

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RANDOLPH KWOK-KIN CHIU, KEITH A. PENNEY,
DONALD R. VAN UUM and WILLIAM T. PHILLIPS, Jr.

Appeal No. 96-0770
Application No. 08/193,982¹

ON BRIEF

Before URYNOWICZ, HAIRSTON and MARTIN, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 6. An Amendment After Final (paper number 6) was submitted by appellants to cancel the withdrawn claims 7 through 20.

The disclosed invention relates to the shape of the firing surfaces on noble metal firing tips affixed to the pair of electrodes on a spark plug. The shape of the firing surfaces on

¹ Application for patent filed February 8, 1994.

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each of the firing tips comprises at least three edges and at least three corners which form a convex polygon.

Claim 1 is the only independent claim on appeal, and it reads as follows:

1. A spark plug for igniting a fuel mixture within a combustion chamber of an internal combustion engine, the spark plug comprising:

a pair of electrodes which define a spark gap across which an electric spark is generated for igniting said fuel mixture; and

a pair of firing tips affixed to said pair of electrodes such that said firing tips are coaxially aligned, said pair of firing tips being formed from a noble metal alloy, each of said pair of firing tips having a firing surface with a shape comprising at least three edges and at least three corners which form a convex polygon and serve as potential arc initiation sites for said electric spark across said spark gap;

whereby said at least three edges and said at least three corners of said pair of firing tips serve to minimize the sparking voltage for the spark plug.

The reference relied on by the examiner is:

Yamaguchi et al. (Yamaguchi) 4,700,103 Oct. 13, 1987

Claims 1 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Yamaguchi and common knowledge in the art.

Reference is made to the briefs and the answer for the respective positions of the appellants and the examiner.

OPINION

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The examiner is of the opinion (Answer, page 3) that "[i]n figures 20b, 20e, and 20g, the firing tip has a firing surface which has specifically four edges and four corners (if figures 20b, 20e, and 20g were shown in the top cross-sectional views, the firing tip shown in these figures would show a firing surface of the firing tip which has four edges and four corners)."

Appellants argue (Brief, page 4) that "[t]he spark plug defined by claim 1 . . . differs from the prior art in that the claims require the firing surface of each firing tip to have a shape comprising at least three edges and at least three corners which form a convex polygon." We agree with the examiner that the various firing tips 10 on the ground electrode 8 in Figures 20b, 20e and 20g have "at least three edges and at least three corners" which may "serve as potential arc initiation sites" (claim 1). On the other hand, we agree with appellants that Yamaguchi lacks such a specific shape for "each of said pair of firing tips" (claim 1). Yamaguchi clearly indicates that the firing tip on the center electrode is always cylindrical in shape (column 7, lines 32 through 35, and claim 6). Thus, "each" of the pair of firing tips in Yamaguchi does not comprise "at least three edges and at least three corners" (claim 1).

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Christenson (U.S. patent 2,946,912) is discussed by the examiner in the response to arguments (Answer, page 6), but it is not listed in the prior art of record and in the grounds of rejection (Answer, pages 2 and 3). "Where a reference is relied on to support a rejection, whether or not in a 'minor capacity,' there would appear to be no excuse for not positively including the reference in the statement of the rejection." See In re Hoch, 428 F.2d 1341, 1342, 166 USPQ 406, 407 (CCPA 1970).

In summary, the 35 U.S.C. § 103 rejection of claims 1 through 6 is reversed.

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DECISION

The decision of the examiner rejecting claims 1 through 6
under 35 U.S.C. § 103 is reversed.

REVERSED

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| STANLEY M. URYNOWICZ, Jr. |) | |
| Administrative Patent Judge |) | |
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| |) | BOARD OF PATENT |
| KENNETH W. HAIRSTON |) | APPEALS |
| Administrative Patent Judge |) | AND |
| |) | INTERFERENCES |
| |) | |
| |) | |
| |) | |
| JOHN C. MARTIN |) | |
| Administrative Patent Judge |) | |

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Appeal No. 96-0770
Serial No. 08/193,982

Judge HAIRSTON

Judge URYNOWICZ

Judge MARTIN

Received: 08 Aug 98

Typed: 08 Aug 98

DECISION: REVERSED

Send Reference(s): Yes No
or Translation(s)

Panel Change: Yes No

3-Person Conf. Yes No

Heard: Yes No

Remanded: Yes No

Index Sheet-2901 Rejection(s): _____

Acts 2: _____

Palm: _____

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Updated Monthly Disk: _____

Updated Monthly Report: _____