

UNITED STATES PATENT OFFICE.

HERMANN CARL GUSTAV REMANÉ, OF BERLIN, GERMANY, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

METHOD OF DRAWING REFRACTORY MATERIALS FOR INCANDESCENT LAMPS.

1,156,492.

Specification of Letters Patent.

Patented Oct. 12, 1915.

No Drawing.

Application filed May 22, 1912. Serial No. 698,902.

To all whom it may concern:

Be it known that I, HERMANN CARL GUSTAV REMANÉ, a subject of the Emperor of Germany, residing at Berlin, Germany, have made certain new and useful Improvements in Methods of Drawing Refractory Materials for Incandescent Lamps, of which the following is a specification.

The present invention relates to the drawing of refractory materials and particularly to a lubricant for use in such operations.

By the present process the lubricant in a finely divided state is placed on the metal to be drawn and during the drawing operation the lubricant passes wholly or in part through the die with the drawn material. It is preferable to use as a lubricant a material which will not contaminate or combine with the material to be drawn. It has been found by experiment that a compound, such as sulfid, of the metal to be drawn is highly satisfactory, but my invention is not limited to this compound or any compound of the metal to be drawn as compounds of other metals may be used with satisfactory results.

As an illustration of the application of my invention I will describe its use in the drawing of a tungsten wire. One or more decomposable tungsten compounds in suspension are used as the lubricant which compounds decompose at incandescence either unassisted or in a suitable atmosphere and thereby leave tungsten alone upon the wire as a stable component. By the use of this method the wire is not contaminated with any foreign element through the use of the lubricant.

As a suitable compound of tungsten for the present illustration the sulfid (WS_2) is particularly applicable. This can be obtained by various methods in the form of a soft powder or soft, fine graphite-like crystals. Another suitable compound is the colloidal organic tungsten compound (suggested by Pacz in applications Ser. Nos. 438,061

and 438,062, filed June 12, 1908), which is obtained by combining ammonium tungstate or some other suitable tungsten compound with pyrogallol or some other suitable polyhydric phenol, and precipitating the colloidal organic tungsten compound so formed by means of sulfuric acid or some other suitable electrolyte. This tungsten compound might have the composition $H_6W_2C_9O_3$, and it decomposes upon being heated in a vacuum or hydrogen gas or other suitable gas-atmosphere, into tungsten and disengaged gas.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. The step in the method of drawing into wire a metal capable of forming an unctuous decomposable sulfid which consists in coating the metal to be drawn with said sulfid of said metal and drawing the coated metal.

2. The method of drawing wire from refractory metals which consists in coating the metal to be drawn with a sulfid of a metal of the chromium group which forms an unctuous decomposable sulfid, drawing the wire and decomposing the sulfid.

3. The method of drawing wire from tungsten which consists in coating the mass of metal to be drawn with an unctuous compound of tungsten decomposable by heat to leave an adherent coating of tungsten upon the mass of metal, drawing the wire, and decomposing the tungsten compound.

4. The method of drawing tungsten wire which consists in coating the tungsten with an unctuous decomposable sulfid of a metal of the chromium group, drawing the wire and then decomposing the sulfid.

5. The method of drawing tungsten wire which consists in coating the metal with sulfid of tungsten, drawing the wire and then decomposing the sulfid.

In witness whereof, I have hereunto set my hand this 3rd day of May, 1912.

HERMANN CARL GUSTAV REMANÉ.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.