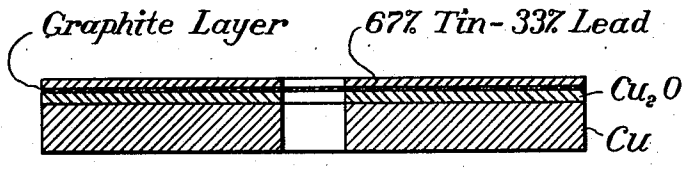
July 4, 1939. L. T. BOURLAND 2,165,029

EXTERNAL CONTACT TO COPPER-OXIDE RECTIFIERS

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EXTERNAL CONTACT TO COPPER-OXIDE RECTIFIERS

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3 Claims. (Cl. 175—366)

My invention relates to a conductive layer contact and especially to a contact layer applied to the copper-oxide contact rectifier.

An object of the invention is to provide a contact layer which possesses sustained high conductivity and one whose application should not injure the delicate material of the device.

Other objects and advantages of the invention will be apparent from the following description and drawing, the single figure of which is a cross-sectional view which illustrates the preferred embodiment of the invention.

The contacts applied to the copper-oxide rectifiers heretofore have caused considerable trouble either from their change of high conductivity by reaction in time with the atmosphere, or because of the method of applying the contact to the copper oxide injures the oxide layer either initially or with time. This is especially true with the type of contact which puts a high pressure directly upon the copper-oxide layer.

My invention concerns applying an alloy of tin and lead to the surface of the contact rectifier as a conductive layer thereto. This layer may be placed directly upon the cuprous oxide surface, or a cuprous oxide surface that has been treated with graphite, preferably in the form of graphite in solution, such as that sold under the trade name of "Aquadag". The alloy of the conductive layer may be from 5% to 95% tin and 95% to 5% lead. My preferred range is from 50% to 85% tin and 15% to 50% lead. Especially I prefer to use approximately 63% tin and 37% lead. The preferred percentage of materials is that which is substantially a eutectic alloy of the metals. This eutectic alloy gives a minimum melting point making feasible the use of an inexpensive metal spray gun in forming a thin layer over the copper-oxide surface or the copper-oxide surface coated with graphite material. This eutectic alloy does not require the more highly skilled technic in applying the layer that is necessary with higher melting alloys.

The lead-tin alloy is stable against changes due to contact with the atmosphere, and the materials are not costly, and the combination having a low melting point permits the use of an inexpensive metal spray gun.

It is apparent that the invention may have application to other electrical devices, especially where a layer of copper-oxide or other delicate compound is used, and accordingly I desire only such limitations to be imposed upon the following claims as are necessitated by the prior art.

I claim as my invention:

1. An electrical device including a layer of copper oxide and a contact thereto including a layer of an alloy of from 50% to 85% tin and 50% to 15% lead.

2. A contact rectifier having a rectifying layer of a material and a compound of said material and a conductive layer therefor comprising a eutectic alloy of tin and lead.

3. A contact rectifier comprising copper, copper oxide and a conductive layer of approximately 63% tin and 37% lead.

LANGFORD T. BOURLAND.