Nov. 3, 1942. A. R. HEDGES 2,300,504

LIGHTING FIXTURE CONSTRUCTION

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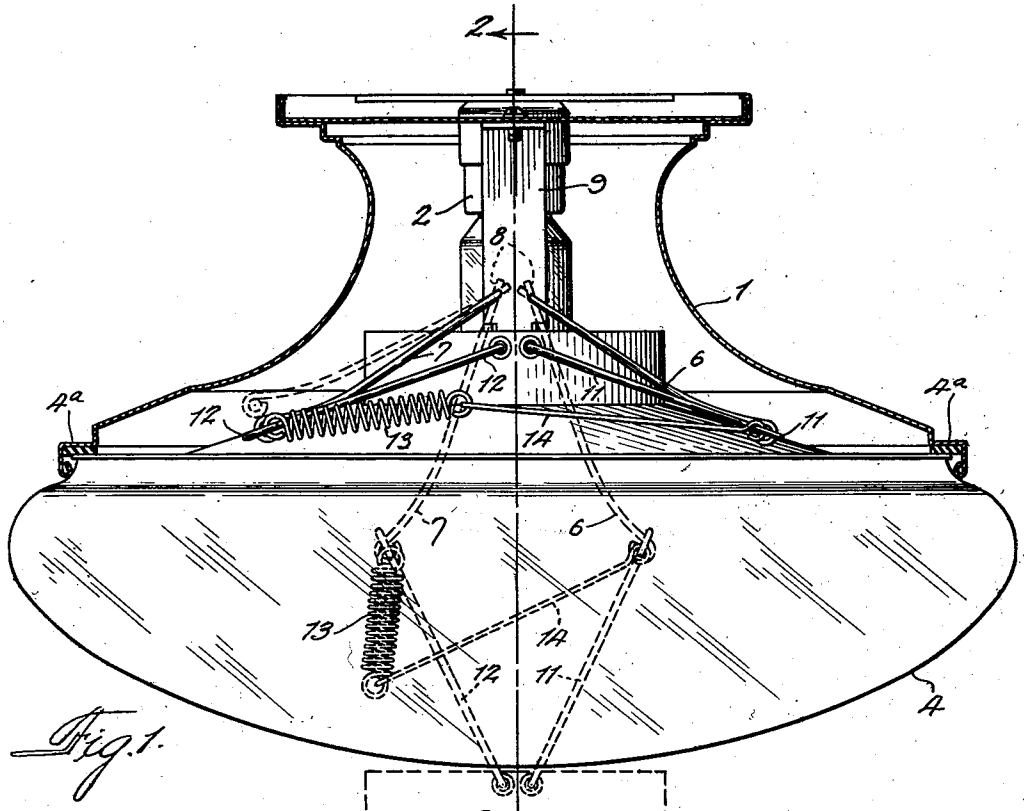


Fig. 1.

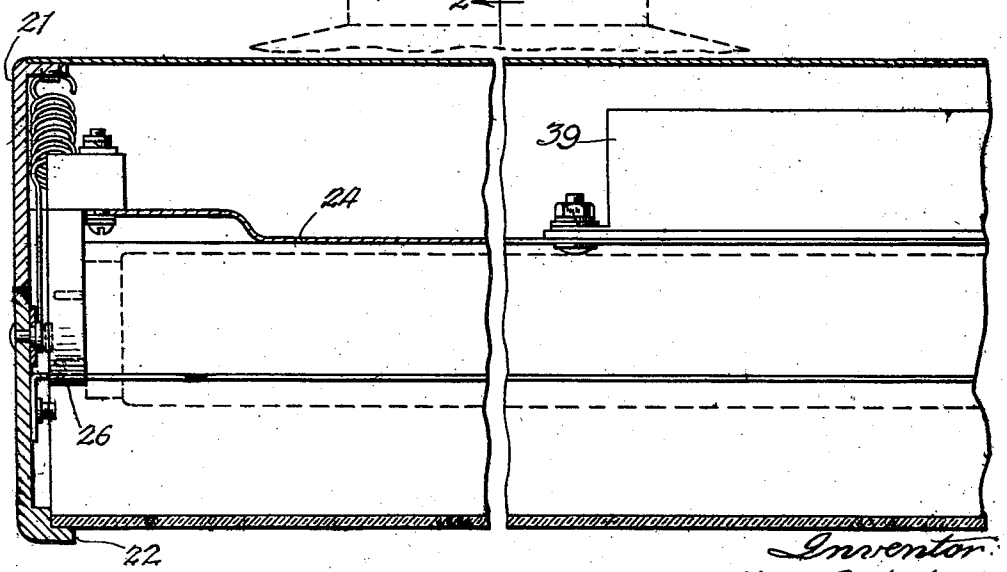


Fig. 4.

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Fig. 2.

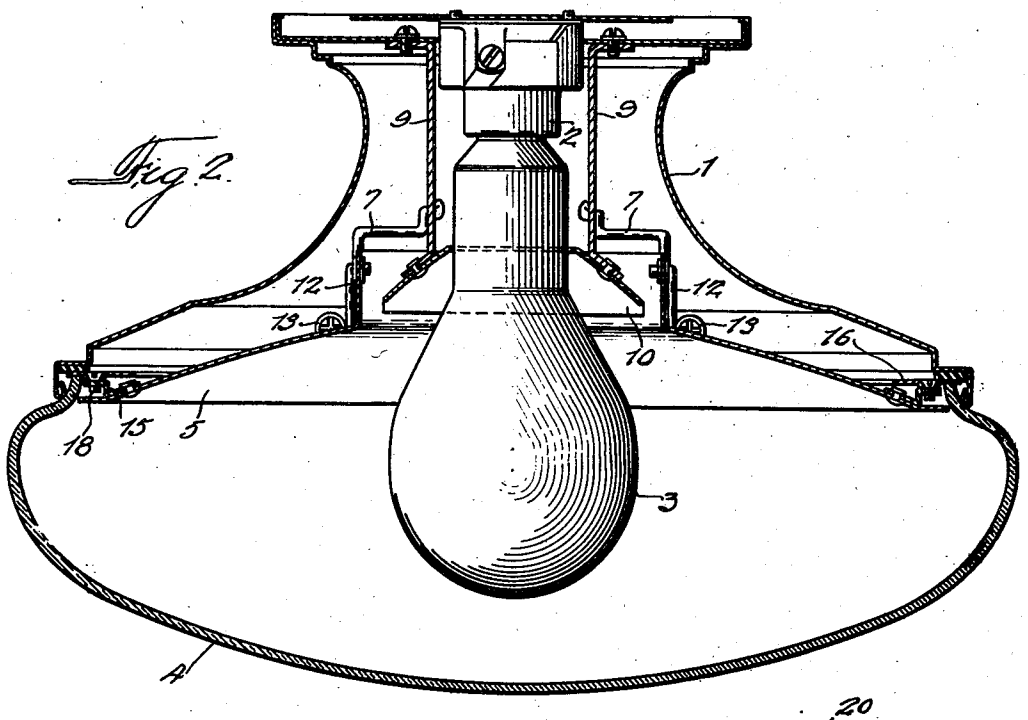
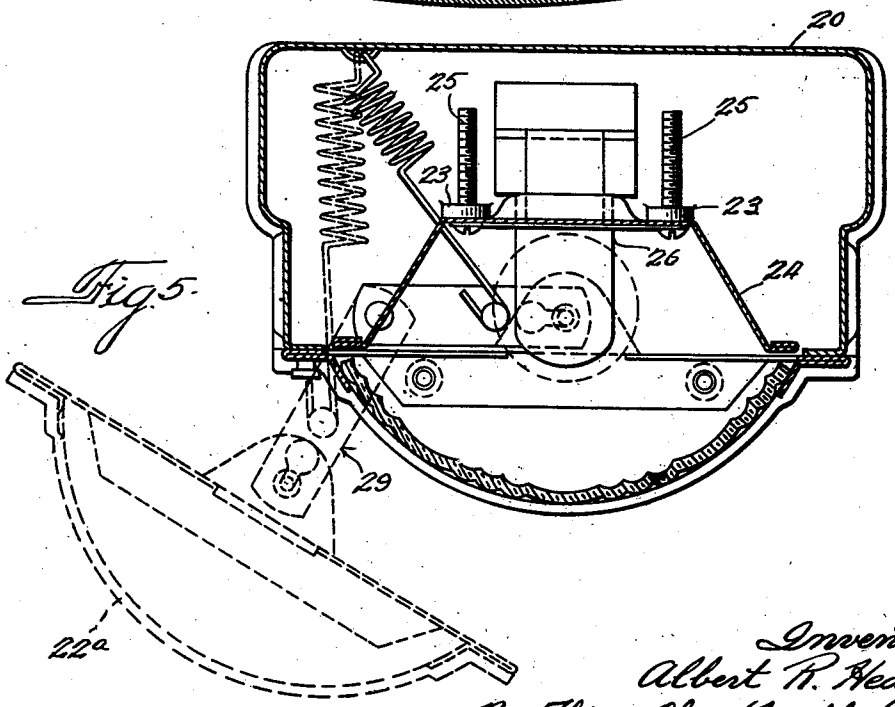


Fig. 5.



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Fig. 3.

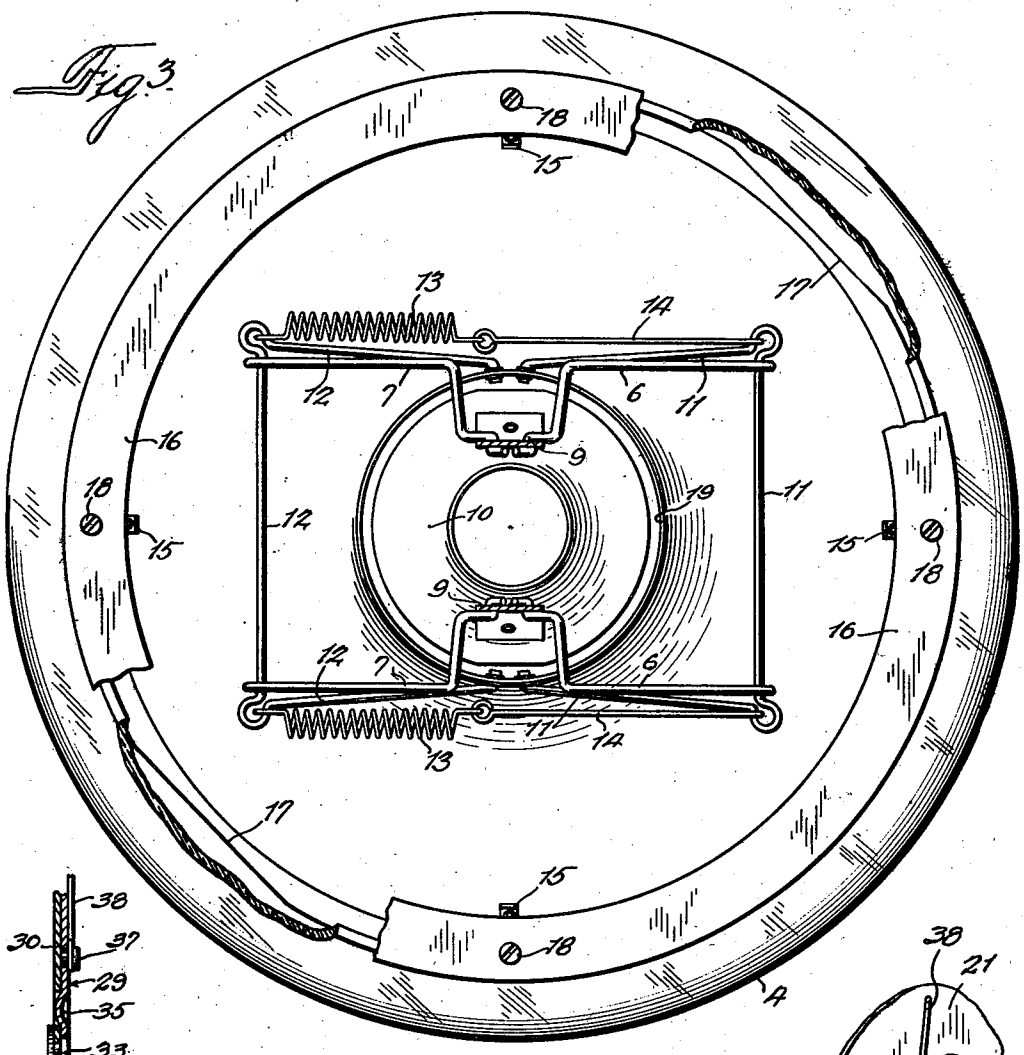


Fig. 8.

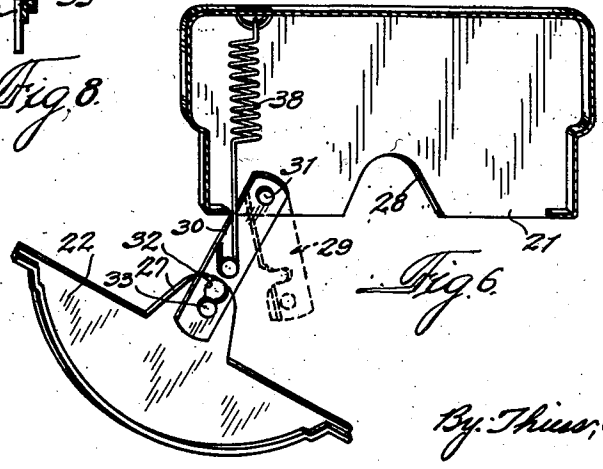


Fig. 6.

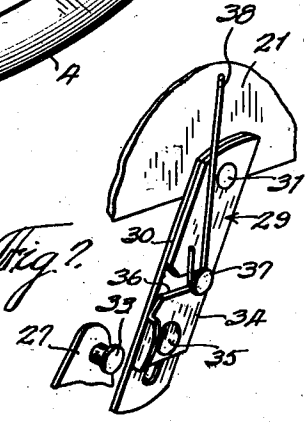


Fig. 7.

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UNITED STATES PATENT OFFICE

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LIGHTING FIXTURE CONSTRUCTION

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Application March 27, 1941, Serial No. 385,457

3 Claims. (Cl. 240—146)

This invention is directed to lighting fixtures for industrial, home, and office use and provides a fixture construction, the interior of which is made accessible with exceptional facility for the purposes of cleaning and servicing, lamp change, inspection, and the like.

In accordance with this invention a lighting fixture may be constructed to permit ready access to the interior thereof by simple bodily movement of a portion of said fixture and may be returned to condition for use by simple bodily return movement of this same portion of the fixture.

An important feature of the present invention is the particular way in which it is adapted to use in conjunction with the modern streamlined lighting constructions now highly favored and extensively employed. This adaptability is an incident of the virtual elimination of all outwardly protruding bolts, nuts, and fastening means and even to the substantial elimination of rivet heads and the like whereby there is provided an exceptionally clean, unmarred and unbroken exterior, much to be desired in the modern design.

The particular construction whereby the globe of the fixture in the present invention is secured in readily removable engagement with the usual canopy or fixture hood employs a minimum of parts to get out of order and includes a novel globe supporting arrangement by which the globe is securely and tightly held in all of its positions.

A feature of the present invention is the provision of a yielding means which secures the fixture, globe and associated parts in close engagement with the hood, but which may be operated by bodily movement of the globe member to release the latching tension which secures the globe in place.

The present invention is not to be limited to the particular embodiments illustrated but may be applied to numerous types of fixture constructions wherein it is desired to accomplish the objects of the present invention.

Other objects and advantages will hereinafter more fully be described and for a complete understanding of the nature, scope and characteristics of this invention reference may now be had to the following description and accompanying drawings, in which latter

Fig. 1 is a side elevation partly in section through a lighting fixture construction embodying the present invention and showing in dotted lines the position of the parts when the fixture is open for access into its interior;

Fig. 2 is a similar view taken at right angles to the view of Fig. 1 and showing the parts in assembled position;

Fig. 3 is a plan view looking down on the fixture from above and with the canopy and light source removed;

Fig. 4 is a longitudinal side elevation of another embodiment of the present invention wherein it is shown applied to a fluorescent lighting fixture;

Fig. 5 is a transverse view, partially in cross-section, of the embodiment illustrated in Fig. 4;

Fig. 6 is a perspective view partially in section of the embodiment illustrated in Figs. 4 and 5 and showing the lens and lens supporting means distended;

Fig. 7 is a detailed perspective of a portion of the lens supporting means; and

Fig. 8 is a fragmentary sectional axial view of the arm shown in Fig. 7.

Referring to the drawings in detail, in the embodiment illustrated in Figs. 1, 2 and 3, the present invention is shown applied to an overhead ceiling lighting fixture construction wherein a canopy 1 houses the usual light socket 2 and electric light bulb 3. However, the usual glass light diffusing globe 4 is here shown provided with a reflector member 5 to which the globe 4 is secured in a manner hereinafter described in detail.

The globe 4 and reflector 5 are suspended and secured by an extensible and contractible arrangement comprising link arms, springs, and the like, whereby, when the globe 4 is grasped and pulled downwardly with sufficient force, the toggle joint formed by said links and springs is altered to permit the globe and reflector to be suspended from the extensible depending means in the manner shown in dotted lines in Fig. 1. A sealing gasket 4a may be provided as shown.

The toggle arrangement comprises link arms 6—6 and 7—7 pivoted at 8 to a pair of spaced upright supporting straps 9 which at their lower ends are connected to a small reflector 10 and at their upper ends engage the fixture canopy supporting assembly adjacent the ceiling. The link arms 6—6 and 7—7 extend oppositely of each other in pairs and at their outer ends encircle an intermediate portion of U-shaped arms 11 and 12, respectively. It will readily be seen that, when distended, the parts form a toggle joint. The knees of these toggles may be interconnected by means of suitable springs 13 and connecting links 14, whereby movement of said knees beyond the hinged ends

of the arms serves to induce a toggle action in the parts.

With the construction thus far described, it will be apparent that, after a partial movement of the globe and globe holding assembly, the knees of the toggle joint will move past the center line of the link arms and thereafter further movement will not only be unresisted but will be aided by the action of the springs.

The present invention also includes a new and novel means for engaging and supporting the light diffusing globe and includes the large reflector 5 which has a plurality of peripherally spaced raised extensions 15, to which may be secured a retaining ring 16 after the light diffusing globe has been positioned in place.

The reflector 5 is preferably provided with oppositely disposed flattened portions 17 on its periphery by which a sufficiently narrow reflector portion is provided so that the entire reflector may be tipped on edge and pass through the usual large opening in the top of the globe, being then positioned in the plane of the mouth of the globe and adjacent the lower edge so that the globe is suspended therefrom. Thereafter the retaining ring 16 may be applied to the reflector and secured thereto by means of screws 18 which enter threaded holes in the extensions 15.

It will be noted that, with the above method of securing the globe in place, the globe will be grasped with an evenly distributed pressure.

The central opening 19 of the reflector 5 is of sufficient size to permit the passage therethrough of the largest electric light bulb to be employed in the fixture, and the small reflector 10 is of sufficient size to substantially fill this opening and complete the reflector portion when the parts are assembled.

A different embodiment of the above-described invention is disclosed in Figs. 4 to 8, inclusive, wherein the invention is shown applied to a fluorescent lighting fixture of the usual elongated trough-like shape. In this embodiment, the usual elongated canopy 20 is secured at each end to divisible cast end members which are preferably composed of two interfitting parts 21 and 22, the upper of which is secured to the canopy. These upper end members may be provided with inwardly extending lugs 23 to which an inverted dished trough-like reflector member 24 may be secured as by screws 25. This reflector is provided adjacent each end with the usual fluorescent tube sockets 26 which engage and support therebetween the usual fluorescent tube shown in dotted lines. The lower portion 22 of the cast end members may be provided with an upwardly projecting central tongue 27 adapted to engage with a companion notch 28 in the upper end plate and assure proper registry of the respective parts. These lower end members 22 support an elongated light diffusing lens 22a which is bodily movable therewith. The lower cast end plates 22 may be suspended by arms 29 of suitable strap material, and when it is desired to gain access to the interior of said fixture for servicing, cleaning, change of fluorescent light tubes, or the like, the entire lens assembly is bodily pulled down and hangs by these arms.

More specifically, the arms 29 are constructed as shown in Figs. 7 and 8, and comprise a strap member 30 pivoted at 31 to the inside of a cast end plate 21, and provided at the opposite end with a keyhole shaped bayonet slot 32 into which a headed rivet 33 is inserted. This rivet is mounted on the projecting portion 27 of the lower cast end member 22.

Secured to the same pivot 31 is a keeper strap 34 which is adapted to swing into a position parallel to the cover support strap and, when the headed rivet 33 has been inserted into the bayonet slot 32 and moved to the narrow portion thereof, the keeper strap may be swung into position to securely retain the headed rivet in the narrow portion of the keyhole slot.

An embossment 35 may be provided adjacent the lower end of this keeper strap and when it is swung into parallel position with the cover support strap this embossment snaps into the upper end of the keyhole slot to retain the straps in alignment.

As shown in the drawings, a notch 36 is provided intermediate the ends of this keeper strap and permits the passage of a central rivet 37 to which a resilient tension spring 38 is secured.

As in the previously described embodiment, this construction is such that, after a partial movement of the parts into closed and assembled position, the line of tension of the spring 38 swings past the pivot point 31 and the spring thereafter draws the arm and cover lens assembly up into firm engagement with the fixed portion of the fixture. Ready access to the bulb and the inside of the lens portion is provided by the above construction and, should it be desired to gain access to the inside of the canopy as to a ballast 39 or the wires which connect these parts, this can readily be achieved by removal of the long screws 25, after which the entire reflector and associated parts and accessories, such as the ballast, sockets, and the like, can be withdrawn from the canopy.

When reinstalling this assembly, the reflector and its accessories may first be suspended from the canopy by the long screws 25. This leaves a gap between the parts through which the necessary wires may be drawn. The wires may then be spliced to the line wires, or the like, as desired and may then be tucked into place and the screws 25 drawn up tightly.

It is intended, of course, that the invention should not be limited to the specific embodiment or embodiments disclosed herein, since modifications may be made, and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

Having thus described this invention, what is claimed and desired to be secured by Letters Patent is:

1. In a lighting fixture, the combination with a fixed canopy unit and means for supporting a light source, of a light-controlling bowl unit bodily movable into and out of engagement with respect to said first unit, and means for supporting said bowl unit in suspended position below and disengaged from said canopy unit, guiding it in its movement from disengaged to engaged position and holding it in engaged position, comprising a swingably mounted link mechanism having one end directly pivotally connected with the canopy unit to swing about an axis fixed with respect to said canopy and link mechanism and the other end directly pivotally connected with the bowl unit to swing about an axis fixed with respect to the bowl, and a swingably mounted coil tension spring having at least one end directly pivotally connected with said link mechanism, the axis of which spring is movable past

the dead center line of the link mechanism in moving the bowl from disengaged to engaged position, whereby, in engaged position, the spring will hold the bowl unit snugly in engagement with the canopy unit.

2. In a lighting fixture, the combination with a fixed canopy unit and means for supporting a light source, of a light-controlling bowl unit bodily movable into and out of engagement with respect to said first unit, and means for supporting said bowl unit in suspended position below and disengaged from said canopy unit, guiding it in its movement from disengaged to engaged position and holding it in engaged position, comprising a pair of links each having one end directly pivoted to the canopy unit, a pair of links each having one end directly pivoted to the bowl unit and its other end pivotally connected to one of said first pair of links, and spring means connected with said links and urging the connections between the links toward each other when the bowl unit is in engaged position, the bowl unit engaging links being movable past the dead-center line of the spring in moving into and out of engaged position.

3. In a lighting fixture, the combination with a fixed canopy unit and means for supporting a light source, of a light-controlling bowl unit bodily movable into and out of engagement with respect to said first unit, and means for supporting said bowl unit in suspended position below and disengaged from said canopy unit, guiding it in its movement from disengaged to engaged position and holding it in engaged position, comprising a pair of links each having one end directly pivoted to the canopy unit, a pair of links each having one end directly pivoted to the bowl unit and its other end pivotally connected to one of said first pair of links, and spring means connected with said links and urging the connections between the links toward each other when the bowl unit is in engaged position, the bowl unit engaging links being movable past the dead-center line of the spring in moving into and out of engaged position, each of said links comprising a pair of arms arranged substantially in bilateral symmetry with respect to a plane through the axis of the canopy unit and bowl unit.

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