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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARTIN ZIPPERER, WINFRIED MOSER, KLAUS-PETER SCHNELLE, STEFFEN SCHUMACHER, LOTHAR KRAUTER, RENE DEPONTE, and CHRISTOF OTT[1]

Appeal 2015-005979
Application 12/774,473
Technology Center 2100

Before DEBRA K. STEPHENS, JASON V. MORGAN, and DAVID J. CUTITTA II, *Administrative Patent Judges*.

CUTITTA, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Non-Final Decision rejecting claims 1, 3–8, and 10. Claims 1, 8, and 10 are independent. Claims 2 and 9 have been cancelled. We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We AFFIRM.[2]

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[1] According to Appellants, the real party in interest is ROBERT BOSCH GmbH. *See* Appeal Brief 2.

[2] Throughout this Opinion, we refer to: (1) Appellants' Specification filed May 5, 2010 ("Spec."); (2) the Non-Final Office Action ("Non-Final Act.") mailed June 26, 2014; (3) the Appeal Brief ("Appeal Br.") filed Dec. 22, 2014; (4) the Examiner's Answer ("Ans.") mailed Apr. 2, 2015; and (5) the Reply Brief ("Reply Br.") filed June 2, 2015.

BACKGROUND

According to Appellants, the claimed invention relates to applying an asymmetrical dither signal to a mechanical component to reduce or prevent stick-slip behavior in the mechanical component. Spec. 1. Claim 1 is representative and is reproduced below with disputed limitation emphasized:

> 1. A method for operating a mechanical system having a component, the method comprising:
>
> impressing on the component an oscillating micromotion;
>
> wherein the oscillating micromotion includes movement in a first direction at a first speed during a first time duration within one period of oscillation, and movement in a second direction at a second speed during a second time duration within the one period of oscillation,
>
> *wherein the first speed is greater than the second speed and the first time duration is shorter than the second time duration, resulting in an asymmetrical dither; and*
>
> *wherein an integral of a first speed of the oscillating micromotion or of a corresponding control variable over a first time duration within the one period of oscillation in the first direction is at least approximately equal in absolute value to an integral of a second speed of the oscillating micromotion or of a corresponding control variable over a second time duration within the one period of oscillation in the second direction.*

REFERENCE

The art relied upon by the Examiner in rejecting the claims on appeal:

Cook et al. ("Cook")	US 2008/0099706 A1	May 1, 2008

REJECTION

Claims 1, 3–8, and 10 stand rejected under 35 U.S.C. §102(b) as being anticipated by Cook. Non-Final Act. 3.

Our review in this appeal is limited only to the above rejection and issues raised by the Appellants. We have not considered other possible issues that have not been raised by Appellants and which are, therefore, not before us. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2014).

ISSUES

1. Did the Examiner err in finding Cook discloses "wherein the first speed is greater than the second speed and the first time duration is shorter than the second time duration, resulting in an asymmetrical dither," as recited in claim 1?

2. Did the Examiner err in finding Cook discloses "wherein an integral of a first speed of the oscillating micromotion or of a corresponding control variable over a first time duration within the one period of oscillation in the first direction is at least approximately equal in absolute value to an integral of a second speed of the oscillating micromotion or of a corresponding control variable over a second time duration within the one period of oscillation in the second direction," as recited in claim 1?

DISCUSSION

Issue 1

We have reviewed the Examiner's rejections and the evidence of record in light of Appellants' arguments that the Examiner has erred. We disagree with Appellants' arguments and conclusions. We adopt as our own, (1) the findings and reasons set forth by the Examiner in the Office Action from which this appeal is taken and (2) the findings and reasons set forth in the Examiner's Answer. We concur with the conclusions reached by the

Examiner and further highlight specific findings and argument for emphasis as follows.

The Examiner relies on Cook's changing of the frequency of oscillation of an electronically controlled valve to disclose "wherein the first speed is greater than the second speed and the first time duration is shorter than the second time duration, resulting in an asymmetrical dither," as recited in claim 1. Non-Final Act. 3–4. In particular, the Examiner finds that in Cook, the frequency of the dither can be decreased, whereby the portion of the dither before the frequency adjustment is necessarily faster and necessarily oscillates within a shorter time duration at a higher frequency than the portion of the dither after the frequency adjustment. Ans. 5–8 (citing Cook Fig. 7, step 715 and ¶¶ 51–61).

Appellants contend the Examiner errs because, in Cook, adjusting frequency and adjusting amplitude are distinct and separate method loops such that the frequency and amplitude cannot be concurrently adjusted. Appeal Br. 8. Therefore, Appellants contend, "the initial frequency may be adjusted such that the frequency of the second movement is different from the frequency of the first movement in the one period of oscillation but the amplitudes are necessarily still the same." Appeal Br. 9.

Initially, we note that Appellants concede that in Cook, "the initial frequency may be adjusted such that the frequency of the second movement is different from the frequency of the first movement in the one period of oscillation." *Id.* Consequently, any time the frequency is adjusted within a period as described, speed in one direction must necessarily be greater than speed in another direction, at least for that period, resulting in asymmetrical dither of the valve. Appellants fail to establish why Cook's dither would not

be asymmetrical simply because in Cook, "the amplitudes are necessarily still the same." *Id.*

Appellants contend "[t]he Examiner mistakenly believes that an oscillating micromotion is an asymmetrical dither if the aforementioned requirement is satisfied for only a single period of oscillation." Reply Br. 2. In other words, Appellants argue an oscillating micromotion having an unbounded number of symmetrical oscillations cannot be characterized as asymmetrical by having just one period of asymmetrical dither. *Id.*

We disagree because Appellants' argument is not commensurate with the scope of the claim. Claim 1 does not require the oscillation to be impressed on the component asymmetrically for multiple periods. Rather, claim 1 is specifically directed to movement "within one period of oscillation." Appeal Br. Claims App'x 1. Accordingly, we agree with the Examiner's finding that Cook's oscillation resulting in a single period of asymmetrical dither is sufficient to anticipate the disputed limitation.

Issue 2

The Examiner relies on Cook's sinusoidal waveform 871-1, triangular waveform 871-2, or square-wave waveform 871-3, as illustrated at Figure 8, to disclose "wherein an integral of a first speed of the oscillating micromotion or of a corresponding control variable over a first time duration within the one period of oscillation in the first direction is at least approximately equal in absolute value to an integral of a second speed of the oscillating micromotion or of a corresponding control variable over a second time duration within the one period of oscillation in the second direction," as recited in claim 1. Non-Final Act. 4. Appellants contend that the elements

and paragraphs cited [from Cook] are not relevant to the limitation at issue because these waves are not asymmetrical dithers but rather are all symmetrical dithers, which are not within the scope of the claims. Appeal Br. 9.

We find Appellants' arguments unpersuasive. Initially, we note that we agree with the Examiner's finding that Cook discloses asymmetrical dither within a single period, as discussed above with respect to issue 1. *See* Non-Final Act. 3–4; Ans. 5–6. Moreover, Cook describes Figure 8 as an "exemplary valve controller 160 that provides *variable frequency* and amplitude electronic *dither* thereby supporting the Examiner's finding that waveforms 871-1, 871-2, and 871-3 disclose asymmetrical dither." Cook ¶ 65 (emphasis added). Also, our visual review of waveforms 871-1, 871-2, and 871-3 in Figure 8 indicates that each of the waveforms is depicted as asymmetrical, i.e., the dither frequency appears to change within period P for each of the three waveforms. We, therefore find unpersuasive Appellants' argument that these waves are all symmetrical dithers.

Accordingly, we sustain the Examiner's 35 U.S.C. § 102(b) rejection of claim 1. Claims 8 and 10, which recite corresponding limitations and are argued together with claim 1; and claims 3–7, which depend from claim 1, are not separately argued. See Appeal Br. 9. Therefore, we likewise sustain the rejections of these claims under 35 U.S.C. § 102(b).

DECISION

We affirm the Examiner's rejection of claims 1, 3–8, and 10 under 35 U.S.C. § 102(b).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED