The opinion in support of the decision being entered today was not written for publication is not binding precedent of the Board.

Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte YUZO NAKAGAWA, KIYOSHI SATOH, HIROKI KITAHORI and NAOYUKI KAGAMI

_____

Appeal No. 1999-2284
Application No. 08/798,443

_____

ON BRIEF

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HAIRSTON, FLEMING, and GROSS, ***Administrative Patent Judges.***

FLEMING, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-14, all the pending claims.

The instant invention relates to a structural arrangement of a printed circuit board and interface cable connector for a magnetic disk drive. Appellants' specification ("Specification"), page 1, lines 10-12. The improved arrangement structure of the printed circuit board and the interface connector enable an increased degree of freedom of the arrangement construction of a spindle motor and an optimized size of the printed circuit board. Specification, page 13, lines 1-5. The invention places the interface cable connector on a side opposite the spindle motor and the printed circuit board is sized so as not to contact with the spindle motor in the height direction. Specification, page 4, lines 8-12.

Appellants' independent claim 1, reproduced below, is representative of one embodiment of the invention:

1. In a magnetic disk drive comprising:

a device enclosure having a bottom base and a cover;

at least one storage disk;

a spindle motor, coupled to and extending partially from the enclosure, the spindle motor having a shaft coupled to the disk for rotating the disk;

a voice coil motor, coupled to the enclosure, for controlling the position of a carriage, the carriage supporting a magnetic head, the head being positioned relative to the disk for reading or writing magnetic information to and from the disk;

a printed circuit board, coupled to the enclosure, for controlling the magnetic disk drive; and

an interface cable connector, coupled to the printed circuit board, for providing a connection from a main CPU to the printed circuit board;

wherein said printed circuit board is disposed under the enclosure base generally beneath said carriage and said voice coil motor, wherein an entirety of the printed circuit board is positioned between the spindle motor and the interface cable connector.

Appellants' independent claim 5, reproduced below,

recites another embodiment of the instant invention:

5. A magnetic disk drive comprising an enclosure case containing part of a spindle motor for rotating a magnetic disk and a voice coil motor for controlling the position of a carriage having a magnetic head for reading or writing magnetic information from/to said magnetic disk, and a printed circuit board having an interface cable connector attached to the outside of said enclosure case for connection to a main CPU, wherein said printed circuit board is disposed at a position underneath the enclosure case opposite to said carriage and said voice coil motor, the printed circuit board being disposed under the voice coil motor and shortened with respect to an area directly underneath said spindle motor, an entirety of the printed circuit board being located between the spindle motor and the interface cable connector, and said interface cable connector being disposed at an end of the printed circuit board positioned opposite to said spindle motor.

Yet another structural embodiment of the instant invention is recited by Appellants' independent claim 14, reproduced below:

14. In a magnetic disk drive comprising:

a device enclosure having a bottom base and a cover;

at least one storage disk;

a spindle motor, coupled to and extending partially from the enclosure, the spindle motor having a shaft coupled to the disk for rotating the disk;

a voice coil motor, coupled to the enclosure, for controlling the position of a carriage, the carriage supporting a magnetic head, the head being positioned relative to the disk for reading or writing magnetic information to and from the disk;

a printed circuit board, coupled to the enclosure, for controlling the magnetic disk drive; and

an interface cable connector, coupled to the printed circuit board, for providing a connection from a main CPU to the printed circuit board;

wherein said printed circuit board is disposed outside the device enclosure at a position under the enclosure base, the printed circuit board being sized and shaped to cover a minority of a bottom surface of the enclosure case.

In rejecting Appellants' claims, the Examiner relies on a single reference:

Vettel et al. (Vettel) 5,038,239 Aug. 6, 1991

Claims 1-3, 5-7, 9, 13 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Vettel et al. (“Vettel”). Claims 4, 8, and 10-12 stand rejected under 35 U.S.C. § 103(a) as being obvious over Vettel. Rather than repeat the arguments of the Appellants and the Examiner, we refer the reader to the Appellants' Briefs[1] and Examiner's Answer[2] for the respective details thereof.

OPINION

With full consideration being given the subject matter on appeal, the Examiner's rejection and the arguments of Appellants and the Examiner, for the reasons stated ***infra***, we will reverse the Examiner's rejection of claims 1-3, 5-7, 9, 13 and 14 under 35 U.S.C. § 102(b) as being anticipated by Vettel. We will also reverse the Examiner's rejection of claims 4, 8, and 10-12 under 35 U.S.C. § 103(a) as unpatentable over Vettel.

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[1] Appellants filed an Appeal Brief ("Brief") on December 11, 1998. Appellants subsequently filed a Reply Brief on March 4, 1999.

[2] The Examiner, in response to Appellants' Brief, filed an Examiner's Answer on December 31, 1998.

Focusing first on Appellants' arguments, Appellants first assert that the claimed disk drive of the present invention is not suggested, taught, or disclosed by Vettel. Brief at page 7. Appellants further contend that, in Vettel, the printed circuit board 28 identified by the Examiner is not disposed under the enclosure generally beneath the carriage and voice coil motor. Brief at page 8. Instead, Appellants point out that the printed circuit board is positioned at the top of the enclosure case. Brief at page 8. Furthermore, Appellants state that the printed circuit board is not coupled to, or connected to the interface cable connector but rather is coupled to a separate interface card that is mounted to the rear wall of the frame. Brief at page 8.

The Examiner responds that the printed circuit board of Vettel can be reasonably interpreted as being under the enclosure. Examiner's Answer at page 6. The Examiner further states that it is well known in the art that disk drives and frames can be carried upside down and can be mounted in any orientation (right side up, upside down, sideways, etc.) within computer micro towers. Examiner's Answer at page 6. Additionally, the Examiner rebuts that the printed circuit

board is coupled to the cable connector and further asserts that although the data channel card is not expressly directly connected to the interface connector, nothing in Appellants' claims precludes such an indirect coupling or connection, particularly since the claims contain the open-ended transitional phrase "comprising." Examiner's Answer at page 7.

"A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference." ***In re Paulsen***, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994). The first step of an anticipation analysis is claim construction. ***Helifix, Ltd. v. Blok-Lok, Ltd.***, 208 F.3d 1339, 1346, 54 USPQ2d, 1299, 1303 (Fed. Cir. 2000). It is already well-settled that claim construction includes a review of the claim language and the specification. ***See Vitronics Corp. v. Conceptronic, Inc.***, 90 F.3d 1576, 1582-83, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996). Ordinary principles of claim construction requires that "claim language be given its ordinary and accustomed

meaning except where a different meaning is clearly set forth in the specification or where the accustomed meaning would deprive the claim of clarity." ***Northern Telecom Ltd. v. Samsung Elecs. Co.***, 215 F.3d 1281, 1287, 55 USPQ2d 1065, 1069 (Fed. Cir. 2000). In general, the plain language of the claim controls. ***Id. at 1075.*** The second step in an anticipation analysis involves a comparison of the construed claim[s] to the prior art. ***Helifix*** 208 F.3d at 1346, 54 USPQ2d at 1303.

Construing claim 1, we first note that claim 1 plainly requires a device enclosure having a bottom base and a cover. Comparing this to the prior art, we find that Vettel teaches an enclosure having a cast body and cover in column 2, lines 46-49:

> the sealed enclosure formed by the cast body 12, cover 20 and sealing tape 11 serves to enclose and seal the disk and actuator assemblies to form a head-disk assembly (HDA).

Next, claim 1 recites a requirement for at least one storage disk. We find that Figure 2 of Vettel illustrates storage disks. Further support for the limitation of storage disks is found in Vettel at column 3, lines 10-13:

Fig. 2 shows the organization of the mechanical and

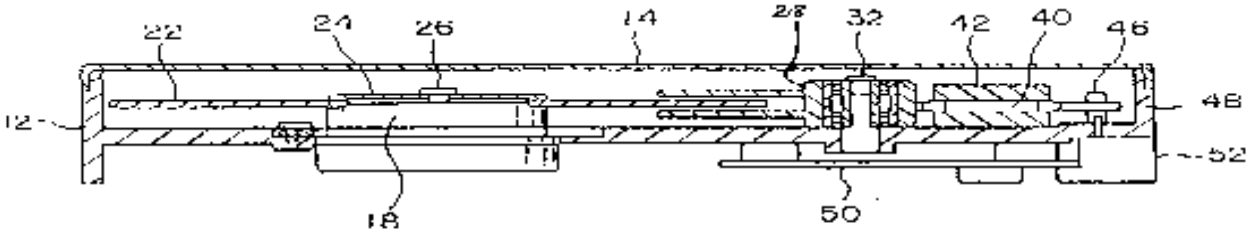
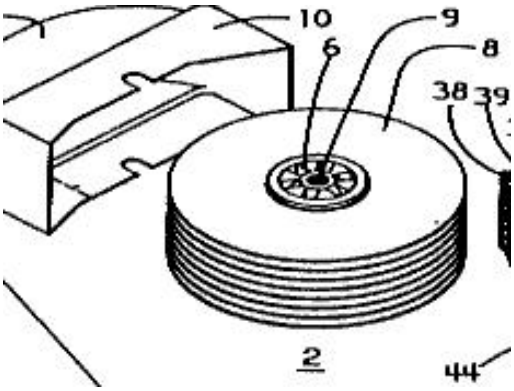


Fig. 1

electrical elements within the form factor and mounted on frame 14. The disks 8 are mounted about a hub 6 which contains the spindle drive motor.

The third claim 1 limitation requires "a spindle motor, coupled to and extending partially from the enclosure, the spindle motor having a shaft coupled to the disk for rotating the disk." Appellants' Figure 1, shown below, illustrates this limitation.

The open top of a base 12 is closed with a cover 14 to form an enclosure case. Specification, page 8, lines 14-

15. In the enclosure case, part of a spindle motor 

18 is contained in the base. Specification, page 8, lines 17-19.

We find that Vettel discloses a spindle drive motor and a spindle shaft at column 3, lines 12-16:

> The disks 8 are mounted about a hub 6 which contains the spindle drive motor (not shown). The spindle shaft 9, which forms a part of the wound stator of the spindle drive motor, is secured at each end to the body 12 by bolts 35 (one of which is shown).

However, in comparison, we do not find that Vettel's spindle motor extends partially from the enclosure. In fact, as illustrated in Vettel's Figure 2, partially shown below, and described, ***supra***, Vettel's spindle drive motor is contained within a hub 6.

Because Vettel fails to teach or disclose the third claim 1 limitation of a spindle motor coupled to and partially extending from the enclosure, we find that Vettel does not anticipate Appellants' claim 1.

Turning now to construe independent claim 14, we note that it recites a limitation common to claim 1: "a spindle motor, coupled to and extending partially from the enclosure, the spindle motor having a shaft coupled to the disk for rotating the disk." Having already determined that Vettel does not teach or disclose this claim limitation, we therefore, likewise hold that Vettel does not anticipate Appellants' claim 14.

We further find that Vettel also fails to read on independent claim 5. We note that claim 5 first requires "an enclosure case containing part of a spindle motor for rotating a magnetic disk and a voice coil motor." However, based on Vettel's Figure 2, shown ***supra***,

the part of the enclosure case 10 shown would contain the spindle motor within the hub 6 in entirety instead of in part as claimed.

Because we find that Vettel does not teach or disclose this claim limitation, Vettel does not anticipate Appellants' claim 5.

In summary, Vettel does not read on, and therefore does not anticipate Appellants' independent claims 1, 5, or 14. Appellants' rejected dependent claims 2, 3, 6, 7, 9, and 13 are also not anticipated by Vettel. Accordingly, we reverse the Examiner's rejection of claims 1-3, 5-7, 9, 13 and 14 under 35 U.S.C. § 102(b) as being anticipated by Vettel.

We now consider appealed claims 4, 8, and 10-12, rejected under 35 U.S.C. § 103(a) as obvious over Vettel. In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a ***prima facie*** case of obviousness. ***Oetiker***, 977 F.2d 1443, 1445, 24 USPQ 1443, 1444 (Fed. Cir. 1992). ***See also Piasecki***, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed Cir. 1984). The Examiner can satisfy this burden by showing that some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art suggests the claimed subject matter. ***Fine***, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598. Only if this initial burden is met

does the burden of coming forward with evidence or argument shift to the Appellants. ***Oetiker***, 977 F.2d at 1445, 24 USPQ at 1444. See also ***Piasecki***, 745 F.2d at 1472, 223 USPQ at 788 ("After a ***prima facie*** case of obviousness has been established, the burden of going forward shifts to the applicant"). If the examiner fails to establish a ***prima facie case***, the rejection is improper and accordingly merits reversal. ***Fine***, 837 F.2d at 1074, 5 USPQ2d at 1598.

An obviousness analysis commences with a review and consideration of all the pertinent evidence and arguments. ***Oetiker***, 977 F.2d at 1445, 24 USPQ2d at 1444 ("In reviewing the examiner's decision on appeal, the Board must necessarily weigh all of the evidence and argument"). Accordingly, we now commence our analysis with a consideration of claim 4.

Dependent claims 4 and 10-12 incorporate all the limitations of independent claim 1. We have already established that Vettel does not teach the claim 1 limitation of "a spindle motor, coupled to and extending partially from the enclosure, the spindle motor having a shaft coupled to the disk for rotating the disk." Neither does anything in Vettel, either alone or in combination, suggest

Appellants' precisely claimed structural orientation of the spindle motor.

The Examiner, therefore, having failed to show some objective teaching or suggestion in the prior art of Vettel of Appellants' claimed subject matter, has failed to establish a ***prima facie*** case of obviousness.

Similarly, dependent claim 8 incorporates all the limitations of independent claim 5. We have already established that Vettel does not teach the claim 5 limitation "an enclosure case containing part of a spindle motor for rotating a magnetic disk and a voice coil motor." Neither does Vettel, either alone or in combination, suggest the claimed structure. Therefore, with respect to claim 8, the Examiner has failed to establish a ***prima facie*** case of obviousness.

Accordingly, we reverse the Examiner's rejection of claims 4, 8, and 10-12 under 35 U.S.C. § 103(a) as being obvious over Vettel.

In summary, based on the foregoing, we reverse the Examiner's rejection of claims 1-3, 5-7, 9, 13 and 14 under 35 U.S.C. § 102(b) as anticipated by Vettel; we also reverse the Examiner's rejection of claims 4, 8, and 10-12 under 35 U.S.C. § 103(a) as being obvious over Vettel.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
MICHAEL R. FLEMING Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
ANITA PELLMAN GROSS Administrative Patent Judge	)	

MRF:lbg

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