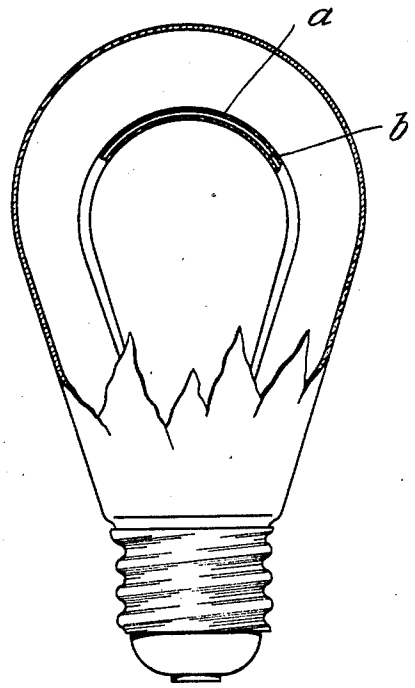
May 19, 1931. W. NODDACK ET AL 1,806,410

ELECTRIC INCANDESCENT BODY

Filed March 13, 1929



Inventors
Walter Noddack,
Ida Noddack,
By Knight Bros. Attys.

Patented May 19, 1931 1,806,410

UNITED STATES PATENT OFFICE

WALTER NODDACK AND IDA NODDACK, OF BERLIN-GRUNEWALD, GERMANY, ASSIGNORS TO SIEMENS & HALSKE, AKTIENGESELLSCHAFT, OF SIEMENSSTADT, NEAR BERLIN, GERMANY, A CORPORATION OF GERMANY

ELECTRIC INCANDESCENT BODY

Application filed March 13, 1929, Serial No. 346,766, and in Germany April 12, 1928.

Our invention relates to improvements in electric incandescent bodies, more particularly such as may be used in electric incandescent lamps, vacuum tubes, and the like, i. e. bodies or members, more specifically filaments, heated to high temperatures in a vacuum or an atmosphere of an inert gas (such as nitrogen or precious gases).

Our invention consists of an incandescent body, which consists of tungsten and eka-manganese 75.

This incandescent body or member has a core of tungsten and an envelope or coating enclosing said core consisting of eka-manganese 75 or of an alloy of eka-manganese 75 and tungsten.

Eka-manganese 75, or rhenium, is a recently discovered metal which has been introduced and described in the following publications:—

1. Noddack und Tacke, "Die Ekamangane" in the paper "Die Naturwissenschaften", 13th year, No. 26.

2. Report of Sessions of the Prussian Academy of Sciences, 1925, No. XIX.

3. Noddack, "Darstellung und Einige Chemische Eigenschaften des Rheniums" in the "Zeitschrift für Physikalische Chemie", volume 125, No. 3/4.

4. Noddack, "Die Sauerstoffverbindungen des Rheniums" in "Zeitschrift für Anorganische Chemie", volume 181, No. 1/2.

In the drawing affixed hereto and forming part of our specification our improved incandescent body or filament is enclosed in the bulb of an ordinary incandescent lamp, the filament as well as the bulb being shown in sectional elevation.

Referring to the single figure of the drawing *a* is the core consisting of tungsten and *b* the envelope or coating consisting of eka-manganese 75 or of a tungsten eka-manganese alloy.

It has been ascertained that such an incandescent body is able to sustain a considerably higher load than a pure tungsten incandescent filament. Tungsten commences to atomize or volatilize in a disturbing manner already at comparatively low temperatures of little above 3600° F. when traversed by the electric current. By a thin coating or film of eka-manganese 75 this atomization is considerably retarded, so that the incandescent filaments attain a longer life under equal conditions or may be correspondingly higher loaded. Such a compound incandescent filament has in comparison with filaments of pure eka-manganese the advantage of cheapness.

Various modifications and changes may be made without departing from the spirit and the scope of the invention, and we desire, therefore, that only such limitations shall be placed thereon as are imposed by the prior art.

We claim as our invention:

1. An electric incandescent body applicable to electric incandescent lamps, vacuum tubes and similar purposes, consisting of a core of tungsten with a coating containing eka-manganese 75.

2. An electric incandescent body applicable to electric incandescent lamps, vacuum tubes and similar purposes, consisting of a core of tungsten with a coating of eka-manganese 75, which is alloyed with tungsten.

In testimony whereof we affix our signatures.

WALTER NODDACK.
IDA NODDACK.