UNITED STATES PATENT OFFICE.

GEORG EGLY, OF BERLIN-TREPTOW, GERMANY, ASSIGNOR TO GEBRUEDER SIEMENS & CO., OF BERLIN-LICHTENBERG, GERMANY, A CORPORATION OF GERMANY.

RESISTANCE-BODY.

1,267,641. Specification of Letters Patent. Patented May 28, 1918.

No Drawing. Application filed February 21, 1914. Serial No. 820,270.

To all whom it may concern:

Be it known that I, GEORG EGLY, a German citizen, and resident of Berlin-Treptow, Germany, have invented certain new and useful Improvements in Resistance-Bodies, of which the following is a specification.

This invention relates to electrical resistance bodies which are made preferably from a material known under the name of "silit", consisting essentially of silicon and carbon, and which is manufactured according to a process invented by me and more fully described in my United States Patents No. 866,444 patented September 17, 1907 and No. 1,012,531 patented December 19, 1911, both assigned to Gebr. Siemens & Co., of Charlottenburg, Germany.

This material has the property of undergoing certain changes at very high temperature and in the presence of air,—for instance by an electric arc—in a manner that layers will be formed which are due to the combustion, these layers having the properties of insulating material, thereby increasing the intermediate or contact resistance and consequently decreasing the safety of the electrical connection with the circuit.

My invention is primarily designed to obviate this defect. Besides its use in connection with the aforementioned silit, my invention will be found useful with all materials having the aforementioned properties of becoming an insulator after combustion. In case of silit especially, if small arcs are set up at the contacting points a combustion will take place resulting in the formation of silicic acid forming a thin insulating deposit upon the surface of the resistance body.

In brief my invention consists in providing an envelop or coating of carbon at the endangered points of resistance bodies of the aforementioned kind, whereby the carbon if sufficiently pure, will in every case burn up in such a manner that only gaseous products are generated and no change of the intermediate resistance takes place at the points of contact.

In the case of silit a carbon envelop or coating can be very easily applied, since the silit-mass is of a nature similar to that of the carbon-mass, so that it may be easily treated under heat in an annealing furnace. For making a silit resistance body, according to my invention, for instance, first a carbon-mass may be filled into the form, thereupon the silit-mass serving for the resistance body proper, and thereupon a carbon mass, so that the entire body thus obtained may be formed by pressing or the like and annealed in a furnace. In this manner resistance bodies in the shape of plates, bars, pencils, or bodies of lenticular shape, etc., may be obtained comprising silit as a principal part, and a carbon coating at the ends thereof forming a contact terminal.

Such bodies for instance are used for compression resistances which as known consist of a plurality of resistance elements built up in loosely coherent strata and compressed under greater or smaller pressure, the total resistance of these elements being dependent from the amount of pressure applied.

Especially in resistance bodies of this kind at the contacting places of the several elements very easily small arcs will be formed soon impairing the qualities of such resistances in case they are made from pure silit. Up to the present time it has not at all been possible to successfully employ such elements from silit for resistances made by compression. This is accomplished by means of carbon coating at the contacting places according to my present invention, and therewith the great advantages of the silit for resistance bodies in general will also be utilized for this branch of manufacture, namely manufacturing electrical resistance bodies by compression.

Having thus described my invention I claim as new and desire to secure by Letters Patent of the United States:—

1. In a compression resistance in combination a plurality of juxtaposed resistance elements of a non-porous electrically conductive material whose conductivity is lessened under the influence of electric arcs,

and a carbon skin on the contacting faces of said elements.

2. In a compression resistance in combination a plurality of juxtaposed resistance elements of silit and a carbon skin on the contacting faces of said elements.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

GEORG EGLY.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.