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McCarter & English LLP / Waters
265 Franklin Street
Boston, MA 02110

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PARK, HYUN D

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docket@mccarter.com

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW D. WHITE, TROY D. NICKEL,
and DAVID J. DEVILEY

Appeal 2014-005326
Application 12/770,868
Technology Center 2800

Before TERRY J. OWENS, CATHERINE Q. TIMM, and
WESLEY B. DERRICK, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–4, 6, 7 and 10–13. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The Appellants claim methods for confirming control system stability and determining control system filter parameters. Claims 1 and 13 are illustrative:

1. A method of confirming stability of a control system for a materials testing system using specified filter parameters, the method comprising:

inputting to the control system a test signal having a predetermined waveform;

automatically monitoring an output of the materials testing system;

automatically comparing the output to a threshold;

if the output exceeds the threshold, taking a first action to avoid unintended damage to one or more of a sample to be tested and the materials testing system; and

if the output does not exceed the threshold, taking a second action in the form of permitting input to the control system of a command signal.

13. A method of determining filter parameters for a control system, the method comprising:

generating a random noise signal;

applying a low-pass filter to the random noise signal to produce a first filtered signal;

applying a high-pass filter to the first filtered signal to produce a second filtered signal;

superimposing the second filtered signal on a sinusoidal waveform to produce a reference test waveform;

applying the reference test waveform to a system under test;

measuring an output of the system under test;

determining a transfer function of the system under test; and

convolving the transfer function with the low-pass and high-pass filters to produce the filter parameters, whereby use of the filter parameters in the control system avoids unintended damage to one or more of a sample to be tested and the system under test.

The References

Neal	US 3,648,031	Mar. 7, 1972
Constant	US 4,006,351	Feb. 1, 1977
Hinton	US 5,511,431	Apr. 30, 1996
Sakiyama	US 2004/0257093 A1	Dec. 23, 2004

Steve Soderling et al., *Servo Controller Compensation Methods – Selection of the Correct Technique for Test Applications*, Pub. 1999-01-3000, 1–13 (Soc. Automotive Engrs. 1999) (hereinafter Soderling).

The Rejections

The claims stand rejected as follows: claims 1 and 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, claims 1–4, 6, 7 and 10–12 under 35 U.S.C. § 101 as directed to non-statutory subject matter, claims 1–4, 6, 7, 10 and 11 under 35 U.S.C. § 103 over Soderling in view of Hinton, claim 12 under 35 U.S.C. § 103 over Soderling in view of Constant and claim 13 under 35 U.S.C. § 103 over Soderling in view of Neal, Sakiyama, Constant and Hinton.

OPINION

We reverse the rejections.

Rejection under 35 U.S.C. § 112, first paragraph

The Examiner asserts that "the claims specifically recite 'if the output exceeds the threshold, taking a first action to avoid unintended damage to one or more of a sample to be tested, and the materials testing system,' but said specific limitation is not found anywhere in the original disclosure" (Ans. 3–4).

To comply with the 35 U.S.C. § 112, first paragraph, written description requirement an applicant's specification need not disclose a specific limitation but, rather, must "convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention." *Carnegie Mellon Univ. v. Hoffmann-La Roche Inc.*, 541

F.3d 1115, 1122 (Fed. Cir. 2008) (quoting *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563–64 (Fed. Cir. 1991)).

> The Appellants' Specification discloses:
>
> > Determination of the gain values for the controller's parameters involves balancing various specifications. These specifications may include gain and phase margins, time domain specifications, power specifications, bandwidth, disturbance rejection specifications and others. The specifications are used, among other things, to protect the sample and the test equipment from being damaged by inappropriate input values, such as values that exceed the capabilities of the system or that would cause destructive manipulation of the device under test (assuming that is not the goal of the test). [¶ 21]
> >
> > . . .
> >
> > With incorrect parameters, the system may become unstable when the controller is operated in a closed-loop configuration. If the system is allowed to operate with an unstable controller configuration, the sample is likely to be damaged, and elements of the machine may also be damaged. [¶ 22]

The Examiner does not establish that those disclosures would not have conveyed with reasonable clarity to those skilled in the art, that as of the Appellants' filing date the Appellants were in possession of a method including "if the output exceeds the threshold, taking a first action to avoid unintended damage to one or more of a sample to be tested and the materials testing system". Accordingly, we reverse the rejection under 35 U.S.C. § 112, first paragraph, written description requirement.

Rejection under 35 U.S.C. § 101

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101.

The Examiner asserts that claim 1 "does not seem to be tied to a particular machine or transform a particular article" (Final Act. 4).

The Appellants' claim 1 method is tied to a machine, i.e., a materials testing system.

The Examiner asserts that "[t]he steps involved as claimed in Claim 1, including automatically monitoring output, automatically comparing the output, taking a first action, and taking a second action, can all be performed by a human" (Ans. 4).

The Appellants' claim 1 also requires "inputting to the control system a test signal having a predetermined waveform". The Examiner does not establish that such input of a predetermined waveform can be performed by a human.

The Examiner asserts that "inputting a test signal to the control system, though this may require a specific machine, is neither novel nor inventive in this scenario and thus is considered to be extra-solution activity" (Ans. 4).

The Examiner cites no legal authority which addresses "extra-solution activity." The Examiner apparently is referring to "insignificant post-solution activity." *See Diamond v. Diehr*, 450 U.S. 175, 191–92 (1981) ("[I]nsignificant post-solution activity will not transform an unpatentable principle into a patentable process."). The Appellants' step of inputting a test signal, however, is not post-solution activity.

Hence, we reverse the rejection under 35 U.S.C. § 101.

Rejections under 35 U.S.C. § 103

We need address only the independent claims (1 and 13).

Claim 1

The only references addressed by the Appellants are Soderling and Hinton (Br. 5–6). Soderling reviews control algorithms that compensate for the limitations of standard proportional-integral-derivative (PID) servo loop controllers when combined with the characteristics of the real system being controlled and the accuracy, repeatability and stability demands of the test to be performed (p. 2). Hinton shows the stability achieved in a low cycle fatigue test carried out on a test specimen by a materials testing machine (col. 5, ll. 28–61; Fig. 4).

The Examiner asserts that "[t]he first embodiment in Soderling discloses a method of confirming stability of a control system for materials testing system (*Abstract; technique involving iteration, pg. 10, right lowest paragraph to pg. 13*)" (Final Act. 6).

The Appellants assert that in the portions of Soderling relied upon by the Examiner, "Soderling is using an interative process to calibrate the system so that an error in the feedback signal is adjusted to fall within tolerance limits (see Figure 2 of Soderling). Soderling is not confirming the stability of the system" (Br. 5).

The Examiner responds that "the recitation '<u>confirming the stability of the system</u>" has not been given patentable weight because the recitation occurs in the preamble" (Ans. 5) and "the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone" (Ans. 5–6).

The effect preamble language is to be given is determined by reviewing the entirety of the Appellants' disclosure to gain an understanding of what the Appellants actually invented and intended to encompass by the

claim. *See Corning Glass Works v. Sumitomo Electric*, 868 F.2d 1251, 1257 (Fed. Cir. 1989). The Appellants' Specification indicates that the Appellants' invented and intended to encompass by claim 1 a method for confirming stability of a control system (Spec. ¶¶ 6, 23).

The Examiner asserts that Soderling includes disclosures corresponding to each of the Appellants' claim 1's limitations except for the requirement of avoiding unintended damage to the sample and/or the materials testing system, but the Examiner does not explain how, in combination, those disclosures would have suggested to one of ordinary skill in the art a method for controlling the stability of a control system (Final Act. 6–8).

With respect to the Appellants' claim 1's requirement of avoiding unintended damage to the sample and/or the materials testing system, the Examiner asserts that "[l]ooking at [Hinton's] Figure 4, it's obvious that unstable oscillation of loading can potentially cause damage to the material being tested, since there is no control over the magnitude of the amplitude that is being applied to the said material. In other words, unstable oscillation of high enough magnitude in loading can exceed the damage threshold of the material being tested" (Final Act. 8).

The Examiner does not specifically point to the portion of Hinton's Figure 4 the Examiner relies upon as indicating unstable oscillation due to no control over the magnitude of the amplitude applied to the material. The Examiner may be relying upon the end of the second loop at about 42 kN/0.32 MM having no apparent bound. Hinton, however, discloses that the two loops are shown as separated but actually are superimposed (col. 5, ll. 41–44). Regardless, the Examiner does not explain how Hinton would

have led one of ordinary skill in the art to modify any of the techniques in Soderling to avoid unintended damage to the sample and/or materials testing system.

For the above reasons we reverse the obviousness rejection of claim 1 and its dependent claims.

Claim 13

The Appellants rely upon the applied references not suggesting claim 13's requirement that use of the filter parameters in the control system avoids unintended damage to one of more of a sample to be tested and the system under test (Br. 6).

To meet that claim requirement the Examiner relies upon Hinton as applied to claim 1 (Final Act. 17–18).

The Examiner's reliance upon Hinton is not well taken for the reasons given above regarding claim 1. Accordingly, we reverse the obviousness rejection of claim 13.

DECISION/ORDER

The rejections of claims 1 and 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, claims 1–4, 6, 7 and 10–12 under 35 U.S.C. § 101 as directed to non-statutory subject matter, claims 1–4, 6, 7, 10 and 11 under 35 U.S.C. § 103 over Soderling in view of Hinton, claim 12 under 35 U.S.C. § 103 over Soderling in view of Constant and claim 13 under 35 U.S.C. § 103 over Soderling in view of Neal, Sakiyama, Constant and Hinton are reversed.

It is ordered that the Examiner's decision is reversed.

REVERSED