Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOSHITAKA HONDA and YUTAKA TANAKA

Appeal No. 2001-2349
Application No. 09/237,895

HEARD: January 21, 2003

Before HAIRSTON, GROSS, and BLANKENSHIP, Administrative Patent Judges.
GROSS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 24 through 26. Claims 1 through 18 and 27 through 31 have been allowed. Claims 19 through 23 have been canceled.

Appellants' invention relates to a spark plug with either a metallic surface layer or a nickel oxide layer instead of a

resistor. Claims 24 and 25 are illustrative of the claimed invention, and they read as follows:

24. A spark plug with a built-in resistor, which comprises:

an insulator having an axially extending passing-through hole;

a terminal metal fitting fixed within the passing-through hole at an end thereof;

a center electrode fixed within the same passing-through-hole at the other end thereof; and

a resistor provided between said terminal metal fitting and said center electrode within said passing-through-hole, said resistor comprising a resistor composition which is a mixture of a glass material portion and an electrically conductive material portion,

wherein at least one of said terminal metal fitting and said center electrode is formed with a surface layer facing said resistor, said surface layer being a metallic layer consisting essentially of at least one selected from the group consisting of Zn, Sn, Pb, Rh, Pd, Pt, Cu, Au, Sb and Ag, and a Ni alloy comprising at least one of B and P,

wherein said at least one of said terminal metal fitting and said center electrode is directly in contact with said resistor on the surface of said metallic layer.

25. A spark plug with a built-in resistor, which comprises:

an insulator having an axially extending passing-through hole;

a terminal metal fitting fixed within the passing-through

a glass material portion and an electrically conductive material portion,

wherein at least one of said terminal metal fitting and said center electrode is formed with a surface layer facing said resistor, said surface layer consisting essentially of an electrically conductive or semiconductive oxide layer having a thickness at least 0.1 μm,

wherein said at least one of said terminal metal fitting and said center electrode is directly in contact with said resistor on the surface of said oxide layer.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Nishio	3,903,453	Sep. 02, 1975
Stimson	4,795,944	Jan. 03, 1989

Claims 24, 25, and 26 stand rejected under 35 U.S.C. § 102(b) as being clearly anticipated. The examiner applies Stimson for claim 24 and Nishio for claims 25 and 26.

Reference is made to the Examiner's Answer (Paper No. 16, mailed April 27, 2001) for the examiner's complete reasoning in support of the rejections, and to appellants' Brief (Paper No. 15, filed March 23, 2001) and Reply Brief (Paper No. 17 1/2, filed June 21, 2001) for appellants' arguments thereagainst.

OPINION

The examiner asserts (Answer, page 3) that claim 24 is clearly anticipated by Stimson. The examiner relies on the inclusion of antimony in "metal coating 29" (see column 2, line 50) to meet the claim limitation of "a metallic layer consisting essentially of at least one selected from the group consisting of Zn, Sn, Pb, Rh, Pd, Pt, Cu, Au, Sb and Ag, and a Ni alloy comprising at least one of B and P."

Appellants point out (Brief, page 5) that Stimson's surface layer 29 is formed of antimony and silicon. Appellants contend (Brief, page 6, and Reply Brief, page 2) that the silicon materially affects the basic and novel characteristics of the claimed metallic layer, in that the combination of antimony and silicon forms a metal silicide. Accordingly, appellants conclude that Stimson's layer does not consist essentially of antimony, as required by claim 24.

We agree with appellants' position. Stimson's layer 29 has equal amounts of antimony and silicon (see the table of Stimson's column 3). Thus, antimony is not the majority component. Also, as indicated by appellants, the two materials would form a metal

properties as the claimed invention. Consequently, we will not sustain the rejection of claim 24 over Stimson.

The examiner rejects claims 25 and 26 as being clearly anticipated by Nishio. Again, the issue deals with the phrase "consisting essentially of." The examiner states (Answer, page 3-4) that Nishio's metallic layer 6 of borosilicate glass including NiO constitutes an oxide layer having nickel as its major elemental metal component.

Appellants respond (Brief, page 6) that Nishio's layer 6 has 40 to 90% by weight of glass and up to 30% by weight of an aggregate, leaving only 10 to 60% by weight of the semiconductive oxide. Appellants assert that the glass and aggregate in layer 6 would materially affect the basic and novel characteristics of the claimed surface layer since Nishio's layer "would effectively be an electrically conductive glass."

The claimed invention replaces the conventional conductive glass with a layer that provides a good positive electrical connection while lengthening the resistor. Nishio, on the other hand, replaces the electrically conductive glass with the above-

lengthening the resistor. Accordingly, the additional elements in Nishio's layer 6 apparently do materially affect the characteristics of the claimed invention. Consequently, we cannot sustain the rejection of claims 25 and 26 over Nishio.

CONCLUSION

The decision of the examiner rejecting claims 24 through 26 under 35 U.S.C. § 102(b) is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)
ANITA PELLMAN GROSS Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)

APG:clm

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004