May 16, 1944. M. H. LEVENBERG 2,349,102

LIGHTING FIXTURE CONSTRUCTION

Filed May 22, 1942

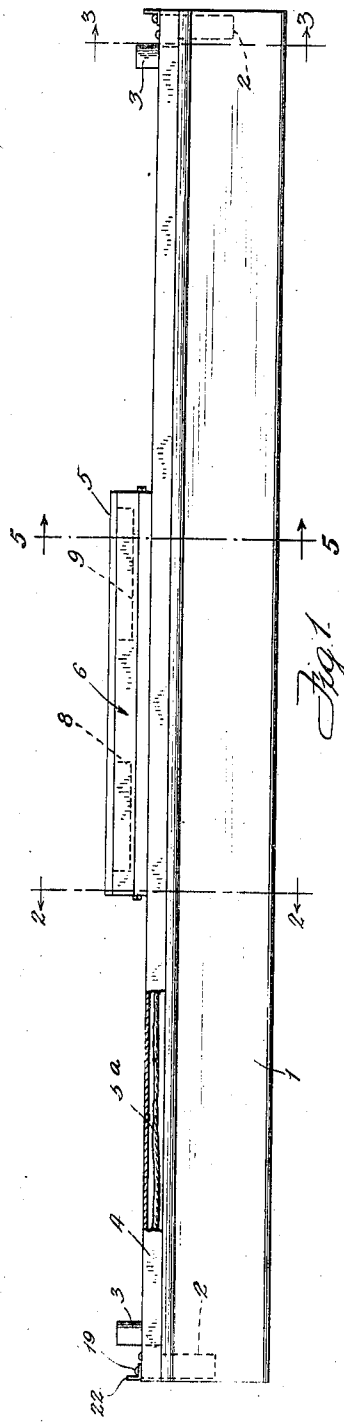


Fig. 1

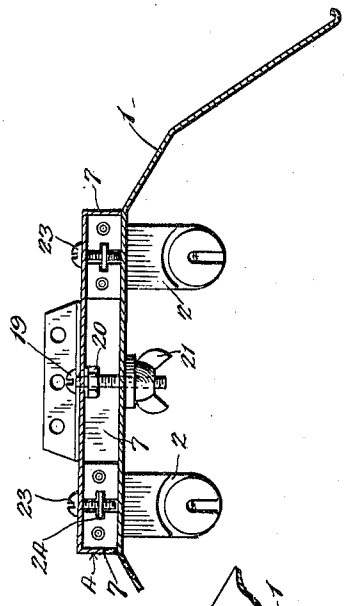


Fig. 3

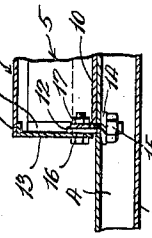


Fig. 4

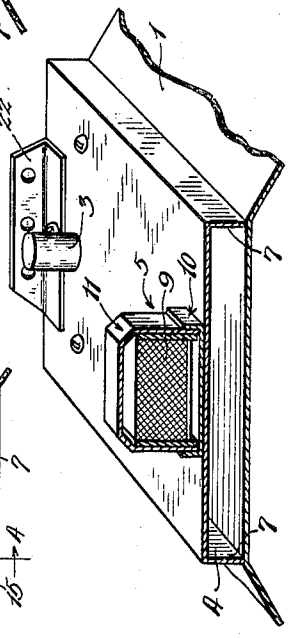


Fig. 5

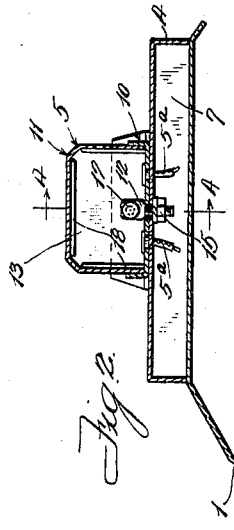


Fig. 2

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Patented May 16, 1944 2,349,102

# UNITED STATES PATENT OFFICE

2,349,102

## LIGHTING FIXTURE CONSTRUCTION

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Application May 22, 1942, Serial No. 444,071

1 Claim. (Cl. 240—73)

My invention relates to lighting fixture constructions.

One of the objects of my invention is to conserve metal in such a construction.

Another object is to prevent an excessive rise of temperature in the ballast.

A further object is to prolong the life of the ballast.

A further object is to increase the efficiency of the fluorescent tube.

Another object of my invention is to lessen the cyclic hum where alternating current is used, by combining the parts so that there are no steel diaphragm-like parts adjacent the ballast to be set into vibration by the magnetic flux of the ballast.

Further objects and advantages of the invention will be apparent from the description and claim.

In the drawing, in which an embodiment of my invention is shown,

Figure 1 is a side elevational view of a fixture embodying my invention;

Fig. 2 is a transverse vertical section on the line 2—2 of Fig. 1;

Fig. 3 is a transverse vertical section on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary sectional view on the line 4—4 of Fig. 2; and

Fig. 5 is a sectional perspective view on the line 5—5 of Fig. 1.

Referring to the drawing in detail, the construction shown comprises a fixture for gaseous tube lamps comprising an elongated reflector 1, sockets 2 for supporting elongated tubes in said reflector, starter switches 3 mounted on said reflector, an elongated wireway 4 extending longitudinally of the reflector substantially from end to end thereof, and a ballast unit 5 having a metal housing 6 surrounding and encasing the ballast and secured in fixed relation to the reflector 1 and wireway 4 and entirely outside thereof. The wiring 5a between the ballast, starter switches and sockets is located within the wireway and above the upper portion of the reflector. The reflector sockets 2 and starter switches 3 may be of any usual conventional construction and design.

The wireway comprises an inverted channel member above the reflector, which may be formed of sheet metal having downwardly turned flanges 7 on both side edges and at the ends and thus forming with the upper portion of the reflector 1 a completely enclosed wireway. The ballast unit comprises the sheet metal housing 6 in which are mounted the usual condenser unit 8 and reactor (or inductance) unit 9, the condenser operating to correct the power factor or shift the phase, and the reactor unit acting to limit the current. The metal housing 6 of the ballast comprises a lower, upwardly opening, sheet metal channel member 10 secured to, and above, the wireway 4, and a downwardly opening channel member 11, the sides of which overlap and extend inside the sides of the lower channel member 10.

For securing the upper and lower housing members to each other and to the wireway 4, anchor studs 12 are provided, the upper ends of which are secured to the end pieces 13 of the ballast housing and the lower ends of which extend through the lower housing member 10 and the wireway 4 into the space within the wireway. A spring lock washer 14 is slipped over the threaded end of the stud 12, and the securing nut 15 is screwed onto the end of the stud to secure the two parts of the housing together and to the wireway 4. The upper end of the stud may be secured to the end piece of the housing in any suitable manner, as by a small bolt 16 extending through the anchor stud and the end of the housing, and a spring washer and nut 17. The end piece 13 of the housing may be secured to the cover member 11 in any suitable manner, as by the inwardly-extending flange portions 18 on the end piece extending inside and spot-welded to the cover member of the housing. The condenser and reactor units 8 and 9 may be secured to the cover member of the housing in any suitable manner, as shown in Figs. 1 and 5. Suitable eyelet openings may be provided in the lower channel member of the housing and in the wireway for the passage of the wires 5a from the ballast unit to the switches and sockets.

The wireway 4 may be secured to the reflector in any suitable manner, as by stud bolts 19 secured to the wireway 4 and extending through openings in the reflector 1. A lock nut 20 may be provided for holding the stud on the wireway, and a wing nut 21 may be provided for securing the wireway to the reflector. This stud bolt 19 may also serve to secure the supporting bracket 22 to the wireway, this supporting bracket serving to support the fixture from the ceiling. The sockets 2 may be secured to the wireway 4 in any suitable manner, as by bolts 23 and nuts 24 as shown in Fig. 3.

It will be seen that this arrangement of ballast and wireway requires less metal than the usual construction, in which the ballast unit is located

in a hood which extends the full length of the reflector and which hood has to be high enough to provide ample room for the ballast unit between the upper part of the reflector and the upper part of the hood. It will also be seen that the ballast unit is located completely outside the wireway so that the heat generated within the ballast can readily escape, which would not be the case if the ballast were located within, or partly within, the wireway. This results in a much lower temperature rise of the ballast unit and hence increases the life of the ballast and also improves the operation of the fluorescent tubes. The results of actual tests show that the ballast in an ordinary type of fixture reaches a temperature of about 165° F. This high temperature lessens the life of the condenser. Tests of my device using the same type of condenser and reactor units show a temperature rise to about 135° F. or 30° less than the conventional type. With the former type of ballast arrangement, the temperature at the condenser and of the ballast would approximate the temperature of the hot reactor end of the unit, whereas in the construction shown the temperature of the condenser end of the ballast unit is only slightly above room temperature. For example, if room temperature is 70° F., the temperature at the condenser end of the ballast would be about 80° F.

In former constructions the heat generated by the ballast unit caused an excessive rise in the temperature of the fluorescent tubes, the rise being above that temperature at which the tubes would operate most efficiently. With the construction disclosed, the heat generated by the ballast unit has very little effect on the temperature of the fluorescent tubes which, as a result, operate at the most efficient temperature.

Another advantage of the ballast is that it is away from any proximity to the iron in the fixture as in former constructions. There is no magnetic disturbance between the ballast and the iron hood of the fixture, thus eliminating the 60-cycle hum usually set up.

Further modifications will be apparent to those skilled in the art and it is desired, therefore, that the invention be limited only by the scope of the appended claim.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

In a gaseous tube lighting construction, an elongated concave downwardly facing reflector member, sockets for supporting an elongated light tube in said reflector, an enclosed ballast unit, a housing hood member to and above which said ballast unit is secured in close juxtaposed relation having a plate-like portion extending underneath said ballast unit and spaced a substantial distance from said reflector member and a plate-like portion extending beyond said ballast unit and above said reflector member from said ballast unit to said sockets, spaced from the upper part of the reflector member and forming therewith and therebetween an enclosed wireway for the wiring between the ballast and sockets, said plate-like portions also forming an enclosed heat insulating space between said ballast unit and reflector member.

MERTON H. LEVENBERG.