Nov. 1, 1932. J. O. CADIEUX 1,886,326

GAS SIGNAL LIGHT APPARATUS

Filed Feb. 5, 1930

Fig. 1.

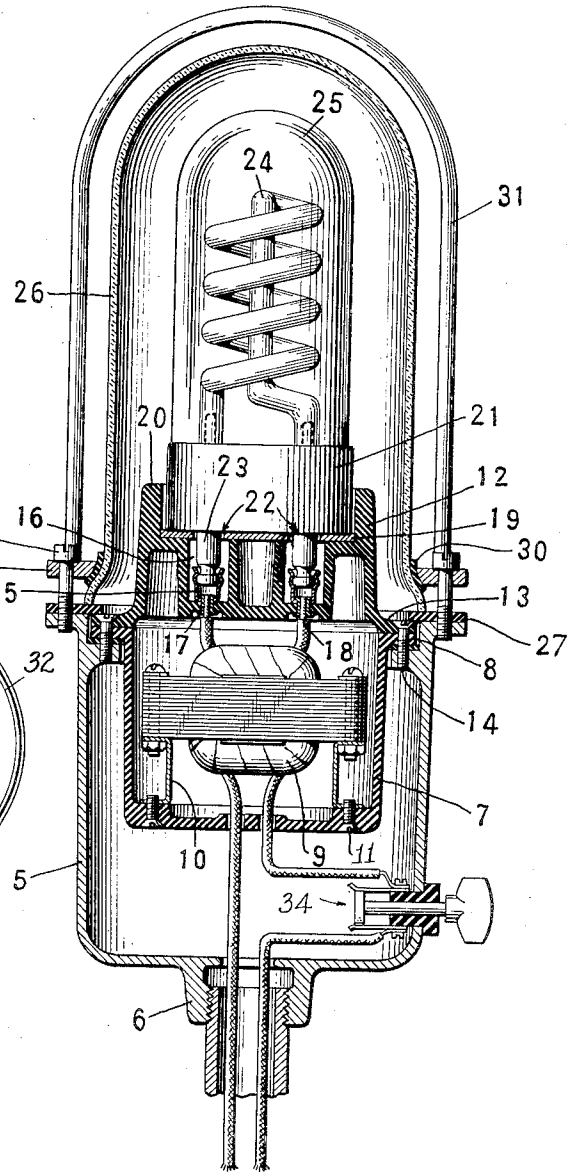
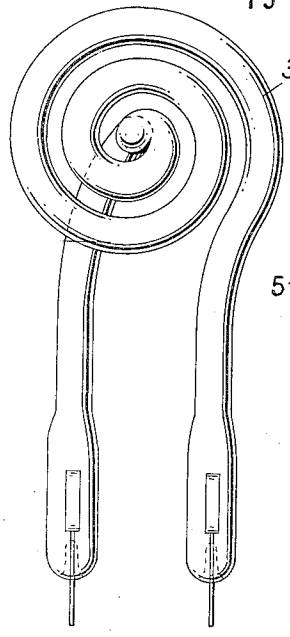


Fig. 2



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Patented Nov. 1, 1932 1,886,326

UNITED STATES PATENT OFFICE

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GAS SIGNAL LIGHT APPARATUS

Application filed February 5, 1930. Serial No. 426,097.

My invention relates particularly to the type of lamp employing a luminescent gas within a transparent or translucent tube. Such lamps require very high voltage frequently varying from 2,000 to 20,000 volts or more. It has been customary in the past to utilize standard electric lighting systems operating at 110 or 220 volts and to step-up this voltage by means of a transformer located at some place on the premises more or less remote from the lamp. This of course requires the transmission of high tension currents from the transformer to the lamp which in turn entails considerable expense and great danger, not only in the transmission but in the installation and repair of the lamp.

I propose to eliminate these difficulties and to provide a compact and simple system utilizing a step-up transformer directly in the base of the lamp or in a socket for the lamp so that the usual household or commercial lighting current may be installed in accordance with the standard low tension practice approved by the underwriters for 110 to 220 volt systems. This low tension current is stepped up to the requisite voltage directly at the base of the lamp by means of a step-up transformer suitably housed and protected and provided with a socket having guarded terminals directly connected with the short output ends of the transformer on the high tension side.

Individual lamps may be controlled by switches in the base of the socket and preferably on the low tension side so as to reduce the cost and minimize danger.

Fig. 1 is a vertical sectional view of one form of construction embodying features of my invention and showing one form of lamp within the socket connected to the transformer output.

Fig. 2 is a side view showing a modified form of lighting tube suitable for one of my lamps.

The casing 5 is preferably of metal and may be provided with a threaded nipple 6 or other means for connecting to a suitable conduit in accordance with approved wiring installation practice.

Within this housing is supported the transformer socket and lamp by means of a housing or inner casing. The cup 7 formed preferably of insulating material is provided with the flange 8 supported within the casing. Inside of this cup is mounted the transformer 9 of suitable construction which is preferably supported by brackets 10 connected to the cup in a suitable manner as for instance by means of screws 11. The conductors to the low tension side of the transformer are let in through the housing 5 and through the bottom of the cup 7.

The upper part of the socket 12 for receiving lamp is preferably of insulating material and has a flange 13 secured to the flange 8 and to the casing 5 by screws 14. Spring contact clips or terminals 15 are secured in recesses 16 in the member 12 by means of tubular eyelets 17 which also serve to secure the high tension output leads 18 of the transformer. An insulating cover, cap or shield 19, for instance, of formica is secured to the insulating part 12 of the socket and secured thereto, for instance, by being frictionally engaged within the flange 20 which serves also as a lateral guide and protection to the base 21 of the lamp. This shield has two openings 22 for the prongs 23 of the lamp. It will be understood that the lamp may be of any suitable character in which there is some form of a tube 24 having suitable electrodes connected to the terminal prongs 23. This tube 24 will contain a suitable form of gas such as neon under suitable operating conditions. This tube may in fact have an outer casing 25 also containing gas and communicating with the inner tube 24 so as to provide a reserve or auxiliary reservoir.

The chambers or recesses 16 afford suitable space for the installation of the terminal clips 15 and yet access to these chambers 16 is prevented by the shield or cover 19 except through the small openings 22 provided for the terminal prongs of the lamp. It will be understood that the prongs and clips may be suitably shaped for inter-connection and preferably by tongue and groove portions so as to snugly hold the parts together and prevent separation. It will be understood of course that these contact terminals must have excellent electrical conducting character-

istics so as to avoid heating under the high tension to which they are subjected.

Under some circumstances it may be desirable in some cases to provide an external globe 26. A water tight connection is also desirable between the globe 26 and the casing 5. This may be provided by a yielding gasket 27. To hold the globe in place I may provide a ring 28 which may be clamped to the casing 5 by screws 29. A yielding gasket 30 may be interposed between the ring 28 and a shoulder of the globe near its base. Suitable guard wires 31 may be provided and secured to the ring 28 in any suitable manner so as to mechanically protect the glass and also so as to prevent tampering with the lamp and its connections. A switch 34 of the conventional type is indicated as connected in the low tension leads to the transformer and as operable from the exterior of the casing 5.

It will be understood that the transformer and socket combination may be made and sold as a unit for installation in various ways.

It will also be understood that the construction of the lamp per se is not material to my present invention. In fact in place of the helical tube shown in Fig. 1 I may employ a tube having a spiral conformation as shown in Fig. 2 at 32 which latter affords a broad surface especially when viewed from the front light concentration. Such gas tubes may also have the form of individual letters or words.

These lamp sockets are preferably installed in protective housings as above described and any number may be used collectively. These lamps may be provided individually with switches preferably on the low tension side, as indicated at 34 or other suitable operating means may be employed so that the lamps may be individually controlled immediately adjacent the light source or the control may be from a distant point or points of the low tension circuits thereof.

The cup member 7 serves as a container for the transformer and by virtue of its shape it allows the employment of insulating media to form a suitable circumambient milieu for the transformer. The employment of such insulating media to completely surround a transformer, for purposes of protection against moisture, greater insulation, better cooling or similar purposes, is well known in the electrical art and does not constitute an essential part of my invention.

It will be seen from the foregoing that I have endeavored to arrange a system and construction by which these gas lamps may be made, sold and installed very much the same as incandescent filament lamps are handled. The commercial and utilitarian advantages of such a construction and installation will be apparent.

I claim:

1. A gas lamp socket having two insulating parts directly fastened to one another and substantially enclosing a chamber between them, a step-up transformer supported by one part in said chamber and having output leads secured to the other part, the latter part having contact terminals for tube prongs.

2. A gas lamp socket having an insulating part with a recess in its upper face and an extension chamber, contacts mounted in said chamber, an insulating shield secured in said recess and having passages for tube prongs and a step-up transformer having its output leads connected to said contacts.

3. A gas tube socket having insulating parts a step-up transformer mounted in one part, the other insulating part having chambers containing prong contacts connected to the high tension leads of said transformer and an insulating shield having passages for prongs leading to the contacts.

4. A gas tube socket comprising a metallic housing, an insulating cup supported in said housing, a step-up transformer supported in said cup, a switch in the low tension side of the transformer, and an insulating part supported on the cup and having contacts for a tube connected to the output of the transformer.

5. A gas tube socket having insulating parts a step-up transformer mounted in one part, a snap switch associated with the low tension side of the transformer, the other insulating part having chambers containing prong contacts connected to the high tension leads of said transformer and an insulating shield having passages for prongs leading to the contacts.

6. Gas lamp apparatus comprising a casing consisting of a cup member and an insulating socket forming a closure for the casing, a transformer enclosed in said casing, and prong contacts in the insulating socket connected directly to the high tension output of the transformer said socket having individual passages for prongs leading to said contacts.

7. A gas lamp structure comprising a transformer casing, an insulating socket mounted thereon and forming a closure therefor, said socket having spaced recesses in its upper surface, contact clips mounted in the bottom of said recesses for retaining and guarding the prongs of an inserted gas tube base, and a transformer mounted in said casing and having its output leads connected to said contact clips in the bottom of said recesses.

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