

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD A. GILL

Appeal No. 1999-2293
Application No. 08/788,270

ON BRIEF

Before JERRY SMITH, DIXON, and LEVY, Administrative Patent Judges.

LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1 and 57-99.

Subsequent to the final rejection, appellant concurrently submitted a terminal disclaimer and an amendment (Paper Nos. 14 and 15, respectively, filed November 19, 1998). In an advisory action (Paper No. 16, mailed December 4, 1998) that followed, the examiner indicated that the rejection of claims 1 and 57-99 under the judicially created doctrine of

obviousness-type double patenting has been withdrawn, that the amendment accompanying the terminal disclaimer would be entered for purposes of appeal, and that claims 58, 59, 66, 69, 70, 77, 80, 82, 83, and 92 have been

allowed. Accordingly, claims, 1, 57, 60-65, 67, 68, 71-76, 78, 79, 81, 84-91, and 93-99 remain before us for decision on appeal.

BACKGROUND

Appellant's invention relates to media velocity detection for a capstanless tape transport system. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1. A method of detecting velocity of a tape in a capstanless tape transport system having a write head for writing data records to a single track of the tape and for writing discrete format marks to the single track periodically throughout the data records to format the data records being written to the tape by marking periodic intervals and boundaries of the data records and a read head for reading the data records and the discrete format marks written to the tape, the read and write heads separated by a known distance, the method comprising the steps of:

(a) receiving a write signal indicating when a discrete format mark is written to the tape by the write head;

(b) receiving a read signal indicating when said discrete format mark is read from the tape by the read head;

(c) determining the time between receipt of said write signal and said read signal; and

(d) determining the velocity of the tape based on said time determined in step (c) and the known distance between said write head and said read head.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Hetzler	5,285,327	Feb. 8, 1994
Kim	5,383,066	Jan. 17, 1995
		(filed Aug. 2,
		1993)

Nagai ¹	4-222949	Aug. 12, 1992
(Japanese Patent Application)		

Appellant's Admitted Prior Art

¹ In determining the teachings of Nagai, we will rely on the translation provided by the USPTO dated January 1996. A copy of the translation is attached for the appellant's convenience.

Claims 1, 57, 60, 63, 67, 68, 71, 74, 78, 79, 81, 84, 87, 90, 91, 93, and 96 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Nagai.

Claims 64, 75, 88, and 97 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Nagai, and further in view of Kim.

Claims 61, 62, 72, 73, 85, 86, 89, 94, and 95 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Nagai, and further in view of Hetzler.

Claims 65, 76, 89, 98, and 99 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art in view of Nagai and Kim, and further in view of Hetzler.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellant regarding the above-noted rejections,

we make reference to the final rejection² (Paper No. 13, mailed October 26, 1998) and the examiner's answer (Paper No. 19, mailed March 4, 1999) for the examiner's complete reasoning in support of the rejections, and to appellant's brief (Paper No. 18, filed February 23, 1999) for appellant's arguments thereagainst.

Appellant has indicated that for purposes of this appeal, the claims will all stand or fall together as a single group (brief, page 4). Consistent with this indication, appellant has not presented separate arguments with respect to any of the claims on appeal. Accordingly, all of the claims before us will stand or fall together. Note In re King, 801 F. 2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3(Fed. Cir. 1983). Therefore, we will consider the rejection against independent claim 1 as representative of all of the claims on appeal. Arguments which appellant could have made but chose not to make in the brief have not been considered. See 37 CFR 1.192(a).

² The rejections of the claims under 35 U.S.C. § 103(a), set forth in the final rejection, have been incorporated by reference into the examiner's answer (answer, page 3).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejections advanced by the examiner, and the evidence of obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellant's arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the invention as set forth in the claims before us on appeal. Accordingly, we affirm, for the reasons set forth by the examiner. We add the following comments.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In

so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467

(1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then

determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner's position (final rejection, pages 4 and 5) is that the Admitted Prior Art does not show "receiving a signal indicating when a mark is written, receiving another signal indicating when the mark is read, and determining the tape speed based on the determined time between receipt of said signals and the known distance between the write and read heads." To overcome these deficiencies in the Admitted Prior Art, the examiner turns to Nagai for a teaching of using format marks which mark the boundaries of the data to control the speed of the tape. The examiner asserts (id., page 5) that it would have been obvious to modify the system of the Admitted Prior Art to use "the teaching of Nagai of writing format marks by marking the boundaries of the data in order to

monitor the speed of the tape, the motivation being to eliminate variation in tape speed during recording due to variation in tape thickness."

Appellant asserts (brief, page 5) that the teachings of references can be combined only if there is some suggestion or incentive to do so. Appellant argues (id., page 6) that the claimed invention is directed to tape velocity detection using discrete format marks that format the data written to the tape by marking boundaries of the data, where the format marks and data

records are written to the tape by the same write head, such that the format marks have dual purposes. Appellant asserts (id.) that in Nagai's tape speed controller for a VCR having a capstan, a control signal (CTL) is recorded to a servo-controlling track of a tape by a CTL recording head, and is reproduced by a CTL reproducing head. Video data is written to the tape by two pairs of magnetic heads. Appellant further asserts (id.) that "Nagai discloses no purpose for the CTL

signal other than for tape velocity determination," and that because the claimed discrete format marks are used for tape velocity detection, there is no need for dedicated control signals as taught by Nagai.

Appellant further asserts (id.) that Nagai teaches away from the claimed invention. In the claimed invention, the discrete format marks are interleaved with the data on the tape of a single track. Because Nagai employs two separate tracks (one set of heads are used to write and read CTL signals on one track of the tape; the other set of heads are used to write and read data on another track), Nagai teaches away from using discrete format marks that are interleaved with the data on a single track to detect the velocity of the tape. Thus, appellant concludes (brief, page 7) that there is no suggestion or incentive to combine the Admitted Prior Art with Nagai.

The examiner responds (answer, page 4) that Nagai is not relied upon for a teaching of using a write head for writing both data records and discrete format marks to a single track,

as these features are shown by the Admitted Prior Art. The examiner additionally states (id.) that:

The examiner's rejections hinge upon his contention that it would have been obvious to the artisan to combine the teaching of Nagai regarding the tape speed control using format marks into the system of the admitted Prior Art, which already provides said format marks. The combination as disclosed by the examiner does not require the extensive modification, nor teach away from the instant invention, as applicant's representative argues. The examiner agrees that there is no need for dedicated control signals as used in Nagai, but the examiner is arguing the combination of references and what it would suggest to the artisan. In this case, the necessary control signals are already provided in the admitted Prior Art, and only require the additional method and apparatus for using them to control tape speed, as taught by Nagai and as presented in the examiner's final Office action.

We find that the Admitted Prior Art discloses both capstan (figure 1) and capstanless (figure 2) tape transport systems. In capstan tape transport systems (figure 1), the actual velocity of media 122 across read/write head 108 is controlled by capstan 104 (Admitted Prior Art in specification, page 5). Systems that do not have a capstan to control speed are subject to error due to variations in media velocity (Admitted Prior Art in

specification, page 2). With capstanless systems, the actual velocity of media 122 across read/write head 108 depends on the amount of media 122 already wound on the reel. As more tape is wound on reel 204, and its effective diameter increases, the velocity of media 122 increases. As a result, complex equations are often used to determine the actual velocity of media 122

(id., page 6). Admitted Prior Art (Figure 3) discloses a representative format for a typical magnetic tape. In the Admitted Prior Art (Figure 3), the boundaries of data record 304 are marked by sync marks 312. Begin sync mark 312A indicates the beginning of data record 304. End sync mark 312C marks the end of data record 403. Depending on the length of data record 304, re-sync marks 312B can be periodically included throughout the length of the data record. Burst marks 316 are often tone marks used to mark a portion of the tape. Burst mark 316A indicates the presence of a tape mark 308A. Burst mark 316B indicates an erase gap 308B (id., page 7).

Nagai is directed to a tape travel speed controller for a video tape recorder (VTR)(translation, page 3). Nagai

discloses that problems exist with conventional capstan servo control because the tape travel speed varies due to dispersion in tape thickness and the diameter of the capstan. With long-play tape,

the thickness of the tape varies from lot to lot between 11.5F to 13.0F. With a temperature change of 10°C, the diameter of the capstan varies by about 1F due to the coefficient of linear expansion of the stainless steel of the capstan (translation, pages 5 and 6). Considering the teachings of the Admitted Prior Art and Nagai collectively, we find that problems of controlling tape speed (velocity) exist in both capstan and capstanless systems. Nagai further discloses in the embodiment of Figure 3, a first magnetic head 3 for recording a control signal on a tape MT, and a second magnetic head 31 for reproducing the control signal downstream of the first magnetic head. Tape speed detection circuit 33 detects tape travel speed. Nagai states (translation, page 10) that:

According to this invention as described in detail above, because the CTL signal reproduction head is provided downstream from the CTL signal recording head, the tape speed is detected on the

basis of the time difference between the reproduced CTL signal and the recorded CTL signal as well as the distance between the heads (tape length), and the speed of the capstan motor is controlled, a VTR tape travel speed controller capable of eliminating variation in tape speed during recording, which is caused by 1) fluctuation of the capstan diameter due to changes in the surrounding temperature and 2) variation in the tape thickness, is obtained.

From these teachings of Nagai, we find that Nagai teaches controlling tape speed based upon the time difference between

the writing and reproducing of a control signal and the distance between the read/write heads. Taken in light of the collective teachings of the Admitted Prior Art, the applicability of Nagai's tape transport speed controller would have been obvious to the artisan in order to determine the actual velocity of the tape.

We do not agree with appellant's assertion (answer, pages 6 and 7) that Nagai teaches away from using discrete format marks that are interleaved with the data on a single track to detect the velocity of the track. As to the specific question of "teaching away," our reviewing court in In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994) stated:

A reference may be said to teach away when a person of ordinary skill, upon [examining] the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.

We find no convincing reason why an artisan would have been taught away from utilizing the tape speed detection of Nagai in a capstanless tape transport system. As we stated, supra, the Admitted Prior Art and Nagai collectively recognize the both capstan and capstanless tape transport systems have problems with maintaining constant tape speed. Although the problems are not identical, the similarity of problems due to varying tape thickness (capstan tape transport systems) and varying diameter

of the tape on the reel (capstanless tape transport systems), is such that we find that an artisan would have been motivated to "combine the teachings of Nagai regarding the tape speed control using format marks into the system of the [Admitted Prior Art, which already provides said format marks" as advanced by the examiner (answer, page 4).

With regard to appellant's assertion (brief, page 6) that the claimed invention uses discrete format marks to format the data by marking boundaries of the data, we note that the Admitted Prior Art states (specification, page 6) that "boundaries of data record 304 are marked by sync marks 312" and (id., page 7) that burst marks are "used to mark a portion of the tape."

With regard to appellants's assertions (brief, page 6) that "there is no need for dedicated control signals such as those taught by Nagai" and that (id.) appellant's discrete format marks have dual purposes, it is the teachings of the prior art as a whole that is to be considered. We agree with the examiner (answer, page 4) that there is no need for dedicated control signals as used in Nagai. The necessary control signals are already in the Admitted Prior Art, and only require Nagai's method and apparatus for using them to control tape speed. The combined teachings of admitted prior art and Nagai would result

in the format marks being used for the purposes of formatting and controlling tape speed.

With regard to appellant's assertion that there is no incentive or suggestion in the prior art for combining the admitted prior art with Nagai, we find that a skilled artisan would have been motivated to use the tape speed detection of Nagai in the tape transport of the Admitted Prior Art in order to avoid having to use complex equations to determine the amount of tape on each reel and the rate of revolution of each reel to determine the actual velocity of the media (Admitted Prior Art in specification, page 6). In view of the teachings of Nagai of using control marks to detect tape velocity, and the recognition in the prior art that both capstan and capstanless systems experienced problems with controlling tape speed, a skilled artisan would have been motivated to use the tape speed control of Nagai, because the Admitted Prior Art already had a read/write head which write format marks to the tape, and the use of Nagai's system for controlling tape speed would have been more advantageous than the use of complex equations that rely upon the amount of tape wound on the reel.

From all of the above, we find that the examiner has established a prima facie case of obviousness which has not been

overcome by appellant. The rejection of claim 1 under 35 U.S.C. § 103(a) is therefore affirmed. As claims 57, 60-65, 67, 68, 71-76, 78, 79, 84-91, and 93-99 stand or fall with claim 1, the rejections of claims 57, 60-65, 67, 68, 71-76, 78, 79, 84-91, and 93-99 under 35 U.S.C. § 103(a) are affirmed for the reasons set forth by the examiner.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 57, 60-65, 67, 68, 71-76, 78, 79, 81, 84-91, and 93-99 under 35 U.S.C. § 103(a) is affirmed.

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

AFFIRMED

JERRY SMITH)	
Administrative Patent Judge)	
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JOSEPH L. DIXON)	APPEALS
Administrative Patent Judge)	AND
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