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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): H0011544-3112 (002.3345)

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Application Number	Filed
11/433,118	05/12/2006

First Named Inventor: Calvin C. Potter

Art Unit	Examiner
2832	Talpalatskiy, A.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
- ☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)
- ☑ attorney or agent of record. Registration number 45264.
- ☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

/PAUL D. AMROZOWICZ/
Signature

Paul D. Amrozowicz
Typed or printed name

(480) 385-5060
Telephone number

June 24, 2010
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Calvin C. POTTER et al. | Group Art Unit: 2832

Serial No.: 11/433,118 | Examiner: A. Talpalatskiy

Filed: May 12, 2006 | Confirmation No.: 2677

For: POWER DRIVE UNIT ELECTROMAGNETIC LATCH

Docket No.: H0011544 (002.3345)

Customer No.: 89955

ARGUMENTS ACCOMPANYING PRE-APPEAL BRIEF REQUEST FOR REVIEW

I. Status of the Claims

Claims 1, 5-7, 9, and 13 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent Nos. 6,325,331 (McKeown), 3,984,711 (Kordik), and 5,043,618 (Stephenson); Claim 8 was rejected under 35 U.S.C. § 103 as allegedly being unpatentable over McKeown, Kordik, Stephenson, and U.S. Patent Publication No. 2005/0247529 (Gaines); and Claims 14-20 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over McKeown and Kordik.

II. Arguments

McKeown relates to actuators that may be used in aircraft flight control systems and discloses two rather distinct actuator embodiments. In one embodiment, which is depicted in FIG. 1, the actuator (11) includes an electric motor (13), a brake (15), a gear train (17), a clutch (19), an output damper (21), and another gear train (23). The brake (15) is a spring-loaded device that engages the motor (13) to lock the actuator (col. 4, ll. 14-15). In the second embodiment, which is depicted in FIG. 2, McKeown discloses an actuator (27) that includes a stepper motor (29), a gear train (31), an output member (33), and an optional damping member (35). McKeown further espouses the fact that this second embodiment "provides all of the same functionality of typical prior-art mechanisms illustrated in FIG. 1, using only stepper motor (29), gear train member (31), and output member (33)" (col. 4, ll. 41-44). This is due, in part, to the fact that the stepper motor (29) may be "made to function as a braked, or locked

device by exciting one or more phases in a fixed pattern, that is, without a time sequence" (col. 5, ll. 6-8).

Kordik relates to a variable reluctance stepper motor that includes permanent magnets interposed within the circumferential spaces of the stator pole pieces. The permanent magnets are provided to increase the dynamic and holding torque characteristics of the stepper motor while providing detent torque and dampening overshoot. The structure disclosed in Kordik, as with all stepper motors, is wholly disparate from the structure that is now more explicitly recited in independent Claims 1 and 9. Specifically, the structure of Kordick does not disclose: (1) a rotor having N-number of lobes; (2) (N/2)-number of permanent magnet pole pairs; and (3) an electromagnet that is configured, upon receipt of a flow of electrical current, to generate a magnetic field that simultaneously opposes all of the permanent magnetic fields supplied from the permanent magnet pole pairs or simultaneously aids all of the permanent magnetic fields supplied from the permanent magnet pole pairs and that comprises latch windings that, upon receipt of a flow of electrical current, simultaneously generate the same number of magnetic pole pairs as there are permanent magnet pole pairs.

Stephenson was cited for allegedly disclosing a rotor having N-number of lobes, and (N/2)-number of permanent magnet pole pairs. However, as with Kordick, Stephenson fails to disclose, or even remotely suggest: (1) (N/2)-number of permanent magnet pole pairs; and (2) an electromagnet that is configured, upon receipt of a flow of electrical current, to generate a magnetic field that simultaneously opposes all of the permanent magnetic fields supplied from the permanent magnet pole pairs or simultaneously aids all of the permanent magnetic fields supplied from the permanent magnet pole pairs and that comprises latch windings that, upon receipt of a flow of electrical current, simultaneously generate the same number of magnetic pole pairs as there are permanent magnet pole pairs.

A. Claims 1, 5-7, 9, and 13

All Elements of Independent Claims Not Disclosed or Suggested

A failure to teach or suggest each and every feature of a claim is fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim obvious, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of prior art must also teach or suggest *each and every claim feature*. See In re Royka, 490 F.2d 981, 180 USPQ

580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences recently confirmed, a proper obviousness determination requires "a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art." See In re Wada and Murphy, Appeal 2007-3733, citing In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). Further, the necessary presence of all claim features is axiomatic, since the Supreme Court has long held that obviousness is a question of law based on underlying factual inquiries, including ascertaining the differences between *the claimed invention* and the prior art. Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) (emphasis added). Indeed, Applicant submits that this is why Section 904 of the MPEP instructs Examiners to conduct an art search that covers "the invention *as described and claimed*." (emphasis added). The Supreme Court in KSR Int'l v. Teleflex Inc. stated that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." KSR Int'l v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007) (quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006). This instruction buttresses the conclusion that it remains well-settled law that obviousness requires at least a suggestion of all of the features in a claim. See In re Wada and Murphy id., citing CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003) and In re Royka, 490 F.2d 981, 985 (CCPA 1974)).

As noted above, none of McKeown, Kordik, or Stephenson, together or in combination, suggest all of the elements of independent Claims 1 and 9.

Desirability or Suggestion for the Proposed Modification

To guard against hindsight, it is preferable that there is some teaching, suggestion, or motivation to in the cited prior art references to produce the claimed invention. In re Kahn, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006). Here, there is simply no suggestion whatsoever in McKeown (or in Kordick or Stephenson) to replace McKeown's spring-loaded brake with a stepper motor, such as the ones disclosed in the Kordic and Stephenson. This is because, as noted above, McKeown explicitly teaches that a stepper motor may function as the lock device. Even so, as already noted, the motors of Kordik and Stephenson do not teach or suggest all of the elements recited in the claims.

Proposed Modification Renders Applied References Unsatisfactory for Intended Purpose

In addition to the above, there is no reason whatsoever that a skilled artisan would be led to modify the stepper motors disclosed either Kordick or Stephenson to have (N/2)-number of permanent

magnet pole pairs, and an electromagnet that is configured, upon receipt of a flow of electrical current, to generate a magnetic field that simultaneously opposes all of the permanent magnetic fields supplied from the permanent magnet pole pairs or simultaneously aids all of the permanent magnetic fields supplied from the permanent magnet pole pairs and that comprises latch windings that, upon receipt of a flow of electrical current, simultaneously generate the same number of magnetic pole pairs as there are permanent magnet pole pairs.

The motor in Kordik has includes a rotor with 6 lobes and 4 permanent magnet pole pairs. Thus, the relationship of permanent magnet pole pairs to N-number of lobes (e.g., N=6) is ((N/2)+1)), and not (N/2). The reason for this, which is to increase total flux passage between the radial air gaps, is explicitly disclosed at col. 4, ll. 39-68. Moreover, Stephenson does not even remotely suggest using permanent magnets at all, let alone (N/2)-number of them. Furthermore, if either of the motors of McKeown, Kordik, or Stephenson were modified to include an electromagnet that is configured, upon receipt of a flow of electrical current, to generate a magnetic field that simultaneously opposes all of the permanent magnetic fields supplied from the permanent magnet pole pairs or simultaneously aids all of the permanent magnetic fields supplied from the permanent magnet pole pairs and that comprises latch windings that, upon receipt of a flow of electrical current, simultaneously generate the same number of magnetic pole pairs as there are permanent magnet pole pairs, the motors would not satisfactorily operate according to the intended purpose, which is clear evidence of non-obviousness. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) (If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification).

Proposed Modification Changes the Principle of Operation

If a proposed modification of the prior art would change the principle of operation of the modified prior art invention, then the teachings of the references are insufficient to establish a *prima facie* case of obviousness. In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). The Office action proposes a modification, as outlined above, that would result the stepper motor of Kordik having N-number of rotor lobes and (N/2)-number of permanent magnet pole pairs. Kordik explicity teaches that the ((N/2)+1)-number of permanent magnet pole-pairs hold the rotor in a detent position. This would not be possible with the arrangement suggested by the examiner.

B. Claims 14-20

As to independent Claim 14, McKeown and Kordick together fail to even remotely suggest a latch electromagnet that is configured, when latch control signals are supplied thereto, to generate a magnetic field that selectively opposes or aids the permanent magnetic fields supplied from **all** of the permanent magnets. And regarding independent Claim 20, McKeown and Kordick also together fail to disclose or suggest at least an electromagnet coupled to receive selectively supplied latch control signals and configured to (i) generate a magnetic field force that opposes rotation of the latch rotor and has a magnitude sufficient to prevent rotation of the power drive unit when the latch control signals are supplied, and (ii) not generate the magnetic field when the latch control signals are not supplied.

Consistent with the analysis above regarding independent Claims 1 and 9, independent Claims 14 and 20 (and dependent Claims 15-19) are not obvious because all of the claim elements are not disclosed or suggested, the proposed modification would render the motors unsatisfactory for the intended purpose, and/or the proposed modification would change the principles of operation of the motors. Specifically, if the stepper motors disclosed in McKeown, Kordick, and/or Stephenson were energized as claimed, the motors would not operate, as intended, as stepper motors.

Response to Additional Item

In addition to the above arguments, Applicants note that on page 2 of the final Office action the examiner asserts that the phrase "configured to" is treated similar to the phrase "adapted to," and thus accords no patentable weight to language that follows "configured to." This runs contrary to established legal precedent. See, e.g., In re Swinehart, 439 F.2d 210, 169 USPQ 226 (CCPA 1971); WMS Gaming, Inc. V. Int'l Game Tech., 184 F.3d 1339, 1348 (Fed. Cir. 1999). Something that is physically configured to implement a particular function in response to a particular stimulus is wholly disparate from something that is adapted to perform a function, and the functional recitation cannot be interpreted as a mere statement of intended use.

Respectfully submitted,

INGRASSIA FISHER & LORENZ

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By: /PAUL D. AMROZOWICZ/
Paul D. Amrozowicz
Reg. No. 45,264
Attorney for Applicant
(480) 385-5060