REMARKS

This is a full and timely response to the final Office action mailed June 9, 2009 Reexamination and reconsideration in view of the foregoing amendments and following remarks is respectfully solicited.

Claims 1, 5-9, and 13-20 are pending in this application, with Claims 1, 9, 14, and 20 being the independent claims. Claims 1, 5, 9, 13-16, and 20 have been amended, and Claims 2-4 and 10-12 have been canceled herein. No new matter is believed to have been added.

Rejections Under 35 U.S.C. § 103

Claims 1-7 and 9-20 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent Nos. 6,325,331 (McKewon) and 3,984,711 (Kordik); and Claim 8 was rejected under 35 U.S.C. § 103 as allegedly being unpatentable over McKewon, Kordik, and U.S. Patent Publication No. 2005/0247529 (Gaines). This rejection is respectfully traversed.

Independent Claim 1 relates to an actuator assembly that includes a power drive unit, an actuator, a latch rotor, one or more permanent magnets spaced apart from and at least partially surrounding the latch rotor, and an electromagnet. Independent Claim 1 has been amended herein to recite, *inter alia*: (1) that the latch rotor comprises a main body having N-number of lobes extending radially therefrom; (2) (N/2)-number of permanent magnet pole pairs spaced apart from and at least partially surrounding the latch rotor; and (3) that the electromagnet comprises a latch stator non-rotationally mounted adjacent to, and at least partially surrounding, the latch rotor, the latch stator having the permanent magnet pole pairs mounted thereon, and a plurality of latch windings wound around at least a portion of the latch stator, the latch windings disposed adjacent the magnet pole pairs and adapted to receive the flow of electrical current, the latch windings wound on the latch stator such that, upon receipt of the flow of electrical current, the latch windings generate the same number of magnetic pole pairs as there are permanent magnet pole pairs. Independent Claim 9 relates to an actuator drive unit that includes the same recited elements as independent Claim 1, except for the actuator.

Independent Claims 14 and 20 relate to an actuation control system. Independent Claim 14 now recites, *inter alia*, that the latch electromagnet is coupled to receive the latch control signals that are selectively supplied from the control circuit and is configured, when the latch control signals are supplied, to generate a magnetic field that selectively opposes or aids the permanent magnetic fields supplied from all of the permanent magnets. Independent Claim 20 now recites, *inter alia*, that the electromagnet is coupled to receive the latch control signals that are selectively supplied from the control circuit and is 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 when the latch control signals are not supplied.

McKewon 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, McKewon discloses an actuator (27) that includes a stepper motor (29), a gear train (31), an output member (33), and an optional damping member (35). McKewon 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 a rotor having N-number

or lobes, (N/2)-number of permanent magnet pole pairs, and an electromagnet comprising latch windings that, upon receipt of a flow of electrical current, generate the same number of magnetic pole pairs as there are permanent magnet pole pairs. Indeed, the stepper motor of Kordick would not operate according to its intended purpose, which is clear evidence of non-obviousness.

As to independent Claim 14, Kordick also fails 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. Again, this would run wholly contrary to the disclosed and intended operation of the stepper motor disclosed in Kordick. If the stepper motor disclosed in Kordick were energized in this manner, it would not operate, as it was intended, as a stepper motor. A complete change in the principle of operation of the elements disclosed in an applied reference is also evidence of non-obviousness.

Kordick also fails to disclose the above recited features of independent Claim 20, and for the same reason as discussed above for independent Claim 14, does not render independent Claim 20 obvious.

For at least the foregoing reasons, Applicants submit that a skilled artisan, upon reading both McKewon and Kordick, would not be led to the invention defined by at least independent Claims 1, 9, 14, or 20.

With respect to dependent Claim 8, while not conceding that Gaines discloses or suggests what is alleged in the Office action, Applicants nonetheless submit that Gaines fails to make up for the deficiencies of the McKewon/Kordik combination that were delineated above.

In view of the foregoing, reconsideration and withdrawal of the § 103 rejections is requested.

Conclusion

Based on the above, independent Claims 1, 9, 14, and 20 are patentable over the citations of record. The dependent claims are also deemed patentable for the reasons given above with respect to the independent claims and because each recite features

which are patentable in its own right. Individual consideration of the dependent claims is respectfully solicited.

The other art of record is also not understood to disclose or suggest the inventive concept of the present invention as defined by the claims.

Hence, Applicant submits that the present application is in condition for allowance. Favorable reconsideration and withdrawal of the objections and rejections set forth in the above-noted Office action, and an early Notice of Allowance are requested.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the below-listed number.

If for some reason Applicant has not paid a sufficient fee for this response, please consider this as authorization to charge Ingrassia, Fisher & Lorenz, Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

INGRASSIA FISHER & LORENZ

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By: /PAUL D. AMROZOWICZ, REG. NO. 45264/
Paul D. Amrozowicz
(480) 385-5060