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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KEVIN E. GREEB

Appeal 2015-000808
Application 13/489,832
Technology Center 3700

Before LINDA E. HORNER, LYNNE H. BROWNE, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

BROWNE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from the rejection of claims 1–16. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A current to pressure converter (CPC), comprising:
>
> a housing defining a control port, a supply port, and a drain port fluidly coupled therethrough;
>
> a digital controller, configured to reduce the effects of thermal drift, enclosed within said housing;
>
> a 3-way rotary valve configured to alternatively couple the control port with the drain port, the supply port, or neither the drain port or supply port;
>
> a limited angle torque rotary actuator operatively coupled to the digital controller and drivably coupled to the 3-way rotary valve; and
>
> a pressure transducer in fluid communication with the control port, the pressure transducer providing pressure feedback to the digital controller; and
>
> wherein the digital controller is configured to control the pressure supplied by the control port in proportion to an input analog control signal of 4 – 20 mA.

REFERENCES

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

Rempel	US 4,858,637	Aug. 22, 1989
Dantlgraber	US 4,864,210	Sept. 5, 1989
Semaan	US 5,158,108	Oct. 27, 1992
Grobbel	US 5,720,313	Feb. 24, 1998
Newman	US 6,889,705 B2	May 10, 2005
Greeb	US 8,215,329 B2	July 10, 2012

Woodward D, Woodward CPC Product Specification 85202D, Copyright 1996; prior art date of October 2005 shown by Woodward's "Industrial Controls Non-restricted Publications Index".

REJECTIONS

I. Claims 1–16 stand rejected on the ground of nonstatutory double patenting as unpatentable over claims 1–13 of U.S. Patent No. 8,215,329.

II. Claims 1 and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Woodward D.

III. Claims 1 and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Woodward D and Rempel.

IV. Claims 1 and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Woodward D and Newman.

V. Claims 1 and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Woodward D and Semaan.

VI. Claims 1 and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Woodward D and Grobbel.

VII. Claims 2–10 and 12–16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Woodward D (alternatively over Woodward D in view of Rempel, Newman, Semaan, or Grobbel) and Dantlgraber.

DISCUSSION

Rejection I

The Examiner contends that a terminal disclaimer has not been filed in the instant Application. Ans. 2. However, an electronic terminal disclaimer was filed and subsequently approved on February 21, 2014. As this terminal disclaimer obviates the rejection based on double patenting, we

do not sustain the Examiner's decision rejecting claims 1–16 on the ground of nonstatutory double patenting.

Rejection II

Claim 1

The Examiner finds that Woodward D discloses all of the limitations of claim 1 except for "the specific structure of the controller, and as such does not disclose the controller to be a digital controller." Final Act. 6 (emphasis omitted). In addition, the Examiner finds that "there were a finite number of predictable, potential solutions (i.e., the controller must be either digital or analog) to the problem of how to physically embody a valve controller" and that "one of skill would have had a reasonable expectation of success in embodying Woodward D's controller as a digital controller." *Id.* Based on these findings, the Examiner determines that "the limitation 'configured to reduce the effects of thermal drift' would be met, as analogously disclosed by Applicant, in that thermal drift effects are reduced by using a digital, rather than analog controller." *Id.*

Appellant contends that "the Examiner has incorrectly applied the 'Obvious to try doctrine' explained in MPEP § 2143." Appeal Br. 6. In support of this contention, Appellant argues that "the Examiner has not identified a finite number of predictable, or known, solutions to a recognized problem" because, "there are potentially an infinite number of analog controllers that may be used with the CPC of Woodward D." *Id.*; *see also* Reply Br. 7–9.

Responding to this argument, the Examiner explains that "all of the analog controllers collectively represent only a single potential solution, namely that of an analog controller. Similarly, all of the known digital

controllers represent the single potential solution of a digital controller." Ans. 12. Given that claim 1 merely requires "a digital controller" (Appeal Br., Claims App. 1) and does not specify any particular digital controller, the Examiner is correct. All known controllers are either analog or digital. Thus, there are only two options available.

Appellant further argues that the Examiner provides no evidence "to show that the proposed modification could have been pursued with a reasonable expectation of success." Appeal Br. 6. However, Appellant offers no evidence or persuasive argument that rebuts the Examiner's finding. Moreover, the proposed modification, which merely substitutes a digital controller for Woodward D's analog controller, is nothing more than the substitution of one element for another known in the field to yield a predictable result. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (citing to *Adams*, 383 U.S. 38, 50-51 (1966)) ("[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result."). Appellant provides no evidence or persuasive argument that the claimed digital controller does more than yield a predictable result. Thus, Appellant's argument is unconvincing.

In addition, Appellant argues that "[t]he Appellant has not asserted that the invention is directed to the problem of how to embody a controller. . . . Thus, the Examiner's definition of the problem, when applied to the cited reference (i.e., Woodward Product Specification), is incorrect." Appeal Br. 7; *see also* Reply Br. 6–7. However, we are unaware of any requirement that the problem identified by the Examiner in support of an "obvious to try" rationale be the same problem with which Appellant was concerned. Rather,

the Court explained that "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." *KSR*, 550 U.S. at 421. In this case the Examiner identified a design need because Woodward D does not address the specific structure of the controller. *See* Final Act. 6. Thus, Appellant does not apprise us of error.

For these reasons, we sustain the Examiner's decision rejecting claim 1.

Claim 11

The Examiner determines that Woodward D fails to disclose a "CPC [capable of] determin[ing] the reasonableness of its inputs." Final Act. 6. The Examiner finds that "alarm limits were well known in the art at the time of invention for warning of dangerous pressure"[1] and explains that "[a]larm limits are seen as defining reasonableness in that alarms are activated in the event of unreasonableness. *Id.* Based on this finding and reasoning, the Examiner further determines that "it would have been obvious to use alarm limits associated with Woodward D's measured pressure to warn users of potentially dangerous pressure levels in the output line." *Id.*

Appellant argues that

> the Examiner has provided no facts or evidence of an alarm which determines reasonableness of input signals. Further, the Examiner has not provided a single example of an alarm used in

[1] The Examiner notes that this finding, which was made in the prior Office action, was not contested by Appellant. Final Act. 6.

> such a fashion. Nor has the Examiner provided evidence that these alarm limits were the result of a digital controller diagnosing input signals to determine reasonableness. A mere conclusory statement based on a feature not even shown in the cited reference does not support the Examiner's claim of obviousness.

Appeal Br. 8.

> Responding to this argument, the Examiner further explains
>
> Woodward D's measured pressure is disclosed as a signal which is input to the controller, and therefore the use of an alarm limit with this measured pressure would, as claimed, "diagnose [an] input signal to determine reasonableness thereof". The further claim limitation "for use in controlling a position of the 3-way rotary valve" is seen as met in that Woodward D's determination of reasonableness (i.e., the alarm limits) could be used by an operator to control position of the 3-way rotary valve (such as by power shut down, resulting in Woodward D's valve moving to the disclosed "failsafe" position; see Woodward D's "Features": "Upon loss of power, a return spring will force the output pressure to the drain pressure (failsafe)").

Ans. 14–15. However, even if we accept the Examiner's finding that the use of alarm limits was known, the Examiner does not explain why one skilled in the art would use an alarm limit based on Woodward D's measured pressure to diagnose the reasonableness of the measured pressure signal. The Examiner's reasoning is circular and incomplete; and thus, lacks rationale underpinning.

For this reason, we do not sustain the Examiner's decision rejecting claim 11 as unpatentable over Woodward D.

Rejections III–VI

Claim 1

As claim 1 is unpatentable over Woodward D, it follows that claim 1 is also unpatentable over the combined teachings of Woodward D and

Rempel, Newman, Semaan, or Grobbel. We sustain the Examiner's decisions rejecting claim 1 as unpatentable over Woodward D and Rempel, Newman, Semaan, or Grobbel.

Claim 11

The Examiner's rejection of claim 11 as unpatentable over Woodward D and Rempel, Newman, Semaan, or Grobbel, relies upon the same faulty reasoning, as the rejection of claim 11 as unpatentable over Woodward D alone. Final Act. 7, 8, 9. Accordingly, we do not sustain the Examiner's decision rejecting claim 11 as unpatentable over Woodward D and Rempel, Newman, Semaan, or Grobbel.

Rejection VII

Claims 2 and 3

Claims 2 and 3 depend from claim 1. Appellant does not provide separate arguments for the patentability of claims 2 and 3. *See* Appeal Br. 23–25. Rather, Appellant argues that "Dantlgraber does not cure the deficiencies in Woodward D with respect to the claimed digital controller. *Id.* at 24. As we find no deficiencies in the rejection of claim 1 as unpatentable over Woodward D, Appellant's argument is unconvincing. We sustain the Examiner's rejection of claims 2 and 3 as unpatentable over Woodward D and Dantlgraber, and for the same reasons, sustain the Examiner's alternative rejections of claims 2 and 3 over Woodward and Rempel, Newman, Semaan, or Grobbel, and Dantlgraber.

Claim 12

Claim 12 requires a "digital controller [that] is configured to impart an anti-silting impulse to the 3-way rotary valve." Appeal Br. Claims App. 3. The Examiner determines that Woodward D fails to disclose "the use of an

impulse for the 3-way valve." Final Act. 10.[2] The Examiner finds that "Dantlgraber teaches that it was known in the art at the time of invention to use a controller that periodically imparts an impulse to a valve to keep the valve from sticking." *Id.* (citing Dantlgraber 4:45–48). Based on this finding, the Examiner reasons that it would have been obvious "to use [Woodward D's] controller to periodically impart an impulse, as taught by Dantlgraber." *Id.*

Appellant contends that "no combination of Woodward D, Rempel et al., Dantlgraber, Newman, Semaan, or Grobbel teaches imparting the anti-silting impulse recited in claims 4-10 and 12-16." Appeal Br. 24. However, Appellant provides no evidence or persuasive argument in support of this contention. *See id.* An "[a]ttorney's arguments in a brief cannot take the place of evidence." *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974). Thus, Appellant's bald assertion is unconvincing.

We sustain the Examiner's decision rejecting claim 12 as unpatentable over Woodward D and Dantlgraber or alternatively, Woodward D and Rempel, Newman, Semaan, or Grobbel, and Dantlgraber.

Claims 4–10 and 13–15

Claim 4 requires a "digital controller [that] is configured to periodically impart an anti-silting impulse to the 3-way rotary valve" and claim 13 similarly requires "the digital controller is configured to periodically impart an anti-silting impulse to the 3-way rotary valve." Appeal Br. Claims App. 2, 3. As discussed *supra*, the Examiner finds that "Dantlgraber teaches that it was known in the art at the time of invention to

[2] In rejecting claim 12, the Examiner refers to the analysis of claim 4. Final act. 11. Accordingly, we likewise refer to the rejection of claim 4.

use a controller that periodically imparts an impulse to a valve to keep the valve from sticking." Final Act. 10 (citing Dantlgraber 4:45–48).[3]

Appellant argues that

> Dantlgraber clearly does not disclose symmetrically opposed movement of the control valve, as demonstrated by slight movements of the valve in both directions as an anti-silting measure, but instead discloses a hammer like impact to free up the motor after it becomes stuck. Nor does Dantlgraber disclose a controller configured to impart periodic anti-silting impulses, as required by claims 4-10 and 13-15. The hammer-like impact, taught by the device of Dantlgraber to dislodge a stuck valve, is very different from the anti-silting features of the claimed invention which are designed to prevent the valve from becoming stuck.

Appeal Br. 24.

Responding to this argument, the Examiner explains that

> in mechanics the meaning of "impulse" is "the product of the average force acting upon a body and the time during which it acts" (Dictionary.com). It seems clear that Dantlgraber's "hammer-like impact" involves a force acting over a period of time, thus bringing it within the broadest reasonable interpretation of the term "impulse". Also see Dantlgraber at col. 4 lines 17-22, which equates the hammer-like impact with an "impulse transmission". It is the examiner's position that Dantlgraber's impact/impulse is "anti-silting" since it is designed to release a stuck condition that occurs because of a chip of material which is trapped between the control edges of the valve.

Ans. 20 (citing Dantlgraber 1:45–47).

In response, Appellant further contends that "even if one accepts the Examiner's argument that Dantlgraber provides an "impulse", Dantlgraber does not teach providing a periodic impulse, as required by the rejected

[3] In rejecting claim 13, the Examiner refers to the analysis of claim 4. Final act. 11. Accordingly, we likewise refer to the rejection of claim 4.

claims." Reply Br. 14. In support of this contention, Appellant notes that "Dantlgraber teaches striking a portion of the motor only when the motor gets stuck." *Id.*

Appellant is correct. Although, Dantlgraber teaches an electro-motor generating a force to sever a chip of material when the spool is in a stuck position (Dantlgraber 1:41–53), Dantlgraber does not teach a controller configured to periodically impart this force.

For this reason, we do not sustain the Examiner's decision rejecting claims 4 and 13 as unpatentable over Woodward D and Dantlgraber. We likewise do not sustain the Examiner's alternative decisions rejecting claims 4 and 13 as unpatentable over Woodward D and Rempel, Newman, Semaan, or Grobbel, and Dantlgraber. Claims 5–10 depend from claim 4 and claims 14 and 15 depend from claim 13. Accordingly, we do not sustain the Examiner's decision rejecting these claims either.

Claim 16

Claim 16 depends from claim 12, and further requires that "the anti-silting impulse imparts symmetrically opposed movement of the 3-way rotary valve." Appeal Br. Claims App. 3. As discussed *supra*, Appellant argues that "Dantlgraber clearly does not disclose symmetrically opposed movement of the control valve, as demonstrated by slight movements of the valve in both directions as an anti-silting measure, but instead discloses a hammer like impact to free up the motor after it becomes stuck." Appeal Br. 24.

Appellant is correct. Dantlgraber fails to describe an impulse that imparts symmetrically opposed movement. *See* Dantlgraber 1:41–53.

For this reason, we do not sustain the Examiner's decision rejecting claim 16 as unpatentable over Woodward D and Dantlgraber. We likewise do not sustain the Examiner's alternative decisions rejecting claim 16 as unpatentable over Woodward D and Rempel, Newman, Semaan, or Grobbel, and Dantlgraber.

DECISION

The Examiner's rejections of claims 1–3 and 12 are AFFIRMED.

The Examiner's rejections of claims 4–11 and 13–16 are REVERSED.

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

AFFIRMED-IN-PART