

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 56

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKAO NAKAMURA, TAKAAKI SHIRAKURA and
NIROYUKI KATAOKA

Appeal No. 96-0366
Application No. 07/933,893¹

HEARD: September 9, 1996

Before JOHN D. SMITH, GARRIS and PAK, Administrative Patent Judges.

JOHN D. SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal pursuant to 35 U.S.C. § 134 from the final rejection of claims 1 through 9, 13, 15, 16, and 22.

¹ Application for patent filed August 24, 1992. According to the appellants, the application is a continuation of Application No. 07/224,360, filed July 26, 1988; now abandoned.

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Claim 17 through 20 stand withdrawn from further
considera-
tion as directed to a non-elected invention.

Claim 1 is representative and is reproduced below:

1. A hard magnetic disk for use with a magnetic head that floats by rotation of the magnetic disk during read/write and that starts and stops in contact with the magnetic disk, comprising a substrate having a surface with a magnetic film formed on said surface and having surface micro projections the surface micro projections having heights from at least 3 nm to less than 90 nm with respect to a projection height center line and having a density of greater than 110 to less than 80,000 pcs/mm², wherein the surface of the substrate has a bearing ratio of 0.1% to 10% at a depth of 5nm from a highest peak of the surface micro projections.

The references of record relied upon by the examiner are:

Suzuki et al.	(Suzuki '451)	4,514,451	Apr.
30, 1985			
Suzuki et al.	(Suzuki '618)	4,540,618	Sep. 10,
1985			
Katoh et al.	(Katoh '319)	4,670,319	June 2,
1987			
Kanesaki et al.	(Kanesaki)	4,680,217	July 14,
1987			
Fukada et al.	(Fukada)	4,698,251	Oct. 6,
1987			
Katoh et al.	(Katoh '412)	4,720,412	Jan. 19,
1988			
Sonoda et al.	(Sonoda)	4,762,742	Aug. 9,
1988			
Sony ²		Japan 62-80825	Apr. 14,
1987			
Hitachi		Japan 63-156650	June 29, 1988

² Our consideration of the Sony and Hitachi publications is based on the respective English translations of record.

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The appealed claims stand rejected for obviousness (35 U.S.C. § 103) as unpatentable over either of Suzuki '451, Suzuki '618, Katoh '319, Katoh'412, Kanasaki, Sony or Hitachi in view of Sonoda and Fukada.

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The appealed claims also stand rejected under 35 U.S.C. § 112, second paragraph.

THE SUBJECT MATTER ON APPEAL

The subject matter on appeal is directed to a hard magnetic disk having a magnetic film surface with micro projections. In use, a magnetic head contacts the disk during starting and stopping, but floats over the disk during a "read/write" operation. More specifically, an air current keeps the head floating while the disk rotates, but when the rotation stops, the head contacts the surface of the disk. When the rotation of a disk is started or stopped, abrasion of a slider, used to suspend the head above the disk, occurs. Such starting and stopping is known as CSS (contact stop start). One critical parameter, observed by appellants that affects CSS is the bearing ratio curve of the substrate surface, and appellants' claims are limited to a bearing curve having a bearing ratio of 0.1% to 10% at a depth of 5nm from a highest peak of the surface micro projections.

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THE REJECTION OF THE APPEALED CLAIMS FOR OBVIOUSNESS

In his answer, the examiner refers to Paper No. 7 for a statement of the obviousness rejection of the appealed claims.

Therein, the examiner contends that the seven "primary references" applied are anticipatory to the appealed claims with the exception that the references fail to disclose the substrate surface "bearing ratio percentage for flat peaks" as required by the claims. This statement is factually correct only with respect to the Hitachi reference, since none of the other "primary references" discloses or relates to hard magnetic disks of the kind claimed. However, Hitachi discloses that the surface precision of a hard magnetic disk may be improved by polishing the surface to produce a disk having excellent head floating characteristics. See the translation of Hitachi at page 8. Further, at page 9 of the translation, Hitachi discloses that surface projections above the height of 0.15 μm (150 nm) are removed. Accordingly, the Hitachi magnetic hard disk appears to be representative of a prior art hard magnetic disk such as disclosed in figure 27 of appellants' application (specification, page 15, lines 16 and 17) which inherently has a bearing ratio of

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0.1% or less at a depth below the highest peak of 5nm to 10nm.
Accordingly, as stated in the specification at page 15, lines
16-24:

Experiments performed by the present inventors show that a prior art texture worked surface having the sectional shape as shown in Fig. 27 has a bearing ratio curve, as its one example, with a bearing ratio at 5 nm to 10 nm from the top part of the sectional curve, i.e. at a depth below the highest peak of 5 nm to 10 nm, the bearing ratio is 0.1% or less and in case of the magnetic disk using such substrate, a head crush was generated at 2,000 times or less of a contact start-stops operation [emphasis added].

We construe the above disclosure as describing a prior art hard magnetic disk having a bearing curve with a bearing ratio of 0.1% at a depth of 5nm from a highest peak, which bearing ratio "touches" on (or is very close to) the claimed bearing ratio curve at the lower end point of the claimed range (i.e., at a bearing ratio of 0.1%). Thus, the prior art admissions in the specification at page 15 establish a prima facie case of unpatentability for the subject matter defined by the appealed claims. Compare Ex parte Lee, 31 USPQ2d 1105, 1106 (Bd. Pat. App. & Int. 1993), In re Malagari, 499 F.2d 1297, 1300-1301,

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182 USPQ 549, 551 (CCPA 1974) and Titanium Metals Corp. v. Banner, 778 F.2d 775, 779, 227 USPQ 773, 777 (Fed. Cir. 1985).

In light of the above analysis, we affirm the examiner's rejection of the appealed claims for obviousness. However, since our rationale differs from that utilized by the examiner and since we have relied on disclosures regarding an inherent parameter of an admitted prior art device, we denominate our affirmance as involving a new rejection pursuant to 37 CFR § 1.196(b).

Which respect to the issues raised by the disclosure of Sonoda which involves "floppy disk" technology, we agree with appellants for the reasons set forth in their brief which are supported by the Rule 132 declarations of record, that Sonoda does not inherently describe a bearing curve either overlapping or reading on a bearing ratio range as defined in the appealed claims. Further, to the extent that the examiner has argued based on the teachings of Sonoda, that it would have been obvious to one of ordinary skill in the art to flatten the peaks of a magnetic surface of a hard magnetic disk to optimize durability and prevent excessive wear rate or

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head crush, we point out that we find no factual basis in the
record to show that the substrate

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surface bearing curve parameter has been identified as a result effective variable in the technology in question, i.e. for hard magnetic disks. Compare the specification at page 18, lines 16-20.

In summary, we affirm the examiner's rejection of the appealed claims for obviousness. However, our affirmance is based principally on the disclosures of the admitted prior art as set forth in the specification and shown by Figure 27 of the application.

THE REJECTION OF THE APPEALED CLAIMS UNDER 35 U.S.C. § 112

The appealed claims also stand rejected under 35.U.S.C. § 112, second paragraph as indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Specifically, the examiner contends that the claimed term "pcs/mm²" is unfamiliar to him and it is also undefined in the specification.

In response to this rejection, appellants point out that the abbreviation "pcs" is understood by those having ordinary

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skill in the art to stand for "pieces." Thus, appellants contend that the density of projections is expressed in the art using the term "pieces" and, in fact, the Sonoda reference of record at column 7, line 11 also refers to this parameter as "pieces." In light of appellants' arguments, we agree that the claims on appeal are not rendered indefinite simply because they use the abbreviation "pcs" for a term that is understood in the art. Accordingly, we cannot sustain the examiner's rejection of the appealed claims under 35 U.S.C. § 112, second paragraph.

In summary, the rejection of the appealed claims for obviousness (35 U.S.C. § 103) is affirmed. However, we denominate our affirmance as involving a new rejection pursuant to 37 CFR § 1.196(b). The rejection of the appealed claims under 35 U.S.C. § 112, second paragraph, is reversed.

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In addition to affirming the examiner's rejection of one or more claims, this decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides, "A new ground of rejection shall not be considered final for purposes of judicial review."

Regarding any affirmed rejection, 37 CFR § 1.197(b) provides:

(b) Appellant may file a single request for rehearing within two months from the date of the original decision

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

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(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

Should the appellant elect to prosecute further before the Primary Examiner pursuant to 37 CFR § 1.196(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellant elects prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for reconsideration thereof.

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

AFFIRMED 37 CFR § 1.196(b)

JOHN D. SMITH)	
Administrative Patent Judge)	
)	
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)	
)	BOARD OF PATENT
BRADLEY R. GARRIS)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
CHUNG K. PAK)	
Administrative Patent Judge)	

jrg

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Appeal No. 96-0366

Serial No. 07/933,893

Judge JOHN D. SMITH

Judge PAK

Judge GARRIS

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DECISION: AFFIRMED 37 CFR § 1.196(b)

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

Panel Change: Yes No

3-Person Conf. Yes No

Remanded: Yes No

Brief or Heard

Group Art Unit: 1316

Index Sheet-2901 Rejection(s): _____

Acts 2: _____

Palm: _____

Mailed: Updated Monthly Disk (FOIA): _____

Updated Monthly Report: _____

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