

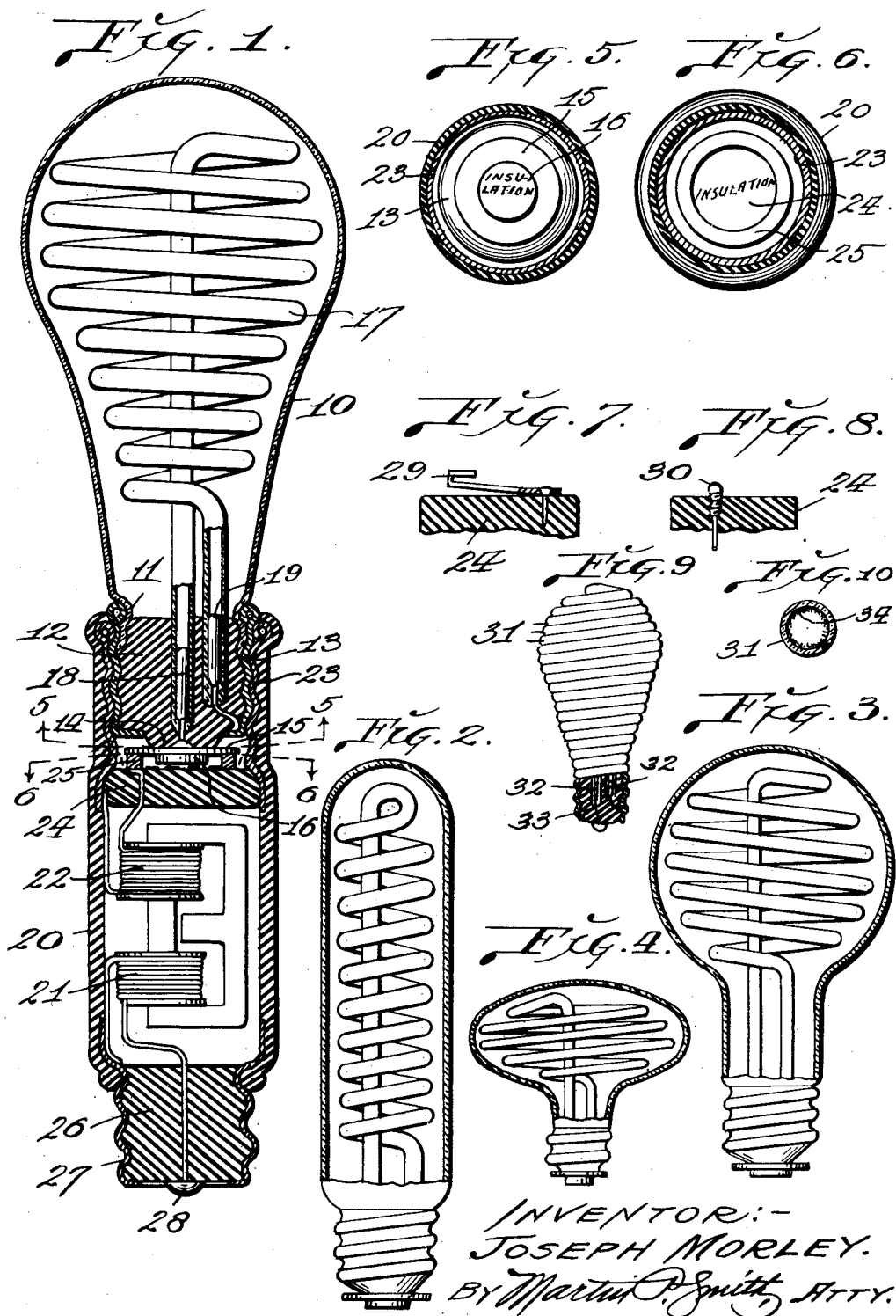
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J. MORLEY

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LUMINOUS VAPOR LAMP

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LUMINOUS VAPOR LAMP

Joseph Morley, Los Angeles, Calif., assignor of
one-eighth to Fred J. McKane, Los Angeles,
Calif.

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1 Claim. (Cl. 176—122)

My invention relates to illuminating devices, particularly of the type where rare gases such as neon, argon, mercury vapor, carbon dioxide gas, or the like, are rendered luminous by the passage of an electric current therethrough, and the principal object of my invention is, to provide an illuminating device having the general form of a conventional lamp bulb, the same serving as a container for a tube containing rare gases that are rendered luminous by an electric discharge.

Further objects of my invention are, to generally improve upon and simplify the construction of illuminating devices and particularly those devices having the shape of conventional electric lamp bulbs and further, to provide an illuminating device of the character referred to wherein the lamp bulb is removably associated with a conventional transformer and the latter being constructed so that it may be removably inserted in a conventional electric lamp socket, thus enabling the lamp bulbs to be interchangeably used upon the panels of illuminated signs and the like.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a vertical section taken through the center of a lamp bulb constructed in accordance with my invention and showing the same associated with a transformer.

Figs. 2, 3, and 4 are sectional views taken through the centers of modified forms of lamp bulbs constructed in accordance with my invention.

Fig. 5 is a cross section taken on the line 5—5 of Fig. 1.

Fig. 6 is a cross section taken on the line 6—6 of Fig. 1.

Figs. 7 and 8 illustrate modified forms of the contact member that is located in the socket portion of the transformer with which my improved lamp bulb is associated.

Fig. 9 is an elevational view partly in section of a modified form of the lamp bulb.

Fig. 10 is a cross sectional view of the coiled member that forms the bulb illustrated in Fig. 9.

Referring by numerals to the accompanying drawing and particularly to the construction illustrated in Fig. 1, 10 designates a lamp bulb having the general shape of a conventional electric lamp bulb, said bulb being formed from a thin wall of glass which may be transparent, 55

translucent, or colored. The base portion 11 of the bulb is sealed in the upper end of a plug 12 of suitable insulating material and said plug carrying a sheath or shell 13 of metal in which is pressed a thread.

A short circular lug 14 projects from the body of the plug 12 at the lower end of the sheath 13 and secured to the face of said plug in any suitable manner is a contact disc 15 of metal. Secured to the under face of the central portion of disc 15 is a disc 16 of insulating material which is for the purpose of preventing the metal contact disc 15 from engaging the central contact in an ordinary lamp socket in the event that my improved bulb should be inadvertently inserted therein.

The coiled portion 17 of a tube of transparent glass occupies the chamber within the bulb 10 and one end of said tube that extends downwardly through the center of plug 12, carries an electrode 18 that is electrically connected to disc 15. The other end of the coiled tube is embedded in plug 12 and contains an electrode 19 that is electrically connected to the sheath 13 of the plug. Tube 17 is filled with gas that is rendered luminous by the passage of an electrical discharge therethrough and the ends of said tube which contain the electrodes 18 and 19 are sealed in the plug 12.

The lamp bulb as described is adapted to be removably seated in the socket end of a conventional leakage reactance neon type transformer 20 having the usual primary coil 21 and secondary coil 22.

The socket end of this transformer is provided with a threaded shell 23 that receives the threaded shell or sheath 13 of plug 12 and mounted on top of a body of insulation 24 at the bottom of the socket portion of the transformer is a metal contact ring 25 with which the contact disc 15 engages when the threaded plug portion of the lamp bulb is inserted in the socket end of the transformer. One end of the secondary winding of the transformer is electrically connected to ring 25 and the other end of the winding is electrically connected to the metal shell or lining 23.

The lower end of the body of the transformer is provided with a plug 26 covered with a metal sheath or shell 27 having a thread pressed therein in order that the transformer may be removably seated in the conventional electric lamp sockets. One end of the winding of the primary coil is electrically connected to the sheath 27 while the other end of said winding is electrically

connected to a contact 28 on the under side of plug 26.

Figs. 2, 3, and 4 show various forms of lamp bulbs containing coiled glass tubes filled with rare gases or gases that are rendered luminous as the result of electrical discharge.

In Fig. 7 I have shown a modified form of the contact member within the socket portion of the transformer and which modification comprises a spring 29 that is secured at one end to the block 24 of insulation and the free end of which spring is adapted to yieldingly contact the disc 15 when the lamp bulb is screwed into the socket of the transformer.

In the modification illustrated in Fig. 8, a pin or stud such as 30 is seated in block 24 and projects upwardly therefrom a short distance so as to make contact with the disc 15 when the plug portion of the lamp bulb is screwed into the socket portion of the transformer.

When the plug portion of my improved lamp bulb is screwed into the socket portion of the transformer, contact disc 15 directly engages ring 25 in the bottom of the socket and thus the circuit in which the secondary winding 22 of the transformer is located, is closed with the result that there will be a flow or discharge of current from one electrode to the other through the gas contained in tube 17, thereby rendering said gas luminous and consequently producing the desired results.

When the plug portion 29 of the transformer is seated in a conventional socket, the contact 28 engages the contact within said socket and which latter is electrically connected to the source of current supply.

In Fig. 9 I have illustrated a form of bulb composed of a small tube of glass 31, the greater portion of which is formed into a coil having the general shape of a conventional lamp bulb, the end portions of which containing electrodes 32 are embedded in a plug member 33. The inner surface of the tube 31 is coated with a fluorescent

substance or material 34, preferably in powdered form. The tube 31 is filled with a gas, for instance, mercury vapor, and when the same is subjected to an electrical discharge the coating 34 on the inner surface of the tube will fluoresce.

While I have shown and described my improved luminous vapor lamp as being associated with a transformer, it will be understood that the current flow through the gas filled tube 17 may be accomplished by the well known hot cathode method.

Thus it will be seen that I have provided a luminous vapor lamp that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form and construction of the various parts of my improved luminous vapor lamp, may be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claim.

I claim as my invention:

25 In a luminous vapor lamp, a bulb, a plug on which one end of said bulb is mounted, a metal sheath on said plug, a portion of which plug projects through the end of said sheath, a substantially disc-shaped contact member on the projecting portion of said plug, an insulating disc mounted on the central portion of the outer face of said contact member, a tube having a coiled portion in the chamber within said bulb, the ends of which tube are seated in said plug, electrodes seated in the ends of said tube, said tube being filled with gas that is rendered luminous by the passage of an electrical discharge there-through, one of which electrodes is electrically connected to the contact on said plug and the other electrode being electrically connected to the sheath of said plug.

JOSEPH MORLEY.