Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HIROYUKI TAKAHASHI

MAILED

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PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Appeal No. 94-2163
Application 07/676,002[1]

ON BRIEF

Before BARRETT, HARKCOM and FLEMING, Administrative Patent Judges.

FLEMING, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 6, all of the claims in the application.

The claimed subject matter is directed to a tracking servo system for disk players used to reproduce compact disks, video disks and the like. The system operates so that the recorded track that is currently being reproduced is followed accurately. Appellant's Figure 1 shows a track T in which the pickup is properly tracking. There are three laser beam spots S1, S2 and S3. S2 laser beam spot is properly positioned in the middle of the track for proper reading. S1 and S3 are positioned

[1] Application for patent filed March 27, 1991.

on the outer half and the inner half, respectively. The signals produced from S2 and S3 are supplied to a differential amplifier 4 which produces a tracking error signal TE. Under proper tracking conditions in which S3 is in the middle of the track, the tracking error signal TE would be zero. In order to properly control tracking, the tracking error signal is supplied to a tracking servo system which is commonly used in disk players to adjust the reading spot of the pickup. Appellant shows in Figure 1 that a control loop is formed by supplying the tracking error signal TE to a actuator driver 7 and actuator coil 8. Actuator coil 8 controls the positioning of the pickup. When the system needs to re-position the pickup to read a different recording track, a jump instruction is issued. In response to the jump instruction, as shown in Figure 1 and disclosed in Appellant's specification on pages 7-8, the system causes servo controller 10 to open switch 6 to interrupt the control loop and to apply "kick" and "brake" pulses to the actuator. The kick pulse has the effect of rapidly repositioning the reading spot of the pickup in the radial direction. After reaching the middle section of next track, the system issues the brake pulse which has the effect of slowing the radial movement of the pickup for proper alignment with the reading spot.

Appellant discloses on pages 7 and 8 that error signal TE is supplied to waveform shaping circuit 9 which generates pulses representing the zero crossing of the error signal TE. The zero crossing represents the proper positioning of the pickup. The waveform shaping circuit 9 supplies these pulses to servo controller 10. After a jump instruction is issued, the servo controller 10 in response to these pulses detects the zero crossing of the tracking error signal TE and causes the pulse generator circuit 12 to supply a brake pulse to the actuator driver 7 to brake the movement of the pickup. The pulse width or peak value of the brake pulse is controlled in accordance the polarity of the DC component of the driving signal for the actuator 8. Appellant states on pages 8 and 9 that a positive polarity of the DC component of the driving signal indicates a disk eccentricity in the forward direction and a negative polarity of the DC component of the driving signal indicates a disk eccentricity in the reverse direction. Appellant further discloses on page 9 and in Figure 2A that when a positive polarity is detected, the pulse width of the brake pulse is made smaller. When a negative polarity is detected, the pulse width of the brake pulse is made larger. Alternatively, Appellant's Figure 2b shows that the pulse peak may be varied in the same manner. Appellant discloses on pages 9 and 10 that the disk eccentricity may be indicated by the DC component of the tracking error signal TE. By adjusting either the pulse width or peak value of the brake pulse, the system applies the proper amount of braking energy to ensure the pickup reaches its destination position in a stable manner.

Independent claims 1 is reproduced as follows:

1. A tracking servo apparatus including a servo loop which opens in response to a jump command to initiate a jump and which closes at the end of said jump, said servo loop having means for generating a tracking error signal in response to deviation of an information reading spot of a pickup in a radius direction relative to a recording track of a disk, and actuating means for positionally compensating said information reading spot in the disk radius direction in accordance with said tracking error signal, said apparatus comprising:

pulse applying means for applying kick pulses to said actuating means when said jump command is generated and for applying brake pulses, having a pulse width and peak value, to said actuating means at a predetermined point in time said jump;

eccentricity detecting means for detecting eccentricity of said disk; and

control means for varying at least either the pulse width or the peak value of said brake pulses in accordance with the eccentricity of the disk as detected.

The reference relied on by the Examiner is as follows:

Ohnuki	4,805,163	Feb. 14, 1989

Claims 1 through 6 stand rejected under 35 U.S.C. 102(b) as being anticipated by Ohnuki.

Rather than repeat the arguments of Appellant or Examiner, we make reference to the briefs and the answer for the details thereof.

OPINION

After a careful review of the evidence before us, we agree with the Examiner that claims 1 and 4 are anticipated under

35 U.S.C. 102 by Ohnuki. Thus, we reverse the rejection of the remaining claims on appeal for the reasons set forth infra.

It is axiomatic that anticipation of a claim under §102 can be found only if the prior art reference discloses every element of the claim. See In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986) and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984).

Appellant argues that Ohnuki does not disclose the claim 1, "eccentricity detecting means" and the claim 4, "recording medium eccentricity detector". Appellant argues that claims 1 and 4 recite the detection of eccentricity of said disk and Ohnuki discloses the detection the eccentricity of the pickup device.

In column 4, line 64, through column 5, line 48, and in Figure 2, Ohnuki discloses an eccentricity detecting means and a control means for varying at least either the pulse width or the peak value of the brake pulse in accordance with the eccentricity detected. In particular, Ohnuki discloses in column 5, lines 20-48, that a pulse generator 146 generates a brake pulse varying in pulse width or peak value due to the eccentricity detected by the period of the tracking error signal. Ohnuki discloses in column 5, lines 20-24, that the period of the tracking error signal is shorter as the drive speed becomes higher. In column 5, lines

27-38, Ohnuki discloses that a greater braking force is required when the period of the tracking error signal is small because this indicates that the speed of the driver is large and a small braking force is required when the period of the tracking error signal is large because this indicates that the speed of the driver is small. Ohnuki discloses in column 5, lines 49-66, and graphically in Figures 5A-5C that the reason for the difference in speeds is because of the disk eccentricity results in different jump distances X0 and X1.

Appellant argues that the Ohnuki's eccentricity refers to the deviation of the speed of the pickup and not the eccentricity of the disk. However, it is clear that Ohnuki is detecting the eccentricity of the disk by determining the speed of the pickup because the difference in displacement caused by the eccentricity of the disk results in the difference in the speed of the pickup. In fact, Appellant also recognizes that the eccentricity of the disk causes differences in jump distances and thereby results in the difference of the speed of the driver on page 10, lines 2-9.

Appellant argues that according to the claimed invention, the "eccentricity" of the disk refers to the non-uniformity of the track width or track pitch. However, this definition is not supported by the Appellant's specification. On page 2 of the Appellant's specification, Appellant states that the "track pitch of the disk is fixed according to predetermined standards". Appellant further states on page 2 that "an eccentric disk has varying jump distances according to the degree of eccentricity despite the fixed track pitch."

Moreover, when interpreting a claim, words of the claim are generally given their ordinary and accustomed meaning, unless it appears from the specification or the file history that they were used differently by the inventor. Carroll Touch, Inc. v. Electro Mechanical Systems., Inc., 15 F.3d 1573, 1577, 27 USPQ2d 1836, 1840 (Fed. Cir. 1993).

Although an inventor is indeed free to define the specific terms used to describe his or her invention, this must be done with reasonable clarity, deliberateness, and precision. In re Paulsen, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994). Our reviewing court stated in In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) that "claims must be interpreted as broadly as their terms reasonably allow."

Since, Appellant's specification did not define "eccentricity" differently, we find it reasonable that the term is defined as its ordinary and accustomed meaning.[2] Ohnuki discloses that the different jump distances are due to the

[2] McGraw-Hill Dictionary of Scientific and Technical Terms, 2nd Edition, New York, NY: McGraw-Hill Book Company, 1978, pg. 505, defines eccentric to mean "situated to one side with reference to a center".

eccentric record position on the disk. In other words, the recording tracks are recorded on the disk in which the recording is situated to one side of the center of the disk. In view of the above reasoning, we find that Ohnuki does disclose an eccentricity detecting means as per claim 1 and a recording medium eccentricity detector as per claim 4.

Finally, Appellant argues that Ohnuki teaches away from the use of eccentricity with a one sentence statement in column 4, lines 1-9. However, it is clear that this Ohnuki teaching in column 4 is not directed to a jump mode operation as claimed by Appellant and thereby, it is not determinative here.

Therefore, we agree with the Examiner that all of the limitations of claims 1 and 4 are anticipated under 35 U.S.C. 102 by Ohnuki.

Appellant argues that Ohnuki fails to disclose further features of the invention as set forth in claims 2. Appellant's claim 2 recites the feature of detecting the eccentricity of the disk based on the DC component of a signal output from the driver of the actuator. In column 4, line 64, through column 5, line 48, and Figure 2, Ohnuki discloses that integrator 152 extracts the DC component of the driving signal for the actuator, coil driver 44. Ohnuki further discloses that the integrator supplies this signal to the brake means made up of elements 154, 156, 158, 160, 162, 164, 166, 168 and 140. Ohnuki discloses that this brake means generates a brake pulse varying in pulse width or peak value due to the eccentricity detected by the period of the tracking error signal. However, Ohnuki discloses that the brake pulse generated by output of the pulse generator 146 is a positive or negative pulse base upon the polarity of the DC component of the driving signal. Thus, Ohnuki only discloses that the peak value or pulse width of the brake pulse is determined in accordance with the period of the tracking error signal. Thus, even if Ohnuki uses the DC component of the driving signal for the actuating means to detect eccentricity, Ohnuki does not disclose that the control means varies at least the pulse width or the peak value of the brake pulse in accordance with the eccentricity detected based on the DC component of the driving signal. Therefore, we will not sustain the Examiner's rejection as to claim 2 and 6.

Appellant's claims 3 and 5 recite that the eccentricity detecting means detects said eccentricity of the disk on the DC component of the tracking error signal. We do not find that Ohnuki discloses this limitation and thereby, we will not sustain the Examiner's rejection as to claim 3 and 5.

In view of the foregoing, the decision of the Examiner rejecting claims 1 and 4 under 35 U.S.C. 102(b) is affirmed, but we reverse the rejection of claims 2, 3, 5 and 6 under 35 U.S.C. 102(b).

AFFIRMED-IN-PART

LEE E. BARRETT Administrative Patent Judge	
GARY V. HARKCOM Administrative Patent Judge	BOARD OF PATENT APPEALS AND INTERFERENCES
MICHAEL R. FLEMING Administrative Patent Judge	

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