

Ex parte Leonhardt

FILE

95-4592

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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PAT & TM OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL L. LEONHARDT

Appeal No. 95-4592
Application 07/971,453¹

HEARD: March 4, 1997

Before BARRETT, FLEMING, and CARMICHAEL, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the rejection of claims 1-32, which constitute all the claims pending in the application.

¹ Application for patent filed November 4, 1992, entitled "System for Minimizing the Effects of Scratches on Recording Media."

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The invention is directed to a system for minimizing the effects of scratches on recording media. Recording formats with narrow tracks are susceptible to data losses when scratches on the recording media coincide with the data tracks. The disclosed system uses a sinusoidal or other periodic displacement of the data tracks to avoid coincidence with a large portion of a longitudinal or circular scratch.

Representative claims 1 and 9 are reproduced below.

1. A method for minimizing the effect of longitudinal scratches on tape media during the writing of data to said tape media and the reading of data from said tape media, wherein said data is written on said tape media in longitudinal tracks, said method comprising the steps of:

(a) writing said data to said tape media in a format in which the distance between an edge of said tape media and a given point on any one of said longitudinal tracks varies as a function of the longitudinal displacement of said given point from a predefined reference location transverse to the length of said tape media; and

(b) tracking said format to read said data from said tape media.

9. A method for minimizing the effects of scratches on rotating media during the writing of data to said rotating media and the reading of data from said rotating media, wherein said scratches are located on circles concentric with the rotational center of said media, said method comprising the step of:

writing said data to said rotating media in a plurality of concentric tracks having a format sufficiently non-circular to minimize coincidence between the data tracks and said scratches on the rotating media.

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The examiner relies on the following references:

Maeda et al. (Maeda)	4,067,044	January 3, 1978
Izuka et al. (Izuka)	4,841,501	June 20, 1989

Claims 3-14, 16-17, and 22-26 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as his invention. Claims 3, 4, 16, and 22 recite "having an amplitude sufficient to minimize." Claims 9 and 25 recite "having a format sufficiently non-circular to minimize." The examiner concludes that it is not clear what "sufficient" is intended to cover since what is sufficient to one person skilled in the art is not necessarily sufficient to another.

Claims 9-12, 15, and 25-26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Maeda. The examiner finds that the sinusoidal tracks in Maeda inherently minimize the coincidence between the data tracks and concentric scratches (Examiner's Answer, page 3):

It is also noted that since Maeda et al. discloses each and every structural element of the claimed invention (sinusoidal track shape), the errors due to scratches is inherently minimized by the sufficiently amplitude sinusoidal track as depicted in fig. 3, wherein element 24 (track center) is interpreted as a scratch on the disc, then the sufficiently amplitude track 4 having a sinusoidal shape minimizes errors by intercepting at two points. Hence errors due to scratches on the medium is minimized.

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Claims 1-8, 13-14, 16-24, and 27-32 stand rejected under 35 U.S.C. § 103 as being unpatentable over Maeda and Izuka.

The examiner concludes that it would have been obvious to use the recording scheme of Maeda with a tape media as disclosed by Izuka because this is a "selection of medium equivalence" (Final Rejection, page 4; Examiner's Answer, page 4).

OPINION

We reverse.

Procedural matters

Appellant argues that he was deprived of procedural rights during prosecution because the examiner failed to provide a "three-step analysis" for the obviousness rejection as set forth in the Manual of Patent Examining Procedure § 706. Procedural due process and 35 U.S.C. § 132 of the patent statute require that applicants be adequately notified of the reasons for the rejection of claims so that they can decide how to proceed. In re Ludtke, 441 F.2d 660, 662, 169 USPQ 563, 565 (CCPA 1971). However, this panel is concerned with the merits of the rejection, not with deciding whether the examiner could have done a more thorough job of explanation.

35 U.S.C. § 112, second paragraph

The second paragraph of 35 U.S.C. § 112 requires that a claim set out and circumscribe a particular area with a reasonable degree of precision and particularity when read in

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light of the disclosure as it would be by the person of ordinary skill in the art. In re Johnson, 558 F.2d 1008, 1015, 194 USPQ 187, 193 (CCPA 1977).

We agree with appellant that the terms "sufficient to minimize" and "having a format sufficiently non-circular to minimize" are definite. It is true that specific dimensions or tolerances are not recited. However, appellant argues that this is so "because of the ability of the invention to operate with various types of media which are susceptible to a range of scratch dimensions" (Brief, page 8). Different media will have different scratch characteristics and the amount of damage tolerated from scratching may vary depending on the type of data (e.g., financial records may require better protection than other types of data) and the type of error correcting circuitry used. In our opinion, "the language is as precise as the subject matter permits." Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624, 225 USPQ 634, 641 (Fed. Cir.), cert. dismissed, 474 U.S. 976 (1985).

Accordingly, the rejection of claims 3-14, 16-17, and 22-26 is reversed.

35 U.S.C. § 102(b)

Maeda discloses an information recording and reproducing apparatus for a rotary optical recording medium, such as a disk or drum. The problem addressed is how to selectively detect a

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desired information track from among many information tracks during a track seek operation. The information signal to be recorded is superimposed on a standard signal whose frequency varies depending on the recording position of the information signal on the recording medium and is used to modulate a recording beam. The standard signal frequency may vary continuously or stepwise. The standard signal is also applied to the optical deflector drive 19 in figure 1, so the recording microspot 5 makes a fine oscillation or wobbling motion in a direction normal to the direction of rotation of the rotary medium 1 (column 5, lines 14-24). The recorded tracks are illustrated in figures 2 and 3. Figure 2A shows concentric information tracks where the standard signal is varying stepwise from track to track "and a specific information track in the concentric information tracks corresponds to a specific frequency of the standard signal" (column 6, lines 2-4). Figure 2B show information tracks formed spirally on the disk by "continuously changing the radial position of the beam spot on the disc 1 at a constant speed, and changing the frequency of the standard signal continuously or stepwise at the same time for recording the information" (column 6, lines 5-9). In either case, "the radial position of the specific information track being reproduced can be readily identified with a track number counted from the outer or inner peripheral edge of the

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disc" (column 6, lines 13-16). Thus, Maeda is directed to an apparatus for quickly locating (addressing) a desired information track.

The dimensions of the tracks and wobbling displacement are discussed with respect to figure 3. "The minor axis of each flat oval 23, that is, the size of the microspot 5 is about $0.8 \mu\text{m}$, and the major axis is about $2 \mu\text{m}$ " (column 6, lines 34-36). "The spacing between the adjacent information tracks, that is, the spacing between the centerlines 24 of oscillation is about 2 to $3 \mu\text{m}$ " (column 6, lines 36-38). "The amplitude of the fine oscillation or wobbling is selected to be about 0.3 to $0.4 \mu\text{m}$ so that the adjacent information tracks may not overlap each other" (column 6, lines 47-49).

Each of claims 9-12, 15, and 25-26 are directed to recording on rotating media. Independent claims 9 and 25 require writing in concentric tracks having a "format sufficiently non-circular to minimize coincidence between the data tracks and said scratches on the rotating media." The examiner finds that sinusoidal tracks in Maeda inherently minimize the coincidence between the data tracks and concentric scratches. Inherency requires that a structure or function be inevitably present. In re Oelrich, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981) ("the disclosure is sufficient to show that the natural result flowing from the operation as

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taught would result in the performance of the questioned function"). Based on a consideration of the dimensions of the tracks, we do not agree with the examiner's finding.

In figure 3, the minor axis of each flat oval 23 is about $0.8 \mu\text{m}$ (defining a track width of $0.8 \mu\text{m}$) and the amplitude of the fine oscillation or wobbling is about 0.3 to $0.4 \mu\text{m}$ (column 6, lines 34-49). Assuming a maximum amplitude of oscillation of $0.4 \mu\text{m}$ and a scratch of zero thickness lying along the centerline 24, which is the best case from the examiner's standpoint, the track defined by the oval will intersect the centerline at every point in its path except at its maximum excursion. Since a scratch must have a finite thickness, the scratch will cut across the track along its entire length. It is true that a scratch to one side of the track will not coincide with as much of the track as if the track were circular; however, since the location of a scratch is random it cannot fairly be found that Maeda inherently minimizes the coincidence. One cannot pick and choose the circumstances under which to find something inherent. Compare the one-half track width displacement in Maeda to appellant's example for a tape media with four track widths displacement (specification, page 9). We find that the amplitude of the fine oscillation or wobbling in Maeda is not inherently a "format sufficiently non-circular to minimize coincidence

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between the data tracks and said scratches on the rotating media." This is not surprising since the purpose of the oscillation in Maeda has nothing to do with minimizing the effects of scratches. Accordingly, the rejection of claims 9 and 25, and dependent claims 10-12, is reversed.

Independent claim 15 recites "writing said data to said rotating media in a plurality of concentric circular tracks each of which has a center non-coincident with the center of rotation of said rotating media." Appellant argues that the examiner failed to address this limitation (Brief, pages 11 and 17). The examiner responds in the Examiner's Answer by pointing to "figs. 2B and 2D wherein a spiral track have a center which is non-coincident with the rotating medium center" (Examiner's Answer, page 6). A spiral track is not "a plurality of concentric circular tracks," as claimed, but a single long track. Maeda makes a clear distinction between concentrically formed tracks in figure 2A and a spiral track in figure 2B. Concentric tracks which are eccentric because the center of rotation of the reproducing apparatus and that of the information track are out of registration, as described in Maeda (e.g., column 9, lines 19-25), are what is meant; however, the eccentric tracks in Maeda are not caused by writing, but result from imperfections during manufacture. For these reasons, we also reverse the rejection of claim 15.

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35 U.S.C. § 103

Izuka discloses a plastic substrate for use as a recording medium, such as an optical disk, optical card, or optical tape (column 1, lines 7-9). Thus, we disagree with appellant's argument that Izuka is inapplicable to tape media (Brief, pages 12 and 15).

However, we find no motivation for one skilled in the art to modify a tape system, which records information in longitudinal tracks, to use the oscillation or wobbling of Maeda. The fine oscillation or wobbling in Maeda serves to help quickly locate (i.e., address) a desired information track from among numerous information tracks arranged concentrically or spirally around the center of a rotary medium. Maeda's disclosure is limited to rotary recording media for a reason: because it is used to access a concentric track or part of a spiral track by a radial search across many tracks. It does not make sense to apply Maeda to a longitudinal recording media, such as a tape, because a tape has to be searched sequentially. Although claims 1, 18, 27, 30, and 32 require that the distance between the edge of the tape media and a given point on one of the tracks varies as a function of the longitudinal displacement, without reciting that the amplitude of the distance change is sufficient to minimize coincidence between the tracks and the scratches, as recited in claims 3,

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