

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MIKIO KITA and KAORU URATA

Appeal No. 1998-2591
Application No. 08/636,304

HEARD: JANUARY 16, 2001

Before BARRETT, RUGGIERO, and BARRY, Administrative Patent Judges.

BARRY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the rejection of claims 1-21. We reverse.

BACKGROUND

The invention at issue in this appeal relates to helical scanning magnetic recording/playback devices. A conventional U-tape loading mechanism features a magnetic tape wound on a supply reel and a take-up reel in a tape cassette. When the

magnetic tape is loaded onto a rotary head drum, the tape passes over a capstan, a full width erasing head, an audio recording/playback head, a channel erasing head, and a plurality of fixed guides. The tape is moved helically around the periphery of the drum. While the tape runs at a constant speed, data thereon are recorded or played by the drum, which is rotated at a high speed. More specifically, the drum includes playback heads PB(A), PB(B), PB(C), PB(D) and recording heads REC(A), REC(B), REC(C), and REC(D). The track width W1 of the playback heads PB(A) to PB(D) is the same as the track width W2 of the recording heads REC(A) to REC(D).

Some conventional helical scanning magnetic recording/playback devices have servo systems for adjusting the speed of the drum with respect to the speed of the tape. These devices, however, require expensive servo systems having an accurate response capability. Because an air film thickness formed between a peripheral surface of the drum and the tape fluctuates during rotation of the drum at different drum speeds, insufficient contact with the playback heads PB(A) to PB(D) sometimes results.

In contrast, the appellants' invention includes a pair of playback heads A1 and A2, which are mounted at the same azimuth angle θ and are angularly spaced from each on a rotary head drum, e.g., by 12.8 degrees. A recording track T1 is recorded on the tape in a helical scanning method by a recording head REC(A); a recording track T2 is recorded on the tape in the helical scanning method by a recording head REC(B).

Each playback head has a width $W1$ that is 1.5 times wider than the width $W2$ of the recording heads. Furthermore, playback head A2 is positioned higher than playback head A1, thereby forming a gap of about 1 track pitch TP , which is approximately equal to the track width $W2$. The playback heads, therefore, overlap each other during playback of the tape over a distance of about $W2/2$, or about 0.5 track pitch. Consequently, if tracking of the playback heads A1 and A2 deviates, one of the playback heads A1 or A2 covers 75% or more of the track width $W2$.

Accordingly, if tracking of the playback heads A1 and A2 deviates during playback, the output from either playback head A1 or A2 is selected based on which output has the better error rate. The invention is not only advantageous in overcoming tracking deviations but also provides improved reading of data due to physical disturbances of the tape 4, such as a curved track. The invention also can be used with the now popular narrow track recording/playback devices without requiring expensive servo systems.

Claim 1, which is representative for our purposes, follows:

1. A helical scanning magnetic recording/playback device comprising:

a plurality of recording heads for writing a plurality of recording tracks on a helically scanned magnetic tape mounted on a periphery of a rotary head drum, and

a plurality of playback head pairs, each playback head pair comprising two playback heads for reading the recording tracks on the helically scanned magnetic tape mounted on the periphery of said rotary head drum,

wherein playback heads in said plurality of playback head pairs have a track width wider than the track width of the recording heads, each

playback head in a pair of heads being mounted at the same azimuth as the other playback head in each pair of heads and each pair of heads reads one recording track simultaneously with the track widths of each pair of heads partially overlapping each other in the track width direction to produce a gap between the track widths of the playback heads in each head pair.

The references relied on in rejecting the claims follow:

Heitmann	5,047,872	Sept 10, 1991
Takayama et al. (Takayama)	5,296,976	Mar.
22, 1994		
Hasegawa	5,576,907	Nov. 19, 1996
	(effective filing date Jul. 21, 1993).	

Claims 1-3, 10-16, and 18-21 stand rejected under 35 U.S.C. § 103(a) as obvious over Takayama in view of Hasegawa. Claims 4-9 and 17 stand rejected under § 103(a) as obvious over Takayama in view of Hasegawa further in view of Heitmann. Rather than repeat the arguments of the appellants or examiner in toto, we refer the reader to the brief and answer for the respective details thereof.

OPINION

In deciding this appeal, we considered the subject matter on appeal and the rejection advanced by the examiner. Furthermore, we duly considered the arguments and evidence of the appellants and examiner. After considering the record, we are persuaded that the examiner erred in rejecting claims 1-21. Accordingly, we reverse.

We begin by noting the following principles from In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993).

In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).... "A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." In re Bell, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting In re Rinehart, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

With these principles and finding in mind, we consider the examiner's rejection and appellant's argument.

At the outset, we observe that the examiner fails to map the exact and complete language of the claims to the teachings of the references. He instead alleges, "Takayama et al (US 5,296,976) disclose a rotary head magnetic recording/reproducing apparatus having a plurality of recording heads for writing a plurality of tracks on a tape; a plurality of playback heads for reading a plurality of recording tracks on a tape; the playback heads having a track

width wider than the recording track width" (Examiner's Answer at 5.) The appellant argues, "Takayama and Hasegawa do not suggest playback heads which have a width wider than the width of a recording head." (Appeal Br. at 15.)

Claims 1-21 specify in pertinent part the following limitations: "playback heads in said plurality of playback head pairs have a track width wider than the track width of the recording heads" Accordingly, the claims require that the track width of playback heads is wider that of recording heads.

The examiner fails to show a suggestion of the limitations in the prior art. "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." Para-Ordnance Mfg., Inc. v. SGS Importers Int'l, Inc., 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), cert. denied, 519 U.S. 822 (1996)(citing W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1551, 1553, 220 USPQ 303, 311, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)). "It is impermissible to

use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991)). "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." Id. at 1266, 23 USPQ2d at 1783-84 (citing In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

Here, Takayama teaches "a magnetic recording/reproducing device in which four pieces of rotary heads ... disposed on a drum make one rotations, and the digital video signals are thereby azimuth-solid-recorded and reproduced." Col. 4, ll. 36-40. More specifically, Figure 3A of the reference shows rotary heads HA, HB, HC, HD; Figure 3B shows rotary heads HA1, HB1, HB3, and HB4. The rotary heads, however, do not have track widths of varying widths. To the contrary, each Figure

depicts each of its rotary heads as having equal track widths.

Relying on Hasegawa only to disclose "a plurality of playback head pairs," (Examiner's Answer at 6), and on Heitmann only to show "a switching circuit," (id. at 9), the examiner fails to allege, let alone show, that either reference cures the deficiency of Takayama. Because Takayama shows its rotary heads as having equal track widths, we are not persuaded that teachings from the prior art would have suggested the limitations of "playback heads in said plurality of playback head pairs have a track width wider than the track width of the recording heads" Therefore, we reverse the rejection of claims 1-3, 10-16, and 18-21 as obvious over Takayama in view of Hasegawa and the rejection of claims 4-9 and 17 as obvious over Takayama in view of Hasegawa further in view of Heitmann.

CONCLUSION

In summary, the rejection of claims 1-3, 10-16, and 18-21 under 35 U.S.C. § 103(a) as obvious over Takayama in view of Hasegawa is reversed. The rejection of claims 4-9 and 17 under § 103(a) as obvious over Takayama in view of Hasegawa further in view of Heitmann is also reversed.

REVERSED

LEE E. BARRETT)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JOSEPH F. RUGGIERO)	APPEALS
Administrative Patent Judge)	AND
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LANCE LEONARD BARRY)	
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