

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHRISTOPHER P. CULLEN

Appeal 2008-0730
Application 10/341,953
Technology Center 2100

Decided: May 7, 2008

Before LANCE LEONARD BARRY, HOWARD B. BLANKENSHIP, and
STEPHEN C. SIU, *Administrative Patent Judges*.

BLANKENSHIP, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 30-44 and 62-71. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

Claim 62 is illustrative.

62. A controller for an electric motor having a position-feedback device that provides position feedback information to the controller, the controller comprising:

a motor model computation module configured to compute a motor model equation that relates controller output to motion of the motor; and

a trajectory planning module configured to receive a motion function command and, in response to receiving the motion function command, compute a set of motion profile parameters based on the motor model equation and a predetermined constraint value set, such that the motion resulting from application of a motor control signal specified by the set of motion profile parameters does not exceed any of the constraint values in the constraint value set.

The Examiner relies on the following references as evidence of unpatentability.

Promis	US 4,287,461	Sep. 1, 1981
Kidd	US 4,368,411	Jan. 11, 1983
Arends	US 4,779,031	Oct. 18, 1988
Cheng	US 5,331,264	Jul. 19, 1994
Okamura	US 5,469,414	Nov. 21, 1995
Colby	US 5,929,400	Jul. 27, 1999
Hunter	2001/0052512	Dec. 20, 2001
Kuroki	US 6,556,892	Apr. 29, 2003
Kobayashi	US 6,838,855	Jan. 4, 2005

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Claims 62-64 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Cheng.

Claims 30-33, 36-39, 41-43, 67-69, and 71 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng and Colby.

Claim 34 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng, Colby, and Arends.

Claim 35 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng, Colby, and Promis.

Claim 40 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng, Colby, and Kobayashi.

Claim 44 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng, Colby, and Hunter.

Claim 65 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng, Kuroki, and Okamura.

Claim 66 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng and Kuroki.

Claim 70 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cheng, Colby, and Kidd.

Claims 1-29 and 45-61 are withdrawn from consideration as being directed to non-elected inventions.

Cheng discloses, according to the rejection applied against claim 62, a “motor model computation module” 34 (Fig. 3) and a “trajectory planning module” 38 (also Fig. 3). The rejection further asserts that Cheng describes computing a set of motion profile parameters based on the motor model equation (computed by the first-mentioned module) and a predetermined

constraint value set, referring to column 5, lines 3 through 9 of the reference.
(Ans. 6.)

Appellant submits that Cheng does not disclose a motor model computation module configured to compute a motor model equation that relates controller output to motion of the motor, as required by claim 62. (App. Br. 16-17.) The Examiner, in response, quotes from the instant Specification and column 4, lines 44 through 49 and 58 through 65 of Cheng, contending that both Appellant and Cheng disclose “equation models.” (Ans. 31-32.) Appellant responds, in turn, there are no “equation models” in any of the material cited by the Examiner. (Reply Br. 7-8.)

“Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984). We note an initial problem in the Examiner’s reading of claim 62 on Cheng. As depicted in Figure 3 of Cheng, and consistent with the text of the reference, “trajectory planning module” 38 constitutes part of the “motor model computation module” in the Examiner’s reading, contrary to the separate limitations in the claim. See Cheng col. 4, ll. 44-65; control unit 34 including planner 38 and interpolator 40.

Even if we ignore the initial problem in the rejection of claim 62, we agree with Appellant that the rejection fails to identify a module configured to compute a motor model equation that relates controller output to motion of the motor as required by the claim. The claim further requires that the trajectory planning module is configured to, *inter alia*, compute a set of motion profile parameters based on the motor model equation and a

predetermined constraint value set. The computation module thus computes a motor model equation that is used by the trajectory planning module to compute a set of motion profile parameters.

In Cheng, planner 38 determines “the equations for the seven regions of the velocity profile, which correspond to the servo regions of the general jerk profile of FIG. 5.” (Cheng, col. 5, ll. 3-9.) However, as Appellant indicates, the profiles appear to be calculated based on experimentally obtained data (col. 9, l. 63 - col. 11, l. 56). The limit curves, used in profile generation, appear to be determined from experimental results (col. 6, ll. 26-68). The rejection fails to show that Cheng’s computer-based servo system (Fig. 3) includes a motor model computation module capable of computing a motor model equation as required by claim 62.

We therefore cannot sustain the § 102(b) rejection of claim 62, nor that of claims 63 and 64, which depend from claim 62.

The § 103(a) rejection of claim 30 over Cheng and Colby is set forth at pages 7 and 8 of the Answer. Appellant submits that the rejection fails to show “at least the feature of ‘determining a set of motion profile parameters that specify a motor control signal based on the motor model’ that is computed by performing a self-commissioning process.” (App. Br. 9.) The Examiner responds that the feature of “determining a set of motion profile parameters that specify a motor control signal based on the motor model” is “not recited in the rejected claim(s).” (Ans. 20.) Appellant points out, in response, that claim 30 contains the precise language. (Reply Br. 3.)

The Examiner also contends that “determining a set of motion profile parameters based on the output of the self-commissioning process are [sic; is] not recited in the rejected claim(s).” (Ans. 22.) However, claim 30 is

clear in that the antecedent for “the motor model” is the motor model computed by the self-commissioning process.

We understand that the rejection of claim 30 does not propose “to make a robot [Cheng] from an elevator [Colby].” (Ans. 21.) However, we agree with Appellant that the rejection fails to provide a persuasive analysis as to how the disparate teachings of Cheng and Colby would have suggested to the artisan the subject matter of the claim, for the reasons summarized at pages 3 through 5 of the Reply Brief.

We therefore cannot sustain the rejection of claim 30. Nor can we sustain the rejection of claims 31-44 and 67-71, since the further references as applied against the dependent claims do not remedy the deficiencies in the rejection of base claim 30. Nor can we sustain the rejection of claims 65 and 66, depending from claim 62, as the further references applied in the § 103(a) rejections do not remedy the deficiencies in the § 102(b) rejection of the base claim.

CONCLUSION

The rejection of claims 30-44 and 62-71 is reversed.

REVERSED

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