Nov. 26, 1929. R. G. STEPHENS 1,737,030

ELECTRIC LIGHTING UNIT

Filed April 21, 1928

Fig. 2.

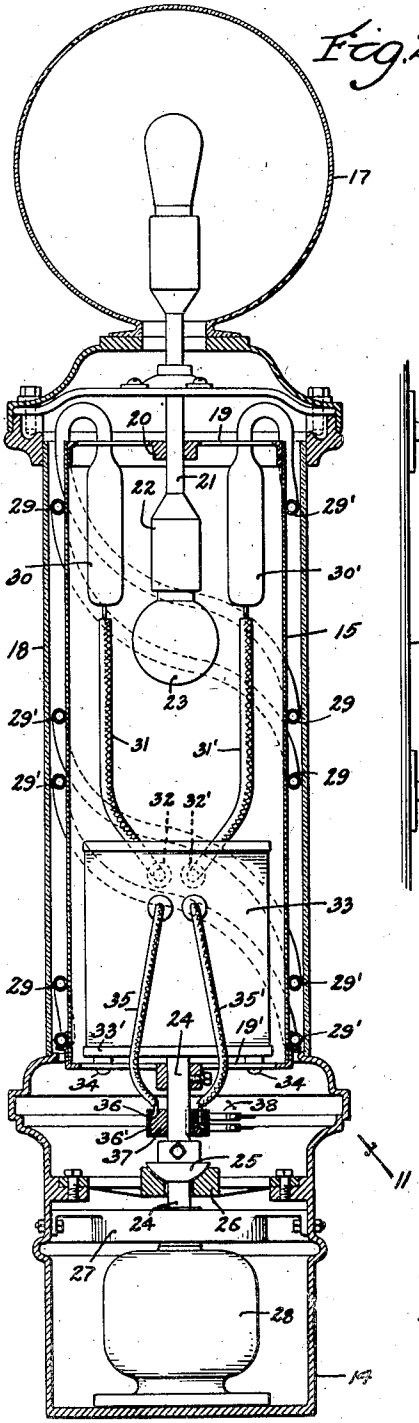


Fig. 3.

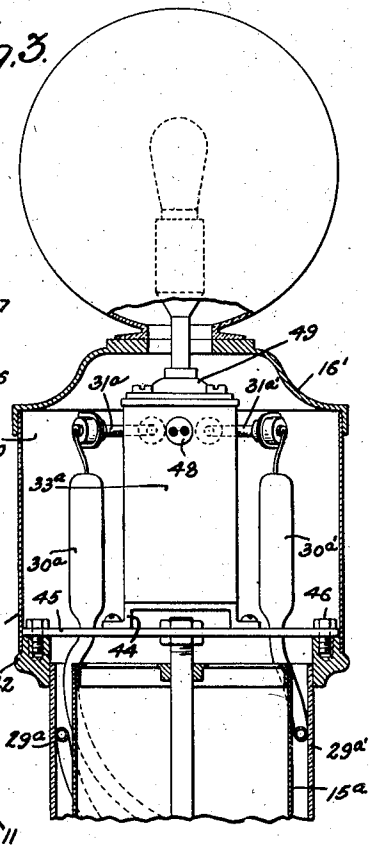


Fig. 1.

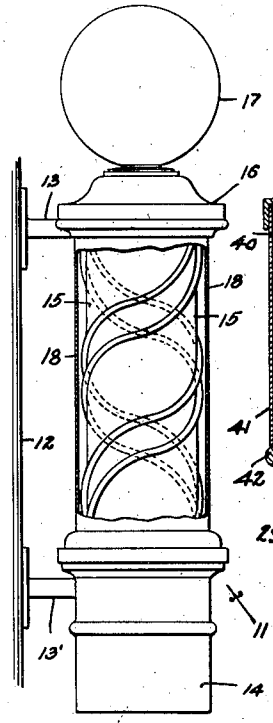


Fig. 4.

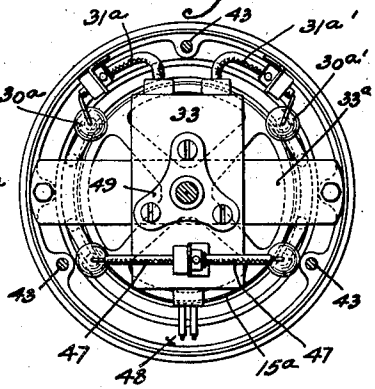
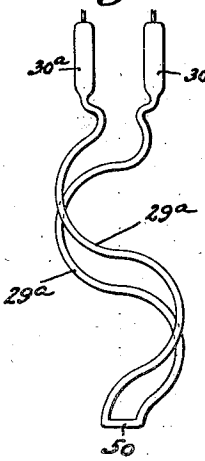


Fig. 5.



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UNITED STATES PATENT OFFICE

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ELECTRIC-LIGHTING UNIT

Application filed April 21, 1928. Serial No. 271,671.

This invention relates to lighting units generally classified as "neon" lights, the common construction of which comprises closed glass tubes containing an inert gas under very low pressure, or "rarefied". The ends of such tubes are provided with suitable electrodes, which are connected with a transformer for supplying a high frequency electric current to the electrodes. The flow of current between the electrodes in the tube ionizes the gas, producing an illumination of a characteristic color, dependent upon the nature of gas used in the tube. Neon, argon, or a mixture of neon and mercury vapor, are most commonly used in these units, the former producing a red light and the latter two producing a blue light.

This invention relates in no way to the general construction of "neon" lighting units, but deals more particularly with a specific form or shape of such a unit, which is especially adapted for use in combination with a common form of barber pole.

It is, of course, well known that "barber poles" as ordinarily constructed consist of either a stationary or a revolving "pole" section, which is cylindrical in form, and the outer surface of which is provided with a plurality of differently colored stripes, formed in a spiral throughout the length of the pole.

The mentioned "pole" section, as commonly constructed, comprises a cylindrical tubular member, which may be formed of metal or composition, and is supported by end "wheels" or spiders, provided with central bearings, means such as a spring motor being provided to impart rotation to the "pole" or "card" section about the bearings.

The "pole" section is ordinarily surrounded by a transparent cylinder which is stationary, and in case the pole section is made from a translucent composition, a light of the ordinary type is usually mounted therein to provide a certain amount of illumination for the "card". Such a means of illumination is not, however, thoroughly satisfactory, and is totally ineffective in the event the "pole" section is made of metal or other opaque material.

It is therefore a primary object of my invention to provide an attractive means of illuminating a barber pole, whether it is opaque or translucent, such means being colored similarly to the stripes on the pole and adapted to an optional use without the "card" section for producing a novel striped lighting effect.

A further object of the invention is to provide a lighting unit which is adapted to be mounted upon the outer surface of a barber pole and in which the unit, when operating, consists of a colored band formed in a spiral about the pole, and when it is not operating may be colorless or transparent.

A still further object of the invention is the development of a unit of the class described, in which the entire unit revolves with the "card" or "pole".

Other objects and advantageous structural features in this invention, including such features as economy in construction, neatness in appearance, and adaptability to standard barber pole construction, will be better understood from the following description of the accompanying drawings illustrating the invention and in which

Fig. 1 is an elevational view, showing a barber pole construction embodying my invention.

Fig. 2 is an enlarged sectional elevation corresponding to Fig. 1.

Fig. 3 is an enlarged elevational view, showing the top of a pole in combination with a modified form of my invention.

Fig. 4 is a plan view corresponding to Fig. 3, with the cover member removed, and

Fig. 5 is a perspective view, showing an illuminating tube used in my invention.

More particularly describing the invention as herein illustrated, reference being made specifically to Figs. 1 and 2, numeral 11 indicates a barber pole construction, illustrated as being mounted upon a wall 12 by means of brackets 13 and 13'.

This barber pole organization comprises a base member or housing 14, a "pole" or "card" member 15, a cover member 16 upon the top of which a ball light or sphere 17 is adapted to be mounted. The pole member

15 is enclosed within a transparent sleeve, illustrated as comprising a glass cylinder 18, which is spaced at a substantial distance from the mentioned pole member.

The "pole" or "card" member 15 is best illustrated in Fig. 2, as comprising a tubular cylinder, the upper and lower ends of which are attached to wheels or spiders 19 and 19', the upper spider 19 having a central bearing section or hub 20, through which a bearing shaft 21 extends, and in barber poles of this type, as commonly constructed, the bearing shaft 21 forms a support for a lighting socket 22, which contains the electric light bulb 23.

The lower spider member 19' is illustrated as being rigidly mounted upon a bottom rotating shaft 24, which shaft carries a thrust bearing member 25, downwardly engaging a fixed bearing seat 26, the shaft 24 extending downwardly through the bearing seat 26 into a reduction gear box 27, the gears within which are adapted to be driven by means of the electric motor 28.

The "neon" lighting units which comprise the subject matter of this invention are illustrated as consisting of two spiral tubular units in the form of two pairs of tubes 29 and 29', placed substantially tangent with the outer surface of the "card" 15 between the mentioned card and the glass sleeve 18, each pair being adapted to provide a different colored illumination, preferably red and blue, and the upper ends of each tube being provided with an electrode of any standard type, such as indicated at 30 and 30'.

In the form of the invention illustrated in Figs. 1 and 2, these electrodes are adapted to extend downwardly into the tubular cylinder 15, and are connected by means of conductors 31 and 31' with the secondary poles 32 and 32' of a transformer 33, which is mounted upon the bottom spider 19' in any suitable manner, such as by the plate 33' and the bolts or screws 34.

The primary coil of the transformer 33 is connected by means of the conductors 35 and 35' with conducting rings 36 and 36', which are shown as being mounted in the periphery of an insulated collar 37, mounted upon the rotatable shaft 24. Electric current is supplied to the conducting rings 36 and 36' by means of the brushes indicated at 38, which are connected in the standard manner with a suitable source of electric power.

It will be understood that in this type of unit, the illuminating tubes are adapted to revolve constantly with the "pole" or "card" member, the entire revolving organization being supported by the thrust bearing member 25.

In the form of the invention illustrated in Figs. 3 and 4, which may be considered as a modified form of the lighting unit shown in Figs. 1 and 2, the spiral "neon" tubes 29^a and $29^{a'}$ are adapted to remain stationary while the card 15^a revolves.

In this form of the invention, the electrodes 30^a and $30^{a'}$ extend vertically into a suitably formed chamber 40, which is enclosed by a substantially cylindrical shell 41, mounted upon an upper outer bearing collar 42, and retained thereon by means such as vertically extending bolts 43, which are shown in section in Fig. 4, and which extend through the cover member 16' and are attached in the upper collar 42.

The transformer 33^a is supported in any suitable manner within the chamber 40, such as by means of the shelf or bracket 44, which is mounted upon a plate 45, supported upon upper collar 42 by means such as the bolts 46.

The plan view of this organization shown in Fig. 4 illustrates the manner in which the electrodes may be connected to one another and with the secondary coil of the transformer 33^a, the leads from the transformer being indicated at 31^a and $31^{a'}$, and the interconnecting conductor between the two opposite electrodes being indicated at 47.

The electric current is supplied to the primary of the transformer through the conductors indicated at 48, and in case an illuminated ball or sphere is to be provided upon the top of the organization, the light for this sphere is mounted upon a suitable standard 49, shown as being supported by the top of the transformer 33^a.

One of the lighting units which is used in combination with the form of my invention illustrated in Figs. 3 and 4 is shown in Fig. 5 as comprising a pair of spiral light transmitting tubes 29^a, composed of glass or other suitable material, the substantially vertical electrodes being indicated at 30^a and the lower ends of the spiral tubes being connected by means of a substantially horizontal connecting tube 50, which is bent to conform with the curvature of the cylindrical pole or card member 15. These units may be formed in any preferred manner, as by bending a single piece of straight glass tube about a mandrel of the proper size and curvature in a manner such as will be readily apparent to those familiar with this art.

It will be apparent that the general construction of the barber pole organization which is herein described and illustrated is more or less standard, and that my invention relates in no way to such a construction, but is directed to the electric lighting unit comprising a novel arrangement of neon tubes in combination with a transformer for supplying current thereto, which is compact and attractive and which may be readily installed upon the barber pole organizations such as are in common use.

It will be understood that a very novel and practical lighting effect may be obtained by

using units of this nature without the inner "card" member since "neon" tubes, when operating, are quite effective in the daylight.

Although I have herein described and illustrated one particular form and modification of my invention, it will be understood that it is not limited to the precise construction set forth, but includes within its scope any changes which might fairly come within the spirit of the appended claims.

I claim as my invention:

1. An electric lighting unit for use in combination with a barber pole comprising: a spirally shaped tube of light transmitting material and containing rarefied gas; electrodes for said tube; and means for supplying electric current to said electrodes.

2. An electric lighting unit for use in combination with a barber pole comprising: a plurality of spirally shaped tubes of light transmitting material and containing rarefied gas capable of emitting differently colored lights when subjected to the action of an electric discharge; electrodes for said tubes; and means for supplying electric current to said electrodes.

3. An electric lighting unit for use in combination with a barber pole having a substantially cylindrical "pole" member comprising: tubes of light transmitting material and containing rarefied gas and placed substantially tangent with the outer surface of said "pole" member; electrodes for said tubes; and means for supplying electric current to said electrodes.

4. An electric lighting unit for use in combination with a barber pole having a substantially cylindrical revolving "pole" member comprising: tubes of light transmitting material and containing rarefied gas and placed substantially tangent with the outer surface of said "pole" member; electrodes for said tubes; and means for supplying electric current to said electrodes.

5. An electric lighting unit for use in combination with a barber pole having a substantially cylindrical revolving "pole" member comprising: tubes of light transmitting material and containing rarefied gas and placed substantially tangent with the outer surface of said "pole" member; electrodes for said tubes; and means for supplying electric current to said electrodes, said tubes being adapted to revolve with said pole member.

6. A barber pole organization comprising: a substantially cylindrical tubular "pole" member; means for rotating said pole member; tubes of light transmitting material and containing rarefied gas mounted externally on and substantially tangent with the outer surface of said pole member; electrodes on said tubular members; a transformer rotatable with said pole member; means for delivering electric current to the primary of said transformer; and means for conducting electric current from the secondary of said transformer to said electrodes.

7. A barber pole organization comprising: a substantially cylindrical tubular "pole" member; means for rotating said pole member; tubes of light transmitting material and containing rarefied gas mounted on and substantially parallel with the outer surface of said pole member; electrodes on said tubular members and extending downwardly into said tubular pole member; a transformer contained within and rotatable with said pole member; means for delivering electric current to the primary of said transformer; and means for delivering electric current from the secondary of said transformer to said electrodes.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 12 day of April, 1928.

ROBERT G. STEPHENS.