

UNITED STATES PATENT OFFICE

2,432,888

PLATINUM BASE ALLOY AND SPARK PLUG
ELECTRODE

Franz R. Hensel, Indianapolis, Ind., assignor to
P. R. Mallory & Co., Inc., Indianapolis, Ind., a
corporation of Delaware

No Drawing. Application July 1, 1944,
Serial No. 543,193

2 Claims. (Cl. 75-172)

1

This invention relates to platinum base alloys and electrodes made therefrom.

An object of the invention is to improve such alloys and electrodes.

Platinum-molybdenum alloys have been proposed for spark plug electrodes. Such alloys are relatively hard and resistant to deflection at high temperatures. Moreover they remain bright and untarnished when heated in air. However, they are somewhat subject to grain growth and this becomes more marked when the electrode is fused directly into the ceramic of the spark plug.

I have found that this grain growth can be inhibited and an electrode material produced which remains fine grained even after continued heating by the addition of thorium.

The alloy and electrode material of the present invention may have the following composition:

	Per cent
Thorium	.05 to 3
Molybdenum	.5 to 10
Platinum	Balance

The alloy can be produced as follows:

The materials are melted together in a suitable crucible made of zirconium oxide or beryllium oxide in a high frequency furnace. They are cast into ingots which are subsequently forged and drawn into wire or rolled into strip and sheet.

The alloy is particularly useful as rod or wire which forms the center electrode of a spark plug. In some cases it may be fused directly into the ceramic. In other cases a tip section of this alloy

2

may be welded to the end of a nickel rod. One specific composition which is suitable for spark plug electrodes consists of:

	Per cent
5 Thorium	.5
Molybdenum	4
Platinum	95.5

The alloy also has other uses where heat stability and resistance to oxidation and corrosion at high temperatures is required.

What is claimed is:

1. An alloy composed of .05 to 3% thorium, .5 to 10% molybdenum and the balance platinum, said thorium serving to inhibit grain growth in said alloy.

2. An electrode for a spark plug formed of an alloy composed of .05 to 3% thorium, .5 to 10% molybdenum and the balance platinum, said thorium serving to inhibit grain growth in said electrode.

FRANZ R. HENSEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,872,065	Duffenback	Aug. 16, 1932
2,344,597	Chaston et al.	Mar. 21, 1944
1,948,445	Lederer	Feb. 20, 1934