Aug. 31, 1948. C. MOSER 2,448,494

LIGHTING EQUIPMENT

Filed Sept. 24, 1945 2 Sheets-Sheet 1

Fig. 1.

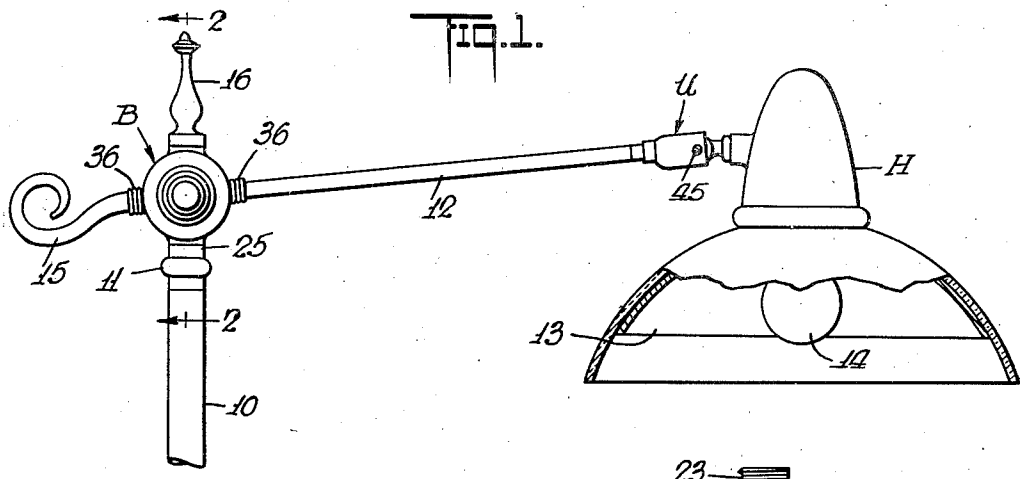


Fig. 2.

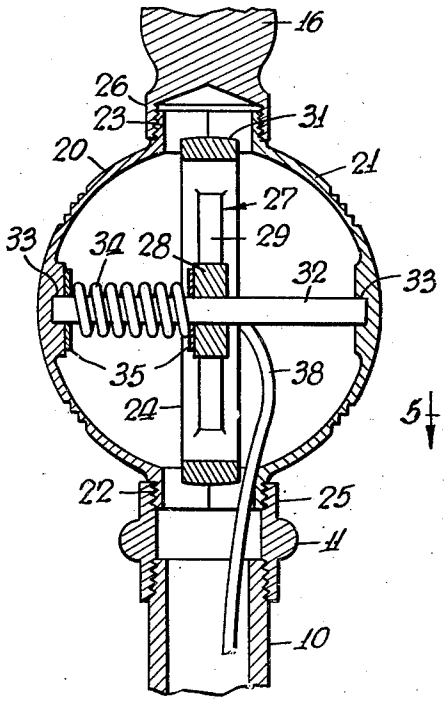


Fig. 3.

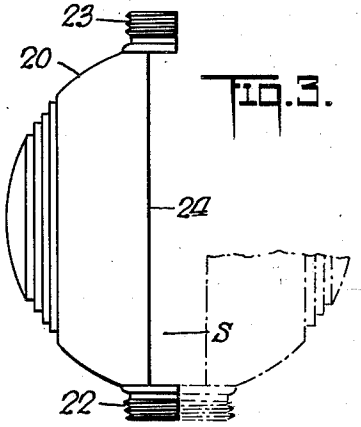
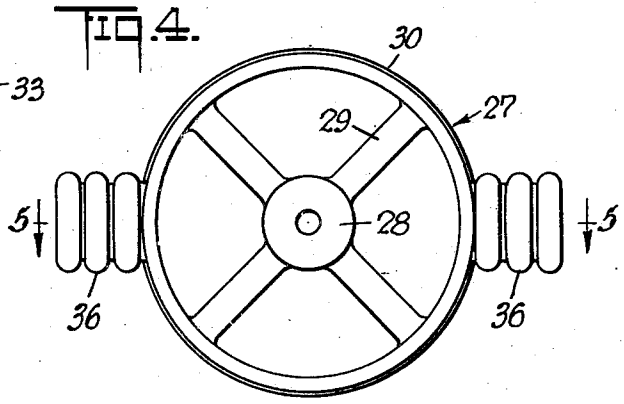


Fig. 4.



INVENTOR
Carl Moser
BY
Dean Fairbanks & Hirsch
ATTORNEYS
45-208

Aug. 31, 1948. C. MOSER 2,448,494

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Filed Sept. 24, 1945 2 Sheets-Sheet 2

FIG. 5.

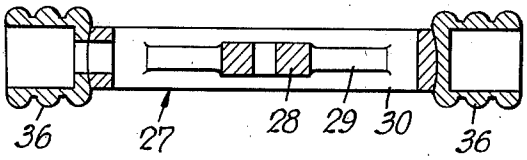


FIG. 6.

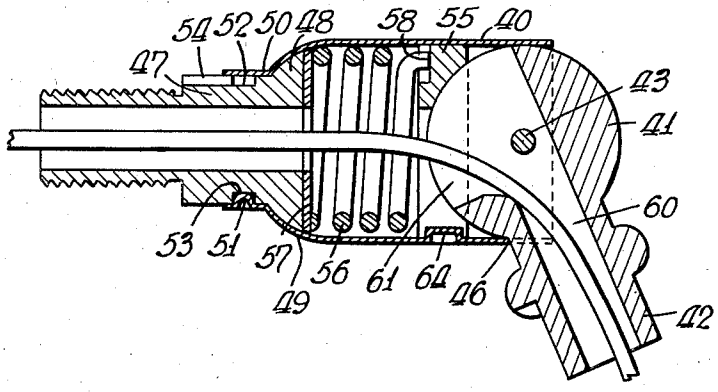
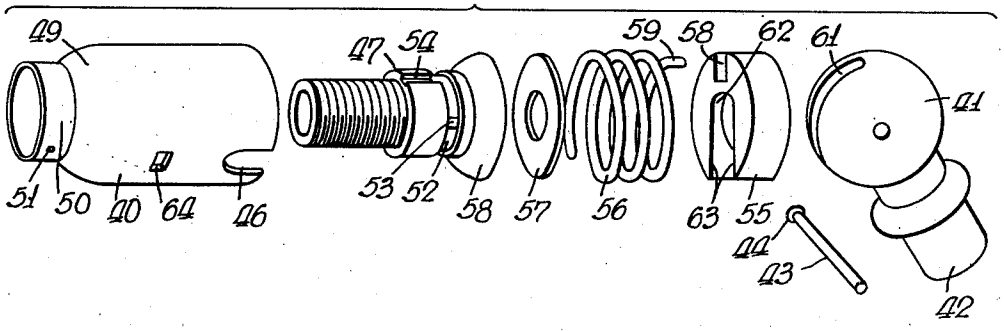


FIG. 7.



INVENTOR
Carl Moser
BY
Dean Fairbank & Hirsch
ATTORNEYS
45-208

Patented Aug. 31, 1948 2,448,494

UNITED STATES PATENT OFFICE

2,448,494

LIGHTING EQUIPMENT

Carl Moser, Larchmont, N. Y., assignor to Lightolier Company, New York, N. Y., a corporation of New York

Application September 24, 1945, Serial No. 618,097

9 Claims. (Cl. 248—122)

1

The present invention relates to lighting units, more especially to floor and table lamps.

In a lighting unit of that type which includes a standard that mounts a swivel arm adjustable in inclination and in turn mounting at one end thereof a lamp head that is universally adjustable in angular relation, it is among the objects of the invention to provide for ease of adjustability with security of setting in any position of adjustment, yet without the danger of short-circuit or of jamming or binding or of injury to the wire in the course of lamp adjustment and without detracting from the ornamental appearance of the unit and the joints or swivels thereof and without the exposure to view of any part of the electric leads from the standard to the lamp head.

In the accompanying drawings in which are shown one or more of various possible embodiments of the several features of the invention,

Fig. 1 is a side elevation of a lamp embodying the invention,

Fig. 2 is a cross-sectional view on a larger scale taken on line 2—2 of Fig. 1 and showing the ball swivel mount for the cross arm,

Fig. 3 is a side elevation of one of the ball shell segments,

Fig. 4 is a plan view of the wheel element thereof,

Fig. 5 is a side elevation of said wheel element,

Fig. 6 is a view in longitudinal cross-section of the lamp head mounting universal joint on the end of the cross-arm and

Fig. 7 is a dropped perspective view of the component parts of said universal joint.

Referring now to the drawings, there is illustratively shown a floor lamp having a standard 10 on the upper end of which is mounted by a conventional nut 11, the ball swivel B which carries the cross arm 12, to one end of which a universal joint U affixes the lamp head H, desirably equipped with a reflector 13 and a lamp bulb 14. Diametrically opposed to cross arm 12, the ball swivel B carries the ornamental counter-balance, or tailpiece 15. A conventional finial 16 is affixed on top of the ball swivel B. The lamp may thus have the generally conventional appearance of a bridge lamp, which admits of swivelling of the cross-arm to any inclination, and the lamp head H may be swivelled universally about the end of the cross-arm 12 for desired direct or indirect lighting.

The essential features of the invention are the construction of the ball swivel B, of the universal joint U and the arrangement of the parts such that the wiring is completely concealed

2

within the structure and the ungainly exposure of such wiring along the length of the cross arm as in many conventional constructions, is avoided.

Referring now to Figs. 2 and 3 of the drawings, the ball swivel shell unit at the upper end of the standard is composed of two preferably identical generally hemispherical shell segments 20 and 21, each having unitary therewith a pair of diametrically opposed half nipples 22 and 23, the equatorial strip of each ball segment being cut away between the two semi-nipples, which latter, therefore, protrude beyond the rims 24 of the shell segments. Thus, when the shell segments are assembled with the respective semi-nipples in registry, the completed spherical shell presents an equatorial slot S extending between the nipples thereof.

One of the nipples 22 is threaded upon the upper end of the standard as at 25 and the other or upstanding nipple has threaded thereon the lower or socket end 26 of the finial 16.

In the equatorial slot S of the shell is disposed the periphery of a wheel 27 that has a hub 28, spokes 29 and a rim 30. The width of the rim 30 is such as substantially to close the equatorial slot S, the semi-nipples 22, 23 being cut away at 31 to accommodate the wheel periphery, which, as shown, is desirably of outer diameter somewhat larger than that of the shell and is desirably cambered at its outer periphery as shown for ornamental effect. The hub of the wheel 27 is affixed upon an axle 32, the ends of which bear in corresponding opposed polar sockets 33 integral with the respective shell segments. A coil spring 34 about one end of the axle preferably reacts against the shell segment 20 at one end and against the hub 28 of the wheel at the other, there being steel washers 35 about the axle, engaged by the respective ends of the spring. The wheel 27 mounts bushings 36 rigidly affixed in diametrically opposed relation thereon, and thus protruding from the wheel and therefore from the spherical shell B. In one of said bushings is mounted the end of the ornamental tailpiece 15 and in the other is mounted the end of the cross arm, preferably a tube 12.

The width of the wheel 27 is sufficiently less than that of the nipple bore 22, 23 to afford space for the electrical leads 38 passing from the standard 10 through nipple 22 and thence about the axle 32 through bushing 36 into the cross arm 12 to the lamp head H.

The universal joint at the free end of the cross arm at which the lamp is mounted is best shown in Figs. 6 and 7. This joint comprises a sheet

metal shell 40 generally cylindrical, and accommodating at one end thereof, a ball 41, which has a shank 42 and is affixed in the shell by a cross-pin 43, diametrically therethrough headed at one end 44 and upset at its other end at 45. The shell 40 is notched at 46 near the ball to permit pivotal displacement of said shell about pin 43 through a substantial angle at one side, as shown. The lamp head mounting nipple 47 has an enlarged spherically conformed head 48, bearing in a corresponding spherical conformation 49 near the end of cylindrical shell 40. The cylindrical extremity 50 of the shell 40, beyond the spherical conformation 49 encircles the nipple 47 and has an indentation 51, lodged in a groove 52 peripherally about the nipple, but having a stop 53 to limit the rotation of the nipple about its axis to an angle slightly less than 360 degrees. A transverse groove 54 from the extremity to the peripheral groove of head mounting nipple 47 facilitates the assembly of said shell 40 with its indentation 51 over said nipple.

A bearing block 55 within the shell 47 is pressed against the ball 41 by a coil spring 56, which reacts at one end against a steel washer 57 at the head 48 of nipple and is anchored at its inturned opposite end 59 within a short outer radial notch 58 in the bearing block.

To afford passage for the electrical wiring through the universal joint, to the lamp head, the ball 41 and its shank 42 have a substantially radial bore 60 therethrough, which radial bore is laterally widened at 61 through a quadrant or more about the pivot pin 43, as shown. The bearing block 55 also has a central port 62 therethrough which is desirably of the same width as that through the ball, said port being the inner end of a radial slot 63 through the bearing block. The shell 40 has an indentation 64 therein, engaging the sides of said slot 63, thereby retaining the bearing block against rotary displacement relative to the shell 40.

The coil spring 56 holds the parts of the universal joint frictionally, but yet permits rotary displacement of the lamp head mounting nipple 47 through an angle less than 360 degrees and also permits movement of the ball 41 in the shell 40 about pivot pin 43, through an angle of approximately 90 degrees until the notch 46 in the shell abuts the shank 42 of the ball. Of course, the notch 46 could be duplicated at the diametrically opposite side of the shell, if desired.

Thus, it will be seen that the coil spring 34 in the ball swivel B and the coil spring 56 in the universal joint keep the parts resiliently yet firmly in any position of adjustment, but permit freedom of displacement to the extent required. The adjustment is effected without undue strain upon the effectively concealed electric wiring, which has adequate clearance to permit the various displacements of the joint without jamming or strain or likelihood of undue wear.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

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

1. In a lighting unit of the type comprising a standard having a finial, an arm swivel mounted below the finial for adjustment in a vertical plane, and a lamp head mounted on the other end of said arm for universal adjustment thereon; the combination in which the mount for the swivel arm comprises a ball shell of two generally hemispherical segments, each with diametrically opposed semi-nipples, one nipple being affixed to the standard and the other mounting the finial, said nipples determining a narrow peripheral gap between the rims of said shells, a wheel in said ball having a rim along said gap, an axle for said wheel mounted at its ends in the respective shell segments, said wheel having diametrically opposed bushings extending outward therefrom and adapted to mount opposed elements of the swivel arm.

2. The combination recited in claim 1 in which the wheel is of outer diameter slightly larger than that of the shell and passes through corresponding notches in the shell nipples.

3. The combination recited in claim 1, in which the axle ends are lodged in diametrically opposed sockets in the ball shell segments, and in which a coil spring at one side of the wheel reacts against the associated shell segment at one end and exerts pressure against the wheel at the other end thereof.

4. The combination recited in claim 1, in which the nipples on the ball shell are of bore diameter greater than the width of the wheel and afford space accommodating electrical conductors from the standard into the shell and in which the conductors extend about the axle and pass outward to the lamp head through one of the bushings on the wheel.

5. A lighting unit of the type comprising a standard having a lamp head mounted thereon and a universal joint intervening between said standard and said head, said joint comprising a ball having a shank, a cylindrical shell accommodating said ball, a cross-pin assembling said elements, the end of said shell being in the form of a spherical segment, a spherical-ended nipple accommodated in the end of said shell and free to swivel about its axis, a bearing block for said ball, and a spring within said shell interposed between said bearing block and said nipple.

6. A universal joint suitable for a lamp and comprising a ball having a unitary shank, a lamp-supporting nipple having a spherical segment head, a generally cylindrical shell encompassing said ball at one end and having a generally spherical conformation engaging the head of the nipple at the other, a cross-pin mounting the ball in the shell, means affixing the nipple for rotational adjustment thereof about its axis, a spherical block within the shell engaging the ball, and a coil spring interposed between the head of the nipple and the block, said ball, its shank, said block and said nipple having passageways therethrough for accommodating electrical wiring.

7. The combination recited in claim 6 in which the bearing block has a central opening and a radial slot continuous therewith, through which the wires pass and in which the shell has a keying depression coacting with the walls of the slot and locking said block against rotary displacement relative to the shell.

8. The combination recited in claim 6 in which the ball has a bore diametrically therethrough and through its shank, said bore being widened through substantially a quadrant about its pivot pin for freedom of ball swiveling movement relative to the wiring therethrough.

9. The combination recited in claim 6, in which

the lamp supporting nipple has a peripheral groove with a stop shoulder interruption and the corresponding portion of the shell has an indentation, thereby to limit the rotary displacement of the nipple to an angle less than 360 degrees.

CARL MOSER.

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