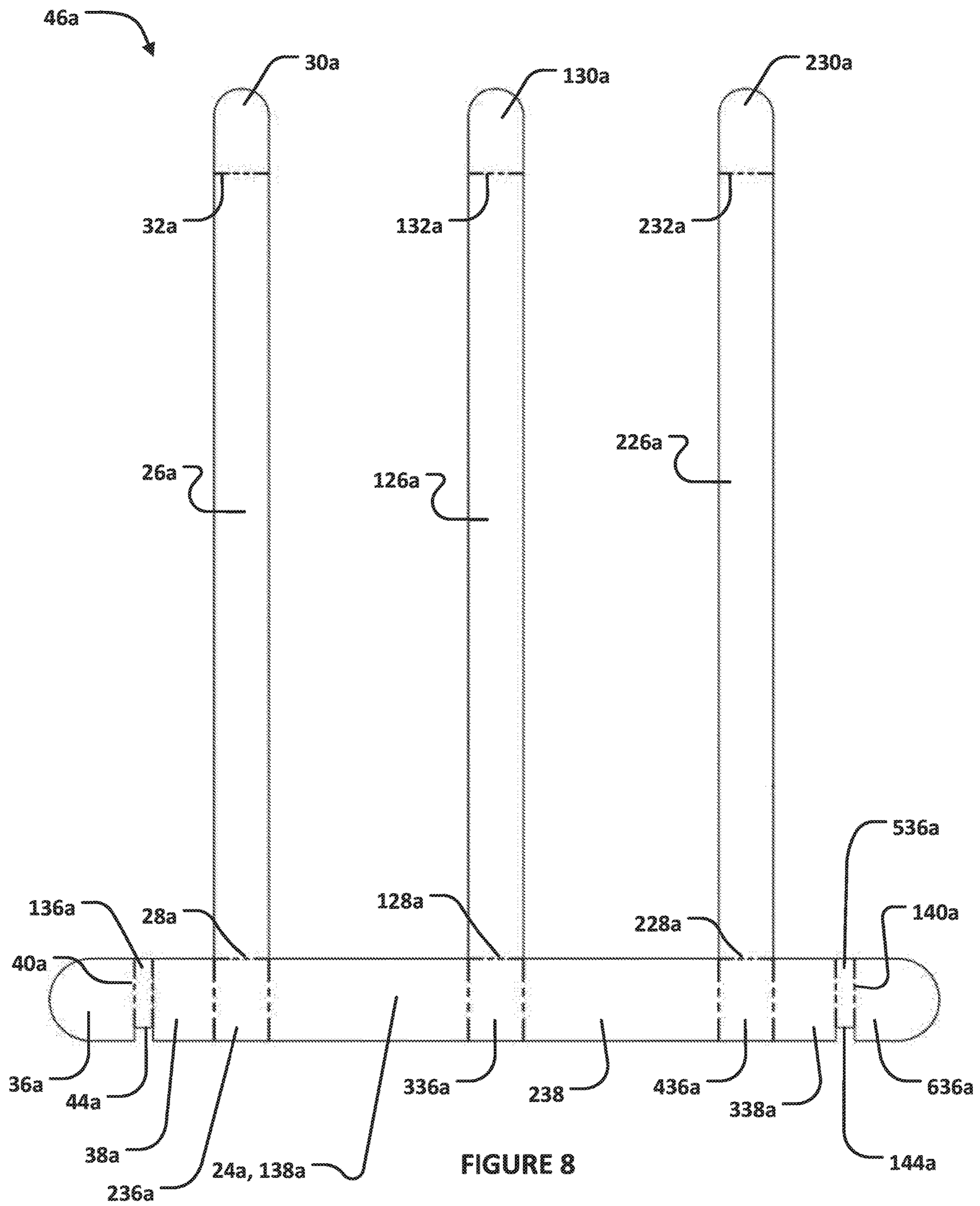


FIGURE 8

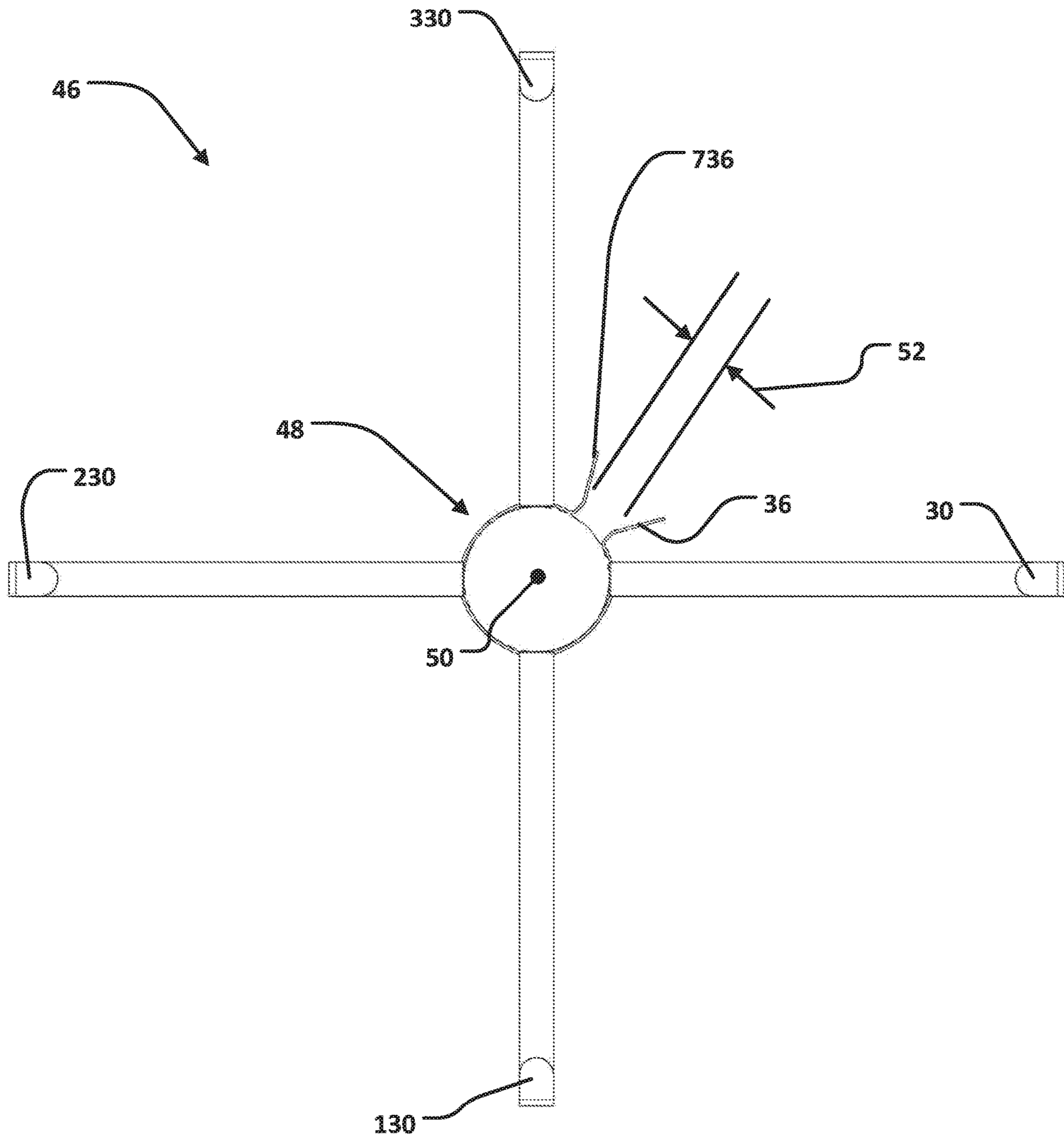


FIGURE 9

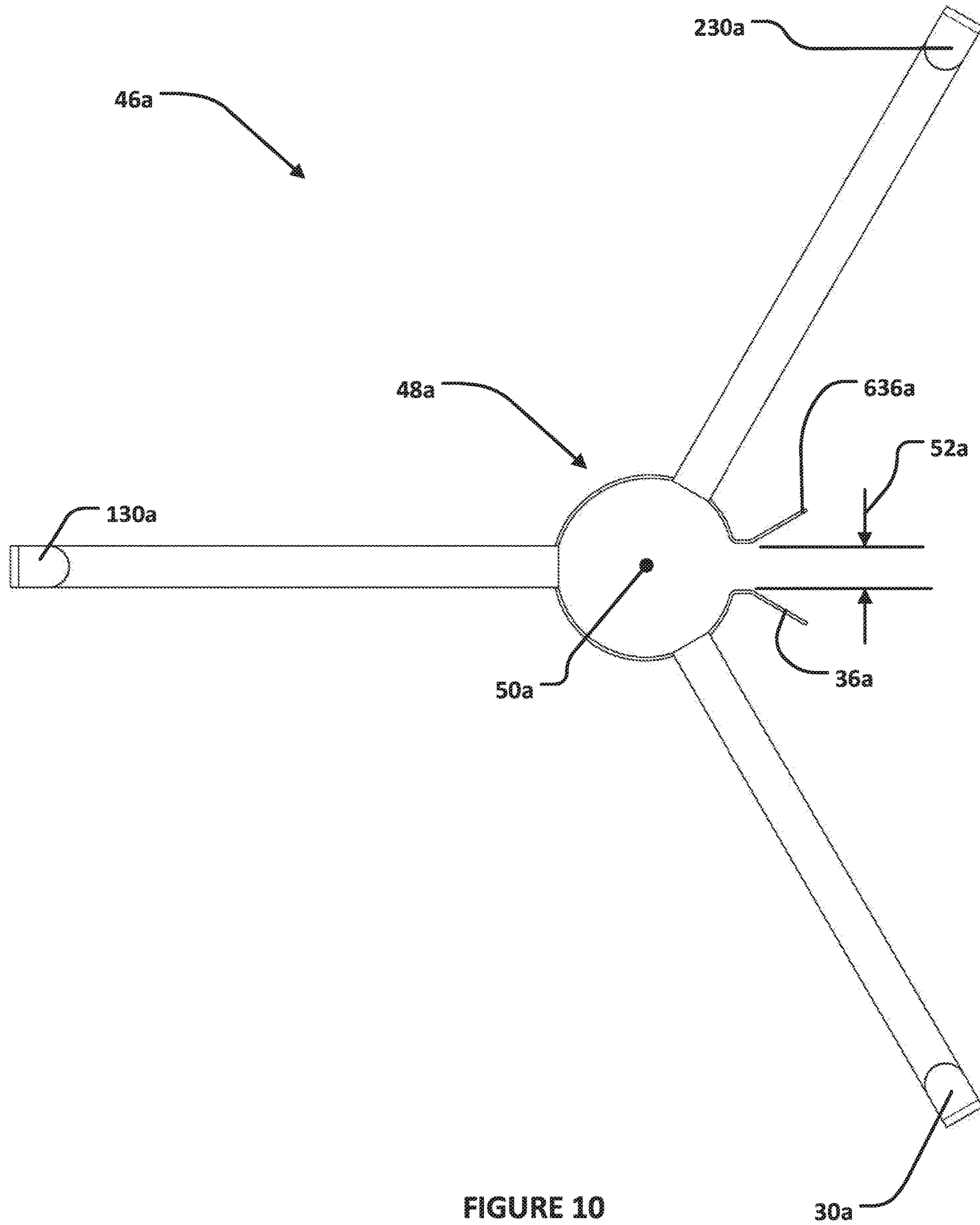


FIGURE 10

**1****LIGHT DIFFUSER SUPPORT**CROSS-REFERENCE TO RELATED  
APPLICATIONS

This application claims the benefit of International Patent Application Serial No. PCT/US17/55322 for a LIGHT DIFFUSER SUPPORT, filed on 17 Oct. 2017, which claims benefit to U.S. Provisional Patent Application Ser. No. 62/408,906 for a LIGHT SHADE SUPPORT, filed on 17 Oct. 2016, which is hereby incorporated by reference in its entirety.

## BACKGROUND

## 1. Field

The present disclosure relates to a structure for supporting a shade on a light emitting structure.

## 2. Description of Related Prior Art

DE1796795 discloses an apparatus for securing a lamp shade.

The background description provided herein is for the purpose of generally presenting the context of the disclosure. Work of the presently named inventor, to the extent it is described in this background section, as well as aspects of the description that may not otherwise qualify as prior art at the time of filing, are neither expressly nor impliedly admitted as prior art against the present disclosure.

## SUMMARY

A light diffuser assembly for a light bulb fixture can include a retaining member and a diffuser member. The retaining member can include a collar and a plurality of arms. The collar can be substantially centered on a central axis. The collar can extend about an arcuate path less than three hundred and sixty degrees about the central axis between opposite first and second ends and thereby define a collar gap. The collar can be configured to be pushed over a socket of the light bulb fixture. Each of the plurality of arms can extend away from the collar and the central axis to a respective distal end. Each of the plurality of arms includes a tab at the respective distal end. Each of the plurality of tabs extends back towards the central axis. The diffuser member can include an annular lip that is received by each of the plurality of tabs whereby the diffuser member is suspended on the base of the light bulb fixture by the retaining member. The retaining member can also include first and second grips. One of the first and second grips can be respectively disposed at one of the first end and the second end of the collar. Each of the first grip and the second grip can extend away from the arcuate path and further away from the central axis. Each of the plurality of arms can extend away from the central axis further than the first and second grips. The first and second grips are graspable and moveable closer together to deform the collar and tighten the collar about the socket of the light bulb fixture.

## BRIEF DESCRIPTION OF THE DRAWINGS

The detailed description set forth below references the following drawings:

FIG. 1 is a perspective view of a first exemplary embodiment of the present disclosure in operation;

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FIG. 2 is an exploded view of the first exemplary embodiment of the present disclosure in operation;

FIG. 3 is a side view of the first exemplary embodiment of the present disclosure in operation;

FIG. 4 is a planar view of the first exemplary embodiment of the present disclosure in operation prior to being bent for operation;

FIG. 5 is a perspective view of a second exemplary embodiment of the present disclosure in operation;

FIG. 6 is an exploded view of the second exemplary embodiment of the present disclosure in operation;

FIG. 7 is a side view of the second exemplary embodiment of the present disclosure in operation;

FIG. 8 is a planar view of the second exemplary embodiment of the present disclosure in operation prior to being bent for operation;

FIG. 9 is bottom view looking up of a retaining member according to the first exemplary embodiment of the present disclosure; and

FIG. 10 is bottom view looking up of a retaining member according to the second exemplary embodiment of the present disclosure.

## DETAILED DESCRIPTION

A plurality of different embodiments of the present disclosure is shown in the Figures of the application. Similar features are shown in the various embodiments of the present disclosure. Similar features across different embodiments have been numbered with a common reference numeral and have been differentiated by an alphabetic suffix. Similar features in a particular embodiment have been numbered with a common two-digit, base reference numeral and have been differentiated by a different leading numeral. Also, to enhance consistency, the structures in any particular drawing share the same alphabetic suffix even if a particular feature is shown in less than all embodiments. Similar features are structured similarly, operate similarly, and/or have the same function unless otherwise indicated by the drawings or this specification. Furthermore, particular features of one embodiment can replace corresponding features in another embodiment or can supplement other embodiments unless otherwise indicated by the drawings or this specification.

FIGS. 1-4 and 9 are illustrations of a first exemplary light diffuser assembly 10. The light diffuser assembly 10 can be formed from a metal or another material and can selectively engageable with a light bulb fixture 12. The light bulb fixture 12 can include a junction box mounting bracket 14, a nut 16, and a socket 18. The junction box mounting bracket 14 can be mounted to a junction box (not shown) mounting in a wall or ceiling. The junction box mounting bracket 14 can be mounted to the junction box with fasteners and wires can pass through the junction box mounting bracket 14. The nut 16 can releasably interconnect the junction box mounting bracket 14 and the socket 18. The socket 18 can define the electrical contacts for communicating electricity between the junction box and a light bulb 20 (shown in phantom).

The exemplary light diffuser assembly 10 can include a diffuser member 22 and a retaining member 46. The retaining member 46 can be bent from the configuration shown in FIG. 4 to the configuration shown in FIGS. 1-3 to mount the diffuser member 22 on the socket 18. The retaining member 46 includes a base 24 and arms 26, 126, 226, 326. The dashed lines in FIG. 4 represent bending planes. For example, the arms 26, 126, 226, 326 can be bent about lines 28, 128, 228, 328, respectively, out of the plane of the base

24. Distal ends or tips **30, 130, 230, 330** of the arms **26, 126, 226, 326** can be bent about lines **32, 132, 232, 332**, respectively, to form tabs for engaging a lip **34** of the diffuser member **22**.

The base **24** can be bent to form a collar **48** corresponding to the generally circular profile of the socket **18**. The portions of the base **24** referenced at **36, 136, 236, 336, 436, 536, 636, and 736** can be left flat. The portions of the base **24** referenced at **38, 138, 238, 338, and 438** can be bent to be arcuate. The adjacent flat portions **36** and **136** can be bent with respect to one another about line **40** to be in transverse planes. The adjacent flat portions **636** and **736** can be bent with respect to one another about line **140** to be in transverse planes.

The exemplary collar **48** is substantially centered on a central axis **50**. The exemplary collar **48** extends about an arcuate path less than three hundred and sixty degrees about the central axis **50** between opposite first and second ends. The arcuate path is most easily perceived in FIG. 9. The portions **38** and **438** can define the first and second ends. The collar **48** can thus include an exemplary collar gap **52**. The exemplary collar **48** is configured to be pushed over a socket **18** of the light bulb fixture **12**, elastically deformed during this process. Each of the plurality of exemplary arms **26, 126, 226, 326** extends away from the exemplary collar **48** and the central axis **50** to the respective distal ends **30, 130, 230, 330**. Each of the plurality of arms **26, 126, 226, 326** includes a tab in the form of the respective distal ends **30, 130, 230, 330**. Each of the plurality of tabs **30, 130, 230, 330** extends back towards the central axis **50**.

The light diffuser assembly **10** can also include a clip **42**. Distal ends of the clip **42** can be received in notches **44, 144** of the base **24** when the light diffuser assembly **10** has been bent to encircle the socket **18**. The portions **36** and **736** of the base **24** can be brought together and the clip **42** can be raised to so that portions **136** and **636** are between the arms of the clip **42**. The clip **42** can be raised until the distal ends are received in the notches **44, 144**. The clip thus prevents the retaining member **46** from being released relative to the socket **18**.

The clip **42** is optional. The retaining member **46** includes first and second grips in the form of portions **36** and **736**. The exemplary collar **48**, the plurality of arms **26, 126, 226, 326**, and the first and second grips **36, 736** are metallic and integrally-formed with respect to one another. "Integrally-formed" refers to the fact that in the exemplary embodiment the exemplary collar **48**, the plurality of arms **26, 126, 226, 326**, and the first and second grips **36, 736** are formed together rather than being formed separately and then subsequently joined. The term defines a structural feature since structures that are integrally-formed are structurally different than structures that are comprised of subcomponents formed separately and then subsequently joined. "Integral" means consisting or composed of parts that together constitute a whole and thus encompasses structures of more than one part wherein the parts are either integrally-formed or formed separately and then subsequently joined.

The first and second grips **36** and **736** are respectively disposed at one of the first end and the second end of the collar **48** (portions **38** and **438**). Each of the first grip **36** and the second grip **736** extend away from the arcuate path and further away from the central axis **50**. The plurality of arms **26, 126, 226, 326** extend away from the central axis **50** further than the first and second grips **36, 736**. The first and second grips **36, 736** are graspable and moveable closer together to deform the collar **48** and tighten the collar **48** about the socket **18** of the light bulb fixture **12**. The collar **48**,

thus deformed, can suffice to affix the retaining member **46** to the socket **18** and therefore sufficient to affix the diffuser member **22** to the socket **18**.

In one or more embodiments of the present disclosure, the light diffuser assembly **10** could have a metal frame in the shape shown in FIG. 4 and, further, be coated in a heat resistant material such as silicone. This would allow such an embodiment to dampen any vibrations. Also, embodiments of the present disclosure could be formed in various colors.

FIGS. 5-8 and 10 are illustrations of a second exemplary light diffuser assembly **10a**. The exemplary light diffuser assembly **10a** is selectively engageable with a light bulb fixture **12a**. The light bulb fixture **12a** can include a junction box mounting bracket **14a**, a nut **16a**, and a socket **18a**. The junction box mounting bracket **14a** can be mounted to a junction box (not shown) mounting in a wall or ceiling. The junction box mounting bracket **14a** can be mounted to the junction box with fasteners and wires can pass through the junction box mounting bracket **14a**. The nut **16a** can releasably interconnect the junction box mounting bracket **14a** and the socket **18a**. The socket **18a** can define the electrical contacts for communicating electricity between the junction box and a light bulb **20a** (shown in phantom).

The exemplary light diffuser assembly **10a** can include a diffuser member **22a** and a retaining member **46a**. The retaining member **46a** can be bent from the configuration shown in FIG. 8 to the configuration shown in FIGS. 5-7 to mount the diffuser member **22a** on the socket **18a**. The light diffuser assembly **10a** includes a base **24a** and arms **26a, 126a, 226a**. The dashed lines in FIG. 4a represent bending planes. For example, the arms **26a, 126a, 226a** can be bent about lines **28a, 128a, 228a**, respectively, out of the plane of the base **24a**. Distal ends or tip **30a, 130a, 230a**, of the arms **26a, 126a, 226a** can be bent about lines **32a, 132a, 232a**, respectively, to form tabs for engaging a lip **34a** of the diffuser member **22a**.

The base **24a** can be bent to surround the generally circular profile of the socket **18a**. The portions of the base **24a** referenced at **36a, 136a, 236a, 336a, 436a, 536a, and 636a** can be left flat. The portions of the base **24a** referenced at **38a, 138a, 238a, and 338a** can be bent to be arcuate. The adjacent flat portions **36a** and **136a** can be bent with respect to one another about line **40a** to be in transverse planes. The adjacent flat portions **536a** and **636a** can be bent with respect to one another about line **140a** to be in transverse planes.

The exemplary collar **48a** is substantially centered on a central axis **50a**. The exemplary collar **48a** extends about an arcuate path less than three hundred and sixty degrees about the central axis **50a** between opposite first and second ends. The arcuate path is most easily perceived in FIG. 10a. The portions **38a** and **338a** can define the first and second ends. The collar **48a** can thus include an exemplary collar gap **52a**. The exemplary collar **48a** is configured to be pushed over a socket **18a** of the light bulb fixture **12a**. Each of the plurality of exemplary arms **26a, 126a, 226a** extends away from the exemplary collar **48a** and the central axis **50a** to the respective distal ends **30a, 130a, 230a**. Each of the plurality of arms **26a, 126a, 226a** includes a tab in the form of the respective distal ends **30a, 130a, 230a**. Each of the plurality of tabs **30a, 130a, 230a** extends back towards the central axis **50a**.

The light diffuser assembly **10a** can also include a clip **42a**. Distal ends of the clip **42a** can be received in notches **44a, 144a** of the base **24a** when the light diffuser assembly **10a** has been bent to encircle the socket **18a**. The portions **36a** and **736a** of the base **24a** can be brought together and the clip **42a** can be raised to so that portions **136a** and **636a**

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are between the arms of the clip **42a**. The clip **42a** can be raised until the distal ends are received in the notches **44a**, **144a**. The clip thus prevents the light diffuser assembly **10a** from being released relative to the socket **18a**.

The clip **42a** is optional. The retaining member **46a** includes first and second grips in the form of portions **36a** and **636a**. The exemplary collar **48a**, the plurality of arms **26a**, **126a**, **226a**, and the first and second grips **36a**, **636a** are metallic and integrally-formed with respect to one another. The first and second grips **36a** and **636a** are respectively disposed at one of the first end and the second end of the collar **48a** (portions **38a** and **338a**). Each of the first grip **36a** and the second grip **636a** extend away from the arcuate path and further away from the central axis **50a**. The plurality of arms **26a**, **126a**, **226a** extend away from the central axis **50a** further than the first and second grips **36a**, **636a**. The first and second grips **36a**, **636a** are graspable and moveable closer together to deform the collar **48a** and tighten the collar **48a** about the socket **18a** of the light bulb fixture **12a**. The collar **48a**, thus deformed, can suffice to affix the retaining member **46a** to the socket **18a** and therefore sufficient to affix the diffuser member **22a** to the socket **18a**.

While the present disclosure has been described with reference to an exemplary embodiment, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope of the present disclosure. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the present disclosure without departing from the essential scope thereof. Therefore, it is intended that the present disclosure not be limited to the particular embodiment disclosed as the best mode contemplated for carrying out this present disclosure, but that the present disclosure will include all embodiments falling within the scope of the appended claims. The right to claim elements and/or sub-combinations that are disclosed herein as other present disclosures in other patent documents is hereby unconditionally reserved.

What is claimed is:

1. A light diffuser assembly for a light bulb fixture comprising:

a retaining member including a collar and a plurality of arms, wherein said collar is substantially centered on a

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central axis, wherein said collar extends about an arcuate path less than three hundred and sixty degrees about said central axis between opposite first and second ends and thereby defines a collar gap whereby said collar is configured to be pushed over a socket of the light bulb fixture, wherein each of said plurality of arms extends away from said collar and said central axis to a respective distal end, wherein each of said plurality of arms includes a tab at said respective distal end, and wherein each of said plurality of tabs extends back towards said central axis;

a diffuser member including an annular lip that is received by each of said plurality of tabs whereby said diffuser member is suspended on the base of the light bulb fixture by said retaining member; and

wherein said retaining member further comprises first and second grips, one of said first and second grips respectively disposed at one of said first end and said second end of said collar, each of said first grip and said second grip extending away from said arcuate path and further away from said central axis, wherein each of said plurality of arms extend away from said central axis further than said first and second grips, and wherein said first and second grips are graspable and moveable closer together to deform said collar and tighten said collar about the socket of the light bulb fixture.

2. The diffuser assembly of claim 1 wherein said collar and said plurality of arms are metallic and integrally-formed with respect to one another.

3. The diffuser assembly of claim 1 wherein said collar and said plurality of arms and said first and second grips are metallic and integrally-formed with respect to one another.

4. The diffuser assembly of claim 1 further comprising: a clip selectively engageable with said retaining member and configure to fix said first and second ends together.

5. The diffuser assembly of claim 4 wherein said clip is u-shaped and extends to first and second distal ends and wherein said retaining member defines first and second notches, said first and second distal ends received in said first and second notches when said clip fixes said first and second ends together.

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