

The opinion in support of the decision being entered today is
not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RONALD W. LACONTO
and
DOUGLAS E. WARD

Appeal 2007-1372
Application 10/423,283
Technology Center 1700

Decided: June 28, 2007

Before EDWARD C. KIMLIN, CHUNG K. PAK, and
CHARLES F. WARREN, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 30-49. Claim 30 is illustrative:

30. A method for machining a substrate, comprising:

providing a slurry between a surface of a substrate and a machine tool, the substrate consisting essentially of aluminum oxide, and the slurry

comprising alumina abrasive and an additive comprising a phosphorus compound; and

moving substrate relative to the machine tool to machine the surface of the substrate.

The Examiner relies upon the following references as evidence of obviousness:

Iwasaki	US 5,549,978	Aug. 27, 1996
Katayama	US 5,999,368	Dec. 7, 1999
Orii	US 2001/0009840 A1	Jul. 26, 2001
Sun	US 6,604,987 B1	Jun. 6, 2002

Appellants' claimed invention is directed to a method for machining a substrate comprising aluminum oxide. A slurry comprising an abrasive, such as alumina, and a phosphorus compound is provided between the substrate and a machining tool that are moving relative to each other. According to Appellants, they "have discovered that use of such a slurry containing both an abrasive and the particular additive is particularly advantageous in the context of aluminum-containing ceramics, notably aluminum oxide ceramics such as single crystal sapphire" (Br. 2, penultimate para.). Appellants further state that "increased removal rates are achieved without sacrificing surface quality through conventional techniques such as increasing abrasive grain size" (*id.*).

Appealed claims 30 and 34-49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sun in view of Orii. Claims 31-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the stated combination of references further in view of Iwasaki.

We have thoroughly reviewed the respective positions advanced by the Appellants and the Examiner. In so doing, we find ourselves in agreement with Appellants that the Examiner has failed to establish a *prima facie* case of obviousness for the claimed subject matter. Accordingly, we will not sustain the Examiner's rejections.

Sun, like Appellants, discloses a method of machining a substrate with a slurry comprising the presently claimed alumina abrasive and a phosphorus compound. However, as acknowledged by the Examiner, Sun fails to teach that the slurry can be used to machine a substrate comprising aluminum oxide, as presently claimed. As a result, the Examiner relies upon Orii for disclosing machining a substrate comprising aluminum oxide. Because Sun discloses that the abrasive-containing slurry can machine a nickel-containing substrate, and the machined substrate of Orii comprises alumina and nickel, the Examiner draws the legal conclusion that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the composition of Sun to polish a composition substrate comprising aluminum oxide (alumina) and nickel containing materials such as the air-bearing surface of Orii et al." (Answer 3, penultimate para.).

The fatal flaw in the Examiner's position is that Orii, as urged Appellants, is specifically directed to using an abrasive-free slurry for machining the substrate. Orii expressly discloses "using a lap liquid containing no abrasive grains" (para. 0021, last sentence). Hence, it can not be gainsaid that Orii provides no teaching or suggestion of utilizing an abrasive-containing polishing slurry of the type disclosed by Sun for machining a substrate comprising aluminum oxide. The Examiner's

statement that the finish-grinding composition of Orii, which is abrasive-free, has no bearing on the instant rejection is clearly erroneous. While the Examiner points to paragraphs 8 and 9 of Orii for teaching that "abrasive slurries are conventional for magnetic head polishing" (Answer 6, penultimate para.), the cited background section of Orii refers to selective grinding of metallic film such as permalloy and Sendust, which do not appear to comprise aluminum oxide (*see* previous para. 0007). Also, the Background section of Orii does not establish that a "conventional free abrasive slurry" comprises the presently claimed abrasive and phosphorus compound for machining a substrate for comprising aluminum oxide.

The Examiner also sets forth that "Sun teaches that the substrate can be *any suitable substrate* such as a semiconductor substrate, a MEMS substrate, a substrate that retains information in the electromagnetic form, a nickel containing substrate, and a nickel phosphorus (NiP) substrate. (Col. 3, Lines 56-67)" (Answer 3, second para.). However, Appellants make the compelling argument that "[a] substrate consisting essentially of aluminum oxide is not a 'suitable substrate' when properly construed with respect to Sun" (Reply Br. 3, last para.). Appellants further submit that "[a]luminum oxide is an insulator and is not a semiconductor, nor is it capable of storing data" (sentence bridging pages 3-4 of Reply Br.). Accordingly, in the face of Appellants' argument, the Examiner has not established that one of ordinary skill in the art would have understood that a suitable substrate for the machining process of Sun would include Appellants' aluminum oxide.

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The Examiner's additional citation of Iwasaki for the rejection of claims 31-33 does not remedy the deficiency of the combination of Sun and Orii discussed above.

In conclusion, based on the foregoing, we are constrained to reverse the Examiner's rejections.

REVERSED

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