A. ARNTZEN AND K. TROSDAHL.

ELECTRIC HEATING BODY.

APPLICATION FILED OCT. 17, 1919.

1,352,934. Patented Sept. 14, 1920.

Fig. 2.

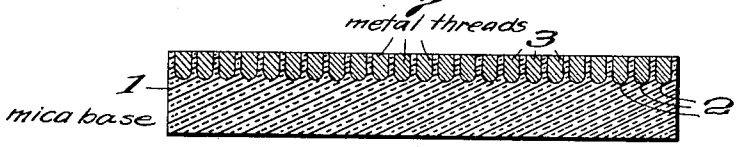
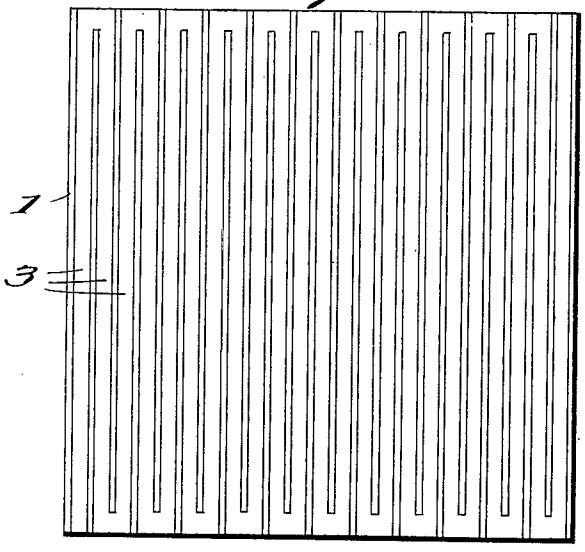


Fig. 1.



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ANDERS ARNTZEN AND KNUT TROSDAHL, OF SARPSBORG, NORWAY, ASSIGNORS TO ELEKTRISK VARMETEKNIK A/S., OF SARPSBORG, NORWAY.

ELECTRIC-HEATING BODY.

1,352,934. Specification of Letters Patent. Patented Sept. 14, 1920.

Application filed October 17, 1919. Serial No. 331,456.

To all whom it may concern:

Be it known that we, ANDERS ARNTZEN and KNUT TROSDAHL, subjects of the King of Norway, residing at Sarpsborg, Norway, have invented certain new and useful Improvements in Electric-Heating Bodies; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to electric resistances; and its object, stated briefly, is to improve the construction of such elements or bodies by overcoming certain recognized defects more or less inherent therein.

In resistance elements as now constructed, it is usual to cover a mica or similar base with a coating of heavy metal, but such construction is open to the objection that there is a tendency on the part of the current to burn off the coating transversely to the direction of current flow, and to the further objection that the thinness of the coating renders it liable to become easily damaged, while the conductivity is low at points and unstable. Hence it follows that the current is not evenly distributed over the whole coating, but produces a greater heating at some points than at others, with the result that the durability of the element is impaired and, even that bursting of the mica is apt to occur with a consequent opening of the circuit.

According to the present invention, the covering of the mica or other base consists of a multitude of parallel threads which are produced by the accumulation of the precipitated metal in relatively-deep grooves formed in the surface of the base. The potential difference between any two adjacent parallel conducting threads is practically zero, provided that the electrodes make a good contact, and consequently the current is not liable to pass transversely to the grooves.

It has heretofore been customary to use only graphite or a thin precipitate of silver as the coating or electrode material. But in the former case, the conductivity is greatly diminished, and in the latter case the thinness of the precipitate renders it incapable of withstanding rubbing and other mechanical actions of a like character on the part of the contacts. According to the present invention, however, the metal coating is sprayed in the grooves in the base by means of one of the metal spraying devices now in use, the coating thus obtained answering all requirements both mechanically as well as electrically. The coating fills the grooves only, and does not cover the whole base.

The accompanying drawing represents one form of resistance element constructed in accordance with the invention, Figure 1 being a plan view thereof and Fig. 2 a cross-section.

The mica base of the resistance element is indicated at 1; and 2 indicates the grooves formed in the surface of said base and in which the metal is sprayed to produce the multitude of threads 3 comprising the coating, the threads filling the grooves and being connected in series, as shown.

We claim as our invention:—

1. An electric resistance element, comprising a base formed with relatively-deep surface grooves which extend in the direction of current flow, and a coating of a heavy metal having a high fusing point filling said grooves.

2. An electric resistance element, comprising a base formed with relatively-deep surface grooves which extend in the direction of current flow, and a coating of a heavy metal having a high fusing point sprayed on said base so as to fill said grooves.

3. An electric resistance element, comprising a base, and a filiform coating of a heavy metal having a high fusing point.

4. An electric resistance element, comprising a base, and a thread-like coating of a heavy metal having a high fusing point, the threads composing the coating extending over the base in the direction of flow of the current.

In testimony that we claim the foregoing as our invention, we have signed our names in presence of two subscribing witnesses.

ANDERS ARNTZEN.
KNUT TROSDAHL.

Witnesses:
MOGARS BUGGE,
ELISE POULSSON.