May 29, 1928. 1,671,469

G. EGLY

ELECTRIC RESISTANCE

Filed March 31, 1925

Fig.1

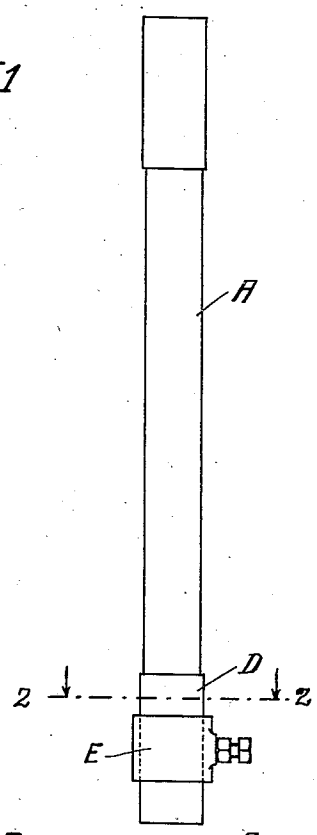
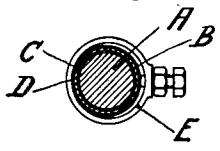


Fig.2



Inventor:
Georg Egly
by Mueller & Mueller
their att'ys.

Patented May 29, 1928. 1,671,469

UNITED STATES PATENT OFFICE.

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

ELECTRIC RESISTANCE.

Application filed March 31, 1925, Serial No. 19,738, and in Germany May 12, 1924.

My invention relates to improvements in electric resistances.

In resistor rods constructed of resistance materials, particularly silit or similar materials, it is particularly difficult to produce a satisfactory current-carrying connection which is capable of withstanding very high temperatures and very abrupt temperature fluctuations. The ends of such resistors upon which the terminals are provided have for this purpose been made of greater thickness and they have also been provided with coats of silver, aluminum, copper and the like which may be applied by the metal atomizing process. A coat of chromium nickel has proved particularly advantageous for the production of good contact places. The chromium nickel may, for instance, have the composition of the chromium nickel wires at present on the market and as used for incandescent wires. Wires of this kind usually contain from 20 to 35% chromium. This alloy is preferably also applied by the atomizing process. Above all it possesses a very high fuse point and is highly impervious to oxygen and other chemical influences. The chromium nickel furthermore combines readily with the surface of the silit.

In order to attain a particularly good binding effect and maintain good adhesion even in the event of sudden temperature changes and similar stresses a layer of silver is preferably applied to the resistance material before the chromium nickel is deposited upon it. The application of the silver may be effected by any suitable process, for instance by a chemical or electro-chemical process or also by the atomizing process.

In many cases it is advisable to provide a protective layer of aluminum above the chromium nickel layer. The aluminum has a relatively low fuse point but it burns with great difficulty because when heated it forms a fine layer of oxide which protects the material underneath against further attacks by the air and is yet not heavy enough to interfere with the electric contact.

In the accompanying drawings I have illustrated a resistor rod provided with coated terminals as described hereinbefore, Fig. 1 illustrating the rod in full view, and Fig. 2 illustrating a transverse section on the line 2—2 in Fig. 1. A represents in these figures the electric resistor rod proper which may consist, for instance, of silit. The terminal coatings of the materials described, it must be understood, are exaggerated in thickness in the drawings. The coatings consist of a layer of silver B in immediate contact with the resistor rod A. Superposed thereon is the layer C consisting of a chromium nickel alloy, and upon this alloy layer is placed a thin protective layer D of aluminum. By means of the clamp E a reliable circuit connection is made for the rod.

Instead of the aluminum coat a coat of silver may be applied to the chromium nickel.

What I claim as my invention is:—

1. In an electric resistor consisting of a resistance material and having contact terminals, a coating of a chromium nickel alloy at said contact terminals.

2. In an electric resistor consisting of a resistance material and having contact terminals, a layer of silver upon said contact terminals and a coating of a chromium nickel alloy upon said layer of silver.

3. In an electric resistor consisting of a resistance material and having contact terminals, a layer of silver upon said contact terminals, a coating of a chromium nickel alloy upon said layer of silver and a layer of aluminium upon said coating of chromium nickel alloy.

4. An electric resistor consisting of silit, and having a coating of a chromium nickel alloy at its contact terminals.

5. An electric resistor consisting of silit, and having a layer of silver upon its contact terminals and a coating of a chromium nickel alloy upon said layer of silver.

6. An electric resistor consisting of silit, and having a layer of silver upon its contact terminals, a coating of a chromium nickel alloy upon said layer of silver and a layer of aluminum upon said coating of chromium nickel alloy.

In testimony whereof I affix my signature.

GEORG EGLY.