

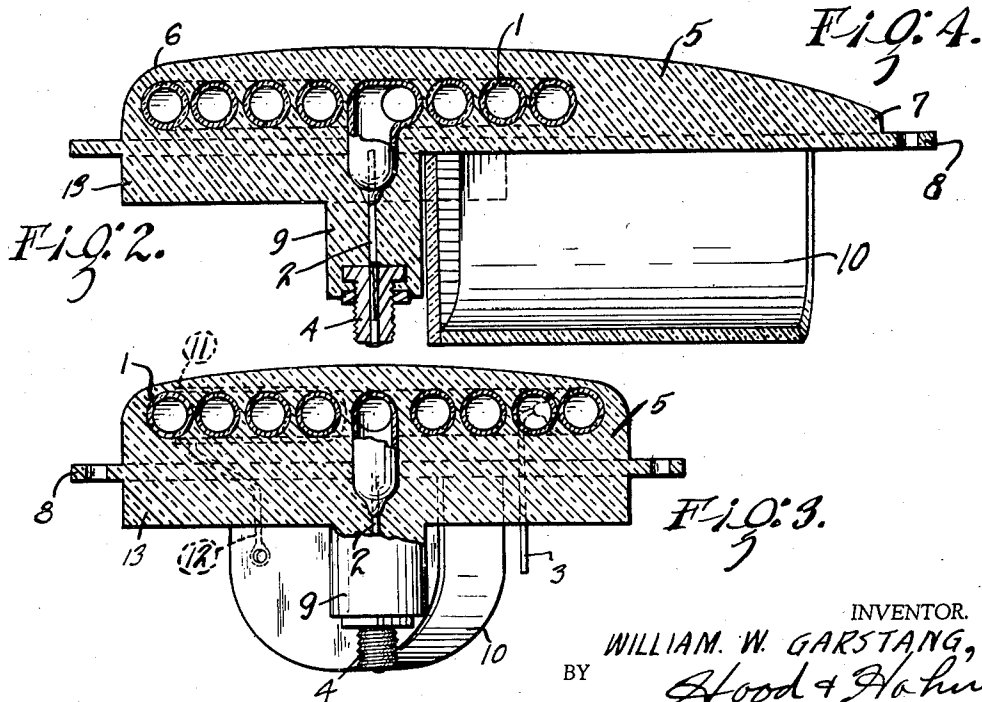
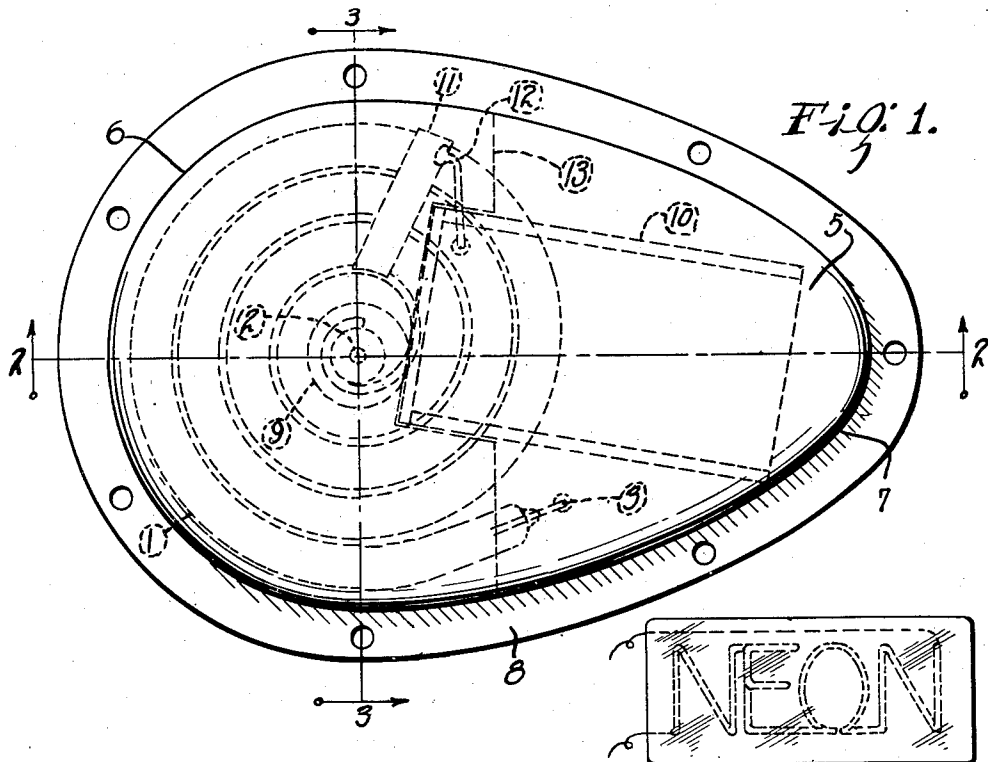
Dec. 28, 1943.

W. W. GARSTANG

2,337,744

LAMP

Filed July 26, 1941



INVENTOR.
WILLIAM. W. GARSTANG,
BY *Good & Hahn*
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,337,744

LAMP

William W. Garstang, Indianapolis, Ind., assignor
to Electronic Laboratories, Incorporated, Indi-
anapolis, Ind., a corporation of Indiana

Application July 26, 1941, Serial No. 404,144

1 Claim. (Cl. 240—7.7)

The present invention relates to improvements in illuminating devices and particularly that type of illuminating device made up of high voltage gaseous tubing of the type which is frequently known commercially as neon tubes.

One objection to this type of illuminating lamp is that the bulb is extremely fragile. The bulb of the lamp comprises elongated tubing which is given various forms, for advertising purposes and for various illuminating purposes. Due to the fact that this tubing is comparatively small in cross section, is formed of glass, and due to the length of the tubes forming the bulbs, the structure is extremely fragile and cannot withstand rough usage or very severe jars.

Furthermore, under certain operating conditions, this type of illuminating device has a certain element of danger, due to the fact that there may be a certain amount of current jump from one terminal to another terminal of the lamp, especially when the surface of the lamp becomes wet with moisture.

It is one of the objects of the present invention to provide a lamp or illuminating device having the advantage of the high voltage gaseous tubing which, however, is extremely rugged and which so protects the tubing itself that the same will not become broken as the result of jars or other shocks.

It is a further object of the invention to provide an illuminating device embodying the advantages of the high voltage gaseous tubing which, however, does not have the element of danger as the result of stray currents.

Another object of my invention is to provide a signalling device or lamp using the high voltage gaseous tubing, which device or lamp may be attached to the wing, either the top or bottom surface, of an airplane and which, while capable of producing a signal light, will not offer wind resisting obstructions on the surface to which it is attached.

For the purpose of disclosing the invention, I have illustrated embodiments thereof in the accompanying drawing, in which:

Fig. 1 is a plan view of signalling lamp particularly adapted for airplane use;

Fig. 2 is a longitudinal section on the line 2, 2 of Fig. 1;

Fig. 3 is a transverse section on the line 3, 3 of Fig. 1; and

Fig. 4 is a plan view of a modification of my invention.

In the embodiment of the invention illustrated in Figs. 1 to 3, inclusive, I have illustrated a high

voltage gaseous tubing of the type commonly referred to in the commercial art as neon tubing. This tubing, as illustrated, is wound or formed into a spiral coil 1, being provided with the usual terminal wires 2 and 3. This tubing is extremely fragile in itself, and for protecting the same, I incorporate the tubing in a plastic carrier. This carrier may be of any of the preferred types of plastic material now on the market, such for instance, as Lucite, Polystyrene, Amphenol material, Tenite, or other common plastics now in use. I prefer to use for this purpose Amphenol 912-B which is Polystyrene. This material, in its commercial form, takes the form of a powder which is rendered liquid or semi-liquid by heat. When in plastic or liquid form, the material is molded around the tubing in a suitable forming mold and is then cured. The envelope, in its plastic form, is pored in the desired mould having the desired shape and having arranged therein the coil 1. The material intimately surrounds the coil and the individual convolutions thereof so that not only is the coil as a whole rigidly supported and protected, but the individual convolutions of the coil are supported and protected, as well as being insulated from one another. The terminals of the coil tubing are brought out through the moulded body to suitable attachment terminals, such as 4, which are likewise moulded into the body of the material. After the material has been cured and cooled, it provides a transparent enclosing casing or envelope which has a coefficient of expansion greater than that of the glass tube molded therein. As a result, when the tube becomes heated, upon illumination, this heat being transferred through the plastic carrier, causes the plastic carrier to expand at a slightly greater rate than the tube itself and, as a result, rupture of the tube is prevented when the tube is ignited.

In the specific structure illustrated, the moulded device takes the form of a lamp unit having a body portion 5 provided with the stream-line structure, including the rounded blunt nosed portion 6 and the tapering rounded tail 7. This body portion is provided with an annular flange 8 by which it may be secured in position, and on its under face, the body portion is provided with terminal extensions, such as 9, and with a heating coil housing such as 10. This heating coil housing is adapted to be connected with a heating coil 11, likewise moulded within the envelope and having a terminal 12 extending there-through and connected with a suitable terminal on the housing 10. The housing may, if desired,

be formed separately and cemented or otherwise secured to the under face of the body or, if desired, may be moulded as a part of the body. At that point where the coil is moulded into the body, the under face of the body is provided with an additional thickness as at 13.

It is apparent that by the above structure I have provided an extremely rugged neon lamp which is capable of a great deal of jar and shock without being disrupted and which may be mounted on the surface of an airplane wing or on the body surface without offering material wind or air resistance during the passage of the plane.

It is understood, of course, that the plastic material used is of the transparent type so that light rays emitted by the tube will be visible through the envelope.

Of course, if desired, the plastic may be colored to cause an emission of colored light rays. Furthermore, the plastic material adapted for use as an envelope for the tubing has preferably extremely high dielectric properties, so that the danger of stray currents, particularly in wet weather and under light conditions, is reduced to a minimum, if not practically eliminated.

It is obvious that my invention is capable of other uses than the specific use of a signal lamp described with respect to the structure illustrated in Figs. 1, 2 and 3.

For instance, the structure is capable of being used as an advertising sign, as is illustrated in Fig. 4, wherein the neon tubing formed into suitable advertising letters is enveloped within a flat plate of plastic material so that, while the tubing will glow and give visible rays, the tubing is thoroughly protected both against the weather and against shocks.

I claim as my invention:

A signaling lamp comprising a high voltage gaseous frangible illuminating tubing lamp, the tubing of the lamp being wound into a flat spiral coil, an enclosing housing for said lamp comprising a substantially transparent nonfrangible plastic material self supporting at normal temperatures moulded about said coil and completely covering the same and in direct contact with said tubing, a portion of said moulded envelope extending between the convolutions of the coil, the material of said envelope being sufficiently elastic after curing to compensate for the expansion and contraction of said tubing in changing temperature conditions without causing fracture of the tubing, said moulded envelope having a flat streamline portion provided with a wide rounded nose tapering toward the rear into a rounded tapering tail and a supporting flange annularly surrounding said structure.

WILLIAM W. GARSTANG.