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O. L. LUNDQUIST
ELECTRIC LIGHTING FIXTURE WITH ROTATABLE
BASE AND ROTATABE HOUSING

2,567,291

Filed Jan. 22, 1949

2 Sheets-Sheet 1

Fig. 1.

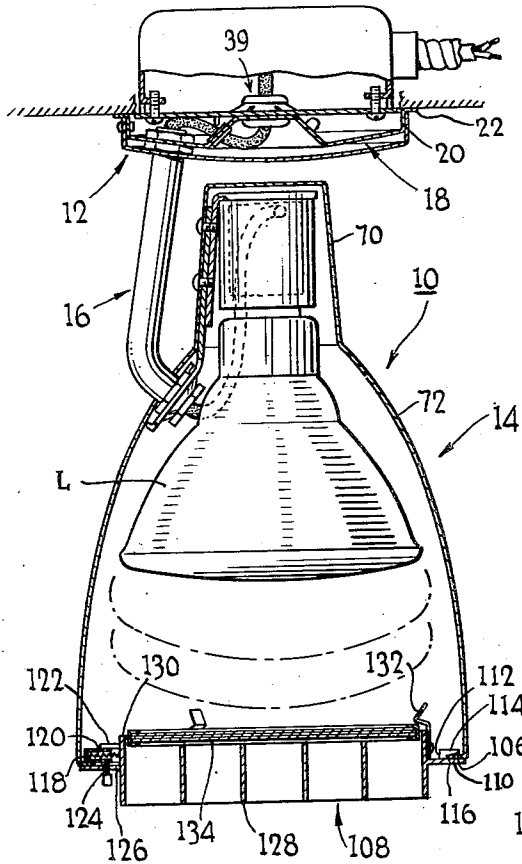


Fig. 3.

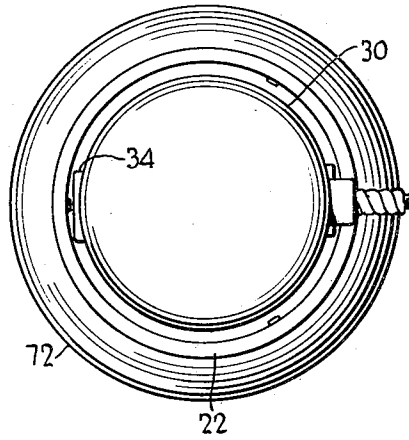


Fig. 4.

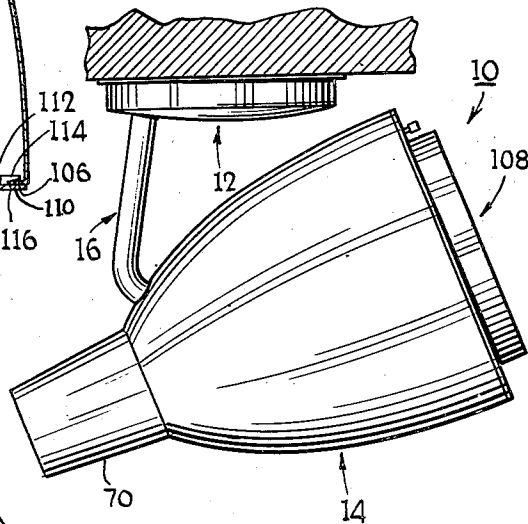
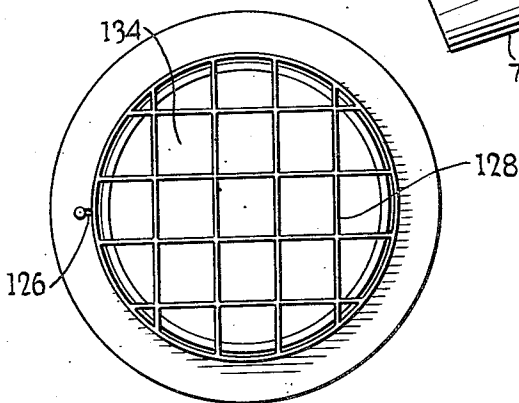


Fig. 2.



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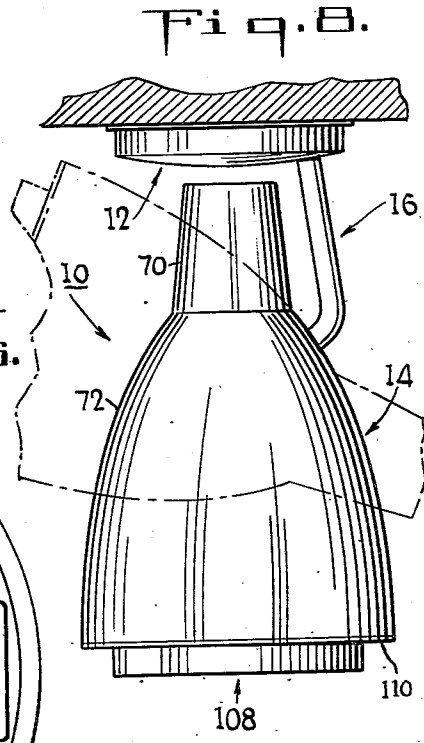
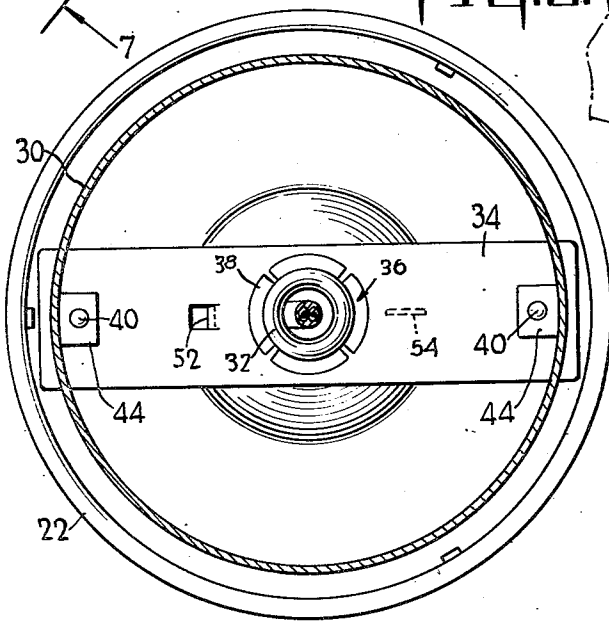
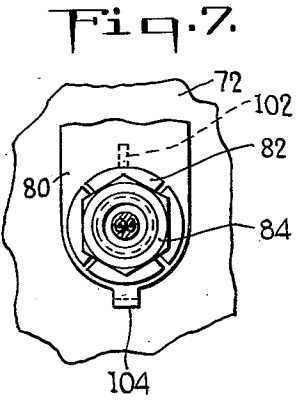
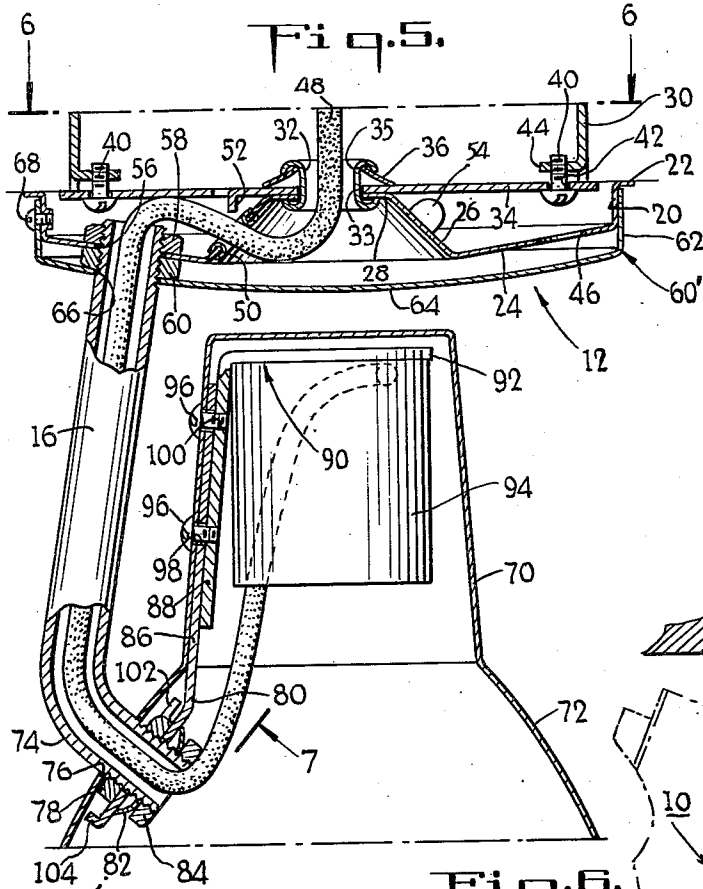
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ELECTRIC LIGHTING FIXTURE WITH ROTATABLE BASE AND ROTATABLE HOUSING

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This invention relates to electric lighting fixtures with rotatable base and rotatable housing.

More particularly, my invention pertains to electric lighting fixtures of the type which are used for theatrical, architectural and commercial lighting. Even more specifically, the present invention is concerned with lighting fixtures of the type constituting a base and a shell housing which is mounted on the base and holds an electric lamp. Fixtures of this type can be secured on ceilings and walls, on baseboards and on floors, or even can be used as desk lamps.

It is an object of my invention to provide an electric lighting fixture of the character described in which the housing is rotatable with respect to the base, but which, in contrast to previous constructions, has no external rotary mounting so that the fixture presents an extremely clean and aesthetic appearance.

It also is an object of my invention to provide an electric lighting fixture of the character described in which the housing swivels, i. e., rotates, about at least two axes with respect to the base and in which the mechanism for permitting such rotation is not visible so that to all outward appearances the fixture in any adjusted position of the housing has the appearance of an immovable lighting fixture.

It is another object of my invention to provide an electric lighting fixture of the character described which comprises relatively few and simple parts, has a rugged construction and can be manufactured economically.

It is a further object of my invention to provide an electric lighting fixture of the character described, which, in general, is free of the usual auxiliary elements such as beads, flanges, lock-nuts, cluttered junctions, etc., usually seen in fixtures of this nature where they are employed to hold divers parts together and enable such parts to experience relative movement of a kind consistent with the operational characteristics of the fixture.

It is an ancillary object of my invention to provide an electric lighting fixture of the character described having an improved mechanism for detachably holding any one of a plurality of light modifying accessories such as filters, louvers, etc. in front of the beam of light emitted by the electric lamp.

Other objects of my invention will in part be obvious and in part will be pointed out hereinafter.

My invention accordingly consists in the features of construction, combinations of elements

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and arrangement of parts which will be exemplified in the device hereinafter described and of which the scope of application will be indicated in the appended claims.

5 In the accompanying drawings in which is shown one of the various possible embodiments of my invention,

10 Fig. 1 is a side view, in partial section, of an electric lighting fixture constructed in accordance with my invention, the shell housing of said fixture being positioned to point downwardly;

Figs. 2 and 3 are bottom and top views, respectively, of said fixture;

15 Fig. 4 is a side view of the fixture with the shell housing positioned to point in a forward direction;

20 Fig. 5 is an enlarged fragmentary sectional view through the base and adjacent portion of the shell housing, the same being explanatory of the mechanisms for permitting swiveling about diverse axes;

25 Figs. 6 and 7 are sectional views taken substantially along the lines 6-6 and 7-7, respectively, of Fig. 5; and

30 Fig. 8 is a side view of the fixture, the same being illustrative of the appearance of the fixture after it has been swiveled 180° about a vertical axis away from the position shown in Fig. 1.

35 Referring now in detail to the drawings, the reference numeral 10 denotes a ceiling-mounted electric light fixture embodying my invention. This type of fixture has been chosen for illustration and description by way of example only and it will be understood as the description proceeds that my invention also may be embodied in fixtures other than that of the ceiling-mounted type. For instance, the same fixture can, without any changes, be mounted on a baseboard or on the floor, or, by using a suitable base plate, weighting the base plate, and/or enlarging the base plate, the fixture can be used as a desk or table lamp.

40 The fixture 10 comprises a base 12 and a shell housing 14 which is structurally connected to the base by a tubular stem 16. Said base includes a metal (e. g. steel) spinning 18 constituting a short tubular side wall 20 having an outwardly extending, flanged upper edge 22. The bottom wall 24 of the spinning is dome-shaped except for an annular, upwardly dished portion 26 surrounding the flat centrally apertured middle section 28 of the spinning.

45 Pursuant to my invention, means is provided to connect said spinning at its middle section to

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a standard ceiling outlet box 30, or the like, in such fashion that the spinning can turn about its axis of symmetry, in this instance, a vertically disposed axis. Said means comprises a grommet 32 whose lower headed end is seated on the under surface of the middle section of the spinning. The shank of the grommet extends through the central aperture of said middle section, through a central aperture 33 in a strap 34 spanning the open side of the ceiling plate and through a central aperture 35 in a compression-spring-type washer 36. The upper headed end of the grommet rests on the upper surface of said washer. By way of example, said washer includes sloped and flaring resilient fingers 38 which strongly bias the strap into frictional engagement with the spinning 18. The spinning, strap and spring function as a spring-loaded rotatable friction joint which permits rotation of the spinning relative to the strap about an axis coincident with the axis of symmetry of the spinning. By clinching the grommet to a proper extent, i. e., by reducing the distance between the heads of the grommet when heading one or both ends thereof in a conventional eyelet heading machine, an appropriate degree of frictional restraint against rotation will be imposed.

The spinning, strap and spring constitute a pre-assembled unit 39. Said unit is mounted on the ceiling box by screws 40 which pass freely through openings 42 in the strap and threadedly engage tapped lugs 44 integral with and extending inwardly from the walls of the ceiling box. Access to said screws is had through diametrically opposed over-sized openings 46 in the bottom wall 24 of the spinning.

In order to supply electrical energy to the fixture, and more particularly to the electric lamp L contained therein, an electric cable 48 is provided. Said cable runs through the grommet 32 and a grommet-protected opening 50 in the dished section 26 of the spinning. Due to this arrangement, the cable will twist when the spinning is rotated. Should the spinning be rotated several turns in the same direction, the cable may be mutilated or even broken. To prevent this, the unit 39 includes means for limiting rotation of the strap and spinning to slightly less than one turn. Said means comprises a lug 52 struck from the strap 34 and lying in the circular path of travel of a tine 54 which extends integrally from the spinning 18 and sweeps across the undersurface of the strap.

The stem 16 has an upper threaded end protruding through an opening 56 in the bottom wall of the spinning, being radially offset from the center thereof. This end is held fast to the spinning by a pair of nuts 58, 60 which, after being tightened in place, are rigidly and permanently secured to the stem as by sweating the same with solder.

The unit 39, with the exception of the flange 22, is covered by a canopy 60'. Said canopy has a tubular side wall 62 in which the tubular wall 20 of the spinning is telescopically received. The bottom wall 64 of the canopy is domed and provided with an aperture 66 to pass the stem 16. Said canopy is secured to the unit 39 in some suitable manner, for example by tiny screws 68 freely passing through openings in the tubular wall 62 of the canopy and threaded into tapped holes in the spinning.

It will be appreciated that due to the foregoing arrangement, the canopy 60' and stem 16

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can be turned together about the axis of symmetry of the concealed spinning and grommet. It also will be seen that the junction between the base and stem is completely free of any external connecting elements so that this portion of the fixture presents a clean appearance.

The shell housing 14 may be fabricated from sheet metal, for example, drawn from sheet aluminum. Such housing includes a socket holding portion 70 which has the external configuration of a truncated cone whose narrow end is closed. Integral with the open, wide end of this portion 70 is a lamp holding portion 72 which, as illustrated, is roughly in the shape of a parabolic reflector although not intended to function as such. The portion 72 is sufficiently large to house any one of a plurality of differently sized lamps some of which are indicated by dot-and-dash lines in Fig. 1. These lamps all include built-in reflectors and are of both the spot and flood types. It may be mentioned that the particular configuration of the housing is not part of the instant invention.

The stem 16 has an angularly offset lower end 74 whose tip is threaded and passes through an opening 76 in the housing portion 72. This threaded tip has a bolt 78 screwed thereon and fixed held in place as by sweating with solder. The threaded tip also extends through an opening in a bracket 80 which rests against said bolt 78 and is free to turn with respect to the stem. The bracket is forced into frictional surface contact with the bolt by a compression-spring-type washer 82 through whose apertured base the threaded tip protrudes to receive a nut 84.

The nut 84 is tightened on the stem sufficiently to impart the proper degree of frictional restraint to rotation of the bracket 80 relative to the nut 78. Thereafter said nut is fixed to the stem in any suitable manner, for example, by sweating with solder. The angularly offset portion of the stem, the two nuts, the bracket and the spring 82 function as a spring-loaded rotatable friction joint which permits rotation of the bracket relative to the stem about the longitudinal axis of the angularly offset portion of said stem. Since this joint is within the shell housing it is concealed from view and permits the rotatable connection between the stem and housing to present an externally clean appearance.

The bracket 80 has a leg 86 running down inside the wall of the socket holding portion 70 of the shell. Against this leg is juxtaposed a leg 88 of a second bracket 90 having its other leg 92 secured to the base of a porcelain socket 94 for the lamp L. The two legs 86, 88 are fixed to the housing by screws 96 having their heads externally disposed and their shanks passing freely through openings 98 in the leg 86 and threaded into tapped holes 100 in the leg 88.

It may be mentioned here that the use of two brackets 86, 90, such as shown and described, expedites placement of the socket 94 in its housing portion 70 and assembly of the various components of the rotatable spring-loaded joint connecting the housing 14 to the stem, since the socket must be introduced into the housing portion 70 in a direction substantially parallel to the axis of symmetry of said portion while the bracket 80 must be seated on the angularly offset portion of the stem in a direction generally parallel to the longitudinal axis of this portion.

The electric cable 48 runs from the lower end of the stem to the socket where it is affixed; hence it is not desirable to permit the shell housing to

be turned about the stem unlimitedly. Accordingly, I provide means for restricting relative rotation of the stem and housing to slightly less than one full turn. Such means comprises a finger 102 integral with and turned to lie at right angles to the bracket 80. The finger 102 lies in the path of travel of said ear.

In accordance with standard practice, fixtures of the type herein described include accessories to alter the characteristics of the light beam emitted by the lamp L. Desirably, the fixture and accessories are so mutually constructed that any one of several accessories quickly and easily can be attached to or detached from the open front end of the housing.

Pursuant to an ancillary feature of my invention, said detachable attaching means constitutes an inturned lip 106 on the front of the lamp housing portion 72. An accessory 108 is specially designed to cooperate with this lip. Said accessory includes a broad flange 110 adapted to be placed over the open end of the housing and to lie flat against the outer surface of the lip 106. The outer diameter of the flange 110 approximately matches the outer diameter of the housing at the lip. The inner diameter of the flange 110 may vary in accordance with the type of accessory.

Near its periphery the flange 110 has an integral post 112 extending inwardly of the housing. On the top of the post is a projection 114 which, with the post and flange 110, defines a notch 116 adapted to freely receive the lip 106. At a point on the flange diametrically opposed to the post 112, I provide a sliding bolt 118 which is urged by a spring 120 in a direction radially away from the center of the flange 110. Said bolt is guided in its movement by ribs 122 integral with the flange 110. To manipulate the bolt there is included a headed stud 124 attached to and movable with the bolt and having its shank extending through a radial slot 126 in the flange 110 thereby to enable the bolt to be manually manipulated. The two extreme positions of the bolt are determined by abutment of the shank of the stud against the ends of the slot 126. In its retracted, radially innermost position, the tip of the bolt clears the inner edge of the lip 106; while in its extended position the tip of the bolt engages the back of the lip.

The flange 106 has a large central aperture in which there are disposed light modifying elements of any conventional type depending upon the function of the accessory. The illustrated accessory 108 includes "egg-crate" louvers 128 supported by a tubular stub 130 which defines the periphery of the large circular aperture in the flange. The stub also carries a plurality of rearwardly extending spring fingers 132 attached in suitable fashion to its back edge, e. g., by rivets. Said fingers are designed to captively hold against the back edges of the louvers 128 a conventional light modulating element, for instance a filter 134. To remove the filter, the accessory is detached and the filter simply snapped out of its seated position.

It thus will be seen that I have provided an electric lighting fixture which achieves all the objects of my invention and is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein described, or shown in the accompanying

drawings, is to be interpreted as illustrative and not in a limiting sense.

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

1. An electric lighting fixture of the character described comprising a base, a hollow stem and a lamp housing; said base including a stationary member, a second member in juxtaposition to said stationary member, means rotatably to interconnect said members, a spring to urge said members together whereby said two members and spring constitute a spring-loaded rotary friction joint, means to interconnect one end of said stem and said second member at a region on said second member spaced from the axis of rotation of said members, said interconnecting means being hollow, an electric cable extending through said hollow interconnecting means and into said hollow stem, means to limit the relative rotation of said members to less than a full turn, a canopy superimposed over and covering said members and having an opening through which said stem passes, and means to connect said canopy to said second member for movement therewith; said stem having its ends disposed at an angle relative to one another; said housing having an opening through which the other end of the stem extends into the housing, an element in the housing, means to connect said element to the housing for movement therewith, said element having an opening through which the end of the stem in the housing extends, a second element in the housing, means to connect said second element to the stem for movement therewith, a spring to urge said elements together whereby said two elements and spring constitute a spring-loaded rotary friction joint having an axis of rotation transverse to the axis of rotation of the first-named joint, a socket in said housing, means to connect said socket to said housing for movement therewith, said cable running from said stem to said socket, and means to limit the relative rotation of said elements to less than a full turn.

2. An electric lighting fixture of the character described comprising a base, a hollow stem and a lamp housing carried by said stem; said base including a stationary member, a second member in juxtaposition to said stationary member, means rotatably to interconnect said members, a spring to urge said members together whereby said two members and spring constitute a spring-loaded rotary friction joint, means to interconnect one end of said stem and said second member at a region on said second member spaced from the axis of rotation of said members, said interconnecting means being hollow, an electric cable extending through said hollow interconnecting means and into said hollow stem, means to limit the relative rotation of said members to less than a full turn, a canopy superimposed over and covering said members and having an opening through which said stem passes, and means to connect said canopy to said second member for movement therewith.

3. An electric lighting fixture of the character described comprising a base, a hollow stem and a lamp housing carried by said stem; said base including a stationary member, a second member in juxtaposition to said stationary member, said members having registered openings, a tubular element extending through said openings to interconnect said members rotatably, a spring washer encircling said tubular element and urging said members together whereby said two

members, tubular element, and spring washer constitute a spring-loaded rotary friction joint, means to interconnect one end of said stem and said second member at a region on said second member spaced from the axis of rotation of said members, said interconnecting means being hollow, an electric cable extending through said tubular element and hollow interconnecting means into said hollow stem, means to limit the relative rotation of said members to less than a full turn, a canopy superimposed over and covering said members and having an opening through which said stem passes, and means to connect said canopy to said second member for movement therewith.

4. An electric lighting fixture of the character described comprising a base, a hollow stem and a lamp housing carried by said stem; said base including a mounting plate adapted to be detachably secured to an outlet box, said plate having an opening therein, a member disposed adjacent said plate, said member having an opening therein in registry with the opening in said plate, a tubular element extending through said openings to rotatably interconnect said plate and member, a spring washer encircling said tubular element and held under compression to urge said member and plate together whereby said member plate, tubular element and spring washer constitute a spring-loaded rotary friction joint, a second opening in said member radially offset from the first opening therein and end of said stem extending through said second opening, means to secure said stem to said member, a third opening in said member, an electric cable extending through said hollow element and said third opening into said hollow stem, means to limit rotation of said plate and member to less than a full turn, a canopy superimposed over and covering said member and having an opening through which the stem passes, and means to connect said canopy to said second member for movement therewith.

5. An electric lighting fixture of the character described comprising a base, a hollow stem having one end connected to said base, and a lamp housing; said stem having its ends disposed at an angle relative to one another; said housing having an opening through which the other end of the stem extends into the housing, an element in the housing, means to connect said element to the housing for movement therewith, said element having an opening through which the end of the stem in the housing extends, a second element in the housing, means to connect said second element to the stem for movement therewith, a spring to urge said elements together whereby said two elements and spring constitute a spring-loaded rotary friction joint, a socket in said housing, means to connect said socket to said housing for movement therewith, an electric cable running from said stem to said socket, and means to limit the relative rotation of said elements to less than a full turn.

6. An electric lighting fixture of the character described comprising a base, a hollow stem and a lamp housing; said base including a stationary member, a second member in juxtaposition to said stationary member, a rotary friction joint interconnecting said members, means to interconnect one end of said stem and said second member at a region on said second member spaced from the axis of rotation of said members, said interconnecting means being hollow, an electric cable extending through said hollow interconnecting means and into said hollow stem, a canopy superimposed over and covering said members and having an opening through which said stem passes, and means to connect said canopy to said second member for movement therewith; said stem having its ends disposed at an angle relative to one another; said housing having an opening through which the other end of the stem extends into the housing, an element in the housing, means to connect said element to the housing for movement therewith, said element having an opening through which the end of the stem in the housing extends, a second element in the housing, means to connect said second element to the stem for movement therewith, a rotary friction joint interconnecting said elements, the axis of rotation of said joint being transverse to the axis of rotation of the first-named joint, a socket in said housing, and means to connect said socket to said housing for movement therewith, said cable running from said stem to said socket.

7. An electric lighting fixture of the character described comprising a base, a hollow stem and a lamp housing carried by said stem; said base including a stationary member, a second member in juxtaposition to said stationary member, a rotary friction joint interconnecting said members, means to interconnect one end of said stem and said second member at a region on said second member spaced from the axis of rotation of said members, said interconnecting means being hollow, an electric cable extending through said hollow interconnecting means and into said hollow stem, a canopy superimposed over and covering said members and having an opening through which said stem passes, and means to connect said canopy to said second member for movement therewith.

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