Feb. 26, 1963 A. GOLDSTEIN 3,079,493

SWITCHING LAMP CONSTRUCTION

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Fig.1

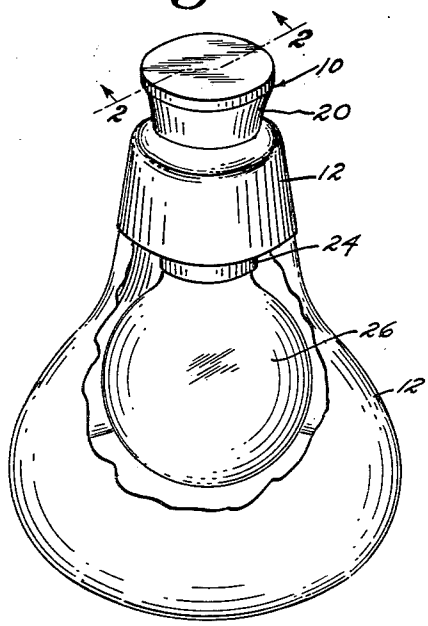


Fig.2

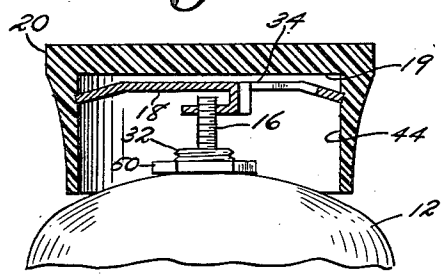


Fig.3

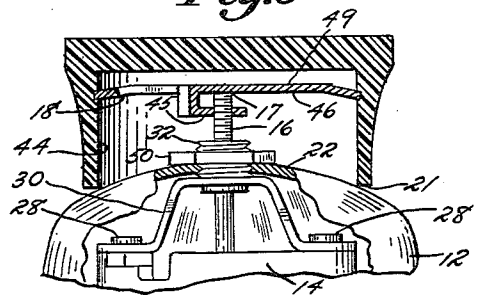


Fig.4

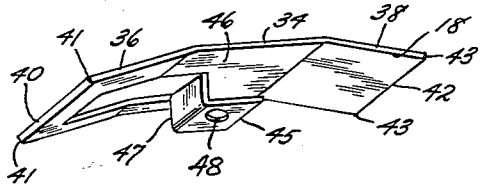


Fig.5

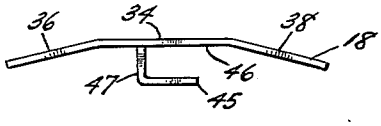


Fig.6

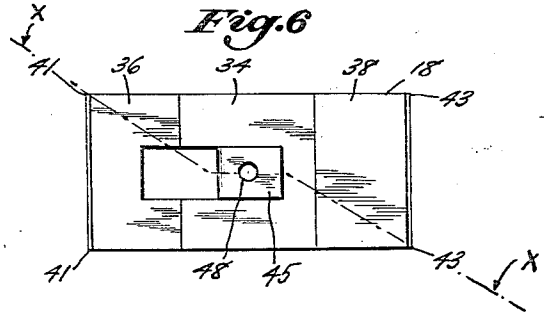


Fig.7

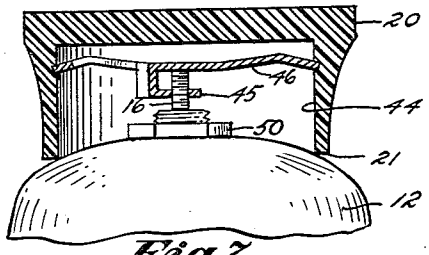


Fig.8

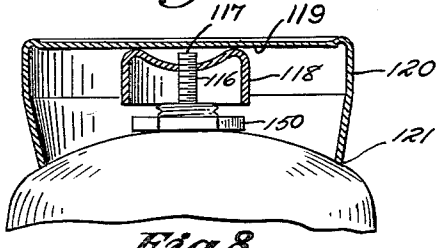
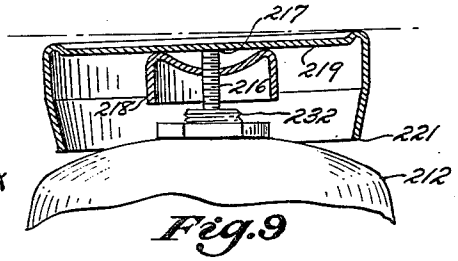


Fig.9



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Fig. 10

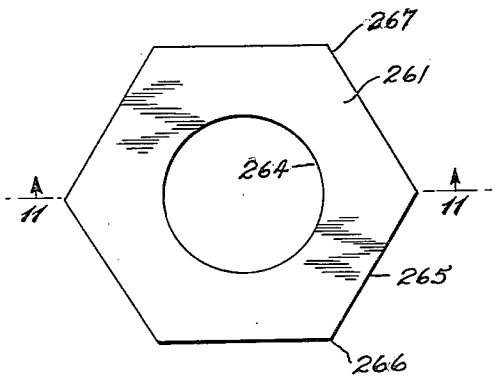
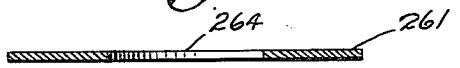


Fig. 11



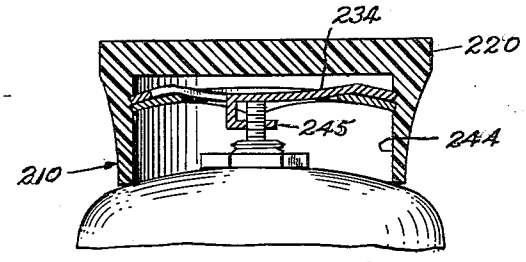


Fig. 14

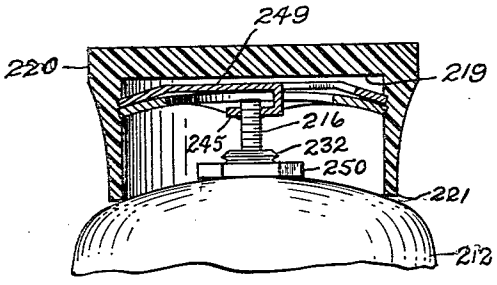


Fig. 12

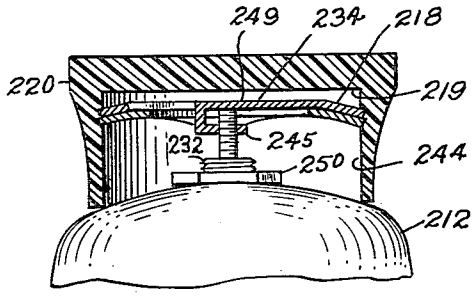


Fig. 13

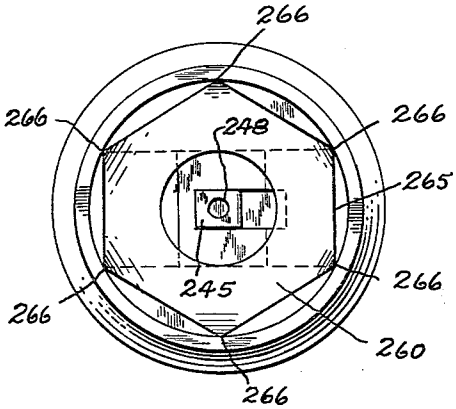
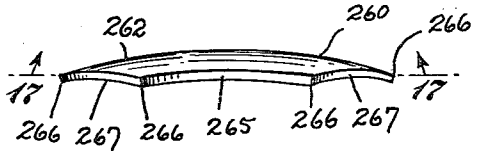


Fig. 15

Fig. 16



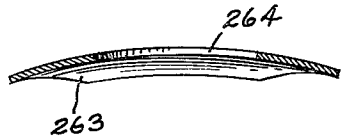


Fig. 17

United States Patent Office 3,079,493 Patented Feb. 26, 1963

3,079,493

SWITCHING LAMP CONSTRUCTION

Arnold Goldstein, 3363 Trexler Blvd., Allentown, Pa.

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1 Claim. (Cl. 240—123)

This invention relates generally to the field of illumination and more particularly to a lamp construction of the switching type.

In the field of lamps, there are various forms in which a source of illumination is provided with a shade and in which a switch for connecting or disconnecting the source of energy is associated with the shade. While it is known to provide an orifice in the shade (which may normally be composed of a relatively rigid heat-resisting material) and to mount the shank of a switch in such orifice, such small switches present the disadvantage that because of heat conductivity, they get dangerously hot and are not easily located and grasped.

To avoid such difficulties, it has been proposed to provide a large handle or knob element. While this may provide better heat dissipation, the greater eccentric leverage afforded by such elements tends to bend the spindle of the switch thereby causing binding and inconsistent operation.

It is therefore among the objects of the present invention to provide improved construction of the character described which will obviate such difficulties.

Another object herein lies in the provision of structure of the class described which provides a smooth bearing relationship between the knob element and shade element thereby affording proper support for the switch spindle and providing smooth consistent operation.

Another object herein lies in the provision of switching lamp construction which enables rapid non-skilled assembly and which provides automatic accommodation for relatively large manufacturing tolerances in the interrelated positioning of the parts.

A still further object herein lies in the provision of switching lamp structure which, while affording the advantages set forth hereinabove, utilizes a minimum of low-cost parts so that the same may be manufactured in large scale at low cost with a consequent wide distribution and use.

These objects and other incidental ends and advantages will more fully appear in the progress of this disclosure and be pointed out in the appended claim.

In the drawings, in which similar reference characters designate corresponding parts throughout the several views:

FIGURE 1 is a fragmentary perspective view showing an embodiment of the invention.

FIGURE 2 is an enlarged fragmentary vertical sectional view as seen from the plane 2—2 on FIGURE 1 showing the knob element at an early stage of installation.

FIGURE 3 is a fragmentary vertical sectional view comparable to FIGURE 2 but showing the knob element as completely installed.

FIGURE 4 is an enlarged perspective view, as seen from below, of the connecting element.

FIGURE 5 is an elevational view of the connecting element.

FIGURE 6 is a bottom plan view of the connecting element.

FIGURE 7 is a fragmentary vertical sectional view comparable to FIGURES 2 and 3 but showing the position of the parts where the switch has a short spindle or actuating element.

FIGURE 8 is a fragmentary vertical sectional view corresponding generally to one which might be taken from the plane X—X on FIGURE 6 but showing prior art construction with a short spindle switch.

FIGURE 9 is a fragmentary vertical sectional view corresponding to FIGURE 8 but showing a long spindle switch.

FIGURE 10 is a plan view of the reinforcing member of the second embodiment.

FIGURE 11 is a sectional view as seen from the plane 11—11 on FIGURE 10.

FIGURES 12, 13 and 14 are fragmentary sectional views comparable generally to FIGURES 2, 3 and 7 but show the second embodiment.

FIGURE 15 is a bottom plan view of the handle or knob element with the connecting element and reinforcing member of the second embodiment installed.

FIGURE 16 is an elevational view of the reinforcing member showing its dished condition after installation.

FIGURE 17 is a sectional view as seen from the plane 17—17 on FIGURE 16.

In accordance with the invention, the construction generally indicated by reference character 10, comprises broadly: a shade element 12; a switch 14; a switch spindle 16; a connecting element 18 and a knob element 20.

The shade element 12 is provided with an orifice 22 within which is mounted the switch 14. The switch 14 may be of a suitable type having an axially disposed spindle 16 and said switch may be part of an assembly which includes the socket 24, the latter carrying the usual incandescent bulb or similar source of illumination 26. Thus, the socket 24 may have secured thereto in a suitable manner as by the rivets 28 the mounting bracket 30 to which is connected the threaded bushing 32.

The assembly of the socket 24 and the switch 14, mounting bracket 30 and threaded bushing 32 is a commercially available product, and for the purpose of this disclosure is exemplary. It is this fact that creates the problem which is solved by the present invention. The assemblies, being commercially produced with large tolerance, have spindles 16 which vary considerably in length. Furthermore, where the shades are composed of a number of parts which nest, and through which the spindle must be passed, similar variation in spindle projection will result.

FFIGURES 8 and 9 show what has happened with prior art structures. In FIGURE 8 the knob 120 has a hollow nut 118 threaded upon the spindle 116. Since the exposed portion of the spindle 116 is too short, before the end 117 of the spindle 116 can touch the inner surface 119 of the knob element 120, the rim 121 has jammed up tight against the exterior of the shade element 112. This locking prevents further rotation of the switch spindle 116 and stops operation thereof. The opposite of this situation is depicted in FIGURE 9. Here the spindle 216 is too long and the end 217 has contacted the inner surface 219 of the knob element 220 so that the knob element cannot be further rotated with respect to the spindle. This results in the rim 221 being spaced away from the shade element 212. Now the wide diameter knob element 220 is supported solely by the thin spindle 216 which is easily bent out of its axis to cause damage or erratic operation. Furthermore, the loose fit of the spindle 216 in the bushing 232 is amplified by the leverage effect of the large diameter knob. This produces an undesirable feeling when the switch is operated.

Turning to the present construction shown in FIGURES 1 to 7, and particularly FIGURES 4 to 6, the connector element is preferably fabricated from a blank of planar material which is stiff but has a substantial amount of resiliency. The body 34 is preferably flat and extending from the ends of the body are a pair of wings 36 and 38 which are angularly disposed and project in a downward direction as viewed in FIGURE 5. The transverse edges 40 and 42 at the corners form points 41 and 43. The total length of the body 34 is such

that the distance between diagonally located points **41** and **43** is substantially equal to or slightly greater than the corresponding diameter of the bore **44** of the knob element **20**. The connector element **18** has a nut member **45** which is spaced and parallel to the inner or bottom surface **46**. The nut member **45** is held in position by a bracket **47**. The nut member and bracket are formed by a tab cut from the body **34** and bent to shape. The threaded hole **48** is adapted to engage the spindle **16**.

The knob element is preferably composed of wood, synthetic resin, or the like which is electrically insulating and has low heat conductivity. The material of which the knob element is composed is preferably soft enough so that the points **41** and **43** may dig into the bore **44**.

In assembling the construction (see FIG. 2), with the upper surface substantially in contact with the inner or under surface **19** of the knob element **20**. The points **41** and **43** frictionally engage the wall of the bore **44**. The switch **14** and socket **24** as assembled on the bracket **30** and bushing **32** are connected to the shade element **12**. The nut **50** holds the parts as shown in FIGURE 3. Now the nut member **45** is started on the spindle **16**. As the knob is rotated the spindle **16** passes through the nut member **45** until the end **17** of the spindle buts against surface **46** (FIG. 3). The axial length of the bore **44** is such that the rim **21** has contacted the shade element **12** before the end **17** has contacted surface **46**. The result of this is that as the knob element **20** is turned, the body **34** is pulled down as viewed in FIGURE 3. Since the points **41** and **43** are already in contact with the bore **44**, the body **34** and wings **36** and **38** tend to straighten out, and the points **41** and **43** dig into the surface of the bore **44**. The nut member **45** is drawn down toward the bushing **32**. This puts axial pressure in the nut member **45** and the surface **46** on the threaded spindle **16** securing the knob in place, while the flexed wings **36** and **38** in seeking their originally position resiliently urge the rim **21** upon the shade element **12** producing a slight friction thereat. This gives a smooth feel and action to the rotation of the knob element.

Where the spindle **16** is too long, the connecting element **18** need not be inserted all the way into the bore **44**, as soon as the spindle **16** engages the nut member **45** and pulls it down this causes the points **41** and **43** to dig into the walls of the bore **44**.

The case of a short spindle is illustrated in FIGURE 7, this has produced a downward bowing in the body **34** so that the spindle is secured between the nut member **45** and the surface **46** of the body. A greater pressure is produced by the rim **21** against the shade element **12** but this is softened by the flexure of the wings **36** and **38** to produce a stable feel.

Thus, in the present construction the knob element **20** rides on the shade element with no wiggle or backlash.

Turning now to the second embodiment of the invention illustrated in FIGURES 10 to 17, inclusive, for the purpose of avoiding needless repetition, certain of the parts corresponding to those of the first embodiment are given the same reference characters with the addition of a prefix "2."

The second embodiment differs from the first embodiment principally in the inclusion of a reinforcing member generally indicated by reference character **260**. The reinforcing member **260** is preferably obtained by deforming a planar blank **261** of relatively stiff deformable material such as sheet metal, for example sheet steel. The blank **261** is preferably flat up to the point of installation at which time it becomes convex on its concealed surface **262** and concave on the exposed surface **263** (see FIGS. 16 and 17). The reinforcing member **260** is provided with a central orifice **264** through or into which the body **234** may be drawn by the nut member **245** when the latter is pulled down as viewed, for example, in FIGURE 14.

The reinforcing member **260** has a periphery **265** which is provided with a plurality of radially projecting points **266**. The points **266** are preferably obtained by having the member **260** with a polygonal edge **267**. The diametrical distance between the opposite points **266** is slightly greater than the effective internal diameter of the bore **244**.

Thus, the reinforcing member **260** may be installed subsequent to the installation of the connecting element **218**, or may be installed simultaneously therewith. The points **266** dig into the surface of the bore **244** and the member **260** is thus enabled to prevent the accidental or undesirable removal of the connecting element **218** under conditions of severe stress upon the knob element **220** relative to the shade element **212**. Under certain conditions of stress of that character, it is possible in the embodiment shown in FIGURE 7, for example, for the connecting element **218** to be accidentally drawn in such manner as to snap beyond a dead-center position thereof. This condition is prevented by the presence of the reinforcing member **260** which may be made of relatively stiff material since even its dished formation entails less distortion than that to which the connecting element **18 (218) may be subject.**

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described for obvious modifications will occur to those skilled in the art to which the present invention relates.

I claim:

In a switching lamp construction, including a shade element, a switch secured to said shade element and having a threaded spindle arranged for rotation about an axis, and a knob supported by said spindle, improved connecting means for interconnecting said knob to said spindle, comprising: said knob having a generally cylindrically-shaped recess therein, a resilient connector element of generally planar polygonal configuration forming diagonally located points which are spaced a distance slightly greater than the diameter of said recess in said knob, said connecting element having a degree of flexibility and resiliently engaging the inner surface of said recess, said connecting element having a tab cut from the planar body thereof and including a first portion extending substantially at a right angle with respect to said planar body, and a second portion disposed in spaced substantially parallel relation with respect to said planar body, there being a threaded bore extending through said second portion, said threaded spindle being engaged within said threaded bore to a degree wherein the terminal portion thereof contacts an abutting surface of the planar body of said connector element to limit further engagement upon the impartation of rotational movement to said knob.

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