Oct. 19, 1954 J. W. WIGAN 2,692,154

ELECTRIC LAMP BASE CONSTRUCTION

Filed June 5, 1951

Fig. 1

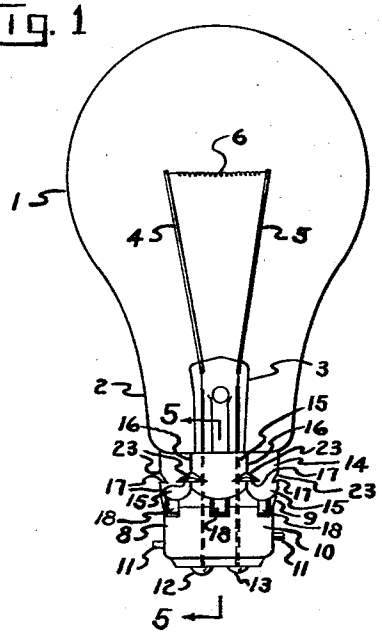


Fig. 2

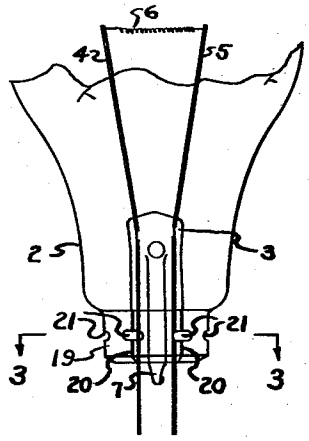


Fig. 3

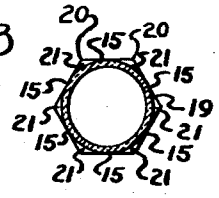


Fig. 5

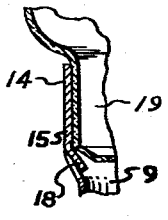


Fig. 4

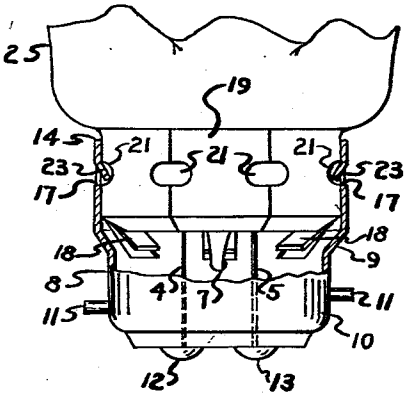
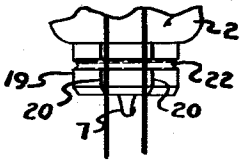


Fig. 6



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2,692,154

ELECTRIC LAMP BASE CONSTRUCTION

James William Wigan, Putney, England, assignor to General Electric Company, a corporation of New York; patent dedicated to the Public insofar as it relates to lamps and lamp parts to the extent stated in document recorded in the United States Patent Office, January 4, 1954, Liber U-238, page 394

Application June 5, 1951, Serial No. 229,918

Claims priority, application Great Britain June 21, 1950

7 Claims. (Cl. 287—119)

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My invention relates to electric devices, and especially to electric lamps, of the type comprising a sealed vitreous envelope on which is mounted a base carrying or constituting one or more terminals which are electrically connected to an electrical energy translation element within the envelope.

Electric lamp bases, which are generally in the form of a thin metal shell, are usually attached to the lamp envelope by means of a basing cement. Such bases have also been attached directly to the envelope, for example by the use of cooperating screw threads provided on the base and envelope respectively and/or by pressing parts of the base into depressions formed in the envelope for that purpose. Such cementless fixings of the cap are advantageous in certain cases, for example, for use of the lamp or device under conditions which would quickly lead to deterioration of a conventional basing cement.

It is an object of my invention to provide an improved form of cementless fixing of a base to the envelope of a device of the kind referred to, and to provide an improved form of base adapted for such cementless fixing.

According to the invention, in a device of the kind referred to the base is formed at one end with a substantially plane-sided or polygonal-shaped metal skirt portion, preferably of regular polygonal shape, which snugly fits over a correspondingly plane-sided or polygonal-shaped neck portion of the envelope, the said skirt portion being provided, at each of a plurality of its corner edges joining adjacent plane sides thereof, with a slot extending across the corner edge, and the portion of the shell at least at one side of each said slot, including the corner point at the said edge, being turned into a depression formed in the envelope neck whereby to securely attach the base to the envelope. Preferably, the plane-sided polygonal skirt portion of the base and the corresponding plane-sided polygonal neck of the envelope are both of hexagonal shape, and the depressions in the envelope into which the metal of the base shell at the sides of the said slots are turned or indented, are preferably provided either by a circumferential groove formed in the said plane-sided neck portion of the envelope or by short individual grooves in the said envelope neck portion extending across each of the corner edges of the latter.

By virtue of the closely fitting plane sides of the polygonal-shaped base skirt and the correspondingly shaped neck portion of the envelope over which the skirt is fitted, the base mounting

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is well resistant to torque applied between the base and the envelope such as may be experienced, for example, on inserting the device in a socket when the base is of the bayonet or screw type. Also, the turning-in or indenting of the base shell at the side of the slots in the skirt, at and including the corner edges of the skirt, helps to stiffen the skirt against deformation under torque and also provides strong projections or locking tabs which hold the base satisfactorily against axial removal from the envelope.

For taking up any axial play in the base mounting, and thereby avoiding any rattling of the base on the envelope, the sides of the base are preferably slotted to form tongues which are pressed inward to resiliently press or seat against a shoulder on the envelope such as the end of the envelope neck, for instance.

It will be understood that the invention includes within its scope bases adapted for use on electrical devices in accordance with the invention as aforesaid, said bases being formed at their open or inner end with a substantially plane-sided or polygonal-shaped metal skirt portion, preferably hexagonal, which is provided at each of a plurality of its corner edges joining adjacent sides with a slot extending across the corner edge. In general, the bases will be entirely of metal except possibly for terminal insulation, and the outer end of the base away from the skirt will in general be either of cylindrical shape for a bayonet type base, or of screw-threaded shape for a screw type of base, the outer end of the base usually being pressed in one piece with the inner skirt end. The base may also be slotted to provide resilient tongues capable of being pressed inward to provide the aforesaid resilient seating for the envelope.

Further objects and features of my invention will appear from the following detailed description of species thereof taken in conjunction with the accompanying drawing.

In the drawing, Fig. 1 is an elevation of an electric incandescent lamp provided with a base construction according to the invention; Fig. 2 is a fragmentary elevation of the base end portion of the lamp envelope of Fig. 1, prior to the mounting of the base thereon; Fig. 3 is a section on the line 3—3 of Fig. 2; Fig. 4 is an enlarged fragmentary elevation of the base end of the lamp illustrated in Fig. 1, the base being shown partly in section through the locking tabs thereof; Fig. 5 is a fragmentary sectional view on the line 5—5 of Fig. 1; and Fig. 6 is a fragmentary elevation of a modified form of envelope base-end construction according to the invention.

Referring to the drawing, the invention is there shown as applied to an electric incandescent lamp comprising a glass envelope or bulb 1 having a neck portion 2 provided with a reentrant stem 3 through which are sealed a pair of lead-in wires 4 and 5. At their inner ends, the said lead-in wires 4, 5 are electrically connected to an electrical energy translation element or filament 6 such as a coiled tungsten wire. The envelope is exhausted and, if desired, gas filled through an exhaust tube 7 which, after exhaustion and gas filling of the envelope, is tipped off to hermetically seal the envelope.

Mounted on the neck end 2 of the envelope 1 is a base 8 according to the invention. The particular base 8 shown is of the bayonet type and comprises a hollow metal body or shell portion 9 pressed in one piece, with a cylindrical barrel portion 10 at its outer end provided with side or bayonet pins 11, 11 and having two electrically insulated terminals or end contacts 12, 13 mounted at its outer end to provide a bayonet base construction of the conventional type customarily employed for ordinary incandescent filament lamps. The two lead-in wires 4, 5 of the lamp are electrically connected to the two end contacts 12, 13.

At its other or inner end, the base shell 9 is flared into a hexagonal-shaped skirt portion 14 having, in the particular case illustrated, an axial length of about 7 mm. and a length of side 15 of about 14 mm. Across each of the corner edges 16 joining adjacent sides 15 of the skirt 14, and well spaced from the mouth or open inner end of the skirt, extend slots 17 of about 6 mm. total length, these slots 17 extending peripherally of the hexagonal skirt portion 14.

The base shell 9 is preferably provided, in addition, at spaced points therearound with axially extending inwardly projecting spring fingers or in-bent tongues 18 which, in the particular case illustrated, are about 5 mm. long and 2 mm. wide. The said spring tongues 18 are preferably pressed out of the metal of the shell 9 at points immediately adjacent the bottom or outward edge of, and approximately centrally of the length of, each plane side 15 of the hexagonal skirt portion 14, with the free ends of the tongues 18 extending toward the bottom or outer end of the base, as shown.

At its outer end, the neck 2 of the envelope 1 is molded to the shape of a short hexagonal end portion 19 corresponding in shape to and over which the hexagonal skirt portion 14 of the base 8 snugly fits. The hexagonal neck end portion 19 of the envelope is preferably grooved at its corner edges 20, as by being formed either with peripherally extending separate grooves 21 across each of its corner edges 20, as shown in Figs. 2–5, or with a continuous circumferential groove 22 as shown in the modification of Fig. 6. The grooves 21 or 22 are so located axially of the hexagonal neck portion 19 of the envelope as to lie approximately opposite, i. e., underlie, the metal of the hexagonal skirt portion 14 of the base to one or the other side (preferably to the upper or inward side, as shown in Fig. 4) of the slots 17 in the skirt portion 14 of the base 8 when the latter is fitted over and positioned in place on the hexagonal neck end portion 19 of the envelope.

To secure the base 8 in place on the hexagonal neck end 19 of the envelope 1, the portions of the base shell to that one side of the slots 17 therein which overlie the grooves 21 or 22 in the envelope neck end portion 19 (including the corner points

of the said shell portion), are indented or bent into said grooves to form locking tabs 23, as shown particularly in Fig. 4. In such locked position on the envelope, the outer end extremity of the hexagonal neck end portion 19 of the envelope presses against the resilient tongues 18 formed in the base, as shown in Fig. 5, thereby continuously holding the free ends of the locking tabs 23 down against the walls of the grooves 21 or 22 and preventing the base from rattling on the envelope.

It will be appreciated that the form of base mounting provided in accordance with the invention is well adapted to mass production methods, since the plane-sided or polygonal-shaped neck end portion 19 of the envelope on which the base fits can readily be formed either with a continuous or interrupted circumferential groove or with other shaped depressions for receiving the turned-in portions or locking tabs 23 of the base, by molding the said neck end portion 19 during the manufacture of the envelope of the lamp or other device, and the fitting of the base 8 onto the envelope 1 and the turning-in of the portions of the base skirt at the sides of the slots 17 therein to form the locking tabs 23 can readily be performed automatically at subsequent stages in the manufacture of the device.

Although a preferred embodiment of my invention has been disclosed, it will be understood that the invention is not to be limited to the specific construction and arrangement of parts shown, but that they may be widely modified within the spirit and scope of my invention as defined by the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An electrical device comprising a glass envelope having a neck portion of polygonal shape in cross section, said polygonal neck portion having depressions formed therein across the corner edges thereof, and a base mounted on said envelope and comprising a metal shell provided with a portion of annularly continuous polygonal cross section corresponding to and snugly fitting over the polygonal neck portion of said envelope, said polygonal shell portion being slit across each of its corner edges opposite the depressions in said envelope neck, and the portions of the shell adjacent one side of the said slits being indented into the said depressions to thereby securely fasten the base to said envelope neck.

2. An electrical device comprising a glass envelope having a neck portion of polygonal shape in cross section, said polygonal neck portion being grooved across the corner edges thereof, and a base mounted on said envelope and comprising a metal shell provided with a portion of annularly continuous polygonal cross section corresponding to and snugly fitting over the polygonal neck portion of said envelope, said polygonal shell portion being slit across each of its corner edges opposite the grooved portions of said envelope neck and the portions of the shell adjacent one side of the said slits being indented into the said grooved portions to thereby securely fasten the base to said envelope.

3. An electrical device comprising a glass envelope having a neck portion of regular polygonal shape in cross section, said polygonal neck portion having grooves therein extending transversely of and across the corner edges thereof, and a base mounted on said envelope and comprising a metal shell provided with a skirt portion of annularly continuous polygonal cross sec-

tion corresponding to and snugly fitting over the polygonal neck portion of said envelope, said polygonal skirt portion being slit across each of its inner edges opposite the grooves in said envelope neck and the portions of the skirt adjacent one side of the said slits being indented into the said grooves to thereby securely fasten the base to said envelope neck.

4. An electrical device comprising a glass envelope having a neck portion of regular polygonal shape in cross section, said polygonal neck portion being formed with a circumferential groove, and a base mounted on said envelope and comprising a metal shell provided with a skirt portion of annularly continuous polygonal cross section corresponding to and snugly fitting over the polygonal neck portion of said envelope, said polygonal skirt portion being slit across each of its corner edges opposite the circumferential groove in said envelope neck and the portions of the skirt adjacent one side of the said slits being indented into the said groove to thereby securely fasten the base to said envelope neck.

5. An electrical device comprising a glass envelope having a neck portion of polygonal shape in cross section, said polygonal neck portion being grooved across the corner edges thereof, and a base mounted on said envelope and comprising a metal shell provided with a portion of annularly continuous polygonal cross section corresponding to and snugly fitting over the polygonal neck portion of said envelope, said polygonal shell portion being slit across each of its corner edges opposite the grooved portions of said envelope neck and the portions of the shell adjacent one side of the said slits being indented into the said grooved portions to thereby securely fasten the base to said envelope neck, said shell further having a plurality of resilient tongues pressed out of the metal of the shell and bent inwardly to yieldingly engage the end of said envelope neck.

6. An electrical device comprising a glass envelope having a neck portion of hexagonal shape in cross section, said hexagonal neck portion being grooved across the corner edges thereof, and a base mounted on said envelope and comprising a metal shell having a skirt portion of annularly continuous hexagonal cross section corresponding to and snugly fitting over the hexagonal neck portion of said envelope, said hexagonal skirt portion being slit across each of its corner edges opposite the grooved portions of said envelope neck and the portions of the skirt adjacent one side of the said slits being indented into the said grooved portions to thereby securely fasten the base to said envelope neck.

7. An electrical device comprising a glass envelope having a neck portion of hexagonal shape in cross section, said hexagonal neck portion being grooved across the corner edges thereof, and a base mounted on said envelope and comprising a metal shell having a skirt portion of annularly continuous hexagonal cross section corresponding to and snugly fitting over the hexagonal neck portion of said envelope, said hexagonal skirt portion being slit across each of its corner edges opposite the grooved portions of said envelope neck and the portions of the skirt adjacent the upper side of the said slits being indented into the said grooved portions to thereby securely fasten the base to said envelope neck, said shell further having a plurality of resilient tongues pressed out of the metal of the shell and bent inwardly to yieldingly engage the end of said envelope neck.

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