No. 728,648. PATENTED MAY 19, 1903.

A. J. WURTS.

ELECTRIC LAMP.

APPLICATION FILED JUNE 19, 1901.

NO MODEL.

Fig. 1.

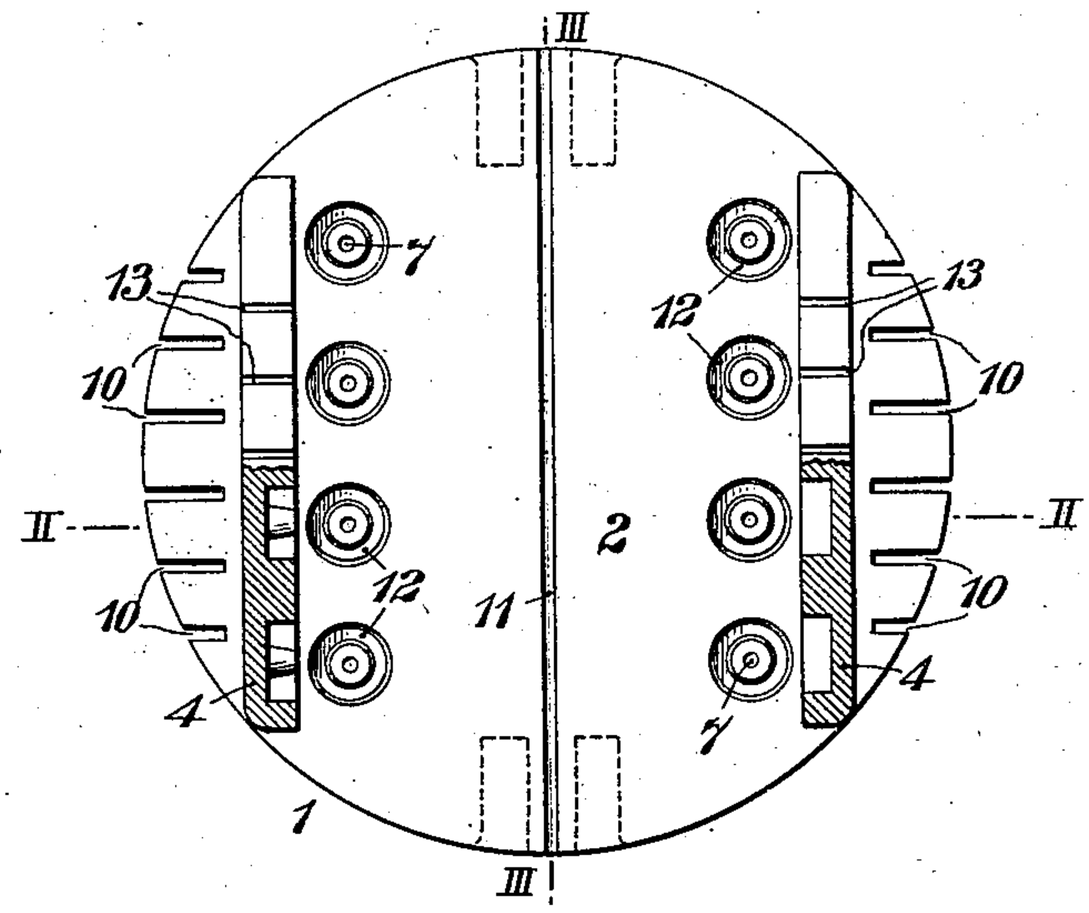


Fig. 2.

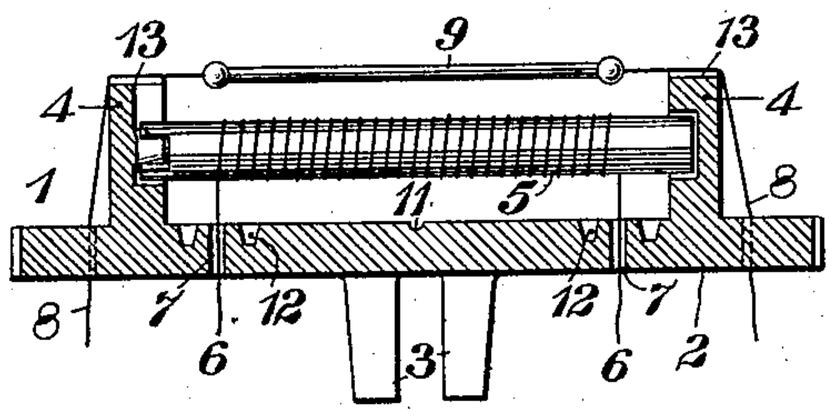


Fig. 3.

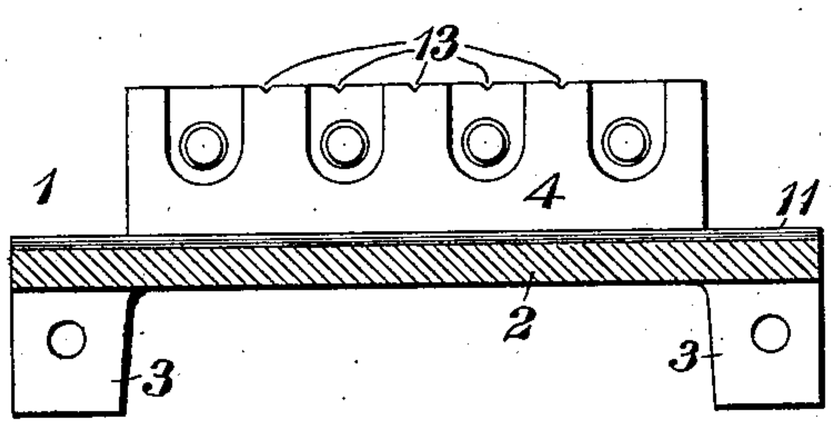
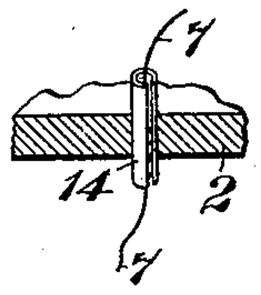


Fig. 4.



WITNESSES:

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No. 728,648. Patented May 19, 1903.

UNITED STATES PATENT OFFICE.

ALEXANDER JAY WURTS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO GEORGE WESTINGHOUSE, OF PITTSBURG, PENNSYLVANIA.

ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 728,648, dated May 19, 1903.

Application filed June 19, 1901. Serial No. 65,181. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER JAY WURTS, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Electric Lamps, of which the following is a specification.

My invention relates to electric lamps of the class in which the light-emitting elements or glowers are conductors only when hot and in which either the leading-in wires or the conductors employed for heating the glowers, or both, become more or less disintegrated in use, so as to produce a conducting deposit upon the adjacent non-conducting parts.

The object of my invention is to provide a means for avoiding short circuits due to deposits of conducting material upon the heater and glower holders.

It has been found in practice in operating electric lamps in which the light-emitting bodies or glowers are conductors only when hot and in which either platinum leading-in wires or platinum heating-conductors, or both, are employed, that platinum-black is produced and deposited upon the surface of the holder in such quantity as to often establish short circuits, and thus produce considerable damage. This deposit of platinum-black if made directly upon the holder is substantially non-removable, and since the holder is a part of the lamp that is not often subject to renewal for any other cause it is of considerable importance that some means be adopted for avoiding the difficulties encountered by reason of the platinum-black deposit.

In another application, filed by Edward Bennett and myself January 10, 1901, Serial No. 42,783, a removable coating of non-conducting material for obviating this difficulty is described and claimed, and such means may be employed in connection with that which constitutes my present invention; but the present invention is operative and useful as a substitute for that of the application above referred to, as well as in connection therewith.

In the accompanying drawings, Figure 1 is a bottom plan view of a non-conducting holder for glowers and heaters, parts of the same being in section. Fig. 2 is a sectional view taken on line II II of Fig. 1 and showing a heater and a glower in operative positions, and Fig. 3 is a sectional view taken on line III III of Fig. 1. Fig. 4 is a detail perspective view, partially in section, of a portion of a holder having a modified form of my invention.

In Figs. 1, 2, and 3 the holder 1 comprises a flat disk 2, provided on one side with lugs 3 for attachment to a suitable supporting means and on the other side with lugs 4, constituting the supports for the heater-tubes 5. The heater terminal wires 6 project through holes 7 in the disk for attachment by means of suitable binding devices to terminal posts or rods (not shown) on the other side of the disk, and the terminal wires 8 of the glowers 9 project through slots 10 in the edges of the disk for attachment to suitable terminal blocks or rods by means of binding devices, (not shown,) as is usual in this class of devices. I have found by investigation and experiment that the platinum-black which is deposited upon the holder does not deposit in comparatively narrow depressions or grooves, and I accordingly avoid short circuits by providing depressions or grooves between adjacent conductors.

I cannot specify with certainty the underlying cause which produces the above-mentioned effect; but the result has been repeatedly observed and is unquestionable. It is possible that the air-currents which carry the platinum-black over the surface of the holder do not disturb the air in the grooves, and therefore do not deposit platinum-black therein. I state this merely as a possible explanation and not as an actual exposition of what brings about the observed result.

As here illustrated, the grooves are as follows: A groove 11 extends from side to side through the entire width of the disk and midway between the lugs 4. An annular groove 12 surrounds each of the holes 7, and transverse grooves 13 are provided on the faces of the lugs 4 between the glower terminal wires.

I have found in practical service that grooves of approximately three-tenths of an inch in depth and seventeen one-hundredths of an inch in width were very effective; but I specify these dimensions without any intention of limiting the invention in this regard, since grooves which will effect the desired result are obviously within the scope of

my invention however much their dimensions may vary from these specified. The form and location of grooves may also obviously be varied from what is shown without in any way departing from the invention, the sole requisite in this connection being that grooves be provided between conductors which might be short-circuited and that such grooves be of proper dimensions to avoid the deposits of platinum-black therein.

In Fig. 4 I have illustrated a modification in which split tubes or bushings 14, of suitable insulating material, are employed in connection with the heater leading-in wires. These bushings may be employed in connection with or instead of the annular grooves 12, though the use of both in the same structure will probably be found unnecessary. If the bushing be provided with a slit in one side and be of about the same diameter as the corresponding hole 7 in the disk 2, it may be readily placed in position and removed without disturbing the leading-in wire. When this device is employed, there is little if any danger of a deposit of platinum-black either inside the tubes 14 or in the apex of the angles formed between the outer surfaces of the tubes and the face of the disk.

If there should be an objectionable deposit of platinum-black upon the tubes, they could be readily removed and new tubes inserted.

It is not intended to restrict the invention to the specific details or construction shown and described or to lamps having a plurality of either glowers or heaters or to such as employ leading-in wires and heating-conductors made of platinum, except in so far as the conditions of practical service tend to impose such restrictions.

I claim as my invention—

1. In an electric lamp of the type described, having conductors that become more or less decomposed or disintegrated in use, a holder for heaters and glowers provided with grooves that break the surface continuity between terminal wires having differences of potential.

2. In an electric lamp of the type described, having conductors that become more or less decomposed or disintegrated in use, a non-conducting holder or support for glowers and heaters provided with grooves in the surface which is adjacent to said glowers and heaters, said grooves being located between conductors having differences of potential.

3. In an electric lamp of the type described, having conductors that become more or less decomposed or disintegrated in use, a non-conducting support or holder for heaters and glowers having grooves in the surfaces which are adjacent to the heater and glower leads and separating those that have differences of potential from each other.

4. In an electric lamp of the type described, having conductors that become more or less decomposed or disintegrated in use, a non-conducting holder or support for heaters or glowers or both having grooves between leading-in wires that have differences of potential.

5. In an electric lamp of the type described, having conductors that become more or less decomposed or disintegrated in use, a non-conducting holder or support for the glower or glowers having one or more grooves between such leading-in wires as have differences of potential.

6. In an electric lamp of the type described having bare metal leading-in wires for the glower or glowers and the heater or heaters, a non-conducting support having passages for said wires and provided with means for preventing the formation of short-circuiting deposits between wires having differences of potential.

7. In an electric lamp of the class described having bare platinum conductors, a non-conducting holder or support provided with narrow channels interposed between such conductors as have differences of potential for preventing the formation of short-circuiting deposits of platinum-black.

8. In an electric lamp of the class described having conductors that become more or less disintegrated in use, a non-conducting holder or support provided with narrow channels located between conductors that have differences of potential for preventing a short-circuiting deposit of disintegrated material.

In testimony whereof I have hereunto subscribed my name this 11th day of June, 1901.

ALEXANDER JAY WURTS.

Witnesses:
H. A. CROOK,
EDWARD BENNETT.