Nov. 23, 1954 A. TISCIONE 2,695,393

ELECTRIC LAMP SOCKET

Filed Oct. 10, 1951 2 Sheets-Sheet 1

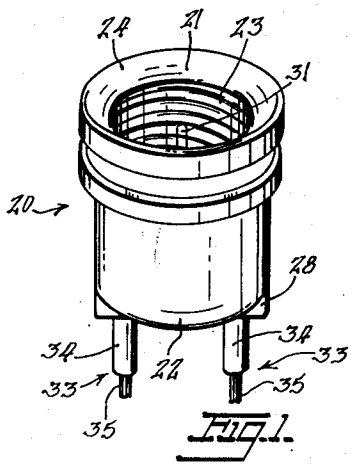


Fig. 1.

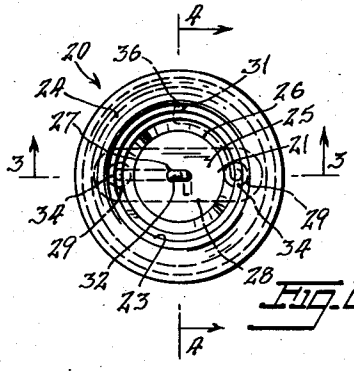


Fig. 2.

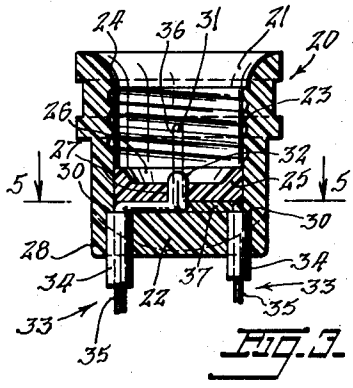


Fig. 3.

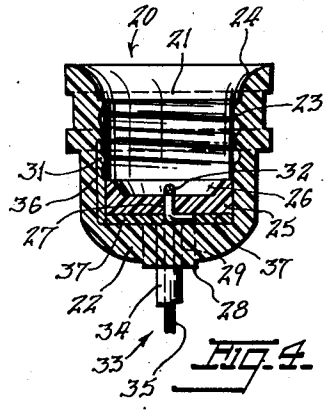


Fig. 4.

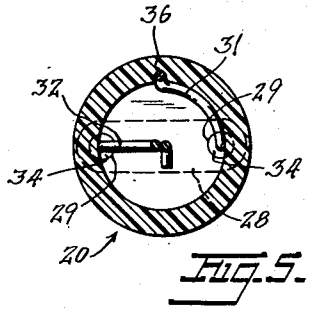


Fig. 5.

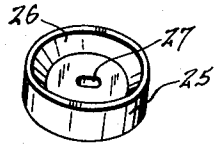


Fig. 6.

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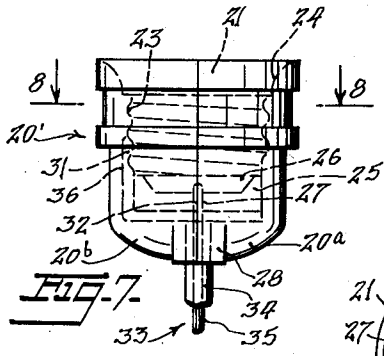


FIG. 7.

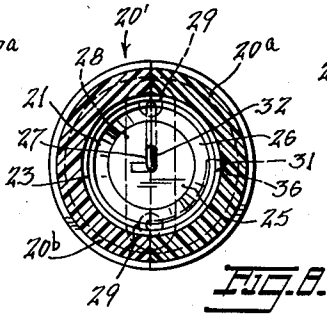


FIG. 8.

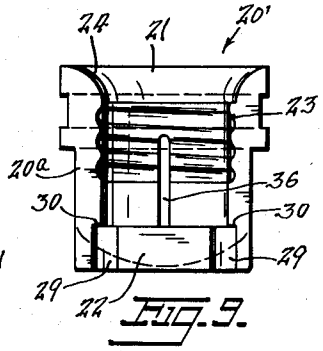


FIG. 9.

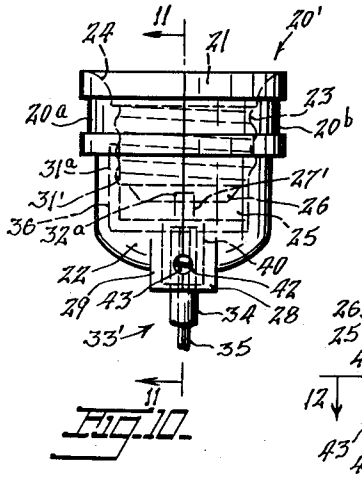


FIG. 10.

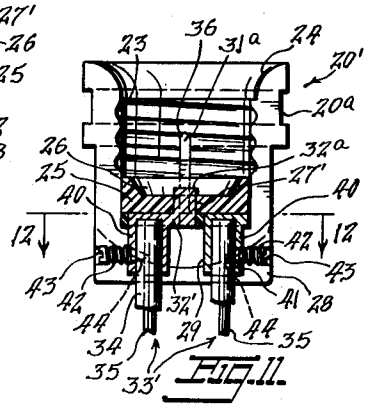


FIG. 11.

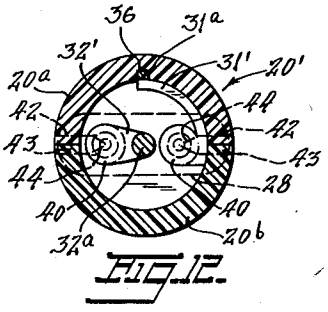


FIG. 12.

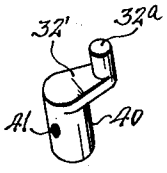


FIG. 13.

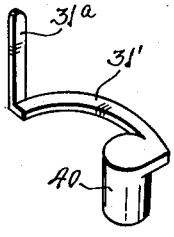


FIG. 14.

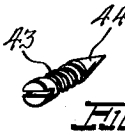


FIG. 15.

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ELECTRIC LAMP SOCKET

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Application October 10, 1951, Serial No. 250,607

3 Claims. (Cl. 339—180)

This invention relates to new and useful improvements in an electric lamp socket.

More specifically, the present invention proposes the construction of an electric lamp socket having a shell formed entirely of dielectric material and which further has an internally threaded recess extended in from one end thereof and within which conductor members are exposed to make electrical contact with the shell and end contacts of a conventional electric lamp screwed into the recess.

Still further, the present invention proposes casting the shell of the socket as one-piece and to extend the bared ends of electric wires into the threaded recess in a novel arrangement so that the mere act of screwing the lamp base into the recess will complete the electrical contact of the shell and end contacts of the lamp with the conductors.

As a further object, the present invention proposes anchoring a small disc of dielectric material in position at the bottom of the recess in a manner to retain the conductors fixedly in position to make the desired electrical contact with the shell and end contacts of the lamp.

Another object of the present invention proposes constructing the shell of two parts separated on a line extended across the passageways through which the conductors enter the shell to permit pre-shaping of the conductors to be laid in position within one of the shell halves together with the retaining disc after which the other shell half is mounted in position to complete the assembly of the lamp socket.

The present invention further proposes constructing the conductors of suitable conductive material with sockets opening outward within the passageways in a manner to removably receive the ends of electric wires connected to a source of electric current.

As a still further object, the present invention proposes a novel means for anchoring the ends of the electric wires in position within the socket openings of the conductors in such a manner that the insulation covering need not be removed from the ends of the wires prior to insertion into the socket openings and still permit electrical contact between the conductors and the electric wires to be completed.

It is a further object of the present invention to construct lamp sockets of the type disclosed which are simple and durable, which are effective for their intended purposes and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

On the accompanying drawings forming a material part of the present invention:

Fig. 1 is a perspective view of the lamp socket constructed in accordance with the present invention.

Fig. 2 is a plan view of Fig. 1.

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a horizontal sectional view taken on the line 5—5 of Fig. 3.

Fig. 6 is a perspective view of the retaining disc used in the form of the invention shown in Figs. 1 to 5.

Fig. 7 is a side elevational view of the lamp socket constructed in accordance with a modification of the present invention.

Fig. 8 is a horizontal sectional view taken on the line 8—8 of Fig. 7.

Fig. 9 is an inside elevational view of one of the casing halves used in the form of the invention shown in Figs. 7 and 8.

Fig. 10 is a view similar to Fig. 7, but illustrating another modification of the present invention.

Fig. 11 is a transverse vertical sectional view taken on the line 11—11 of Fig. 10.

Fig. 12 is a horizontal sectional view taken on the line 12—12 of Fig. 11.

Fig. 13 is a perspective view of one of the conductors used in the form of the invention shown in Figs. 10 to 12.

Fig. 14 is a perspective view of the other of the conductors used in the form of the invention shown in Figs. 10 to 12.

Fig. 15 is a perspective view of one of the anchor screws used in the form of the invention shown in Figs. 10 to 12.

The lamp socket, according to the first form of the present invention shown in Figs. 1 to 6, includes a shell 20 having a recess 21 extended in from its one end and having its other or closed end rounded. In this first form of the invention, the shell 20 is molded as one-piece of a suitable dielectric material. It is preferred to mold the shell 20 of one of the synthetic resinous materials because of their ability to withstand breakage; however, if desired, the casing could be molded of hard rubber or other similar dielectric materials. The recess 21 between the open end of the shell 20 and the wall 22 which closes the other end of the shell, is formed with threads 23 to receive the threaded base of a conventional electric lamp, not shown, having the usual shell and end contacts. Between the open end of the shell 20 and the adjacent ends of the threads 23, the shell has an outwardly flared wall 24, see particularly Figs. 3 and 4, for guiding the threaded base of the lamp into position within the recess 21.

The inner ends of the threads 23 are spaced from the adjacent face of the wall 22 providing clearance for a retaining disc 25 cast of the same dielectric material as that used for the shell 20. The retaining disc 25 has a snug fit within the recess 21 at the inner ends of the threads 23 and has a cavity 26 in its face which is directed toward the open end of the recess 21, to receive the end contact of the lamp which is screwed into the recess. Concentrically within the cavity 26, the retaining disc 25 is formed with an elongated slot 27.

The rounded closed end of the shell 20 is formed with a transversely extended integral rib 28. The rib 28 is formed with spaced pasageways 29 extended parallel to the axis of the recess 21 and which open at their inner ends into the recess 21. The passageways 29 are offset with relation to the side walls of the recess 21 to provide abutment shoulders 30 at the junction of the passageways 29 with the recess 21.

Conductors 31 and 32 are extended from the passageways 29 into the recess 21 and exposed beyond the face of the retaining disc 25 which faces the open end of the shell 20 to make electrical contact with the shell and end contacts of the lamp received within the shell 20. In this first form of the invention, each of the conductors 31 and 32 is the bared end of a conventional electric wire 33 having the usual outer insulation casing 34 and inner stranded flexible conductor wire core 35. In shaping the conductors 31 and 32, sufficient of the outer casings 34 of the wires 33 is removed from the ends thereof to bare the ends of the stranded wire cores 35. Those bared ends of the stranded wire cores 35 are then soldered or otherwise secured together to form an integral unit of the strands. Following soldering the ends of the wires 33 are inserted into the passageways 29 until the adjacent ends of the respective outer casings 34 abut the shoulders 30, as best shown in Fig. 3.

It is apparent, of course, that the retaining disc 25 is not yet in position within the recess 21. Using suitable tools, such as long nosed pliers and the like, the end of the one wire 33 is bent to provide the conductor 31 which is accomplished by bending the intermediate portion of

that one wire to extend arcuately about one-fourth of the recess, see Fig. 5, and then bending the free end thereof upward to be located within a groove **36**, see Figs. 3 and 5, molded in the inner face of the recess **21** to interrupt the threads **23**.

Using the same tools, the end of the other wire **33** is bent and shaped to provide the other contact **32**. That is accomplished by bending the free end of that other wire **33** to extend along the inner face of the wall **22** to the center of the recess **21**. At the center of the recess **21**, the intermediate portion of the bared end of the other wire **33** is bent into an inverted U-shape to extend upward through the slot **27** in the retaining disc **25**. The free end portion of that other wire **33** is then bent to extend at right angles along the inner face of the wall **22**, see Figs. 2 and 5.

To retain the conductors **31** and **32** fixedly in position within the recess **21**, the retaining disc **25** is slipped into position from the open end of the shell **20**. The retaining disc **25** passes along the inner face of the conductor **31** where it is exposed within the groove **36** and receives within its slot **27**, the U-shaped portion of the conductor **32**. The retaining disc **25** is sealed in position within the recess **21** using a non-conductive mucilage or bonding agent **37** having an affinity for the material of which the shell **20** and the disc **25** are molded. The wires **33** between the adjacent faces of the wall **22** and the retaining disc **25** will hold the retaining disc **25** out of contact with the adjacent face of that wall **22**. The mucilage or bonding agent **37** fills all of the voids about the wires **33** and fixedly retains the disc **25** in position. It will be appreciated, of course, that the ends of the conductors **31** and **32** exposed within the groove **36** and within the cavity **26** of the disc **25** will make contact with the shell and end contacts of the lamp screwed into position within the recess **21**.

The ends of the wires **33** remote from the conductors **31** and **32** can be projected any desired length from the outer ends of the passageways **29** to be bared at their free ends and connected directly to a source of electric current for supplying the required current to illuminate the lamp screwed into the recess.

From the foregoing description, it is apparent that the present invention proposes a novel lamp socket in which the bared ends of wires are exposed within the socket to make contact with the shell and end contacts of a lamp screwed into the shell so that the mere act of connecting the other ends of the wires to a source of electric current will place the socket in use without having to disassemble and reassemble the socket to connect the conductors thereto. The socket is formed, except for the conductors, completely from dielectric material to eliminate the danger of electric shock when handling the lamp socket. While it is the primary purpose of the present invention to construct the socket to accept the screw base of conventional lamps commonly used for lighting purposes, it is appreciated that the socket could be formed to accept the smaller bases of Christmas tree bulbs or various other types of lamps in common use.

In the modification of the invention shown in Figs. 7 to 9, the shell **20'** is constructed of two opposed halves **20^a** and **20^b**. The halves **20^a** and **20^b** are separated on a line which extends diametrically through the passageways **29** of the rib **28** formed at the base of the lamp socket. Each of the halves **20^a** and **20^b** is alike in formation except that the half **20^b** does not have the groove **36**, see Fig. 9, for the conductor **31**.

When the halves **20^a** and **20^b** of the shell **20'** are separated, the bared ends of the wires **33** which are preshaped to provide the conductors **31** and **32** can be properly laid in position within the half **20^a** together with the retaining disc **25**. The proper quantity of the mucilage or bonding agent **37** is then added and the other half **20^b** slipped into position. Meeting edges of the halves **20^a** and **20^b** of the shell **20'** are joined together using a bonding agent for the material of which the halves are formed.

In all other respects, the form of the invention shown in Figs. 7 to 9 is similar to that described in connection with Figs. 1 to 6 and like reference numerals are used to identify like parts.

Referring now to the modification of the invention shown in Figs. 10 to 15, the construction of the lamp socket is similar to that described in connection with Figs. 7 to 9 except for the formation of the conductors

31' and **32'**. Each of the conductors **31'** and **32'** is molded of a conductive metal with the conductor **31'** having an end portion **31^a** exposed within the groove **36**. The conductor **32'** has an upstanding peg portion **32^a** extended through a complementary circular hole **27'** formed in the retaining disc **25**.

Each of the conductors **31'** and **32'** has a socket portion **40** extended into one of the passageways **29**. The socket portions **40** having their open ends facing the open ends of the passageways but stopped somewhat short of the open ends of the passageways to eliminate the possibility of a short circuit. The wires **33'** have their ends inserted into the socket portions **40** from the outer ends of the passageways **29** without removing the insulation from the ends of the wires **33'**, see particularly Fig. 11.

Means is provided for anchoring the ends of the wires **33'** in position within the socket portions **40** while at the same time completing the electric contact between the conductors **31'** and **32'** and the stranded wire cores **35** of the electric wires **33'**. To permit this, the sides of the socket portions **40** which are faced outward, are formed with threaded holes **41** in axial alignment with threaded holes **42** extended laterally through the ends of the rib **28**. Anchor screws **43** are threaded into the aligned holes **41** and **42** and have at their inner ends conical portions **44**, which are sharply pointed as shown in Fig. 15. When the anchor screws **43** are tightened into position, the conical portions **44** of the screws pierce the outer casings **34** of the wires **33'** and engage the cores **35** of the wires **33'** completing the circuit from those cores to the socket portions and then through the conductors **31'** and **32'** to the shell and end contacts of the lamp screwed into the shell **20**.

As shown, the shell **20'** is formed of separate halves to facilitate mounting and positioning of the conductors **31'** and **32'**. However, the shell could be made of one piece, as shown in connection with the first form of the invention, with the conductors **31'** and **32'** being mounted in position prior to the positioning of the retaining disc **25**.

In all other respects, the form of the invention shown in Figs. 10 to 15 is similar to that described in connection with Figs. 7 to 9 and like reference numerals are used to identify like parts.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as set forth in the appended claims.

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

1. A lamp socket comprising a shell having a recess opening to one end thereof, said recess being internally threaded adjacent its open end to receive the threaded base of an electric lamp having shell and end contacts, said shell having a groove formed therein intersecting the threads of said recess, a retaining disc positioned within said recess at the inner end of said threads, said shell having spaced passageways extended in from its end opposite its open end and opening into said recess, and conductors extended from said passageways into said recess and exposed beyond the face of said disc facing the open end of said shell to make electrical contact with the shell and end contacts of the lamp received within said recess, said conductors having socket portions extended into said passageways to receive the ends of insulation covered wires inserted through said passageways and into said socket portions, one of said conductors having an upright end portion exposed within said groove a horizontal arcuate portion integral with said upright end portion and said socket portion.

2. A lamp socket comprising a shell having a recess opening to one end thereof, said recess being internally threaded adjacent its open end to receive the threaded base of an electric lamp having shell and end contacts, said shell having a groove formed therein intersecting the threads of said recess, a retaining disc positioned within said recess at the inner end of said threads, said shell having spaced passageways extended in from its end opposite its open end and opening into said recess, and conductors extended from said passageways into said recess and exposed beyond the face of said disc facing

the open end of said shell to make electrical contact with the shell and end contacts of the lamp received within said recess, said conductors having socket portions extended into said passageways to receive the ends of insulation covered wires inserted through said passageways and into said socket portions, one of said conductors having an upright end portion exposed within said groove a horizontal arcuate portion integral with said upright end portion and said socket portion, the other of said conductors having a peg portion extended through a concentric hole in said retaining disc and exposed within a cavity in the outer face of said disc and a horizontal portion integral with the socket portion and the peg portion thereof.

3. A lamp socket comprising a shell having a recess opening to one end thereof, said recess being internally threaded adjacent its open end to receive the threaded base of an electric lamp having shell and end contacts, said shell having a groove formed therein intersecting the threads of said recess, a retaining disc positioned within said recess at the inner end of said threads, said shell having spaced passageways extended in from its end opposite its open end and opening into said recess, and conductors extended from said passageways into said recess and exposed beyond the face of said disc facing the open end of said shell to make electrical contact with the shell and end contacts of the lamp received within said recess, said conductors having socket portions extended into said passageways to receive the ends of insulation covered wires inserted through said passageways

and into said socket portions, one of said conductors having an upright end portion exposed within said groove a horizontal arcuate portion integral with said upright end portion and said socket portion, the other of said conductors having a peg portion extended through a concentric hole in said retaining disc and exposed within a cavity in the outer face of said disc and a horizontal portion integral with the socket portion and the peg portion thereof, said shell being formed of two parts separated on a line extended through said passageways permitting insertion of said conductors before final assembly of said shell.

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