UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WALTER CROFTON and ANDREW WYPYCH

Appeal 2008-4921
Application 10/435,293
Technology Center 1700

Decided: December 9, 2008

Before EDWARD C. KIMLIN, CHUNG K. PAK, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-35.[1] We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM. However, since our reasons for concluding that the claims are unpatentable differ substantially from those advanced by the Examiner, we denominate our affirmance as a NEW GROUND OF

[1] An oral hearing was held on November 5, 2008.

REJECTION. 37 CFR § 41.50(b).

BACKGROUND

The invention relates to a method of making single-sided memory disks[2] which allows the use of conventional double-sided disk manufacturing equipment and processes to simultaneously manufacture two, single-sided disks. (Spec. 7, ll. 4-6.) Claims 1 and 26 are illustrative of the invention and are reproduced below:

1. A method of manufacturing single-sided hard memory disks, comprising:

a. placing a plurality of disks in a carrier;

b. removing a pair of disks from the carrier with a gap between the disks;

c. removing the space between the disks such that one surface of each disk are in contact with each other;

d. simultaneously scrubbing the outside surfaces of the pair of disks with rotating brushes;

e. forming a gap between the disks;

f. placing the pair of disks in a carrier.

26. A method for cleaning single-sided hard memory disks, the disks being circular with an outer perimeter and a central aperture, comprising:

a. placing first and second disks back to back such that one surface of the first disk abuts one surface of the second disk;

[2] For consistency, we use the spelling "disk" throughout the Decision, even though a reference may use the spelling "disc."

b. rotating the pair of disks simultaneously;

c. simultaneously cleaning the exposed outer surface of each disk.

The Examiner relies on the following prior art references to show unpatentability:

Bonyhard	6,086,961	Jul. 11, 2000
Bonyhard	5,991,104	Nov. 23, 1999
Andros	6,033,486	Mar. 07, 2000
Whate et al	6,626,744 B1	Sep. 30, 2003
Lau	4,695,217	Sep. 28, 1987
Lau et al	4,856,957	Aug. 15, 1989

The Examiner also relies on Appellants' admitted prior art ("AAPA"), pages 3-6 of the Specification. (Ans. 3.)

Appellants request review of the following grounds of rejection:

1. claims 1, 3-9, 12-20, 22-33, and 35 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros;

2. claims 2, 11, 21, and 34 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros as applied to claims 1, 3-9, 12-20, 22-33, and 35, and further in view of White; and

3. claim 10 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros as applied to claims 1, 3-9, 12-20, 22-33, and 35, and further in view of Lau '217.

Appellants contend that the Examiner's obviousness determination is based on several incorrect findings of fact. (App. Br. 12-13, and 16-17.) Appellants thus maintain that the Examiner failed to establish a prima facie case of obviousness. (App. Br. 12-13, and 16.)

ISSUE

Have Appellants shown that the Examiner reversibly erred in concluding that the combined teachings of the references disclose or suggest the invention as claimed?

We answer this question in the negative for the reasons discussed below.

FINDINGS OF FACT

1) The Specification defines "merge" as "to bring two disks closer together to form a pair of disks, a disk pair or a substrate pair." (Spec. 9: 3-4.)

2) The Specification defines "gap merge" as meaning "a pair of disks that have been merged, but a space is maintained between the two merged disks. One or more spacers may or may not be used to maintain the gap or space." (Spec. 9: 16-18.) The Specification further states that "[i]t should be understood that there is no precise dimension or limit to the space between the disks that causes them to be gap merged." (Spec. 9: 19-21.) "Gap merge" is said to include a configuration in which "the bottom perimeter edges of the disks are spaced apart and the upper perimeter edges are in contact." (Spec. 10: 3-4.)

3) The Specification defines "contact merge" as "a merged pair of disks where the inside surface of each disk is in contact with the inside surface of the other disk. Contact merge includes concentric and non-concentric merge." (Spec. 10: 9-11.)

4) The Examiner determined that

> It would have been obvious to an ordinary artisan having the combined teachings of the cited documents at the time the invention was made to process single sided memory disks joined back-to-back as a single double sided disk at any manufacturing step of the memory disks including the steps of washing and scrubbing with reasonable expectation of adequate results because Bonyhard teaches that processing two single sided disks joined as a single double sided disk was conventional in the art. It would have been obvious to an ordinary artisan at the time the invention was made to transfer the disks between processing steps as taught by Lau et al with reasonable expectation of adequate results because such methods were conventional for transferring and joining disks together back-to-back for processing and because Andros evidences that the same processes were conventional for processing wafers and memory disks.

(Ans. 4.)

5) Bonyhard ('961 and '104) discloses methods of making a disk for a computer disk drive (*see* Abstracts). The Examiner relies on the following disclosure in Bonyhard ('961 and '104) to establish that it was known in the art to process two disks combined as a single disk (Ans. 9):

> The present print-through process has been described with reference to only one side of a disc **16**. Workers skilled in the art will appreciate that one-sided discs may be used in the disc drive product, or that two one-sided discs may be joined back-to-back to form a two-sided disc in the disc drive product. In the alternative, two master discs **70** can be used in the print through process, each aligned against a respective side of the product disc **16**.

(Bonyhard '961, col. 12, l. 66-col. 13, l. 6; Bonyhard '104, col. 13, ll. 5-12.)

6) One of ordinary skill in the art would have understood from the above referenced disclosure in Bonyhard ('961 and '104) that two one-sided single disks may be joined in a back-to-back configuration, after they have been individually processed, for use as a two-sided disk in a computer disk drive. The evidence of record does not support the Examiner's finding that Bonyhard ('961 and '104) discloses or suggests performing a manufacturing or processing step on two single-sided disks which have been joined in a back-to-back configuration.

7) The evidence of record does support a finding that, at the time of the invention, a known processing technique for increasing efficiency in semiconductor manufacturing processes was to simultaneously process two semiconductor wafers, in a back-to-back configuration, in order to form two, one-sided wafers. (Lau '957, col. 1, ll. 32-35).

8) It is undisputed that, at the time of the invention, "the same processing methods were conventionally applied to wafers and memory disks." (Ans. 4, citing Andros; *see* App. Br., generally, and p. 15, and Reply Br., generally, and p. 6.)

9) Andros discloses that the finished surfaces of both semiconductor wafers and memory disks must be cleaned to remove particles and other surface contaminants (col. 1, ll. 18-22), and that it was known in the art to use brushes and other mechanical scrubbing devices for such cleaning (*see* col. 1, ll. 31-66). Andros specifically discloses a cationic cleaning sponge which may be a roller, brush,

circular or flat pad, disk or the like (col. 7, ll. 44-47; *see* figs. 5 and 6). Andros also discloses positioning a single disk between two scrubbing devices (col. 8, ll. 59-61; figs. 7 and 8).

10) A conventional method of processing double-sided memory disks involves a number of discrete steps in which a plurality of disks are placed in a plastic cassette, axially aligned in a single row. (Spec. 3: 16-18; *see* 4: 15-16, describing a washing stage.) "[T]he cassettes are moved from work station to work station." (Spec. 3: 19-20.) "For most processes, the substrate disks are individually removed from the cassette by automated equipment, both sides or surfaces of each disk are subjected to the particular process, and the processed disk is returned to the cassette. Once each disk has been fully processed and returned to the cassette, the cassette is transferred to the next work station for further processing of the disks." (Spec. 3:20 – 4:3.)

11) Bonyhard ('961 and '104) discloses that various processing steps in the manufacture of a memory disk involve rotating the disk about a spindle (*see*, *e.g.*, fig. 5 and corresponding discussion).

12) Lau '957 explains that in conventional semiconductor manufacturing processes, wafers are transferred between processing stations by transporting vehicles known as "boats" (col. 1, ll. 19-24). At a processing station, the wafers are "transferred into a quartz boat which is utilized with the actual processing" (col. 1, ll. 24-26).

13) At the time of Appellants' invention, it was known in the art that two semiconductor wafers could be processed simultaneously in order to increase efficiency. (Lau '957, col. 1, ll. 32-33; *see also*,

White, col. 1, ll. 64-65 ("By polishing two wafers simultaneously on a single web, the rate of wafer throughput is enhanced.").)

14) The Examiner relies on Lau '957 ("Figures 5(a-d)-9(a-b) and column 5, line 57 – column 8, line 32") as "evidence that placing [a] plurality [of] disks in a carrier, removing a pair of disks from the carrier, adjoining disks, processing the joined disks, separating the disks and returning them to the carrier were known in the art." (Ans. 3.)

15) Lau '957 explains that during the simultaneous processing of two wafers, the wafers are transferred into a quartz boat such that the back of two wafers are disposed adjacent each other and closely aligned (col. 1, ll. 47-50), thereby eliminating the need to protect the backs from processing (col. 1, ll. 40-42). Lau '957 states that a problem which can occur in this configuration is that a wafer may wobble and contact an adjacent wafer on its front, or processing, side (col. 3, ll. 53-55). Lau '957 is directed to an apparatus which is said to reduce damage to the process surfaces of wafers which are processed in a back-to-back configuration (col. 1, ll. 6-11 and 56-60).

16) The Lau '957 wafer handling apparatus combines two wafers 16, 22 in a back-to-back configuration in a slot 64 of a combining retainer 34 (col. 6, ll. 1-2). The bottom 66 of the slot 64 has a flat surface and "a width that is slightly wider than the combined width of the wafers **16** and **22**" (col. 6, ll. 12-14). The wafers 16, 22 are then removed from the combining retainer 34 by a comb 50 in their back-to-back configuration and into a quartz boat for processing (col. 6, ll. 35-40) on the outer or exposed surface of each wafer (col.

3, ll. 12-15). According to Lau '957, after processing, the comb 50 moves the back-to-back configured wafers from the quartz boat into a slot 76 of a preseparator retainer 36 (col. 6, ll. 41-54). The wafers are positioned in slot 76 such that a knife edge 80 in the bottom portion 78 is interposed between them, creating a preseparation width of approximately 5 mils (col. 7, ll. 2-5).

PRINCIPLES OF LAW

During examination, claims terms must be given their broadest reasonable construction consistent with the specification. *In re Icon Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) ("[T]he PTO must give claims their broadest reasonable construction consistent with the specification, . . . Therefore, we look to the specification to see if it provides a definition for claim terms, but otherwise apply a broad interpretation."). Where the term "comprising" is used to introduce the steps in a method claim, there is a presumption that the claim is open to including additional, unrecited steps. *See In re Crish*, 393 F.3d 1253, 1257 (Fed. Cir. 2004) (quoting *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir.1997) ("'[c]omprising' is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim").

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

KSR Int'l Co. v. Teleflex Inc., 127 S.Ct. 1727, 1740 (2007). It is not necessary for a finding of obviousness that all the features of one reference be physically incorporated into another reference. *In re Griver*, 354 F.2d 377, 381 (CCPA 1966); *In re Billingsley*, 279 F.2d 689, 691 (CCPA 1960). Rather, the test for obviousness is what the collective teachings of the prior art would have suggested to one of ordinary skill in the art. *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991). Regardless of the terminology used by the reference, claims are obvious where the prior art discloses or suggests the claimed structure. *See In re Danly*, 263 F.2d 844, 847 (CCPA 1959).

ANALYSIS

Rejection of claims 1, 3-9, 12-20, 22-33, and 35 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros

Appellants' arguments are directed to limitations found in the independent claims (claims 1, 17, and 26). (App. Br. 8-16.) Since Appellants rely on the same arguments in support of patentability of claims 1 and 17 (App. Br. 13.), we consider claims 1 and 17 together, and separately consider the patentability of claim 26.

Claims 1 and 17:

Appellants argue that the Examiner improperly relied on Bonyhard ('961 or '104) for a teaching that processing two single sided disks joined as a single, double-sided disk was conventional in the art. (*see* Reply Br. 5 and 13.) We agree with Appellants that the Examiner's finding is not supported by the evidence of record. (FF 5, 6.) However, we nonetheless concur in the Examiner's conclusion that one of ordinary skill in the art would have found it obvious to have simultaneously processed two single-sided disks in

the same manner as a single double-sided disk based on the combined teachings of the applied prior art. In particular, we rely on the Examiner's undisputed findings that, at the time of the invention, memory disks were processed using the same methods applied to semiconductor wafers (FF 8; *compare* FF 10 *with* FF 12) and that it was known in the art to process two single-sided wafers in a back-to-back configuration (FF 7, 15) to achieve greater efficiency (FF 7).

Appellants also assert that the Examiner failed to establish a prima facie case of obviousness because Lau '957 fails to disclose steps b, c, e, and f. (App. Br. 8-13.) We are not persuaded by this argument because it is not commensurate in scope with the claim language.

Appellants correctly point out that the portion of Lau '957 relied upon by the Examiner (FF 14) discloses numerous additional process steps which are not explicitly recited in claims 1 and 17. (App. Br. 8-13.) However, use of the term "comprising" in claims 1 and 17 opens the claims to include additional unrecited steps. In our view, claim steps b and c read on the Lau '957 method steps involved in removing back-to-back wafers 16, 22 from the combining retainer 34 into the quartz boat, while steps e and f read on removal of the wafers 16, 22 from the quartz boat into the preseparator retainer 36 (FF 12). In this regard, we note that claim 1, as drafted, does not preclude performing at least steps b and c and steps e and f in a different order and/or simultaneously. For example, slot 64 of the Lau '957 combining retainer 34 (the carrier) has "a width that is slightly wider than the combined width of the wafers **16** and **22**" (Lau '957, col. 6, ll. 12-14), such that there would be "a gap" (*see* FF 2 ("gap" includes a configuration in which a portion of the disks are touching)) between the wafers. (FF 16.)

The wafers would be in a contact merge orientation (FF 3)[3] when the wafers are transferred from the retainer 34 by the comb 50, when positioned in the quartz boat (FF 16), and/or during the cleaning step d (FF 9) when opposing brushes are pressed against the outer sides of the wafers. Likewise, claim steps e and f read on the Lau '957 step of positioning back-to back wafers 16, 22 (a pair of disks) in a slot 76 of the preseparator retainer 36 (a carrier), the slot 76 having a knife edge 80 which creates a separation between the wafers (a gap). (*See* FF 16.)

Claim 26:

Appellants argue that AAPA, Andros '486, Bonyhard ('961 or '014), and Lau '957 do not teach or suggest the rotating step recited in appealed claim 26. (App. Br. 14-16; Reply Br. 6-7, 13.) Appellants' argument is not persuasive because Appellants have not refuted the Examiner's finding that cleaning the outer surfaces of disks and wafers was conventional in the art (*see* FF 4). For example, Appellants have not shown that it would not have been within the level of skill of the ordinary artisan to have rotated a pair of disks simultaneously during a manufacturing step or simultaneously cleaned the exposed outer surfaces of each disk (*see* FF 8, 9, 11). We again note that Appellants' arguments are not commensurate in scope with claim 26, e.g., claim 26 does not require rotating the pair of disks while cleaning the disks (*see* Reply Br. 6).

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[3] Claim 1 does not explicitly require a contact merge orientation (*see* claim 17 step c), but requires removal of "the space between the disks." There is no antecedent basis for "the space" in claim 1, and it is unclear whether "the space" refers to "a gap" recited in step b and whether removal of the space requires removal of the entire gap (*see* Ans. 7). Therefore, claim 1 step c would appear to encompass configurations which include a gap between the disks.

For the foregoing reasons, we conclude that Appellants have not identified reversible error in the Examiners' determination that the combined teachings of the references disclose or suggest the invention as claimed in claims 1, 17, and 26.

Rejection of claims 2, 11, 21, and 34 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros as applied to claims 1, 3-9, 12-20, 22-33, and 35, and further in view of White
and
Rejection of claims 10 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros as applied to claims 1, 3-9, 12-20, 22-33, and 35, and further in view of Lau '217

In traversing the second and third grounds of rejection, Appellants rely on the same arguments presented in traversing the rejection of the independent claims. (App. Br. 17.) Having determined that Appellants did not identify reversible error in the Examiners' rejection of independent claims 1, 17, and 26, we likewise conclude that Appellants have not identified reversible error in the rejection of dependent claims 2, 11, 21, and 34, and of dependent claim 10.

CONCLUSION

In summary, we affirm the decision of the Examiner rejecting: claims 1, 3-9, 12-20, 22-33, and 35 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros; claims 2, 11, 21, and 34 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or '104), Lau '967, and Andros as applied to claims 1, 3-9, 12-20, 22-33, and 35, and further in view of White; and claim 10 under 35 U.S.C. § 103(a) as unpatentable over AAPA in view of Bonyhard ('961 or

'104), Lau '967, and Andros as applied to claims 1, 3-9, 12-20, 22-33, and 35, and further in view of Lau '217. However, since our reasons for concluding that the claims are unpatentable differ substantially from those advanced by the Examiner, we denominate our affirmance as a NEW GROUND OF REJECTION. 37 CFR § 41.50(b).

ORDER

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) also provides that Appellants, 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 the appeal as to the rejected claims:

> *(1) Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
> (2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

Should the appellant elect to prosecute further before the examiner pursuant to 37 CFR § 41.50(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 rehearing thereof.

AFFIRMED;
37 CFR § 41.50(b)

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