Nov. 15, 1938. G. L. USSELMAN 2,136,648

CONTAINER FOR RECTIFIER TUBES

Filed June 29, 1935

Fig. 1

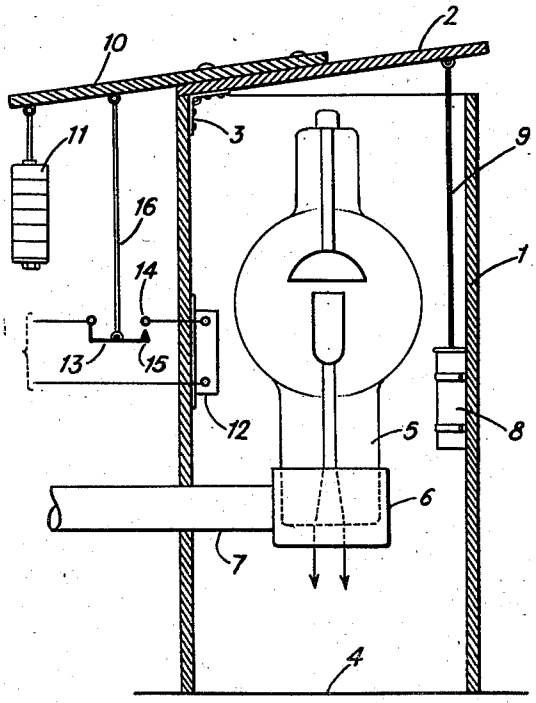
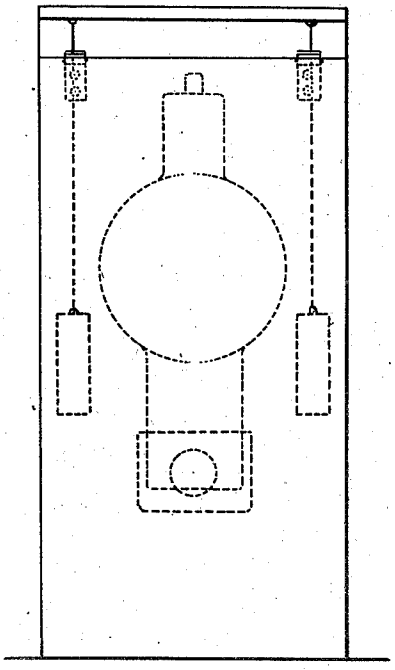


Fig. 2



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CONTAINER FOR RECTIFIER TUBES

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6 Claims. (Cl. 236—1)

This invention relates to a heat controlled container for enclosing rectifier tubes, particularly rectifier tubes of the mercury vapor type.

It is an object of this invention to supply a container for rectifier tubes in which the temperature is to be controlled within certain limits.

Another object of this invention is the novel arrangement within the container of a thermostat and a heating unit, the thermostat being arranged in a manner so as to maintain a desired heating temperature within the container and also to allow the entrance of cooling air by opening and closing a shutter.

It has been found that rectifier tubes, particularly those of the mercury vapor type, require that a certain temperature be maintained for their successful operation and, although in general this trouble did not become troublesome until the recent advent of remotely-located radio transmitting stations wherein a complete transmitter was enclosed within a suitable building remotely located from a central operating plant. As these remotely-located transmitting stations do not contain a central heating system, they are subject to various degrees of temperature changes. Therefore, when rectifier tubes are located in such buildings, it is necessary that the temperature be maintained so as not to fall lower than 59° Fahrenheit, or rise higher than 120° Fahrenheit.

The principal feature of this invention is the locating of the rectifier tube within a housing and mounting a thermostat near the base of the tube, for the reason that it is at this point that the desired temperature must be maintained, as the tube is critical to vapor pressure which is determined by the coolest part of the tube or the place where the mercury condensation takes place, which is usually at the bottom of the tube. The thermostat is provided with a linkage system which operates a lid or shutter for opening and closing the casing, and in addition controls a switch which turns on and off a heating unit for raising the temperature within the housing.

This invention will be more fully understood by referring to the accompanying drawing, in which

Fig. 1 is a cross-section of a mercury vapor tube container, the tube being shown in elevation; and

Fig. 2 is an elevation of Fig. 1.

Referring now in detail to the drawing, the container 1 is a box-like member which is composed of any suitable good heat-insulating material, such as wood lined with asbestos. The upper portion of the container is provided with a lid 2 which is hinged to the container 1 by any suitable hinge 3. The bottom of the container 4 is left open for the circulation of air when the lid 2 is opened. The rectifier tube 5 is mounted in any suitable socket 6 by means of a support member 7.

A thermostat 8 is mounted near the base of the tube and is arranged with a link-like member 9 for opening and closing the shutter or lid 2. To the rear of the lid 2 there is provided an extension arm 10 on which suitable weights 11 are hung to completely balance the lid so that only a minimum amount of energy need be supplied by the thermostat 8 for moving the lid 2. Directly adjacent the thermostat 8 there is located a heating element 12 for supplying heat to the container should the temperature drop below a certain point. Electrical connection is made from the heating unit 12 to a switch 13 which is provided with contacts 14 and 15. These contacts are linked to the arm 10 by means of a rod-like member 16 to disconnect the energy supplying the heating unit when the lid 2 is opened.

As mentioned above, the bottom of the box is left open to allow cool air to enter when the lid opens to allow warm air to escape. That is, when the air in the box becomes too warm, the temperature causes the thermostat to open the lid and to cut off the heater where it is used. Of course, when the temperature in the box has cooled, the thermostat closes the lid and turns on the heat so the temperature in the box is held within certain limits as determined by the thermostat setting.

Although only one modification of this invention is shown, it is to be distinctly understood that this invention is capable of taking other forms. For instance, the box or housing may enclose any number of tubes. The usual number may be from one to six tubes. Also, in warm climates, the use of heater 12 may be dispensed with and in its place the current in the cathode may be left on to supply the desired amount of heat to keep the rectifier tubes warm.

Therefore, this invention should not be limited to the modification shown, except such limitations as are imposed by the appended claims.

I claim:

1. A heat controlled container for enclosing a rectifier tube comprising a box-like heat insulating container, a hinged lid for said container, a rectifier tube within said container, a mounting

member for said rectifier located within said container and secured to the side of said container, a thermostat located on the side of said container near the base of said rectifier tube, a heating unit located on the opposite side of said thermostat, means for regulating the heat within said container by moving an external control switch and said lid, and a link member connecting said lid, switch and thermostat together, said link being actuated by said thermostat to control the temperature of said heating unit.

2. A heat controlled container for enclosing a rectifier tube comprising a box-like heat insulating container, open at the base portion and having a hinged lid at the upper portion, a thermostat located within said container, a rectifier tube within said container, a mounting member secured to one of the side walls within said container, a heating unit located near the base of said rectifier tube opposite said thermostat, means for regulating the heat within said container by moving said lid, and a link member within said container and joined to said lid and said thermostat, said link being actuated by said thermostat to control said heating unit.

3. A heat controlled container enclosing a plurality of rectifier tubes comprising a box-like container having a hinged lid, a plurality of rectifier tubes within said container, a plurality of mounting members secured to one of the side walls within said container, a thermostat and a heating unit located on the inside wall of said container, means for regulating the heat within said container by a link member within said container and connected to said lid and said thermostat so as to actuate said lid upon a change of temperature within said container.

4. A heat controlled container enclosing a rectifier tube comprising a box-like container, a rectifier tube and mounting member within said container, a thermostat and heating unit within said container, means for regulating the heat within said container, said means comprising a link member within said container, a switch element outside said container, a shutter on the top of said container, said link member connecting said shutter and said thermostat together so that said thermostat actuates said shutter, an extension arm located on said shutter outside said container, and a second link member connected to said extension arm and said switch element for actuating the switch to control said heating unit, the shutter and switch being actuated simultaneously by said thermostat.

5. A heat controlled container enclosing a rectifier tube comprising a box-like container, a rectifier tube and mounting member within said container, a thermostat and heating unit within said container, means for regulating the heat within said container, said means comprising a link member located within said container, a switch element outside said container, a shutter on the top of said container, said link member connecting said shutter and said thermostat together so that said thermostat actuates said shutter outside said container, an extension arm located on said shutter and having a weight for balancing said shutter, a second link member connected outside said container to said extension arm and said switch element for actuating the switch to control said heating unit, the shutter and switch being actuated simultaneously by said thermostat.

6. A heat controlled container enclosing a rectifier tube comprising a box-like container, a rectifier tube and mounting member within said container, a thermostat and heating unit within said container, means for regulating the heat within said container, said means comprising a link member within said container, a switch element outside said container, a shutter on the top of said container, said link member connecting said shutter and said thermostat together so that said thermostat actuates said shutter, a second link member located outside said container and connected to said shutter and said switch element for actuating the switch to control said heating unit, the shutter and switch being actuated simultaneously by said thermostat.

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