United States Patent

Chapman, Jr. et al.

[15] **3,694,647**

[45] **Sept. 26, 1972**

[54] **MULTIPLE POSITION, VARIABLE INTENSITY LAMP**

[72] Inventors: **Earle F. Chapman, Jr.**, Marshfield Hills; **Bernard J. Ruskin**, Marblehead, both of Pa.

[73] Assignee: **Chapman Manufacturing Company**, Avon, Mass.

[22] Filed: **Jan. 25, 1971**

[21] Appl. No.: **109,140**

[52] **U.S. Cl.**.....**240/81 R**, 248/168, 248/408, 248/411

[51] **Int. Cl.** **F21s 1/12**, F21s 3/10

[58] **Field of Search**.240/81 R, 81 BS, 81 BA, 81 BE, 240/81 BC, 70, 67; 248/411, 408, 168

[56] **References Cited**

UNITED STATES PATENTS

2,642,246	6/1953	Stephans	240/81 R X
2,244,298	6/1941	Icove et al.	240/81 BS X
2,715,197	8/1955	Dubroff et al.	240/81 R X

Primary Examiner—Samuel S. Matthews
Assistant Examiner—Richard A. Wintercorn
Attorney—Morse, Altman & Oates

[57] **ABSTRACT**

In a floor lamp, a lamp receptacle which is universally pivoted to one end of a shaft is provided with a variable impedance circuit for controlling the intensity of luminance emitted by the lamp. The other end of the shaft is bifurcated and defines a pair of substantially equal and outwardly diverging legs which operate to engage the interior wall of a sleeve mounted to a base member. The engagement of the legs and interior wall of the sleeve defines a frictional lock which allows slidable and rotational movement of the shaft within the sleeve.

8 Claims, 7 Drawing Figures

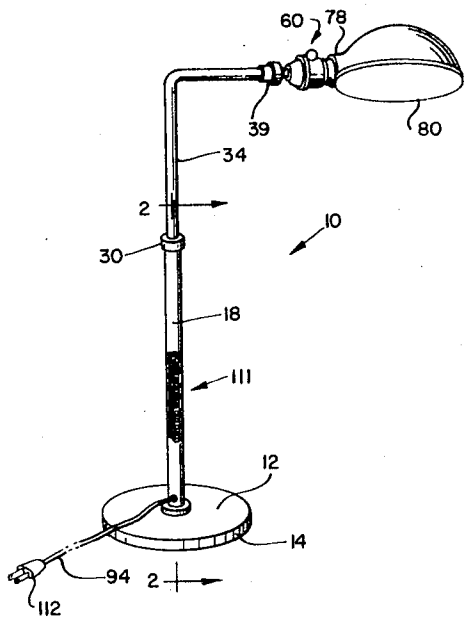


FIG. 1

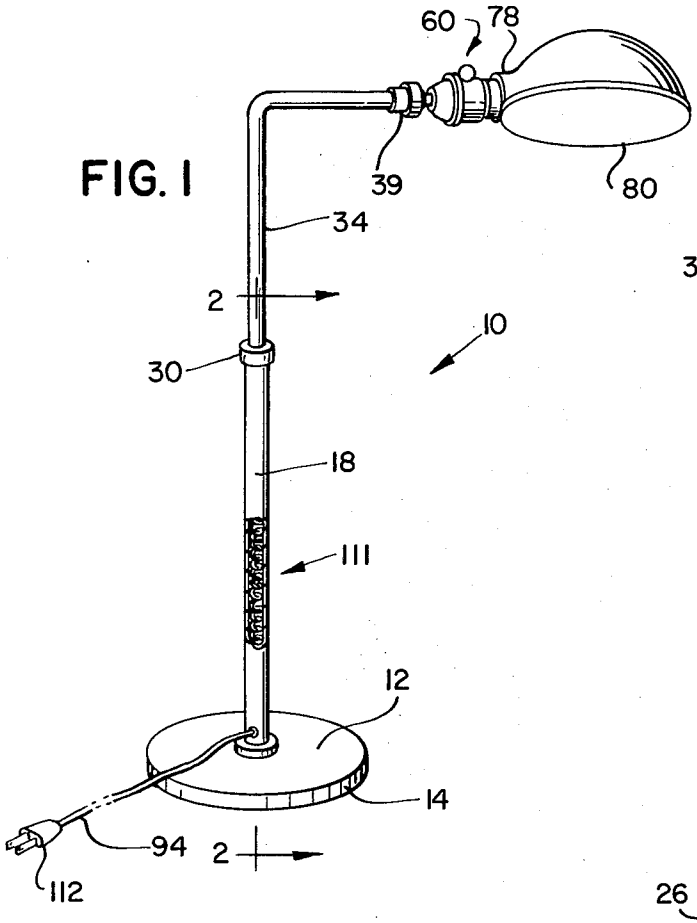


FIG. 2

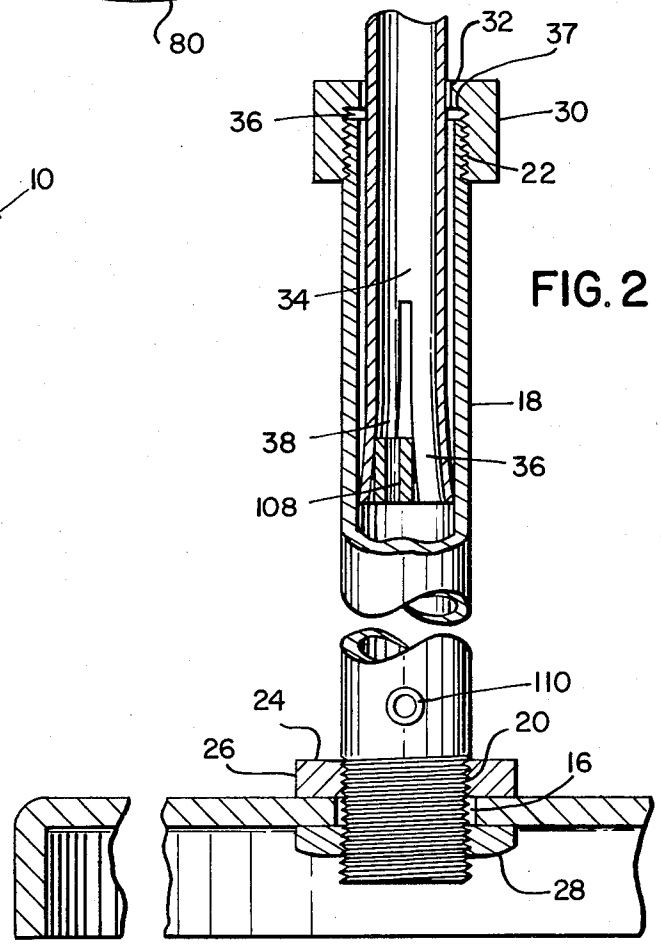
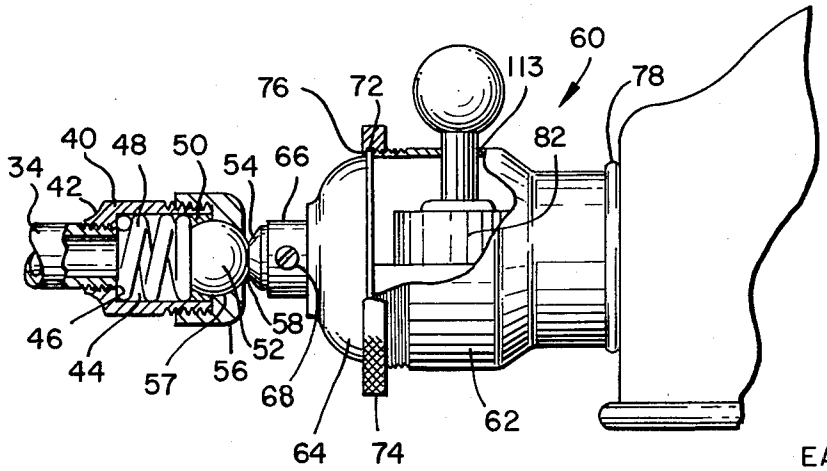


FIG. 3



INVENTORS
EARL F. CHAPMAN, JR.
BY BERNARD J. RUSKIN
Morse, Altman & Oates
ATTORNEYS

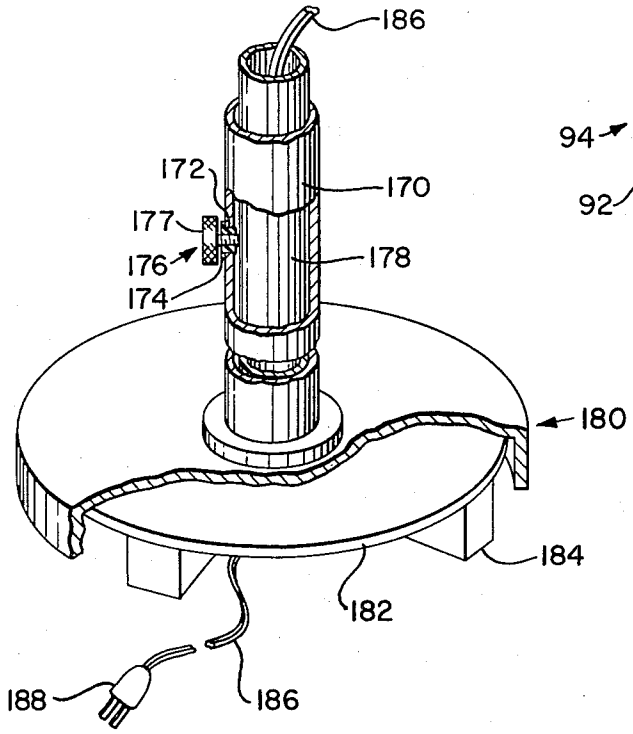


FIG. 4

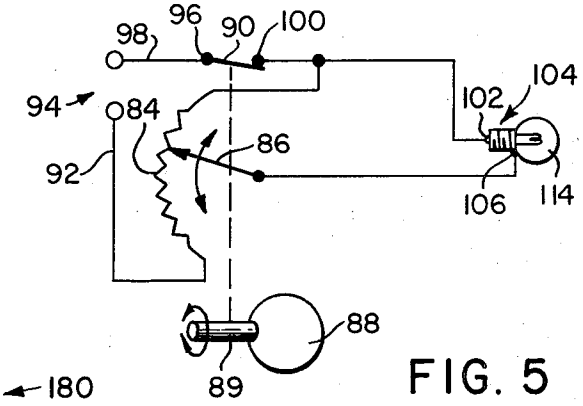


FIG. 5

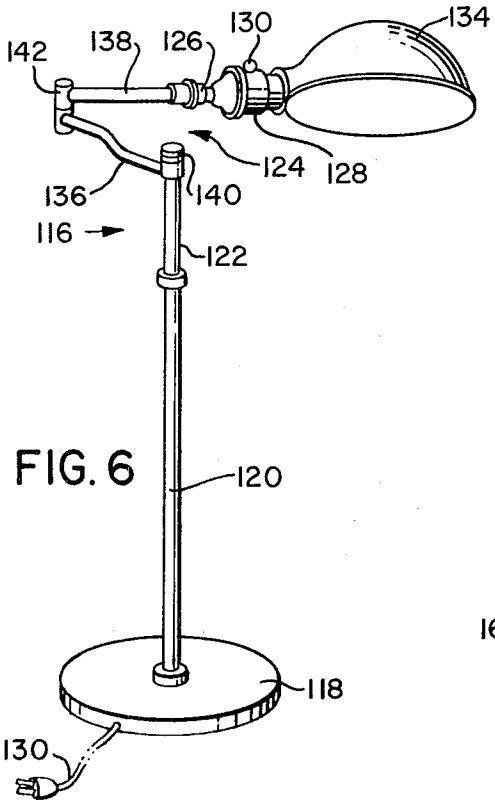


FIG. 6

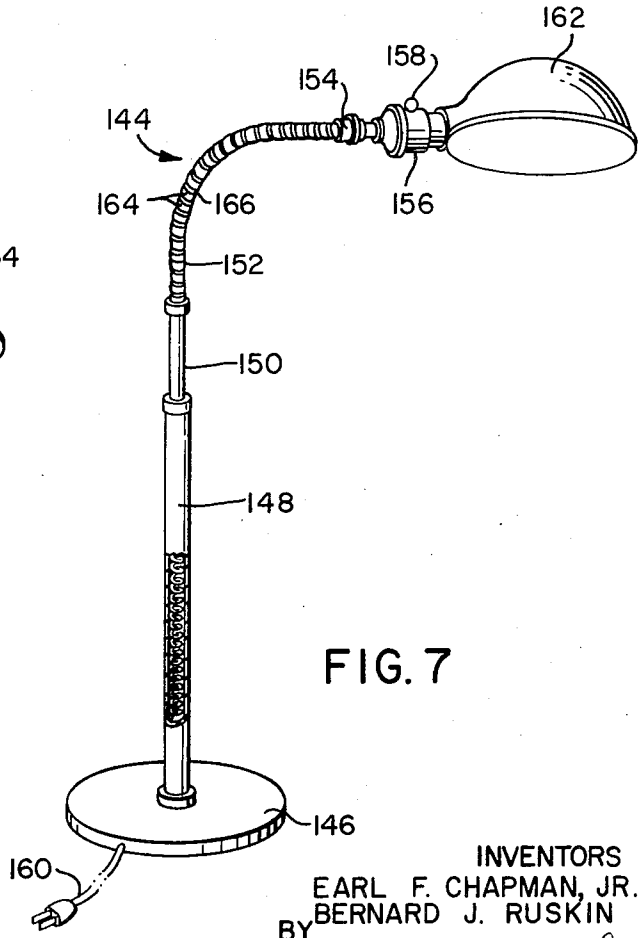


FIG. 7

INVENTORS
EARL F. CHAPMAN, JR.
BERNARD J. RUSKIN
BY
Morse, Altman & Oates
ATTORNEYS

MULTIPLE POSITION, VARIABLE INTENSITY LAMP

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to lamps and more particularly to a multiple position, variable intensity lamp.

2. Description of the Prior Art

The intensity and orientation of a light source is of key importance in minimizing eye strain, especially when a person is reading or studying for extended periods of time. Generally, floor lamps which are designed to be used as reading lamps have suffered from the disadvantage that they provide only a limited degree of adjustment with respect to both the orientation of the light source and the intensity of the luminance.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a floor lamp having a relatively unlimited degree of adjustment with respect to both the orientation of the light source and the intensity of the luminance. The lamp is characterized by a universally mounted lamp receptacle, a variable impedance circuit, a hollow shaft, a sleeve, and a base. The shaft is received within the sleeve which is mounted to the base. The periphery of the shaft, at one end thereof, is split along the longitudinal axis into two substantially equal and outwardly diverging legs which operate to engage the interior wall of the sleeve. The engagement of the legs and interior sleeve wall defines a frictional lock which allows slidable and rotational movement of the shaft within the sleeve upon the application of a slight force thereto. The intensity of luminance emitted from the lamp is controlled by the variable impedance circuit which is mounted within the lamp receptacle. The combination of rotatable and slidable shaft, universally mounted lamp receptacle, and variable impedance circuit is such as to provide a versalite, multiple position, variable intensity lamp.

The invention accordingly comprises the lamp possessing the construction, combination of elements and arrangement of parts that are exemplified in the following detailed description, the scope of which will be indicated in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the present invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, wherein:

FIG. 1 is a perspective of a lamp embodying the present invention;

FIG. 2 is a sectional taken along the lines 2—2 in FIG. 1;

FIG. 3 is a framentary side elevation, partly in section, illustrating certain details of the lamp;

FIG. 4 is a perspective illustrating certain details of an alternative embodiment of the invention;

FIG. 5 is a schematic diagram of the variable impedance circuit of FIG. 1;

FIG. 6 is a perspective of a second embodiment of the invention; and

FIG. 7 is a perspective of a third embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, a multiple position, variable intensity lamp embodying the invention is shown in FIG. 1 at **10**. Lamp **10** comprises a circular base portion **12** which is provided with an annular skirt **14**. Base **12** is formed with a concentric through hole **16** which is adapted to receive a sleeve **18** having externally threaded ends **20**, **22**. An internally threaded ring **24** having a knurled outer edge **26** and a fastener **28**, for example a hexagon nut, are turned onto threaded end **20** at opposed faces of base **12**. Hole **16** is slightly larger than threaded end **20** and smaller than ring **24** and nut **28**, whereby sleeve **18** is secured to base **12** by the vise-like grip of ring **24** and nut **28** on the opposed faces of base **12**. In an alternative embodiment, sleeve **18** is rotatably mounted to base **12** by means of a rotatable coupler (not shown). An internally threaded bushing **30** is turned onto threaded end **22**. Bushing **30** is provided with a concentric through hole **32** which is adapted to slidably receive a hollow bent shaft **34**. A fabric washer **36** is interposed between the edge of sleeve **18** and a shoulder **37** at the interior face of bushing **30**.

As best shown in FIG. **2**, one end of shaft **34** is bifurcated and defines a pair of substantially equal and outwardly diverging arcuate legs **36**, **38** which operate to engage the interior wall of sleeve **18**. The engagement of legs **36**, **38** and the interior wall of sleeve **18** defines a frictional lock. That is, shaft **34** is slidable and rotatable within sleeve **18** upon application of a force sufficient to overcome the friction between legs **36**, **38** and the interior wall of sleeve **18**. The other end of shaft **34** is externally threaded and a ball and socket fixture **39** is turned thereon.

It is to be understood that, in alternative embodiments, the end of shaft **34** is other than bifurcated as shown in FIG. **4**. In this case, a sleeve **170**, which corresponds to sleeve **18**, is formed with an aperture **172** which operates to receive a tapped insert **174**. A fastener **176**, for example a locking screw having a knurled head **177** is turned into tapped insert **174** until the end of screw **176** engages a shaft **178** which corresponds to shaft **34**. In consequence, shaft **178** is locked with respect to sleeve by screw **176**.

As shown in FIG. **4**, a base **180** which corresponds to base **12** includes a weighted stabilizing section **182** which is fixed to sleeve **170** in a manner similar to that described for fastening sleeve **18** to base **12**. Section **182** includes a plurality of legs **184**, for example three legs, which are arcuately distributed 120° from each other. Each leg **184** extends below the annular skirt portion of base **180** and defines a supporting structure. A line cord **186** having a male plug at one end is threaded in shaft **178** and exits between adjacent legs **184** under the annular skirt portion of base **180**.

Referring now to FIG. **3**, it will be seen that ball and socket fixture **39** includes a socket **40** and a cap **56**. Socket **40** is provided with an internally threaded tapered end section **42** which is turned onto the externally threaded end of shaft **34**. The opposite end of socket **40** is externally threaded and is formed with a spherical chamber **44**. One end of chamber **44** is opened and the other end is formed with an annular shoulder **46**. A resilient member **48**, for example a helical tension spring, rests on shoulder **46** and extends axially in chamber **44**. A seat **50** is interposed between

spring 48 and a ball 52 having an extending shaft 54. Cap 56 is internally threaded and is formed with a seat portion 57 having a concentric through hole 58. Cap 56 is turned onto the externally threaded section of socket 40. In consequence, seat 50 is urged against ball 52, ball 52 is pressed into seat portion 57, and shaft 54 extends through hole 58. It will be appreciated that ball 52 is universally pivoted within seat 50 and socket 57. The free end of shaft 54 is attached to a lamp receptacle 60. From the foregoing description, it will be apparent that lamp 10 provides a relatively unlimited degree of adjustment, i.e. shaft 34 is rotatable and slidable within sleeve 18 and receptacle 60 is universally pivoted with respect to shaft 34.

Lamp receptacle 60 includes a forward section 62 and a rearward section 64. Rearward section 64 is formed with an annular flange 66 which is adapted to receive shaft 54. A fastener 68, for example a set screw, is turned into a threaded hole in flange 66 and engages shaft 54, whereby shaft 54 is secured within flange 66. The forward end of rearward section 64 is provided with an annular rib 72 and the rearward end of forward section 62 is externally threaded. An internally threaded ring 74 having a rearward annular shoulder portion 76 adapted to engage rib 72 is turned onto the externally threaded rearward end of forward section 62. In consequence, forward section 62 and rearward section 64 are fastened together by ring 74. The forward end of forward section 62 is externally threaded and is adapted to receive an internally threaded flange 78 of a dome shaped shade 80. Mounted within forward section 62 is a variable intensity control 82.

Referring now to the schematic diagram illustrated in FIG. 5, it will be seen that variable intensity control 82 includes a variable impedance 84, for example, a potentiometer having a wiper arm 86 which is operatively connected to a control knob 88 via an insulating rod 89. Knob 88 is connected also to the contact arm of a switch 90. One side of potentiometer 84 is connected to a lead 92 of a power cord 94 and a terminal 96 of switch 90 is connected to a lead 98 of power cord 94. A terminal 100 of switch 90 is connected to a terminal 102 of a socket 104 and the other side of potentiometer 84. Wiper arm 86 is connected to a terminal 106 of socket 104. Power cord 94 is threaded in an annular guide 108 which is mounted to interior face of leg 38 and exists from lamp 10 through an aperture in sleeve 18 which is provided with a annular bushing 110 composed of a linear polyamide resin, for example. As shown in FIG. 1 at 111, power cord 94 is spiraled within sleeve 18. In conventional manner, a line plug 112 is attached to the free end of power cord 94. Receptacle 60 is adapted to receive socket 104 and socket 104 is adapted to receive an incandescent lamp 114, forward section 62 being formed with an aperture 113 through which insulating rod 89 projects. The intensity of the luminance emitted from lamp 114 is governed by the position of wiper arm 86 which is controlled by the rotation of knob 88. By way of example, when knob 82 is rotated to its most counterclockwise position the intensity of the luminance emitted from lamp 114 is greatest, and when knob 82 is rotated to its most clockwise position the contact between terminals 96 and 100 is broken and lamp 114 is off.

It is preferred that base 12, shaft 18, bushing 30, shaft 34, ball and socket fixture 39, receptacle 60, and shade 80 are composed of a metal such as brass, for example, and insulating rod 89 is composed of a linear polyamide resin.

It is to be understood that, in alternative embodiments, sleeve 18 and shaft 34 are integral and lamp 10 is not vertically adjustable. Also, the integral sleeve and shaft is swiveled to base 12.

In a second embodiment of the invention shown in FIG. 6, a lamp 116 comprises a base 118, a sleeve 120, a straight shaft 122, a swivel fixture 124, a ball and socket fixture 126, a receptacle 128, a variable intensity control 130, a power cord 132, and a shade 134. Base 118, sleeve 120, ball and socket fixture 126, receptacle 128, variable intensity control 130, power cord 132 and shade 134 correspond to base 12, sleeve 18, ball and socket fixture 39, receptacle 60, variable intensity control 82, power cord 94, and shade 80, respectively. Bent shaft 34 is replaced by straight shaft 122 and swivel fixture 124. One end of shaft 122 is bifurcated and operates in the same manner as the bifurcated end of shaft 34. The other end of shaft 122 is externally threaded. Swivel fixture 124 includes an offset arm 136 and a substantially straight arm 138. One end of arm 136 is provided with an internally threaded cap flange 140 which is turned onto the threaded end of shaft 122. One end of arm 138 is externally threaded and is turned into ball and socket fixture 126. The other end of arms 136 and 138 are connected together by means of a limited swivel joint fitting 142, arms 136 and 138 being constrained for limited swiveling movement with respect to each other.

Referring now to FIG. 7, there is shown at 144 a third embodiment of the invention. Lamp 144 comprises a base 146, a sleeve 148, a shaft 150, a flexible jointed arm 152, a ball and socket fixture 154, a receptacle 156, a variable intensity control 158, a power cord 160, and a shade 162. Base 146, sleeve 148, shaft 150, ball and socket fixture 154, receptacle 156, variable intensity control 158, power cord 160, and shade 162 correspond to base 118, sleeve 120, shaft 122, ball and socket fixture 126, receptacle 128, variable intensity control 130, power cord 132, and shade 134, respectively. Flexible jointed arm 152 comprises a plurality of sections 164 which define a convoluted spiral configuration. Adjacent sections 164 are slidably interconnected by means of flanges 166 in order to permit bending of flexible jointed arm 152 into selected shapes and retention of the selected shape. It is to be understood that, in alternative embodiments, lamp 144 is not vertically adjustable and arm 152 is mounted to sleeve 148.

Since certain changes may be made in the foregoing disclosure without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description and depicted in the accompanying drawings be construed in an illustrative and not in a limiting sense.

What is claimed is:

1. A multiple position, variable intensity lamp comprising:

a. a base;

b. support means having first and second ends, said second end operatively connected to said support

means, said first end operatively connected to said base;

c. receptacle means universally pivoted to said support means second end;

d. socket means having at least first and second terminals mounted within said receptacle means, said socket means adapted receive at least one incandescent lamp;

e. variable intensity means operatively mounted within said receptacle means and electrically connected to said socket means, said variable intensity means operating to control the intensity of luminance emitted by said incandescent lamp;

f. cord means having at least first and second leads electrically connected to said variable intensity means for applying electrical power to said variable intensity means; and

g. a swivel fixture, said swivel fixture having an offset arm and a substantially straight arm, one end of said offset arm connected to end of said support means second end, one end of said straight arm operatively connected to said receptacle means, the other ends of each said arm connected together by means of a limited swivel joint fitting, said arms being constrained for limited swiveling movement with respect to each other

2. A multiple position, variable intensity lamp comprising:

a. a base;

b. support means having first and second ends, said second end operatively connected to said support means and said first end operatively connected to said base;

c. receptacle means universally pivoted to said support means second end;

d. socket means having at least first and second terminals mounted within said receptacle means, said socket means adapted to receive at least one incandescent lamp;

e. variable intensity means operatively mounted within said receptacle means and electrically connected to said socket means, said variable intensity means operating to control the intensity of luminance emitted by said incandescent lamp;

f. cord means having at least first and second leads electrically connected to said variable intensity means for applying electrical power to said variable intensity means; and

g. a flexible jointed arm interposed between said support means and receptacle means, said flexible jointed arm having a plurality of sections defining a convoluted spiral configuration, adjacent sections slidably interconnected by means of flanges operating to permit bending of said flexible jointed arm into selected shapes and retention of the selected shape.

3. A multiple position, variable intensity lamp comprising:

a. a base;

b. support means having first and second ends, said second end operatively connected to said support means and said first end operatively connected to said base;

c. receptacle means universally pivoted to said support means second end;

d. socket means having at least first and second terminals mounted within said receptacle means, said socket means adapted receive at least one incandescent lamp;

e. variable intensity means operatively mounted within said receptacle means and electrically connected to said socket means, said variable intensity means operating to control the intensity of luminance emitted by said incandescent lamp; and

f. cord means having at least first and second leads electrically connected to said variable intensity means for applying electrical power to said variable intensity means;

g. said variable intensity means including variable impedance means and switch means, said variable impedance means including a potentiometer having a wiper arm, said switch means having at least first and second terminal means, one side of said potentiometer connected to said first lead, the other side of said potentiometer connected said first terminal means of said switch means, said second terminal means of said switch means connected to said second lead, said wiper arm connected to said second terminal of said socket means, said switch means having engaged and disengaged positions, said first and second terminal means of said switch means being electrically connected when said switch means is engaged, said first and second terminal means of said switch means being electrically disconnected when said switch means is disengaged, electrical power being applied to said socket means when said switch means is engaged, luminance being emitted from said incandescent lamp when said switch means is engaged, the position of said wiper arm operating to control the intensity of the luminance emitted from said incandescent lamp when said switch means is engaged.

4. The lamp as claimed in claim **3** including insulating rod means and knob, said rod means operatively connected to said wiper arm and switch means, said knob connected to said rod means, said wiper arm and switch means being responsive to rotational movement of said rod means, said switch means being disengaged when said rod means is rotated to its most clockwise position.

5. A multiple position, variable intensity lamp comprising:

a. a base;

b. a sleeve operatively connected to said base;

c. a shaft bifurcated at one end, said shaft received within said sleeve, the bifurcated end of said shaft defining a pair of outwardly diverging legs which operate to engage the interior wall of said sleeve, the engagement of said legs and interior wall operating as a frictional lock;

d. receptacle means universally pivotable with respect to said shaft;

e. socket means having at least first and second terminals mounted within said receptacle means, said socket means adapted to receive at least one incandescent lamp;

f. variable impedance means having a wiper arm, said variable impedance means mounted within said receptacle means and operatively connected to said socket means;

g. switch means having at least first and second terminals mounted within said receptacle means and electrically connected to said socket means;

h. cord means having at least first and second leads for applying electrical power to said incandescent lamp, said first lead electrically connected to one side of said variable impedance means, the other side of said variable impedance means connected to said first terminal of said switch means and said first terminal of said socket means, said second lead connected to said second terminal of said switch means;

i. said switch means having engaged and disengaged positions, the electrical power being applied to said socket means when said switch means is engaged, luminance emitted from said incandescent lamp when said switch means is engaged, the intensity of luminance emitted from said incandescent lamp governed by the position of said wiper arm.

6. The lamp as claimed in claim 5 including a swivel fixture, said swivel fixture having an offset arm and a substantially straight arm, one end of said offset arm connected to the other end of said shaft, one end of said straight arm operatively connected to said receptacle means, the other ends of each said arm connected together by means of a limited swivel joint fitting, said arms being constrained for limited swiveling movement with respect to each other.

7. The lamp as claimed in claim 5 including a flexible jointed arm interposed between said shaft and receptacle means, said flexible jointed arm having a plurality of sections defining a convoluted spiral configuration, adjacent sections slidably interconnected by means of flanges operating to permit bending of said flexible jointed arm into selected shapes and retention of the selected shape.

8. The lamp as claimed in claim 5 wherein said cord means is spiraled within said sleeve.

* * * * *