DETAILED ACTION

1. Claims 1-15 of U.S. Application 15/205533 filed on July 8, 2016 are presented for examination.

Notice of Pre-AIA or AIA Status

2. The present application is being examined under the pre-AIA first to invent provisions.

Domestic Benefit

3. The applicant has claimed domestic benefit to provisional application 61/748974 and has stated that this provisional application (61/748974) is a continuation-in-part (CIP) of application 13/454839. However MPEP 201.04 states that a provisional application in not entitled to a right to priority or to benefit of an earlier filing date of any other application (see caption below) and MPEP 201.08 states that a continuation-in-part application can only claim benefit to a prior filed non-provisional application. Accordingly the examiner recommends that the applicant provide a corrected Application Data Sheet (ADS).

(4) A provisional application is not entitled to the right of priority under 35 U.S.C. 119 or 35 U.S.C. 365(a) or § 1.55, or to the benefit of an earlier filing date under 35 U.S.C. 120, 121 or 365(c) or § 1.78(a) of any other application. No claim for priority under 35 U.S.C. 119(e) or § 1.78(a)(4) may be made in a design application based on a provisional application. No request under § 1.293 for a statutory invention registration may be filed in a provisional application. The requirements of §§ 1.821 through 1.825 regarding application disclosures containing nucleotide and/or amino acid sequences are not mandatory for provisional applications.

Information Disclosure Statement

4. The information disclosure statements (IDS) submitted on November 29, 2016 and January 23, 2017 are in compliance with provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- Regarding claim 9, lines 2-4, there is no prior disclosure of "both of said electromagnet assembly and said permanent magnet assembly is oscillated with respect to the other delivery of said electrical signal" in the specification or drawings.

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

- The features of claim 9, lines 2-4 that "both of said electromagnet assembly and said permanent magnet assembly is oscillated with respect to the other delivery of said electrical signal" are not shown in the drawings.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

7. Claim 9 objected to because of the following informalities:

- Regarding claim 9, lines 2-4 "both of said electromagnet assembly and said permanent magnet assembly is oscillated with respect to the other delivery of said electrical signal” should be -- both of said electromagnet assembly and said permanent magnet assembly is oscillated with respect to the other during delivery of said electrical signal --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 8 and 9 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly

claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

10. Regarding claim 8, lines 2-4 "one of said electromagnet assembly or said permanent magnet assembly is oscillated with respect to the other during delivery of said electrical signal." This limitation is unclear because it merely recites a function (that one of the electromagnet assembly or the permanent magnet assembly is oscillated with respect to each other) without providing any indication about how this function is performed.

11. Regarding claim 9, lines 2-4 "both of said electromagnet assembly and said permanent magnet assembly is oscillated with respect to the other delivery of said electrical signal." This limitation is unclear because it merely recites a function (that both the electromagnet assembly and the permanent magnet assembly is oscillated with respect to each other) without providing any indication about how this function is performed.

Claim Rejections - 35 USC § 103

12. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1, 2, 5, 7, 8, 10 and 14 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles et al (Miles) (U.S. PGPub No. 20110193503)** in view of **Elmaleh (U.S. PGPub No. 20100071636)**.

14. Regarding claim 1, Miles teaches (see annotated fig. 1 and fig. 3 below) a method of controlling the temperature of an electrical device (since Miles controls the amount of heat generated in the coils, see Abstract; ¶ 9; ¶ 10; ¶ 15) comprising:

providing a core (24) for an electromagnet assembly (¶ 35);

positioning a coil (see annotated fig. 1 below) sized for placement about said core forming an electromagnet assembly (22) having a first positive magnetic pole (see annotated fig. 1 below) and a first negative magnetic pole (see annotated fig. 1 below) defining a longitudinal axis of said electromagnet assembly (22) (inherent for electromagnets to have opposite poles, ¶ 34 ¶ 35; ¶ 36);

providing a permanent magnet (16) having a second positive pole and a second negative pole (since it is inherent for permanent magnets to have N and S poles) (¶ 34);

delivering an electrical signal to said coil (see annotated fig. 1 below) to energize said electromagnet assembly (22) causing said electromagnet assembly (22) to generate a magnetic field (¶ 34 ¶ 35; ¶ 36).

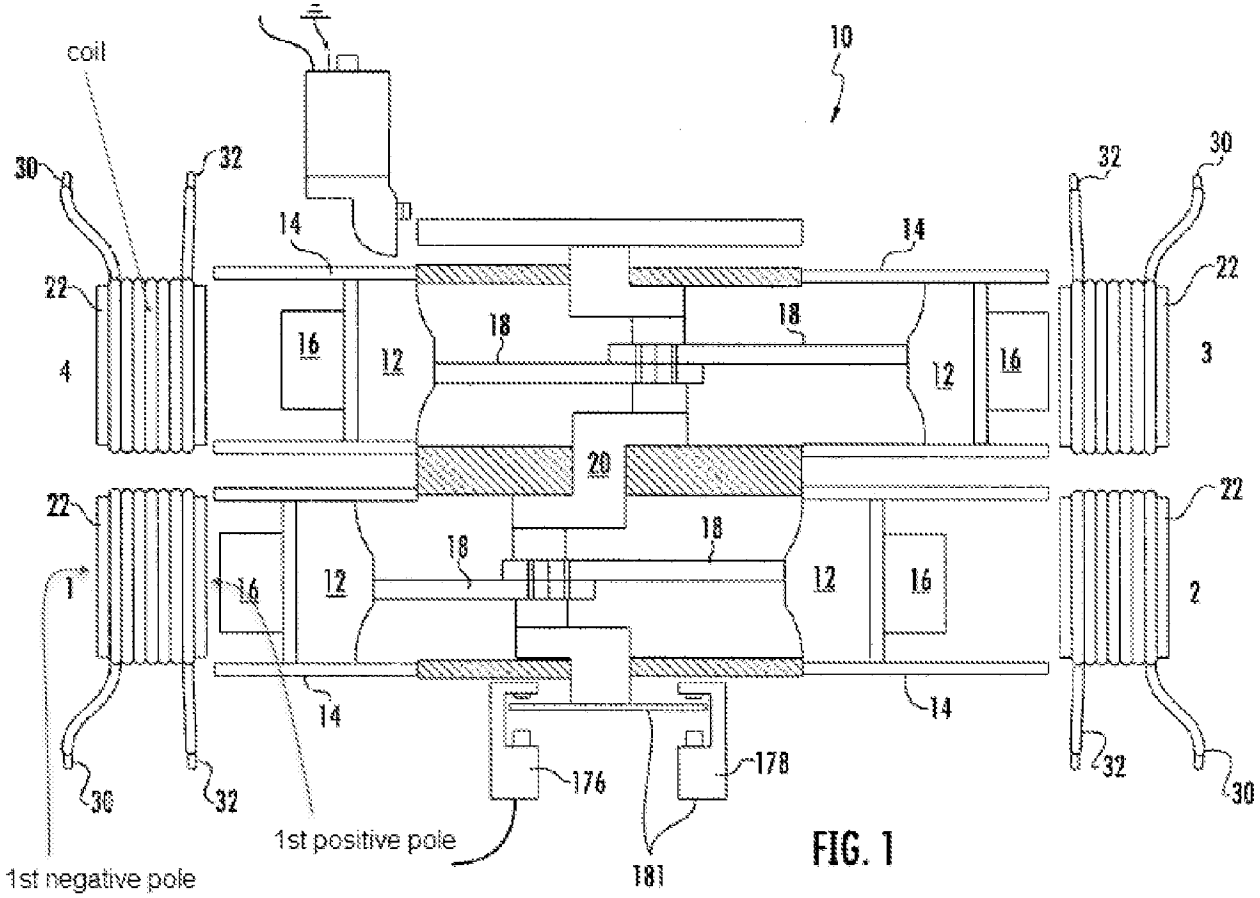

coil
10
30
32
14
22
4
16
12
18
28
3
2
1
36
176
178
181
1st positive pole
1st negative pole

FIG. 1

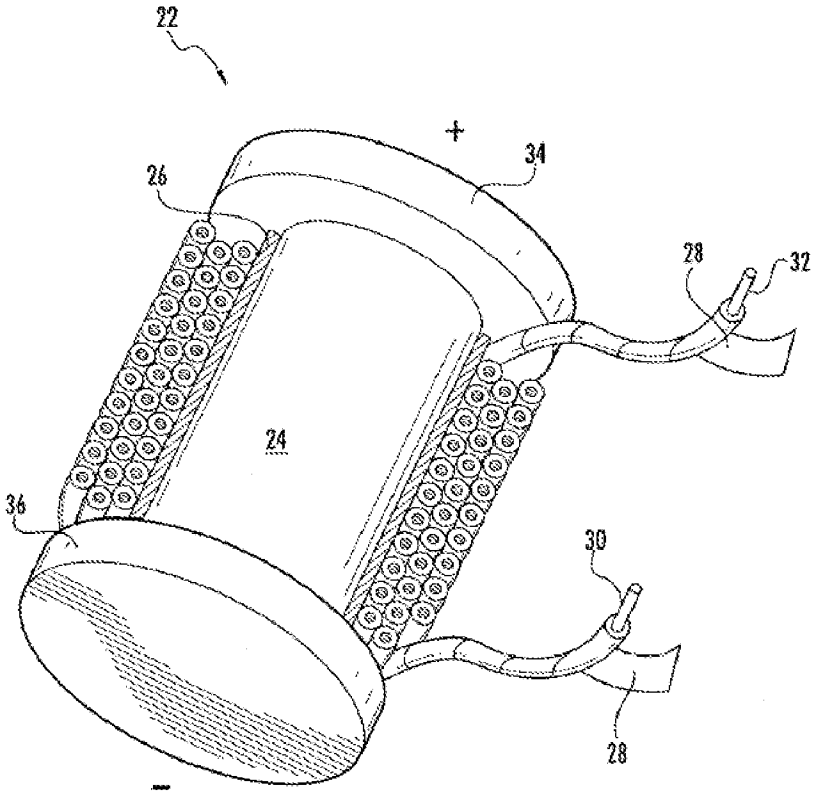
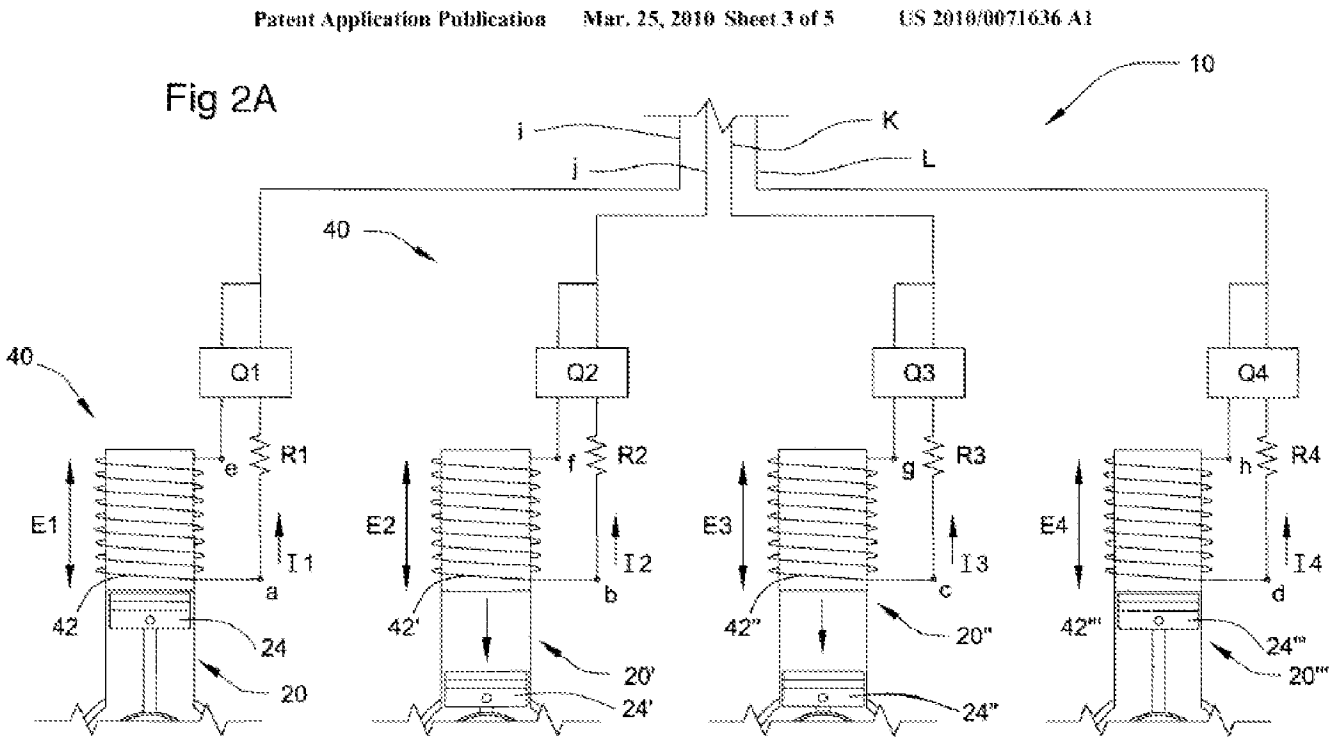


FIG. 3

Miles does not explicitly teach positioning said first positive magnetic pole in alignment with said second magnetic pole; connecting an output cable to said electromagnet assembly for distributing an electrical pulse generated upon the collapse of said magnetic field.

However, Elmaleh teaches (see annotated fig. 4 and fig. 2A below) positioning said first positive magnetic pole (see annotated fig. 4 below) in alignment with said second magnetic pole (see annotated fig. 4 below) (¶ 21; ¶ 35; ¶ 25; ¶ 26; ¶ 32; ¶ 36; ¶ 37);

connecting an output cable (i, j, K, L) to said electromagnet assembly (40) for distributing an electrical pulse generated upon the collapse of said magnetic field (¶ 32; ¶ 35; ¶ 36; ¶ 37) in order to more precisely synchronize the actuation of the pistons thereby improving output force (Elmaleh, ¶ 37, ¶ 8).



Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Miles and provide positioning said first positive magnetic pole in alignment with said second magnetic pole; connecting an output cable to said electromagnet assembly for distributing an electrical pulse generated upon the collapse of said magnetic field as taught by Elmaleh in order to more precisely synchronize the actuation of the pistons thereby improving output force (Elmaleh, ¶ 37, ¶ 8).

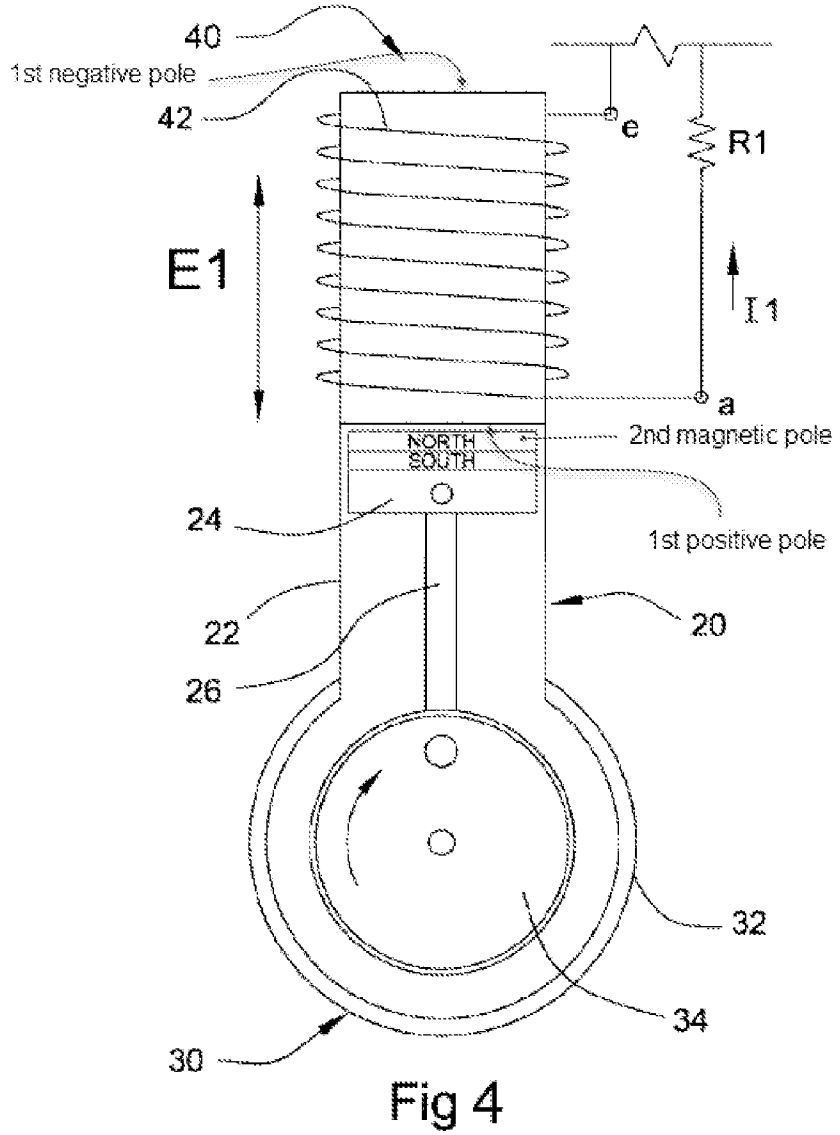


Fig 4

15. Regarding claim 2/1, Miles as modified teaches the device of claim 1, Miles further teaches wherein said electrical signal is an electrical pulse (¶ 11; ¶ 39; ¶ 42).

16. Regarding claim 5/1, Miles as modified teaches the device of claim 1, Miles further teaches (see annotated fig. 1 and fig. 3 above) said core (24) is longer than said coil (see annotated fig. 1 above) (¶ 35; fig. 1).

17. Regarding claim 7/1, Miles as modified teaches the device of claim 1, Elmaleh further teaches (see annotated fig. 4 and fig. 2A below) said first negative pole (see annotated fig. 4 above) is aligned with said second negative pole (see annotated fig. 4 above) (¶ 21; ¶ 35; ¶ 25; ¶ 26; ¶ 32; ¶ 36; ¶ 37; fig. 4).

18. Regarding claim 8/1, Miles as modified teaches the device of claim 1, Miles further teaches (see annotated fig. 1 and fig. 3 above) wherein one of said electromagnet assembly or said permanent magnet assembly (in this case the permanent magnet assembly 16) is oscillated with respect to the other during delivery of said electrical signal (¶ 34).

19. Regarding claim 10/1, Miles as modified teaches the device of claim 1 but does not explicitly teach an external electrically powered device, said external device being in electrical communication with said distributed electrical pulse.

However, Elmaleh teaches an external electrically powered device (this is an alternator, see ¶ 9, ¶ 38, ¶ 45) , said external device (alternator) being in electrical communication with said distributed electrical pulse (¶ 9, ¶ 38, ¶ 45) in order to improve reliability by providing a power source that recharges the battery (Elmaleh, ¶ 9, ¶ 38).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the device of Miles and provide an external electrically powered device, said external device being in electrical

communication with said distributed electrical pulse as taught by Elmaleh in order to more precisely synchronize the actuation of the pistons thereby improving output force (Elmaleh, ¶ 37, ¶ 8).

20. Regarding claim 14/1, Miles as modified teaches the device of claim 1, Miles further teaches the step of connecting a signal controller (180, 182) to said electromagnet assembly (22) for varying said electrical signal supplied to electromagnet assembly (22) (fig. 4; ¶ 39).

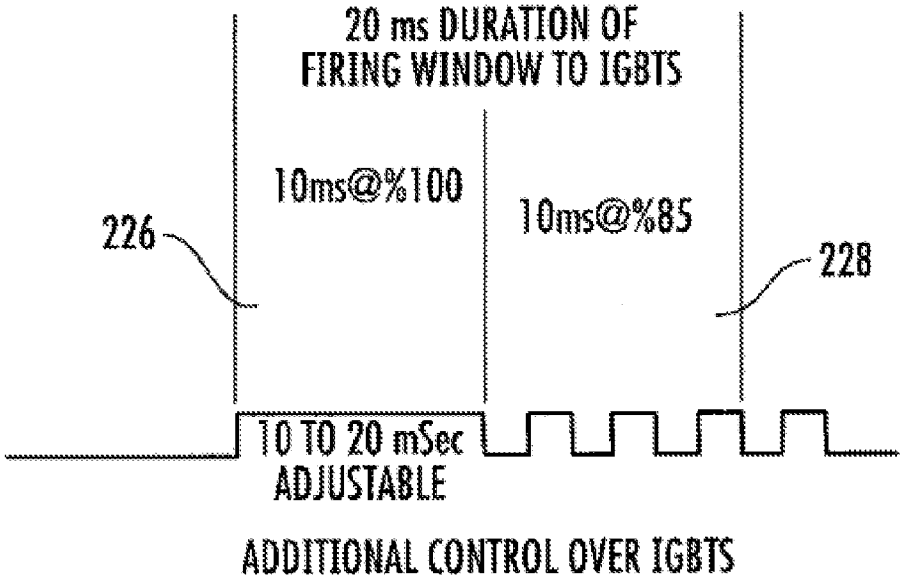
21. Claim 3 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** as applied to claim 2 above, and further in view of **Miles in the Embodiment of Figure 12 (Miles E2)**.

22. Regarding claim 3/2/1, Miles as modified teaches the device of claim 2 but does not explicitly teach wherein said electrical pulse is in the form of a square wave.

However Miles E2 teaches (see fig. 12 below) wherein said electrical pulse is in the form of a square wave (fig. 12, ¶ 42) in order to allow customization of the duty cycle of the electromagnets for a particular purpose such as reducing power consumption or improving peak torque (Miles, ¶ 42).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the device of Miles as modified and provide wherein said electrical pulse is in the form of a square wave as taught by Miles E2 in order to allow customization of the duty cycle of the electromagnets for a particular purpose such as reducing power consumption or improving peak torque (Miles, ¶ 42).

FIG. 12



23. Claim 4 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** and **Miles E2** as applied to claim 2 above, and further in view of **Filipeti et al (Filipeti) (U.S. PGPub No. 20120139464)**.

24. Regarding claim 4/3/2/1, Miles as modified teaches the device of claim 3 but does not explicitly teach wherein said square pulses are delivered at a rate of at least one kilohertz.

However Filipeti teaches wherein said square pulses are delivered at a rate of at least one kilohertz (¶ 105 to ¶ 108) in order to provide simple, accurate and precise speed control (Filipeti, ¶ 28, ¶ 29).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the device of Miles as modified and provide wherein said square pulses are delivered at a rate of at least one kilohertz as

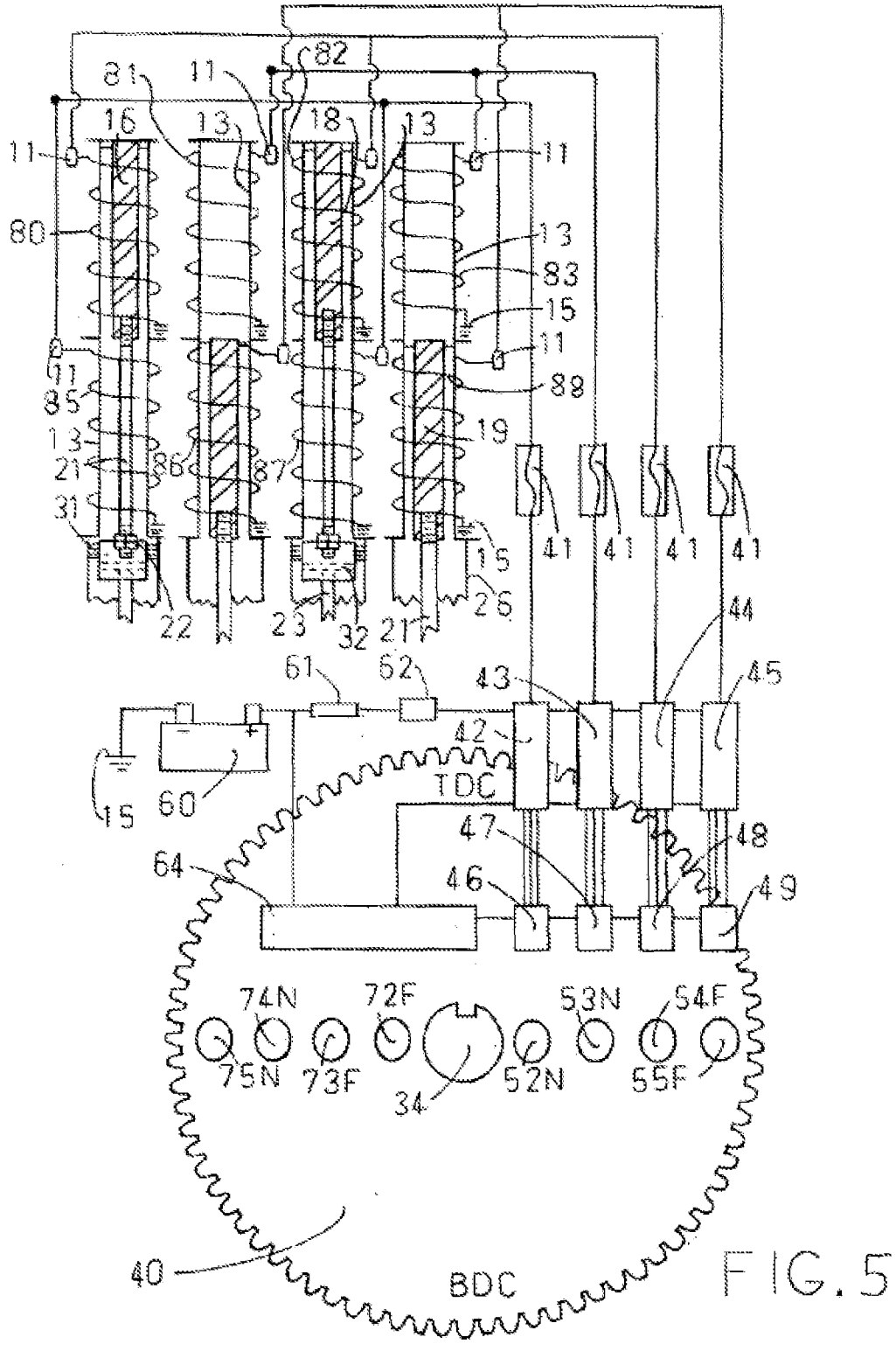
taught by Filipeti in order to provide simple, accurate and precise speed control (Filipeti, ¶ 28, ¶ 29).

24. Claim 6 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** as applied to claim 5 above, and further in view of **Parker (U.S. PGPub No. 20080042497)**.

26. Regarding claim 6/5/1, Miles as modified teaches the device of claim 5 but does not explicitly teach said core is twice as long as said coil.

However, Parker teaches (see fig. 5 below) said core (13) is twice as long as said coil (81) (¶ 12; ¶ 18; Abstract) in order to increase output power (Parker, Abstract; ¶ 5).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the device of Miles as modified and provide said core is twice as long as said coil as taught by Parker in order to increase output power (Parker, Abstract; ¶ 5).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32
21
44
61
62
43
45
42
TDC
15
60
47
48
64
46
49
74N
72F
53N
54F
75N
73F
52N
55F
34
40
BDC

FIG. 5

27. Claim 9 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** as applied to claim 1 above, and further in view of **Smith (U.S. Patent No. 4523114)**.

28. Regarding claim 9/1, Miles as modified teaches the device of claim 1 but does not explicitly teach wherein both of said electromagnet assembly and said permanent magnet assembly is oscillated with respect to the other delivery of said electrical signal.

However, Smith teaches (see figs. 2 and 3 below) wherein both of said electromagnet assembly (45) and said permanent magnet assembly (22) (piston assembly 22 contains permanent magnet 23) is oscillated with respect to the other delivery of said electrical signal (col. 4: 40-68; col. 5: 1-50; Abstract) in order increase the net force generated within the cylinder (Smith, col. 4: 60-68).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the device of Miles as modified and provide wherein both of said electromagnet assembly and said permanent magnet assembly is oscillated with respect to the other delivery of said electrical signal as taught by Smith in order increase the net force generated within the cylinder (Smith, col. 4: 60-68).

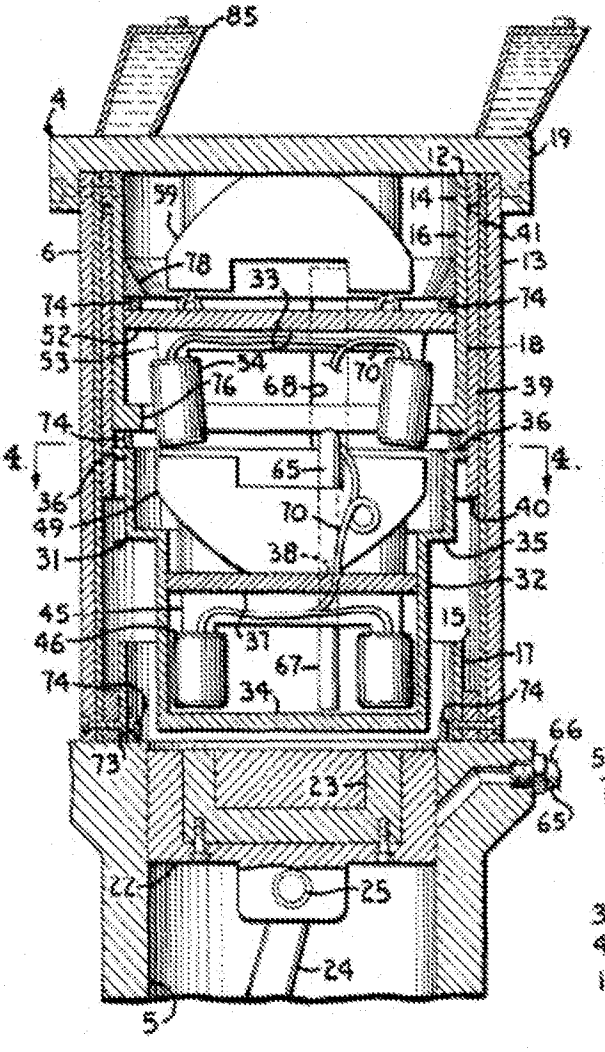

Fig. 2.

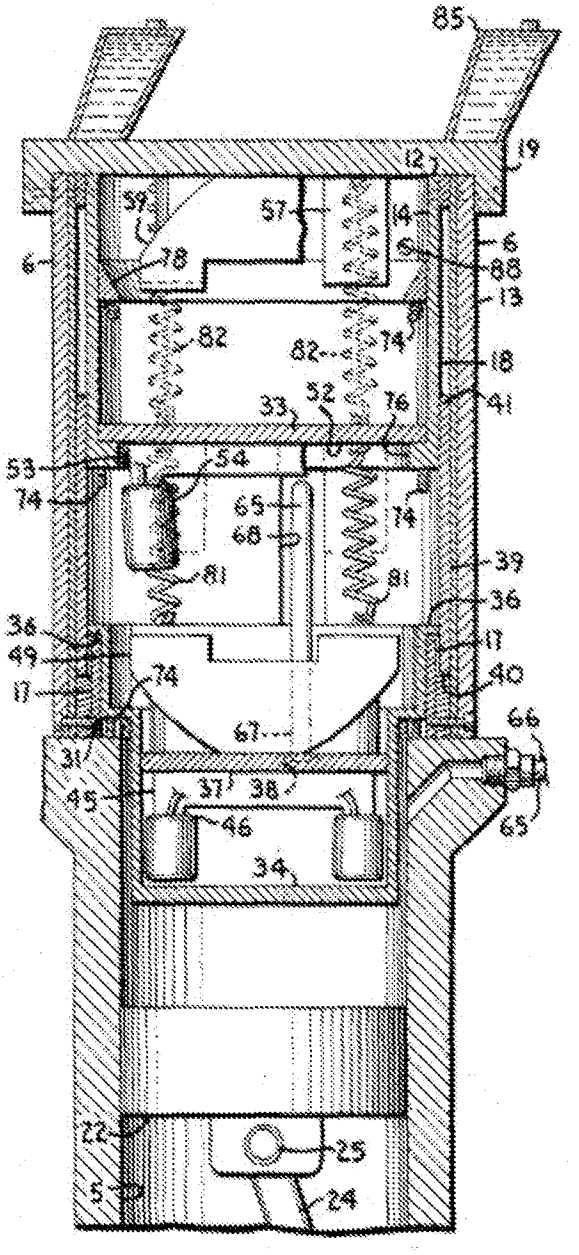

Fig. 3.

29. Claim 11 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** as applied to claim 10 above, and further in view of **Nordberg et al (Nordberg) (U.S. PGPub No. 20040251996)**.

30. Regarding claim 11/10/1, Miles as modified teaches the device of claim 10 but does not explicitly teach said external electrical device is a fusion reactor.

However, Nordberg teaches said external electrical device is a fusion reactor (fig. 1; Abstract; ¶ 25; ¶ 143; ¶ 179) in order to make use of power that is more sustainable than fossil fuels and without the radioactive waste products of fission reactors (Norberg, ¶ 3; ¶ 4).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the device of Miles as modified and provide said external electrical device is a fusion reactor as taught by Nordberg in order to make use of power that is more sustainable than fossil fuels and without the radioactive waste products of fission reactors (Norberg, ¶ 3; ¶ 4).

31. Claim 12 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** as applied to claim 10 above, and further in view of **Larsen et al (Larsen) (U.S. PGPub No. 20080296519)**.

32. Regarding claim 12/10/1, Miles as modified teaches the device of claim 10 but does not explicitly teach said external electrical device is a low energy nuclear reaction.

However, Larsen teaches said external electrical device is a low energy nuclear reaction (¶ 246) in order to make use of power that does not result in the production of hazardous long-lived radioactive isotopes (Larsen, ¶ 256).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Miles as modified and provide said external electrical device is a low energy nuclear reaction as taught by Larsen in order to make use of power that does not result in the production of hazardous long-lived radioactive isotopes (Larsen, ¶ 256).

33. Claim 13 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** as applied to claim 10 above, and further in view of **Pollack (U.S. PGPub No. 20100260624)**.

34. Regarding claim 13/10/1, Miles as modified teaches the device of claim 10 but does not explicitly teach said external electrical device is an electrolysis reaction.

However, Pollack teaches said external electrical device is an electrolysis reaction (Abstract; ¶ 8; ¶ 18; ¶ 65) in order to make use of power with reduced or no pollution and without the need for widespread transmission lines reducing the possibility of blackouts (Pollack, ¶ 65).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Miles as modified and provide said external electrical device is an electrolysis reaction as taught by Pollack in order to make use of power with reduced or no pollution and without the need for widespread transmission lines reducing the possibility of blackouts (Pollack, ¶ 65).

35. Claim 15 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Miles** in view of **Elmaleh** as applied to claim 14 above, and further in view of **Basic (U.S. PGPub No. 20090058207)**.

36. Regarding claim 15/14/1, Miles as modified teaches the device of claim 14, Elmaleh further teaches (see annotated fig. 4 and fig. 2A above) said electrical signal is in electrical communication with said distributed electrical pulse (¶ 32; ¶ 35; ¶ 36; ¶ 37).

Miles as modified does not explicitly teach said electrical signal is varied based upon a temperature of an external electrical device.

However, Basic teaches (see fig. 3 below) said electrical signal (on/off duty cycle signal sent to field coil 321) is varied based upon a temperature of an external electrical device (¶ 59 to ¶ 61) in order to provide improved accuracy in the control of output power (Basic, ¶ 13; Abstract).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further modify the device of Miles as modified and provide said electrical signal is varied based upon a temperature of an external electrical device as taught by Basic in order to provide improved accuracy in the control of output power (Basic, ¶ 13; Abstract).

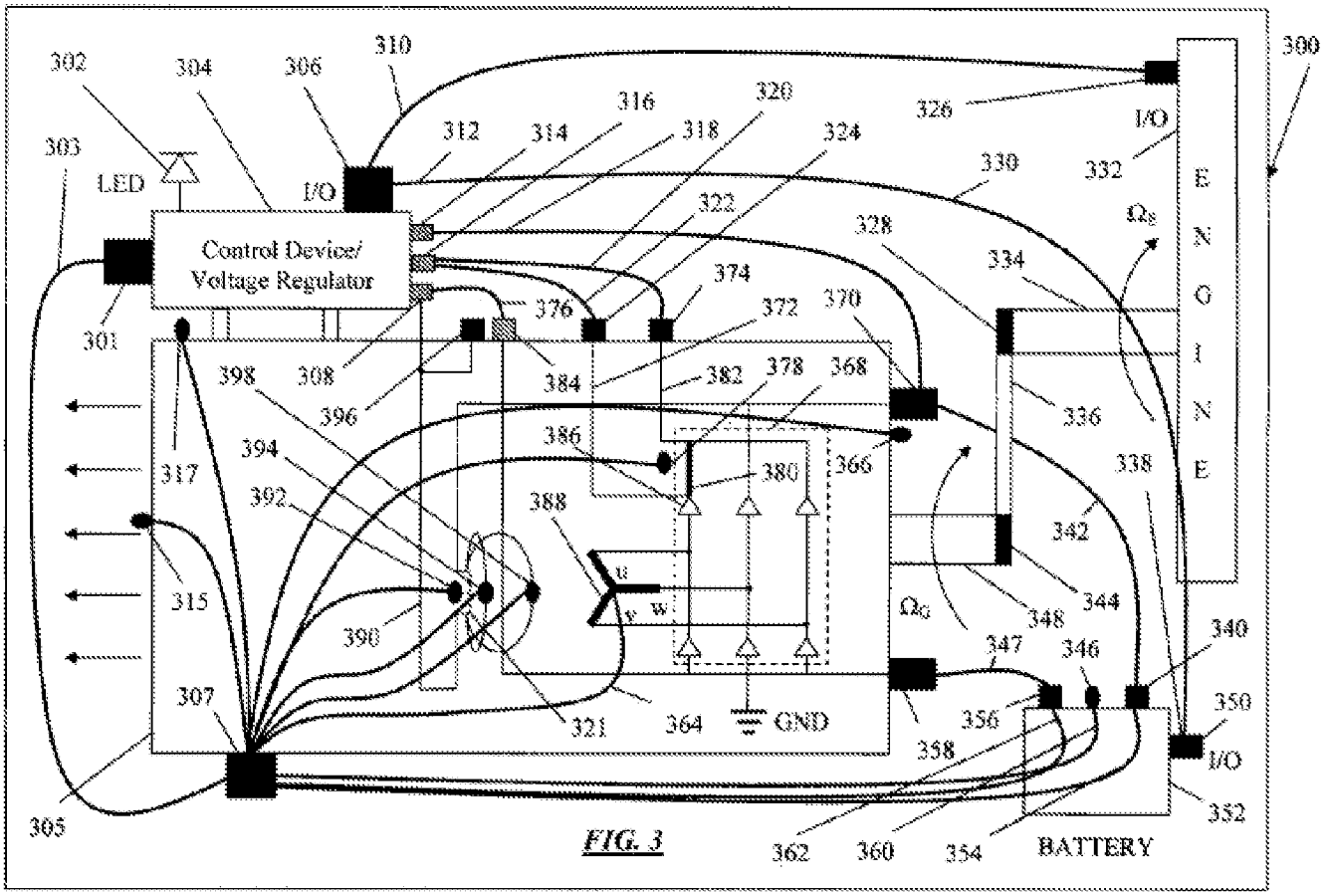

FIG. 3

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER SINGH whose telephone number is (571)270-0243. The examiner can normally be reached on M-Th 7:00AM-4:30PM EST; Every other F, 7:00-3:30pm EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an

interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joshua Benitez can be reached on 571-270-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ALEXANDER SINGH/
Examiner, Art Unit 2834

/BERNARD ROJAS/
Primary Examiner, Art Unit 2837

Notice of References Cited	Application/Control No. 15/205,533	Applicant(s)/Patent Under Reexamination CRISTOFORO ET AL.	
	Examiner ALEXANDER SINGH	Art Unit 2834	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2010/0071636 A1	03-2010	ELMALEH; Shimon	F02B63/04	123/2
*	B	US-2012/0139464 A1	06-2012	Filipeti; Davor	H02K1/246	318/400.34
*	C	US-2008/0042497 A1	02-2008	Parker; Stephen Patrick	H02K7/06	310/24
*	D	US-4,523,114 A	06-1985	Smith; Raymond H.	H02K33/00	310/24
*	E	US-2004/0251996 A1	12-2004	Nordberg, John T.	G21B1/05	335/295
*	F	US-2008/0296519 A1	12-2008	Larsen; Lewis G.	G21F1/00	250/515.1
*	G	US-2010/0260624 A1	10-2010	Pollack; Robert W.	F04B17/044	417/410.1
*	H	US-2009/0058207 A1	03-2009	Basic; Nisvet	H02P29/64	310/72
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

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	N					
	O					
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	Q					
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	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.