

# UNITED STATES PATENT OFFICE.

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## PROTECTIVE COATING FOR CARBON BODIES.

976,319.

Specification of Letters Patent.

Patented Nov. 22, 1910.

No Drawing.

Application filed May 26, 1910. Serial No. 563,520.

*To all whom it may concern:*

Be it known that we, HERMANN VIERTTEL and GEORG EGLY, subjects of the German Emperor, and residing, respectively, at Lichtenberg and Treptow, near Berlin, Germany, have invented certain new and useful Improvements in Protective Coatings for Carbon Bodies, of which the following is a specification.

According to this invention bodies consisting of a carbon mass are provided with a coating which is intimately connected with the surface of the carbon body and consists of silit. Silit is a mass which has been introduced into the art during recent years, substantially consists of silicon carbon and nitrogen and is obtained, for example, according to the process disclosed in the United States Letters Patent No. 866,444. The silit mass has the advantage that it can be united very securely with carbon bodies and, further, it does not crack or split off when subjected to considerable variations of temperature. This property of intimately uniting with the carbon surface and not losing the coherence of its parts among themselves and with the carbon when subjected to the most various kinds of strains in question enables the special properties of the silit mass to be utilized for the present purpose, namely for obtaining a protective coating for carbon bodies.

The protective action of the layer of silit is above all due to the layer of silit being more resisting, in many respects, than carbon. Above all, silit is hardly attacked at all by the oxygen of the air at a high temperature, while carbon burns away very rapidly. The coating of silit therefore imparts to electrical heaters, for example, which consist of carbon, a very much longer life. Carbon is also but little suitable for many electrolytic purposes, because it is destroyed and the bath becomes impure. For this purpose, also, the silit coating renders the carbon considerably more resisting.

It might be thought that carbon might

be entirely substituted by silit for the mentioned and other purposes. This would have two very important disadvantages, however, namely, on the one hand silit is very much more expensive than carbon, and on the other hand the conductivity of silit is materially less than that of carbon. By combining a body principally consisting of carbon with a coating of silit adhering to its surface the advantage of silit is fully utilized, but the cost of manufacture is considerably diminished and the sphere of employment of such bodies thereby materially increased. The advantage of the high conductivity of carbon is profited by simultaneously.

A protective layer of silit can be applied to carbon bodies in a simple manner by painting or otherwise applying the silit while it is still plastic, thus before the heating process described in the Letters Patent 866,444, on the surface of the carbon body, and subsequently converting it into its final state by heating in a nitrogenous atmosphere.

We claim:

1. As a new article of manufacture, a carbon body having a protective layer of silit firmly united with the surface thereof.
2. As a new article of manufacture, an electrically conductive carbon body having an electrically conductive protective coating of silit firmly adhering to the surface thereof.
3. An electrode comprising an electrically conductive carbon body having an electrically conductive protective coating of silit firmly adhering to the surface thereof.
4. An electrode, for wet electrolysis, consisting of a carbon body having a protective coating of silit.

In testimony whereof we have signed our names to this specification in the presence of two witnesses.

HERMANN VIERTTEL.  
GEORG EGLY.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.