

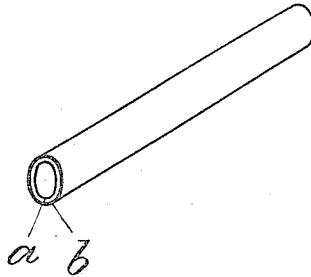
G. EGLY.

PROTECTIVE SCREEN FOR APPARATUS WHICH ARE EXPOSED TO HIGH TEMPERATURES.

APPLICATION FILED FEB. 24, 1910.

971,124.

Patented Sept. 27, 1910.



Witnesses
~~Harold Knight~~
Ray J. Ernst.

Inventor
George Egly
by ~~James J. Ernst~~
his attorney

UNITED STATES PATENT OFFICE.

GEORG EGLY, OF TREPTOW, NEAR BERLIN, GERMANY, ASSIGNOR TO GEBRUEDER
SIEMENS & CO., OF LICHTENBERG, NEAR BERLIN, GERMANY.

PROTECTIVE SCREEN FOR APPARATUS WHICH ARE EXPOSED TO HIGH TEMPERATURES.

971,124.

Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed February 24, 1910. Serial No. 545,709.

To all whom it may concern:

Be it known that I, GEORG EGLY, a subject of the German Emperor, and residing at Treptow, near Berlin, Germany, have invented certain new and useful Improvements in Protective Screens for Apparatus Which are Exposed to High Temperatures of which the following is a specification.

My invention relates to protective screens for apparatus exposed to high temperatures.

Apparatus exposed to a high temperature, as *e. g.* electric heaters, pyrometers or the like, must be surrounded for many purposes with a protective casing, by which they are separated from their surroundings. For example, pyrometers must be protected by a suitable protective casing from the action of hot burning gases, or by protective screens from the action of molten masses. Heaters are surrounded by similar protective casings in order either to protect the heaters having a high temperature from the injurious action of their surroundings or, reversely, for protecting the surroundings from the direct action of the high temperature of the incandescent rods. Heretofore, porcelain masses and similar ceramic masses have been employed for such protective screens.

According to my invention I employ a mass composed substantially of silicon, carbon and nitrogen. Such masses are obtained in particular according to the United States Letters Patent No. 866,444 by mixing silicon carbide with silicon, pressing the mixture thus obtained in molds with or without an agglutinant and subsequently heating it in a nitrogenous atmosphere. By employing such masses for making protective screens material progress in the art results, as follows from the following considerations:— One principal disadvantage of the masses employed heretofore for such protective screens is, on the one hand, that they are of little strength and, particularly, readily crack when the temperature varies suddenly; secondly, they are not sufficiently resistant to very high temperatures, and, thirdly, which is specially important, they are not sufficiently penetrable to, or good conductors of, heat. The consequence of the last mentioned defect is that only relatively small quantities of heat can be sent through the screen in a given time in the case of a

given difference of temperature. This is of special importance for heaters protected by a tubular screen. If a heater be surrounded with a screen which conducts heat badly or is only slightly pervious to heat, in order to convey a definite quantity of heat to the surroundings the protective screen must be at a higher temperature the less it is penetrable to heat. Since it is not possible, as a rule, or for practical reasons is impossible to exceed a certain temperature, the quantity of heat which can be transmitted is very limited. Now in all the above mentioned important respects the mass as obtained according to the Patent 866,444 is considerably superior to the masses known heretofore. It is not only quite non-sensitive to sudden changes of temperature and has great mechanical strength and thermic resistance, but, in general, is also chemically fairly indifferent and, above all, very penetrable to heat, so that it is able to transmit very considerable quantities of heat without itself assuming very high temperatures. At the same time, the mass is also very much less pervious to gas than the masses employed heretofore. In those instances, in which perfect imperviousness to gas is requisite, this can readily be obtained by providing on the surface of my protective screen a glaze which is impervious to gas. As an example of a glaze for this purpose I may refer to one composed as follows: 30 parts boric acid, 20 parts borax, 10 parts glass powder, 10 parts clay, 14 parts feldspar, 10 parts saltpeter, 6 parts gypsum.

One illustrative embodiment of my invention is represented by way of example in perspective in the accompanying drawing.

Referring to the drawing, *a* designates my screen composed of silicon, carbon and nitrogen provided with a fire-proof glaze *b*.

I claim:—

As a new article of manufacture, a protective screen, for apparatus subjected to high temperatures, composed of silicon, carbon and nitrogen.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

GEORG EGLY.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.