

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKESHI NISHIUCHI and FUMIAKI KIKUI

Appeal No. 2005-0157
Application No. 09/977,363

ON BRIEF

Before KIMLIN, DELMENDO, and JEFFREY T. SMITH, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 9, 10 and 14-17, all of the claims pending in the present application.

Claims 9 and 16 are illustrative:

9. A process for producing a rare earth metal-based permanent magnet, comprising the step of forming a metal oxide film containing carbon on the surface of a magnet by a sol-gel coating process.

16. A process for producing a rare earth metal-based permanent magnet according to claim 9, wherein the content of carbon is in a range of 50ppm to 1,000ppm.

Appeal No. 2005-0157
Application No. 09/977,363

The examiner relies upon the following reference as evidence of obviousness:

Tsuji et al. (JP '906) JP 07-230906 Aug. 29, 1995

Appellants' claimed invention is directed to preparing a rare earth metal-based permanent magnet comprising the formation of a metal oxide film which contains carbon on the surface of the magnet by a sol-gel coating process.

Appealed claims 9, 10 and 14-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '609.

Appellants group the appealed claims as follows:

I. Claims 9, 10, 14 and 15;

II. Claims 16 and 17.

Accordingly, claims 10, 14 and 15 stand or fall together with claim 9, and claim 17 stands or falls together with claim 16.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning

Appeal No. 2005-0157
Application No. 09/977,363

of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejections.

Appellants do not dispute the examiner's factual determination that JP '609, like appellants, discloses a process for making a rare earth metal-based permanent magnet by forming a metal oxide film containing carbon on the surface of the magnet by a sol-gel process. Appellants' principal contention is that JP '609 fails to teach or suggest a metal compound in the recited concentration of from 0.1 wt% to 20 wt% in a sol solution (claim 9), or the amount of carbon specified in claim 16 in the sol solution.

The examiner acknowledges that JP '609 does not expressly disclose the claimed concentrations of metal compound and carbon in the sol solution (see sentence bridging pages 3 and 4 of Answer). However, it is well settled that where patentability is predicated upon a change in the condition of a prior art composition, such as a change in concentration or the like, the burden is on the applicant to establish with objective evidence that the change is critical, i.e., it leads to a new unexpected result. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934,

Appeal No. 2005-0157
Application No. 09/977,363

1936 (Fed. Cir. 1990); In re Ranier, 377 F.2d 1006, 1010, 153 USPQ 802, 805 (CCPA 1967); In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). No such evidence of criticality, however, has been proffered by appellants. Concerning the concentration of the metal compound, the present specification offers the following:

The proportion of incorporation of the metal compound to the sol solution is desirable to be in the range of 0.1 wt% to 20 wt% in terms of the metal oxide, for example, in terms of SiO_2 in the case of the Si compound, and in terms of $\text{SiO}_2 + \text{ZrO}_2$ in the case of Si compound + Zr compound. However, if the proportion of incorporation is lower than 0.1 wt%, it may be required that a forming step is conducted repeatedly a large number of times in order to produce a film having a sufficient thickness and for this reason, there is a possibility that the productivity is influenced. On the other hand, if the proportion of incorporation exceeds 20 wt%, the viscosity of the sol solution is increased and for this reason, there is a possibility that it is difficult to form a film.

Rather than indicate a criticality, the specification simply relates that a concentration of metal compound lower than 0.1 wt% may necessitate repeating the forming step a large number of times in order to produce a coating of sufficient thickness, whereas a metal compound concentration of greater than 20 wt% results in an undesirable increase in viscosity of the sol

Appeal No. 2005-0157
Application No. 09/977,363

solution. In our view, these conditions would have been readily observable by one of ordinary skill in the art in the course of routine experimentation.

Similarly, we find that one of ordinary skill in the art would have employed routine experimentation to determine the effective content of carbon that prevents cracks and insufficient densification in the formed film, as reported in the present specification (paragraph bridging pages 19 and 20).

We further note that appellants fail to set forth what JP '609 fairly teaches for the concentrations of metal compound and carbon. Appellants do not assert, let alone provide the requisite objective evidence, that the claimed concentrations produce unexpected results. Accordingly, the prima facie case of obviousness established by the examiner stands unrebutted.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is affirmed.

Appeal No. 2005-0157
Application No. 09/977,363

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

AFFIRMED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
ROMULO H. DELMENDO)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
)	
)	
JEFFREY T. SMITH)	
Administrative Patent Judge)	

ECK/vsh

Appeal No. 2005-0157
Application No. 09/977,363

ARMSTRONG, KRATZ, QUINTOS,
HANSON & BROOKS, LLP
1725 K STREET, NW SUITE 1000
WASHINGTON, DC 20006