

UNITED STATES PATENT OFFICE.

WILLIS R. WHITNEY, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

FILAMENT FOR INCANDESCENT LAMPS.

No. 896,341.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed November 14, 1904. Serial No. 232,618.

To all whom it may concern:

Be it known that I, WILLIS R. WHITNEY, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Filaments for Incandescent Lamps, of which the following is a specification.

The metal cerium, when at a red heat, has the remarkable property of reacting with pure nitrogen and thereby forming a nitrid which has a metallic luster and is a good electrical conductor. In this reaction, the compound being exothermic, an enormous heat is generated which makes the mass undergoing reaction glow with a brilliancy equal to the arc light. As the elements remain combined in this heat, the nitrid of cerium is stable at excessively high temperatures and is with difficulty fusible. From this nitrid of cerium I form the incandescing element or illuminant of incandescent or similar lamps by compressing the very finely powdered material mixed with a suitable binder, as paraffin, into rods or filaments. These are

then heated to their sintering point by passing through them a higher electric current than they are to carry when in use.

Although the nitrid of cerium constitutes the preferable embodiment of my invention I may, in place thereof, use the nitrids of other rare earth metals such as yttrium or lanthanum.

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

1. A filament for incandescent lamps formed substantially of a nitrid of a rare earth metal.

2. A filament for incandescent lamps formed of nitrid of cerium.

3. An illuminant formed substantially of a nitrid of an element having a high affinity for nitrogen at high temperatures.

In witness whereof, I have hereunto set my hand this 12th day of November, 1904.

WILLIS R. WHITNEY.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.