

UNITED STATES PATENT OFFICE.

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TOW, NEAR BERLIN, GERMANY, ASSIGNORS TO GEBRUEDER SIEMENS & CO., OF
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PROTECTIVE COATING FOR CARBON BODIES.

976,319.

Specification of Letters Patent.

Patented Nov. 22, 1910.

No Drawing.

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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
5 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.

10 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 intro-
15 duced 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
20 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 temper-
25 ature. This property of intimately uniting the coherence of its parts among themselves and with the carbon when subjected to the most various kinds of strains in question en-
30 ables 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
35 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 im-
40 parts 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
45 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 men-
tioned and other purposes. This would have
two very important disadvantages, however, 50
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 55
coating of silit adhering to its surface the
advantage of silit is fully utilized, but the
cost of manufacture is considerably dimin-
ished and the sphere of employment of such
bodies thereby materially increased. The ad- 60
vantage 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 65
while it is still plastic, thus before the heat-
ing 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. 70

We claim:

1. As a new article of manufacture, a car-
bon body having a protective layer of silit
firmly united with the surface thereof.

2. As a new article of manufacture, an 75
electrically conductive carbon body having
an electrically conductive protective coating
of silit firmly adhering to the surface
thereof.

3. An electrode comprising an electrically 80
conductive carbon body having an electri-
cally conductive protective coating of silit
firmly adhering to the surface thereof.

4. An electrode, for wet electrolysis, con-
sisting of a carbon body having a protective 85
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.