June 22, 1965 RINZO SUGIYAMA ETAL 3,191,087

DISK TYPE FLUORESCENT LAMP

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Fig. 1

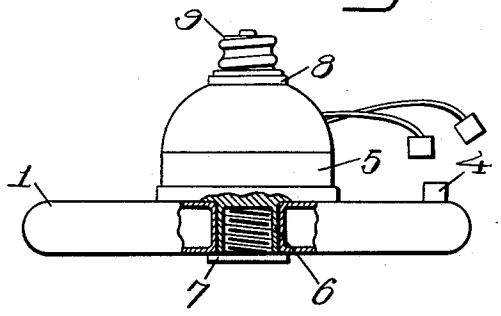


Fig. 2

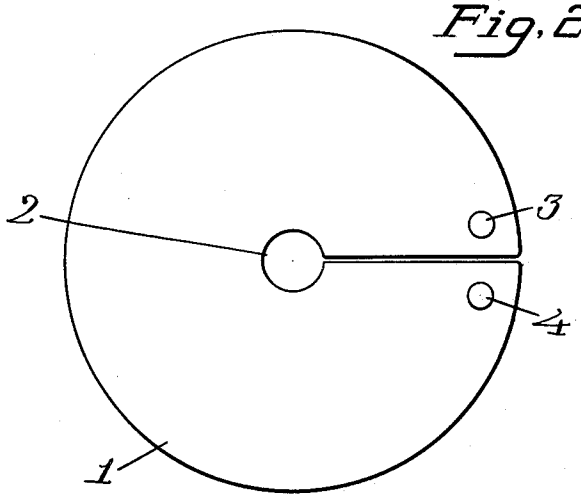
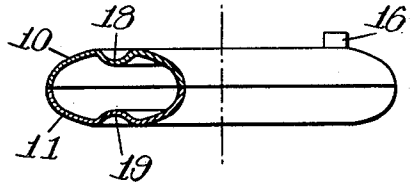


Fig. 3



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Fig. 4

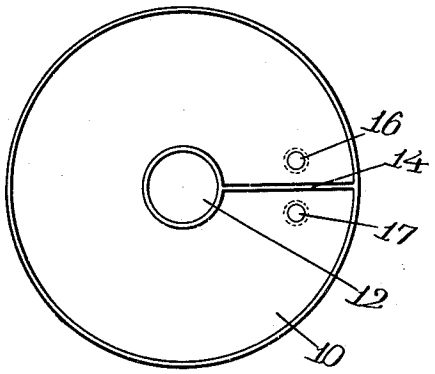


Fig. 5

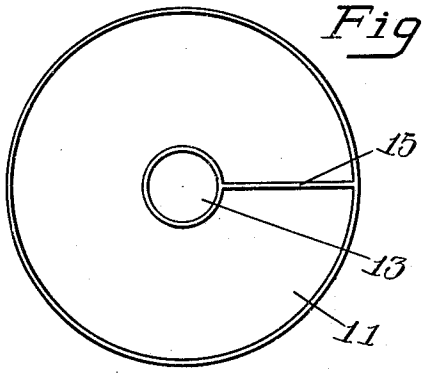
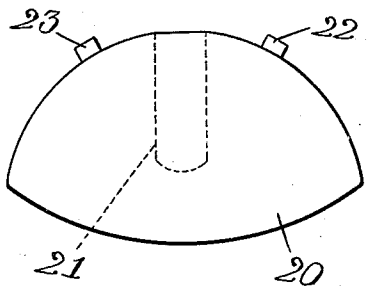


Fig. 6



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DISK TYPE FLUORESCENT LAMP

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4 Claims. (Cl. 313—109)

This invention relates to fluorescent lamps and more particularly to fluorescent lamps of disk shape.

Fluorescent lamps heretofore in use have been made straight or annular in shape, with its illuminated portion being accordingly straight or annular. The shape of the lamp results in concentrated emission of light and the lamp's lighting area is not efficient in comparison with the occupied space.

However, in the disk-type fluorescent lamp according to the present invention, said disadvantageous concentration and illumination have been eliminated.

One object of the present invention is to provide a fluorescent lamp whose illuminated portion is substantially of disc shape.

Another object of the invention is to provide a disk-type fluorescent lamp which can be manufactured easily.

A further object of the invention is to provide a disk-type fluorescent lamp which can be installed in the same way as an ordinary lamp.

The above stated and other objects and features of the present invention will be apparent from the following description and the accompanying drawings, reference will now be made to the accompanying drawings which show, by way of example, various embodiments of the present invention, in which:

FIGURE 1 shows, in an elevational view and partly in section, an embodiment of the present invention, a lamp being attached to a supporting member.

FIGURE 2 shows, in a plan view, the lamp in FIGURE 1.

FIGURE 3 shows, in a plan view and in partial section, a further embodiment of the present invention.

FIGURES 4 and 5 show, in plan views the upper and lower halves of the lamp in FIGURE 3, each being seen in the inner side.

FIGURE 6 shows, in an elevational view, a still further embodiment of the present invention.

Referring now to FIGURE 1, numeral 1 designates a disk type fluorescent lamp which comprises an engaging portion or an opening 2 at its center and adjacent end walls. As shown in FIGURE 2, near the end walls are provided sealed electrodes 3 and 4, which are to be detachably connected by connectors through lead wires from a body 5 in a conventional manner. The wall of the opening 2 makes a détour for the path of electric discharge. The body 5 contains a starting switch as well as other pertinent apparatus such as wires and the like. Body 5 is provided with a projecting portion 6, to be inserted into the opening 2, which is internally threaded and engaged by a threaded rod 7 for supporting the lamp 1, and with a base 8 having a threaded projection 9 adapted on which is mounted a base thread 9 for insertion into a lamp socket.

In FIGURES 3 to 5 there is shown a further embodiment of the present invention. A lamp comprises upper and lower halves 10 and 11, made of glass, with central openings 12 and 13 and partitions 14 and 15 respectively. The upper half 10 is provided with electrodes 16 and 17 near the partition 14.

The halves may be concentrically provided with grooves 18 and 19. The halves are secured to each other by a binding agent, for example low melting point glass

(SiO_2 5–15, B_2O_3 6–12, PbO 60–80, Na_2O 5–15), or welded by high frequency resistance welding. In former case the binding portion may be provided with a groove for maintaining the binding agent. The central openings are similar to the opening mentioned above.

A still further embodiment of the present invention is shown in FIGURE 6. A lamp 20 having a bell shape comprises a spherical surface at the bottom, a depending tubular portion 21 at the center and lead-in wire receiving portions 22 and 23 at the side wall. Said lead-in wire receiving portions are located at the sides of the depending tubular portion to obtain the largest discharge path. Attached to the depending tubular portion 21 is a base (not shown) which engages a lamp socket. A miniature lamp may be inserted into the depending tubular portion.

The embodiments described and shown are intended merely to exemplify the invention and do not limit it. Various modifications are therefore possible within the scope of the invention.

What we claim is:

1. A fluorescent lamp comprising a disc shape lamp portion, said portion having a central opening and bounding walls, and means for securing said lamp comprising a base detached from said lamp portion and including securing means for securing the base independent of the lamp portion, said base including a projecting portion extending through said central opening, and means supporting said lamp portion and engageable with said projecting portion to secure the lamp portion and the base together for unitary mounting by said securing means.

2. A fluorescent lamp comprising a lamp portion which is adapted for being illuminated, said lamp portion having an outer periphery and being provided with a central opening and bounding walls extending around said opening, said lamp portion being radially divided from said central opening to the outer periphery, means for being energized for illuminating the lamp and including a pair of electrodes located proximate one another in respective portions of the radially divided lamp portions adjacent said outer periphery, said bounding walls around the central opening being effective to detour the path of electric discharge therearound, a base detached from said lamp portion, said base including securing means for securing the same to a support, said base including a projecting portion extending into said central opening and means supporting said lamp portion and engaged with said projecting portion to secure the large portion and the base together for unitary mounting by the securing means.

3. A fluorescent lamp as claimed in claim 2 wherein said projecting portion has an internally threaded opening and said means engaged with the projecting portion includes a rod threadably engaged with said portion, said rod including an enlarged portion having a diametral extent greater than the central opening.

4. A fluorescent lamp as claimed in claim 2 comprising a radial partition in said lamp portion extending from the wall bounding the central portion to the outer periphery, said electrodes being located on opposite sides of the partition.

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