Aug. 22, 1939. J. L. PLUMMER ET AL 2,170,338

LANDING INDICATOR FOR AIRPORTS

Filed Feb. 21, 1936

Fig 1

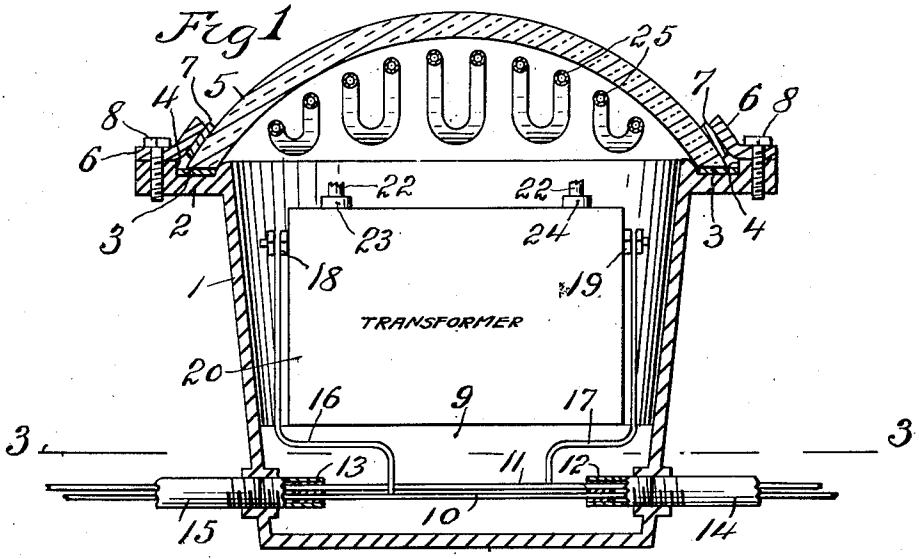


Fig 2

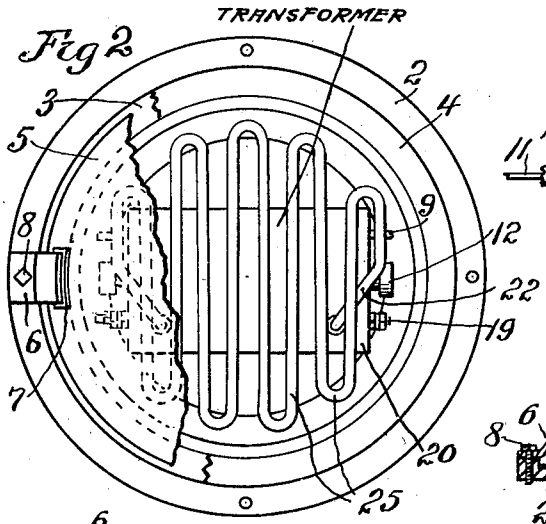


Fig 3

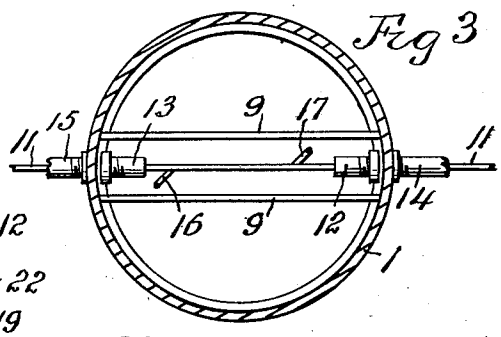


Fig 4

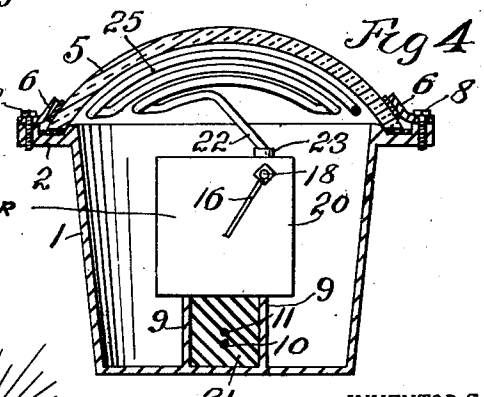


Fig 5

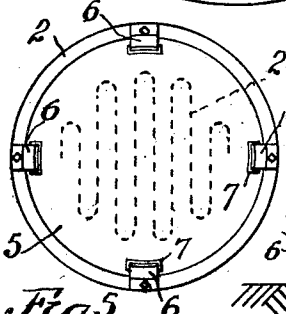
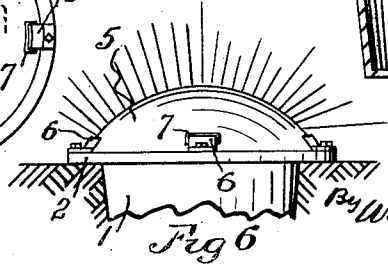


Fig 6



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LANDING INDICATOR FOR AIRPORTS

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1 Claim. (Cl. 177—329)

Our invention relates to improvements in landing indicators for airports.

One of the objects the invention is to provide a novel landing lighting indicator which can be plainly seen from an airplane at a considerable distance and during foggy or smoky atmosphere, and which projects a light which is not dazzling nor blinding.

A further object of the invention is to provide an indicator of the kind described which is simple, cheap, strong, durable, not likely to get out of order, which is easily and quickly installed and which projects its light upwardly and laterally.

A further object of the invention is the provision of a novel form of electrically lighted luminescent tube of the neon or gas discharge type, which will have a maximum lighting effect with a minimum of current.

Still another object of the invention is the provision of novel means for supporting the luminescent tube and providing it with electricity.

The novel features of the invention are hereinafter fully described and claimed.

In the accompanying drawing which illustrates the preferred embodiment of the invention.

Fig. 1 is a central vertical sectional view of the container and the luminescent tube therein, some parts being shown in elevation.

Fig. 2 is a top view of the indicator, parts being broken away.

Fig. 3 is a reduced section on the line 3—3 of Fig. 1.

Fig. 4 is a reduced central vertical sectional view, showing the channel and contents in cross section and the transformer in end elevation.

Fig. 5 is a reduced top view of the indicator.

Fig. 6 is a side elevation of a portion of the upper part of the indicator, reduced, and shown in operative position in the ground.

Similar characters of reference designate similar parts in the different views.

1 designates the body of a container comprising a jar like body having a top opening encircled by a peripheral flange 2 upon which rests a soft rubber gasket 3 located in an annular channel 4 in the top of the flange 2.

A concavo-convex cover 5, which is permeable to light, and which may be transparent or translucent glass, is supported on the gasket 3 to which it is fastened by clips 6 fastened to the top of the flange 2 and which respectively bear against soft rubber pieces 7 which are inserted between the cover 5 and the clips. Screws 8 releasably hold the clips to the flange 2.

Two parallel transverse partitions 9 extend across the inner side of the container 1 and form with the bottom of the latter a channel in which are located two conducting wires 10 and 11 of an electric lighting circuit. The container has in opposite walls two threaded holes located between the partitions 9 and in which are respectively fitted from the inner side of the container 1 two nipples 12 and 13 the outer ends of which bear against two pipes 14 and 15 through which the conductor wires 10 and 11 extend.

Respectively connected to the wires 10 and 11 within the channel formed by the partitions 9 are two conducting wires 16 and 17 which connect respectively to terminals of the primary winding of a transformer, said terminals being designated 18 and 19.

The transformer case 20 rests upon the upper edges of the partitions 9. After the wires 16 and 17 have been connected to the wires 10 and 11, the channel is filled with insulation 21.

22 designates an electrically lighted luminescent tube of the usual gas filled neon type, the terminals of which are respectively connected to and supported by the terminals 23 and 24 of the secondary winding of the transformer 20.

The tube 22 has portions 25 disposed collectively in sheet like form covering a substantial area across the top opening of the container 1. In their preferred arrangement, the portions 25 of the luminescent tube are disposed sinuously, as shown, and in the concavo-convex form with the convex side up. The portions 25 are disposed within the cover 3 substantially concentric therewith and spaced therefrom.

As shown in Fig. 6, the container 1 is disposed in the ground up to the flange 2 at any desired spot, as beside a runway on the airport field. So disposed the indicator will offer little obstruction if struck by a landing wheel of an airplane.

As shown, the concavo-convex portions 25 of the luminescent tube are disposed above the plane of the top of the container body 1, so that the light from such portions will be projected laterally as well as upwardy. By disposing the portions 25 one higher than the other, due to the concavo-convex form, a minimum of interference with each other is obtained in the lateral projection of light therefrom.

By employing a luminescent tube, the light projected from the indicator is soft and does not dazzle or blind the pilot of an airplane that is

about to land. By having the luminescent tube provided with its portions 25 collectively disposed close together and covering in their sheet like form a substantial area, these portions appear like a large ball of fire at a distance, instead of like a point of light, such as the usual incandescent light projects, when viewed from a distance at which it can be seen.

The color of light projected may be obtained in the usual manner, by employing the proper gas material in the luminescent tube, as mercury vapor for a green light. Or the light may be colored by providing the proper colored cover 5.

As the lamp 25 is supported by the transformer 20, and the latter rests freely upon the partitions 9 and is spaced from the walls of the container 1, the transformer can be laterally adjusted on the partitions 9 so as to centrally position the lamp 25.

The partitions 9 perform the double function of a support for the transformer 20, and providing a channel for receiving the wires 10 and the insulation material 21 in which the wires are embedded.

By providing the threaded nipples 12 and 13 removably fitted in the threaded holes and at the inner ends of the pipes 14 and 15 respectively, the insulation material 21 is prevented from entering the pipes 14 and 15, the nipples 12 and 13 being filled with material, as shown in Fig. 1.

By means of this construction, should a short or a leak occur in the pipes 14 and 15, and new wires 10 substituted for those which have been inserted, the nipples 12 and 13 can be readily removed from the inside of the container 1, after which the wires 10 may be readily withdrawn through the pipes 14 and 15 and others readily inserted through the open pipes 14 and 15, which, without the use of the nipples 12 and 13, would be stopped with insulation material, that would prevent the ready insertion or removal of the wiring.

Many modifications of our invention, within the scope of the appended claim, may be made without departing from its spirit.

What we claim is:

In a landing indicator for airports, a container having a top opening and provided with two parallel partitions extending transversely and upwardly and forming with the bottom of the container a channel, a transformer resting on the upper edges of said partitions, electrical conducting means in said channel connected with the primary of said transformer, insulation material in said channel covering said conducting means, and an electrically lighted lamp in circuit with the secondary of and supported by and above said transformer and in the plane of said opening.

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