

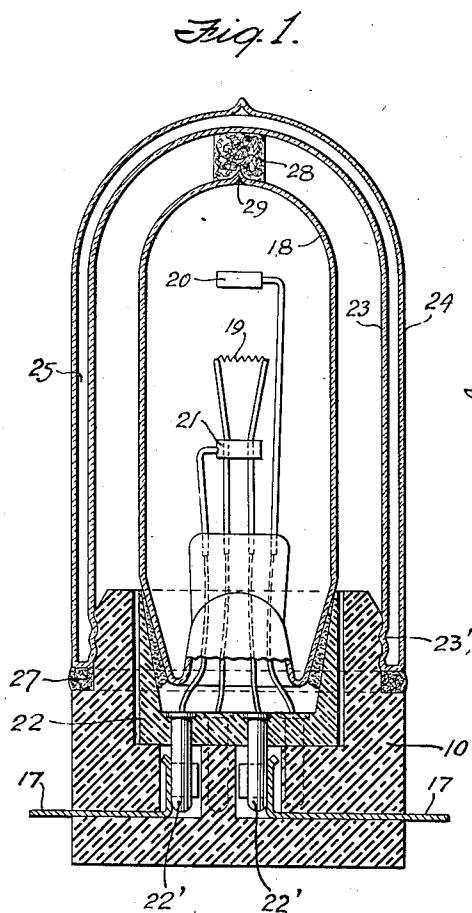
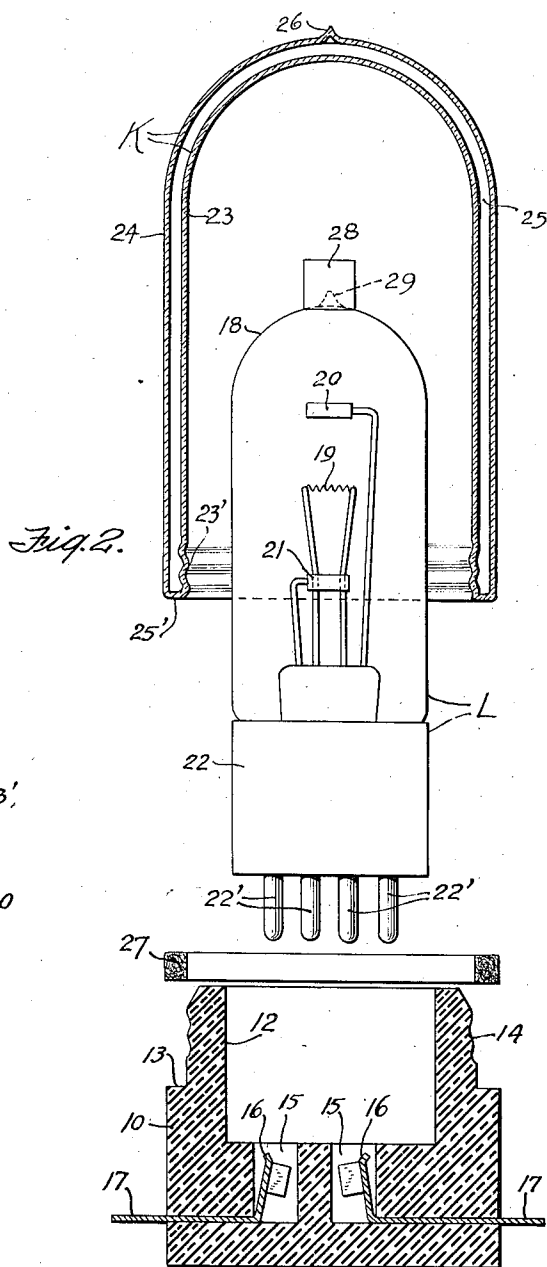
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ELECTRIC LAMP

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INVENTOR

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## ELECTRIC LAMP

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My invention relates to electric lamps of the gaseous-discharge type, like the sodium-vapor lamps which have recently come into use. It is well known that these lamps require a high operating temperature and the bulb must be heat-insulated to maintain that temperature.

According to my invention, I provide an insulating base on which an electric vapor lamp is mounted, and this base has screwthreads for receiving the screwthreaded end of a heat-insulated glass bell or jacket. The latter may be a double-walled unit evacuated between the walls or otherwise made to act as a heat-insulator. The open end of the bell is formed with integral screwthreads adapted to engage the screwthreads on the base, so that the bell is easily installed and removed.

To hold the lamp firmly on its base, especially in inverted position, I insert a small pad of asbestos or the like between the rounded ends of the lamp and the bell. When the bell is screwed into place, the pad is sufficiently compressed to bear against the tip of the lamp and hold it securely on the base.

The various novel features and practical advantages of my invention will be understood from a description of the accompanying drawing, in which

Fig. 1 is a vertical cross-section view of my new lamp assembly, and

Fig. 2 shows the parts separated for clearness.

The supporting base 10 is preferably molded in a single piece of suitable insulating material, such as a condensation product, earthenware, and the like. This base is formed with a central socket 12, an outer annular shoulder 13, and screwthreads 14. From the socket 12 extends four holes or recesses 15 for receiving the four contact pins of the lamp, as presently to be explained. A suitable contact piece 16 is located in each hole 15 to engage the inserted contact pin of the lamp, and the members 16 are joined to conductors 17 for properly connecting the lamp in circuit.

The lamp itself, indicated as a whole by L, may be of any practical construction, and is here shown as comprising a glass bulb 18 to provide a sealed chamber containing the electrodes 19, 20 and 21. The electrode 19 is the cathode, usually a tungsten filament with an electronic coating, and the electrodes 20—21 are the two anodes between which an arc-discharge is maintained to vaporize the metallic sodium or other metal in the bulb. The latter usually contains

also a rare gas, like neon, to facilitate the electric discharge. I need say no more about the operation of the lamp, for that is well understood by those skilled in the art, and moreover it forms no part of my invention.

The glass bulb 18 is cemented to a shell 22, preferably molded in one piece of insulating material, like the base 10, and this shell carries four contact pins 22' arranged to enter the holes 15 in the base and firmly engage the spring contact pieces 16. The filament 19 is electrically connected to two of the contact pins 22', and each of the other pins is connected to one of the anodes 20—21. In the broader aspect of my invention, the electric lamp L may be of any other type and construction requiring heat-insulation.

The lamp L, when mounted on base 10, is wholly enclosed in a transparent or translucent glass bell indicated as a whole by K, and comprising in this instance a pair of spaced walls 23—24. The space 25 between the walls is either evacuated or filled with gas having poor heat-conducting properties. The walls 23—24 are blown or molded separately and then fused together along the rim 25', after which the space 25 is exhausted of air through tip 26 or otherwise. The inner wall 23 is formed with integral screwthreads 23' adapted to engage the screwthreads 14 on base 10, so that the bell K is easily attached to and removed from the base by simply giving it a few turns.

To assure an air-tight fit between base 10 and bell K, I place a washer or gasket 27 on shoulder 13 of the base, this gasket being preferably of compressible or resilient heat-insulating material, such as asbestos, rubber, fiber, and the like. When the bell is screwed on, the gasket 27 is compressed and seals the joint between the bell and the base 10. At the same time, the compressed resilient gasket 27 acts to hold the bell firmly in place and prevents its becoming loose by jarring. The screwthreads 23' may also be formed on the outer wall 24 of the bell, with a corresponding change in the position of the screwthreads 14 on base 10, as will be understood without additional illustration. In some cases the socket 12 may be omitted, the contact holes 15 being then at the top substantially flush with the top of the base 10.

Ordinarily, the pressure of the spring contacts 16 against the contact pins 22' is sufficient to hold the lamp L in position. In some installations, however, the lamp may be used in inverted position, as in street or highway lighting. In such

cases the mere frictional engagement between the inverted lamp and its supporting base would not be sufficient to retain the lamp securely in place against shocks, or to prevent its becoming gradually loosened under its own weight and dropping down. To eliminate this danger I insert one or more small pads 28 between the rounded ends of the lamp and the bell K. A single round pad (like a small button) is usually sufficient, and this may be placed centrally of the assembly. The pad 28 is preferably of compressible resilient heat-insulating material like asbestos. If the bulb 18 has an exhaust tip 29 at the center, this tip will sink into the pad and help to centralize the latter and keep it in place. The pad 28 may also be ring-shaped or of other form.

The thickness of the compressible pad 28 is such that, as the bell K is screwed home on the base 10, the pad is compressed sufficiently to push against the lamp and lock it to the base, so that it can not work loose, whether the lamp is upright or inverted. This holding function of the pad 28 is readily appreciated by turning Fig. 1 upside down and viewing the lamp assembly in inverted position. The pad 28 is too small to cast a shadow, at least not where the light is needed.

It is known that sodium vapor gives a monochromatic light of yellow or orange-yellow color, which is excellent for out-door lighting. However, for interior illumination this yellow glow is objectionable, and in such instances the heat-insulating bell K is made of colored glass to modify the yellow glare of the sodium vapor. Either one or both of the glass walls 23-24 may be colored for that purpose. Thus, the color or tint incorporated in the glass bell K may be in the red end or the blue end of the spectrum, depending upon the particular kind of light it is desired to produce. Also, for certain purposes it may be desirable to make the outer surface of bell K of frosted or of prismatic glass. It will thus be seen that by changing the optical structure of the heat-insulating bell K, various light effects can be obtained from the enclosed metal-vapor lamp.

Although I have shown and described a specific construction, my invention is not limited to the details set forth, but includes such modifications as come within the scope of the appended claims. Furthermore, it is apparent that all the features of my invention need not be embodied in a single device, for some features may be used without others.

I claim as my invention:

1. The combination of an insulating block provided with a cylindrical projection having exterior screwthreads, there being an annular shoulder at the base of said screwthreads, said block having recesses open at the top and containing electric spring terminals, contact pins projecting axially

from said lamp and arranged to engage said spring terminals in pressure contact, said pins automatically sliding into and out of engagement with said terminals during the axial movement of the lamp on to and from the block, the pressure engagement between said spring terminals and contact pins holding the lamp against axial displacement, and a double-walled heat-insulating bell of glass supported on said block and enclosing the lamp, the inner wall of said bell having screwthreads engaging the screwthreads on said block, whereby said bell is removably mounted on the block independently of the lamp, the end of said bell abutting against said annular shoulder, which forms a positive stop for the screwing-on movement of the bell.

2. The combination of an insulating block provided with a central socket which is surrounded by a cylindrical wall having exterior screwthreads, there being an outer annular shoulder at the base of said screwthreads, said block having recesses extending from the bottom of said socket, electric terminals in said recesses, an electric lamp having a base portion fitting into said socket and surrounded by said cylindrical wall, contact pins projecting from the base portion of said lamp and arranged to engage said terminals, said pins automatically sliding into and out of engagement with said terminals during the axial movement of the lamp onto and from the block, and a double-walled heat-insulating bell of glass supported on said block and enclosing the lamp, the inner wall of said bell having screwthreads engaging the screwthreads on said block, whereby said bell is removably mounted on the block independently of the lamp, the end of said bell abutting against said annular shoulder, which forms a positive stop for the screwing-on movement of the bell.

3. The combination of an insulating block having a base portion and a cylindrical extension which is provided with exterior screwthreads, said base portion projecting laterally beyond said extension to form an outer annular shoulder at the base of said screwthreads, a compressible gasket on said outer shoulder, electric terminals carried by said block, an electric lamp removably mounted on said block and having contacts arranged to engage said terminals, and a double-walled heat-insulating bell of glass supported on said block and enclosing the lamp, the inner wall of said bell having screwthreads engaging the screwthreads on said block, whereby said bell is removably mounted on the block independently of the lamp, the end of said bell abutting against said gasket and compressing it, said gasket forming a positive stop for the screwing-on movement of the bell.

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