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HEATER AND GLOWER RENEWAL FOR SECOND CLASS CONDUCTOR LAMPS.

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979,455. Patented Dec. 27, 1910.

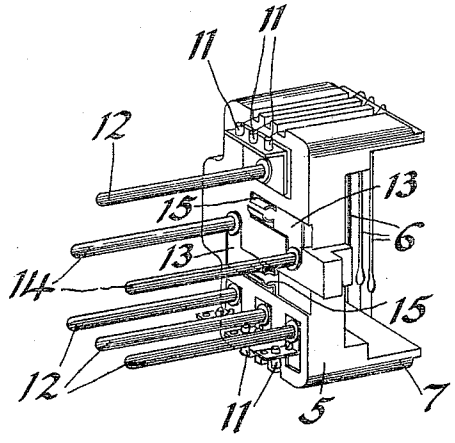

Fig. 1.

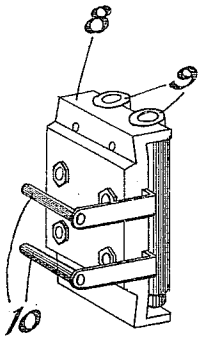

Fig. 2.

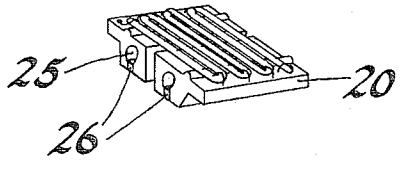

Fig. 4.

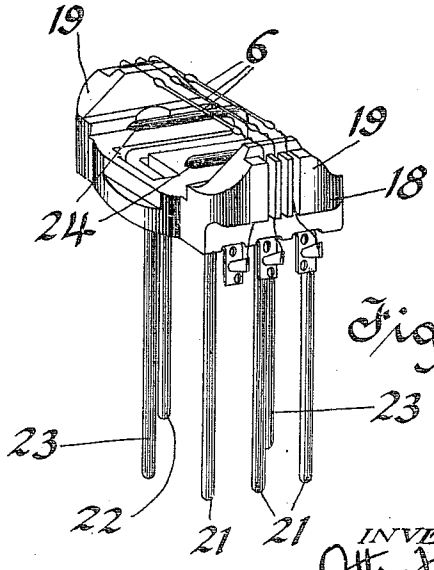

Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

OTTO FOELL, ANTON KUSEBAUCH, AND ROY NECKERMAN, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS, BY MESNE ASSIGNMENTS, TO NERNST LAMP COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

HEATER AND GLOWER RENEWAL FOR SECOND-CLASS-CONDUCTOR LAMPS.

979,455. Specification of Letters Patent. **Patented Dec. 27, 1910.**

Application filed November 11, 1908. Serial No. 462,121.

To all whom it may concern:

Be it known that we, OTTO FOELL, a subject of the Emperor of Germany, and ANTON KUSEBAUCH and ROY NECKERMAN, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have made a new and useful Invention in Heater and Glower Renewals for Second-Class-Conductor Lamps, of which the following is a specification.

This invention relates to Nernst lamps and more particularly to the production of removable heaters for such lamps.

The main parts of a Nernst lamp are the glower, the heater, the cut-out device, which is located in the heater circuit, and the current controlling device, which is technically known as ballast and is located in the glower circuit. The glowers are formed of a refractory material which, at normal temperatures is a non-conductor of electricity, but upon being heated to a certain temperature becomes a current conductor and is then rendered incandescent and caused to emit light by the passage of current through it. The function of the heaters is to raise the temperature of the glowers until they become current conductors. The cut-out device, ordinarily employed, consists of a small magnetic coil, which is actuated by the current and is included in the heater circuit. The function of the device is to open the heater circuit after the glowers have become current conductors and are self-sustaining under the influence of the current flowing through them. The ballast consists of fine iron wire, which is included in the glower circuit and is mounted in a glass container filled with an inert gas. The glowers require periodical renewing like any other incandescent filaments and the lamp is constructed accordingly. The heaters and glowers have heretofore been permanently secured to the same porcelain and the cut-out device, the ballast and the principal electrical connections or terminals of the lamp, have been mounted in what is termed the lamp body. The heater and glower porcelain was provided with terminal prongs which were utilized in securing the porcelain to the lamp body and also in plugging the heaters and glowers into the circuit. In addition to the necessity of removing the glowers, it is occasionally necessary to remove the heaters. The expense of maintenance is excessively high when it is necessary to remove the heaters shortly after removing the glowers, as it is necessary in the constructions, heretofore employed, to remove the glowers from the holder before the heaters can be reached.

An object of our invention has been, therefore, to produce means whereby the heaters may be easily renewed without removing, damaging or in any way affecting the glowers.

In carrying out this invention, a glower porcelain is provided which is independent of the lamp body and which is adapted to receive an independent heater porcelain. The glower and heater porcelains are so constructed that the heater porcelain can be renewed without the use of tools and without in any way affecting the glowers. The glower porcelain is provided with terminal prongs which are employed in securing it to the lamp body and also in plugging the heaters and glowers into the lamp circuit.

In the drawings accompanying this application and forming a part thereof: Figure 1 is a perspective view of a holder base, and, in connection with Fig. 2, illustrates one embodiment of our invention; Fig. 2 is a perspective view of a heater porcelain employed in connection with the apparatus as disclosed in Fig. 1; Fig. 3 is a perspective view of a holder base, and, with Fig. 4, illustrates a modification of our invention; and, Fig. 4 is a perspective view of a modified form of heater porcelain as utilized with the apparatus disclosed in Fig. 3.

Referring to the drawings: a holder base 5 of porcelain or other insulating material is provided for the glowers 6. Abutments 7 are located in each end of the body portion of the base 5 and are adapted to support the glowers 6. The abutments are so arranged that a heater porcelain 8 may be slid into place between them and between the body portion proper of the base 5 and the glowers 6 without disturbing or in any way affecting the glowers. The porcelain 8 is provided with heater tubes 9 which are arranged to extend in close proximity to the glowers when the porcelain 8 is in place. The porcelain 8 is also provided with prongs

10 which are adapted to removably secure it to the base portion 5 and which form a part of the heater circuit.

Three glowers 6 are mounted on the glower base 5 illustrated. Each glower is secured in place by means of platinum and nickel composition wires secured to the ends of the glowers and which in turn are secured to terminal pieces by means of aluminum plugs 11. The terminal pieces are secured on the rear face of the holder base 5 and each piece is connected to a terminal prong 12. One end of each glower 6 is connected to a separate terminal piece connected to one of the prongs 12. The other end of each of the glowers is connected to a common terminal piece and terminal prong 12.

Terminal pieces 13 are mounted on the rear face of the base and are secured in place by means of terminal prongs 14 which are secured to the base 5 and which project from its rear face. A sleeve 15 is formed integrally with each piece 13 and is adapted to receive and engage the end of one of the prongs 10 provided on the heater porcelain 8. The holder base 5 is so constructed that the heater porcelain 8 may be slid into place adjacent to the glowers 6 and the prongs 10 are so arranged on the porcelain 8 that they are forced into engagement with the sleeves 15 during the operation of sliding the porcelain 8 into place. This electrically connects them with the terminal prongs 14 and, when the glower base 5 is plugged into the lamp circuit, the heaters are plugged into the heater circuit.

In Figs. 3 and 4 a modification of the invention is shown. The heater porcelain disclosed in Fig. 4 is what is technically known as the "wafer" type of heater and, by employing it, the distance between the supporting abutments for the glowers is considerably decreased. This overcomes a tendency of the glowers to warp out of shape and to detrimentally affect, not only the life of the individual glower, but also the performance of the lamps. The holder base 18 disclosed in Fig. 3 is provided with abutments 19 located at each end of the base portion proper and adapted to support the glowers 6 in such a manner that the glowers span the space provided for the reception of a heater porcelain 20. Terminal posts are secured to the body portion proper of the glower base and project from the rear face of the base. Terminal posts 21 are each electrically connected to separate terminal pieces each of which is in turn connected, by means of short platinum and nickel composition wires, to one end of each of the glowers 6. A post 22 is electrically connected to the other ends of all of the glowers mounted on the base. Two terminal posts 23 are provided for the heaters and each is connected to a prong 24 which is mounted on the front face of the base and which projects at right angles to the glower and is located between the glowers and the base portion proper. A wafer shaped heater is mounted on a flat porcelain 20 and is so arranged that it is located in close proximity to the glowers when the porcelain 20 is secured in place on the holder base. Two holes 25 extend transversely through the porcelain and are adapted to receive the prongs 24 and by engaging them to secure the porcelain 20 in place on the holder base. In addition to this, a metallic strip or sleeve 26 extends through each hole 25 and besides being secured to the porcelain 20 is electrically connected, by means of a short wire, with the heater circuit. The porcelain 20 is secured in place on the base by forcing prongs 24 into the holes 25 and consequently into intimate contact with the strips or sleeves 26. This electrically connects the heater winding to the prongs 23.

With either of the modifications illustrated, the heaters may be readily removed without in any way disturbing the glowers and without the use of any tools. The wafer type of heater as disclosed in Fig. 4 or the tubular type as disclosed in Fig. 2 can be employed with either modification of holder base illustrated.

In accordance with the provisions of the patent statutes, we have described the principle of operation of our invention, together with the apparatus which we now consider to represent the best embodiment thereof, but we desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means.

What we claim is:

1. In combination with a lamp glower, a base therefor provided with terminals, a heater, a non-conducting support for said heater and means for removably securing said heater support to said base and for electrically connecting said heater to said terminals.

2. In combination with a lamp glower, a base therefor provided with terminals, a heater, a non-conducting support for said heater and a pin and slot device for removably securing said heater support to said base and for electrically connecting said heater to said terminals.

3. In combination with a lamp glower, a base therefor provided with terminals, a heater, a non-conducting support for said heater and a sliding connection for removably securing said heater support to said base and for electrically connecting said heater to said terminals.

4. In combination with a lamp glower, a support base therefor, electrical terminals located on said base, a heater, a support for said heater, prongs for removably securing

said heater support to said base and for electrically connecting said heater to said terminals.

5. In combination with a lamp glower, a support base therefor provided with electrical terminals, a non-conducting heater support, a heater carried thereby, metallic prongs provided on said base for removably securing said heater support thereto and for electrically connecting said heater to said terminals.

6. In combination with a lamp glower, a support base therefor provided with electrical terminals, a non-conducting heater support provided with metallically-sleeved holes, a heater carried by said support and prongs secured to said base and having electrical connections with said terminals and adapted together with said metallically-sleeved holes to removably secure said heater support in place and to electrically connect said heater with said terminals.

In testimony whereof, we have hereunto subscribed our names this 7th day of November, 1908.

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Witnesses:
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