PATENT NUMBER and ISSUE DATE

U.S. **UTILITY** Patent Application

APPL NUM	FILING DATE	CLASS	SUBCLASS	GAU	EXAMINER
10076795	02/12/2002	180	65.1	3618	AVERY, B

**APPLICANTS: Norman David; Mimlitch Robert; Torrance Richard;

**CONTINUING DATA VERIFIED:

This appln claims benefit of 60/268,447 02/12/2001

** FOREIGN APPLICATIONS VERIFIED:

PG-PUB	DO NOT PUBLISH ☐	RESCIND ☐	
Foreign priority claimed	☐ yes ☐ no		ATTORNEY DOCKET NO
35 USC 119 conditions met	☐ yes ☐ no		50097-8USPT
Verified and Acknowledged Examiners's intials			

TITLE : System, apparatus, and method for providing control of a toy vehicle

U.S.DEPT. OF COMM./PAT.& TM-PTO-436L(Rev. 12-94)

NOTICE OF ALLOWANCE MAILED		Assistant Examiner	CLAIMS ALLOWED	
			Total Claims	Print Claim for O.G
ISSUE FEE			DRAWING		
Amount Due	Date Paid		Sheets Drwg.	Figs.Drwg.	Print Fig.
		Primary Examiner			
☐ TERMINAL DISCLAMER		PREPARED FOR ISSUE	Applicati n Examiner		

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FILED WITH: ☐ DISK (CRF) ☐ CD-ROM

(Attached in pocket on right inside flap)

SEARCH

Class	Sub.	Date	Exmr.
180	65.1 908 167 170 174		

INTERFERENCE SEARCHED

Class	Sub.	Date	Exmr.

SEARCH NOTES

(List databases searched. Attach search strategy inside.)

	Date	Exmr.

ISSUE SLIP STAPLE AREA (for additional cross-references)

ISSUING CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)	
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)
INTERNATIONAL CLASSIFICATION			
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INDEX OF CLAIMS

✓ ..... Rejected – (Through numeral) ... Canceled N ..... Non-elected A ..... Appeal
= ..... Allowed + ... Restricted I ..... Interference O ..... Objected

Claim Final	Claim Original	Date
	51	
1	52	✓
2	53	✓
3	54	✓
4	55	✓
5	56	O
6	57	O
7	58	O
8	59	O
9	60	O
10	61	O
11	62	O
12	63	O
13	64	N
14	65	
15	66	
16	67	
17	68	
18	69	
19	70	
20	71	
21	72	
22	73	
23	74	
24	75	
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39	90	✓
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Claim Final	Claim Original	Date
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JM 4/15/04 4/2/02

02-19-02 A

Patent Application
Docket No. 50097-8USPT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

David A. Norman and Robert H. Mimlitch, III and Richard Torrance

For: **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**

BOX APPLICATION
Commissioner for Patents
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Type or Print Name: Gary B. Solomon

Gary B Solomon
Signature

Sir:

PATENT APPLICATION TRANSMITTAL LETTER

Transmitted herewith for filing, please find the following:

X Specification, claims and abstract of the above-referenced patent application (total of 42 pages)

X 13 sheet(s) of drawing(s) (__formal/X informal). (FIGURES 1-12)

X Combined Declaration and Power of Attorney (unsigned)

An Assignment of the invention to: INNOVATION FIRST, INC.

X **Applicant Claims small entity status under 37 CFR 1.9 and 1.27.**

__X__ Priority is claimed under 35 U.S.C. § 119 based on filing in the U.S. Patent and Trademark Office:

	Application No.	Filing Date
(1)	60/268,447	February 12, 2001
(2)	____	____

__ (No.) Certified copy (copies) __ are attached; or ____ were previously filed on ____.

__ Other (specify):

The filing fee has been calculated as shown below:

FOR: SMALL ENTITY	NO. FILED	NO. EXTRA	RATE	FEE
BASIC FEE				$370
TOTAL CLAIMS	45- 20	25	$9	$225
INDEPENDENT CLAIMS	8- 3	5	$42	$210
MULTIPLE DEPENDENT CLAIM(S) PRESENTED			$260	$____
TOTAL FEE:				$805.00

__X__ Please charge my Deposit Account No. 10-0447 in the amount of $805.00. This sheet is attached in duplicate.

_ A check in the amount of $_____ for the filing fee of the application and a check in the amount of $40.00 for the filing fee for the Assignment is attached. Please charge any deficiency or credit any overpayment to Deposit Account No. 10-0447.

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__X__ Any additional filing fees required under 37 CFR 1.16 including fees for presentation of extra claims.

X Any additional patent application processing fees under 37 CFR 1.17 and under 37 CFR 1.20(d).

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X Any patent application processing fees under 37 CFR 1.17 and under 37 CFR 1.20(d).

_ The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).

X Any filing fees under 37 CFR 1.16 including fees for presentation of extra claims.

Respectfully submitted,

JENKENS & GILCHRIST, P.C.

By: _____
Gary B. Solomon
Reg. No. 44,347

Date: February 12, 2002

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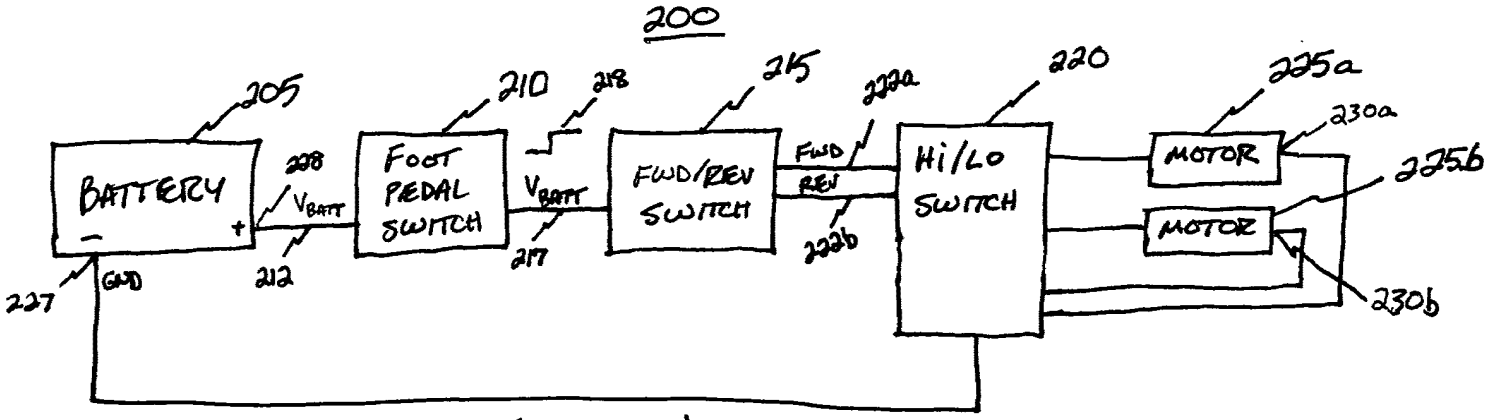
Fax: (214) 855-4300

FIG. 1



(PRIOR ART)
FIG. 2

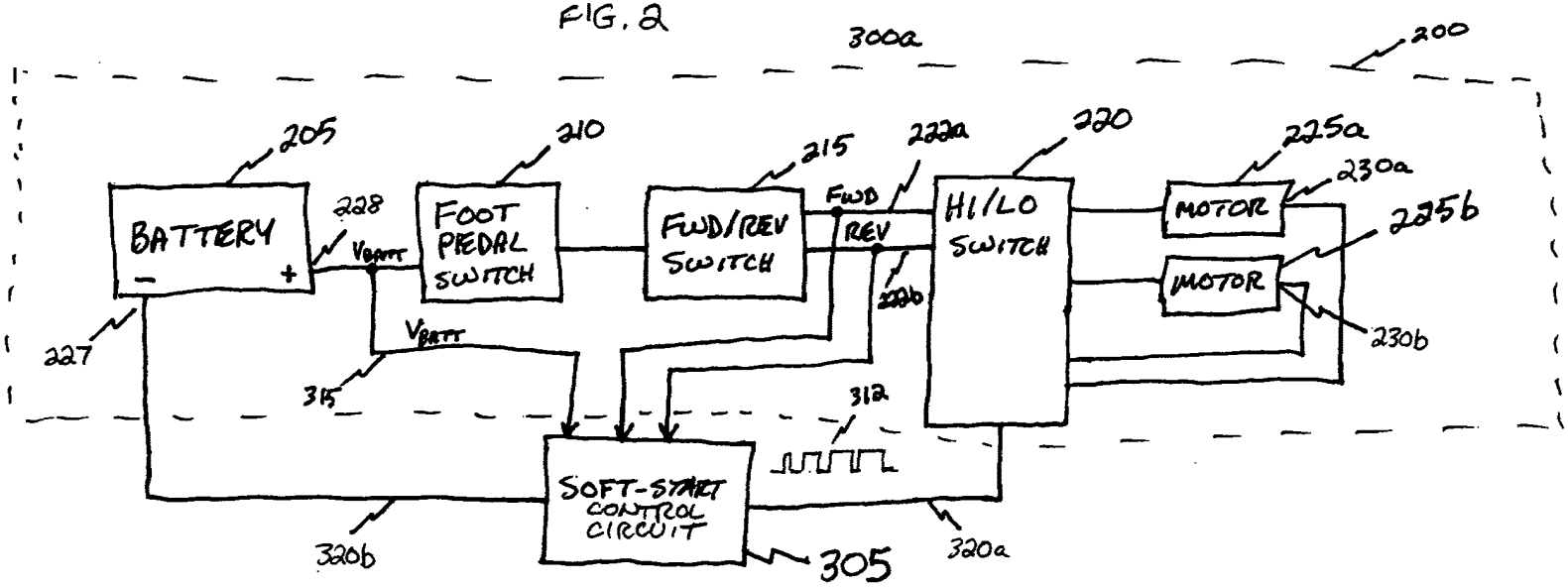


FIG. 3

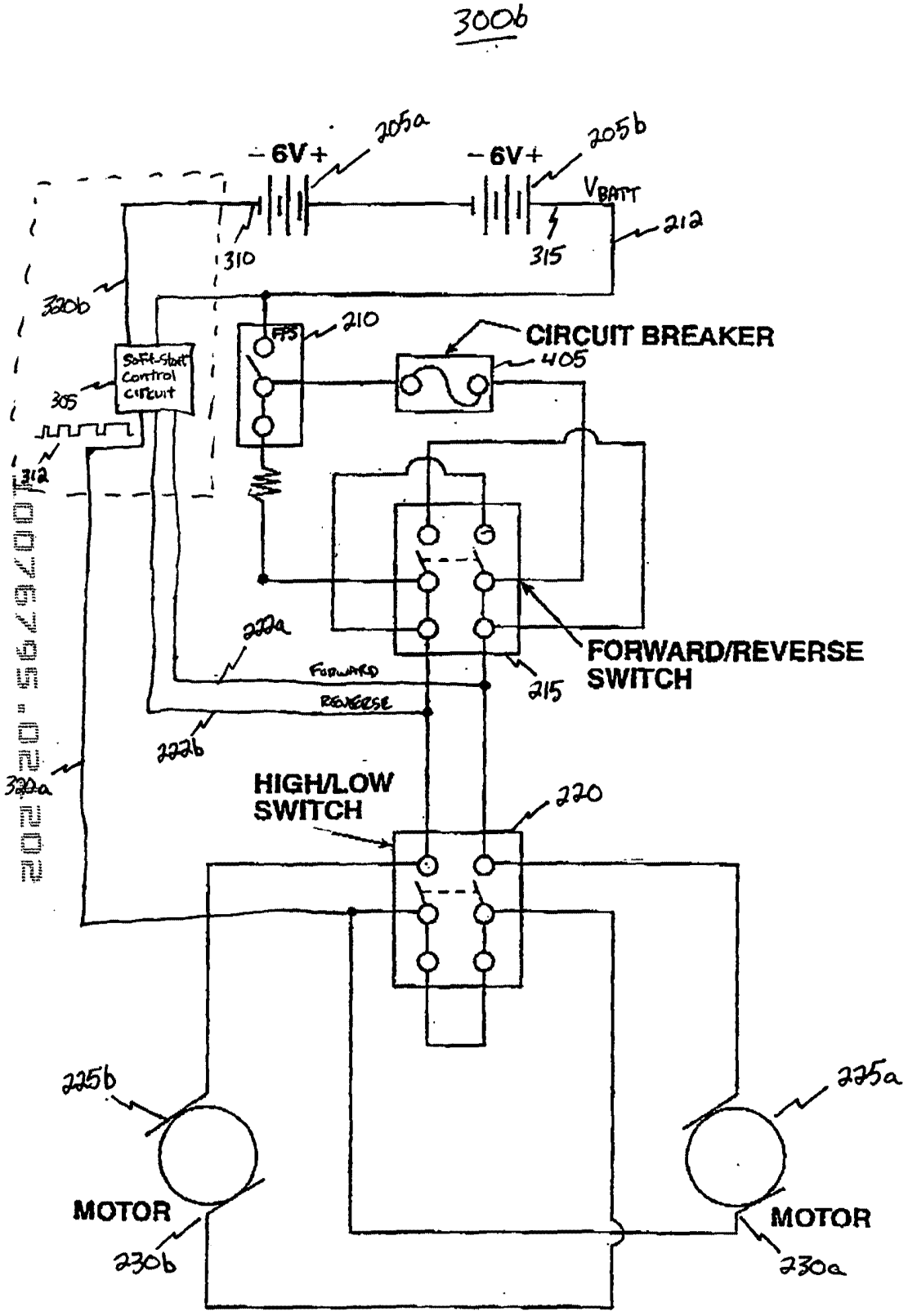

300b
205a
205b
-6V+
-6V+
V_{BATT}
212
310
315
320b
210
CIRCUIT BREAKER
405
Soft-Start Control Circuit
305
312
222a
FORWARD
REVERSE
222b
215
FORWARD/REVERSE SWITCH
320a
HIGH/LOW SWITCH
220
225b
225a
MOTOR
MOTOR
230b
230a

FIG. 4

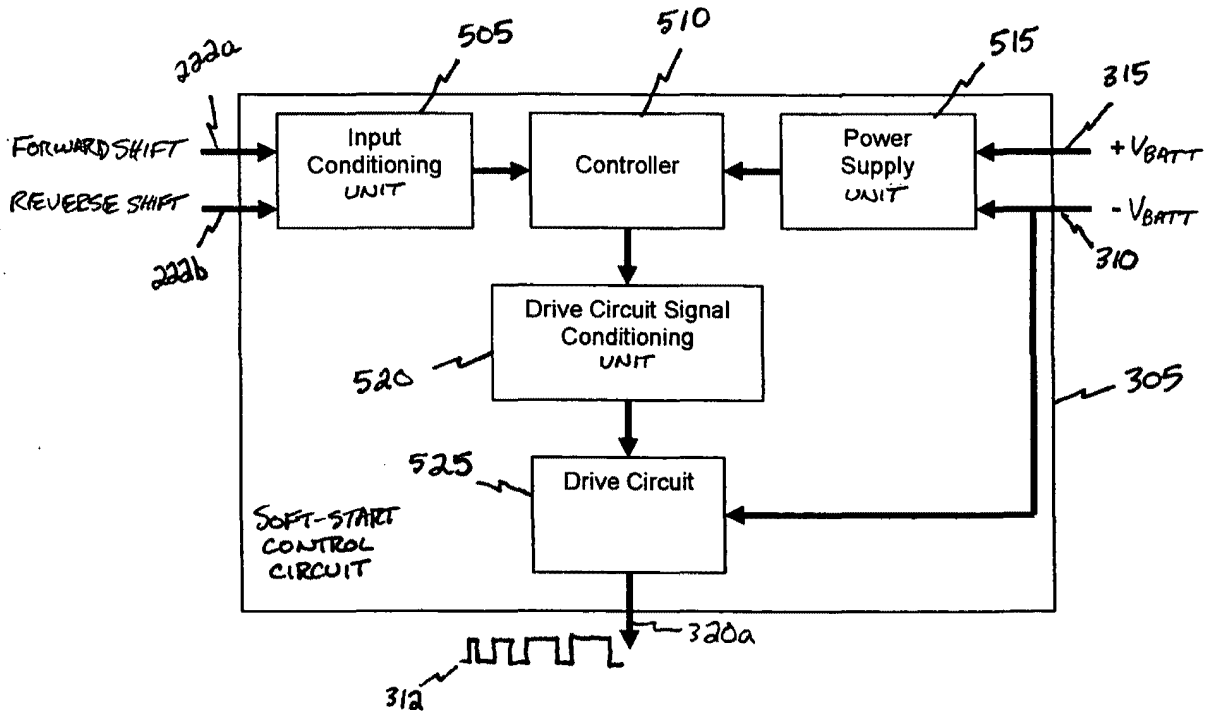


FIG. 5

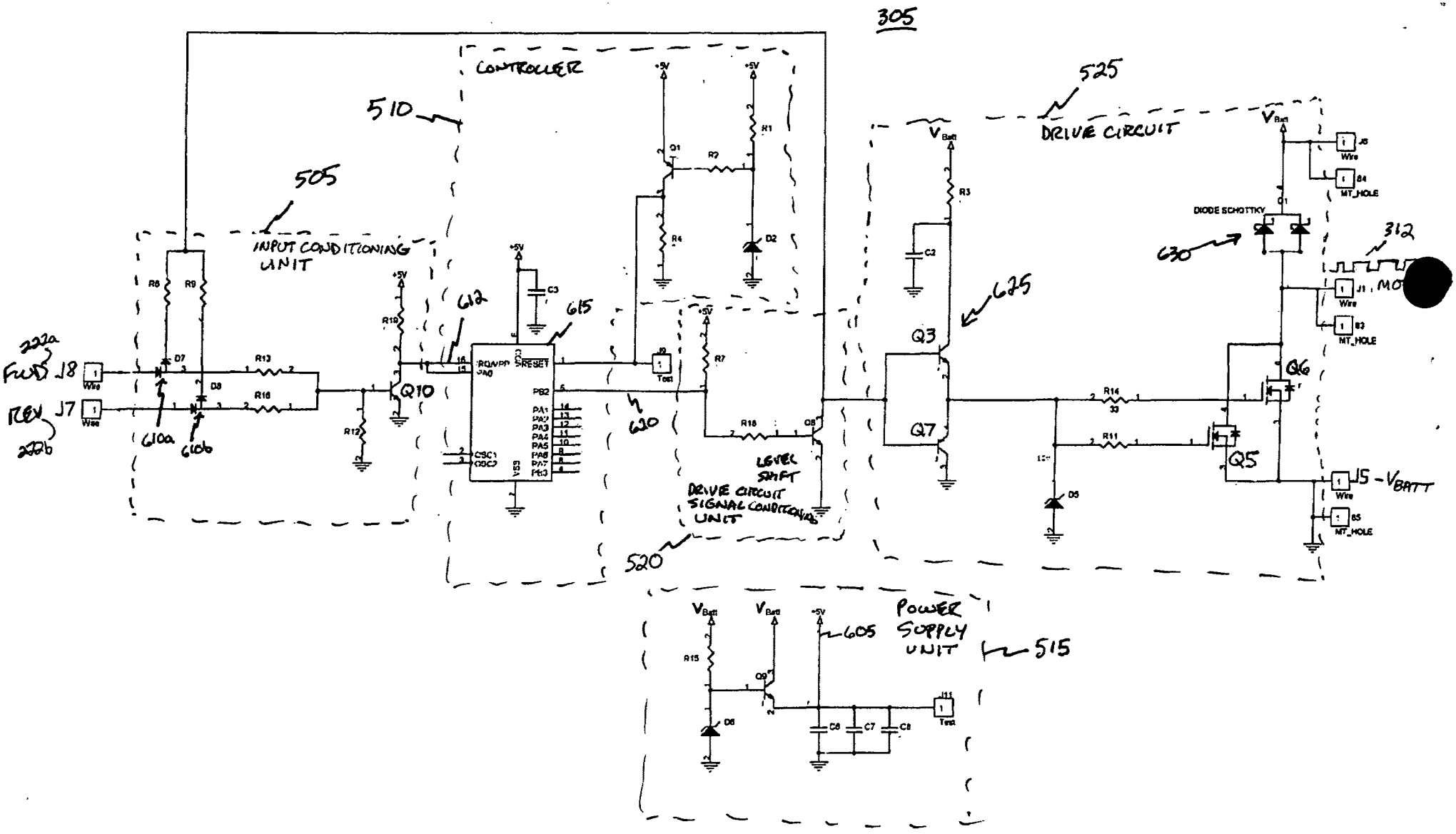

305
CONTROLLER
510
505
INPUT CONDITIONING UNIT
525
DRIVE CIRCUIT
222a
Fuse J8
222b
REV J7
610a
610b
612
615
620
625
630
312
LEVEL SHIFT
DRIVE CIRCUIT SIGNAL CONDITIONING UNIT
520
POWER SUPPLY UNIT
515
605
DIODE SCHOTTKY
J5 - VBATT
Q10
Q3
Q7
Q6
Q5

FIG. 6

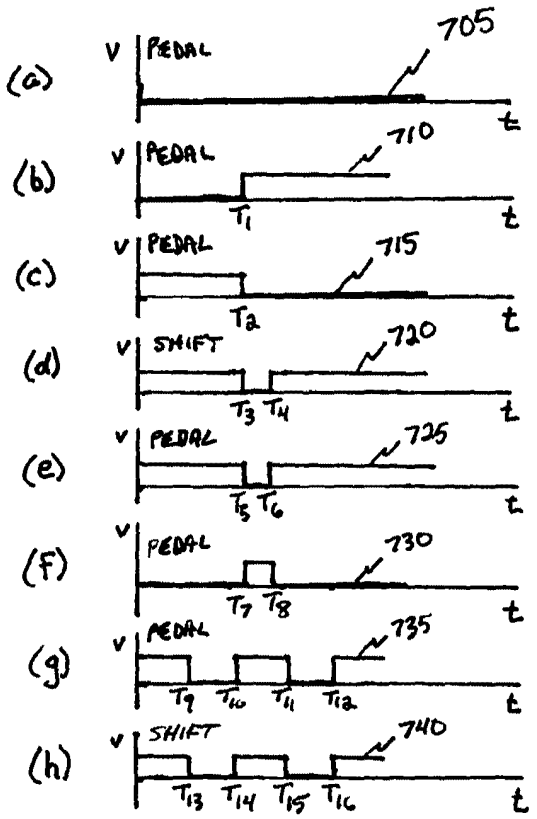


FIG. 7

800a

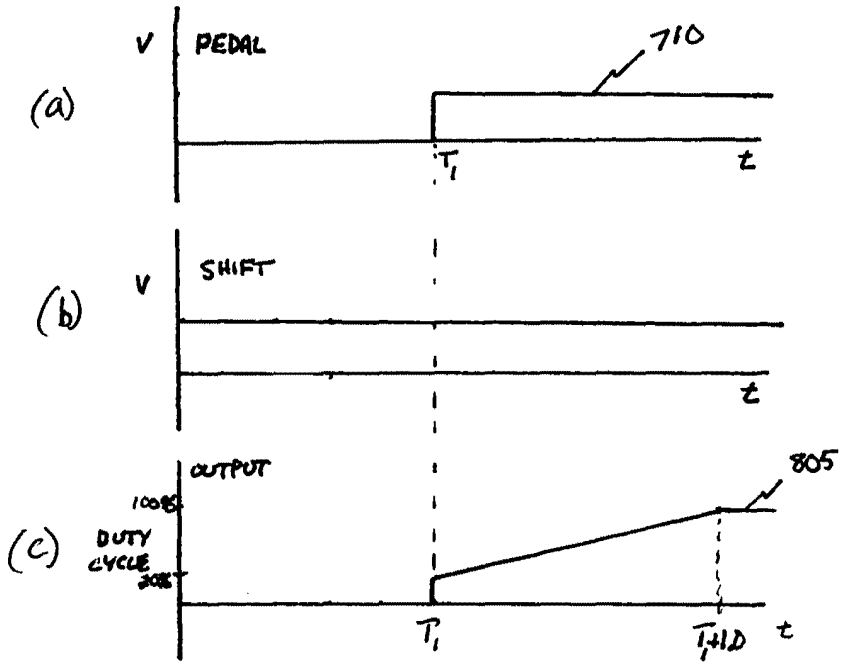


FIG. 8A

800b

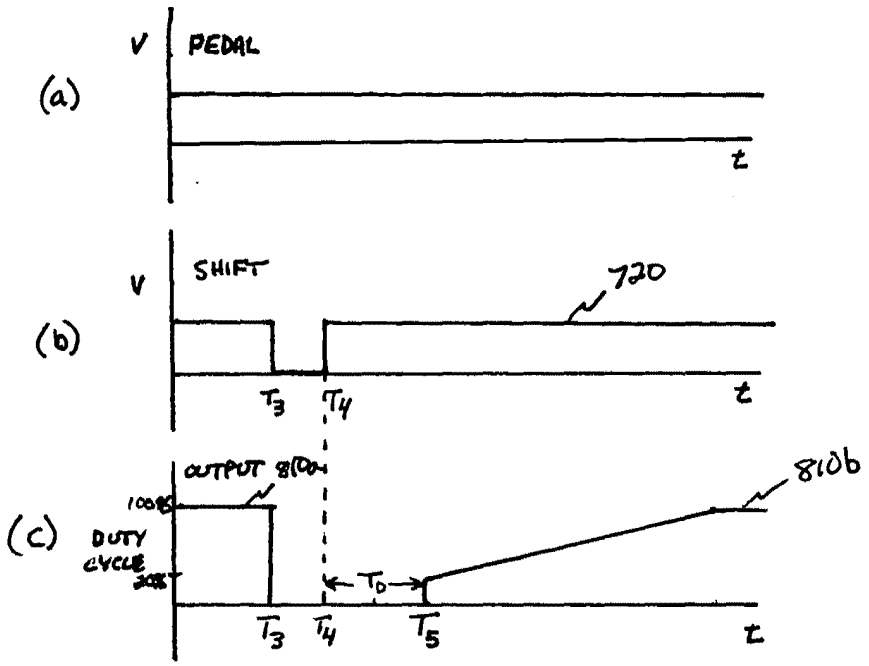


FIG. 8B

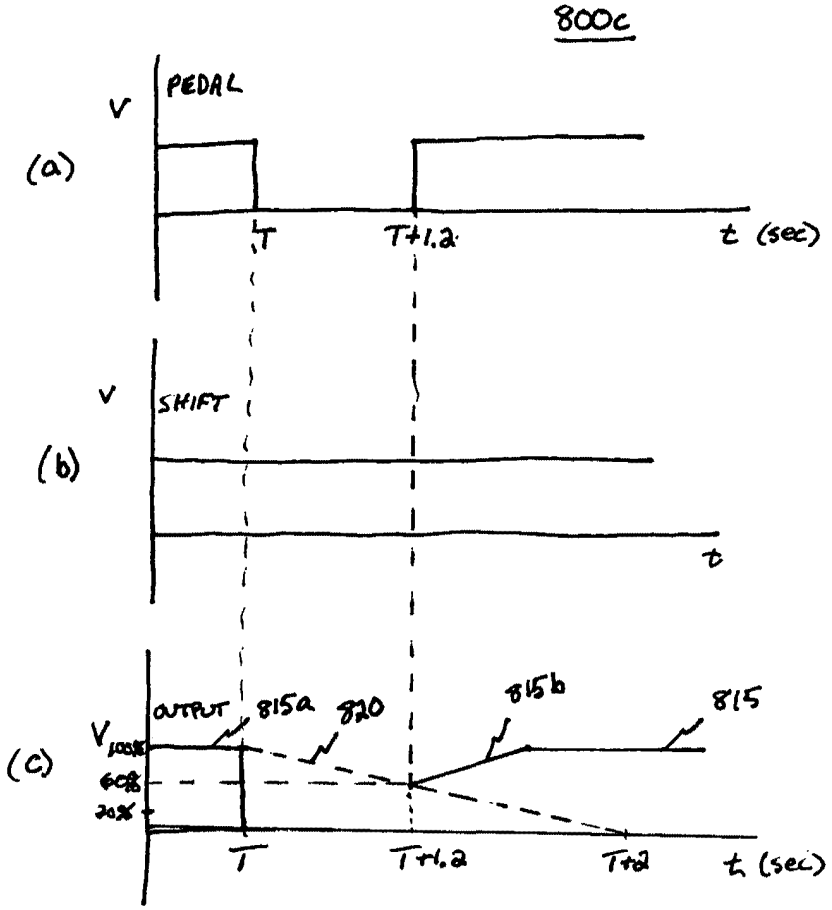


FIG. 8C

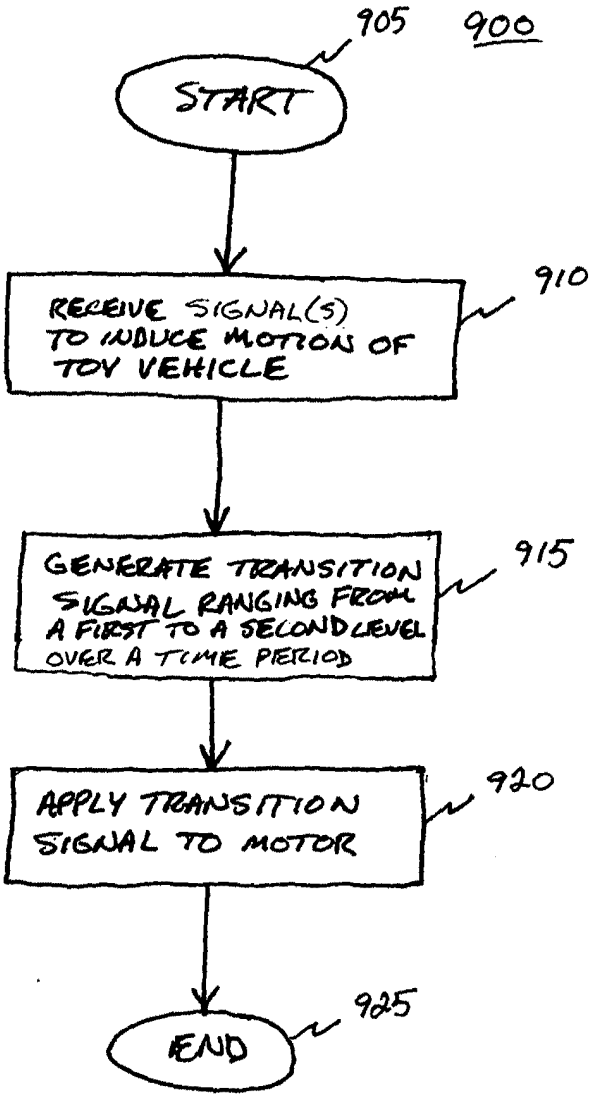


FIG. 9

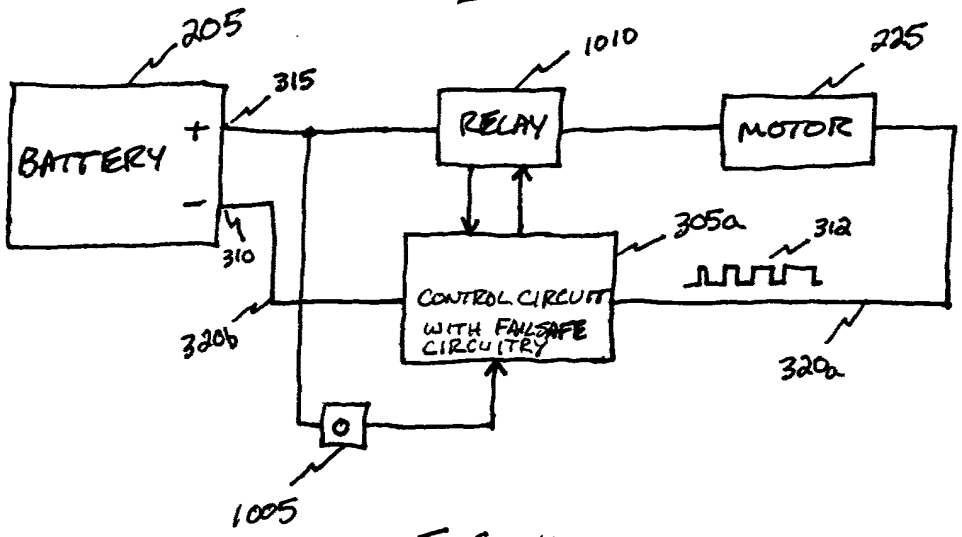

205
315
1010
225
BATTERY
+
−
RELAY
MOTOR
310
305a
312
CONTROL CIRCUIT
WITH FAILSAFE
CIRCUITRY
320b
320a
1005

FIG. 10

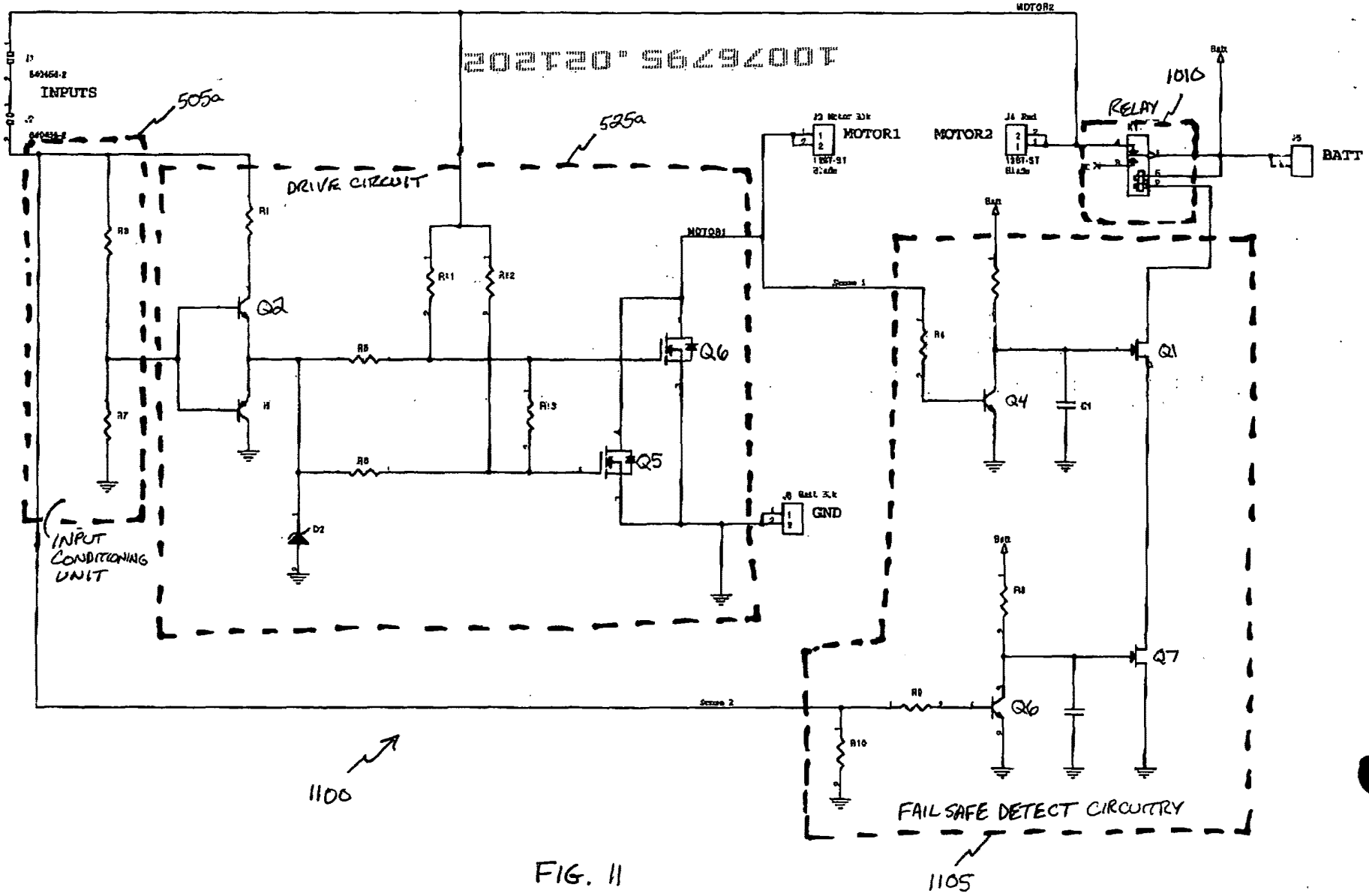

INPUTS
505a
525a
DRIVE CIRCUIT
MOTOR1
MOTOR2
RELAY
1010
BATT
GND
Q1
Q2
Q4
Q5
Q6
Q7
INPUT CONDITIONING UNIT
FAILSAFE DETECT CIRCUITRY
1100
1105

FIG. 11

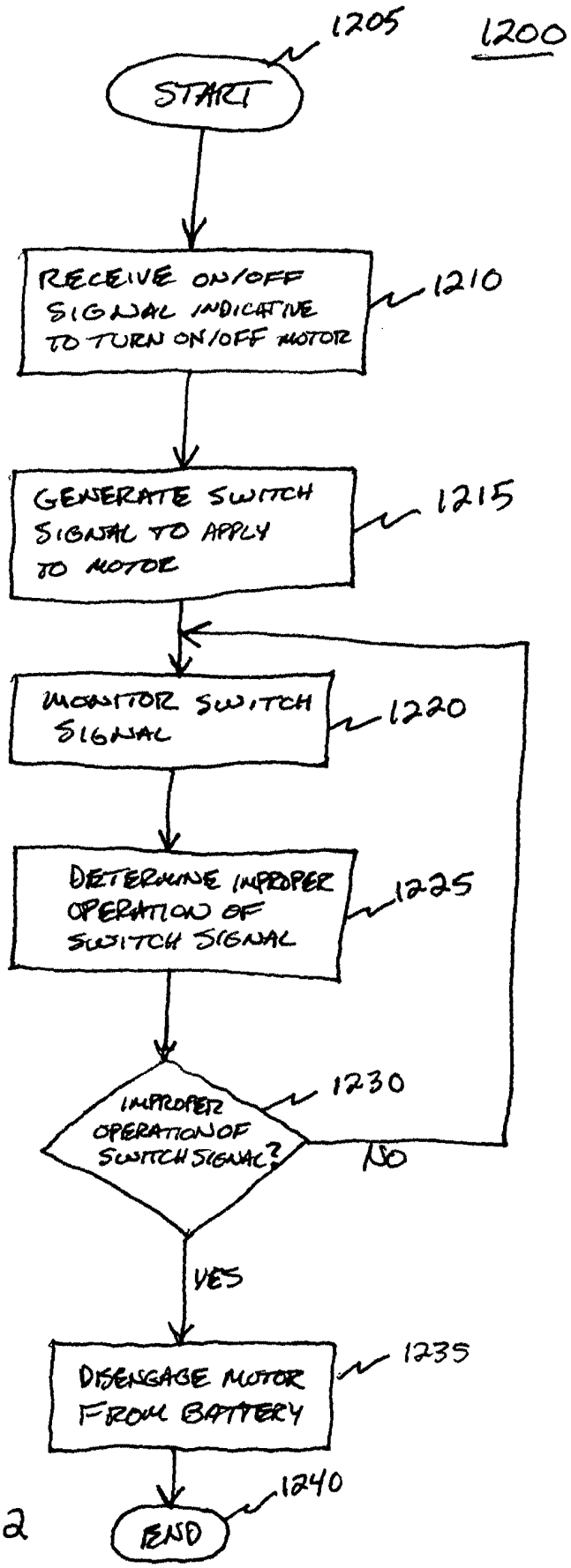


FIG. 12

CERTIFICATE OF MAILING BY EXPRESS MAIL
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SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

CROSS-REFERENCES TO RELATED APPLICATIONS

This Application for Patent claims the benefit of priority from, and hereby incorporates by reference for any and all purposes the entire disclosure of, co-pending U.S. Provisional Application for Patent having Serial No. 60/268,447, filed February 12, 2001.

BACKGROUND OF THE INVENTION

Technical Field of the Invention

The principals of the present invention generally relate to toy vehicles that may be ridden by people, and more specifically, but not by way of limitation, to a system, apparatus, and method for softening the initiation of motion of the toy vehicle.

Description of Related Art

As shown in FIGURE 1, toy vehicles 100 for riding on or in have become popular for operators 110, such as children. The toy vehicles 100 may generally include ride-on and ride-in vehicles, including, but not limited to, automobiles, trucks, boats, airplanes, scooters, etc. Conventional control systems for the toy vehicles 100 have typically been limited to applying a direct current (DC) from a DC battery to a motor upon pressing or otherwise operating a "gas" pedal or other throttle mechanism. This type of control, however, basically operates as an on/off switch. In other words, when the pedal is pressed, the motor is applied a voltage for full power (i.e. maximum angular velocity). One reason for such a simplistic design is cost reasons.

FIGURE 2 is an exemplary block diagram of a conventional control system 200 for the toy vehicle 100. The conventional control system 200 includes a battery 205, foot pedal switch 210, forward/reverse switch 215 for direction control, hi/lo switch 220 for fast and slow speeds, and motors 225a and 225b. The toy vehicles 100 are typically limited to a battery 205 for a power source rather than using other fuel sources, such as gasoline. The battery 205 is coupled to a foot pedal switch 210, which operates to provide power from the battery 205 to other electrical components of the control system 200 via line 212. The battery 205 supplies battery voltage V_{BATT}. Additionally, the foot pedal switch 210 operates as a failsafe device that prevents power from incidentally or accidentally being applied to the motors 225 for safety purposes. To operate as a failsafe device, the foot pedal switch 210 is a "make or break" switch with a spring return to OFF as understood in the art. The foot pedal switch 210 is further coupled to the forward/reverse switch 215 via line 217 and generates a throttle signal 218.

The forward/reverse switch 215 receives battery power via line 217, is operable to switch the direction of the motors 225 from forward to reverse so as to operate the toy vehicle 100 forward or reverse, respectively. The forward/reverse switch

produces two signals, FWD and REV, which are applied to the hi/lo switch 220 via lines 222a and 222b (collectively 222). The hi/low switch 220 is further coupled to the motors 225 and operable to drive the motors 225 in parallel or series to provide for high and low speed of the toy vehicle 100. Further, the hi/lo switch 220 is coupled to the negative terminal 227 of the battery 205, which is electrically coupled to the low side. As understood in the art, each of the components of the control system 200 receive power from the battery, but that power is relatively high for solid state electronics, thereby making alternative control systems difficult and too expensive for the toy industry to consider a viable option.

There exists several problems when utilizing the control system 200, or any other basic direct drive system for controlling toy vehicles 100. These problems may include (i) excessive acceleration, (ii) jerk, (iii) safety (e.g., controlling and flipping the vehicle at startup), and (iv) wearing of the mechanical components of the drive train for the toy vehicle 100. While each of these problems have existed in the toy vehicles 100 for a long period of time, the toy industry and makers of toy vehicles 100 are very cost sensitive due to consumer pricing demands and production costs. Solutions to these problems have been unavailable due in large part to

pricing and technical concerns of toy manufacturers for the toy vehicles 100.

With regard to excessive acceleration (dV/dt) and jerk (dA/dt), the acceleration and jerk result in a whiplash effect on the operator 110 and passenger(s). In terms of wearing of the mechanical components, when the toy vehicle 100 changes direction from forward to reverse and vice versa, a complete stop is not required. As all gear drives have a certain amount of backlash (i.e., small amounts of gap between gear teeth), the gears allow the motor to turn in the opposite direction without applying force to the output (e.g., wheels) of the drive train until the entire backlash is reduced to zero, thereby subjecting the motors 225 and drive train to the full load at full speed at each change in direction. In other words, since the motor 225 has no significant initial resistance to movement in the opposite direction due to backlash, the motor 225 accelerates rapidly until the backlash is eliminated. The motor 225 is therefore moving at near full speed in the reverse direction while the vehicle is still moving in a high speed in the opposite direction. Once the backlash is eliminated, the input and output to the drive train are rotating in the opposite direction and the gears exert substantial forces on one another as the drive train suddenly reverses direction. These

substantial forces tend to wear out the motors, gears, and other mechanical components in the drive train.

In terms of safety, toy vehicles 100, such as automobiles and scooters, have the ability to flip or turnover due to the excessive acceleration of the toy vehicle 100. Additionally, because of the high acceleration, the wheels are often unable to gain traction on the surface, especially a wet surface. The traction problem, too, may result in the toy vehicle 100 becoming uncontrollable for the operator 110 and passenger(s), especially children. Additionally, toy manufacturers have been developing toy vehicles 100 with more speed and power thereby resulting in the exacerbation of the problems identified above.

SUMMARY OF THE INVENTION

To overcome the problems and limitations of conventional control systems for toy vehicles, a soft-start control circuit may be integrated into the conventional control systems. The soft-start control circuit according to the principles of the present invention reduces or eliminates the above-identified problems, including excessive acceleration, jerk, flipping of the vehicle, and wearing of mechanical components. By integrating the soft-start control circuit into the existing control systems without having to redesign the fundamentals of

the control systems, the toy makers quickly and easily may upgrade the toy vehicles for a cost that allows the toy to remain competitive within the consumer acceptable price range.

One embodiment according to the principals of the present invention includes a system and method for providing a soft start for a toy vehicle configured to be operated by a person. The method may include receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism for the toy vehicle. A transition signal may be generated based on the throttle signal. The transition signal may be applied to affect operation of the motor. The transition signal may be a pulse width modulated signal having a duty cycle between 20 and 100 percent to provide for an acceleration that avoids the problems of conventional control systems and appears and feels more realistic. The transition signal may be ramped in a linear or non-linear fashion. The system according to the principles of the present invention may couple the soft-start control circuit between a negative terminal of a battery and motor(s) of the toy vehicle, thereby allowing the soft-start control circuit to switch a low-side voltage and not the high-side of the battery.

A second embodiment according to the principals of the present invention includes a system and method for disabling a toy vehicle. According to the principles of the present invention,

the method includes receiving an on/off signal indicative to turn on and off the motor. A switch signal is generated to apply to the motor to induce motion of the toy vehicle. Operation of the switch signal is monitored. An improper switch signal may be determined. The motor may be disengaged from the battery upon determining an improper switch signal.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the method and apparatus of the present invention may be obtained by reference to the following Detailed Description when taken in conjunction with the accompanying Drawings wherein:

FIGURE 1 is an exemplary toy vehicle being ridden by an operator, such as a child;

FIGURE 2 is an exemplary block diagram of a conventional control system utilized by the toy vehicle of FIGURE 1;

FIGURE 3 is an exemplary block diagram including the conventional control system of FIGURE 2 having a soft-start control circuit that incorporates the principles of the present invention integrated therewith;

FIGURE 4 is a more detailed exemplary block diagram of the control system for the toy vehicle providing the soft-start control circuit of FIGURE 3;

FIGURE 5 is an exemplary block diagram of the soft-start control circuit of FIGURE 3;

FIGURE 6 is an exemplary schematic of the soft-start control circuit of FIGURES 3-5;

FIGURE 7 provides eight exemplary conditioned input signals applied to the soft-start control circuit of FIGURE 6;

FIGURES 8A-8C are an exemplary set of graphs that show the response of the soft-start control circuit of FIGURE 6 to a change of input conditions provided by the operator of the toy vehicle;

FIGURE 9 is an exemplary flow diagram providing a high level operation of the soft-start control circuit of FIGURES 3-6;

FIGURE 10 is an exemplary block diagram of a control system of a toy vehicle of FIGURE 1 that does not include a foot pedal;

FIGURE 11 is an exemplary schematic of a control circuit with failsafe circuitry of FIGURE 10; and

FIGURE 12 is an exemplary flow diagram describing the failsafe operation of the control circuit with failsafe circuitry of FIGURES 10 and 11.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EXEMPLARY EMBODIMENTS

The principals of the present invention provide for a soft-start control circuit capable of being integrated into a conventional control system for toy vehicles. The soft-start control circuit is operable to reduce excessive acceleration generated by the conventional control systems due to switching battery voltage directly to motor(s) of the toy vehicles. A soft-start circuit may utilize a processor for receiving signals from the conventional control system and applying a transition signal such that the motor(s) are not excessively accelerated. The transition signal is variable such that full power is not substantially instantaneously applied to the motor. In other words, the transition signal causes the motor to be ramped from no power to full power. In one embodiment, the soft-start control circuit is coupled between a ground terminal of a battery of the toy vehicle and a low-side terminal of the motor(s). The transition signal generated by the soft-start control circuit may be a pulse width modulation signal having a duty cycle between 20 and 100 percent, linearly (e.g., ramp) or non-linearly (e.g., exponential), at startup, thereby reducing or eliminating excessive acceleration. Additionally, the soft-start control circuit may include failsafe circuitry to provide

the operator of the toy vehicle the ability to disable the motors of the vehicle for safety purposes.

FIGURE 3 is an exemplary block diagram 300 including the conventional control system 200 having a soft-start control circuit 305 integrated therewith. As shown, the soft-start control circuit is coupled between the negative terminal 227 of the battery 205 and the hi/lo switch 220. The soft-start control circuit 305 further receives inputs of the positive terminal 228 of the battery 205 and forward and reverse signals 222a and 222b. The battery voltage V_{BATT} simply provides operational power to the soft-start control circuit 305, and the forward and reverse signals 222 provide an indication that the foot pedal switch 210 is engaged and for indicating when a shift between forward and reverse occurs.

The soft-start control circuit 305 is operable to apply a transition signal 312 on the return path 320a and 320b (collectively 315) between the motors 225 and the battery 205. The soft-start control circuit 305 is integrated in the return path 320 of the control system 300, however, it should be understood that the soft-start control circuit 305 could be included in the forward path (i.e., between the positive terminal 228 of the battery 205 and the motors 225) to affect the high-side voltage to the motors 225. However, by

integrating the soft-start control circuit 305 in the return path 320, the circuitry is less complicated and less expensive due to not having to use field effect transistors as a high-side switch. Additionally, the soft-start control circuit 305 may be disabled via a jumper (e.g., switch) or altering control parameters, either by software or hardware, of the soft-start control circuit 305.

FIGURE 4 is a more detailed exemplary block diagram 300b of the control system for the toy vehicle 100 providing the soft-start control circuit 305. The six-volt batteries 205a and 205b are connected in series so as to provide for a total battery voltage V_{BATT} of twelve volts, which is delivered to the foot pedal switch 210 and the soft-start control circuit 305 via line 212. Again, the soft-start control circuit 305 utilizes the battery voltage V_{BATT} for a power supply, and does not switch the battery voltage V_{BATT}. If soft-start control circuit 305 were operating in the forward path of the control system, then the battery voltage V_{BATT} would be switched. The foot pedal switch 210 is normally open such that when the passenger 110 running the toy vehicle 100 engages the foot pedal switch 210, a connection is made (i.e., the switch is closed) and the battery voltage is applied to the rest of the control system 300b. A circuit breaker 405 is utilized to prevent an overcurrent

situation and to avoid damaging other electrical components or the motors 225.

The forward/reverse switch 215 is shown as being normally open. Upon the operator 110 shifting between forward and reverse, the forward/reverse switch 215 closes and the motors 225 are applied a reverse polarity to change driving direction of the toy vehicle 100. The forward and reverse signals 222a and 222b, are applied to the soft-start control circuit 305 for determining that the foot pedal switch 210 is engaged and for indicating when a shift between forward and reverse occurs. The hi/lo switch 220 is operable to allow the passenger 110 to shift the speed of the vehicle from low to high and vice-versa. Because the hi/lo switch 220 is normally open, the toy vehicle 100 is configured to be in low speed mode by operating the motors in series (i.e., each motor operates on six volts as understood in the art). Upon a shift from low to high speed, the hi/lo switch 220, which is a double-pole double-throw switch, configures the motors 225 to be operating in parallel, thereby operating both motors on twelve volts.

As shown, the soft-start control circuit 305 is coupled to the low-side of 230a and 230b of the motors 225 to allow the soft-start control circuit 305 to apply a transition signal 312 to the motors 225. The transition signal 312 operates to affect

the angular velocity of the motors 225 by altering the average voltage being applied to or drawn by the motors 225. In one embodiment, the transition signal 312 is a pulse width modulation signal having a duty cycle that ranges from about 20 to 100 percent, where the motors 225 deliver full power when the duty cycle is 100 percent.

FIGURE 5 is an exemplary block diagram 500 of an embodiment of the soft-start control circuit 305. The soft-start control circuit 305 includes an input conditioning unit 505, controller 510, power supply unit 515, drive circuit signal conditioning unit 520, and drive circuit 525. The power supply unit 515 is operable to receive the plus and minus (i.e., ground) battery voltage ($+V_{BATT}$ and $-V_{BATT}$) and generate a five-volt (+5V) supply for the other components of the soft-start control circuit 305. The input conditioning unit 505 is operable to receive the forward and reverse signals 222a and 222b, which may be analog or digital, and condition the signals for input to the controller 510. In an alternative embodiment, the soft-start control circuit 305 simply may be powered-up and begin performing the soft-start functionality (e.g., acceleration control). The controller 510 receives the conditioned forward and reverse signals for generating and applying the transition signal 312 to the return path 320a, which may be ramped and/or

delayed based on the forward and reverse signals 222a and 222b. The controller 510 may utilize a processor that executes software to perform the logical decisions and generate the transition signal 312 based on an algorithm, for example. The software may be stored in ROM or other storage device to be read by the processor and executed thereby. The drive circuit signal conditioning unit 520 is operable to condition or prepare the output of the controller for the drive circuit 525. The drive circuit 525 operates to apply the transition signal 312 generated by the controller 510 to the low-side 230a and 230b of the motors 225.

FIGURE 6 is an exemplary schematic of an embodiment of the soft-start control circuit 305 of Figures 3-5. As shown, the schematic includes the input conditioning unit 505, controller 510, power supply unit 515, drive circuit signal conditioning unit 520, and drive circuit 525. The power supply unit 515 develops a five-volt source 605, which may be utilized by the input conditioning unit 505, controller 510, and drive circuit signal conditioning unit 520. The input conditioning unit 505 receives the forward and reverse signals 222a and 222b via connectors J8 and J7, respectively. Diodes 610a and 610b are utilized to protect other components of the input conditioning unit 505 and prevent false triggering of the soft-start control

circuit 305. Additionally, the diodes 610a and 610b provide isolation of the forward and reverse signals 222a and 222b as one is high (e.g., positive) and the other low (e.g., negative). Alternatively, the two signals could be implemented as separate signals input to the processor. The forward and reverse signals 222a and 222b are logically OR'd to determine when at least one of the signals 222a and 222b is high. Upon determining that one of the forward 222a or reverse 222b signals is high, the transistor Q10 is utilized to generate a five-volt input signal to the controller 510.

The controller 510 includes a processor 615 that executes software to develop the transition signal to 312. The processor 615 receives the five-volt signal from Q10 to indicate that either the forward or reverse signal 222a and 222b is high. The processor 615 executes the software and outputs the appropriate transition signal 312 to the drive circuit signal conditioning unit 520 via line 620. The drive circuit signal conditioning unit 520 performs a level shift of the transition signal 312 via transistor Q8 in preparation for the drive circuit.

The drive circuit 525 includes a bridge circuit 625 formed of two transistors Q3 and Q7. The bridge circuit is operable to form a push-pull drive to turn field effect transistors (FETs) Q5 and Q6 on and off. The FETs Q5 and Q6, which may be part

number IRL2203NS (one producer being International Rectifier, El Segundo, CA 90245), are used as high current switches that apply the pulse width modulation formed by the processor 615 between the motor 225 and negative terminal 227 of the battery 205. The Schottky diodes 630 operate as a "fly back" diodes that handle current feedback from the motors 225 due to the pulse width modulation of the motor 225 to prevent the FETs Q5 and Q6 from burning up.

FIGURE 7 provides eight exemplary conditioned input signals 705-740 applied to the controller 510 via controller input line 612 based on the foot pedal and shift for changing direction. The conditioned input signals 705-740 are indicative of either pedal or forward/reverse shift operations of the toy vehicle 100. It should be understood that the toy vehicle 100 could have other functions or mechanisms that are utilized by the controller 510 to affect operation of the motors 225.

FIGURE 7(a) provides conditioned input signal 705 that indicates that the toy vehicle 100 is off and that the pedal is not depressed, thereby causing the foot pedal switch 210 to remain open. FIGURE 7(b) provides conditioned input signal 710 that indicates that the pedal is depressed at time T1, thereby causing the foot pedal switch 210 to close. FIGURE 7(c) provides conditioned input signal 715 that indicates that the

pedal is released at time T2, thereby causing the foot pedal switch 210 to open. FIGURE 7(d) provides conditioned input signal 720 that indicates that a direction shift is initiated via a shift stick or other mechanism while the pedal is depressed, thereby causing the conditioned signal input to the controller 510 to toggle OFF at time T3 and back ON at time T4 so that the processor 615 recognizes that a shift occurs.

FIGURE 7(e) provides conditioned input signal 725 that indicates that the pedal is momentarily released (e.g., foot slips off pedal), thereby causing the conditioned input signal 725 to toggle at times T5 and T6. FIGURE 7(f) provides conditioned input signal 730 that indicates that the pedal is momentarily pressed (e.g., foot accidentally presses the pedal), thereby causing the conditioned input signal 730 to toggle at times T7 and T8. FIGURE 7(g) provides conditioned input signal 735 that indicates that the pedal is being pulsed by the operator 110 of the toy vehicle 100, thereby causing the conditioned input signal 735 to toggle at times T9-T12. FIGURE 7(h) provides conditioned input signal 740 that indicates that a direction shift is being pulsed by the operator 110 of the toy vehicle 100, thereby causing the conditioned input signal 740 to toggle at times T9-T12. Each of the conditioned input signals 705-740 are recognized by the soft-start control circuit 305 for

providing the transition signal 312 to affect operation of the motors 225. In operation, the software program executing in the processor 615 may utilize the following algorithm to generate the transition signal 312 as a function of the conditioned input signal via line 612.

a. If conditioned input signal is LOW, then output is HIGH (drive circuit is OFF).
b. When the conditioned input signal transitions HIGH then
If off_time < off_time_max and on_time>on_time_max then DELAY(shift_delay)
Begin the PWM ramp from initial_ramp to 100 percent duty cycle
Output remains LOW until input changes
c. While conditioned input signal HIGH, increment on_time
d. While conditioned input signal LOW, increment off_time

The parameters, which are exemplary, of the algorithm may be as follows:

```
ramp_time      = 1.0 seconds
initial_ramp   = 20 percent duty cycle
shift_delay    = 400 msec
off_time_max   = 125 msec
on_time_max    = 125msec
```

FIGURE 8A is an exemplary set of graphs 800a that shows the response of an embodiment of the soft-start control circuit 305 to a change of input conditions provided by the operator 110 of the toy vehicle 100. Graph 8A(a) shows the conditioned input signal 710 transition at time T_1 due to the pedal being depressed by the operator 110, and graph 8A(b) shows that the

forward/reverse switch 215 is not transitioned. Graph 8A(c) shows an output signal 805, which is indicative of the transition signal 312 having a duty cycle ranging from about 20 to 100 percent, that ramps up over a one second time duration (i.e., T_1 to T_1+1.0 second) based on the depression of the pedal at time T_1.

FIGURE 8B is an exemplary set of graphs 800b that shows the response of the soft-start control circuit 305 to a change of input conditions provided by the operator 110 of the toy vehicle 100. Graph 8B(a) shows that the foot pedal switch 210 remains closed while the shift signal 720 changes (i.e., the operator 110 shifts from forward to reverse or vice versa). As shown, the output signal 810a transitions OFF at time t_3 in accordance with the shift signal 720 transitioning OFF. Upon the shift signal 720 transitioning HIGH at time t_4, a delay t_D is created before the output signal 810b is enabled to provide the mechanical components (e.g., gear train) of the toy vehicle 100 enough time to transition, thereby avoiding wearing of the mechanical components.

FIGURE 8C is an exemplary set of graphs 800c that shows the response of the soft-start control circuit 305 to a change of input conditions provided by the operator 110 of the toy vehicle 100. As shown in graph 8C(a), the operator 110 releases the

pedal at time T and re-engages the pedal at time T+1.2 seconds. Graph 8C(b) indicates that the shift is not transitioned over the time period of concern. The output signal 815a transitions OFF at time T and re-transitions ON at time T+1.2 seconds. During the OFF time of the output signal 815a, a deceleration counter identified by dashed line may count down for two seconds, for example, so that upon the operator 110 depressing the pedal again, output signal 815b may start at a higher duty cycle (e.g., 60 percent) and ramp to 100 percent rather than having to start at the startup duty cycle (e.g., 20 percent). By utilizing the deceleration counter, the toy vehicle 100 provides the operator 110 with a more realistic sense of operating a real vehicle. Additionally, by initiating the output signal 815b at a duty cycle closer to that of the velocity of the toy vehicle 100, safety may be improved as the toy vehicle 100 does not substantially slow. In the case of the toy vehicle 100 being a two-wheeled scooter or motorcycle-like, the deceleration counter safety feature the operator 110 not having to provide additional stability with his or her feet, which is often times awkward and difficult.

FIGURE 9 is an exemplary flow diagram 900 providing a high level operation of an embodiment of the soft-start control circuit 305 of FIGURES 3-5. The process starts at step 905. At

step 910, at least one signal to induce motion of the toy vehicle 100 is received. The signal(s) may be that of a throttle signal or multiple signals, such as forward and reverse, that inherently indicate that the throttle signal has been applied. At step 915, a transition signal ranging from a first to a second level over a time period is generated. The transition signal may be a pulse width modulation signal having a duty cycle of approximately 20 percent and have a substantial linear increase to 100 percent. Alternatively, a non-linear signal, such as an exponential signal, may be generated to account for the dynamics of the motors 225, other electro-mechanical components, and/or the toy vehicle 100. The non-linear signal may provide other benefits for the operator 110, such as a feeling of a turbo boost or thrusters, for example. At step 920, the transition signal is applied to the motor(s) 225. It should be understood that generation of the transition signal and application thereof may be performed simultaneously such that steps 915 and 920 may be considered more as a single step. The process ends at step 925.

FIGURE 10 is an exemplary block diagram 1000 of a control system of a toy vehicle 100, such as a sit-on or stand-on scooter, that does not include a foot pedal. For safety reasons, toy makers are reluctant to deliver high power of the

battery 205 to handle bars, and, therefore, a low power switch 1005 is desirable to be located on the handle bars. Other switches, including switches that are disengaged upon the operator 110 becoming separated from the toy vehicle 100, may be utilized.

As shown, a relay 1010, which is normally closed to limit contact wear, is coupled to the control circuit with failsafe circuitry 305a to provide for a safe way to disengage the motor 225 from the battery 205 in the case of a control circuit failure. In other words, because the toy vehicle 100 does not have a foot pedal or other "make or break" safety switch and relies on the solid-state FETs to turn the motors 225 on and off, the relay 1010 is included as a safety feature to a control circuit failure (e.g., shorting or overheating of a FET). The control circuit 305a is in the return path 320a and 320b between the motor 225 and battery 205, however, the control circuit in the instant embodiment does not include the processor 615 to apply the transition signal 312 and basically operates as an on/off switch as the foot pedal switch 210. It should be understood that inclusion of the processor 615 and associated circuitry to provide the soft-start functionality could be integrated with the control circuit with failsafe circuitry 305a. Again, it should be understood that the control circuit

with failsafe circuitry 305a may operate on the high-side of the motor 225, but that costs and complexity would be increased due to having to create higher voltages to switch the FETs ON.

FIGURE 11 is an exemplary schematic 1100 of an embodiment of the control circuit with failsafe circuitry 305a of FIGURE 10. As shown, input conditioning unit 505a, drive circuit 525a, failsafe detect circuit 1105, and relay 1010 are provided. The failsafe detect circuitry 1105 detects if a failure occurs within the control circuitry (e.g., FETs Q5 or Q6 of the drive circuit 525a) and applies power to the relay 1010 to disengage the motor 225 from the battery 205. The failsafe detect circuitry 1105 includes circuitry, including transistors Q4, Q6, Q1, and Q7, that is configured to determine if a failure of the control circuit 305a occurs. If a failure of either FET Q5 or Q6 occurs by becoming shorted ON, for example, and the input is OFF, the failsafe detect circuitry 1105 determines that a failure has occurred and activates the relay 1010 to disengage the motor 225 from the battery 205. Although the failsafe detect circuitry 1105 is shown to be analog, it should be understood that the functionality of the failsafe detect circuitry 1105 could be digital by incorporating the functionality into software and executed on the processor 615, if included in the control circuit 305a, for example.

FIGURE 12 is an exemplary flow diagram 1200 describing the failsafe operation of the control circuit with failsafe circuitry of FIGURES 10 and 11. The process starts at step 1205. At step 1210, a signal indicative of a desire of the operator 110 to turn on or off the motor 225 is received. A switch signal (e.g., signal substantially instantly switching from off to on) is generated by the control circuit 305a to be applied to the motor 225 at step 1215. The switch signal may be maintained at full voltage to continue applying full power to the motor 225 during operation of the toy vehicle 100. At step 1220, the switch signal is monitored. A determination of improper operation of the switch signal is made at steps 1225 and 1230. If an improper operation of the switch signal occurs, which indicates either (i) a failure of the control circuit 305a has occurred and/or (ii) the motor 225 is operating and the switch signal indicates that the motor 225 is to be off, then the motor 225 is disengaged from the battery at step 1235. Otherwise, the process repeats steps 1220 through 1230. It should be understood that is an indication is received to turn off or on the motor 225 during the monitoring of the switch signal, then the process may repeat from step 1205. The process ends at step 1240.

It should be understood that the principles of the present invention may not be limited to toy vehicles. Accordingly, the principles of the present invention could be applied to non-toy vehicles, such as golf carts or industrial vehicles.

The previous description is of a preferred embodiment for implementing the principles of the present invention, and the scope of the invention should not necessarily be limited by this description. The scope of the present invention is instead defined by the following claims.

WHAT IS CLAIMED IS:

1. A method for controlling acceleration of a toy vehicle configured to be operated by a person, said method comprising:

receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the throttle signal; and

applying the transition signal to affect operation of the motor.

2. The method according to claim 1, wherein the transition signal is a pulse width modulation signal.

3. The method according to claim 1, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

4. The method according to claim 1, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

5. The method according to claim 1, wherein the operation of the motor is a transition from a first to a second angular velocity.

6. The method according to claim 5, wherein the transition from the first to second angular velocity is substantially linear.

7. The method according to claim 6, wherein the transition signal ramps power to the motor.

8. The method according to claim 5, wherein the transition from the first to second angular velocity is non-linear.

9. The method according to claim 5, wherein the transition occurs over a time span of at least one second.

10. The method according to claim 1, further comprising:

receiving a shift signal indicative of a change of direction of motion for the toy vehicle;

if power is being applied to the motor,

initiating a delay; and

applying the transition signal to the motor.

11. The method according to claim 1, further comprising:

forming a second transition signal upon the throttle signal being transitioned, the second transition signal being utilizable upon the throttle signal being re-transitioned over a predetermined time duration.

12. The method according to claim 11, further comprising:

initiating, upon the throttle signal being re-transitioned before expiration of the predetermined time duration, the transition signal at a level associated with the second transition signal.

13. The method according to claim 11, wherein the second transition signal is substantially linear.

14. A toy vehicle operable by a person, said toy vehicle comprising:

a battery having a positive and a ground terminal, and for providing power to electrical components of the toy vehicle;

a motor;

a mobility device coupled to said motor and operable to provide motion for the toy vehicle;

a throttle switch electrically coupled between said battery and said motor, and operable to provide power to said motor; and

a circuit having a first and a second terminal, the first terminal being coupled to said battery and the second terminal being coupled to said motor, said circuit being operable to generate a transition signal for said motor to transition from a first to a second angular velocity.

15. The toy vehicle according to claim 14, wherein the first terminal of said circuit is coupled to the ground terminal of said battery.

16. The toy vehicle according to claim 14, wherein the transition signal is a pulse width modulation signal.

17. The toy vehicle according to claim 16, wherein the pulse width modulation signal has a duty cycle of above approximately 20 percent corresponding to the first angular velocity.

18. The toy vehicle according to claim 14, wherein said circuit includes a processor operable to execute software for producing the transition signal.

19. The toy vehicle according to claim 18, wherein the software further produces a second transition signal upon transition of said throttle switch.

20. The toy vehicle according to claim 14, wherein the transition from the first to the second angular velocity is substantially linear.

21. The toy vehicle according to claim 14, wherein the transition signal causes a ramp of the power to said motor.

22. The toy vehicle according to claim 14, wherein the transition from the first to the second angular velocity is non-linear.

23. The toy vehicle according to claim 14, further comprising a disable mechanism operable to disengage the power from said motor.

24. The toy vehicle according to claim 23, wherein the disable mechanism is a switch.

25. The toy vehicle according to claim 23, wherein said circuit includes failsafe detect circuitry for detecting a failure and enabling the disable mechanism upon detection thereof.

26. The toy vehicle according to claim 14, further comprising a shift mechanism to switch between forward and reverse, said circuit being operable to remove power from said motor, generate a delay, and reinitiate the transition signal upon a transition between forward and reverse.

27. The toy vehicle according to claim 14, wherein the mobility device includes at least one of a wheel and a propeller.

28. The toy vehicle according to claim 14, wherein the toy vehicle is configured to resemble at least one of the following: automobile, truck, boat, airplane, scooter, and motorcycle.

29. A system for controlling acceleration of a toy vehicle configured to be operated by a person, said system comprising:

means for receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

means for generating a transition signal based on the throttle signal; and

means for applying the transition signal to effect operation of the motor.

30. The system according to claim 29, wherein the transition signal is a pulse width modulation signal.

31. The system according to claim 29, further comprising:

means for receiving a shift signal indicative of a change of direction of motion for the toy vehicle; and

means for determining if power is being applied to the motor;

means for initiating a delay; and

means for applying the transition signal including the delay to the motor if power is being applied to the motor.

32. The system according to claim 29, further comprising:

means for forming a second transition signal upon the throttle signal being transitioned, the second transition signal being utilizable upon the throttle signal being re-transitioned over a predetermined time duration.

33. The system according to claim 32, further comprising:

means for initiating, upon the throttle signal being re-transitioned before expiration of the predetermined time duration, the transition signal at a level associated with the second transition signal.

34. The system according to claim 29, further comprising means for providing a failsafe to disengage the motor upon detecting a failure of said means for generating the transition signal.

35. A system for controlling a toy vehicle having a battery and a motor, said system comprising:

a circuit having a first and second terminal, the first terminal electrically coupled to the battery and the second terminal coupled to the motor for rotating a mobility device,

a third terminal electrically coupled to a device operable to produce a throttle signal, said circuit further including a processor operable to execute a software program to generate a transition signal, based on receiving the throttle signal on the third terminal, to transition the motor from a first to a second angular velocity.

36. The system according to claim 35, wherein the toy vehicle is configured to resemble an automobile, truck, boat, airplane, motorcycle, and scooter.

37. The system according to claim 35, wherein the mobility device includes at least one of a wheel and propeller.

38. The system according to claim 35, wherein the transition signal is a pulse-width modulation signal.

39. The system according to claim 38, wherein the pulse-width modulation signal has a duty cycle of approximately 20 percent as associated with the first angular velocity.

40. The system according to claim 35, wherein the first terminal is electrically coupled to a ground terminal of the battery.

41. A computer-readable medium having stored thereon sequences of instructions, the sequences of instructions including instructions, when executed by a processor, causes the processor to:

receive a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

generate a transition signal based on the throttle signal; and

apply the transition signal to effect operation of a motor operating within a toy vehicle.

42. A method for disabling a toy vehicle, configured to be operated by a person, having a battery and a motor, said method comprising:

receiving an on/off signal indicative to turn on and off the motor;

generating a switch signal to apply to the motor to induce motion of the toy vehicle;

monitoring operation of the switch signal;

determining improper operation of the switch signal; and

disengaging the motor from the battery upon said determining an improper switch signal.

43. A system for disabling a toy vehicle, configured to be operated by a person, having a battery and a motor, said system comprising:

means for receiving an on/off signal indicative to turn on and off the motor;

means for generating a switch signal to apply to the motor to induce motion of the toy vehicle;

means for monitoring operation of the switch signal;

means for determining an improper switch signal; and

means for disengaging the motor from the battery upon said determining an improper switch signal.

44. A toy vehicle operable by a person, said toy vehicle comprising:

a battery having a positive and a ground terminal, and for providing power to electrical components of the toy vehicle;

a motor;

a mobility device coupled to said motor and operable to provide motion for the toy vehicle;

a first switching element coupled between said motor and said battery;

a second switching element coupled to said battery, and operable to indicate application of power to said motor; and

a circuit having a first and a second terminal, the first terminal being coupled to said second switching element and the second terminal being coupled to said motor, said circuit including a third switching element being operable to generate a signal for said motor to turn on and off, said circuit further comprising a failsafe circuit to detect a failure of a component of said circuit and enabling said first switching element to disable said motor.

45. The system according to claim 44, wherein said third switching element includes at least one FET.

ABSTRACT

A system, apparatus, and method for providing a soft-start for a toy vehicle configured to be operated by a person. The method includes receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle. A transition signal may be generated based on the throttle signal. The transition signal may be applied to effect operation of the motor. The transition signal may be a pulse width modulated signal having a duty cycle between 20 and 100 percent to provide for an acceleration that avoids the problems of conventional control systems. The transition signal may be ramped in a linear or non-linear fashion. The system may couple the soft-start control circuit between a ground terminal of a battery of the toy vehicle and motor(s), thereby allowing the soft-start control circuit to operate on a low voltage (i.e., not the high voltage of the battery).

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number: 50097-805PT

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	45	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	45 minus 20=	* 25
INDEPENDENT CLAIMS	8 minus 3 =	* 5
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	225	OR	X$18=	
X42=	210	OR	X84=	
+140=		OR	+280=	
TOTAL	805	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

02/25/2002 MBIZUNES 00000054 100447 10076795

01 FC:201 370.00 CH
02 FC:203 225.00 CH
03 FC:202 210.00 CH

Adjustment date: 10/18/2002 HMOHAMM1
05/23/2002 HMOHAMM1 00000007 10076795
01 FC:201 -370.00 OP
02 FC:202 -210.00 OP
03 FC:203 -225.00 OP

10/18/2002 HMOHAMM1 00000002 100447 10076795

740.00 OP
01 FC:1001 355.00 CH 65.00 OP
02 FC:1201
03 FC:1202 450.00 CH

PTO-1556
(5/87)

*U.S. GPO: 2000-468-987/39595

CLAIMS ONLY

SERIAL NO.	FILING DATE
10078795	
APPLICANT(S)	

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
1	1					
2		1				
3		1				
4		1				
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TOTAL IND.	8					
TOTAL DEP.		37				
TOTAL CLAIMS	45					

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TOTAL DEP.						
TOTAL CLAIMS						

* *MAY BE USED FOR ADDITIONAL CLAIMS OR ADMENDMENTS*

FORM PTO-2022 (1-98)

U.S.DEPARTMENT OF COMMERCE
Patent and Trademark Office

*U.S. Government Printing Office: 1998 - 433-214/70303

PATENT APPLICATION
DOCKET NO.: 50097-00008USPT

RULES 63 AND 67 (37 C.F.R. 1.63 and 1.67)
DECLARATION AND POWER OF ATTORNEY

FOR UTILITY/DESIGN/CIP/PCT NATIONAL APPLICATIONS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**, the specification of which: (mark only one)

x	(a)	is attached hereto.
___	(b)	was filed on _____ as Utility Application Serial No _____ and was amended on _____ (if applicable)
___	(c)	was filed as PCT International Application No. PCT/_____ on ____ and was amended on _____ (if applicable).
___	(d)	was filed on ___ as Application Serial No. ___ and was issued a Notice of Allowance on ___.
___	(e)	was filed on ___ and bearing attorney docket number ___

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above or as allowed as indicated above.

I acknowledge the duty to disclose all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56. If this is a continuation-in-part (CIP) application, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability of the application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that

of the application on which my priority is claimed or, (2) if no priority is claimed, before the filing date of this application:

PRIOR FOREIGN PATENTS

Number	Country	Month/Day/Year Filed	Date first laid-open or Published	Date patented or Granted	Priority Claimed Yes	No
NONE						

I hereby claim the benefit under 35 U.S.C. § 120/365 of any United States application(s) listed below and PCT international applications listed above or below:

PRIOR U.S. OR PCT APPLICATIONS

Application No. (series code/serial no.)	Month/Day/Year Filed	Status(pending, abandoned, patented)
60/ 268,447	February 12, 2001	

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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02-19-02 A

Patent Application
Docket No. 50097-8USPT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

David A Norman and Robert H. Mimlitch, III and Richard Torrance

For: **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**

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Commissioner for Patents
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PATENT APPLICATION TRANSMITTAL LETTER

Transmitted herewith for filing, please find the following:

X Specification, claims and abstract of the above-referenced patent application (total of 42 pages)

X 13 sheet(s) of drawing(s) (___formal/ X informal). (FIGURES 1-12)

X Combined Declaration and Power of Attorney (unsigned)

An Assignment of the invention to: INNOVATION FIRST, INC.

X **Applicant Claims small entity status under 37 CFR 1.9 and 1.27.**

__X__ Priority is claimed under 35 U.S.C. § 119 based on filing in the U.S. Patent and Trademark Office:

	Application No.	Filing Date
(1)	60/268,447	February 12, 2001
(2)	____	____

__ (No.) Certified copy (copies) __ are attached; or ____ were previously filed on ____.

__ Other (specify):

The filing fee has been calculated as shown below:

FOR: SMALL ENTITY	NO. FILED	NO. EXTRA	RATE	FEE
BASIC FEE				$370
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__X__ Please charge my Deposit Account No. 10-0447 in the amount of $805.00. This sheet is attached in duplicate.

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_ The issue fee set in 37 CFR 1.18 at or before mailing of the Notice of Allowance, pursuant to 37 CFR 1.311(b).

X Any filing fees under 37 CFR 1.16 including fees for presentation of extra claims.

Respectfully submitted,

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SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

CROSS-REFERENCES TO RELATED APPLICATIONS

This Application for Patent claims the benefit of priority from, and hereby incorporates by reference for any and all purposes the entire disclosure of, co-pending U.S. Provisional Application for Patent having Serial No. 60/268,447, filed February 12, 2001.

BACKGROUND OF THE INVENTION

Technical Field of the Invention

The principals of the present invention generally relate to toy vehicles that may be ridden by people, and more specifically, but not by way of limitation, to a system, apparatus, and method for softening the initiation of motion of the toy vehicle.

Description of Related Art

As shown in FIGURE 1, toy vehicles 100 for riding on or in have become popular for operators 110, such as children. The toy vehicles 100 may generally include ride-on and ride-in vehicles, including, but not limited to, automobiles, trucks, boats, airplanes, scooters, etc. Conventional control systems for the toy vehicles 100 have typically been limited to applying a direct current (DC) from a DC battery to a motor upon pressing or otherwise operating a "gas" pedal or other throttle mechanism. This type of control, however, basically operates as an on/off switch. In other words, when the pedal is pressed, the motor is applied a voltage for full power (i.e. maximum angular velocity). One reason for such a simplistic design is cost reasons.

FIGURE 2 is an exemplary block diagram of a conventional control system 200 for the toy vehicle 100. The conventional control system 200 includes a battery 205, foot pedal switch 210, forward/reverse switch 215 for direction control, hi/lo switch 220 for fast and slow speeds, and motors 225a and 225b. The toy vehicles 100 are typically limited to a battery 205 for a power source rather than using other fuel sources, such as gasoline. The battery 205 is coupled to a foot pedal switch 210, which operates to provide power from the battery 205 to other electrical components of the control system 200 via line 212. The battery 205 supplies battery voltage V_{BATT}. Additionally, the foot pedal switch 210 operates as a failsafe device that prevents power from incidentally or accidentally being applied to the motors 225 for safety purposes. To operate as a failsafe device, the foot pedal switch 210 is a "make or break" switch with a spring return to OFF as understood in the art. The foot pedal switch 210 is further coupled to the forward/reverse switch 215 via line 217 and generates a throttle signal 218.

The forward/reverse switch 215 receives battery power via line 217, is operable to switch the direction of the motors 225 from forward to reverse so as to operate the toy vehicle 100 forward or reverse, respectively. The forward/reverse switch

produces two signals, FWD and REV, which are applied to the hi/lo switch 220 via lines 222a and 222b (collectively 222). The hi/low switch 220 is further coupled to the motors 225 and operable to drive the motors 225 in parallel or series to provide for high and low speed of the toy vehicle 100. Further, the hi/lo switch 220 is coupled to the negative terminal 227 of the battery 205, which is electrically coupled to the low side. As understood in the art, each of the components of the control system 200 receive power from the battery, but that power is relatively high for solid state electronics, thereby making alternative control systems difficult and too expensive for the toy industry to consider a viable option.

There exists several problems when utilizing the control system 200, or any other basic direct drive system for controlling toy vehicles 100. These problems may include (i) excessive acceleration, (ii) jerk, (iii) safety (e.g., controlling and flipping the vehicle at startup), and (iv) wearing of the mechanical components of the drive train for the toy vehicle 100. While each of these problems have existed in the toy vehicles 100 for a long period of time, the toy industry and makers of toy vehicles 100 are very cost sensitive due to consumer pricing demands and production costs. Solutions to these problems have been unavailable due in large part to

pricing and technical concerns of toy manufacturers for the toy vehicles 100.

With regard to excessive acceleration (dV/dt) and jerk (dA/dt), the acceleration and jerk result in a whiplash effect on the operator 110 and passenger(s). In terms of wearing of the mechanical components, when the toy vehicle 100 changes direction from forward to reverse and vice versa, a complete stop is not required. As all gear drives have a certain amount of backlash (i.e., small amounts of gap between gear teeth), the gears allow the motor to turn in the opposite direction without applying force to the output (e.g., wheels) of the drive train until the entire backlash is reduced to zero, thereby subjecting the motors 225 and drive train to the full load at full speed at each change in direction. In other words, since the motor 225 has no significant initial resistance to movement in the opposite direction due to backlash, the motor 225 accelerates rapidly until the backlash is eliminated. The motor 225 is therefore moving at near full speed in the reverse direction while the vehicle is still moving in a high speed in the opposite direction. Once the backlash is eliminated, the input and output to the drive train are rotating in the opposite direction and the gears exert substantial forces on one another as the drive train suddenly reverses direction. These

substantial forces tend to wear out the motors, gears, and other mechanical components in the drive train.

In terms of safety, toy vehicles 100, such as automobiles and scooters, have the ability to flip or turnover due to the excessive acceleration of the toy vehicle 100. Additionally, because of the high acceleration, the wheels are often unable to gain traction on the surface, especially a wet surface. The traction problem, too, may result in the toy vehicle 100 becoming uncontrollable for the operator 110 and passenger(s), especially children. Additionally, toy manufacturers have been developing toy vehicles 100 with more speed and power thereby resulting in the exacerbation of the problems identified above.

SUMMARY OF THE INVENTION

To overcome the problems and limitations of conventional control systems for toy vehicles, a soft-start control circuit may be integrated into the conventional control systems. The soft-start control circuit according to the principles of the present invention reduces or eliminates the above-identified problems, including excessive acceleration, jerk, flipping of the vehicle, and wearing of mechanical components. By integrating the soft-start control circuit into the existing control systems without having to redesign the fundamentals of

the control systems, the toy makers quickly and easily may upgrade the toy vehicles for a cost that allows the toy to remain competitive within the consumer acceptable price range.

One embodiment according to the principals of the present invention includes a system and method for providing a soft start for a toy vehicle configured to be operated by a person. The method may include receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism for the toy vehicle. A transition signal may be generated based on the throttle signal. The transition signal may be applied to affect operation of the motor. The transition signal may be a pulse width modulated signal having a duty cycle between 20 and 100 percent to provide for an acceleration that avoids the problems of conventional control systems and appears and feels more realistic. The transition signal may be ramped in a linear or non-linear fashion. The system according to the principles of the present invention may couple the soft-start control circuit between a negative terminal of a battery and motor(s) of the toy vehicle, thereby allowing the soft-start control circuit to switch a low-side voltage and not the high-side of the battery.

A second embodiment according to the principals of the present invention includes a system and method for disabling a toy vehicle. According to the principles of the present invention,

the method includes receiving an on/off signal indicative to turn on and off the motor. A switch signal is generated to apply to the motor to induce motion of the toy vehicle. Operation of the switch signal is monitored. An improper switch signal may be determined. The motor may be disengaged from the battery upon determining an improper switch signal.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the method and apparatus of the present invention may be obtained by reference to the following Detailed Description when taken in conjunction with the accompanying Drawings wherein:

FIGURE 1 is an exemplary toy vehicle being ridden by an operator, such as a child;

FIGURE 2 is an exemplary block diagram of a conventional control system utilized by the toy vehicle of FIGURE 1;

FIGURE 3 is an exemplary block diagram including the conventional control system of FIGURE 2 having a soft-start control circuit that incorporates the principles of the present invention integrated therewith;

FIGURE 4 is a more detailed exemplary block diagram of the control system for the toy vehicle providing the soft-start control circuit of FIGURE 3;

FIGURE 5 is an exemplary block diagram of the soft-start control circuit of FIGURE 3;

FIGURE 6 is an exemplary schematic of the soft-start control circuit of FIGURES 3-5;

FIGURE 7 provides eight exemplary conditioned input signals applied to the soft-start control circuit of FIGURE 6;

FIGURES 8A-8C are an exemplary set of graphs that show the response of the soft-start control circuit of FIGURE 6 to a change of input conditions provided by the operator of the toy vehicle;

FIGURE 9 is an exemplary flow diagram providing a high level operation of the soft-start control circuit of FIGURES 3-6;

FIGURE 10 is an exemplary block diagram of a control system of a toy vehicle of FIGURE 1 that does not include a foot pedal;

FIGURE 11 is an exemplary schematic of a control circuit with failsafe circuitry of FIGURE 10; and

FIGURE 12 is an exemplary flow diagram describing the failsafe operation of the control circuit with failsafe circuitry of FIGURES 10 and 11.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EXEMPLARY EMBODIMENTS

The principals of the present invention provide for a soft-start control circuit capable of being integrated into a conventional control system for toy vehicles. The soft-start control circuit is operable to reduce excessive acceleration generated by the conventional control systems due to switching battery voltage directly to motor(s) of the toy vehicles. A soft-start circuit may utilize a processor for receiving signals from the conventional control system and applying a transition signal such that the motor(s) are not excessively accelerated. The transition signal is variable such that full power is not substantially instantaneously applied to the motor. In other words, the transition signal causes the motor to be ramped from no power to full power. In one embodiment, the soft-start control circuit is coupled between a ground terminal of a battery of the toy vehicle and a low-side terminal of the motor(s). The transition signal generated by the soft-start control circuit may be a pulse width modulation signal having a duty cycle between 20 and 100 percent, linearly (e.g., ramp) or non-linearly (e.g., exponential), at startup, thereby reducing or eliminating excessive acceleration. Additionally, the soft-start control circuit may include failsafe circuitry to provide

the operator of the toy vehicle the ability to disable the motors of the vehicle for safety purposes.

FIGURE 3 is an exemplary block diagram 300 including the conventional control system 200 having a soft-start control circuit 305 integrated therewith. As shown, the soft-start control circuit is coupled between the negative terminal 227 of the battery 205 and the hi/lo switch 220. The soft-start control circuit 305 further receives inputs of the positive terminal 228 of the battery 205 and forward and reverse signals 222a and 222b. The battery voltage V_{BATT} simply provides operational power to the soft-start control circuit 305, and the forward and reverse signals 222 provide an indication that the foot pedal switch 210 is engaged and for indicating when a shift between forward and reverse occurs.

The soft-start control circuit 305 is operable to apply a transition signal 312 on the return path 320a and 320b (collectively 315) between the motors 225 and the battery 205. The soft-start control circuit 305 is integrated in the return path 320 of the control system 300, however, it should be understood that the soft-start control circuit 305 could be included in the forward path (i.e., between the positive terminal 228 of the battery 205 and the motors 225) to affect the high-side voltage to the motors 225. However, by

integrating the soft-start control circuit 305 in the return path 320, the circuitry is less complicated and less expensive due to not having to use field effect transistors as a high-side switch. Additionally, the soft-start control circuit 305 may be disabled via a jumper (e.g., switch) or altering control parameters, either by software or hardware, of the soft-start control circuit 305.

FIGURE 4 is a more detailed exemplary block diagram 300b of the control system for the toy vehicle 100 providing the soft-start control circuit 305. The six-volt batteries 205a and 205b are connected in series so as to provide for a total battery voltage V_{BATT} of twelve volts, which is delivered to the foot pedal switch 210 and the soft-start control circuit 305 via line 212. Again, the soft-start control circuit 305 utilizes the battery voltage V_{BATT} for a power supply, and does not switch the battery voltage V_{BATT}. If soft-start control circuit 305 were operating in the forward path of the control system, then the battery voltage V_{BATT} would be switched. The foot pedal switch 210 is normally open such that when the passenger 110 running the toy vehicle 100 engages the foot pedal switch 210, a connection is made (i.e., the switch is closed) and the battery voltage is applied to the rest of the control system 300b. A circuit breaker 405 is utilized to prevent an overcurrent

situation and to avoid damaging other electrical components or the motors 225.

The forward/reverse switch 215 is shown as being normally open. Upon the operator 110 shifting between forward and reverse, the forward/reverse switch 215 closes and the motors 225 are applied a reverse polarity to change driving direction of the toy vehicle 100. The forward and reverse signals 222a and 222b, are applied to the soft-start control circuit 305 for determining that the foot pedal switch 210 is engaged and for indicating when a shift between forward and reverse occurs. The hi/lo switch 220 is operable to allow the passenger 110 to shift the speed of the vehicle from low to high and vice-versa. Because the hi/lo switch 220 is normally open, the toy vehicle 100 is configured to be in low speed mode by operating the motors in series (i.e., each motor operates on six volts as understood in the art). Upon a shift from low to high speed, the hi/lo switch 220, which is a double-pole double-throw switch, configures the motors 225 to be operating in parallel, thereby operating both motors on twelve volts.

As shown, the soft-start control circuit 305 is coupled to the low-side of 230a and 230b of the motors 225 to allow the soft-start control circuit 305 to apply a transition signal 312 to the motors 225. The transition signal 312 operates to affect

the angular velocity of the motors 225 by altering the average voltage being applied to or drawn by the motors 225. In one embodiment, the transition signal 312 is a pulse width modulation signal having a duty cycle that ranges from about 20 to 100 percent, where the motors 225 deliver full power when the duty cycle is 100 percent.

FIGURE 5 is an exemplary block diagram 500 of an embodiment of the soft-start control circuit 305. The soft-start control circuit 305 includes an input conditioning unit 505, controller 510, power supply unit 515, drive circuit signal conditioning unit 520, and drive circuit 525. The power supply unit 515 is operable to receive the plus and minus (i.e., ground) battery voltage ($+V_{BATT}$ and $-V_{BATT}$) and generate a five-volt (+5V) supply for the other components of the soft-start control circuit 305. The input conditioning unit 505 is operable to receive the forward and reverse signals 222a and 222b, which may be analog or digital, and condition the signals for input to the controller 510. In an alternative embodiment, the soft-start control circuit 305 simply may be powered-up and begin performing the soft-start functionality (e.g., acceleration control). The controller 510 receives the conditioned forward and reverse signals for generating and applying the transition signal 312 to the return path 320a, which may be ramped and/or

delayed based on the forward and reverse signals 222a and 222b. The controller 510 may utilize a processor that executes software to perform the logical decisions and generate the transition signal 312 based on an algorithm, for example. The software may be stored in ROM or other storage device to be read by the processor and executed thereby. The drive circuit signal conditioning unit 520 is operable to condition or prepare the output of the controller for the drive circuit 525. The drive circuit 525 operates to apply the transition signal 312 generated by the controller 510 to the low-side 230a and 230b of the motors 225.

FIGURE 6 is an exemplary schematic of an embodiment of the soft-start control circuit 305 of Figures 3-5. As shown, the schematic includes the input conditioning unit 505, controller 510, power supply unit 515, drive circuit signal conditioning unit 520, and drive circuit 525. The power supply unit 515 develops a five-volt source 605, which may be utilized by the input conditioning unit 505, controller 510, and drive circuit signal conditioning unit 520. The input conditioning unit 505 receives the forward and reverse signals 222a and 222b via connectors J8 and J7, respectively. Diodes 610a and 610b are utilized to protect other components of the input conditioning unit 505 and prevent false triggering of the soft-start control

circuit 305. Additionally, the diodes 610a and 610b provide isolation of the forward and reverse signals 222a and 222b as one is high (e.g., positive) and the other low (e.g., negative). Alternatively, the two signals could be implemented as separate signals input to the processor. The forward and reverse signals 222a and 222b are logically OR'd to determine when at least one of the signals 222a and 222b is high. Upon determining that one of the forward 222a or reverse 222b signals is high, the transistor Q10 is utilized to generate a five-volt input signal to the controller 510.

The controller 510 includes a processor 615 that executes software to develop the transition signal to 312. The processor 615 receives the five-volt signal from Q10 to indicate that either the forward or reverse signal 222a and 222b is high. The processor 615 executes the software and outputs the appropriate transition signal 312 to the drive circuit signal conditioning unit 520 via line 620. The drive circuit signal conditioning unit 520 performs a level shift of the transition signal 312 via transistor Q8 in preparation for the drive circuit.

The drive circuit 525 includes a bridge circuit 625 formed of two transistors Q3 and Q7. The bridge circuit is operable to form a push-pull drive to turn field effect transistors (FETs) Q5 and Q6 on and off. The FETs Q5 and Q6, which may be part

number IRL2203NS (one producer being International Rectifier, El Segundo, CA 90245), are used as high current switches that apply the pulse width modulation formed by the processor 615 between the motor 225 and negative terminal 227 of the battery 205. The Schottky diodes 630 operate as a "fly back" diodes that handle current feedback from the motors 225 due to the pulse width modulation of the motor 225 to prevent the FETs Q5 and Q6 from burning up.

FIGURE 7 provides eight exemplary conditioned input signals 705-740 applied to the controller 510 via controller input line 612 based on the foot pedal and shift for changing direction. The conditioned input signals 705-740 are indicative of either pedal or forward/reverse shift operations of the toy vehicle 100. It should be understood that the toy vehicle 100 could have other functions or mechanisms that are utilized by the controller 510 to affect operation of the motors 225.

FIGURE 7(a) provides conditioned input signal 705 that indicates that the toy vehicle 100 is off and that the pedal is not depressed, thereby causing the foot pedal switch 210 to remain open. FIGURE 7(b) provides conditioned input signal 710 that indicates that the pedal is depressed at time T1, thereby causing the foot pedal switch 210 to close. FIGURE 7(c) provides conditioned input signal 715 that indicates that the

pedal is released at time T2, thereby causing the foot pedal switch 210 to open. FIGURE 7(d) provides conditioned input signal 720 that indicates that a direction shift is initiated via a shift stick or other mechanism while the pedal is depressed, thereby causing the conditioned signal input to the controller 510 to toggle OFF at time T3 and back ON at time T4 so that the processor 615 recognizes that a shift occurs.

FIGURE 7(e) provides conditioned input signal 725 that indicates that the pedal is momentarily released (e.g., foot slips off pedal), thereby causing the conditioned input signal 725 to toggle at times T5 and T6. FIGURE 7(f) provides conditioned input signal 730 that indicates that the pedal is momentarily pressed (e.g., foot accidentally presses the pedal), thereby causing the conditioned input signal 730 to toggle at times T7 and T8. FIGURE 7(g) provides conditioned input signal 735 that indicates that the pedal is being pulsed by the operator 110 of the toy vehicle 100, thereby causing the conditioned input signal 735 to toggle at times T9-T12. FIGURE 7(h) provides conditioned input signal 740 that indicates that a direction shift is being pulsed by the operator 110 of the toy vehicle 100, thereby causing the conditioned input signal 740 to toggle at times T9-T12. Each of the conditioned input signals 705-740 are recognized by the soft-start control circuit 305 for

providing the transition signal 312 to affect operation of the motors 225. In operation, the software program executing in the processor 615 may utilize the following algorithm to generate the transition signal 312 as a function of the conditioned input signal via line 612.

a. If conditioned input signal is LOW, then output is HIGH (drive circuit is OFF).
b. When the conditioned input signal transitions HIGH then
If off_time < off_time_max and on_time>on_time_max then DELAY(shift_delay)
Begin the PWM ramp from initial_ramp to 100 percent duty cycle
Output remains LOW until input changes
c. While conditioned input signal HIGH, increment on_time
d. While conditioned input signal LOW, increment off_time

The parameters, which are exemplary, of the algorithm may be as follows:

ramp_time	= 1.0 seconds
initial_ramp	= 20 percent duty cycle
shift_delay	= 400 msec
off_time_max	= 125 msec
on_time_max	= 125msec

FIGURE 8A is an exemplary set of graphs 800a that shows the response of an embodiment of the soft-start control circuit 305 to a change of input conditions provided by the operator 110 of the toy vehicle 100. Graph 8A(a) shows the conditioned input signal 710 transition at time T_1 due to the pedal being depressed by the operator 110, and graph 8A(b) shows that the

forward/reverse switch 215 is not transitioned. Graph 8A(c) shows an output signal 805, which is indicative of the transition signal 312 having a duty cycle ranging from about 20 to 100 percent, that ramps up over a one second time duration (i.e., T_1 to T_1+1.0 second) based on the depression of the pedal at time T_1.

FIGURE 8B is an exemplary set of graphs 800b that shows the response of the soft-start control circuit 305 to a change of input conditions provided by the operator 110 of the toy vehicle 100. Graph 8B(a) shows that the foot pedal switch 210 remains closed while the shift signal 720 changes (i.e., the operator 110 shifts from forward to reverse or vice versa). As shown, the output signal 810a transitions OFF at time t_3 in accordance with the shift signal 720 transitioning OFF. Upon the shift signal 720 transitioning HIGH at time t_4, a delay t_D is created before the output signal 810b is enabled to provide the mechanical components (e.g., gear train) of the toy vehicle 100 enough time to transition, thereby avoiding wearing of the mechanical components.

FIGURE 8C is an exemplary set of graphs 800c that shows the response of the soft-start control circuit 305 to a change of input conditions provided by the operator 110 of the toy vehicle 100. As shown in graph 8C(a), the operator 110 releases the

pedal at time T and re-engages the pedal at time T+1.2 seconds. Graph 8C(b) indicates that the shift is not transitioned over the time period of concern. The output signal 815a transitions OFF at time T and re-transitions ON at time T+1.2 seconds. During the OFF time of the output signal 815a, a deceleration counter identified by dashed line may count down for two seconds, for example, so that upon the operator 110 depressing the pedal again, output signal 815b may start at a higher duty cycle (e.g., 60 percent) and ramp to 100 percent rather than having to start at the startup duty cycle (e.g., 20 percent). By utilizing the deceleration counter, the toy vehicle 100 provides the operator 110 with a more realistic sense of operating a real vehicle. Additionally, by initiating the output signal 815b at a duty cycle closer to that of the velocity of the toy vehicle 100, safety may be improved as the toy vehicle 100 does not substantially slow. In the case of the toy vehicle 100 being a two-wheeled scooter or motorcycle-like, the deceleration counter safety feature the operator 110 not having to provide additional stability with his or her feet, which is often times awkward and difficult.

FIGURE 9 is an exemplary flow diagram 900 providing a high level operation of an embodiment of the soft-start control circuit 305 of FIGURES 3-5. The process starts at step 905. At

step 910, at least one signal to induce motion of the toy vehicle 100 is received. The signal(s) may be that of a throttle signal or multiple signals, such as forward and reverse, that inherently indicate that the throttle signal has been applied. At step 915, a transition signal ranging from a first to a second level over a time period is generated. The transition signal may be a pulse width modulation signal having a duty cycle of approximately 20 percent and have a substantial linear increase to 100 percent. Alternatively, a non-linear signal, such as an exponential signal, may be generated to account for the dynamics of the motors 225, other electro-mechanical components, and/or the toy vehicle 100. The non-linear signal may provide other benefits for the operator 110, such as a feeling of a turbo boost or thrusters, for example. At step 920, the transition signal is applied to the motor(s) 225. It should be understood that generation of the transition signal and application thereof may be performed simultaneously such that steps 915 and 920 may be considered more as a single step. The process ends at step 925.

FIGURE 10 is an exemplary block diagram 1000 of a control system of a toy vehicle 100, such as a sit-on or stand-on scooter, that does not include a foot pedal. For safety reasons, toy makers are reluctant to deliver high power of the

battery 205 to handle bars, and, therefore, a low power switch 1005 is desirable to be located on the handle bars. Other switches, including switches that are disengaged upon the operator 110 becoming separated from the toy vehicle 100, may be utilized.

As shown, a relay 1010, which is normally closed to limit contact wear, is coupled to the control circuit with failsafe circuitry 305a to provide for a safe way to disengage the motor 225 from the battery 205 in the case of a control circuit failure. In other words, because the toy vehicle 100 does not have a foot pedal or other "make or break" safety switch and relies on the solid-state FETs to turn the motors 225 on and off, the relay 1010 is included as a safety feature to a control circuit failure (e.g., shorting or overheating of a FET). The control circuit 305a is in the return path 320a and 320b between the motor 225 and battery 205, however, the control circuit in the instant embodiment does not include the processor 615 to apply the transition signal 312 and basically operates as an on/off switch as the foot pedal switch 210. It should be understood that inclusion of the processor 615 and associated circuitry to provide the soft-start functionality could be integrated with the control circuit with failsafe circuitry 305a. Again, it should be understood that the control circuit

with failsafe circuitry 305a may operate on the high-side of the motor 225, but that costs and complexity would be increased due to having to create higher voltages to switch the FETs ON.

FIGURE 11 is an exemplary schematic 1100 of an embodiment of the control circuit with failsafe circuitry 305a of FIGURE 10. As shown, input conditioning unit 505a, drive circuit 525a, failsafe detect circuit 1105, and relay 1010 are provided. The failsafe detect circuitry 1105 detects if a failure occurs within the control circuitry (e.g., FETs Q5 or Q6 of the drive circuit 525a) and applies power to the relay 1010 to disengage the motor 225 from the battery 205. The failsafe detect circuitry 1105 includes circuitry, including transistors Q4, Q6, Q1, and Q7, that is configured to determine if a failure of the control circuit 305a occurs. If a failure of either FET Q5 or Q6 occurs by becoming shorted ON, for example, and the input is OFF, the failsafe detect circuitry 1105 determines that a failure has occurred and activates the relay 1010 to disengage the motor 225 from the battery 205. Although the failsafe detect circuitry 1105 is shown to be analog, it should be understood that the functionality of the failsafe detect circuitry 1105 could be digital by incorporating the functionality into software and executed on the processor 615, if included in the control circuit 305a, for example.

FIGURE 12 is an exemplary flow diagram 1200 describing the failsafe operation of the control circuit with failsafe circuitry of FIGURES 10 and 11. The process starts at step 1205. At step 1210, a signal indicative of a desire of the operator 110 to turn on or off the motor 225 is received. A switch signal (e.g., signal substantially instantly switching from off to on) is generated by the control circuit 305a to be applied to the motor 225 at step 1215. The switch signal may be maintained at full voltage to continue applying full power to the motor 225 during operation of the toy vehicle 100. At step 1220, the switch signal is monitored. A determination of improper operation of the switch signal is made at steps 1225 and 1230. If an improper operation of the switch signal occurs, which indicates either (i) a failure of the control circuit 305a has occurred and/or (ii) the motor 225 is operating and the switch signal indicates that the motor 225 is to be off, then the motor 225 is disengaged from the battery at step 1235. Otherwise, the process repeats steps 1220 through 1230. It should be understood that is an indication is received to turn off or on the motor 225 during the monitoring of the switch signal, then the process may repeat from step 1205. The process ends at step 1240.

It should be understood that the principles of the present invention may not be limited to toy vehicles. Accordingly, the principles of the present invention could be applied to non-toy vehicles, such as golf carts or industrial vehicles.

The previous description is of a preferred embodiment for implementing the principles of the present invention, and the scope of the invention should not necessarily be limited by this description. The scope of the present invention is instead defined by the following claims.

WHAT IS CLAIMED IS:

1. A method for controlling acceleration of a toy vehicle configured to be operated by a person, said method comprising:

receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the throttle signal; and

applying the transition signal to affect operation of the motor.

2. The method according to claim 1, wherein the transition signal is a pulse width modulation signal.

3. The method according to claim 1, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

4. The method according to claim 1, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

5. The method according to claim 1, wherein the operation of the motor is a transition from a first to a second angular velocity.

6. The method according to claim 5, wherein the transition from the first to second angular velocity is substantially linear.

7. The method according to claim 6, wherein the transition signal ramps power to the motor.

8. The method according to claim 5, wherein the transition from the first to second angular velocity is non-linear.

9. The method according to claim 5, wherein the transition occurs over a time span of at least one second.

10. The method according to claim 1, further comprising:

receiving a shift signal indicative of a change of direction of motion for the toy vehicle;

if power is being applied to the motor,

initiating a delay; and

applying the transition signal to the motor.

11. The method according to claim 1, further comprising:

forming a second transition signal upon the throttle signal being transitioned, the second transition signal being utilizable upon the throttle signal being re-transitioned over a predetermined time duration.

12. The method according to claim 11, further comprising:

initiating, upon the throttle signal being re-transitioned before expiration of the predetermined time duration, the transition signal at a level associated with the second transition signal.

13. The method according to claim 11, wherein the second transition signal is substantially linear.

14. A toy vehicle operable by a person, said toy vehicle comprising:

a battery having a positive and a ground terminal, and for providing power to electrical components of the toy vehicle;

a motor;

a mobility device coupled to said motor and operable to provide motion for the toy vehicle;

a throttle switch electrically coupled between said battery and said motor, and operable to provide power to said motor; and

a circuit having a first and a second terminal, the first terminal being coupled to said battery and the second terminal being coupled to said motor, said circuit being operable to generate a transition signal for said motor to transition from a first to a second angular velocity.

15. The toy vehicle according to claim 14, wherein the first terminal of said circuit is coupled to the ground terminal of said battery.

16. The toy vehicle according to claim 14, wherein the transition signal is a pulse width modulation signal.

17. The toy vehicle according to claim 16, wherein the pulse width modulation signal has a duty cycle of above approximately 20 percent corresponding to the first angular velocity.

18. The toy vehicle according to claim 14, wherein said circuit includes a processor operable to execute software for producing the transition signal.

19. The toy vehicle according to claim 18, wherein the software further produces a second transition signal upon transition of said throttle switch.

20. The toy vehicle according to claim 14, wherein the transition from the first to the second angular velocity is substantially linear.

21. The toy vehicle according to claim 14, wherein the transition signal causes a ramp of the power to said motor.

22. The toy vehicle according to claim 14, wherein the transition from the first to the second angular velocity is non-linear.

23. The toy vehicle according to claim 14, further comprising a disable mechanism operable to disengage the power from said motor.

24. The toy vehicle according to claim 23, wherein the disable mechanism is a switch.

25. The toy vehicle according to claim 23, wherein said circuit includes failsafe detect circuitry for detecting a failure and enabling the disable mechanism upon detection thereof.

26. The toy vehicle according to claim 14, further comprising a shift mechanism to switch between forward and reverse, said circuit being operable to remove power from said motor, generate a delay, and reinitiate the transition signal upon a transition between forward and reverse.

27. The toy vehicle according to claim 14, wherein the mobility device includes at least one of a wheel and a propeller.

28. The toy vehicle according to claim 14, wherein the toy vehicle is configured to resemble at least one of the following: automobile, truck, boat, airplane, scooter, and motorcycle.

29. A system for controlling acceleration of a toy vehicle configured to be operated by a person, said system comprising:

means for receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

means for generating a transition signal based on the throttle signal; and

means for applying the transition signal to effect operation of the motor.

30. The system according to claim 29, wherein the transition signal is a pulse width modulation signal.

31. The system according to claim 29, further comprising:

means for receiving a shift signal indicative of a change of direction of motion for the toy vehicle; and

means for determining if power is being applied to the motor;

means for initiating a delay; and

means for applying the transition signal including the delay to the motor if power is being applied to the motor.

32. The system according to claim 29, further comprising:

means for forming a second transition signal upon the throttle signal being transitioned, the second transition signal being utilizable upon the throttle signal being re-transitioned over a predetermined time duration.

33. The system according to claim 32, further comprising:

means for initiating, upon the throttle signal being re-transitioned before expiration of the predetermined time duration, the transition signal at a level associated with the second transition signal.

34. The system according to claim 29, further comprising means for providing a failsafe to disengage the motor upon detecting a failure of said means for generating the transition signal.

35. A system for controlling a toy vehicle having a battery and a motor, said system comprising:

a circuit having a first and second terminal, the first terminal electrically coupled to the battery and the second terminal coupled to the motor for rotating a mobility device,

a third terminal electrically coupled to a device operable to produce a throttle signal, said circuit further including a processor operable to execute a software program to generate a transition signal, based on receiving the throttle signal on the third terminal, to transition the motor from a first to a second angular velocity.

36. The system according to claim 35, wherein the toy vehicle is configured to resemble an automobile, truck, boat, airplane, motorcycle, and scooter.

37. The system according to claim 35, wherein the mobility device includes at least one of a wheel and propeller.

38. The system according to claim 35, wherein the transition signal is a pulse-width modulation signal.

39. The system according to claim 38, wherein the pulse-width modulation signal has a duty cycle of approximately 20 percent as associated with the first angular velocity.

40. The system according to claim 35, wherein the first terminal is electrically coupled to a ground terminal of the battery.

41. A computer-readable medium having stored thereon sequences of instructions, the sequences of instructions including instructions, when executed by a processor, causes the processor to:

receive a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

generate a transition signal based on the throttle signal; and

apply the transition signal to effect operation of a motor operating within a toy vehicle.

42. A method for disabling a toy vehicle, configured to be operated by a person, having a battery and a motor, said method comprising:

receiving an on/off signal indicative to turn on and off the motor;

generating a switch signal to apply to the motor to induce motion of the toy vehicle;

monitoring operation of the switch signal;

determining improper operation of the switch signal; and

disengaging the motor from the battery upon said determining an improper switch signal.

43. A system for disabling a toy vehicle, configured to be operated by a person, having a battery and a motor, said system comprising:

means for receiving an on/off signal indicative to turn on and off the motor;

means for generating a switch signal to apply to the motor to induce motion of the toy vehicle;

means for monitoring operation of the switch signal;

means for determining an improper switch signal; and

means for disengaging the motor from the battery upon said determining an improper switch signal.

44. A toy vehicle operable by a person, said toy vehicle comprising:

a battery having a positive and a ground terminal, and for providing power to electrical components of the toy vehicle;

a motor;

a mobility device coupled to said motor and operable to provide motion for the toy vehicle;

a first switching element coupled between said motor and said battery;

a second switching element coupled to said battery, and operable to indicate application of power to said motor; and

a circuit having a first and a second terminal, the first terminal being coupled to said second switching element and the second terminal being coupled to said motor, said circuit including a third switching element being operable to generate a signal for said motor to turn on and off, said circuit further comprising a failsafe circuit to detect a failure of a component of said circuit and enabling said first switching element to disable said motor.

45. The system according to claim 44, wherein said third switching element includes at least one FET.

ABSTRACT

A system, apparatus, and method for providing a soft-start for a toy vehicle configured to be operated by a person. The method includes receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle. A transition signal may be generated based on the throttle signal. The transition signal may be applied to effect operation of the motor. The transition signal may be a pulse width modulated signal having a duty cycle between 20 and 100 percent to provide for an acceleration that avoids the problems of conventional control systems. The transition signal may be ramped in a linear or non-linear fashion. The system may couple the soft-start control circuit between a ground terminal of a battery of the toy vehicle and motor(s), thereby allowing the soft-start control circuit to operate on a low voltage (i.e., not the high voltage of the battery).

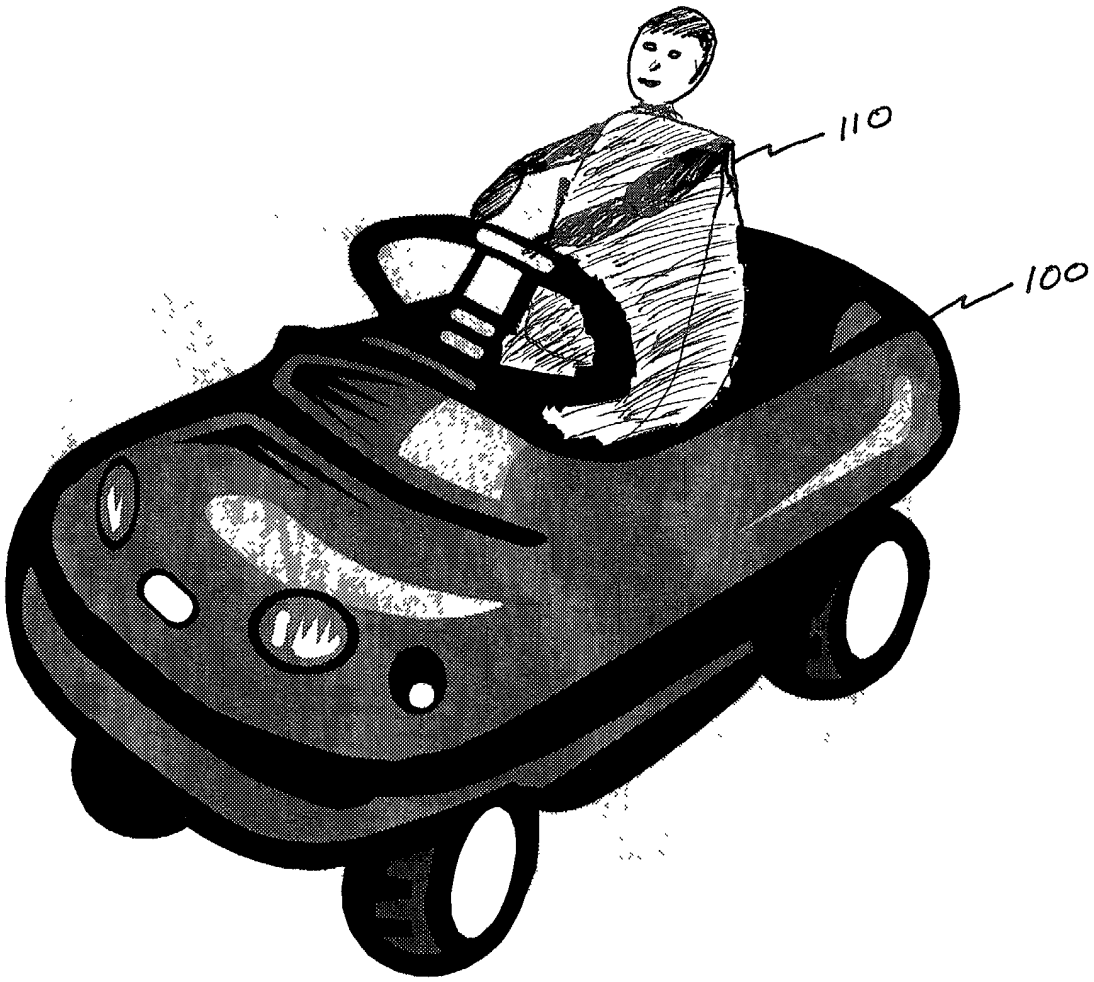
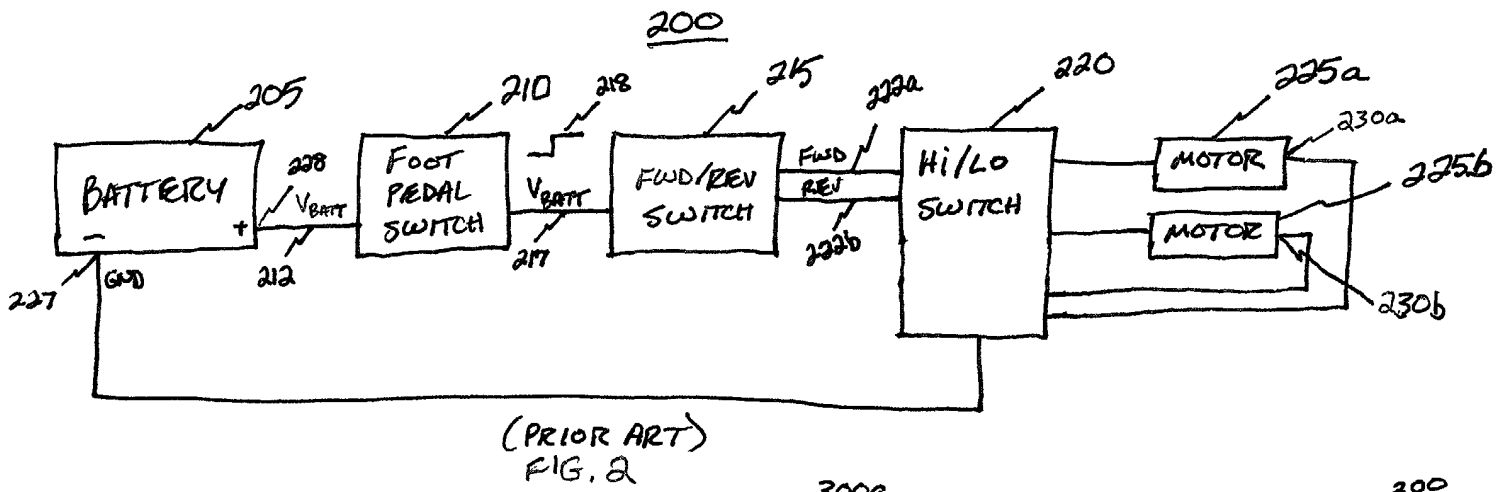


FIG. 1



(PRIOR ART)
FIG. 2

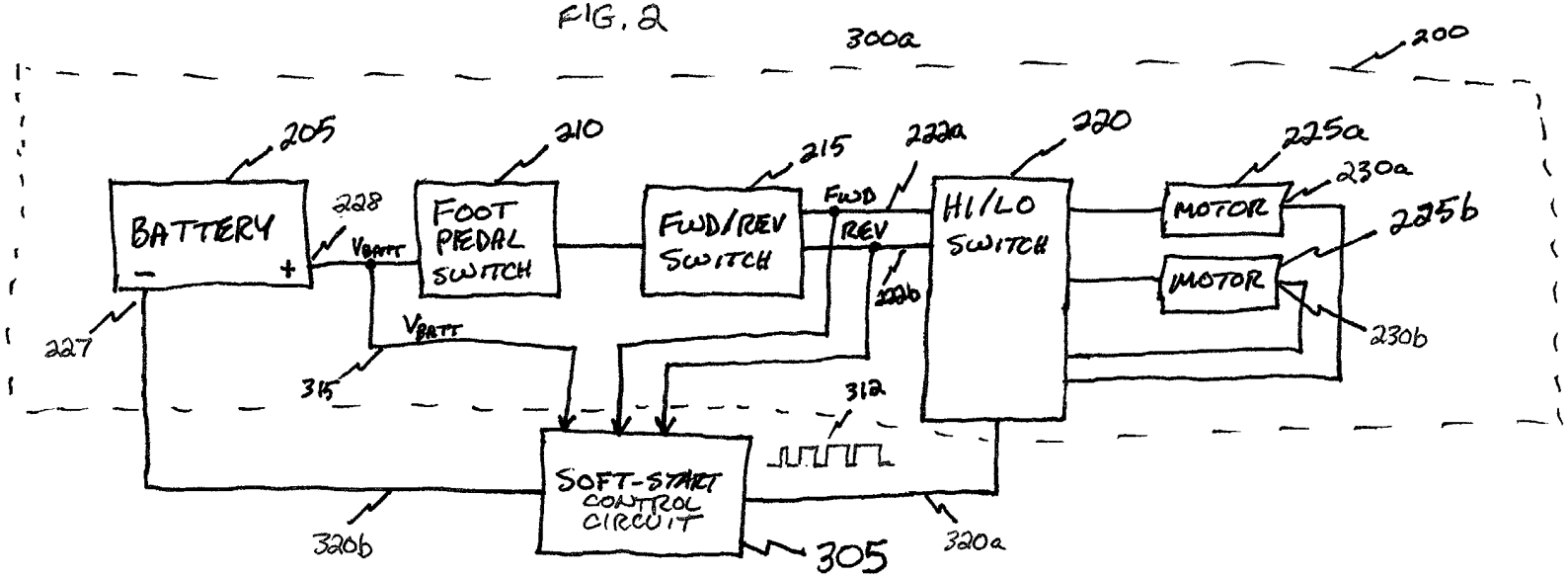


FIG. 3

300b

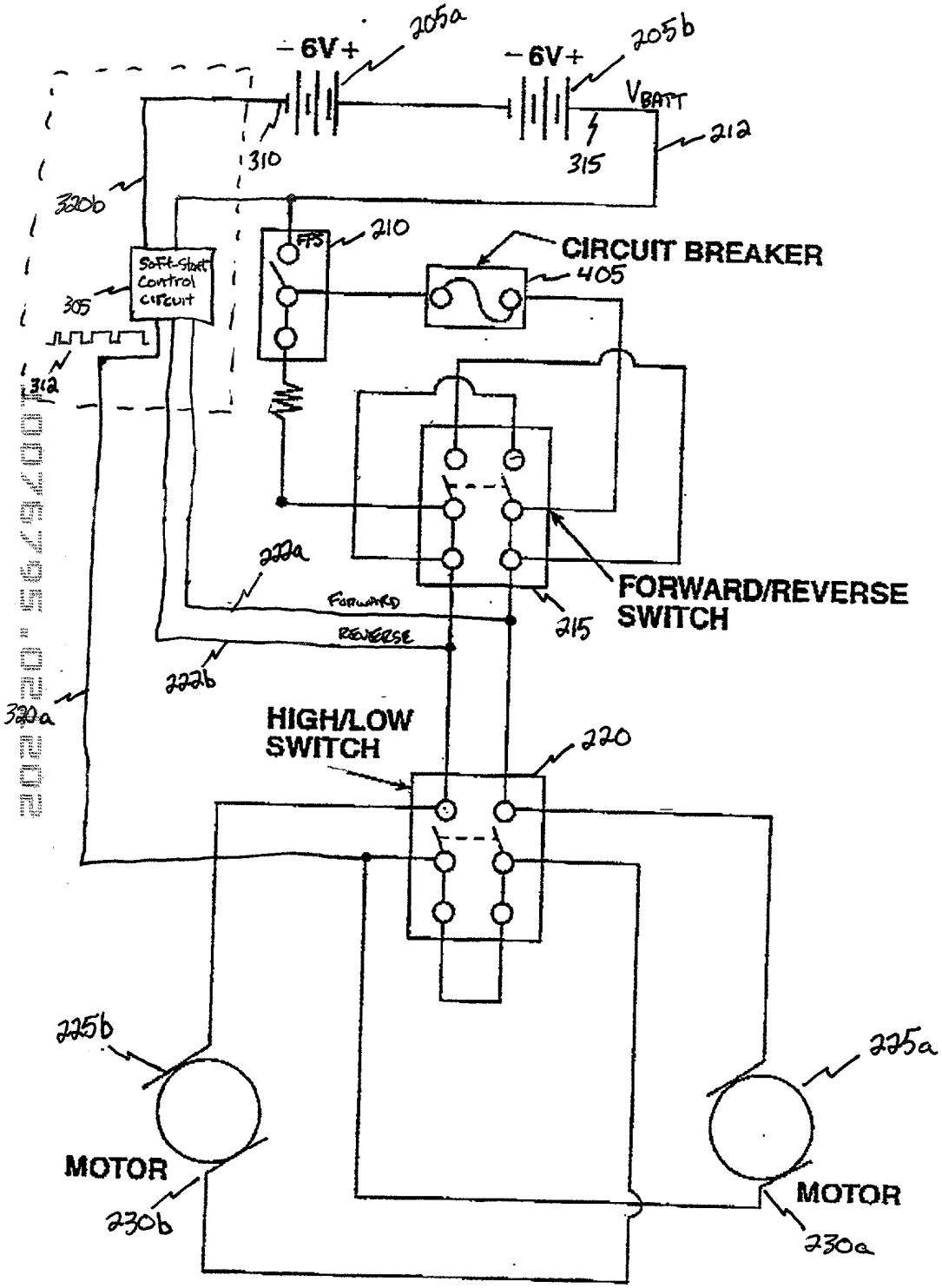

-6V+
205a
-6V+
205b
V_{BATT}
212
310
315
320b
FPS
210
CIRCUIT BREAKER
405
Soft-Start Control circuit
305
312
222a
FORWARD/REVERSE SWITCH
215
FORWARD
REVERSE
222b
320a
HIGH/LOW SWITCH
220
225b
225a
MOTOR
230b
MOTOR
230a

FIG. 4

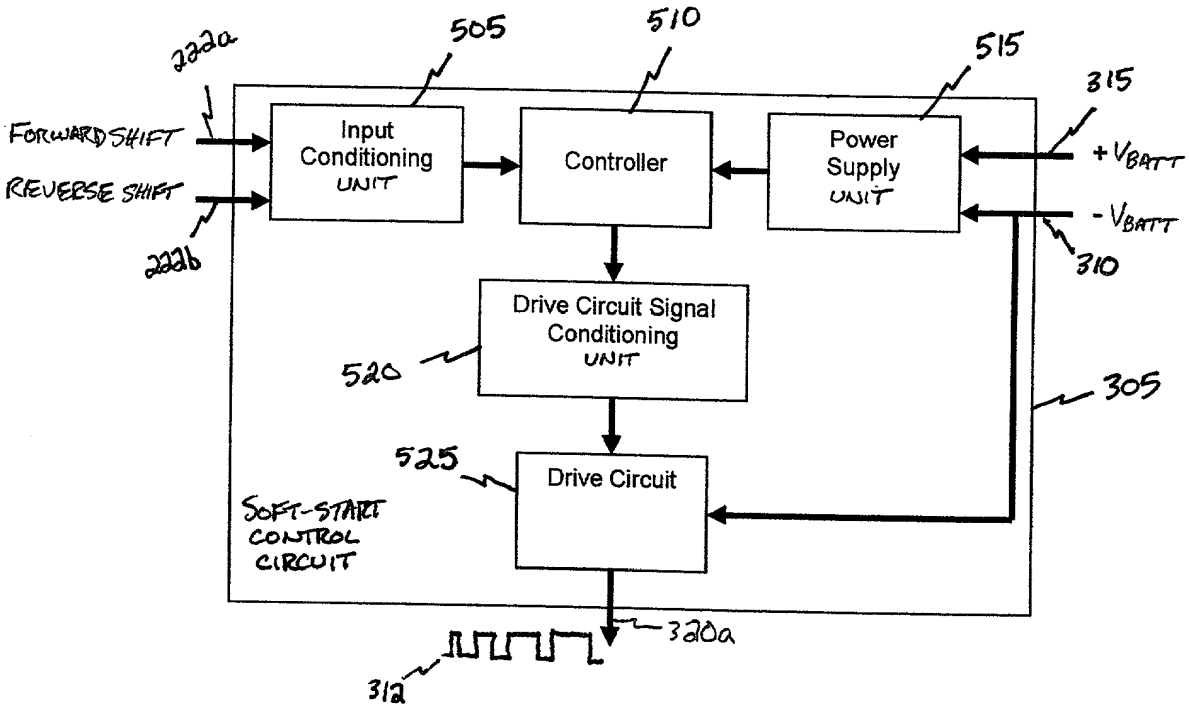


FIG. 5

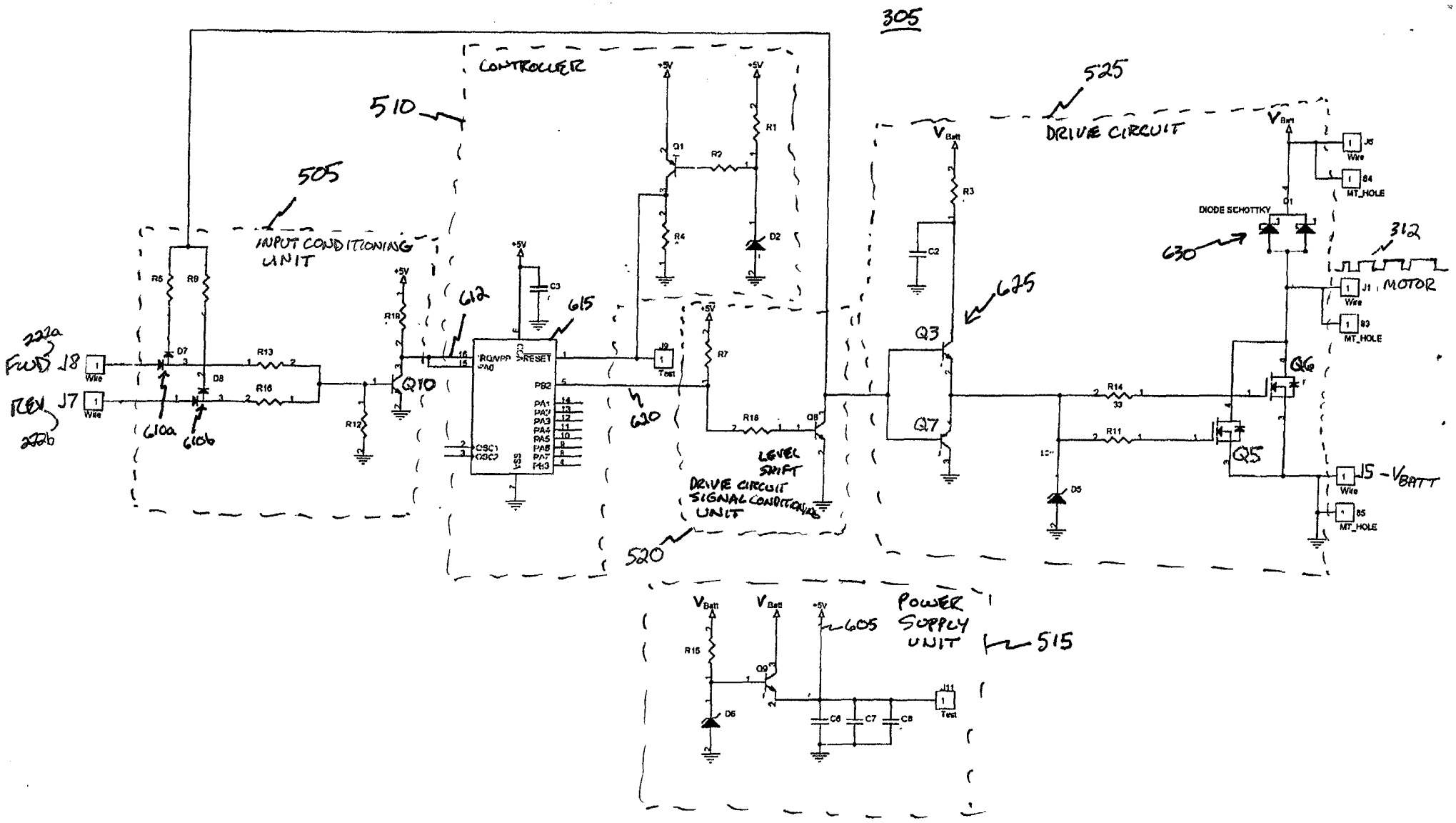

305
CONTROLLER
510
505
INPUT CONDITIONING UNIT
525
DRIVE CIRCUIT
625
630
312
MOTOR
615
612
620
LEVEL SHIFT
DRIVE CIRCUIT SIGNAL CONDITIONING UNIT
520
POWER SUPPLY UNIT
515
605
DIODE SCHOTTKY
FWD J8
REV J7
222a
222b
610a
610b
Q10
Q3
Q7
Q6
Q5
J5 -VBATT
RESET
OSC1
OSC2
PB2

FIG. 6

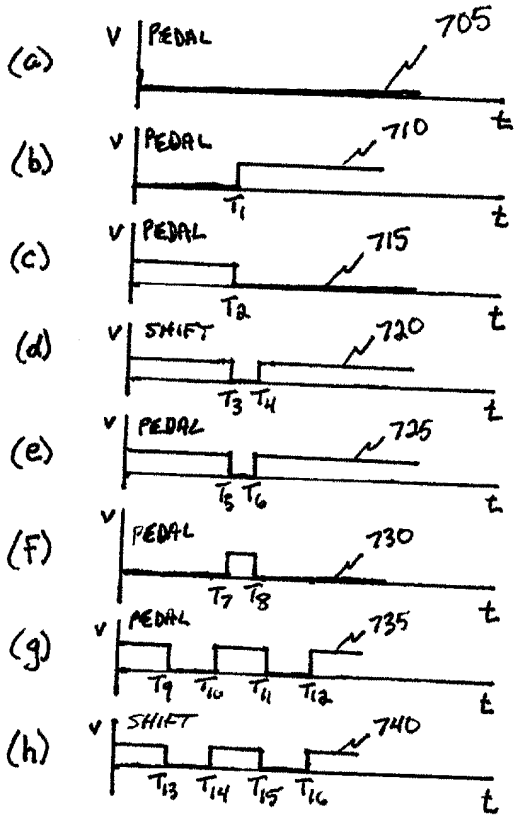


FIG. 7

800a

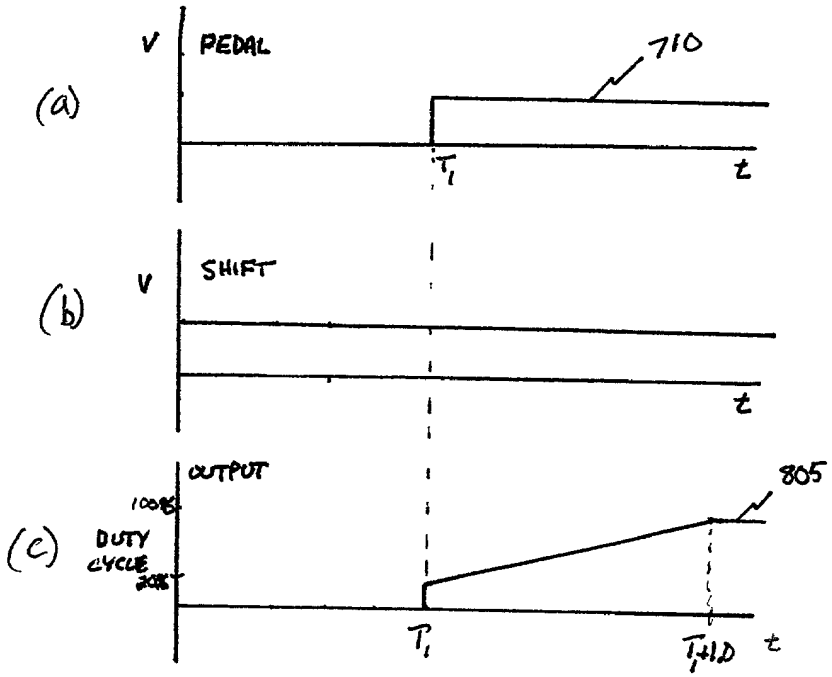


FIG. 8A

800b

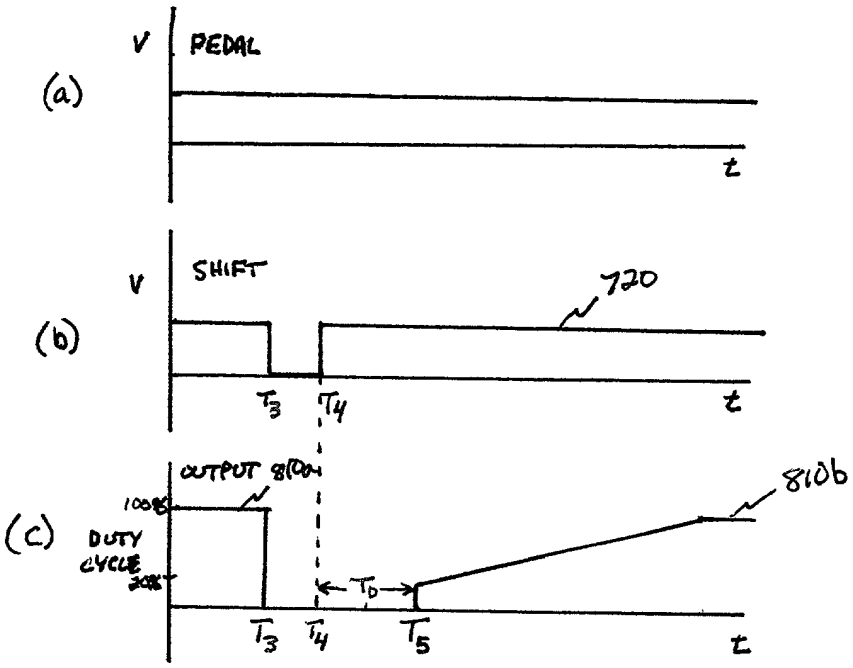


FIG. 8B

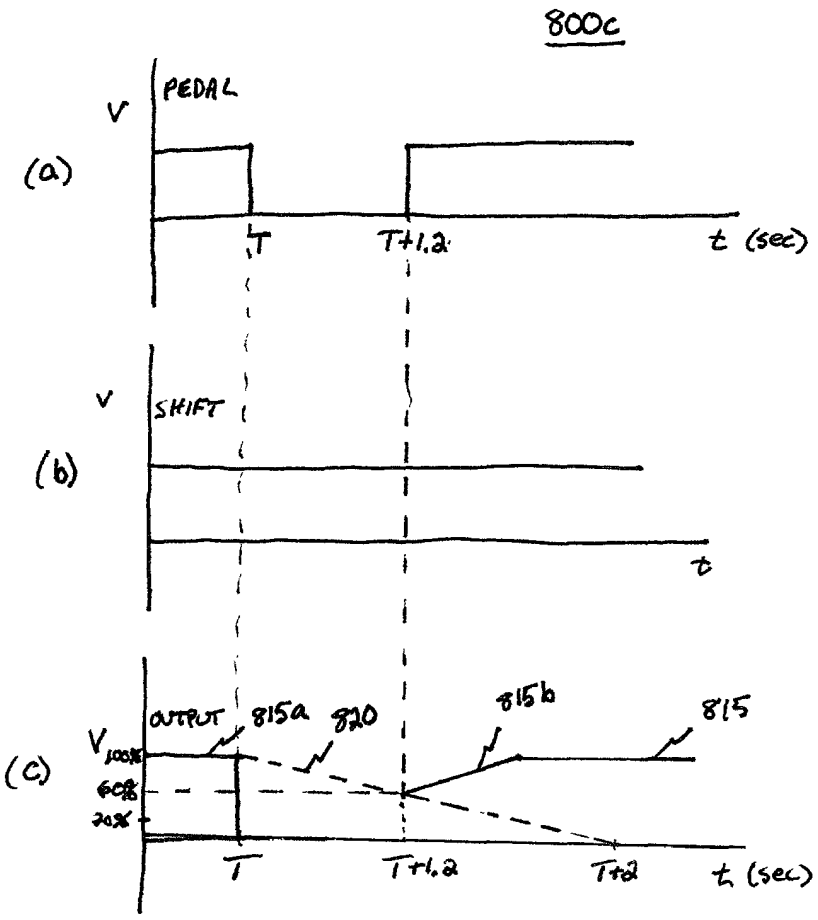


FIG. 8C

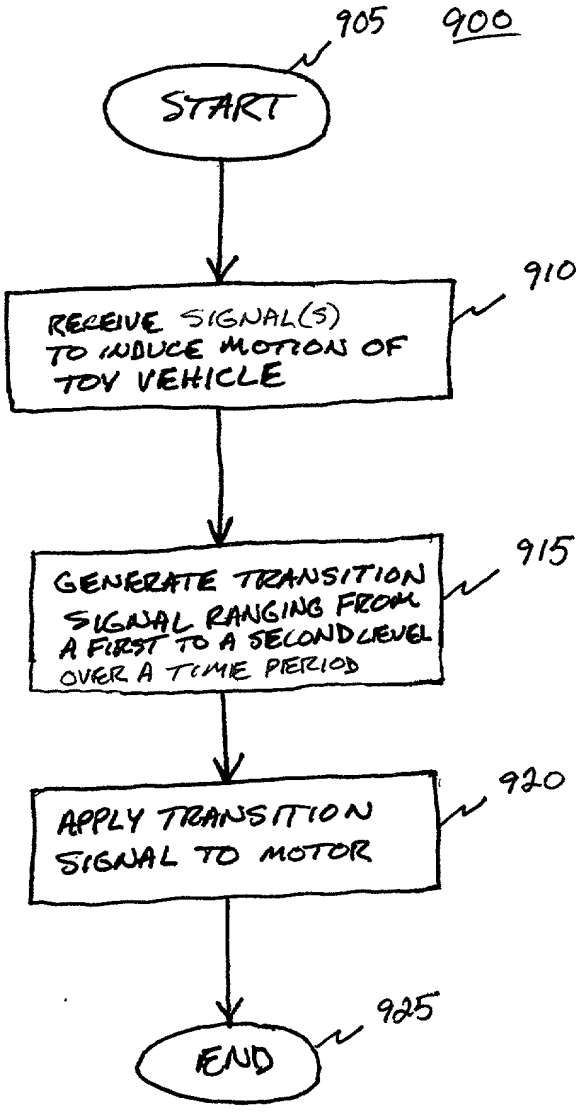


FIG. 9

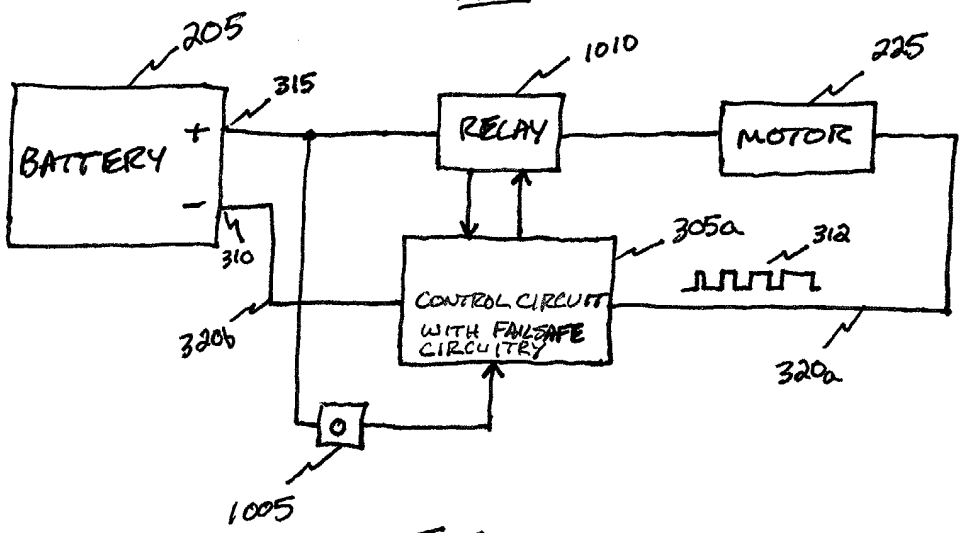

1000
205
315
1010
225
BATTERY
+
−
RELAY
MOTOR
310
305a
312
320b
CONTROL CIRCUIT
WITH FAILSAFE
CIRCUITRY
320a
0
1005

FIG. 10

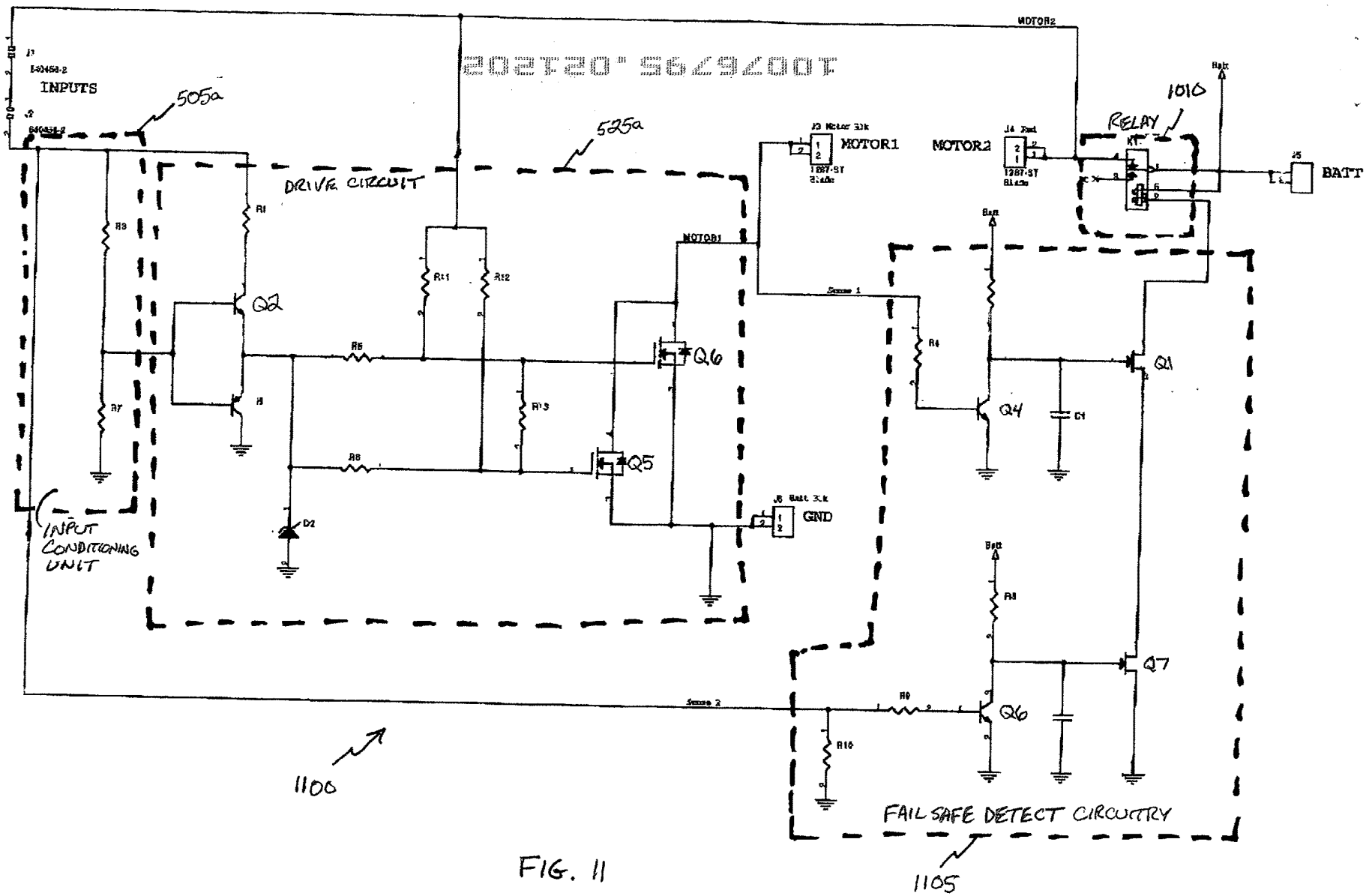

INPUTS
505a
525a
DRIVE CIRCUIT
MOTOR1
MOTOR2
RELAY
1010
BATT
GND
INPUT CONDITIONING UNIT
FAILSAFE DETECT CIRCUITRY
1100
1105
Q1
Q2
Q4
Q5
Q6
Q7
D2
G1

FIG. 11

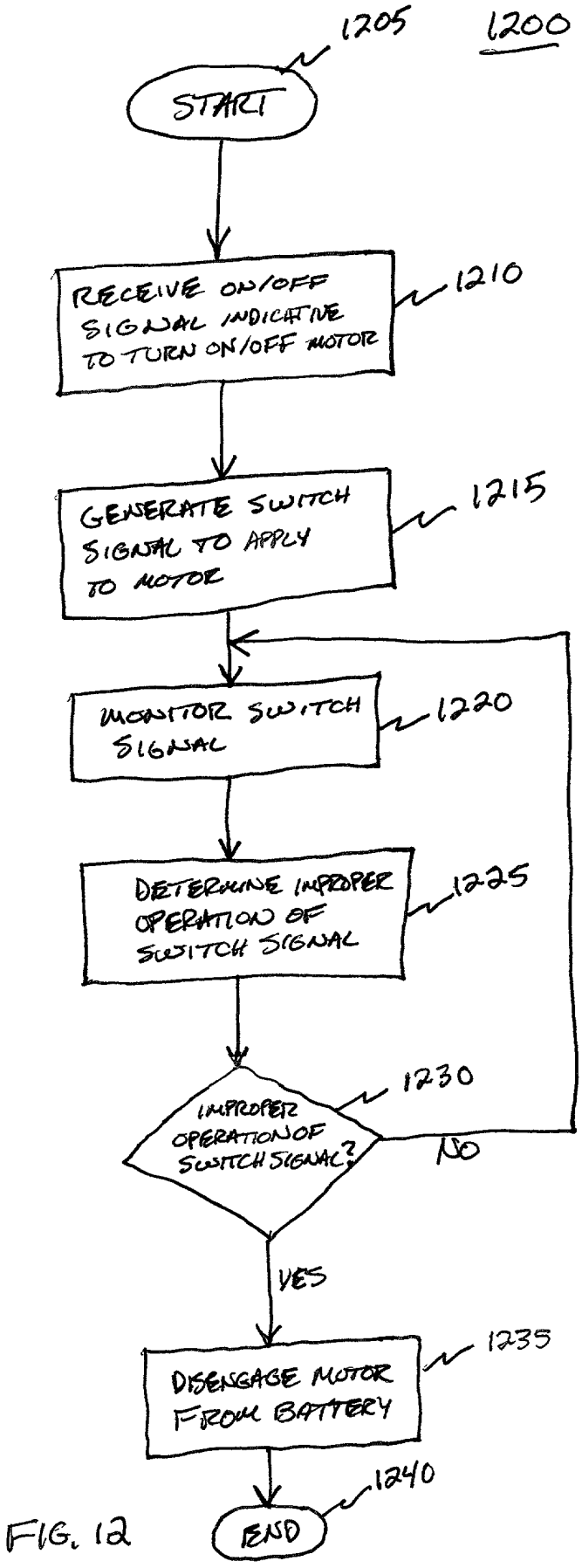

1200
1205
START
RECEIVE ON/OFF SIGNAL INDICATIVE TO TURN ON/OFF MOTOR
1210
GENERATE SWITCH SIGNAL TO APPLY TO MOTOR
1215
MONITOR SWITCH SIGNAL
1220
DETERMINE IMPROPER OPERATION OF SWITCH SIGNAL
1225
IMPROPER OPERATION OF SWITCH SIGNAL?
1230
NO
YES
DISENGAGE MOTOR FROM BATTERY
1235
END
1240

FIG. 12

PATENT APPLICATION
DOCKET NO.: 50097-00008USPT

RULES 63 AND 67 (37 C.F.R. 1.63 and 1.67)
DECLARATION AND POWER OF ATTORNEY

FOR UTILITY/DESIGN/CIP/PCT NATIONAL APPLICATIONS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**, the specification of which: (mark only one)

_x_	(a)	is attached hereto.
___	(b)	was filed on _____ as Utility Application Serial No _____ and was amended on _____ (if applicable)
___	(c)	was filed as PCT International Application No. PCT/_____ on ____ and was amended on _____ (if applicable).
___	(d)	was filed on ___ as Application Serial No. ___ and was issued a Notice of Allowance on ____.
___	(e)	was filed on ___ and bearing attorney docket number ____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above or as allowed as indicated above.

I acknowledge the duty to disclose all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56. If this is a continuation-in-part (CIP) application, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability of the application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that

of the application on which my priority is claimed or, (2) if no priority is claimed, before the filing date of this application:

PRIOR FOREIGN PATENTS

Number	Country	Month/Day/Year Filed	Date first laid-open or Published	Date patented or Granted	Priority Claimed Yes	No
NONE						

I hereby claim the benefit under 35 U.S.C. § 120/365 of any United States application(s) listed below and PCT international applications listed above or below:

PRIOR U.S. OR PCT APPLICATIONS

Application No. (series code/serial no.)	Month/Day/Year Filed	Status(pending, abandoned, patented)
60/ 268,447	February 12, 2001	

I hereby appoint:

TIMOTHY G. ACKERMANN, Reg. No. 44,493
BENJAMIN J. BAI, Reg. No. 43,481
JOSEPH M. BEAUCHAMP, Reg. No. 46,544
MARY JO BOLDINGH, Reg. No. 34,713
MARGARET A. BOULWARE, Reg. No. 28,708
DANIEL J. BURNHAM, Reg. No. 39,618
THOMAS L. CANTRELL, Reg. No. 20,849
RONALD B. COOLLEY, Reg. No. 27,187
THOMAS L. CRISMAN, Reg. No. 24,846
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ROGER J. FRENCH, Reg. No. 27,786
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MARK GATSCHET, Reg No. 42,569
JOHN C. GATZ, Reg. No. 41,774
RUSSELL J GENET. Reg No 42,571
GERALD H GLANZMAN, Reg. No. 25,035
LEKHA GOPALAKRISHNAN, Reg No. 46,733
J. KEVIN GRAY, Reg. No. 37,141
KEITH P. GRAY, Reg. No. 46,738
STEVEN R. GREENFIELD, Reg. No. 38,166
JOSHUA A. GRISWOLD, Reg. No. 46,310
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GARY B. SOLOMON, Reg. No. 44,347
STEVE Z. SZCZEPANSKI, Reg. No. 27,957
ANDRE M. SZUWALSKI, Reg. No. 35,701
ALAN R. THIELE, Reg. No. 30,694
TAMSEN VALOIR, Reg. No 41,417
BRIAN D WALKER, Reg. No. 37,751
GERALD T. WELCH, Reg. No. 30,332
HAROLD N WELLS, Reg. No. 26,044
WILLIAM D. WIESE, Reg. No. 45,217

all of the firm of **JENKENS & GILCHRIST, a Professional Corporation**, 1445 Ross Avenue, Suite 3200, Dallas, Texas 75202-2799, as my attorneys and/or agents, with full power of substitution and revocation, to prosecute this application, provisionals thereof, continuations, continuations-in-part, divisionals, appeals, reissues, substitutions, and extensions thereof and to transact all business in the United States Patent and Trademark Office connected therewith, to appoint any individuals under an associate power of attorney and to file and prosecute any international patent application filed thereon before any international authorities, and I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization who/which first sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct them in writing to the contrary.

Please address all correspondence and direct all telephone calls to:

Gary B. Solomon, Esq.
Jenkens & Gilchrist, P.C.
1445 Ross Avenue, Suite 3200
Dallas, Texas 75202-2799
214/855-4500
214/855-4300 (fax)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAMED INVENTOR(S)

1	David A. Norman **Full Name**	**Inventor's Signature**	**Date**
	3112 Old Mill Road Greenville, TX 75402 **Residence** (city, state, country)		U.S.A. **Citizenship**
	3112 Old Mill Road Greenville, TX 75402 **Post Office Address** (include zip code)		

2	Robert H. Mimlitch III **Full Name**	**Inventor's Signature**	**Date**
	5606 Luna Dr. Rowlett, TX 75088 **Residence** (city, state, country)		U.S.A. **Citizenship**
	5606 Luna Dr. Rowlett, TX 75088 **Post Office Address** (include zip code)		

3	Richard Torrance **Full Name**	**Inventor's Signature**	**Date**
	5001 Peacock Greenville, TX 75402 **Residence** (city, state, country)		U.S.A. **Citizenship**
	5001 Peacock Greenville, TX 75402 **Post Office Address** (include zip code)		

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/076,795	02/12/2002	David A. Norman	50097-8USPT

CONFIRMATION NO. 3663

FORMALITIES LETTER

OC000000007765231

Jenkens & Gilchrist, P.C.
3200 Fountain Place
1445 Ross Avenue
Dallas, TX 75202-2799

Date Mailed: 04/02/2002

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is unsigned.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(l) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.
- **The balance due by applicant is $ 65.**

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Substitute drawings in compliance with 37 CFR 1.84 because:
    - drawing sheets do not have the appropriate margin(s) (see 37 CFR 1.84(g)). Each sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom margin of at least 1.0 cm. (3/8 inch);

A copy of this notice <u>MUST</u> be returned with the reply.

Customer Service Center
Initial Patent Examination Division (703) 308-1202

PART 3 - OFFICE COPY

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of: David A. Norman et al.

Serial No. 10/076,795

Filing Date: February 12, 2002

For: System, Apparatus and Method for Providing Control of a Toy Vehicle

Box Missing Parts
Commissioner for Patents
P. O. Box 2327
Arlington, VA 22202

Certificate of Mailing
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Box Missing Parts, Commissioner for Patents, P. O. Box 2327, Arlington, VA 22202
On April 17, 2002

Signature: Carol Marstaller

Dear Sir:

RESPONSE TO NOTICE TO FILE MISSING PARTS OF APPLICATION

In response to the Notice to File Missing Parts mailed by the Application Branch on April 2, 2002, you will find enclosed a Declaration and Power of Attorney duly executed by the inventor(s) on March 4, 2002.

A check in the amount of $130 is enclosed for a large entity surcharge as set forth in 37 CFR 1.16(e).

It is respectfully submitted that no additional parts are required to be filed with regard to the above-referenced application, and the application should therefore be processed accordingly.

Respectfully submitted,

JENKENS & GILCHRIST, P.C.

Date: April 17, 2002

Gary B. Solomon
Registration No. 44,347

1445 Ross Avenue, Suite 3200
Dallas, Texas 75202-2799
(Direct) 214/855-4188
(Fax) 214/855-4300

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/076,795	02/12/2002	David A. Norman	50097-8USPT

CONFIRMATION NO. 3663

FORMALITIES LETTER

OC000000007765231

Jenkens & Gilchrist, P.C.
3200 Fountain Place
1445 Ross Avenue
Dallas, TX 75202-2799

Adjustment date: 10/18/2002 HMOHAMM1
05/23/2002 HMOHAMM1 00000008 10076795
01 FC:205 -65.00 OP

Date Mailed: 04/02/2002

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

10/18/2002 HMOHAMM1 00000003 100447 10076795
01 FC:1051 65.00 CH 65.00 OP

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is unsigned.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(l) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.
- **The balance due by applicant is $ 65.**

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

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  - drawing sheets do not have the appropriate margin(s) (see 37 CFR 1.84(g)). Each sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom margin of at least 1.0 cm. (3/8 inch);

04/26/2002 GTEFFERA 00000055 10076795
01 FC:105 130.00 OP

05/23/2002 HMOHAMM1 00000008 10076795
01 FC:205 65.00 OP

Repln. Ref: 05/23/2002 HMOHAMM1 0013411900
DAN:100447 Name/Number:10076795
$65.00 CR
FC: 704

A copy of this notice MUST be returned with the reply.

Adjustment date: 05/23/2002 HMOHAMM1
04/26/2002 GTEFFERA 00000055 10076795
01 FC:105 -130.00 OP

* DOCKETED
Int: DT: 7-8-02
Action Missing Parts due 6-2-2002 Date:

Customer Service Center
Initial Patent Examination Division (703) 308-1202
PART 1 - ATTORNEY/APPLICANT COPY

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PATENT APPLICATION

Docket No. 50097-00008USPT

#3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Norman et al.

Serial No.: 10/076,795 — Examiner: Unknown

Filing Date: February 12, 2002 — Group Art Unit: Unknown

For: SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Box Petitions
Commissioner for Patents
P. O. Box 2327
Arlington, VA 22202

Certificate of Mailing
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P. O. Box 2327, Arlington, VA 22202

On April 17, 2002

Signature: Carol Marstaller

05/23/2002 HHOHAHH1 00000007 10076795

01 FC:201 370.00 OP
02 FC:202 210.00 OP
03 FC:203 225.00 OP

PETITION TO EXCUSE ERROR IN STATUS AS SMALL ENTITY UNDER 37 CFR 1.28(c)

Dear Sir:

In accordance with 37 CFR §1.28(c), Applicant respectfully requests that the Commissioner excuse the error in status as small entity. An unintentional oversight resulted in payment as a small entity for the pending Patent Application 10/076,795. By submission of this Petition, Applicants are compliant with 37 C.F.R. §1.27(2)(i). Applicants submit that the small entity status for the associated Provisional Patent Application 60/268,447 to which the pending application claims priority is/was correct.

In accordance with 37 C.F.R. §1.28(c), Applicant herein includes a deficiency calculation and payment of the deficiency for the filing fee, which was the only payment made to date for the pending application.

As calculated below, Applicant submits herewith payment of the deficiency between the amount paid and the amount due because of the failure to properly claim large entity status. The fee has been calculated as follows:

~~Adjustment date: 04/26/2002 GTEFFERA~~
~~02/25/2002 MBIZUNES 00000054 100447 10076795~~
~~01 FC:201 370.00 CR~~
~~02 FC:203 225.00 CR~~
~~03 FC:202 210.00 CR~~

04/26/2002 GTEFFERA 00000054 100447 10076795

01 FC:101 740.00 OP
02 FC:102 225.00 CH 195.00 OP
03 FC:103 450.00 CH

Adjustment date: 05/23/2002 HHOHAHH1
04/26/2002 GTEFFERA 00000054 100447 10076795
01 FC:101 -740.00 OP
02 FC:102 225.00 CR -195.00 OP
03 FC:103 450.00 CR

Repln. Ref: 05/23/2002 HHOHAHH1 0013390000
PAO:100447 Name/Number:10076795
PC: 704 $130.00 CR

Filing Fee	Small Entity Fee Paid	Then-Current Large Entity Fee Due	Amount Owed (Difference)
Filing fee	$370	$740	$370
Total Claims (Extra - 25)	225	450	225
Total Independent Claims (Extra - 5)	42	84	210
Petition Fee			130
		Total Amount Due:	$935

☒ Check in the amount of $935.00 (for deficiency) are enclosed herewith.

Applicant respectfully requests that this Petition to Excuse Error be granted.

The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit of any over payment or underpayment to Deposit Account No. 10-0447. This sheet is attached in duplicate.

Respectfully submitted,

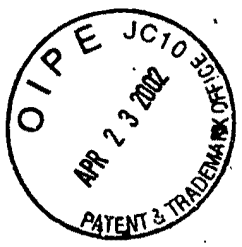
JENKENS & GILCHRIST, P.C.

Gary B. Solomon
Registration No. 44,347

Date: April 17, 2002

1445 Ross Avenue, Suite 3200
Dallas, Texas 75202-2799
(Direct) 214/855-4188
(Fax) 214/855-4300

#4



PATENT APPLICATION
DOCKET NO.: 50097-00008USPT

RULES 63 AND 67 (37 C.F.R. 1.63 and 1.67)
DECLARATION AND POWER OF ATTORNEY

FOR UTILITY/DESIGN/CIP/PCT NATIONAL APPLICATIONS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**, the specification of which: (mark only one)

__ (a) is attached hereto.
_X_ (b) was filed on 1/08/2002 as Utility Application Serial No 10/043,361 and was amended on _____ (if applicable)
__ (c) was filed as PCT International Application No. PCT/_____ on ____ and was amended on _____ (if applicable).
__ (d) was filed on ___ as Application Serial No. ___ and was issued a Notice of Allowance on ___.
__ (e) was filed on ___ and bearing attorney docket number

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above or as allowed as indicated above.

I acknowledge the duty to disclose all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56. If this is a continuation-in-part (CIP) application, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability of the application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the

application on which my priority is claimed or, (2) if no priority is claimed, before the filing date of this application:

PRIOR FOREIGN PATENTS

Number	Country	Month/Day/Year Filed	Date first laid-open or Published	Date patented or Granted	Priority Claimed Yes	No
NONE						

I hereby claim the benefit under 35 U.S.C. § 120/365 of any United States application(s) listed below and PCT international applications listed above or below:

PRIOR U.S. OR PCT APPLICATIONS

Application No. (series code/serial no.)	Month/Day/Year Filed	Status(pending, abandoned, patented)
60/ 268,447	February 12, 2001	

I hereby appoint:

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LEKHA GOPALAKRISHNAN, Reg. No. 46,733
J. KEVIN GRAY, Reg. No. 37,141
KEITH P. GRAY, Reg. No. 46,738
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J. PAT HEPTIG, Reg. No. 40,643
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ANDRE M. SZUWALSKI, Reg. No. 35,701
ALAN R. THIELE, Reg. No. 30,694
TAMSEN VALOIR, Reg. No. 41,417
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GERALD T. WELCH, Reg. No. 30,332
HAROLD N. WELLS, Reg. No. 26,044
WILLIAM D. WIESE, Reg. No. 45,217

all of the firm of **JENKENS & GILCHRIST, a Professional Corporation**, 1445 Ross Avenue, Suite 3200, Dallas, Texas 75202-2799, as my attorneys and/or agents, with full power of substitution and revocation, to prosecute this application, provisionals thereof, continuations, continuations-in-part, divisionals, appeals, reissues, substitutions, and extensions thereof and to transact all business in the United States Patent and Trademark Office connected therewith, to appoint any individuals under an associate power of attorney and to file and prosecute any international patent application filed thereon before any international authorities, and I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization who/which first sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct them in writing to the contrary.

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Dallas, Texas 75202-2799
214/855-4500
214/855-4300 (fax)

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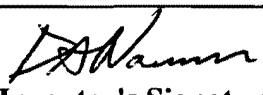
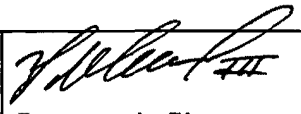
NAMED INVENTOR(S)

1	David A. Norman **Full Name**	 **Inventor's Signature**	4 March 02 **Date**
	3112 Old Mill Road Greenville, TX 75402 **Residence** (city, state, country)		U.S.A. **Citizenship**
	3112 Old Mill Road Greenville, TX 75402 **Post Office Address** (include zip code)		

2	Robert H. Mimlitch III **Full Name**	 **Inventor's Signature**	2002-MAR-4 **Date**
	5606 Luna Dr. Rowlett, TX 75088 **Residence** (city, state, country)		U.S.A. **Citizenship**
	5606 Luna Dr. Rowlett, TX 75088 **Post Office Address** (include zip code)		

3	Richard Torrance **Full Name**	Richard Torrance **Inventor's Signature**	March 4, 2002 **Date**
	5001 Peacock Greenville, TX 75402 **Residence** (city, state, country)		U.S.A. **Citizenship**
	5001 Peacock Greenville, TX 75402 **Post Office Address** (include zip code)		

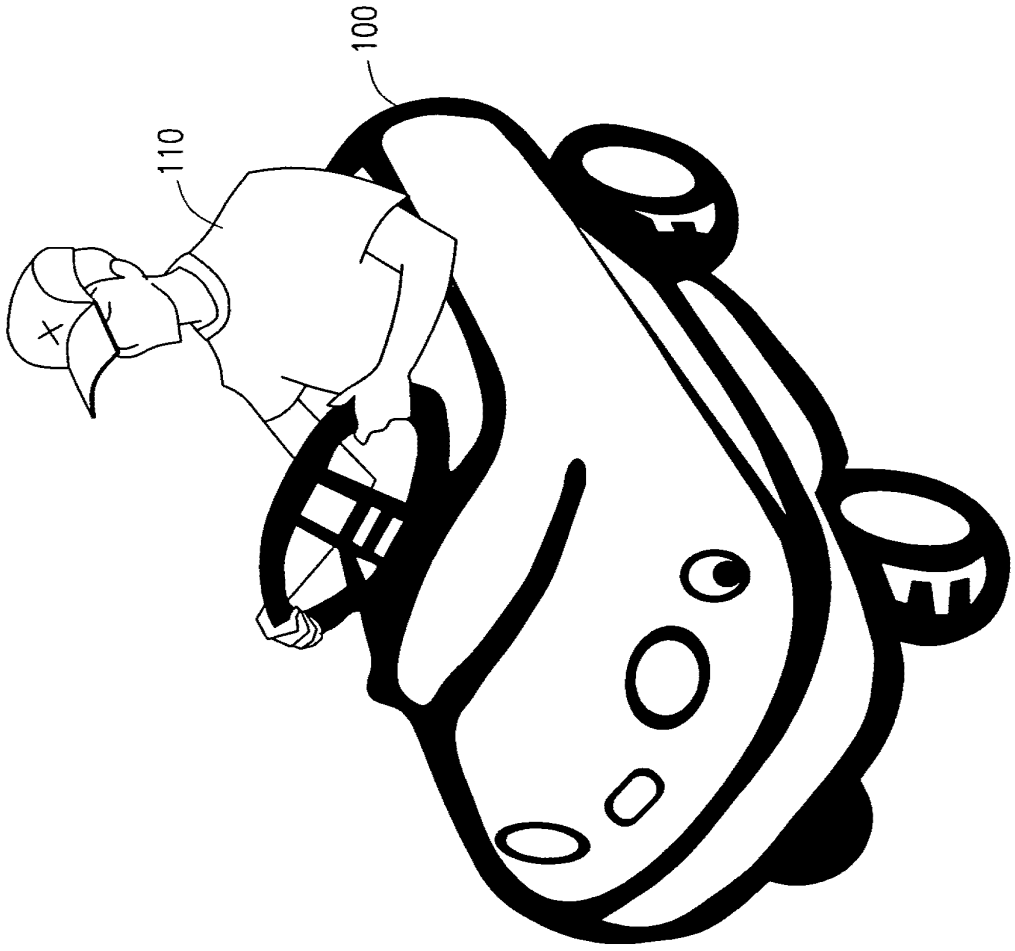


FIG. 1

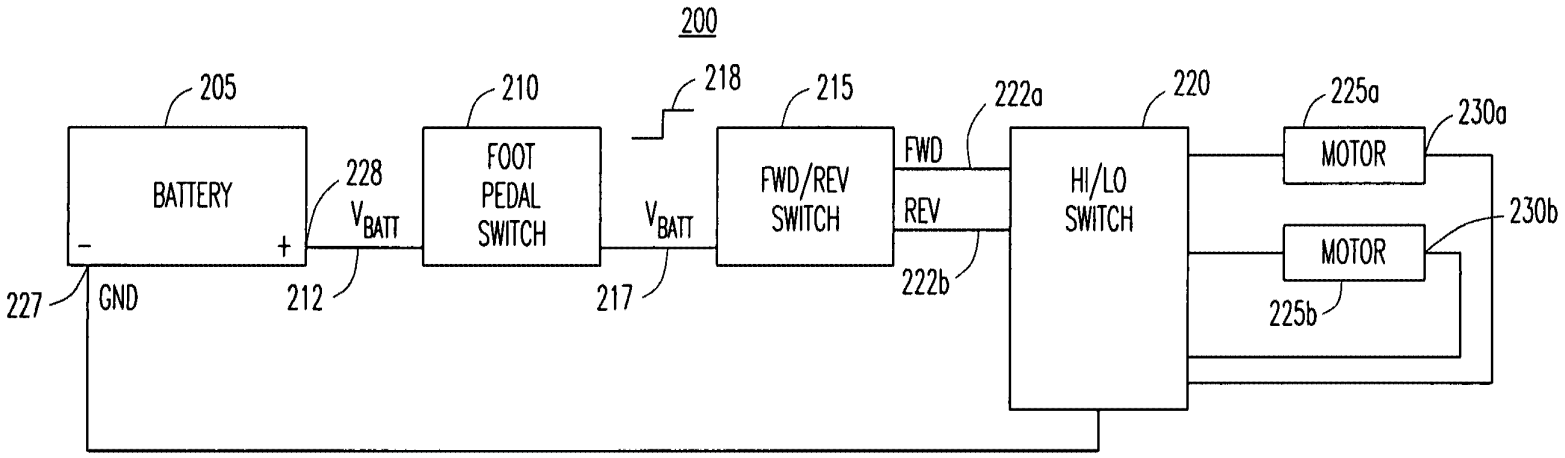


FIG. 2
(PRIOR ART)

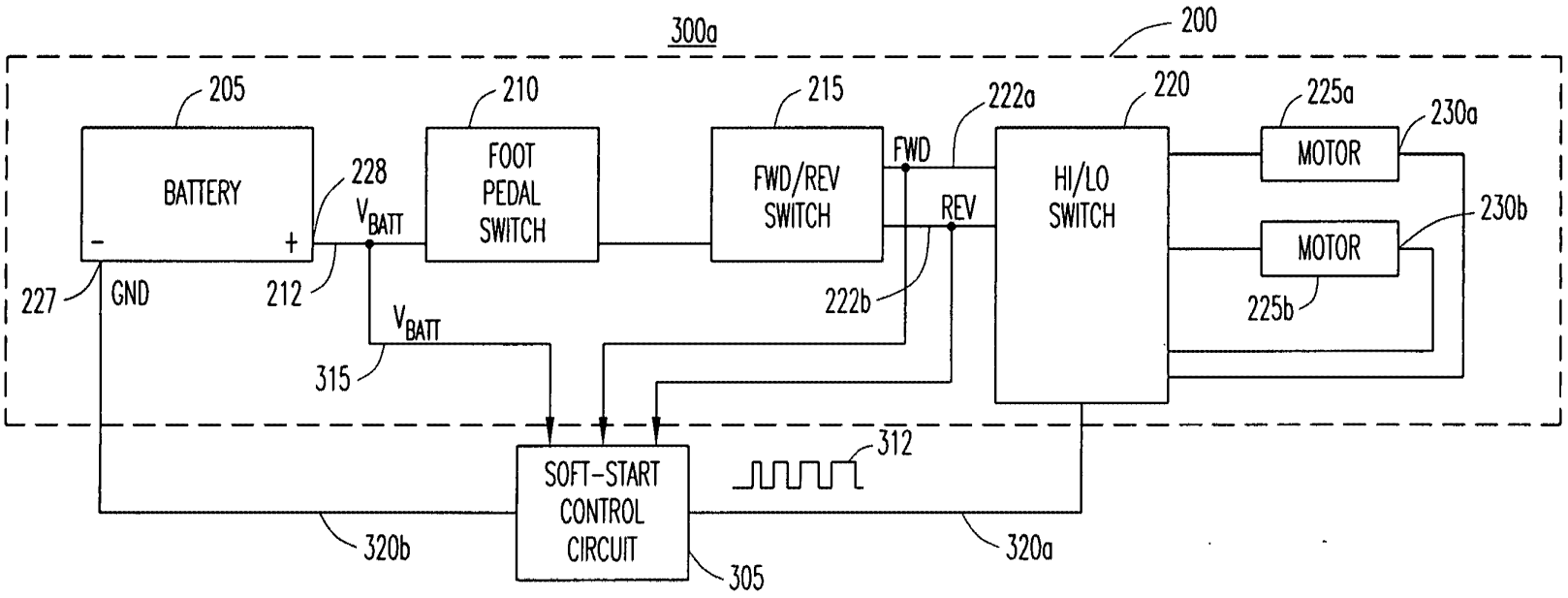
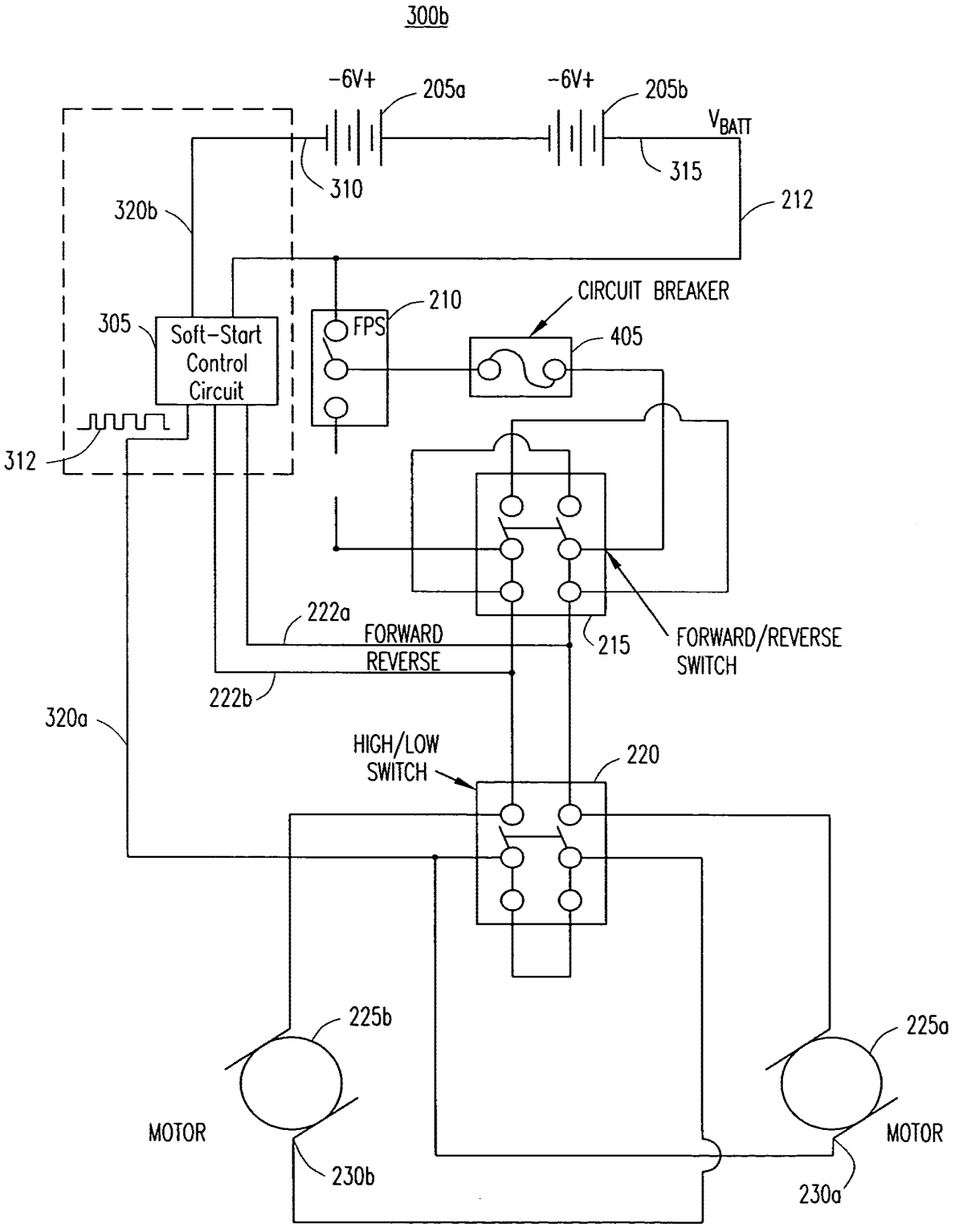


FIG. 3


300b
-6V+
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205b
V_{BATT}
315
310
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320b
305
Soft-Start Control Circuit
312
210
FPS
CIRCUIT BREAKER
405
222a
FORWARD
REVERSE
222b
215
FORWARD/REVERSE SWITCH
320a
HIGH/LOW SWITCH
220
225b
225a
MOTOR
MOTOR
230b
230a

FIG. 4

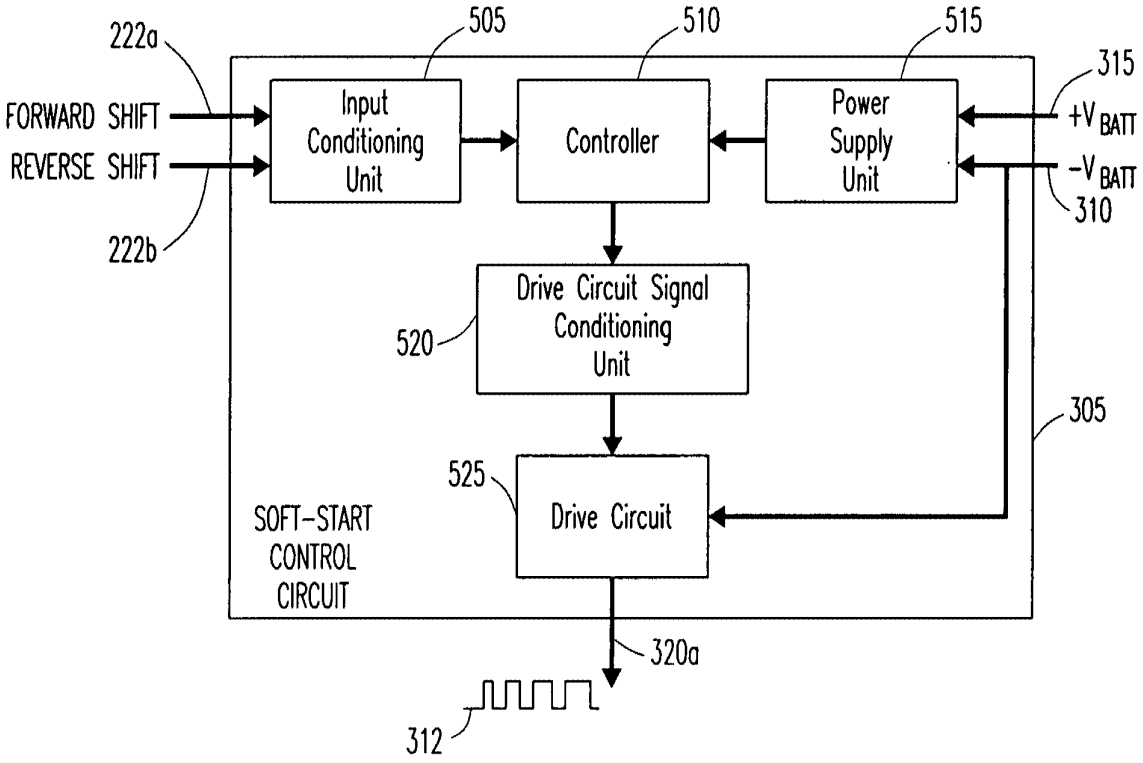


FIG. 5

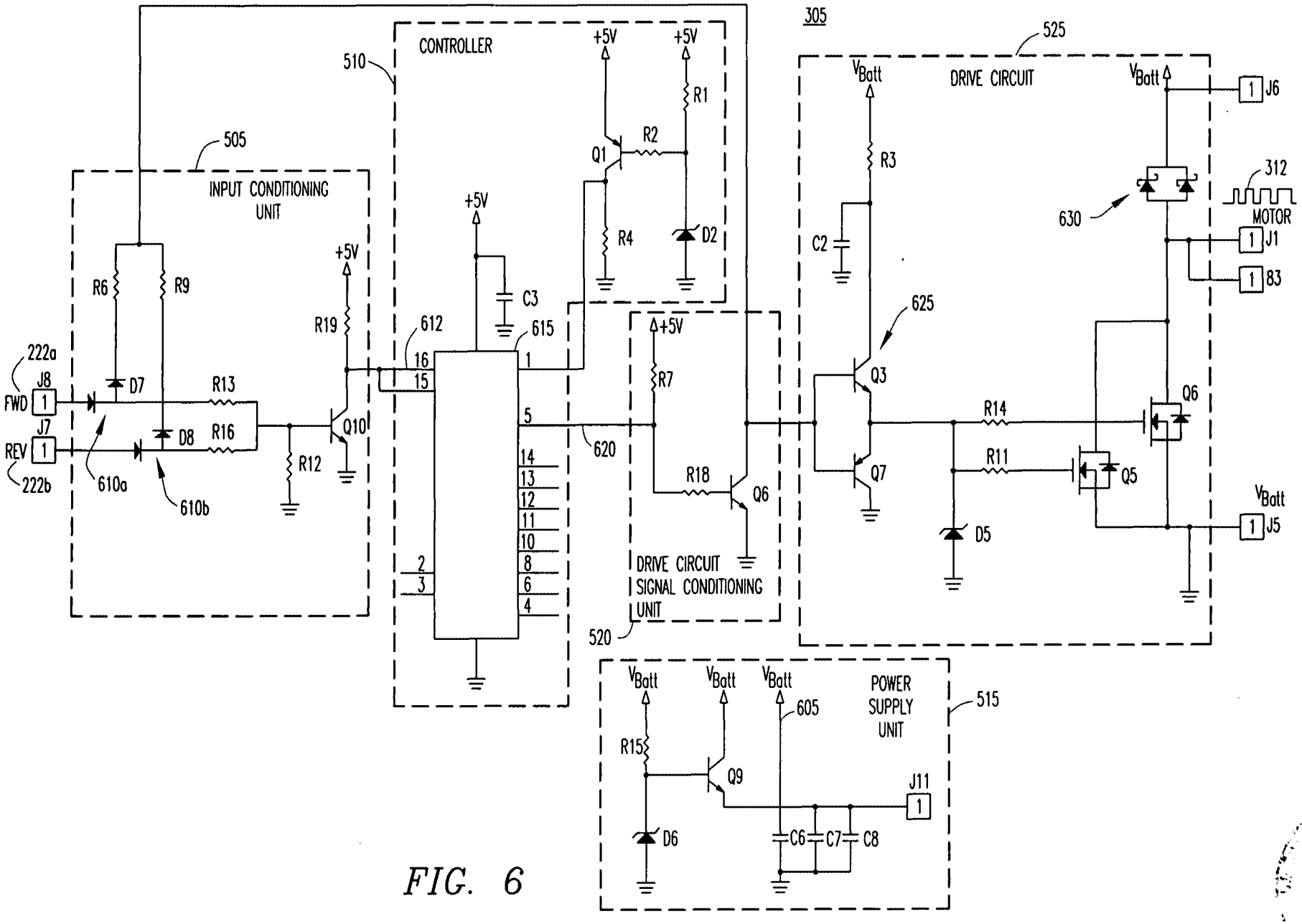


FIG. 6

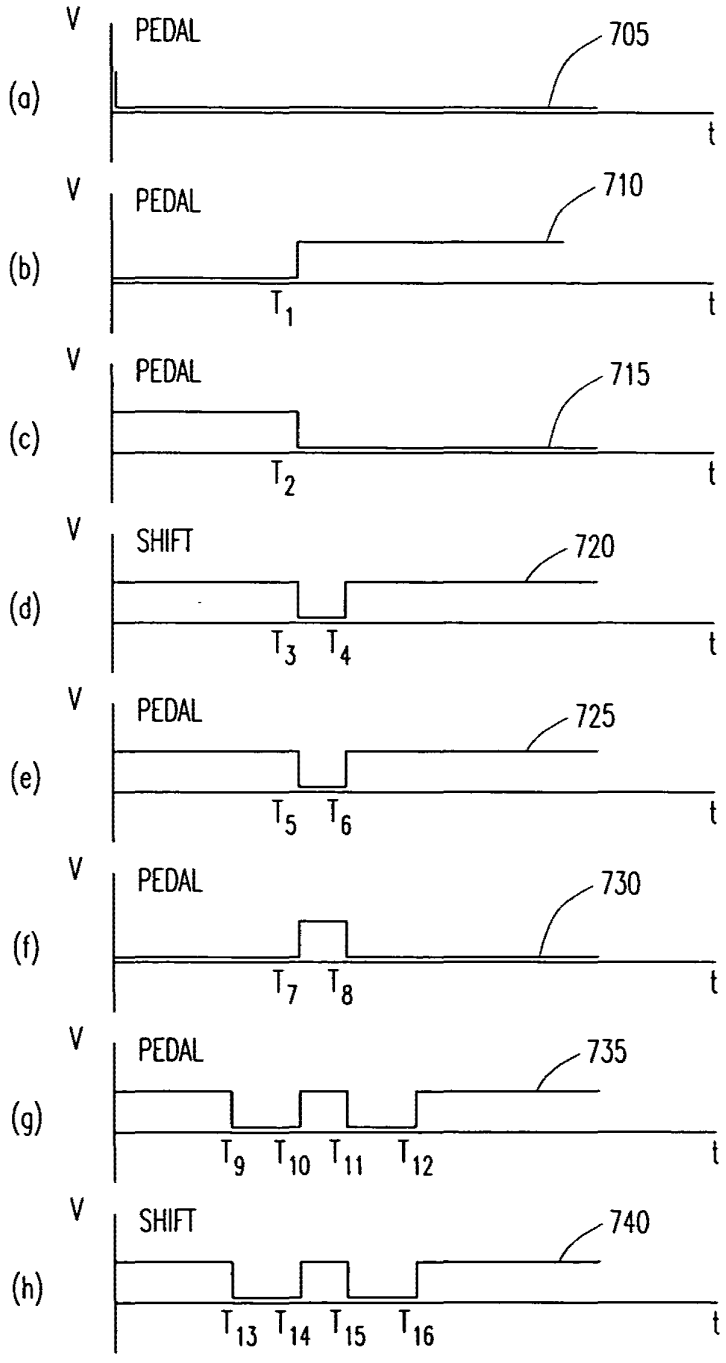

V
PEDAL
705
(a)
t
V
PEDAL
710
(b)
T1
t
V
PEDAL
715
(c)
T2
t
V
SHIFT
720
(d)
T3 T4
t
V
PEDAL
725
(e)
T5 T6
t
V
PEDAL
730
(f)
T7 T8
t
V
PEDAL
735
(g)
T9 T10 T11 T12
t
V
SHIFT
740
(h)
T13 T14 T15 T16
t

FIG. 7

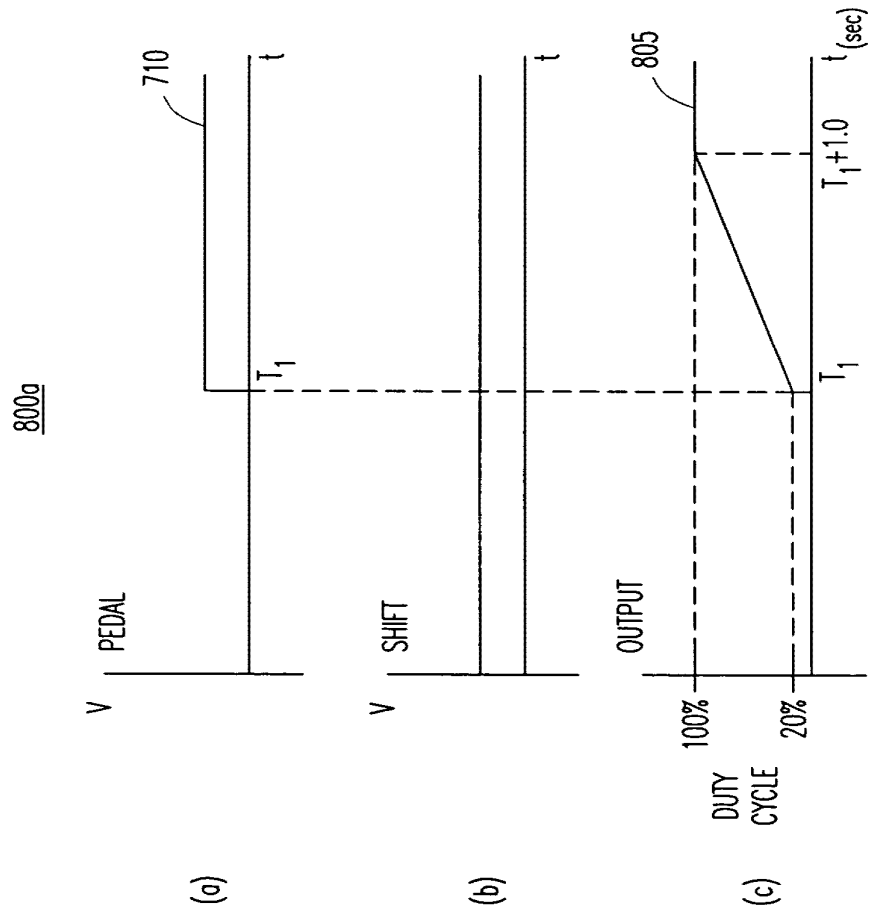

800a
710
t
T_1
PEDAL
V
SHIFT
V
805
T_1+1.0
$t_{(sec)}$
OUTPUT
100%
20%
DUTY CYCLE
(a)
(b)
(c)

FIG. 8A

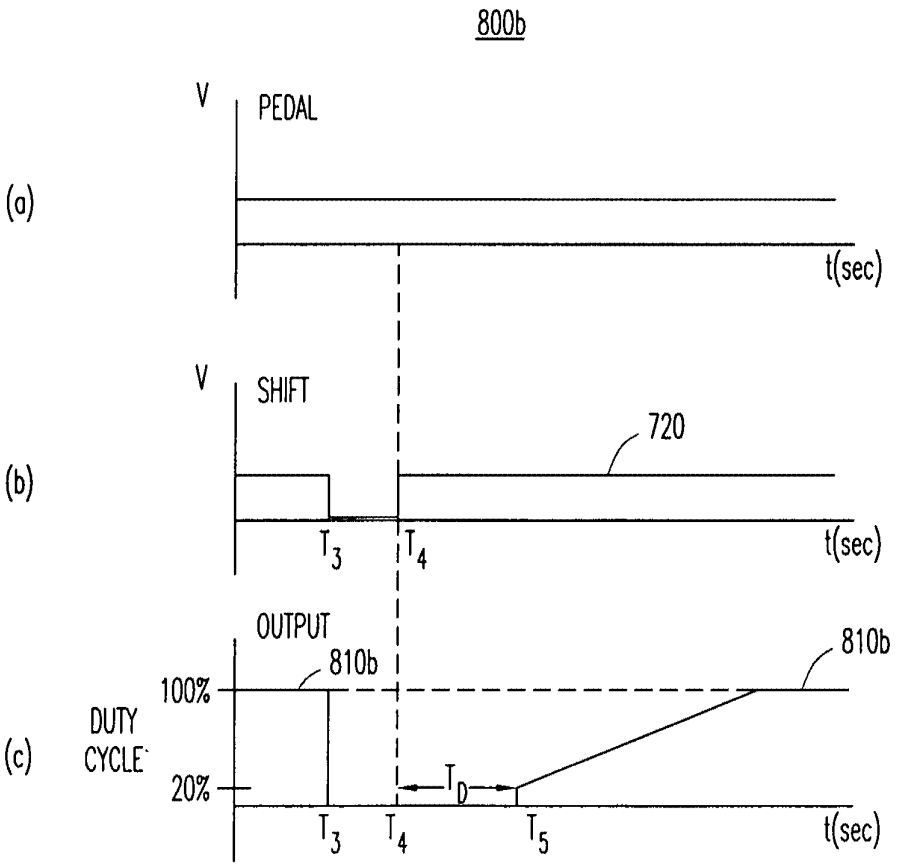


FIG. 8B

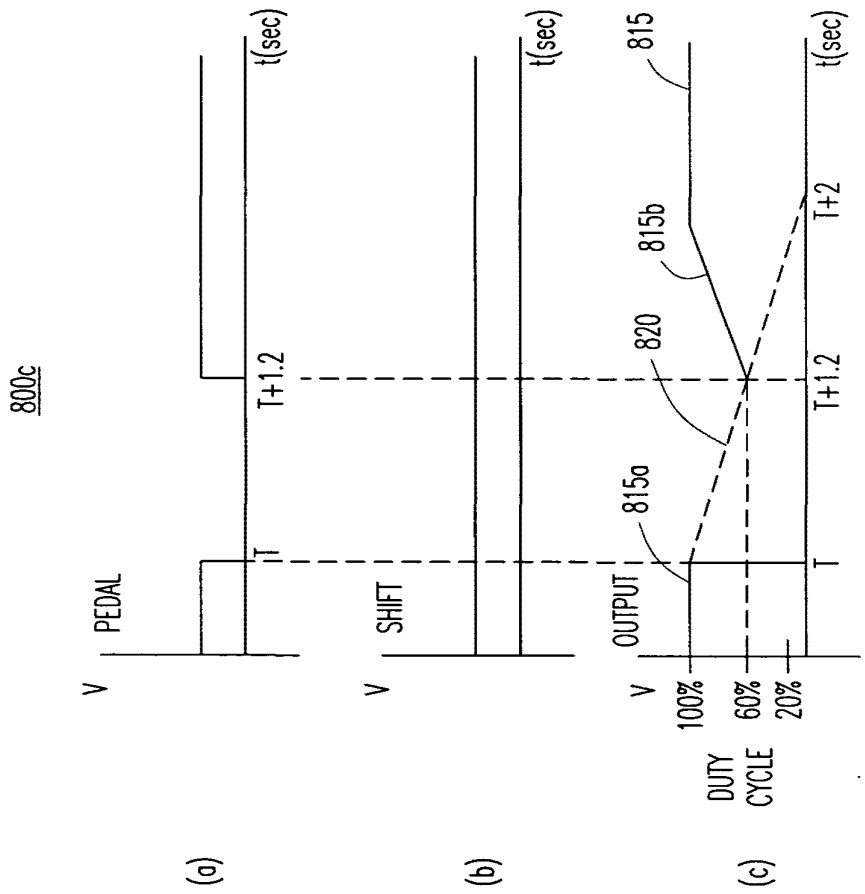

800c
PEDAL
SHIFT
OUTPUT
V
t(sec)
T
T+1.2
T+2
815
815a
815b
820
100%
60%
20%
DUTY CYCLE
(a)
(b)
(c)

FIG. 8C

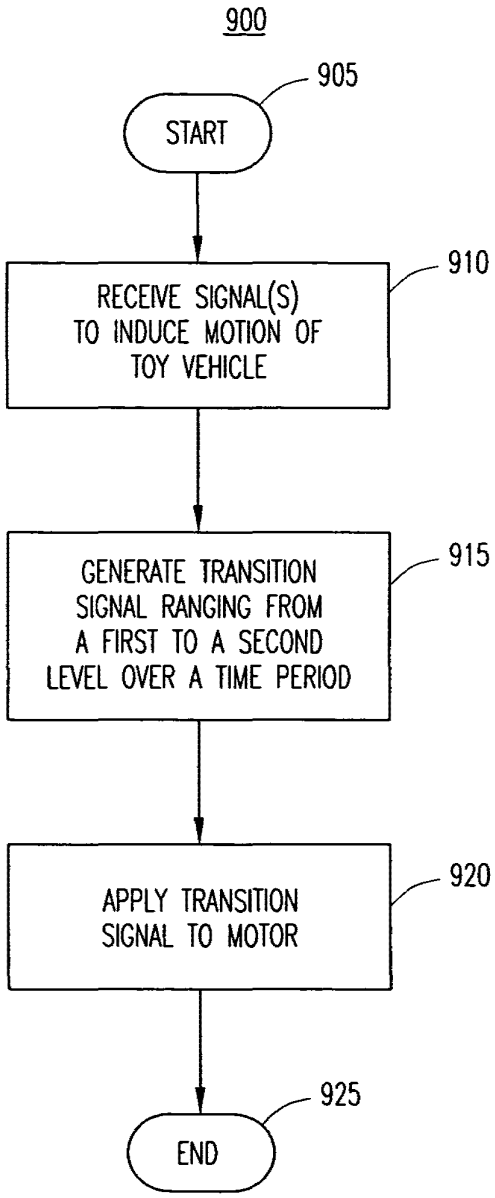

900
905
START
910
RECEIVE SIGNAL(S) TO INDUCE MOTION OF TOY VEHICLE
915
GENERATE TRANSITION SIGNAL RANGING FROM A FIRST TO A SECOND LEVEL OVER A TIME PERIOD
920
APPLY TRANSITION SIGNAL TO MOTOR
925
END

FIG. 9

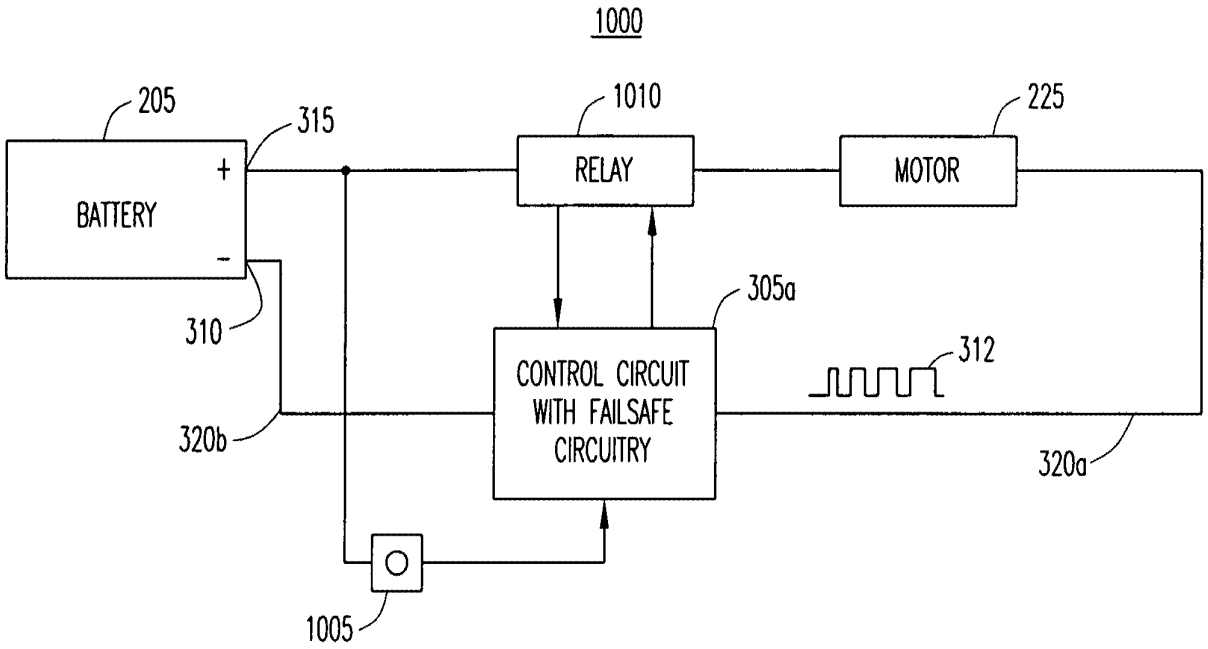


FIG. 10

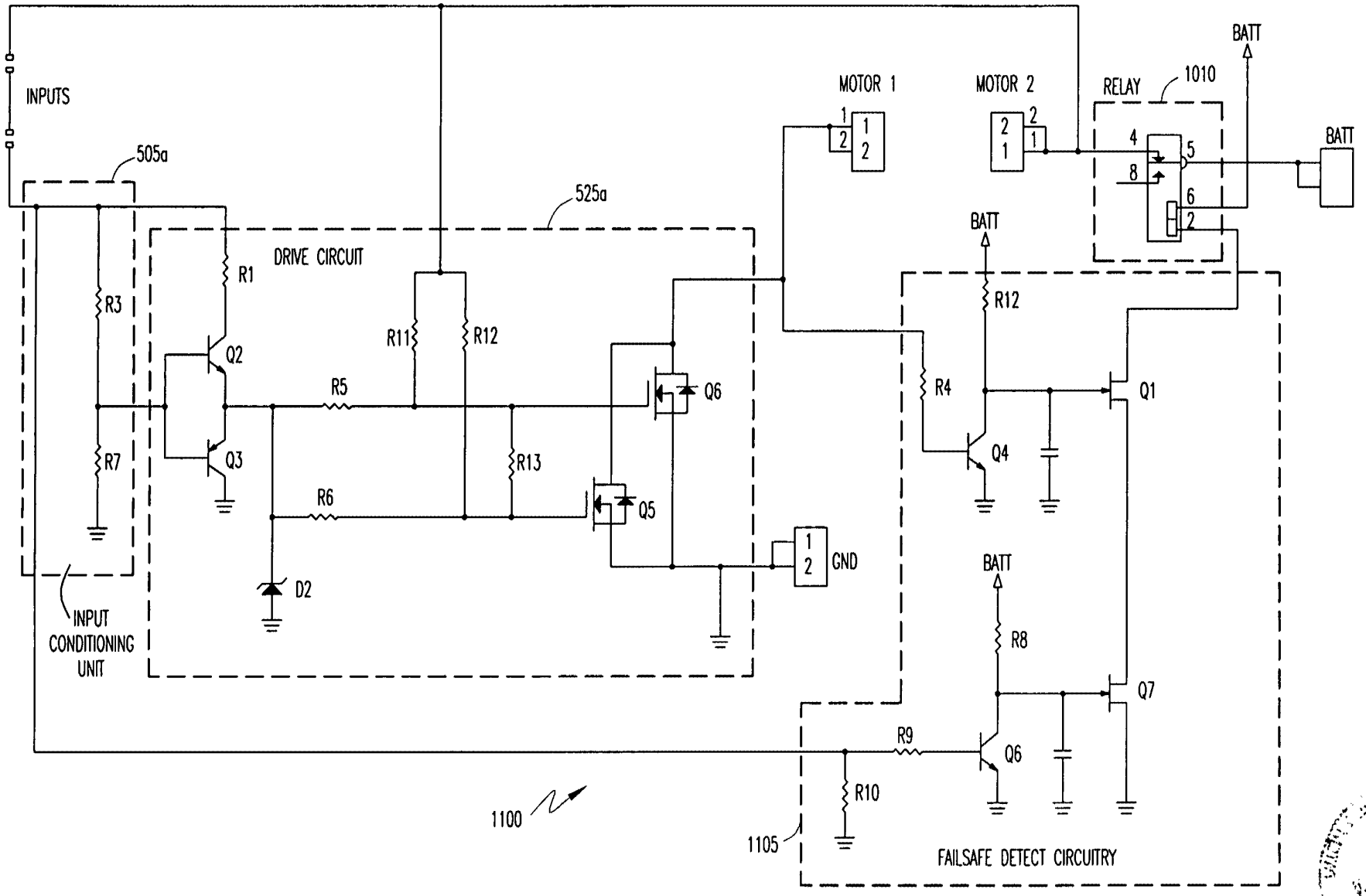


FIG. 11

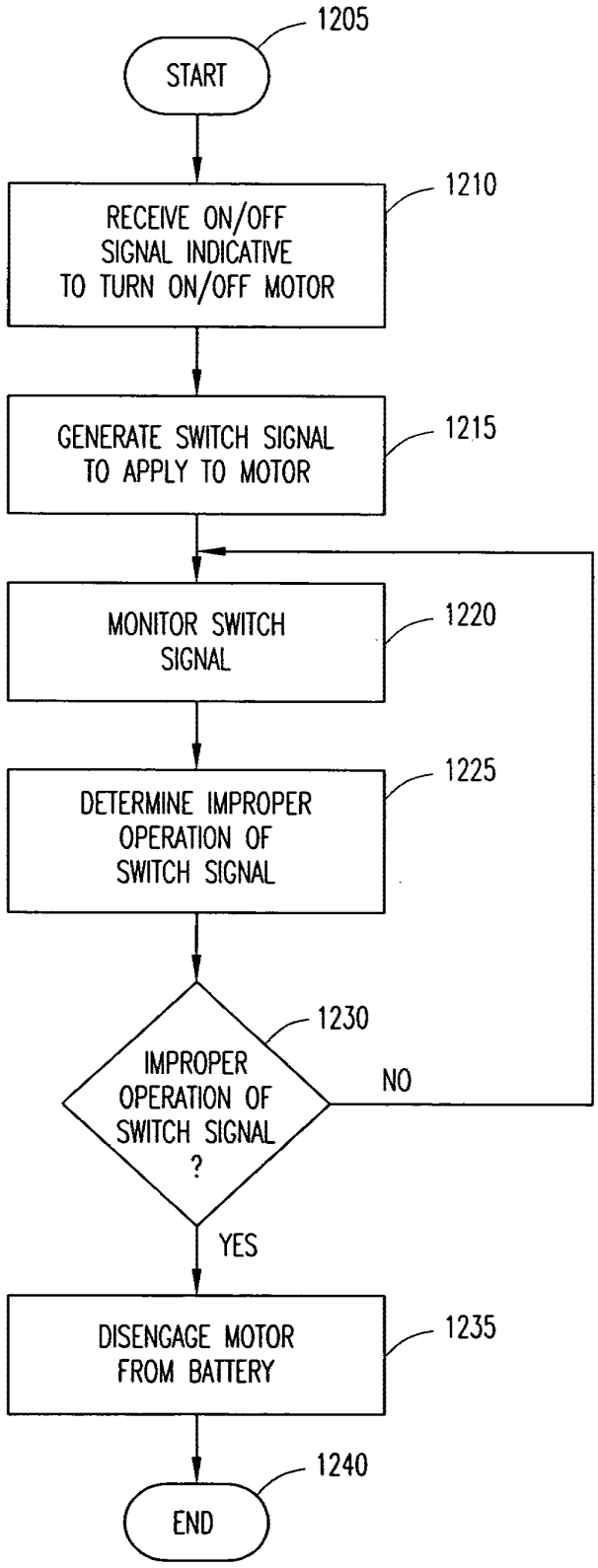

1200
1205
START
1210
RECEIVE ON/OFF SIGNAL INDICATIVE TO TURN ON/OFF MOTOR
1215
GENERATE SWITCH SIGNAL TO APPLY TO MOTOR
1220
MONITOR SWITCH SIGNAL
1225
DETERMINE IMPROPER OPERATION OF SWITCH SIGNAL
1230
IMPROPER OPERATION OF SWITCH SIGNAL ?
NO
YES
1235
DISENGAGE MOTOR FROM BATTERY
1240
END

FIG. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/076,795	02/12/2002	David A. Norman	50097-8USPT

Jenkens & Gilchrist, P.C.
3200 Fountain Place
1445 Ross Avenue
Dallas, TX 75202-2799

CONFIRMATION NO. 3663
FORMALITIES LETTER

OC000000007765231

Date Mailed: 04/02/2002

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is unsigned.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(l) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.
- **The balance due by applicant is $ 65.**

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Substitute drawings in compliance with 37 CFR 1.84 because:
  - drawing sheets do not have the appropriate margin(s) (see 37 CFR 1.84(g)). Each sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom margin of at least 1 0 cm. (3/8 inch);

04/26/2002 GTEFFERA 00000055 10076795
01 FC:105 130.00 OP

05/23/2002 HMOHAMM1 00000008 10076795
01 FC:205 65.00 OP
Repln. Ref: 05/23/2002 HMOHAMM1 0013411900
DA#:100447 Name/Number:10076795
FC: 704 $65.00 CR

A copy of this notice MUST be returned with the reply.

Adjustment date: 05/23/2002 HMOHAMM1
04/26/2002 GTEFFERA 00000055 10076795
01 FC:105 130.00 OP

* DOCKETED
Int: DT: 6-8-02
Action Missing Parts due 6-2-2002 Date:

Customer Service Center
Initial Patent Examination Division (703) 308-1202
PART 1 - ATTORNEY/APPLICANT COPY

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D C 20231
www uspto gov

Paper No. 6

GARY B. SOLOMON
JENKENS & GILCHRIST, P.C.
1445 ROSS AVENUE, SUITE 3200
DALLAS, TX 75202-2799

COPY MAILED

MAY 0 3 2002

OFFICE OF PETITIONS

In re Application of :
David A. Norman :
Application No. 10/076,795 : NOTICE
Filed: February 12, 2002 :
Attorney Docket No. 50097-00008USPT :

This is a notice regarding your request for acceptance of a fee deficiency submission under 37 CFR 1.28. On September 1, 1998, the Court of Appeals for the Federal Circuit held that 37 CFR 1.28(c) is the sole provision governing the time for correction of the erroneous payment of the issue fee as a small entity. **See DH Technology v. Synergystex International, Inc. 154 F.3d 1333, 47 USPQ2d 1865 (Fed. Cir. Sept. 1, 1998).**

The Office no longer investigates or rejects original or reissue applications under 37 CFR 1.56. **1098 Off. Gaz. Pat. Office 502 (January 3, 1989)**. Therefore, nothing in this Notice is intended to imply that an investigation was done.

Your fee deficiency submission under 37 CFR 1.28 is hereby **ACCEPTED**.

Inquiries related to this communication should be directed to the Office of Petitions Staff at (703) 305-9285.

This file is being forwarded to the Initial Patent Examination Unit.

Irvin Dingle
Petitions Examiner
Office of Petitions
Office of the Deputy Commissioner
for Patent Examination Policy

Filing Fee	Small Entity Fee Paid	Then-Current Large Entity Fee Due	Amount Owed (Difference)
Filing fee	$370	$740	$370
Total Claims (Extra - 25)	225	450	225
Total Independent Claims (Extra - 5)	42	84	210
Petition Fee			130
		Total Amount Due:	$935

☒ Check in the amount of $935.00 (for deficiency) are enclosed herewith.

Applicant respectfully requests that this Petition to Excuse Error be granted.

The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit of any over payment or underpayment to Deposit Account No. 10-0447. This sheet is attached in duplicate.

Respectfully submitted,

JENKENS & GILCHRIST, P.C.

Gary B. Solomon

Date: April 17, 2002

Gary B. Solomon
Registration No. 44,347

1445 Ross Avenue, Suite 3200
Dallas, Texas 75202-2799
(Direct) 214/855-4188
(Fax) 214/855-4300

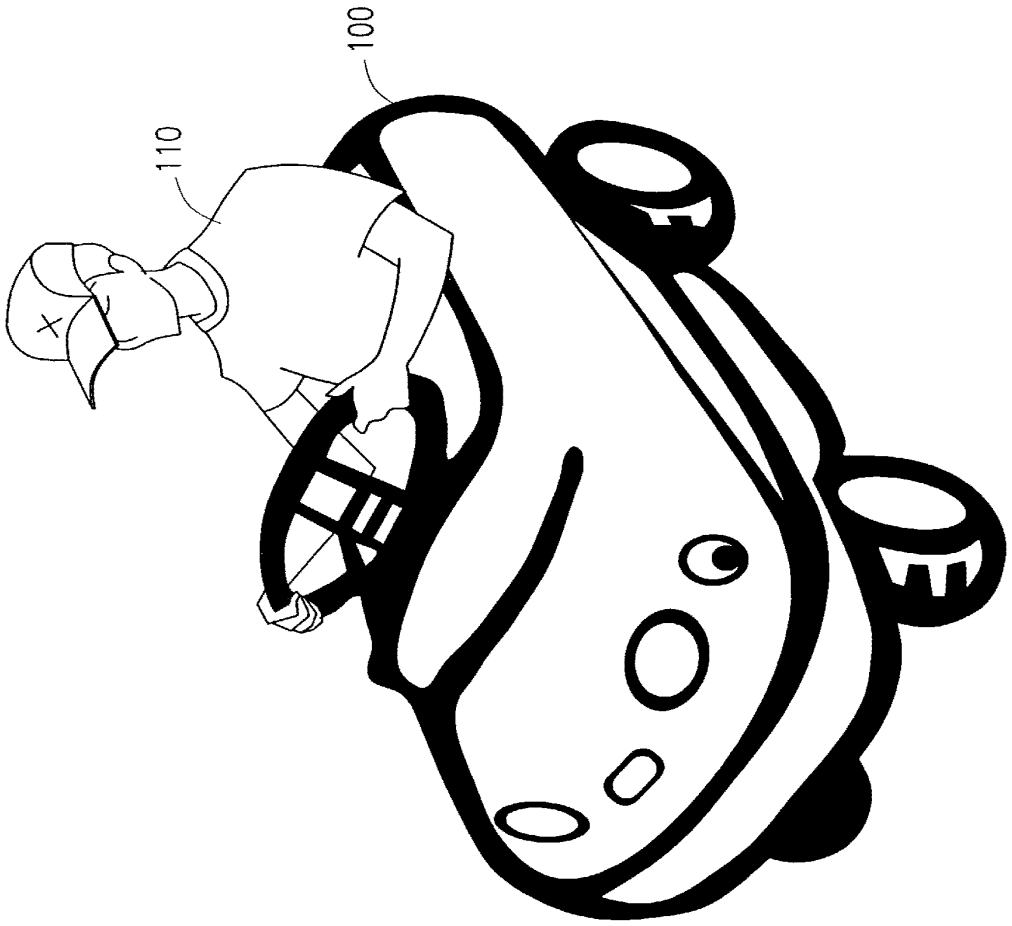


FIG. 1

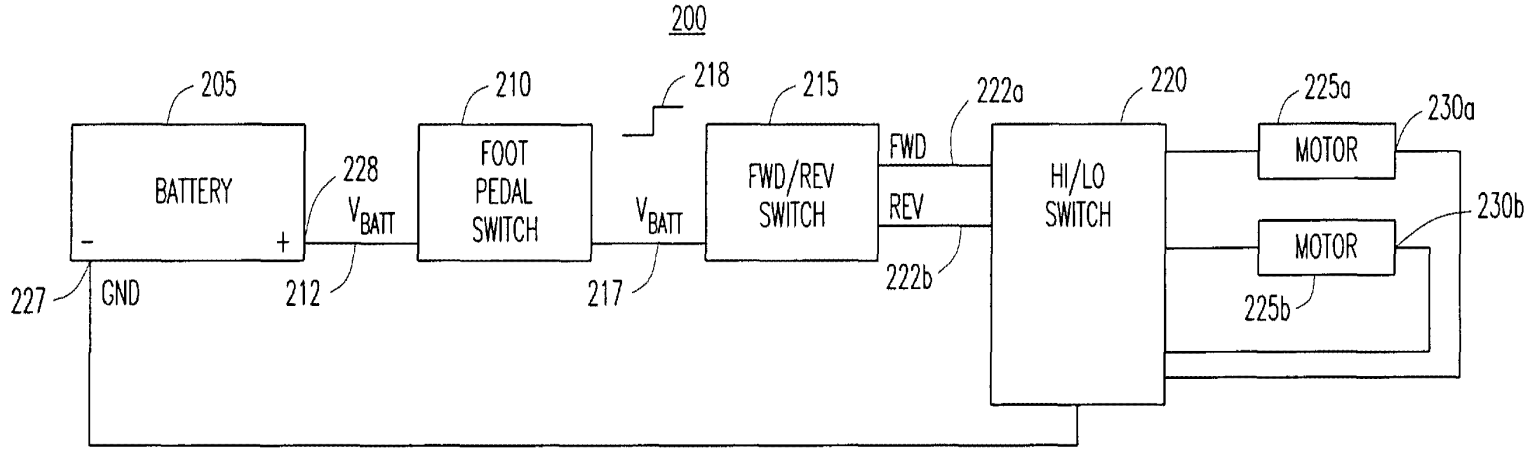


FIG. 2
(PRIOR ART)

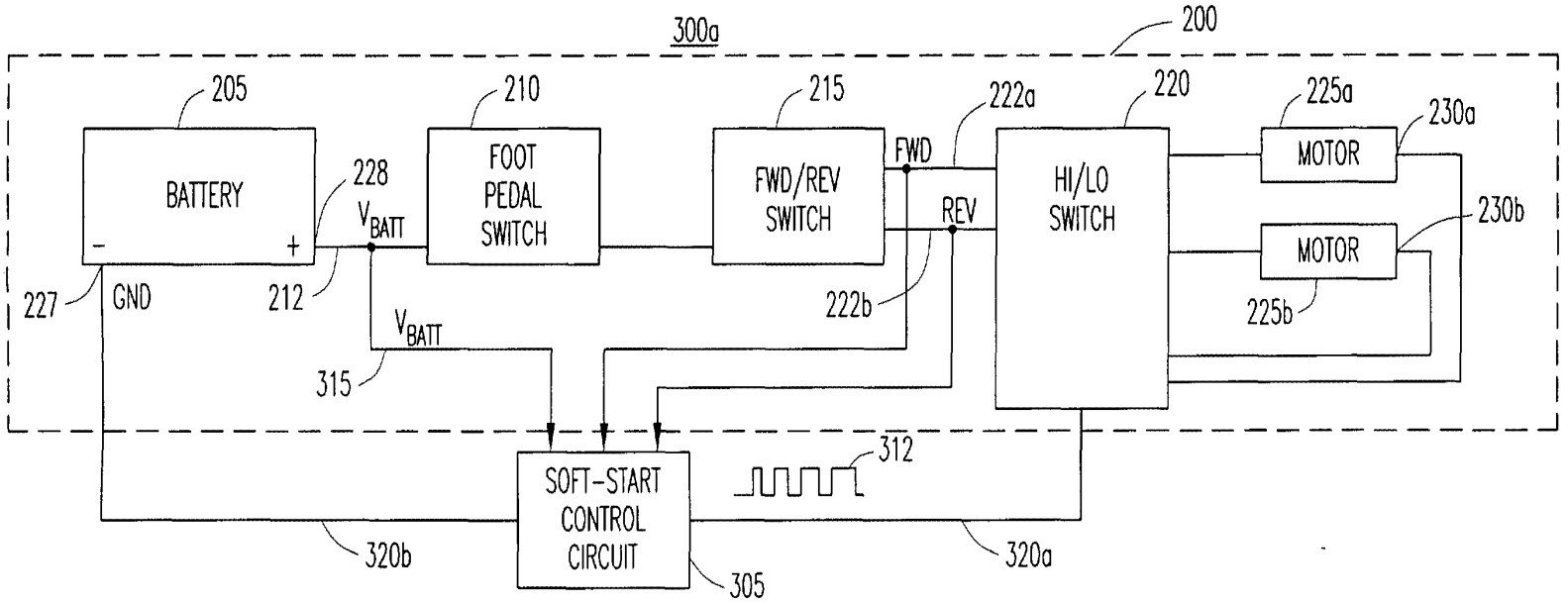


FIG. 3

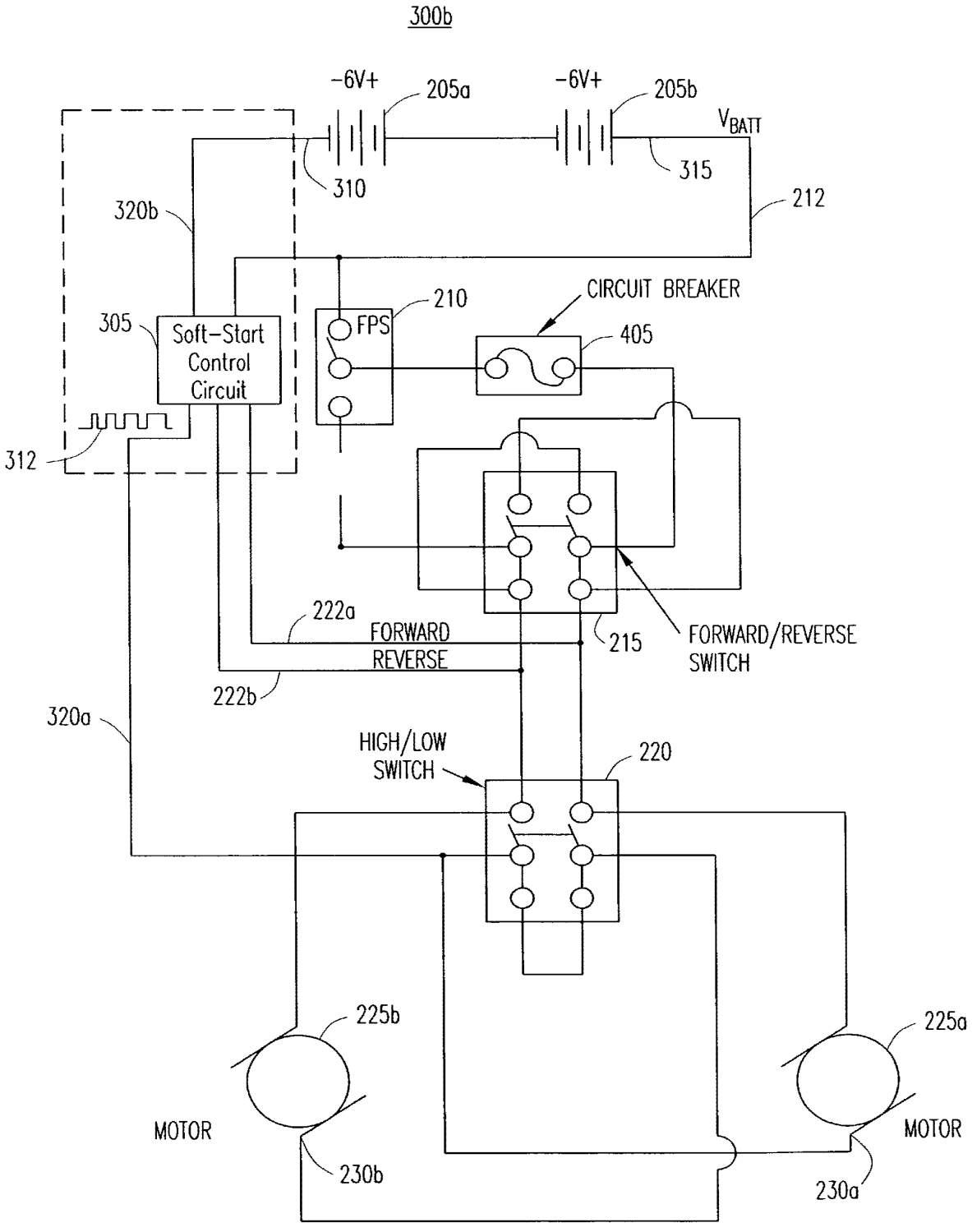

300b
-6V+
205a
-6V+
205b
V_{BATT}
315
310
212
320b
305
Soft-Start Control Circuit
FPS
210
CIRCUIT BREAKER
405
312
222a
FORWARD
REVERSE
215
FORWARD/REVERSE SWITCH
222b
320a
HIGH/LOW SWITCH
220
225b
225a
MOTOR
MOTOR
230b
230a

FIG. 4

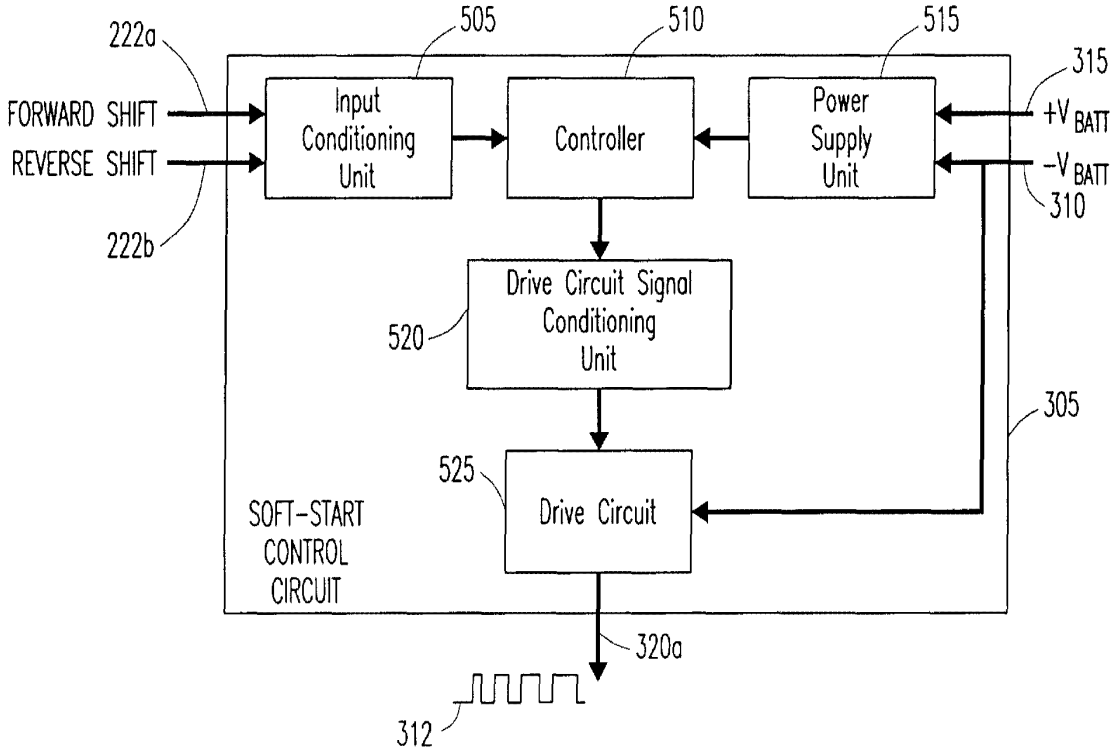


FIG. 5

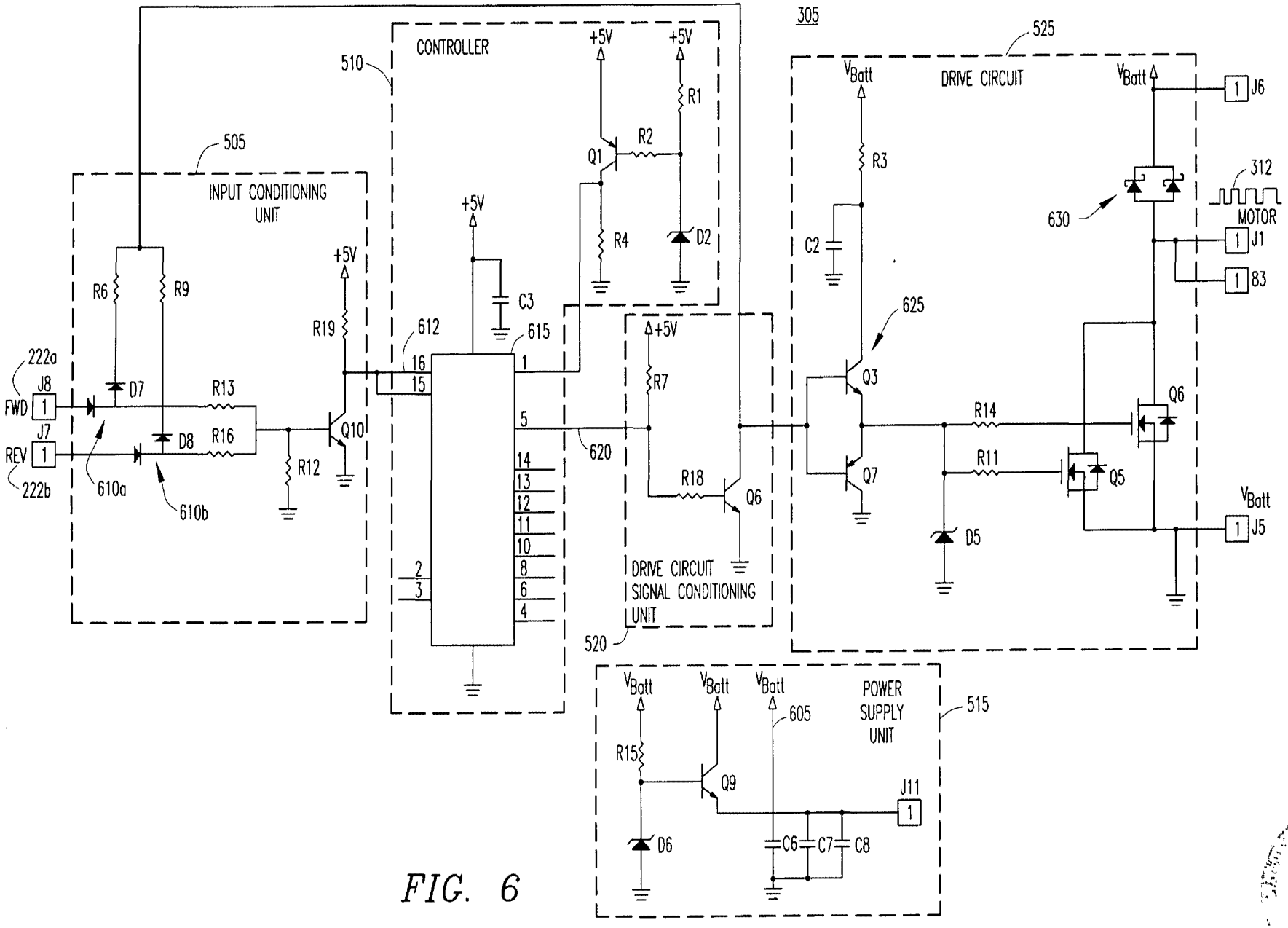


FIG. 6

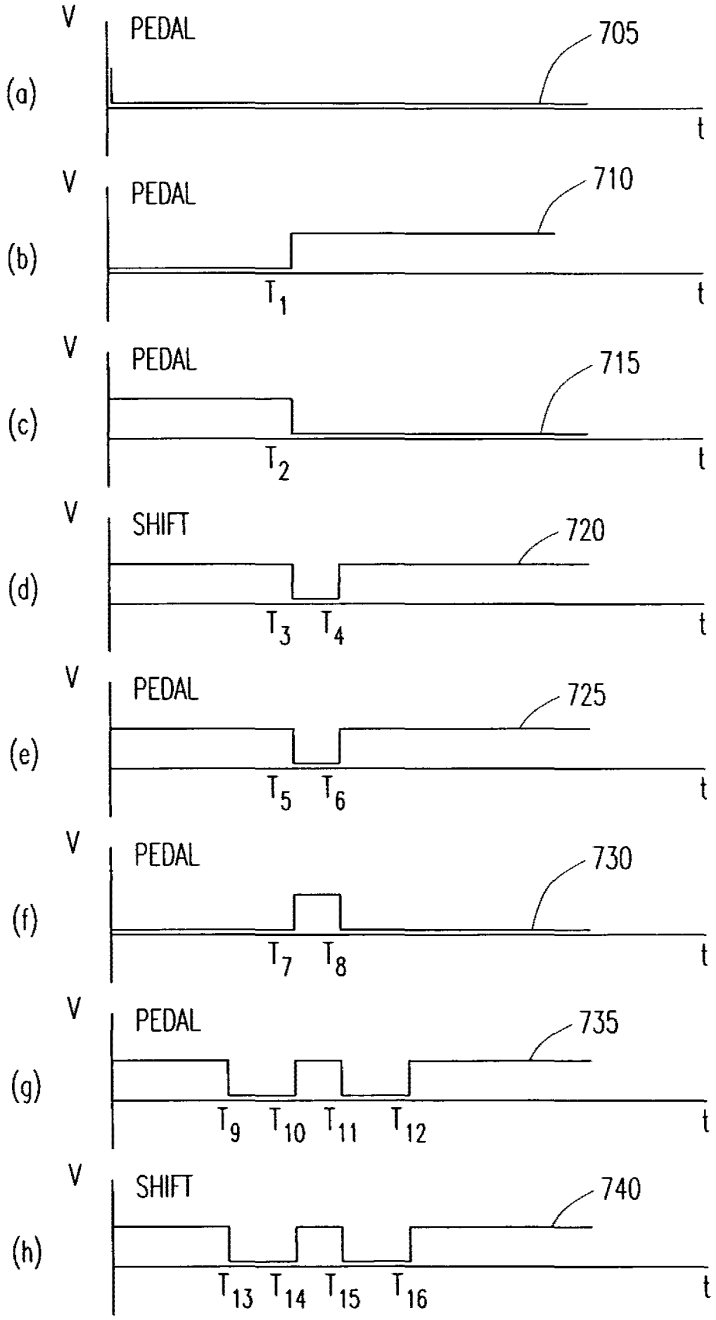

V
PEDAL
705
(a)
t
V
PEDAL
710
(b)
T1
t
V
PEDAL
715
(c)
T2
t
V
SHIFT
720
(d)
T3 T4
t
V
PEDAL
725
(e)
T5 T6
t
V
PEDAL
730
(f)
T7 T8
t
V
PEDAL
735
(g)
T9 T10 T11 T12
t
V
SHIFT
740
(h)
T13 T14 T15 T16
t

FIG. 7

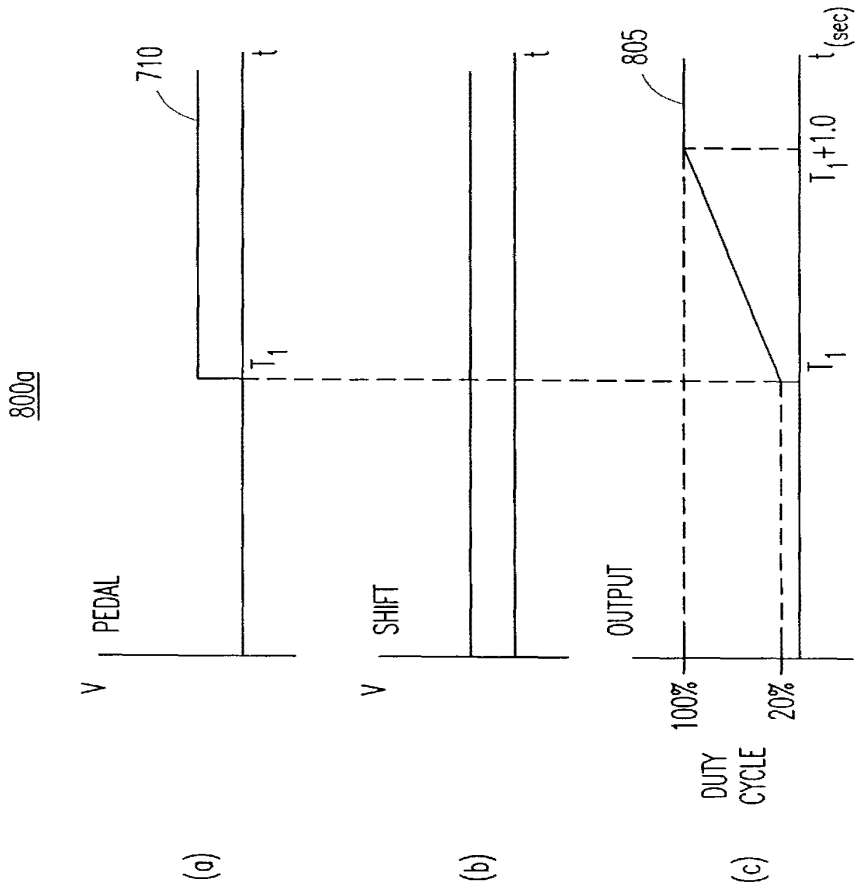

800a
(a)
PEDAL
V
710
t
T_1
(b)
SHIFT
V
t
(c)
OUTPUT
DUTY CYCLE
100%
20%
805
T_1
T_1+1.0
$t_{(sec)}$

FIG. 8A

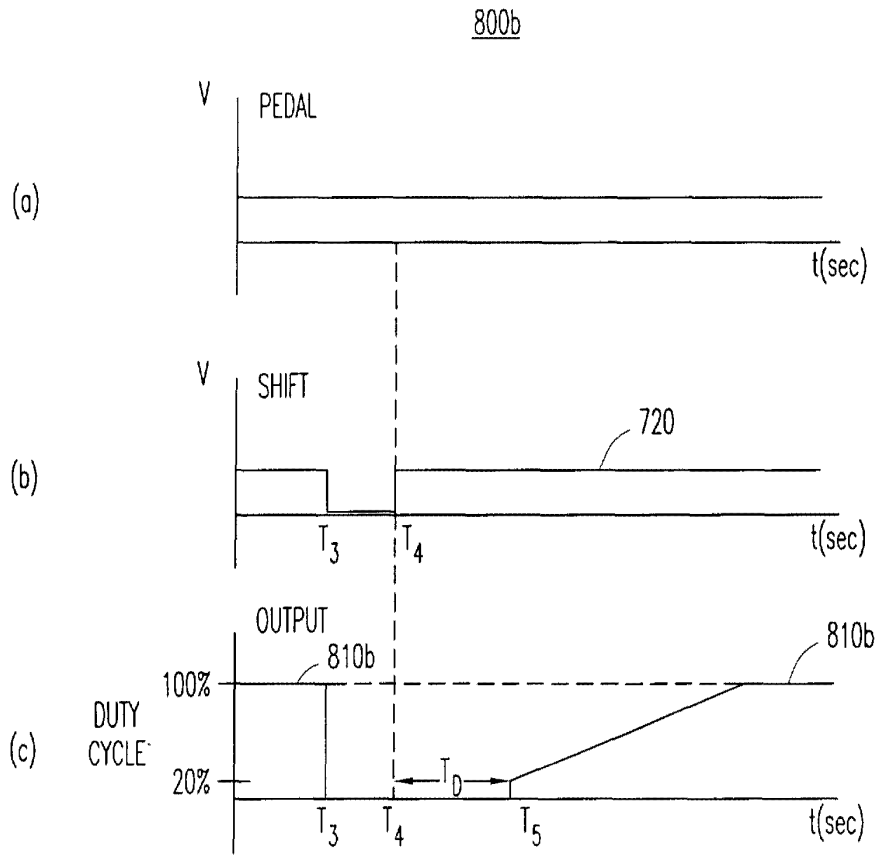


FIG. 8B

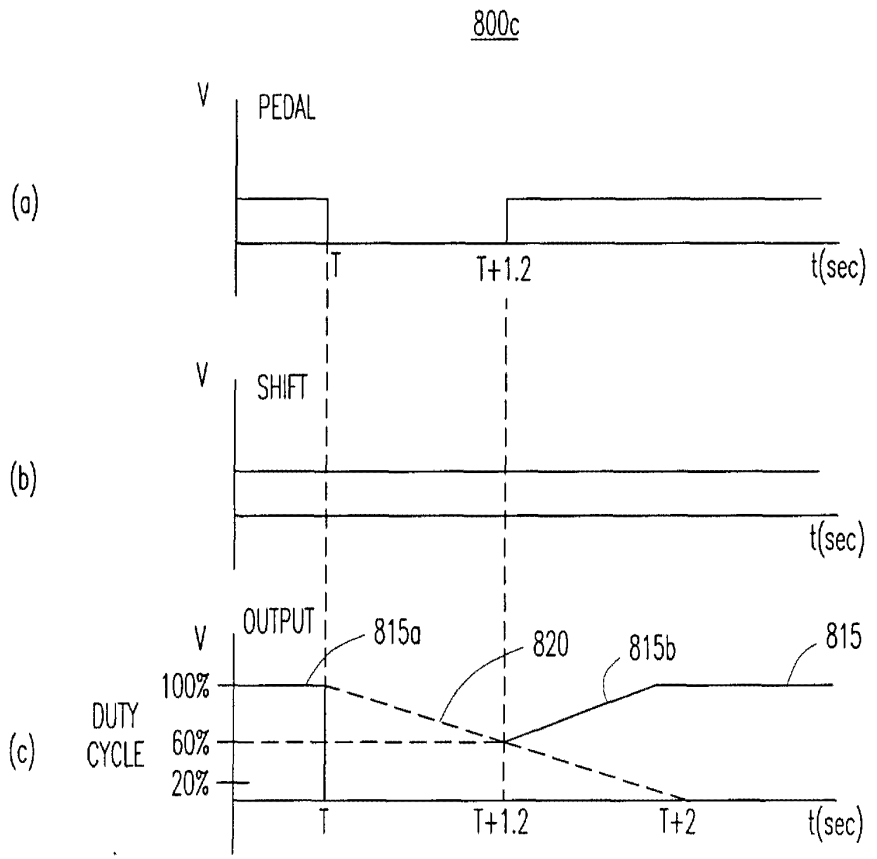


FIG. 8C

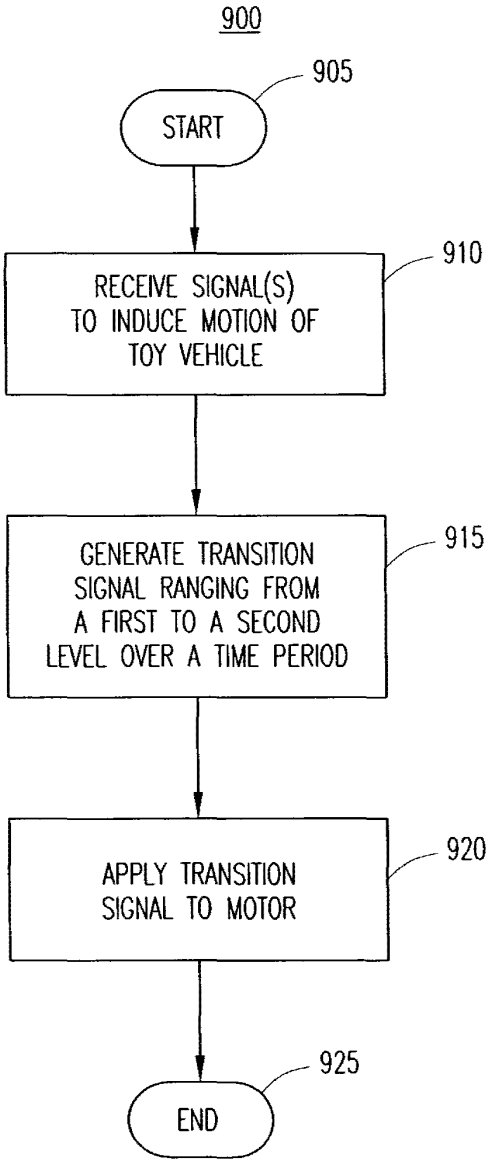

900
905
START
910
RECEIVE SIGNAL(S) TO INDUCE MOTION OF TOY VEHICLE
915
GENERATE TRANSITION SIGNAL RANGING FROM A FIRST TO A SECOND LEVEL OVER A TIME PERIOD
920
APPLY TRANSITION SIGNAL TO MOTOR
925
END

FIG. 9

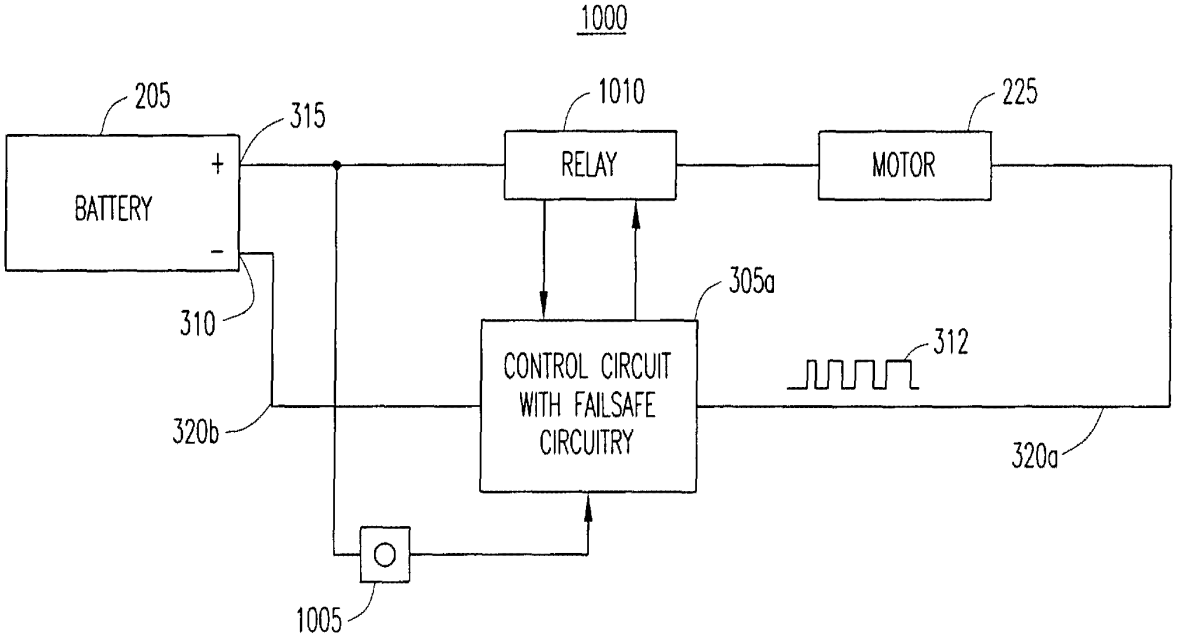


FIG. 10

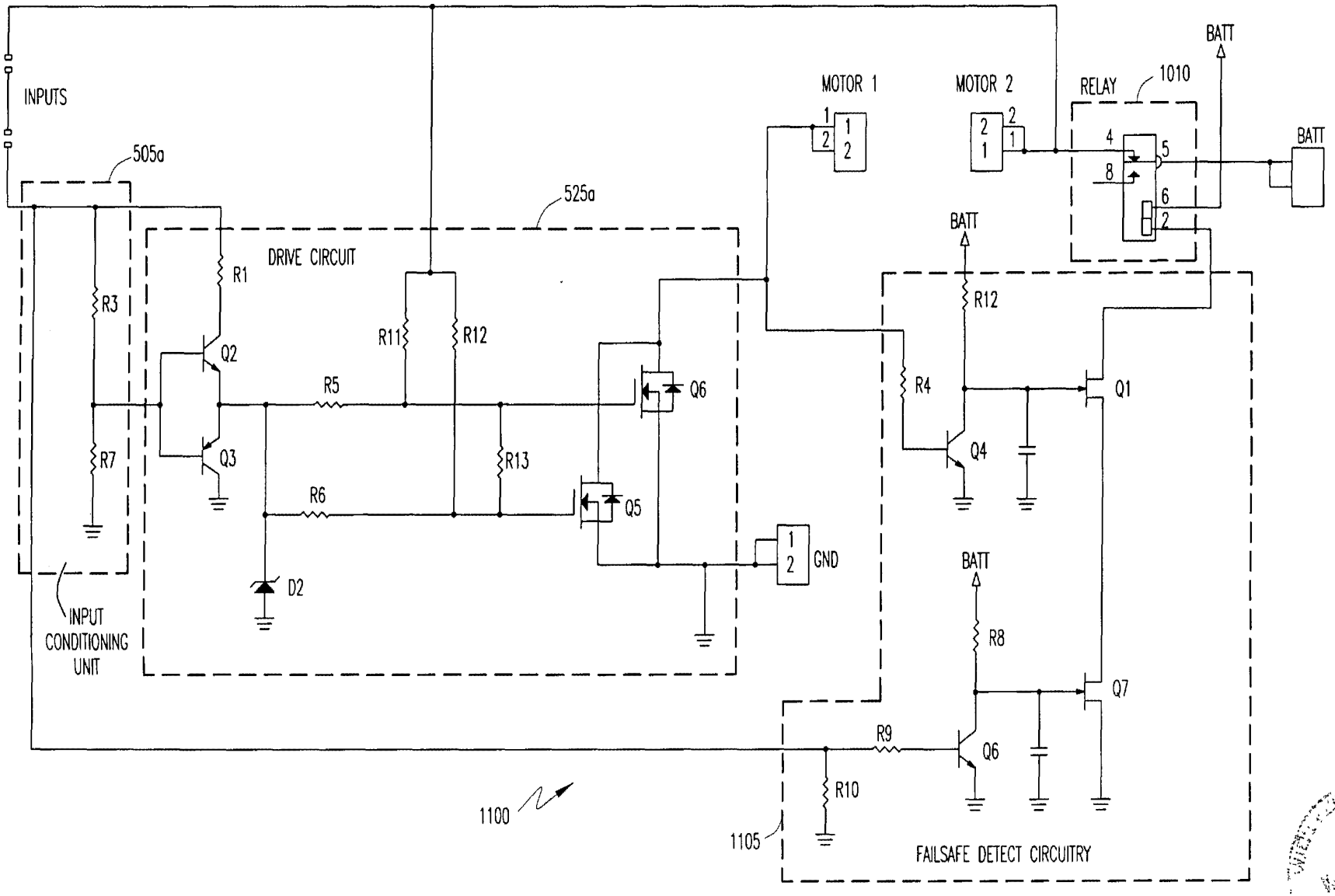


FIG. 11

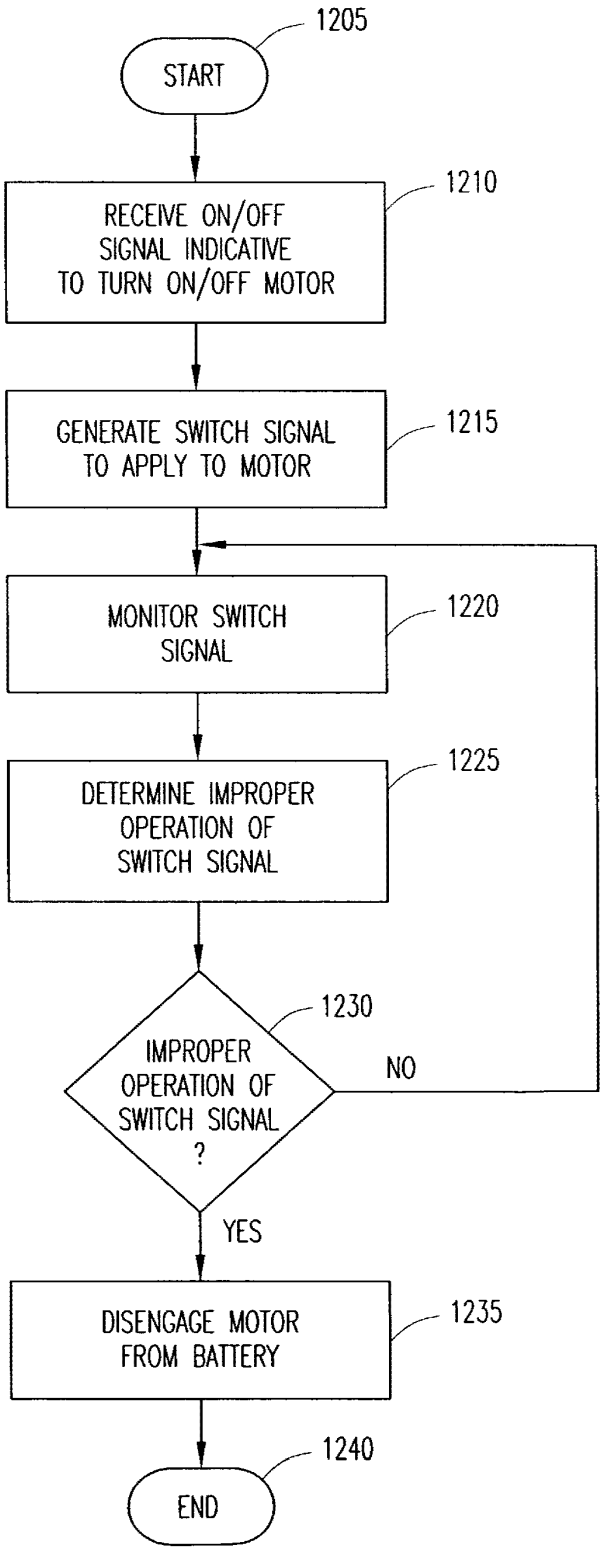
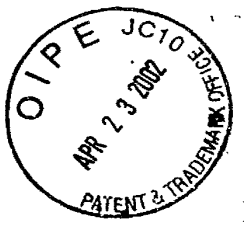

1200
1205
START
1210
RECEIVE ON/OFF SIGNAL INDICATIVE TO TURN ON/OFF MOTOR
1215
GENERATE SWITCH SIGNAL TO APPLY TO MOTOR
1220
MONITOR SWITCH SIGNAL
1225
DETERMINE IMPROPER OPERATION OF SWITCH SIGNAL
1230
IMPROPER OPERATION OF SWITCH SIGNAL ?
NO
YES
1235
DISENGAGE MOTOR FROM BATTERY
1240
END

FIG. 12

10026795 .042302

#4



PATENT APPLICATION
DOCKET NO.: 50097-00008USPT

RULES 63 AND 67 (37 C.F.R. 1.63 and 1.67)
DECLARATION AND POWER OF ATTORNEY

FOR UTILITY/DESIGN/CIP/PCT NATIONAL APPLICATIONS

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**, the specification of which: (mark only one)

__	(a)	is attached hereto.
_X_	(b)	was filed on 1/08/2002 as Utility Application Serial No 10/043,361 and was amended on _____ (if applicable)
__	(c)	was filed as PCT International Application No. PCT/_____ on ____ and was amended on _____ (if applicable).
__	(d)	was filed on ___ as Application Serial No. ___ and was issued a Notice of Allowance on ___.
__	(e)	was filed on ___ and bearing attorney docket number

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above or as allowed as indicated above.

I acknowledge the duty to disclose all information known to me to be material to the patentability of this application as defined in 37 CFR § 1.56. If this is a continuation-in-part (CIP) application, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability of the application as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

I hereby claim foreign priority benefits under 35 U.S.C. § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate filed by me or my assignee disclosing the subject matter claimed in this application and having a filing date (1) before that of the

application on which my priority is claimed or, (2) if no priority is claimed, before the filing date of this application:

PRIOR FOREIGN PATENTS

Number	Country	Month/Day/Year Filed	Date first laid-open or Published	Date patented or Granted	Priority Claimed Yes	No
NONE						

I hereby claim the benefit under 35 U.S.C. § 120/365 of any United States application(s) listed below and PCT international applications listed above or below:

PRIOR U.S. OR PCT APPLICATIONS

Application No. (series code/serial no.)	Month/Day/Year Filed	Status(pending, abandoned, patented)
60/ 268,447	February 12, 2001	

I hereby appoint:

TIMOTHY G. ACKERMANN, Reg. No. 44,493
BENJAMIN J. BAI, Reg. No. 43,481
JOSEPH M. BEAUCHAMP, Reg. No. 46,544
MARY JO BOLDINGH, Reg. No. 34,713
MARGARET A. BOULWARE, Reg. No. 28,708
DANIEL J. BURNHAM, Reg. No. 39,618
THOMAS L. CANTRELL, Reg. No 20,849
RONALD B. COOLLEY, Reg. No. 27,187
THOMAS L. CRISMAN, Reg. No 24,846
STUART D. DWORK, Reg. No. 31,103
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ROGER J. FRENCH, Reg. No 27,786
JANET M. GARETTO, Reg. No 42,568
MARK GATSCHET, Reg. No. 42,569
JOHN C. GATZ, Reg. No. 41,774
RUSSELL J. GENET, Reg. No. 42,571
GERALD H. GLANZMAN, Reg. No. 25,035
LEKHA GOPALAKRISHNAN, Reg. No. 46,733
J. KEVIN GRAY, Reg. No. 37,141
KEITH P. GRAY, Reg. No. 46,738
STEVEN R. GREENFIELD, Reg. No. 38,166
JOSHUA A. GRISWOLD, Reg. No. 46,310
J. PAT HEPTIG, Reg. No. 40,643
SHARON A. ISRAEL, Reg. No. 41,867
JOHN R. KIRK JR., Reg. No 24,477
PAUL R. KITCH, Reg. No. 38,206
TIMOTHY M. KOWALSKI, Reg No. 44,192
HSIN-WEI LUANG, Reg No. 44,213
ROBERT W. MASON, Reg. No. 42,848
ROGER L. MAXWELL, Reg. No. 31,855
LISA H MEYERHOFF, Reg. No. 36,869
STANLEY R. MOORE, Reg. No. 26,958
P WESTON MUSSELMAN JR. Reg No 31,644
RAMA B. NATH, Reg. No. 27,072
DANIEL G. NGUYEN, Reg. No. 42,933
MICHAEL K. NUTTER, Reg. No. 44,979
SPENCER C. PATTERSON, Reg. No. 43,849
RUSSELL N. RIPPAMONTI, Reg. No. 39,521
ROSS T. ROBINSON, Reg. No. 47,031
STEPHEN G. RUDISILL,, Reg. No. 20,087
HOLLY L RUDNICK, Reg No. 43,065
J L. JENNIE SALAZAR, Reg. No. 45,065
JERRY R. SELINGER, Reg. No. 26,582
JAMES O. SKARSTEN, Reg. No. 28,346
ZACHARY J. SMOLINSKI, Reg. No. 47,100
GARY B. SOLOMON, Reg. No. 44,347
STEVE Z. SZCZEPANSKI, Reg. No. 27,957
ANDRE M SZUWALSKI, Reg. No. 35,701
ALAN R. THIELE, Reg. No. 30,694
TAMSEN VALOIR, Reg. No. 41,417
BRIAN D. WALKER, Reg. No. 37,751
GERALD T. WELCH, Reg. No. 30,332
HAROLD N. WELLS, Reg. No. 26,044
WILLIAM D. WIESE, Reg. No. 45,217

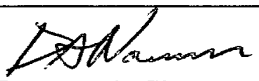
all of the firm of **JENKENS & GILCHRIST, a Professional Corporation**, 1445 Ross Avenue, Suite 3200, Dallas, Texas 75202-2799, as my attorneys and/or agents, with full power of substitution and revocation, to prosecute this application, provisionals thereof, continuations, continuations-in-part, divisionals, appeals, reissues, substitutions, and extensions thereof and to transact all business in the United States Patent and Trademark Office connected therewith, to appoint any individuals under an associate power of attorney and to file and prosecute any international patent application filed thereon before any international authorities, and I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization who/which first sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct them in writing to the contrary.

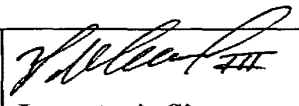
Please address all correspondence and direct all telephone calls to:

Gary B. Solomon, Esq.
Jenkens & Gilchrist, P.C.
1445 Ross Avenue, Suite 3200
Dallas, Texas 75202-2799
214/855-4500
214/855-4300 (fax)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAMED INVENTOR(S)

1	David A. Norman **Full Name**	 **Inventor's Signature**	4 March 02 **Date**
	3112 Old Mill Road Greenville, TX 75402 **Residence** (city, state, country)		U.S.A. **Citizenship**
	3112 Old Mill Road Greenville, TX 75402 **Post Office Address** (include zip code)		

2	Robert H. Mimlitch III **Full Name**	 **Inventor's Signature**	2002-MAR-4 **Date**
	5606 Luna Dr. Rowlett, TX 75088 **Residence** (city, state, country)	U.S.A. **Citizenship**	
	5606 Luna Dr. Rowlett, TX 75088 **Post Office Address** (include zip code)		

3	Richard Torrance **Full Name**	Richard Torrance **Inventor's Signature**	March 4, 2002 **Date**
	5001 Peacock Greenville, TX 75402 **Residence** (city, state, country)		U.S.A. **Citizenship**
	5001 Peacock Greenville, TX 75402 **Post Office Address** (include zip code)		

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

Paper No. 6

GARY B. SOLOMON
JENKENS & GILCHRIST, P.C.
1445 ROSS AVENUE, SUITE 3200
DALLAS, TX 75202-2799

COPY MAILED

MAY 0 3 2002

OFFICE OF PETITIONS

In re Application of :
David A. Norman :
Application No. 10/076,795 : NOTICE
Filed: February 12, 2002 :
Attorney Docket No. 50097-00008USPT :

This is a notice regarding your request for acceptance of a fee deficiency submission under 37 CFR 1.28. On September 1, 1998, the Court of Appeals for the Federal Circuit held that 37 CFR 1.28(c) is the sole provision governing the time for correction of the erroneous payment of the issue fee as a small entity. **See DH Technology v. Synergystex International, Inc. 154 F.3d 1333, 47 USPQ2d 1865 (Fed. Cir. Sept. 1, 1998).**

The Office no longer investigates or rejects original or reissue applications under 37 CFR 1.56. **1098 Off. Gaz. Pat. Office 502 (January 3, 1989)**. Therefore, nothing in this Notice is intended to imply that an investigation was done.

Your fee deficiency submission under 37 CFR 1.28 is hereby **ACCEPTED**.

Inquiries related to this communication should be directed to the Office of Petitions Staff at (703) 305-9285.

This file is being forwarded to the Initial Patent Examination Unit.

Irvin Dingle
Petitions Examiner
Office of Petitions
Office of the Deputy Commissioner
for Patent Examination Policy

Receipt
3600 #7

Jenkens & Gilchrist
A PROFESSIONAL CORPORATION

1445 ROSS AVENUE
SUITE 3200
DALLAS, TEXAS 75202

(214) 855-4500
TELECOPIER (214) 855-4300

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(310) 820-8800

SAN ANTONIO, TEXAS
(210) 246-5000

WASHINGTON, D.C.
(202) 326-1500

AFFILIATE OFFICE
CHICAGO, ILLINOIS
(312) 425-3900

Gary B. Solomon
(214) 855-4188
gsolomon@jenkens.com

Commissioner for Patents
P.O. Box 2327
Arlington, VA 22202

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents P.O. Box 2327 Arlington, VA 22202

on 6/14/02

Carol Marstaller

Signature

Re: Applicant(s): David A. Norman, et al.
Serial No. 10/076,795
Filing Date: February 12, 2002
For: SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE
Docket No.: 50097-8USPT

Dear Sir:

Transmitted for filing with the Patent and Trademark Office are the following documents for the above-referenced patent application:

1. Request to Correct Filing Receipt;
2. Copy of Official Filing Receipt, with red-lined corrections; and
3. Postcard acknowledgment.

Please address all communications related to this to:

Gary B. Solomon
Jenkens & Gilchrist, P.C.
1445 Ross Avenue, Suite 3200
Dallas, Texas 75202-2799

In the event there is an under or over payment, please debit or credit our Deposit Account #10-0447.

Respectfully submitted,

Gary B. Solomon
Registration No. 44,347

Patent Application
Docket No. 50097-8USPT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	David A. Norman, et al.
Serial No.	10/076,795
Filed:	February 12, 2002
Group No:	3619
Examiner:	Not Yet Assigned
For:	SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Commissioner for Patents
P.O. Box 2327
Arlington, VA 22202

CERTIFICATE OF MAILING
I hereby certify that this correspondence is being deposited, postage paid, with the Unitd States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents P.O. Box 2327 Arlington, VA 22202
on 6/14/02
Signature: Carol Barstaller

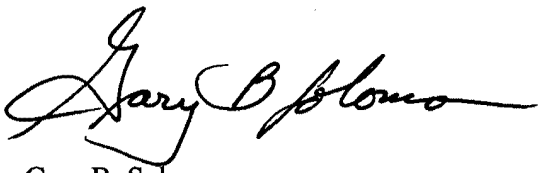
REQUEST FOR CORRECTED FILING RECEIPT

Attached is a copy of the official filing receipt received from the PTO in connection with the application identified above for which issuance of a corrected filing receipt is respectfully requested. The error(s) contained on the receipt are marked in red and summarized below. The error was incorrectly entered.

		Error In		Correct Data
1.	☐	Applicant's Name	1.	
2.	☐	Applicant's Address	2.	
3.	☐	Title	3.	
4.	☐	Filing Date	4.	
5.	☐	Application Number	5.	
6.	☐	PCT Application	6.	
7.	X	Other	7.	Large Entity

Applicant requests that a Corrected Filing Receipt be issued and sent to Applicant's attorney of record.

Respectfully submitted,
JENKENS & GILCHRIST, P.C.



Gary B. Solomon
Registration No. 44,347

Date: June 13, 2002

Jenkens & Gilchrist, P.C
3200 Fountain Place
1445 Ross Avenue
Dallas, Texas 75202-2799
Telephone: (214) 855-4188
Facsimile: (214) 855-4300

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
10/076,795	02/12/2002	3619	870	50097-8USPT	13	45	8

CONFIRMATION NO. 3663

UPDATED FILING RECEIPT

Jenkens & Gilchrist, P.C.
3200 Fountain Place
1445 Ross Avenue
Dallas, TX 75202-2799

OC000000008185837

Date Mailed: 05/24/2002

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

David A. Norman, Greenville, TX;
Robert H. Mimlitch III, Rowlett, TX;
Richard Torrance, Greenville, TX;

Domestic Priority data as claimed by applicant

THIS APPLN CLAIMS BENEFIT OF 60/268,447 02/12/2001

Foreign Applications

If Required, Foreign Filing License Granted 04/01/2002

Projected Publication Date: 09/05/2002

Non-Publication Request: No

Early Publication Request: No

~~** SMALL ENTITY **~~

Title

System, apparatus, and method for providing control of a toy vehicle

#8 change of address

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

D. Townsend 12/30/02

CHANGE OF ADDRESS/POWER OF ATTORNEY

FILE LOCATION 36C1 SERIAL NUMBER 10076795 PATENT NUMBER

THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER # 26231

ON 11/29/02 THE ADDRESS OF RECORD FOR CUSTOMER NUMBER 26231 IS:

FISH & RICHARDSON P.C.
3300 DAIN RAUSCHER PLAZA
60 SOUTH SIXTH STREET
MINNEAPOLIS MN 55402

PTO INSTRUCTIONS: PLEASE TAKE THE FOLLOWING ACTION WHEN THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER NUMBER: RECORD, ON THE NEXT AVAILABLE CONTENTS LINE OF THE FILE JACKET, 'ADDRESS CHANGE TO CUSTOMER NUMBER'. LINE THROUGH THE OLD ADDRESS ON THE FILE JACKET LABEL AND ENTER ONLY THE 'CUSTOMER NUMBER' AS THE NEW ADDRESS. FILE THIS LETTER IN THE FILE JACKET. WHEN ABOVE CHANGES ARE ONLY TO FEE ADDRESS AND/OR PRACTITIONERS OF RECORD, FILE LETTER IN THE FILE JACKET.
THIS FILE IS ASSIGNED TO GAU 3618.

3619

Attorney's Docket No.: 14489-004001

#9
Rev PIA
4-8-03
SW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al.
Serial No. : 10/076,795
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Art Unit : 3619
Examiner : Unknown

Commissioner for Patents
Washington, D.C. 20231

REVOCATION AND NEW POWER OF ATTORNEY

Under 37 CFR §3.73(b) INNOVATION FIRST, INC., a corporation in the State of Delaware, certifies that it is the assignee of 100% of the right, title and interest in the patent application identified above by virtue of:

☒ An assignment from the inventors of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel 012818, Frame 0072 on April 23, 2002.

☐ A chain of title from the inventors of the patent application identified above, to the current assignee as shown below. Copies of the assignments or other documents in the chain of title are attached.

1. From _____ to _____ recorded in the Patent and Trademark Office at Reel _____, Frame _____ on _____.

2. From _____ to _____ recorded in the Patent and Trademark Office at Reel _____, Frame _____ on _____.

The undersigned has reviewed all the documents in the chain of title of the patent application identified above and, to the best of undersigned's knowledge and belief, title is in the assignee identified above.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, Washington, D.C. 20231.

3/28/2003
Date of Deposit

Peggy C. Gray
Signature

Peggy C. Gray
Typed or Printed Name of Person Signing Certificate

The undersigned, whose title is supplied below, is empowered to act on behalf of the assignee.

The undersigned, acting on behalf of the assignee, hereby revokes all powers of attorney previously granted in the application and appoints:

J. Kevin Gray	Reg. No. 37,141
Spencer C. Patterson	Reg. No. 43,849
Neil J. McNabnay	Reg. No. 47,786
William R. Borchers	Reg. No. 44,549

with full power of substitution and revocation, to prosecute the application and to transact all business in the United States Patent and Trademark Office connected therewith.

All correspondence regarding the application should be sent to:

26231

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Respectfully submitted,

Date: 3/17/03

DAVID ANTHONY NORMAN

Title: President

Fish & Richardson P.C.
5000 Bank One Center
1717 Main Street
Dallas, Texas 75201
Telephone: (214) 292-4082
Facsimile: (214) 747-2091

90034559.doc

UNITED STATES
PATENT AND
TRADEMARK OFFICE

Commissioner for Patents
Washington, DC 20231
www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/076,795	02/12/2002	David A. Norman	50097-8USPT

CONFIRMATION NO. 3663

OC000000009798040

26[illegible]
FISH & RICHARDSON P.C.
3300 DAIN RAUSCHER PLAZA
60 SOUTH SIXTH STREET
MINNEAPOLIS, MN 55402

Date Mailed: 04/08/2003

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This [illegible] response to the Power of Attorney filed 04/02/2003.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

VE[illegible] WILLIAMS
360[illegible] 308-1860

OFFICE COPY

UNITED STATES
PATENT AND
TRADEMARK OFFICE

Commissioner for Patents
Washington, DC 20231
www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/076,795	02/12/2002	David A. Norman	50097-8USPT

CONFIRMATION NO. 3663

OC000000009798106

Fi rdson P.C.
50 ne Center
17 treet
Da 5201

Date Mailed: 04/08/2003

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

Thi nonse to the Power of Attorney filed 04/02/2003.

The Attorney in this application is accepted. Correspondence in this application will be mailed to the ab ss as provided by 37 CFR 1.33.

V. Williams

VE VILLIAMS
36(-1860

OFFICE COPY

Please type a plus sign (+) inside box → ☑

PTO/SB/122 (10-00)
Approved for use through 10/31/2002. OMB 0651-0035
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

3619

CHANGE OF CORRESPONDENCE ADDRESS
Application

Address to:
Commissioner for Patents
Washington, D.C. 20231

Application Number	10/076,795
Filing Date	February 12, 2002
First Named Inventor	Norman et al.
Group Art Unit	3619
Examiner Name	
Attorney Docket Number	14489-004001

#11 Chg add 5-12-03 RW

Please change the Correspondence Address for the above-identified application to

Customer No: 26231

☐ **Firm *or* Individual Name**

Address	60 South Sixth Street 3300 Dain Rauscher Plaza Minneapolis, MN 55402
Country	United States of America
Telephone	(214) 292-4082 **Fax** (214) 747-2091

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

I am the :

☐ Applicant/Inventor.

☐ Assignee of record of the entire interest.
Certificate under 37 CFR 3.73(b) is enclosed.

☒ Attorney or agent of record.

☐ Registered practitioner named in the application transmittal letter in an application without an executed oath or declaration. See 37 CFR 1.33(a)(1). Registration Number 43,849

Typed or Printed Name Spencer C. Patterson

Signature

Date 04/16/2003

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*.

☒ *Total of 1 forms are submitted.

90037942.doc

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 07/15/2003

FISH & RICHARDSON P.C.
5000 BANK ONE CENTER
1717 MAIN STREET
DALLAS, TX 75201

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *30days* ~~MONTH(S)~~ FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2003* .

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-45* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-13 and 41, drawn to a method of controlling acceleration of a toy vehicle and method from controlling acceleration and deceleration of the vehicle, classified in class 180, subclass 167.

II. Claims 35-40, drawn to a toy vehicle, classified in class 180, subclass 65.1.

III. Claim 42, drawn to a method of disabling a toy vehicle, classified in class 180, subclass 65.1.

IV. Claims 14-34 and 43-45, drawn to a toy vehicle, classified in class 180, subclass 65.1.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the method of controlling acceleration of a toy vehicle can be done using mechanical elements only and without the use of software.

Inventions III and IV are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the method of controlling a toy vehicle can be done using mechanical elements only and without the use of software.

Inventions I and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated because Invention I does not require a method step of disengaging the motor from the battery upon determination of an improper switch signal.

Inventions I and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated because Invention I does not require a battery.

Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of

operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated because Invention II does not require a method step of receiving an on/off signal indicative to turn on and off the motor.

Inventions II and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated because Invention IV does not require the particulars of a third terminal electrically coupled to a device operable to produce a throttle signal.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

A telephone call was made to Gary B. Solomon, Esq. on July 11, 2003 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bridget Avery whose telephone number is 703-308-2086. The examiner can normally be reached on 7:00AM-5:30PM Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Johnson can be reached on 703-308-0885. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

Avery
July 14, 2003

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600
7/14/03

Attorney's Docket No.: 14489-004001

#14 Elect 9-25-03 NW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al.
Serial No. : 10/076,795
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Art Unit : 3618
Examiner : Bridget D. Avery

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO RESTRICTION REQUIREMENT

Responsive to the action mailed July 15, 2003, applicant elects the invention of Group I, Claims 1-13 and 41, drawn to a method of controlling acceleration of a toy vehicle and method from controlling acceleration and deceleration of the vehicle, classified in class 180, subclass 167. The election is made without traverse.

A petition for a one-month extension and a check for the petition fee are enclosed. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 9/10/03

Spencer C. Patterson
Reg. No. 43,849

Fish & Richardson P.C.
5000 Bank One Center
1717 Main Street
Dallas, Texas 75201
Telephone: (214) 292-4082
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90051544.doc

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I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

09/10/2003
Date of Deposit

Signature

Peggy C. Gray
Typed or Printed Name of Person Signing Certificate

Attorney's Docket No.: 14489-004001

3618

#13 Ent 9-25-03 SW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al.
Serial No. : 10/076,795
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Art Unit : 3618
Examiner : Bridget D. Avery

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION FOR ONE-MONTH EXTENSION OF TIME

Pursuant to 37 CFR §1.136, applicant hereby petitions that the period for response to the action dated July 15, 2003, be extended for one month to and including September 14, 2003.

Enclosed is a check for $110 for the required fee. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 9/10/03

Spencer C. Patterson
Reg. No. 43,849

Fish & Richardson P.C.
5000 Bank One Center
1717 Main Street
Dallas, Texas 75201
Telephone: (214) 292-4082
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90051545.doc

09/17/2003 CNGUYEN 00000063 10076795
01 FC:1251 110.00 OP

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

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09/10/2003
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Peggy C. Gray
Signature

Peggy C. Gray
Typed or Printed Name of Person Signing Certificate

	Type	Hits	Search Text
1	IS&R	1	("5829948").PN.
2	BRS	26	("2050000" | "2614800" | "2804218" | "3045847" | "3176858" | "3282566" | "3325023" | "3727773" | "3822023" | "3944083" | "4005793" | "4050599" | "4219186" | "4288195" | "4331324" | "4403680" | "4421209" | "4488326" | "4491449" | "4511110" | "4708576" | "4726724" | "4765487" | "4884454" | "5156238" | "5244336").PN.
3	BRS	10	5829948.URPN.
4	IS&R	0	("battery and motor and circuit and terminal").PN.
5	BRS	17398	battery and motor and circuit and terminal
6	BRS	2122	(battery and motor and circuit and terminal) and software
7	BRS	2	((battery and motor and circuit and terminal) and software) and 'throttle signal'
8	BRS	0	processor and 'throttle signal' and 'transistion signal'
9	BRS	0	motor and 'throttle signal' and 'transistion signal'
10	BRS	0	processor and motor and 'throttle signal' and 'transition signal'
11	BRS	41	processor and motor and 'throttle signal'
12	BRS	40	method with disabl? with vehicle
13	BRS	245	method with disabl$ with vehicle
14	BRS	68	(method with disabl$ with vehicle) and (battery and motor)
15	BRS	61	((method with disabl$ with vehicle) and (battery and motor)) and switch
16	BRS	4	(((method with disabl$ with vehicle) and (battery and motor)) and switch) and 'switch signal'
17	BRS	0	"20020157887"
18	BRS	2	"20020157887"
19	BRS	675	(caddy or cart) and divider

	Type	Hits	Search Text
20	BRS	270	((caddy or cart) and divider) and (channel or channels)
21	BRS	14	("3492016" | "4243340" | "4542777" | "4793508" | "4864334" | "4953878" | "5464237" | "5570895" | "5961134" | "6010145" | "6050660" | "6073737" | "6073943" | "6193247").PN.
22	BRS	14	("3492016" | "4243340" | "4542777" | "4793508" | "4864334" | "4953878" | "5464237" | "5570895" | "5961134" | "6010145" | "6050660" | "6073737" | "6073943" | "6193247").PN.
23	BRS	7	3492016.URPN.
24	IS&R	1	("6073943").PN.
25	BRS	0	(("6073943").PN.) and (nest or nestable or nesting or stacked or stack or stacking)
26	BRS	6	"2246545"
27	BRS	5	"2246545"

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	9	(throttle with signal) and motor and toy	USPAT	2003/12/01 11:47
2	BRS	L2	3	(throttle with signal) same motor and toy and "pulse width"	USPAT	2003/12/01 11:46
3	BRS	L3	0	2 and velocity	USPAT	2003/12/01 12:15
4	BRS	L4	0	(throttle with signal) same motor and toy and "pulse width" and velocity	USPAT	2003/12/01 12:14
5	BRS	L5	207	(throttle with signal) and motor and velocity and "pulse width"	USPAT	2003/12/01 11:47
6	BRS	L6	80	5 and "duty cycle"	USPAT	2003/12/01 12:09
7	BRS	L7	3	6 and "throttle signal"	USPAT	2003/12/01 11:48
8	BRS	L8	13	6 and (motor with (high or low))	USPAT	2003/12/01 11:56
9	BRS	L9	0	6 and (motor with terminal with (high or low))	USPAT	2003/12/01 11:57
10	BRS	L10	0	5 and "% duty cycle"	USPAT	2003/12/01 12:09
11	BRS	L11	20	5 and (percent with "duty cycle")	USPAT	2003/12/01 12:09
12	BRS	L12	1006	motor and "pulse width" and velocity and "duty cycle"	USPAT	2003/12/01 12:36
13	BRS	L13	58	12 and (throttle adj3 signal)	USPAT	2003/12/01 12:36
14	BRS	L14	26	13 and batter$	USPAT	2003/12/01 12:22
15	BRS	L15	137	motor and "pulse width" and (velocity with linear) and "duty cycle"	USPAT	2003/12/01 12:36
16	BRS	L16	1	15 and (throttle adj3 signal)	USPAT	2003/12/01 12:49
17	BRS	L17	1810	"toy vehicle" or "toy car" and motor and "pulse width" and velocity and (throttle adj3 signal)	USPAT	2003/12/01 12:50

	Type	L #	Hits	Search Text	DBs	Time Stamp
18	BRS	L18	0	("toy vehicle" or "toy car") and motor and "pulse width" and velocity and (throttle adj3 signal)	USPAT	2003/12/01 12:50
19	BRS	L19	2	("toy vehicle" or "toy car") and motor and "pulse width" and (throttle adj3 signal)	USPAT	2003/12/01 12:54
20	BRS	L20	215	("toy vehicle" or "toy car") and (motor with (off or disabl$))	USPAT	2003/12/01 12:55
21	BRS	L21	156	("toy vehicle" or "toy car") and (motor with (off or disabl$)) and battery	USPAT	2003/12/01 12:56
22	BRS	L22	48	("toy vehicle" or "toy car") and (motor with (off or disabl$)) and battery and signal	USPAT	2003/12/01 12:57
23	BRS	L23	16	("toy vehicle" or "toy car") and (motor adj3 (off or disabl$)) and battery and signal	USPAT	2003/12/01 12:57

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 12/10/2003

FISH & RICHARDSON P.C.
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DALLAS, TX 75201

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	**PAPER NUMBER**
3618	

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/076,795	Applicant(s) NORMAN ET AL.	
	Examin r Bridget Avery	Art Unit 3618	

-- The MAILING DATE of this communication app ars on the cover she t with the corr spondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) *14-40 and 42-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 41* is/are rejected.

7)☐ Claim(s) *5-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-13 and 41) in Paper No. 14 is acknowledged.

2. Claims 14-40 and 42-45 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 14.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Kondo (US Patent 6,287,167).

Kondo teaches a method for controlling acceleration of a toy vehicle configured to be operated by a person, the method old and well-known method comprising: a processor (10) for receiving a throttle signal (taught in column 1, lines 5-8) operable to induce motion via a motor (16) operating as a drive mechanism of the toy vehicle; generating a transition signal (pulse signal as taught in column 1, line 40) based on the

throttle signal; and applying the transition signal (pulse signal) to affect operation of the motor (16). The transition signal is a pulse width modulation signal. The pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle, as taught in column 3, lines 24-48. The motor (16) includes a high and low terminal, the transition signal being applied to the low terminal of the motor (16), as taught in column 4, lines 60-67.

Allowable Subject Matter

4. Claims 5-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Krueger et al. shows a vehicle traction control with rough road correction.

Lee shows a toy vehicle with wireless battery switch.

Ribbe shows a speed control system for a remote control vehicle.

Avitan shows a regulation system for decoupled efficiency optimized operation of dc traction motors.

Kuroda shows an idle running control apparatus for internal combustion engine.

Lahti shows a simultaneous independent control system for electric motors.

Rosenhagen et al. shows a multi-vehicle multi-controller radio remote control system.

6. Any inquiry concerning this communication should be directed to Bridget Avery at telephone number 703-308-2086.

Avery

December 1, 2003

BRIAN L. JOHNSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

12/1/03

Notice of References Cited	Application/Control No. 10/076,795	Applicant(s)/Patent Under Reexamination NORMAN ET AL.	
	Examiner Bridget Avery	Art Unit 3618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,287,167	09-2001	Kondo, Hirotoshi	446/454
	B	US-6,591,178	07-2003	Krueger et al.	701/83
	C	US-6,468,127	10-2002	Lee, Keung	446/457
	D	US-5,994,853	11-1999	Ribbe, David J.	318/16
	E	US-5,453,672	09-1995	Avitan, Isaac	318/493
	F	US-5,172,665	12-1992	Kuroda, Toshiki	123/339.22
	G	US-4,341,982	07-1982	Lahti et al.	318/51
	H	US-4,334,221	06-1982	Rosenhagen et al.	463/6
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	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.

Attorney's Docket No.: 14489-004001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al. Art Unit : 3618
Serial No. : 10/076,795 Examiner : Bridget D. Avery
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT IN REPLY TO ACTION OF DECEMBER 10, 2003

Applicant hereby requests a two-month extension of time to respond to the subject office action pursuant to 37 CFR § 1.136. Applicant has enclosed herewith a check for $210.00 for the extension fee.

Please amend the above-identified application as follows:

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

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May 4, 2004
Date of Deposit

Pat Bradford
Signature

Pat Bradford
Typed or Printed Name of Person Signing Certificate

41

Attorney's Docket No.: 14489-004001 3618

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al. Art Unit : 3618
Serial No. : 10/076,795 Examiner : Bridget D. Avery
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER FOR AMENDMENT IN REPLY TO ACTION OF DECEMBER 10, 2003 AND PETITION FOR AUTOMATIC EXTENSION

Correspondence relating to this application is enclosed. The required fees are computed below. Please apply any charges not covered, or any credits, to Deposit Account No. 06-1050.

Total Claims	27	-	45	=	0	$0
Independent	2	-	8	=	0	$0
First Presentation of Multiple Dependent Claims						$0
Applicant hereby petitions under 37 C.F.R. §1.136 for a 2 month extension of time.						$210
TOTAL FEE DUE						$210

A check for $210 is attached.

Respectfully submitted,

Date: 5/4/04

Decker A. Cammack
Reg. No. 48,486

Fish & Richardson P.C.
5000 Bank One Center
1717 Main Street
Dallas, Texas 75201
Telephone: (214) 292-4049
Facsimile: (214) 747-2091
90075170.doc

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May 4, 2004
Date of Deposit

Pat Bradford
Signature

Pat Bradford
Typed or Printed Name of Person Signing Certificate

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, said method comprising:

receiving a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the throttle signal; and

applying the transition signal to affect operation of the motor, wherein the operation of the motor is a transition from a first to a second angular velocity.

2. (Original) The method according to claim 1, wherein the transition signal is a pulse width modulation signal.

3. (Original) The method according to claim 1, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

4. (Original) The method according to claim 1, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

5. (Canceled)

6. (Currently amended) The method according to ~~claim 5~~ claim 1, wherein the transition from the first to second angular velocity is substantially linear.

7. (Currently amended) The method according to ~~claim 6~~ claim 1, wherein the transition signal ramps power to the motor.

8. (Currently amended) The method according to ~~claim 5~~ claim 1, wherein the transition from the first to second angular velocity is non-linear.

9. (Currently amended) The method according to ~~claim 5~~ claim 1, wherein the transition occurs over a time span of at least one second.

10. (Original) The method according to claim 1, further comprising:

receiving a shift signal indicative of a change of direction of motion for the toy vehicle;

if power is being applied to the motor,

initiating a delay; and

applying the transition signal to the motor.

11. (Original) The method according to claim 1, further comprising:

forming a second transition signal upon the throttle signal being transitioned, the second transition signal being utilizable upon the throttle signal being re-transitioned over a predetermined time duration.

12. (Original) The method according to claim 11, further comprising:

initiating, upon the throttle signal being re-transitioned before expiration of the predetermined time duration, the transition signal at a level associated with the second transition signal.

13. (Original) The method according to claim 11, wherein the second transition signal is substantially linear.

14-40. (Canceled).

41. (Currently amended) A computer-readable medium having stored thereon sequences of instructions, wherein the sequences of instructions ~~including~~ include instructions, when executed by a processor, ~~causes~~ that cause the processor to:

receive a throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

generate a transition signal based on the throttle signal; and

apply the transition signal to effect operation of a motor operating within a toy vehicle, wherein the operation of the motor is a transition from a first to a second angular velocity.

42-45. (Canceled)

46. (New) The computer readable medium of claim 41, wherein the transition signal is a pulse width modulation signal.

47. (New) The computer readable medium of claim 41, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

48. (New) The computer readable medium of claim 41, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

49. (New) The computer readable medium of claim 41, wherein the transition from the first to second angular velocity is substantially linear.

50. (New) The computer readable medium of claim 41, wherein the transition signal ramps power to the motor.

51. (New) The computer readable medium of claim 41, wherein the transition from the first to second angular velocity is non-linear.

52. (New) The computer readable medium of claim 41, wherein the transition occurs over a time span of at least one second.

53. (New) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

receive a shift signal indicative of a change of direction of motion for the toy vehicle;

if power is being applied to the motor,

initiate a delay; and

apply the transition signal to the motor.

54. (New) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

form a second transition signal upon the throttle signal being transitioned, the second transition signal being utilizable upon the throttle signal being re-transitioned over a predetermined time duration.

55. (New) The computer readable medium of claim 54, wherein the instructions further cause the processor to:

initiate, upon the throttle signal being re-transitioned before expiration of the predetermined time duration, the transition signal at a level associated with the second transition signal.

56. (New) The computer readable medium of claim 54, wherein the second transition signal is substantially linear.

57. (New) The computer readable medium of claim 54, wherein the second transition signal is substantially non-linear.

58. (New) The computer readable medium of claim 41, wherein the throttle signal is received from an operator in physical contact with the toy vehicle.

59. (New) The method of claim 1, wherein the throttle signal is received from an operator in physical contact with the toy vehicle.

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed on December 10, 2003. Claims 1-45 are pending in the Application. In the Office Action, claims 1-4 and 41 were rejected. Applicants cancel claims 5, 14-40 and 42-45 without prejudice or disclaimer. Claims 5-13 were objected to because they depend from a rejected base claim. Applicants have amended claims 1 and 41. Claims 46-57 have been added to the application. Based on the reasons discussed below, Applicants respectfully request favorable action in this case.

Applicants note with appreciation that claim 5 would be allowable if rewritten in independent form including all of the limitations of the base claim. Accordingly, Applicants have amended independent claim 1 to incorporate the limitation of claim 5. Similarly, though the Office Action does not specifically address the elements of independent claim 41, Applicants respectfully submit that claim 41 includes similar limitations as claim 1, which was rejected. Accordingly, Applicants have amended claim 41 to include the limitation of claim 5. Applicants respectfully submit that independent claim 41 is now allowable for the reasons discussed above with respect to claim 1. Applicants also submit that new claims 46-57, which depend from claim 41, are allowable. Accordingly, favorable action and allowance of all pending claims is requested.

Enclosed is a $210.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 5/4/04

Decker A. Cammack
Reg. No. 48,486

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Telephone: (214) 292-4049
Facsimile: (214) 747-2091

90074818.doc

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number
10/076795
~~50097-805PY~~

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	45	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	45 minus 20=	* 25
INDEPENDENT CLAIMS	8 minus 3 =	* 5
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	225	OR	X$18=	
X42=	210	OR	X84=	
+140=		OR	+280=	
TOTAL	805	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 27	Minus	** 45	=
Independent	* 2	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 09/20/2004

FISH & RICHARDSON P.C.
5000 BANK ONE CENTER
1717 MAIN STREET
DALLAS, TX 75201

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	**PAPER NUMBER**
3618	

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/076,795	NORMAN ET AL.
	Examiner	Art Unit
	Bridget Avery	3618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,41 and 46-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,41 and 46-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed on May 7, 2004 is acknowledged and has been entered.

2. This action includes a new grounds of rejection based on a newly discovered prior art reference. The examiner regrets any inconvenience caused by the discovery.

Claim Rejections - 35 USC § 103

The following is a quotation of 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 of this title, 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.

3. Claims 1-9, 11-13, 41-52 and 54-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo (US Patent 6,287,167) in view of Porter et al. (US Patent 5,056,613).

Kondo teaches a method for controlling acceleration of a toy vehicle configured to be operated by a person, the method old and well-known method comprising: a processor (10) for receiving a throttle signal (taught in column 1, lines 5-8) operable to induce motion via a motor (16) operating as a drive mechanism of the toy vehicle; generating a transition signal (pulse signal as taught in column 1, line 40) based on the throttle signal; and applying the transition signal (pulse signal) to affect operation of the motor (16). The transition signal is a pulse width modulation signal. The pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent

duty cycle, as taught in column 3, lines 24-48. The motor (16) includes a high and low terminal, the transition signal being applied to the low terminal of the motor (16), as taught in column 4, lines 60-67.

Kondo lacks the teaching of transitioning the motor from a first to a second angular velocity.

Porter et al. teaches the operation of transitioning the motor from a first to a second angular velocity. The transition from the first to second angular velocity is non-linear or substantially linear. The transition signal ramps power to the motor. Porter et al. further teaches a vehicle with signals received from an operator in physical contact with the vehicle.

Based on the teachings of Porter et al., it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the system of Kondo to include the operation of transitioning the motor from a first to a second angular velocity to regulate the motor based on demand to prevent overrunning. With respect to claims 11-13, the system taught by the combination is capable of forming a second transition signal, upon the throttle signal being transitioned, to be utilized upon the throttle being re-transitioned over a predetermined time duration; and is capable of initiating, upon the throttle signal being re-transitioned before expiration of the predetermined time duration, the transition signal at a level associated with the second transition signal. It would have been obvious to one having ordinary skill in the art, at the time the invention was made to add the system and taught by the combination of Kondo and Porter et al. to effectively match actual motor speed to the desired motor

speed. The provision of transitioning over a time span of at least one second would have been obvious to one having ordinary skill in the art, at the time the invention was made, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Aller, 105 USPQ 233.*

4. Claims 10 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo ('167) and Porter et al. ('613) as applied to claim 1 above, and further in view of Ishizuka et al. (US Patent 5,762,532).

The combination of Kondo and Porter et al. teach the features described above.

The combination of Kondo and Porter et al. lack the teaching of a delay.

Ishizuka et al. teaches delay circuits.

Based on the teachings of Ishizuka et al., it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the combination of Kondo and Porter et al. to include a delay circuit associated with the shift signal to prevent any damage of the system due to rapid change in the direction of motion.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mezzatesta, Jr. et al. shows a control system for regulating motor speed.

6. Any inquiry concerning this communication should be directed to Bridget Avery at telephone number 703-308-2086.

Avery

September 14, 2004

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Notice of References Cited	Application/Control No. 10/076,795	Applicant(s)/Patent Under Reexamination NORMAN ET AL.	
	Examiner Bridget Avery	Art Unit 3618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,056,613	10-1991	Porter et al.	180/178
	B	US-5,762,532	06-1998	Ishizuka et al.	446/457
	C	US-5,349,276	09-1994	Mezzatesta et al.	318/268
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	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.

Search Notes	Application No.	Applicant(s)	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	9/7/2004	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al. Art Unit : 3618
Serial No. : 10/076,795 Examiner : Bridget D. Avery
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT IN REPLY TO ACTION OF SEPTEMBER 20, 2004

Please amend the above-identified application as follows:

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EV 325808848 US

03/18/2005
Date of Deposit

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, said method comprising:

detecting a change in a throttle signal from a first level to a second level, the ~~receiving a~~ throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

applying the transition signal to affect operation of the motor~~, wherein the operation of the motor is a transition from a first to a second angular velocity~~.

2. (Currently Amended) The method according to claim 1, wherein the transition signal comprises ~~is~~ a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

3. (Original) The method according to claim 1, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

4. (Original) The method according to claim 1, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

5. (Canceled)

6. (Currently Amended) The method according to claim 1, wherein the operation of the motor comprises a substantially linear transition from a first angular velocity to a second angular velocity~~the transition from the first to second angular velocity is substantially linear~~.

7. (Previously Presented) The method according to claim 1, wherein the transition signal ramps power to the motor.

8. (Currently Amended) The method according to claim 1, wherein the operation of the motor comprises a non-linear transition from a ~~the~~ first angular velocity to a second angular velocity ~~is non-linear~~.

9. (Currently Amended) The method according to claim 1, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

10. (Currently Amended) The method according to claim 1, further comprising:

receiving a shift signal indicative of an activation of a control for changing a ~~change of~~ direction of motion for the toy vehicle;

if power is being applied to the motor,

initiating a delay; and

applying the transition signal to the motor.

11-40. (Canceled).

41. (Currently Amended) A computer-readable medium having stored thereon sequences of instructions, wherein the sequences of instructions include instructions, when executed by a processor, that cause the processor to:

detect a change in ~~receive~~ a throttle signal from a first level to a second level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy

vehicle;

generate a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

apply the transition signal to effect operation of a motor operating within a toy vehicle~~, wherein the operation of the motor is a transition from a first to a second angular velocity~~.

42-45. (Canceled)

46. (Currently Amended) The computer readable medium of claim 41, wherein the transition signal comprises ~~is~~ a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

47. (Previously Presented) The computer readable medium of claim 41, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

48. (Previously Presented) The computer readable medium of claim 41, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

49. (Currently Amended) The computer readable medium of claim 41, wherein the operation of the motor comprises a substantially linear transition from a ~~the~~ first angular velocity to a second angular velocity ~~is substantially linear~~.

50. (Previously Presented) The computer readable medium of claim 41, wherein the transition signal ramps power to the motor.

51. (Currently Amended) The computer readable medium of claim 41, wherein the operation of the motor comprises a non-linear transition from a ~~the~~ first angular velocity to a second angular velocity ~~is non-linear~~.

52. (Currently Amended) The computer readable medium of claim 41, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

53. (Currently Amended) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

receive a shift signal indicative of an activation of a control for changing a ~~change of~~ direction of motion for the toy vehicle;

if power is being applied to the motor,

initiate a delay; and

apply the transition signal to the motor.

54-57. (Canceled)

58. (Previously Presented) The computer readable medium of claim 41, wherein the throttle signal is received from an operator in physical contact with the toy vehicle.

59. (Previously Presented) The method of claim 1, wherein the throttle signal is received from an operator in physical contact with the toy vehicle.

60. (New) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

detect a change in the throttle signal from the second level to the first level followed by a second change in the throttle signal from the first level to the second level within a predetermined time;

generate a second transition signal in response to detecting the second change within the predetermined time of detecting the change from the second level to the first level, the second transition signal operable to ramp up power to the motor starting from a power level that depends on a time duration between the change from the second level to the first level and the second change.

61. (New) The computer readable medium of claim 60, wherein the power to the motor is ramped up by increasing a duty cycle of a pulse width modulation.

62. (New) A method for controlling acceleration of a toy vehicle configured to be operated by a person, the method comprising:

detecting a binary throttle signal, the binary throttle signal operable to induce motion using a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the binary throttle signal to cause a delay in applying to the motor a power level associated with the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

63. (New) The method of claim 62 wherein the binary throttle signal is generated by a binary switch.

64. (New) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a second power level and generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level.

65. (New) The method of claim 64 wherein the transition signal comprises a pulse width modulated signal.

66. (New) The method of claim 65 wherein the first power level corresponds to a twenty percent duty cycle level of the transition signal and the second power level corresponds to a one hundred percent duty cycle level of the transition signal.

67. (New) The method of claim 62 wherein generating a transition signal comprises delaying applying power to the motor in response to a shift signal for changing a direction of motion for the toy vehicle.

68. (New) The method of claim 62 wherein:

detecting the binary throttle signal comprises detecting a change, within a predetermined time period, from a high signal to a low signal followed by a change from the low signal to the high signal, the low signal operable to remove power from the motor;

the power level associated with the binary throttle signal comprises a second power level and the second power level is associated with the high signal; and

generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level, wherein the first power level depends upon an amount of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

69. (New) The method of claim 68 wherein the first power level is determined in accordance with an algorithm that decreases the first power level with increasing amounts of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

70. (New) The method of claim 69 wherein the algorithm calculates the first power level using a linear decay from a one hundred percent duty cycle to a twenty percent duty cycle.

71. (New) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a voltage with a one hundred percent duty cycle.

72. (New) An article comprising a machine-readable medium storing instructions for causing data processing apparatus to perform operations comprising:

detecting an activation level of a binary throttle signal, the activation level of the binary throttle signal operable to induce motion using a motor operating as a drive mechanism of a toy vehicle;

generating a transition signal in response to detecting the activation level of the binary throttle signal to cause a delay in applying to the motor a maximum power level associated with the activation level of the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

73. (New) The article of claim 72 wherein the binary throttle signal is generated by a binary switch.

74. (New) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level.

75. (New) The article of claim 74 wherein the transition signal comprises a pulse width modulated signal.

76. (New) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises delaying applying power to the motor in response to a shift signal operable to effect a change in a direction of motion for the toy vehicle.

77. (New) The article of claim 72 wherein the instructions further cause data processing apparatus to perform operations comprising:

detecting a change in the binary throttle signal from the activation level to a deactivation level followed, within a predetermined time period, by a change from the deactivation level to the activation level, the deactivation level operable to remove power from the motor; and

wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level, wherein the first power level depends upon an amount of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

78. (New) The article of claim 77 wherein the first power level is determined in accordance with an algorithm that provides a decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

79. (New) The article of claim 78 wherein the algorithm provides a linearly decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

80. (New) The method of claim 72 wherein:

the power level associated with the activation level of the binary throttle signal comprises a direct current voltage; and

applying power to the motor in accordance with the transition signal comprises applying a pulse width modulated voltage with an increasing duty cycle to the motor.

REMARKS

Claims 1-13, 41, and 46-59 were previously pending in the application, and new claims 60-80 have been added. Claims 11-13 and 54-57 are canceled, and claims 1, 2, 6, 8-10, 41, 46, 49, and 51-53 are amended as set forth above. Accordingly, claims 1-10, 41, 46-53, and 58-80 are pending in the application. The Applicant respectfully requests reconsideration of the application in accordance with the following remarks.

In the Office Action dated September 20, 2004, the Examiner rejected claim 1-9, 11-13, 41-52, and 54-59 under 35 U.S.C. § 103(a) as being unpatentable over Kondo, U.S. Patent No. 6,287,167, in view of Porter et al., U.S. Patent No. 5,056,613. Kondo discloses a drive circuit for a toy car to control a driving motor based on a throttle open degree (See col. 1, lines 5-8; col. 2, lines 55-63). In particular, Kondo teaches a pulse signal from a driving circuit for driving a motor. The driving circuit produces a pulse signal with an increasing pulse frequency and an increasing pulse width as the throttle open degree is increased (See col. 3, lines 5-48). Porter et al. discloses a speed control system having phasing circuitry which provides a sequence of electrical phase steps in response to a comparison of actual vehicle speed to desired vehicle speed.

In accordance with some aspects of the present application, a transition signal is generated based on a change in a throttle signal from a first level to a second level. For example, the transition signal is generated as a result of the throttle signal changing from 0 volts to 6 volts. The transition signal can include one or more signal levels intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level. For example, the third signal level may be a zero percent duty cycle signal, which corresponds to the zero voltage of the throttle signal; the fourth signal level may be a one hundred percent duty cycle signal, which corresponds to the 6 volt throttle signal; and an intermediate signal level may include a fifty percent duty cycle signal. A transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level. For example, the change of the throttle signal from 0 volts to 6 volts may be a step

function, while the transition from the zero percent duty cycle signal to the fifty percent duty cycle signal to the one hundred percent duty cycle signal may occur over one second.

With respect to independent claim 1, the Kondo reference fails to teach or suggest generating a transition signal based on a change in a throttle signal from a first level to a second level, wherein the transition signal comprises at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, and wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level. Furthermore, Porter et al. fails to remedy the deficiencies in the Kondo reference. Accordingly, claim 1 and its dependent claims are allowable over the cited references.

Independent claim 41 includes similar limitations to the limitations found in claim 1 and discussed above. Accordingly, claim 41 and its dependent claims are allowable for at least the same reasons as discussed above with respect to claim 1.

New independent claims 62 and 72 have been added. Among other things, new claim 62 recites generating a transition signal based on a binary throttle signal to cause a delay in applying to a motor a power level associated with the binary throttle signal, and applying power to the motor in accordance with the transition signal. For example, a binary throttle signal of 6 volts may be associated with a power level having a one hundred percent duty cycle, and a transition signal based on the binary throttle signal may cause a delay in applying the one hundred percent duty cycle to the motor. The delay may be accompanied by, for example, ramping up a duty cycle, and/or delaying applying any power to the motor following a direction shift. Also among other things, new claim 72 recites generating a transition signal in response to detecting an activation level of a binary throttle signal to cause a delay in applying to a motor a maximum power level associated with the activation level of the binary throttle signal, and applying power to the motor in accordance with the transition signal. The cited references fail to disclose or teach the features of new claims 62 and 72. Accordingly, new claims 62 and 72 and their respective dependent claims are allowable over the cited references.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Enclosed is a check in the amount of $1020.00 for payment of the Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 3/18/05

Spencer C. Patterson
Reg. No. 43,849

PTO Customer No. 26231
Fish & Richardson P.C.
5000 Bank One Center
1717 Main Street
Dallas, Texas 75201
Telephone: (214) 292-4082
Facsimile: (214) 747-2091

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3-21-05 GW 3618

Attorney's Docket No.: 14489-004001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al.
Serial No. : 10/076,795
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Art Unit : 3618
Examiner : Bridget D. Avery

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION FOR THREE-MONTH EXTENSION OF TIME

Pursuant to 37 CFR §1.136, applicant hereby petitions that the period for response to the action dated September 20, 2004, be extended for three months to and including March 20, 2005.

Enclosed is a check in the amount of $1020.00 for the required fee. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 3/18/05

Spencer C. Patterson
Reg. No. 43,849

PTO Customer No. 26231
Fish & Richardson P.C.
5000 Bank One Center
1717 Main Street
Dallas, Texas 75201
Telephone: (214) 292-4082
Facsimile: (214) 747-2091

90116263.doc

03/22/2005 BABRAHA1 00000044 061050 10076795
01 FC:1253 1020.00 OP

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03/18/2005
Date of Deposit

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al. Art Unit : 3618
Serial No. : 10/076,795 Examiner : Bridget D. Avery
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PAYMENT OF FEE DEFICIENCY

In connection with a response to an office action filed on May 4, 2004, Applicant petitioned for a two month extension of time and paid an extension of time fee in the amount of $210.00, which corresponds to the then-current small entity extension of time fee for a response filed within the second month. Applicant did not, however, assert an entitlement to be accorded small entity status in filing the response. In addition, Applicant established itself as a non-small entity by way of a petition filed April 17, 2002, which was granted in a decision mailed May 3, 2002. Accordingly, the U.S. Patent and Trademark Office should have deducted $210.00 from Deposit Account Number 06-1050 as authorized in the petition for extension of time filed on May 4, 2004.

Enclosed is a check in the amount of $210.00 for payment of the fee deficiency discussed above. No other fees are believed to be due at this time. However, if Applicant is incorrect, please apply any charges or credits to Deposit Account Number 06-1050 referencing the Attorney Docket Number listed above.

Adjustment date: 03/22/2005 BABRAHA1
05/10/2004 MBERHE 00000044 10076795
01 FC:2252 -210.00 OP

03/22/2005 BABRAHA1 00000044 061050 10076795
02 FC:1252 30.00 DA 420.00 OP

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EV 325808848 US

March 18, 2005
Date of Deposit

Respectfully submitted,

Date: 3/18/05

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90116278.doc

BEST AVAILABLE COPY

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number
10/076795
50097-805PT

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	45	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	45 minus 20=	* 25
INDEPENDENT CLAIMS	8 minus 3 =	* 5
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	225	OR	X$18=	
X42=	210	OR	X84=	
+140=		OR	+280=	
TOTAL	805	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 41	Minus	** 41	=
Independent	* 3	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 06/29/2005

FISH & RICHARDSON P.C.
1717 MAIN STREET
SUITE 5000
DALLAS, TX 75201

EXAMINER	
AVERY, BRIDGET D	

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-10,41,46-53 and 58-80* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 6-10, 41, 46-53 and 58-80* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 4, 7, 9, 10, 41, 46, 48, 50, 52, 53, 60-65, 67-69 and 71-80 are rejected under 35 U.S.C. 102(b) as being anticipated by Mezzatesta, Jr. et al. (US Patent 5,349,276).

Mezzatesta, Jr. et al. teaches a method for controlling acceleration of a toy vehicle similar to applicant's, the method including:

- Detecting a change in a throttle/speed monitor signal from a first level to a second level (i.e. either high or low), the throttle signal being operable to induce motion via a motor (14), as taught in column 6, lines 27-68
- Generating a transition/command signal based on the change in the throttle signal, as taught in column 3, lines 8, lines 6-25
- The transition/command signal including at least one signal level intermediate to a third signal level (high or low at full speed or jog speed) corresponding to the first level (i.e. either high or low)
- A fourth signal level corresponding to the second level (inherent since each of the three monitor signals change state, changes from low to high or an error is indicated)

- Transition from the third signal level to at least one intermediate level to the fourth signal level occurs over a significantly longer time period than a time period for change in the throttle signal from the first level to the second level, as clearly taught in Figure 2.
- The transition signal is a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle including a signal level of the transition signal, see column 5, lines 33-37
- The motor includes a high and low terminal, as defined by the high and low output
- The transition/command signal ramps power to the motor, as taught in column 7, lines 28-61
- Regarding claim 9, applicant's attention is directed to column 5, lines 6-19
- Regarding claim 10, applicant's attention is directed to column 7, lines 62-68 and column 8, lines 1-25
- A binary switch/contactor (22)
- Regarding claim 61, applicant's attention is directed to column 5, lines 33-37
- Regarding claim 71, applicant's attention is directed to column 4, lines 23-43.

Claim Rejections - 35 USC § 103

The following is a quotation of 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 of this title, 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.

2. Claims 3, 47, 66 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mezzatesta, Jr. et al. ('276).

Mezzatesta, Jr. et al. teaches the claimed invention except for a pulse width modulation range from approximately a 20 percent to approximately a 100 percent duty cycle.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a pulse width modulation range from approximately a 20 percent to approximately a 100 percent duty cycle, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

3. Claims 6, 8, 49, 51, 58, 59 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mezzatesta, Jr. et al. ('276) in view of Porter et al. (US Patent 5,056,613).

Mezzatesta, Jr. et al. lacks the teaching of transitioning the motor from a first to a second angular velocity.

Porter et al. teaches the operation of transitioning the motor from a first to a second angular velocity. The transition from the first to the second angular velocity is non-linear or substantially linear. The transition signal ramps power to the motor. Porter et al. further teaches a vehicle with signals received from an operator in physical contact with the vehicle.

Based on the teachings of Porter et al., it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the system of Mezzatesta, Jr. et al. to include the operation of transitioning the motor from a first to a second angular velocity to regulate the motor based no demand to prevent overrunning. It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to receive signals from an operator in physical contact with the vehicle to base vehicle output demand on rider/user input.

Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Bridget Avery at telephone number 571-272-6691.

Avery

June 9, 2005

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/076,795	NORMAN ET AL.
	Examiner	Art Unit
	Bridget Avery	3618

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	6/9/2005	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

ISSUE SLIP STAPLE AREA (for additional cross-references)

ISSUING CLASSIFICATION			
ORIGINAL		CROSS REFERENCE(S)	
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)
INTERNATIONAL CLASSIFICATION			
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/			^ Continued on Issue Slip Inside File Jacket

INDEX OF CLAIMS

✓ ..... Rejected – (Through numeral) ... Canceled N ..... Non-elected A ..... Appeal
= ..... Allowed + ... Restricted I ..... Interference O ..... Objected

Claim		Date									
Final	Original										
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If more than 150 claims or 9 actions staple additional sheet her

JM 4/8/04 4/2/02

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Bib Data Sheet

CONFIRMATION NO. 3663

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/076,795	02/12/2002 RULE	180	3618	50097-8USPT

APPLICANTS

David A. Norman, Greenville, TX;
Robert H. Mimlitch III, Rowlett, TX;
Richard Torrance, Greenville, TX;

** CONTINUING DATA ********** yes BA

This appln claims benefit of 60/268,447 02/12/2001

** FOREIGN APPLICATIONS ********** none BA

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 04/01/2002

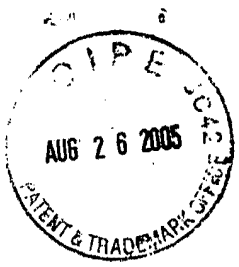
Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☑ no 35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance Verified and Acknowledged B. Avery Examiner's Signature Initials	TX	13	45	8

ADDRESS
26231

TITLE
System, apparatus, and method for providing control of a toy vehicle

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
1740	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

8-29-05



Reply under 37 CFR 1.116
-- Expedited Procedure --
Examining Group 3618

Attorney's Docket No.: 14489-004001

AF
3618
JFW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al.
Serial No. : 10/076,795
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Art Unit : 3618
Examiner : Bridget D. Avery

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY TO FINAL OFFICE ACTION OF JUNE 29, 2005

Claims 1-4, 6-10, 41, 46-53, and 58-80 are pending in the application and were rejected in an Office Action dated June 29, 2005. Applicant respectfully requests reconsideration of the rejections in view of the following remarks.

Claims 1, 2, 4, 7, 9, 10, 41, 46, 48, 50, 52, 53, 60-65, 67-69, and 71-80 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mezzatesta, Jr. et al., U.S. Patent No. 5,349,276. The Mezzatesta reference teaches a motor control system for controlling the speed of a motor in accordance with a predetermined motor speed profile (see abstract). The system described in Mezzatesta is intended to control the operation of a motor in an amusement park ride in accordance with a predetermined speed profile (see col. 1, lines 16-48).

Independent claim 1 recites detecting a change in a throttle signal from a first level to a second level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle. The Examiner cites the speed monitoring signals of Mezzatesta as corresponding to the throttle signal of the claim. The speed monitoring signals are not throttle signals, however, because they are not operable to induce motion via a motor operating as a drive mechanism. The speed monitoring signals are generated in response to a detected speed of the disclosed motor and are used to identify states of the motor (see col. 5, line 61, to col. 6, line 68).

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EV 718963865 US

August 26, 2005
Date of Deposit

The reference, therefore, fails to teach or suggest all of the claim limitations, and claim 1 as well as its dependent claims are allowable over the cited reference.

Independent claim 41 similarly recites instructions that cause a processor to detect a change in a throttle signal from a firs level to a second level. The throttle signal is operable to induce motion via a motor operating as a drive mechanism of the toy vehicle. Independent claim 62 recites detecting a binary throttle signal. The binary throttle signal is operable to induce motion using a motor operating as a drive mechanism of the toy vehicle. Independent claim 72 recites detecting an activation level of a binary throttle signal. The activation level of the binary throttle signal is operable to induce motion using a motor operating as a drive mechanism of a toy vehicle. Accordingly, claims 41, 62, and 72 and their respective dependent claims are allowable for the same reasons stated in connection with claim 1.

Claims 6, 8, 49, 51, 58, 59, and 70 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mezzatesta, Jr. et al. in view of Porter et al., U.S. Patent No. 5,056,613. The Porter et al. reference, however, fails to remedy the deficiencies of the Mezzatesta reference because, for example, there is simply no teaching or suggestion in the combination of references to detect a change in a throttle signal, as recited and defined in claim 1, and to generate a transition signal based on the change in the throttle signal, as recited and defined in claim 1.

Furthermore, it is insufficient to merely assert some alleged motivation to combine the references. Instead, there must be a motivation or suggestion for one of ordinary skill in the art to combine the references in a manner that meets the claim limitations. The Office Action fails to recite any such motivation. For example, the Office Action reads "[i]t would have been obvious to one having ordinary skill in the art . . . to receive signals from an operator in physical contact with the vehicle." There is no basis, however, to equate any teaching or suggestion in the Porter reference of signals received from an operator with the speed monitoring signals taught in Mezzatesta, which are alleged to correspond to the throttle signal of the claims. Accordingly, the Porter reference fails to remedy the deficiencies of the Mezzatesta reference, and the claims are allowable over the cited art.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Applicant believes that no fee is due at this time. Please apply any charges or credits, however, to deposit account 06-1050.

Respectfully submitted,

Date: 8/26/05

Spencer C. Patterson
Reg. No. 43,849

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EA

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 09/14/2005

FISH & RICHARDSON P.C.
1717 MAIN STREET
SUITE 5000
DALLAS, TX 75201

EXAMINER	
AVERY, BRIDGET D	

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action Before the Filing of an Appeal Brief	Application No. 10/076,795	Applicant(s) NORMAN ET AL.	
	Examiner Bridget Avery	Art Unit 3618	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 26 August 2005 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *1-4, 6-10, 41, 46-53 and 58-80*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____
13. ☐ Other: _____.

RUTH ILAN
PRIMARY EXAMINER 9/8/05

Continuation of 11. does NOT place the application in condition for allowance because: Contrary to applicant's remarks, the drive signals (not the speed monitoring signals) operate the same as applicant's claimed "throttle signal". The drive signals control operation of the motor as described in column 4, lines 1-22.

BRIDGET AVERY
PATENT EXAMINER 9/08/05

Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination
10/076,795	NORMAN ET AL.
Examiner	**Art Unit**
Bridget Avery	3618

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	9/7/2005	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

11-02-05 RCE

FISH & RICHARDSON P.C. Substitute Form PTO/SB/30 (5-03) TPW

Request For Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

OIPE IAP15 OCT 31 2005 PATENT & TRADEMARK OFFICE

Application Number	10/076,795
Filing Date	February 12, 2002
First Named Inventor	Norman et al.
Group Art Unit	3618
Examiner Name	Bridget D. Avery
Attorney Docket Number	14489-004001

This is a Request for Continued Examination (RCE) under 37 C.F.R. §1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 C.F.R. §1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s)

a. ☒ Previously submitted. If a final Office action is outstanding, any amendment filed after the final Office action may be considered as a submission even if this box is not checked.

i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

ii. ☒ Other Reply to Final Office Action of June 29, 2005 filed August 26, 2005

b. ☒ Enclosed

i. ☐ Amendment/Reply

ii. ☐ Affidavit(s)/Declaration(s)

iii. ☐ Information Disclosure Statement (IDS)

iv. ☒ Other Petition for One-Month Extension and Acknowledgement Postcard

2. Miscellaneous

a. ☒ Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of one month. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. §1.17(i) required)

b. ☐ Other _____

3. Fee The RCE fee under 37 C.F.R. §1.17(e) is required by 37 C.F.R. §1.114 when the RCE is filed.

a. ☒ The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No. 06-1050

i. ☐ RCE fee required under 37 CFR 1.17(e)

ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

iii. ☒ Other Any deficiencies

b. ☒ Check in the amount of $790.00 for RCE filing fee and $120.00 for extension fee enclosed

c. ☐ Payment by credit card (Form PTO-2038 enclosed)

SIGNATURE OF APPLICANT, ATTORNEY OR AGENT REQUIRED

Name (Print/Type)	Spencer C. Patterson	*Registration No. (Attorney/Agent)*	43,849
Signature		*Date*	October 31, 2005

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service as express mail No. EV718964667US in an envelope addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Name (Print/Type)	Pat Bradford		
Signature		*Date*	October 31, 2005

11/03/2005 SSITHIB1 00000014 10076795
01 FC:1801 790.00 OP

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Norman et al. Art Unit : 3618
Serial No. : 10/076,795 Examiner : Bridget D. Avery
Filed : February 12, 2002
Title : SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION FOR ONE-MONTH EXTENSION OF TIME

Pursuant to 37 CFR §1.136, applicant hereby petitions that the period for response to the action dated June 29, 2005, be extended to and including October 31, 2005.

Enclosed is a check for $120 for the required fee. Please apply any deficiencies or any other required fees or any credits to deposit account 06-1050, referencing the attorney docket number shown above.

Respectfully submitted,

Date: October 31, 2005

Spencer C. Patterson
Reg. No. 43,849

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90148877.doc

11/03/2005 SSITHIB1 00000014 10076795
02 FC:1251 120.00 OP

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EV718964667US

October 31, 2005
Date of Deposit

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number
10/076795
50097-805PT

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	45	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	45 minus 20=	* 25
INDEPENDENT CLAIMS	8 minus 3 =	* 5
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	225	OR	X$18=	
X42=	210	OR	X84=	
+140=		OR	+280=	
TOTAL	805	OR	TOTAL	

10-31-05

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 41	Minus	** 41	=
Independent	* 3	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

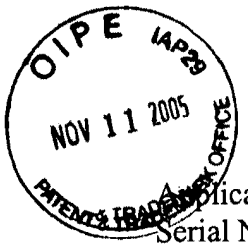
AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

11-14-05

3618
TFW



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Norman et al.	Art Unit	: 3618
Serial No.	: 10/076,795	Examiner	: Bridget D. Avery
Filed	: February 12, 2002		
Title	: SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT IN REPLY TO ACTIONS OF JUNE 29 AND SEPTEMBER 14, 2005

Please amend the above-identified application as follows:

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EV 718964018 US

November 11, 2005
Date of Deposit

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, said method comprising:

detecting a change in a throttle signal from a first level to a second level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle in response to a throttle switch controlled by a person;

generating a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

applying the transition signal to affect operation of the motor.

2. (Previously Presented) The method according to claim 1, wherein the transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

3. (Original) The method according to claim 1, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

4. (Original) The method according to claim 1, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

5. (Canceled)

6. (Previously Presented) The method according to claim 1, wherein the operation of the motor comprises a substantially linear transition from a first angular velocity to a second angular velocity.

7. (Previously Presented) The method according to claim 1, wherein the transition signal ramps power to the motor.

8. (Previously Presented) The method according to claim 1, wherein the operation of the motor comprises a non-linear transition from a first angular velocity to a second angular velocity.

9. (Previously Presented) The method according to claim 1, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

10. (Currently Amended) The method according to claim 1, further comprising:

receiving a shift signal indicative of an activation of a control for changing a direction of motion for the toy vehicle;

responsive to the shift signal and if power is being applied to the motor,

initiating a delay; and

applying the transition signal to the motor.

11-40. (Canceled).

41. (Currently Amended) A computer-readable medium having stored thereon sequences of instructions, wherein the sequences of instructions include instructions, when executed by a processor, that cause the processor to:

detect a change in a throttle signal from a first level to a second level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle

in response to a switch controlled by a person;

generate a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

apply the transition signal to effect operation of a motor operating within a toy vehicle.

42-45. (Canceled)

46. (Previously Presented) The computer readable medium of claim 41, wherein the transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

47. (Previously Presented) The computer readable medium of claim 41, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

48. (Previously Presented) The computer readable medium of claim 41, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

49. (Previously Presented) The computer readable medium of claim 41, wherein the operation of the motor comprises a substantially linear transition from a first angular velocity to a second angular velocity.

50. (Previously Presented) The computer readable medium of claim 41, wherein the transition signal ramps power to the motor.

51. (Previously Presented) The computer readable medium of claim 41, wherein the operation of the motor comprises a non-linear transition from a first angular velocity to a second angular velocity.

52. (Previously Presented) The computer readable medium of claim 41, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

53. (Previously Presented) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

receive a shift signal indicative of an activation of a control for changing a direction of motion for the toy vehicle;

if power is being applied to the motor,

initiate a delay; and

apply the transition signal to the motor.

54-57. (Canceled)

58. (Previously Presented) The computer readable medium of claim 41, wherein the throttle signal is received from an operator in physical contact with the toy vehicle.

59. (Previously Presented) The method of claim 1, wherein the throttle signal is received from an operator in physical contact with the toy vehicle.

60. (Previously Presented) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

detect a change in the throttle signal from the second level to the first level followed by a second change in the throttle signal from the first level to the second level within a predetermined time;

generate a second transition signal in response to detecting the second change within the predetermined time of detecting the change from the second level to the first level, the second transition signal operable to ramp up power to the motor starting from a power level that depends on a time duration between the change from the second level to the first level and the second change.

61. (Previously Presented) The computer readable medium of claim 60, wherein the power to the motor is ramped up by increasing a duty cycle of a pulse width modulation.

62. (Currently Amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, the method comprising:

detecting a binary throttle signal produced in response to a throttle switch controlled by a person, the binary throttle signal operable to induce motion using a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the binary throttle signal to cause a delay in applying to the motor a power level associated with the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

63. (Previously Presented) The method of claim 62 wherein the binary throttle signal is generated by a binary switch.

64. (Previously Presented) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a second power level and generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level.

65. (Previously Presented) The method of claim 64 wherein the transition signal comprises a pulse width modulated signal.

66. (Previously Presented) The method of claim 65 wherein the first power level corresponds to a twenty percent duty cycle level of the transition signal and the second power level corresponds to a one hundred percent duty cycle level of the transition signal.

67. (Previously Presented) The method of claim 62 wherein generating a transition signal comprises delaying applying power to the motor in response to a shift signal for changing a direction of motion for the toy vehicle.

68. (Previously Presented) The method of claim 62 wherein:

detecting the binary throttle signal comprises detecting a change, within a predetermined time period, from a high signal to a low signal followed by a change from the low signal to the high signal, the low signal operable to remove power from the motor;

the power level associated with the binary throttle signal comprises a second power level and the second power level is associated with the high signal; and

generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level, wherein the first power level depends upon an amount of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

69. (Previously Presented) The method of claim 68 wherein the first power level is determined in accordance with an algorithm that decreases the first power level with increasing amounts of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

70. (Previously Presented) The method of claim 69 wherein the algorithm calculates the first power level using a linear decay from a one hundred percent duty cycle to a twenty percent duty cycle.

71. (Previously Presented) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a voltage with a one hundred percent duty cycle.

72. (Previously Presented) An article comprising a machine-readable medium storing instructions for causing data processing apparatus to perform operations comprising:

detecting an activation level of a binary throttle signal produced in response to a throttle switch controlled by a person, the activation level of the binary throttle signal operable to induce motion using a motor operating as a drive mechanism of a toy vehicle;

generating a transition signal in response to detecting the activation level of the binary throttle signal to cause a delay in applying to the motor a maximum power level associated with the activation level of the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

73. (Previously Presented) The article of claim 72 wherein the binary throttle signal is generated by a binary switch.

74. (Previously Presented) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level.

75. (Previously Presented) The article of claim 74 wherein the transition signal comprises a pulse width modulated signal.

76. (Previously Presented) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises delaying applying power to the motor in response to a shift signal operable to effect a change in a direction of motion for the toy vehicle.

77. (Previously Presented) The article of claim 72 wherein the instructions further cause data processing apparatus to perform operations comprising:

detecting a change in the binary throttle signal from the activation level to a deactivation level followed, within a predetermined time period, by a change from the deactivation level to the activation level, the deactivation level operable to remove power from the motor; and

wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level, wherein the first power level depends upon an amount of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

78. (Previously Presented) The article of claim 77 wherein the first power level is determined in accordance with an algorithm that provides a decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

79. (Previously Presented) The article of claim 78 wherein the algorithm provides a linearly decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

80. (Previously Presented) The method of claim 72 wherein:

the power level associated with the activation level of the binary throttle signal comprises a direct current voltage; and

applying power to the motor in accordance with the transition signal comprises applying a pulse width modulated voltage with an increasing duty cycle to the motor.

81. (New) The method of claim 1 wherein activation and deactivation of the throttle are each determined by actions of a person.

REMARKS

Claims 1-4, 6-10, 41, 46-53, and 58-80 are pending in the application and were rejected in an Office Action dated June 29, 2005. Claims 1, 10, 41, and 62 have been amended, and new claim 81 is added. Applicant respectfully requests reconsideration of the rejections in view of the following remarks.

Claims 1, 2, 4, 7, 9, 10, 41, 46, 48, 50, 52, 53, 60-65, 67-69, and 71-80 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mezzatesta, Jr. et al., U.S. Patent No. 5,349,276. The Mezzatesta reference teaches a motor control system for controlling the operation of a motor in an amusement park ride in accordance with a predetermined speed profile (see col. 1, lines 16-48; col. 4, lines 19-20). The described system includes a relatively complex assembly of a speed monitoring interface unit, a ride control computer, and a variable frequency drive signal generator (VFD) (see col. 3, line 66, to col. 4, line 22). The speed monitoring interface unit monitors the motor speed and compares it against a motor speed profile to determine if there are discrepancies (see col. 4, lines 7-11). The ride control computer provides motor command signals to the VFD, receives speed monitor signals from the speed monitoring interface unit, and checks for the occurrence of unexpected combinations of signal values for purposes of ensuring that the motor operates in accordance with the predetermined motor speed profile (see col. 4, lines 2-22).

Claim 1 has been amended to draw further attention to the recitation of the throttle signal being operable to induce motion of a toy vehicle in response to a throttle controlled by a person. Similarly, the claim recites a method for controlling acceleration of a toy vehicle configured to be operated by a person. The Mezzatesta reference is unrelated to such techniques, and the reference fails to teach or suggest controlling motion of a toy vehicle operated by a person. Instead, the reference describes a complex control system for a computer-controlled amusement park ride. In the Advisory Action dated September 14, 2005, the Examiner asserts that the drive signals of the Mezzatesta reference operate the same as the claimed throttle signal. Contrary to this assertion, the drive signals are not produced in response to a throttle controlled by a person,

nor are they for operating a toy vehicle. Accordingly, claim 1 and its dependent claims are allowable over the cited art.

Furthermore, claim 2 recites that the transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, and each different duty cycle comprises a signal level of the transition signal. The Examiner asserts that the Mezzatesta reference teaches this limitation because the reference mentions pulse-width signals at col. 5, lines 33-37. The reference, however, does not teach or suggest different duty cycles or pulse width modulation. Instead, the reference teaches pulse-width signals having a varying frequency (e.g., the signals are produced by a variable frequency drive signal generator). Accordingly, claim 2 is further allowable over the cited art.

Claim 4 recites that the motor includes a high and low terminal with the transition signal being applied to the low terminal of the motor. The reference does not teach or suggest applying a transition signal to a low terminal of a motor, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such a limitation. Accordingly, claim 4 is further allowable over the cited art.

Claim 10 recites receiving a shift signal indicative of an activation of a control for changing a direction of motion for a toy vehicle; responsive to the shift signal and if power is being applied to the motor, a delay is initiated, and a transition signal is applied to the motor. The Examiner cites the Mezzatesta reference, at col. 7, line 62, to col. 8, line 25, as teaching the limitations of claim 10. However, neither the cited portions of the reference nor any other part of the reference teach or suggest, among other things, receiving a shift signal indicative of an activation of a control for changing a direction of motion for a toy vehicle or initiating a delay in response to the shift signal. Accordingly, claim 10 is further allowable over the cited art.

Independent claims 41, 62, and 72 recite limitations similar to that of claim 1. In particular, the claims recite a switch controlled by a person that is used to produce a throttle signal and that the throttle signal is operable to induce motion via a motor operating as a drive mechanism of a toy vehicle. Accordingly, for reasons stated above in connection with claim 1, claims 41, 62, and 72 and their respective dependent claims are also allowable over the cited art.

Claim 46 includes limitations similar to those of claim 2 and is further allowable over the cited art for the reasons discussed above in connection with claim 2.

Claim 48 includes limitations similar to those of claim 4 and is further allowable over the cited art for the reasons discussed above in connection with claim 4.

Claim 53 includes limitations similar to those of claim 10 and is further allowable over the cited art for the reasons discussed above in connection with claim 10.

Claim 60, which depends from claim 41, recites instructions that cause a processor to detect a change in the throttle signal from the second level to the first level followed by a second change in the throttle signal from the first level to the second level within a predetermined time. A second transition signal is generated in response to detecting the second change within the predetermined time of detecting the change from the second level to the first level, and the second transition signal is operable to ramp up power to the motor starting from a power level that depends on a time duration between the change from the second level to the first level and the second change. The reference does not teach or suggest the limitations of claim 60, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 60 is further allowable over the cited art.

Claim 61, which depends from claim 60, recites that power to the motor is ramped up by increasing a duty cycle of a pulse width modulation. The Examiner asserts that the Mezzatesta reference teaches this limitation because the reference mentions pulse-width signals at col. 5, lines 33-37. The reference, however, does not teach or suggest increasing a duty cycle or a pulse width modulation. Instead, the reference teaches pulse-width signals having a varying frequency (e.g., the signals are produced by a variable frequency drive signal generator). Accordingly, claim 61 is further allowable over the cited art.

Claim 63 recites that the binary throttle signal is generated by a binary switch. The Examiner apparently asserts that the contactor 22 of the Mezzatesta reference corresponds to the binary switch recited in the claim. However, the disclosed contactor does not generate the signal that the Examiner asserts is the throttle signal, as recited in claim 63. Accordingly, claim 63 is further allowable over the cited art.

Claim 67 includes a limitation similar to some of the limitations of claim 10 and is further allowable over the cited art for the reasons discussed above in connection with claim 10.

Claim 68 includes limitations similar to those of claim 60 and is further allowable over the cited art for the reasons discussed above in connection with claim 60.

Claim 69 is dependent on claim 68 and recites that the first power level is determined in accordance with an algorithm that decreases the first power level with increasing amounts of time between the change from the high signal to the low signal and the change from the low signal to the high signal. The reference does not teach or suggest such a technique, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such a limitation. Accordingly, claim 69 is further allowable over the cited art.

Claim 73 includes a limitation similar to the limitation of claim 63 and is further allowable over the cited art for the reasons discussed above in connection with claim 63.

Claim 76 includes a limitation similar to some of the limitations of claim 10 and is further allowable over the cited art for the reasons discussed above in connection with claim 10.

Claim 77 includes limitations similar to the limitations of claim 60 and is further allowable over the cited art for the reasons discussed above in connection with claim 60.

Claim 78 includes limitations similar to the limitations of claim 69 and is further allowable over the cited art for the reasons discussed above in connection with claim 69.

Claims 6, 8, 49, 51, 58, 59, and 70 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Mezzatesta in view of Porter et al., U.S. Patent No. 5,056,613. The Porter reference discloses a vehicle speed control system (i.e., for a vehicle cruise control) for reducing audible gear chatter. As such, the Porter reference is entirely unrelated to the Mezzatesta reference. The Office Action asserts that it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to combine the references to reach the limitations of certain claims. There is no motivation or suggestion to combine the references, however, and the reasons provided in the Office Action constitute an improper hindsight reconstruction of the invention. Accordingly, claims 6, 8, 49, 51, 58, 59, and 70 are allowable over the cited art.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

No fee is believed to be due at this time. However, if Applicant is incorrect, please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 11/11/05

Spencer C. Patterson
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90149733.doc

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PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2001

Application or Docket Number
10/076795
50097-80 SPT

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	45	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	45 minus 20=	* 25
INDEPENDENT CLAIMS	8 minus 3 =	* 5
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X$ 9=	225	OR	X$18=	
X42=	210	OR	X84=	
+140=		OR	+280=	
TOTAL	805	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 41	Minus	** 41	=
Independent	* 3	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

11/11/05

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 42	Minus	** 45	=
Independent	* 4	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 03/08/2006

FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-10,41,46-53 and 58-80* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-10,41,46-53 and 58-80* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4, 7, 9, 10, 41, 46-48, 50, 52, 53 and 60-80 are rejected under 35 U.S.C. 102(b) as being anticipated by Ribbe (US Patent 5,994,853).

Ribbe teaches a method for controlling acceleration of a toy vehicle similar to applicant's, the method including:

- Detecting a change in a throttle/speed monitor signal from a first level to a second level (see column 3, lines 28-33 and column 4, lines 52-63), the throttle signal being operable to induce motion via a motor (14), as taught in column 6, lines 15-48
- Generating a transition/command signal based on the change in the throttle signal, as taught in column 6, lines 15-48
- The transition/command signal including at least one signal level intermediate to a third signal level corresponding to the first level
- A fourth signal level corresponding to the second level
- Transition from the third signal level to at least one intermediate level to the fourth signal level occurs over a significantly longer time period than a time

period for change in the throttle signal from the first level to the second level, as taught in column 6, lines 49-65

- The transition signal is a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle including a signal level of the transition signal, see column 6, lines 15-48
- The motor includes a high and low terminal, as defined by the high and low output
- The transition/command signal ramps power to the motor, as taught in column 6, lines 66-67 and column 7, lines 1-8
- Regarding claim 9, applicant's attention is directed to column 5, lines 6-19
- Regarding claim 10, applicant's attention is directed to column 6, lines 49-54
- A binary switch/contactor (22)
- Regarding claim 61, applicant's attention is directed to column 5, lines 33-37
- Regarding claim 71, applicant's attention is directed to column 4, lines 23-43.

2. Claims 1-4, 7, 9, 10, 41, 46, 48, 50, 52, 53, 58-65, 67-69 and 71-80 are rejected under 35 U.S.C. 102(b) as being anticipated by Berman et al. (US Patent 3,732,751).

Berman et al. teaches a method for controlling acceleration of a toy vehicle similar to applicant's, the method including:

- Detecting a change in a throttle/speed monitor signal from a first level to a second level (see column 3, lines 1-9 and column 4, lines 48-68), the throttle

signal being operable to induce motion via a motor (14), as taught in column 6, lines 13-25

- Generating a transition/command signal based on the change in the throttle signal
- The transition/command signal including at least one signal level intermediate to a third signal level corresponding to the first level
- A fourth signal level corresponding to the second level
- The transition signal is a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle including a signal level of the transition signal
- The motor includes a high and low terminal, as defined by the high and low output
- The transition/command signal ramps power to the motor
- Re claim 58 and 59, see column 10, lines 64-67

Claim Rejections - 35 USC § 103

The following is a quotation of 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 of this title, 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.

3. Claims 6, 8, 49 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ribbe ('853) in view of Porter et al. (US Patent 5,056,613).

Ribbe lacks the teaching of transitioning the motor from a first to a second angular velocity.

Porter et al. teaches the operation of transitioning the motor from a first to a second angular velocity. The transition from the first to the second angular velocity is non-linear or substantially linear. The transition signal ramps power to the motor.

Based on the teachings of Porter et al., it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the system of Ribbe to include the operation of transitioning the motor from a first to a second angular velocity to regulate the motor based no demand to prevent overrunning.

4. Claims 6, 8, 49, 51 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berman et al.('751) in view of Porter et al. (US Patent 5,056,613).

Berman et al. lacks the teaching of transitioning the motor from a first to a second angular velocity.

Porter et al. teaches the operation of transitioning the motor from a first to a second angular velocity. The transition from the first to the second angular velocity is non-linear or substantially linear. The transition signal ramps power to the motor.

Based on the teachings of Porter et al., it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the system of Berman et al. to include the operation of transitioning the motor from a first to a second angular velocity to regulate the motor based no demand to prevent overrunning.

Response to Arguments

5. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication should be directed to Bridget Avery at telephone number 571-272-6691.

Avery

March 3, 2006

3/6/06

PAUL N. DICKSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Notice of References Cited	Application/Control No. 10/076,795	Applicant(s)/Patent Under Reexamination NORMAN ET AL.	
	Examiner Bridget Avery	Art Unit 3618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-3,732,751	05-1973	Berman et al.	475/2
*	B	US-5,762,532	06-1998	Ishizuka et al.	446/457
*	C	US-5,951,362	09-1999	Siu, Wai-Hung	446/462
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	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.

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	3/3/2006	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/076,795	NORMAN ET AL.
Examiner	**Art Unit**
Bridget Avery	3618

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date
Final	Original	3/3/06
	1	✓
	2	✓
	3	✓
	4	✓
	~~5~~	–
	6	–
	7	✓
	8	✓
	9	✓
	10	✓
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	~~40~~	–
	41	✓
	~~42~~	–
	~~43~~	–
	~~44~~	–
	~~45~~	–
	46	✓
	47	✓
	48	✓
	49	✓
	50	✓

Claim		Date
Final	Original	05/23/06
	51	✓
	52	✓
	53	✓
	~~54~~	–
	~~55~~	–
	~~56~~	–
	~~57~~	–
	58	✓
	59	✓
	60	✓
	61	✓
	62	✓
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Claim		Date
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Norman et al.	Art Unit	: 3618
Serial No.	: 10/076,795	Examiner	: Bridget D. Avery
Filed	: February 12, 2002	Conf. No.	: 3663
Title	: SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT IN REPLY TO ACTION OF MARCH 8, 2006

Please amend the above-identified application as follows:

Amendments to the Claims

Please cancel claims 58 and 59 without prejudice.

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, said method comprising:

detecting a change in a throttle signal from a first level to a second level or from the second level to the first level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle in response to a throttle switch controlled by a person in physical contact with the toy vehicle, wherein the first level corresponds to the throttle signal produced when the person engages the throttle switch, and wherein the second level corresponds to the throttle signal produced when the person disengages the throttle switch;

generating a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

applying the transition signal to affect operation of the motor.

2. (Previously Presented) The method according to claim 1, wherein the transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

3. (Currently Amended) The method according to claim ~~1~~2, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

4. (Original) The method according to claim 1, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

5. (Canceled)

6. (Previously Presented) The method according to claim 1, wherein the operation of the motor comprises a substantially linear transition from a first angular velocity to a second angular velocity.

7. (Previously Presented) The method according to claim 1, wherein the transition signal ramps power to the motor.

8. (Previously Presented) The method according to claim 1, wherein the operation of the motor comprises a non-linear transition from a first angular velocity to a second angular velocity.

9. (Previously Presented) The method according to claim 1, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

10. (Previously Presented) The method according to claim 1, further comprising:

receiving a shift signal indicative of an activation of a control for changing a direction of motion for the toy vehicle;

responsive to the shift signal and if power is being applied to the motor,

initiating a delay; and

applying the transition signal to the motor.

11-40. (Canceled)

41. (Currently Amended) A computer-readable medium having stored thereon sequences of instructions, wherein the sequences of instructions include instructions, when executed by a processor, that cause the processor to:

detect a change in a throttle signal from a first level to a second level or a second level to a first level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle in response to a switch controlled by a person in physical contact with the toy vehicle, wherein the first level corresponds to the throttle signal produced when the person engages the throttle switch, and wherein the second level corresponds to the throttle signal produced when the person disengages the throttle switch;

generate a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

apply the transition signal to effect operation of a motor operating within a toy vehicle.

42-45. (Canceled)

46. (Previously Presented) The computer readable medium of claim 41, wherein the transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

47. (Currently Amended) The computer readable medium of claim ~~41~~46, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

48. (Previously Presented) The computer readable medium of claim 41, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

49. (Previously Presented) The computer readable medium of claim 41, wherein the operation of the motor comprises a substantially linear transition from a first angular velocity to a second angular velocity.

50. (Previously Presented) The computer readable medium of claim 41, wherein the transition signal ramps power to the motor.

51. (Previously Presented) The computer readable medium of claim 41, wherein the operation of the motor comprises a non-linear transition from a first angular velocity to a second angular velocity.

52. (Previously Presented) The computer readable medium of claim 41, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

53. (Previously Presented) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

receive a shift signal indicative of an activation of a control for changing a direction of motion for the toy vehicle;

if power is being applied to the motor,

initiate a delay; and

apply the transition signal to the motor.

54-59. (Canceled)

60. (Previously Presented) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

detect a change in the throttle signal from the second level to the first level followed by a second change in the throttle signal from the first level to the second level within a predetermined time;

generate a second transition signal in response to detecting the second change within the predetermined time of detecting the change from the second level to the first level, the second transition signal operable to ramp up power to the motor starting from a power level that depends on a time duration between the change from the second level to the first level and the second change.

61. (Previously Presented) The computer readable medium of claim 60, wherein the power to the motor is ramped up by increasing a duty cycle of a pulse width modulation.

62. (Currently Amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, the method comprising:

detecting a binary throttle signal produced ~~in response to a throttle switch controlled by~~ when a person in physical contact with the toy vehicle engages a throttle switch, wherein the binary throttle signal is not produced when the person disengages the throttle switch, and wherein the binary throttle signal is operable to induce motion using a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the binary throttle signal to cause a delay in applying to the motor a power level associated with the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

63. (Previously Presented) The method of claim 62 wherein the binary throttle signal is generated by a binary switch.

64. (Previously Presented) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a second power level and generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level.

65. (Previously Presented) The method of claim 64 wherein the transition signal comprises a pulse width modulated signal.

66. (Previously Presented) The method of claim 65 wherein the first power level corresponds to a twenty percent duty cycle level of the transition signal and the second power level corresponds to a one hundred percent duty cycle level of the transition signal.

67. (Previously Presented) The method of claim 62 wherein generating a transition signal comprises delaying applying power to the motor in response to a shift signal for changing a direction of motion for the toy vehicle.

68. (Previously Presented) The method of claim 62 wherein:

detecting the binary throttle signal comprises detecting a change, within a predetermined time period, from a high signal to a low signal followed by a change from the low signal to the high signal, the low signal operable to remove power from the motor;

the power level associated with the binary throttle signal comprises a second power level and the second power level is associated with the high signal; and

generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level, wherein the first power level depends upon an amount of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

69. (Previously Presented) The method of claim 68 wherein the first power level is determined in accordance with an algorithm that decreases the first power level with increasing amounts of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

70. (Previously Presented) The method of claim 69 wherein the algorithm calculates the first power level using a linear decay from a one hundred percent duty cycle to a twenty percent duty cycle.

71. (Previously Presented) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a voltage with a one hundred percent duty cycle.

72. (Currently Amended) An article comprising a machine-readable medium storing instructions for causing data processing apparatus to perform operations comprising:

detecting an activation ~~level~~ of a binary throttle signal produced ~~in response to a throttle switch controlled by~~ when a person in physical contact with the toy vehicle engages a throttle switch, wherein the binary throttle signal is not produced when the person disengages the throttle switch, and wherein the activation ~~level~~ of the binary throttle signal is operable to induce motion using a motor operating as a drive mechanism of a toy vehicle;

generating a transition signal in response to detecting the activation level of the binary throttle signal to cause a delay in applying to the motor a maximum power level associated with the activation level of the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

73. (Previously Presented) The article of claim 72 wherein the binary throttle signal is generated by a binary switch.

74. (Previously Presented) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level.

75. (Previously Presented) The article of claim 74 wherein the transition signal comprises a pulse width modulated signal.

76. (Previously Presented) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises delaying applying power to the motor in response to a shift signal operable to effect a change in a direction of motion for the toy vehicle.

77. (Previously Presented) The article of claim 72 wherein the instructions further cause data processing apparatus to perform operations comprising:

detecting a change in the binary throttle signal from the activation level to a deactivation level followed, within a predetermined time period, by a change from the deactivation level to the activation level, the deactivation level operable to remove power from the motor; and

wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level, wherein the first power level depends upon an amount of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

78. (Previously Presented) The article of claim 77 wherein the first power level is determined in accordance with an algorithm that provides a decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

79. (Previously Presented) The article of claim 78 wherein the algorithm provides a linearly decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

80. (Previously Presented) The method of claim 72 wherein:

the power level associated with the activation level of the binary throttle signal comprises a direct current voltage; and

applying power to the motor in accordance with the transition signal comprises applying a pulse width modulated voltage with an increasing duty cycle to the motor.

81. (Previously Presented) The method of claim 1 wherein activation and deactivation of the throttle are each determined by actions of a person.

REMARKS

Claims 1-4, 6-10, 41, 46-53 and 60-81 are pending in the application and were rejected in an Office Action dated March 8, 2006 ("Office Action"). Claims 1, 3, 41, 47, 62, and 72 were amended. No new matter has been added with the amendments. Claims 58 and 59 were cancelled. Applicant respectfully requests reconsideration of the rejections in view of the following remarks.

Section 102 Rejections

Claims 1-4, 7, 9, 10, 41, 46-48, 50, 52, 53, and 60-80 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,994,853 ("*Ribbe*"). The *Ribbe* reference teaches a remote-control toy vehicle that includes a battery electronically coupled to a motor through a speed control system (*Ribbe*, col. 3, lines 13-15). The described remote-control toy vehicle includes an antenna that receives a digital speed control signal from an operator-controlled transmitter unit and delivers the received signal to the speed control system (*Ribbe*, column 3, lines 23-25). The speed control system decodes the received signal to identify which one of a multiplicity of possible speed control states is being requested by the operator (*Ribbe*, column 3, lines 23-27).

Claim 1 recites a method for controlling acceleration of a toy vehicle. Toy vehicles, as described in the Applicant's Specification, generally include ride-on and ride-in vehicles, including but not limited to, automobiles, trucks, boats, airplanes, scooters, etc. (Applicant's Specification, page 2, lines 10-14). Claim 1 has been amended to further draw attention to the recitation of a toy vehicle that uses a throttle switch controlled by a person in physical contact with the toy vehicle. Claim 1 also recites:

> detecting a change in a throttle signal from a first level to a second level or from the second level to the first level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle in response to a throttle switch controlled by a person in physical contact with the toy vehicle, wherein the first level corresponds to the throttle signal produced when the person engages the

throttle switch, and wherein the second level corresponds to the throttle signal produced when the person disengages the throttle switch; and

generating a transition signal based on the change in the throttle signal.

The *Ribbe* reference does not teach methods of controlling acceleration of a toy vehicle and/or a throttle signal in response to a throttle switch controlled by a person in physical contact with a toy vehicle. Instead, the *Ribbe* reference teaches remotely controlling a toy.

Furthermore, claim 1 recites a first level corresponds to a throttle signal produced when a person engages a throttle switch and a second level corresponds to a throttle signal produced when a person disengages a throttle switch. The *Ribbe* reference teaches a remote controlled vehicle with multiple possible speed control states.

The toy industry and makers of toy vehicles are very cost sensitive due to consumer pricing demands and productions costs. (Applicant's Specification, page 4, lines 20-22). Thus, to reduce costs and meet pricing demands, it is desirable to produce toy vehicles in which engaging a throttle switch causes a signal at a first level (e.g., a vehicle receives power corresponding to a first level when a throttle switch is engaged). When a toy vehicle is only provided with one signal level produced when a throttle switch is engaged, as in claim 1, safety issues for a person operating a toy vehicle and wear on mechanical parts of a toy vehicle are concerns.

Safety is a concern when a toy vehicle is provided with one power level. Since people are in physical contact with toy vehicles, as opposed to the remote control vehicles described in the *Ribbe* reference, it is important to reduce the chance that a toy vehicle might flip. Toy vehicles may flip or turnover due to excessive acceleration when a power level is suddenly delivered to a toy vehicle that is not moving (Applicant's Specification, page 6, lines 3-5). By generating a transition signal that is an intermediate signal, as in claim 1, excessive acceleration can be reduced.

Additionally, excessive acceleration may cause wheels of a toy vehicle to lose traction, especially on wet surfaces. Toy manufacturers have also been developing toy vehicles with more speed and power thereby resulting in the exacerbation of these problems (Applicant's Specification, page 6, lines 6-12). Wheel traction for a toy vehicle is an important safety concern since a loss in traction may also result in a toy vehicle becoming uncontrollable for an operator and passengers. By generating a transition signal, as in claim 1, excessive acceleration of a toy vehicle with one signal level produced by engaging a throttle switch can be reduced.

Sudden changes in power level caused by a person engaging a throttle switch that produces a signal at one level, can also wear out motors, gears, and other mechanical parts of a toy vehicle (see Applicant's Specification, page 5, line 5-page 6, line 2). By generating a transition signal, as in claim 1, that is an intermediate signal, wear on mechanical parts can be reduced.

Accordingly, safety and mechanical wearing concerns exist for toy vehicles in which engaging a throttle switch produces a signal level. Due to cost demands of the industry, increasing safety and lifespan of toy vehicles within the context of less expensive switches are desirable, as opposed to the more expensive variable speed control systems as described by the *Ribbe* reference, and thus solutions provided for variable speed systems are not applicable. Accordingly, claim 1 and the claims dependent thereon are allowable over the cited art.

Claim 4 recites a motor includes a high and low terminal and a transition signal is applied to a low terminal of a motor. The *Ribbe* reference does not teach or suggest applying a transition signal to a low terminal of a motor, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such a limitation. Accordingly, claim 4 is further allowable over the cited art.

Claim 10 recites receiving a shift signal indicative of an activation of a control for changing a direction of motion for a toy vehicle, and responsive to a shift signal, and if power is being applied to the motor, initiating a delay and applying a transition signal to a motor. *Ribbe*

does not teach or suggest initiating a delay in response to a shift signal indicating a change of direction of motion for a toy vehicle. *Ribbe* teaches using a filter to prevent switching between multiple (e.g., three or more) consecutive speed control states (e.g., a PWM signal has a duty cycle of about 100 percent in response to a full forward throttle speed control state, a PWM signal has a duty cycle of about 80 percent in response to a medium forward speed control state, and a PWM signal has a duty cycle of about 40 percent in response to a minimum forward speed control state) too quickly (*Ribbe*, column 6, lines 49-51). Accordingly, claim 10 is further allowable over the cited art.

Independent claims 41, 62, and 72 recite limitations similar to that of claim 1. In particular, the claims recite a throttle signal in response to a throttle switch controlled by a person in physical contact with the toy vehicle. Accordingly, for reasons stated above in connection with claim 1, claims 41, 62, and 72 and their respective dependent claims are also allowable over the cited art.

Claim 48 includes similar limitations to those of claim 4 and is further allowable over the cited art for the reasons discussed above in connection with claim 4.

Claim 53 includes similar limitations to those of claim 10 and is further allowable over the cited art for the reasons discussed above in connection with claim 10.

Claim 60, which depends from claim 41, recites instructions that cause a processor to detect a change in a throttle signal from a second level to a first level followed by a second change in a throttle signal from a first level to a second level within a predetermined time. Claim 60 also recites, a second transition signal is generated in response to detecting a second change within a predetermined time of detecting a change from a second level to a first level, and a second transition signal is operable to ramp up power to a motor starting from a power level that depends on a time duration between the change from the second level to the first level and the second change. The *Ribbe* reference does not teach or suggest the limitations of claim 60, nor

does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 60 is further allowable over the cited art.

Claim 67, which depends on claim 62, recites generating a transition signal comprises delaying applying power to a motor in response to a shift signal for changing a direction of motion for a toy vehicle. Claim 67 has similar limitations to those of claim 10 and is further allowable over the cited art for the reasons discussed above in connection with claim 10.

Claim 69 recites the first power level is determined in accordance with an algorithm that decreases a first power level with increasing amounts of time between a change from a high signal to a low signal and a change from a low signal to a high signal. The *Ribbe* reference does not teach or suggest the limitations of claim 69, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 69 is further allowable over the cited art.

Claim 76 recites that generating a transition signal to cause a delay in applying a maximum power level to a motor comprises delaying applying power to a motor in response to a shift signal operable to effect a change in a direction of motion for a toy vehicle. For the reasons stated above in connection with claim 10, the *Ribbe* reference does not teach or suggest this limitation. Accordingly, claim 76 is further allowable over the cited art.

Claim 78 includes similar limitations to those of claim 69 and is further allowable over the cited art for the reasons discussed above in connection with claim 69.

Claims 1-4, 7, 9, 10, 41, 46, 48, 50, 52, 53, 58-65, 67-69, and 71-80 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,732,751 ("*Berman et al.*"). The *Berman* reference teaches mechanical power transmissions for use in ground transportation vehicles such as personal or mass transit vehicles (see column 1, lines 11-14). The power in the described transmission varies directly with speed (see column 4, lines 3-4).

Claim 1 recites a method for controlling acceleration of a toy vehicle. Toy vehicles, as discussed above, generally include ride-on and ride-in vehicles, including but not limited to, automobiles, trucks, boats, airplanes, scooters, etc. (Applicant's Specification, page 2, lines 10-14). Claim 1 also includes, in part, generating a transition signal based on the change in the throttle signal. The *Berman* reference is not directed to toy vehicles nor does it teach or suggest generating a transition signal based on a change in a throttle signal. The Office Action also does not include a citation to any portion of the reference that is asserted to teach such a limitation. Accordingly, claim 1 is allowable over the cited art.

Claim 2 recites a transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of a transition signal. The *Berman* reference does not teach or suggest the limitations of claim 2, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 2 is further allowable over the cited art.

Claim 3 depends on claim 2 and recites a pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle. The *Berman* reference does not teach or suggest the limitations of claim 3, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 3 is further allowable over the cited art.

Claim 4 recites wherein a motor includes a high and low terminal and a transition signal is applied to a low terminal of a motor. The *Berman* reference does not teach or suggest the limitations of claim 4, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 4 is further allowable over the cited art.

Claim 7 recites a transition signal ramps power to a motor. The *Berman* reference does not teach or suggest the limitations of claim 7, nor does the Office Action include a citation to

any portion of the reference that is asserted to teach such limitations. Accordingly, claim 7 is further allowable over the cited art.

Claim 9 recites a change in a throttle signal from a first level to a second level comprises a binary step function and a transition of a transition signal occurs over a time span of at least one second. The *Berman* reference does not teach or suggest the limitations of claim 9, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 9 is further allowable over the cited art.

Claim 10 recites receiving a shift signal indicative of an activation of a control for changing a direction of motion for a toy vehicle, and responsive to a shift signal, and if power is being applied to the motor, initiating a delay and applying a transition signal to a motor. The *Berman* reference does not teach or suggest the limitations of claim 10, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 10 is further allowable over the cited art.

Independent claims 41, 62, and 72 recite limitations similar to that of claim 1. In particular, the claims recite generating a transition signal based on the change in a throttle signal. Accordingly, for reasons stated above in connection with claim 1, claims 41, 62, and 72 and their respective dependent claims are also allowable over the cited art.

Claim 46 includes similar limitations to those of claim 2 and is further allowable over the cited art for the reasons discussed above in connection with claim 2.

Claim 48 includes similar limitations to those of claim 4 and is further allowable over the cited art for the reasons discussed above in connection with claim 4.

Claim 50 includes similar limitations to those of claim 7 and is further allowable over the cited art for the reasons discussed above in connection with claim 7.

Claim 52 includes similar limitations to those of claim 9 and is further allowable over the cited art for the reasons discussed above in connection with claim 9.

Claim 53 includes similar limitations to those of claim 10 and is further allowable over the cited art for the reasons discussed above in connection with claim 10.

Claim 60 recites generating a second transition signal in response to detecting a second change within a predetermined time of detecting the change from a second level to a first level, a second transition signal operable to ramp up power to a motor starting from a power level that depends on a time duration between a change from a second level to a first level and a second change. The *Berman* reference does not teach or suggest the limitations of claim 60, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 60 is further allowable over the cited art.

Claim 61 depends on claim 60 and recites power to a motor is ramped up by increasing a duty cycle of a pulse width modulation. The *Berman* reference does not teach or suggest the limitations of claim 61, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 61 is further allowable over the cited art.

Claim 65 recites wherein a transition signal comprises a pulse width modulated signal. The *Berman* reference does not teach or suggest the limitations of claim 65, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 65 is further allowable over the cited art.

Claim 67, which depends on claim 62, recites generating a transition signal comprises delaying applying power to a motor in response to a shift signal for changing a direction of motion for a toy vehicle. Claim 67 has similar limitations to those of claim 10 and is further allowable over the cited art for the reasons discussed above in connection with claim 10.

Claim 68 recites generating a transition signal comprises generating a transition signal operable to increase power applied to a motor over a period of time from a first power level to a second power level, wherein a first power level depends upon an amount of time between a change from a high signal to a low signal and a change from a low signal to a high signal. The *Berman* reference does not teach or suggest the limitations of claim 68, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 68 is further allowable over the cited art.

Claim 69 recites a first power level is determined in accordance with an algorithm that decreases a first power level with increasing amounts of time between the change from a high signal to a low signal and a change from a low signal to a high signal. The *Berman* reference does not teach or suggest the limitations of claim 69, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 69 is further allowable over the cited art.

Claim 71 depends on claim 62 and recites a power level associated with a binary throttle signal comprises a voltage with a one hundred percent duty cycle. The *Berman* reference does not teach or suggest the limitations of claim 71, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 71 is further allowable over the cited art.

Claim 74 recites generating a transition signal to cause a delay in applying to a motor a maximum power level comprises generating a transition signal operable to increase power applied to a motor over a period of time from a first power level to a maximum power level. The *Berman* reference does not teach or suggest the limitations of claim 74, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 74 is further allowable over the cited art.

Claim 75 includes similar limitations to those of claim 65 and is further allowable over the cited art for the reasons discussed above in connection with claim 65.

Claim 76 recites wherein generating a transition signal to cause a delay in applying to a motor a maximum power level comprises delaying applying power to a motor in response to a shift signal operable to effect a change in a direction of motion for a toy vehicle. For the reasons stated above in connection with claim 10, the *Ribbe* reference does not teach or suggest this limitation. Accordingly, claim 76 is further allowable over the cited art.

Claim 77 recites wherein generating a transition signal to cause a delay in applying to a motor a maximum power level comprises generating a transition signal operable to increase power applied to a motor over a period of time from a first power level to a maximum power level, wherein a first power level depends upon an amount of time between a change from an activation level to a deactivation level and the change from a deactivation level to an activation level. The *Berman* reference does not teach or suggest the limitations of claim 77, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 77 is further allowable over the cited art.

Claim 78 includes similar limitations to those of claim 69 and is further allowable over the cited art for the reasons discussed above in connection with claim 69.

Claim 79 depends on claim 78 and recites an algorithm provides a linearly decreasing first power level with increasing amounts of time between the change from an activation level to a deactivation level and a change from a deactivation level to an activation level. The *Berman* reference does not teach or suggest the limitations of claim 79, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 79 is further allowable over the cited art.

Claim 80 recites applying power to a motor in accordance with a transition signal comprises applying a pulse width modulated voltage with an increasing duty cycle to a motor. The *Berman* reference does not teach or suggest the limitations of claim 80, nor does the Office Action include a citation to any portion of the reference that is asserted to teach such limitations. Accordingly, claim 80 is further allowable over the cited art.

Section 103 Rejections

Claims 6, 8, 49, and 51 stand rejected under 35 U.S.C. § 103(a) as being anticipated by *Ribbe* in view of U.S. Patent No. 5,056,613 ("*Porter et al.*"). For the reasons discussed above in connection with claim 1, *Ribbe* does not teach or suggest all the limitations of the claims, such as, for example, methods of controlling acceleration of a toy vehicle and receiving a throttle signal from an operator in physical contact with a toy vehicle. In addition, the *Porter* reference also fails to teach at least these features of the claims. The Office Action also does not include a citation to any portion of the *Porter* reference that is asserted to teach such limitations. Accordingly, the claims are allowable over the cited art.

Claims 6, 8, 49, 51, and 70 stand rejected under 35 U.S.C. § 103(a) as being anticipated by *Berman* in view of *Porter*. For the reasons discussed above in connection with claim 2, *Berman* does not teach or suggest all the limitations of the claims, such as, for example, methods of controlling acceleration of a toy vehicle and receiving a throttle signal from an operator in physical contact with a toy vehicle. In addition, the *Porter* reference also fails to teach at least these features of the claims. The Office Action also does not include a citation to any portion of the *Porter* reference that is asserted to teach such limitations. Accordingly, the claims are allowable over the cited art.

CONCLUSION

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

An Petition for a Three-Month Extension of Time with the required $1,020.00 filing fee is being filed concurrently with this Amendment in Reply to Action of March 8, 2006. If any additional extension of time is required, Applicant hereby requests the appropriate extension of time. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: September 7, 2006

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90180612.doc

Electronic Patent Application Fee Transmittal

Application Number:	10076795
Filing Date:	12-Feb-2002
Title of Invention:	System, apparatus, and method for providing control of a toy vehicle
First Named Inventor:	David A. Norman
Filer:	Elizabeth Philip/Della Gonzales
Attorney Docket Number:	50097-8USPT

Filed as Large Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	1253	1	1020	1020

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**1020**

Electronic Acknowledgement Receipt

EFS ID:	1190805
Application Number:	10076795
Confirmation Number:	3663
Title of Invention:	System, apparatus, and method for providing control of a toy vehicle
First Named Inventor:	David A. Norman
Customer Number:	26231
Filer:	Elizabeth Philip/Susan Williams
Filer Authorized By:	Elizabeth Philip
Attorney Docket Number:	50097-8USPT
Receipt Date:	07-SEP-2006
Filing Date:	12-FEB-2002
Time Stamp:	18:41:17
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$1020
RAM confirmation Number	558
Deposit Account	061050

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages

1	Extension of Time	PTO.pdf	72233	no	1
Warnings:					
Information:					
2		Amendment.pdf	143314	yes	24

	Multipart Description		
	Doc Desc	**Start**	**End**
	Amendment - After Non-Final Rejection	1	1
	Claims	2	12
	Applicant Arguments/Remarks Made in an Amendment	13	24

Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	8155	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	223702		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Norman et al.	Art Unit	: 3618
Serial No.	: 10/076,795	Examiner	: Bridget D. Avery
Filed	: February 12, 2002	Conf. No.	: 3663
Title	: SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION FOR THREE-MONTH EXTENSION OF TIME

Pursuant to 37 CFR §1.136, applicant hereby petitions that the period for response to the action dated March 8, 2006, be extended for three months to and including September 8, 2006.

An Amendment in Reply to Action of March 8, 2006 being filed concurrently with this Petition for Three-Month Extension of Time.

Please charge $1,020.00 for the required fee and apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: September 7, 2006

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PATENT APPLICATION FEE DETERMINATION RECORD
Effective December 8, 2004

10/076795

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS		
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	minus 20=	
INDEPENDENT CLAIMS	minus 3 =	
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE		OR	BASIC FEE	
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL			TOTAL	

CLAIMS AS AMENDED - PART II 9-7-06

AMENDMENT A		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
	Total	* 40	Minus	** 45	=
	Independent	* 5	Minus	*** 8	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL ADDIT FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT FEE	

AMENDMENT C		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 25=		OR	X$50=	
X100=		OR	X200=	
+180=		OR	+360=	

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
		("toyvehicle"and((motororthrottleorspeed)withsignal)").PN.	USPAT	OR	OFF	2006/02/28 07:27
		"180"/$.ccls. and (toy or child$) same vehicle))	USPAT	OR	OFF	2006/11/07 15:26
L1	1525	"180"/$.ccls. and motor and ((throttle or accelerator) with signal)	USPAT	OR	OFF	2006/11/07 15:28
L2	1511	1 and (level or speed)	USPAT	OR	OFF	2006/11/07 15:29
L3	1366	2 and time	USPAT	OR	OFF	2006/11/07 15:29
L4	30	3 and "throttle signal"	USPAT	OR	OFF	2006/11/07 16:32
L5	11724	((computer with medium) with processor)	USPAT	OR	OFF	2006/11/07 16:25
L6	5466	((computer with medium) with processor).clm.	USPAT	OR	OFF	2006/11/07 16:25
L7	4046	((computer adj2 medium) with processor).clm.	USPAT	OR	OFF	2006/11/07 16:25
L8	5	7 and (throttle with signal)	USPAT	OR	OFF	2006/11/07 16:26
L9	13	4 and (motor same switch)	USPAT	OR	OFF	2006/11/07 16:33
S1	1	("5762532").PN.	USPAT; USOCR	OR	OFF	2004/09/14 10:22
S2	1	S1 and throttle	USPAT	OR	ON	2004/09/14 10:24
S3	2	(("5056613") or ("6287167")).PN.	USPAT; USOCR	OR	OFF	2004/09/14 10:24
S4	2	S3 and throttle	USPAT	OR	ON	2004/09/14 10:26
S5	2	S3 and (time or second or minute)	USPAT	OR	ON	2004/09/14 10:26
S6	1	("5829948").PN.	USPAT; USOCR	OR	OFF	2003/07/14 08:55
S7	26	("2050000" | "2614800" | "2804218" | "3045847" | "3176858" | "3262566" | "3325023" | "3727773" | "3822023" | "3944083" | "4005793" | "4050599" | "4219186" | "4288195" | "4331324" | "4403680" | "4421209" | "4488326" | "4491449" | "4511110" | "4708576" | "4726724" | "4765487" | "4884454" | "5156238" | "5244336").PN.	USPAT	OR	OFF	2003/07/14 07:26
S8	10	"5829948".URPN.	USPAT	OR	OFF	2003/07/14 07:27
S9	0	("batteryandmotorandcircuitandterminal").PN.	USPAT; USOCR	OR	OFF	2003/07/14 08:56
S10	17398	battery and motor and circuit and terminal	USPAT	OR	OFF	2003/07/14 08:56
S11	2122	(battery and motor and circuit and terminal) and software	USPAT	OR	OFF	2003/07/14 08:56
S12	2	((battery and motor and circuit and terminal) and software) and 'throttle signal'	USPAT	OR	OFF	2003/12/01 11:27
S13	0	processor and 'throttle signal' and 'transistion signal'	USPAT	OR	OFF	2003/07/14 09:00
S14	0	motor and 'throttle signal' and 'transistion signal'	USPAT	OR	OFF	2003/07/14 09:00
S15	0	processor and motor and 'throttle signal' and 'transition signal'	USPAT	OR	OFF	2003/07/14 09:01
S16	41	processor and motor and 'throttle signal'	USPAT	OR	OFF	2003/07/14 09:04
S17	40	method with disabl? with vehicle	USPAT	OR	OFF	2003/07/14 09:04
S18	245	method with disabl$ with vehicle	USPAT	OR	OFF	2003/07/14 09:05
S19	68	(method with disabl$ with vehicle) and (battery and motor)	USPAT	OR	OFF	2003/07/14 09:05
S20	61	(((method with disabl$ with vehicle) and (battery and motor)) and switch	USPAT	OR	OFF	2003/07/14 09:06
S21	4	(((method with disabl$ with vehicle) and (battery and motor)) and switch) and 'switch signal'	USPAT	OR	OFF	2003/07/16 17:52
S22	0	"20020157887"	USOCR	OR	OFF	2003/07/16 17:53
S23	2	"20020157887"	US-PGPUB; DERWENT	OR	OFF	2003/07/22 09:03
S24	675	(caddy or cart) and divider	USPAT	OR	OFF	2003/07/22 13:49
S25	270	((caddy or cart) and divider) and (channel or channels)	USPAT	OR	OFF	2003/07/22 16:03
S26	14	("3492016" | "4243340" | "4542777" | "4793508" | "4864334" | "4953878" | "5464237" | "5570895" | "5961134" | "6010145" | "6050660" | "6073737" | "6073943" | "6193247").PN.	USPAT	OR	OFF	2003/07/22 13:51
S27	14	("3492016" | "4243340" | "4542777" | "4793508" | "4864334" | "4953878" | "5464237" | "5570895" | "5961134" | "6010145" | "6050660" | "6073737" | "6073943" | "6193247").PN.	USPAT	OR	OFF	2003/07/22 13:58
S28	7	"3492016".URPN.	USPAT	OR	OFF	2003/07/23 14:32
S29	1	("6073943").PN.	USPAT; USOCR	OR	OFF	2003/07/23 14:29
S30	0	(("6073943").PN.) and (nest or nestable or nesting or stacked or stack or stacking)	USPAT	OR	OFF	2003/07/22 16:04
S31	6	"2246545"	USPAT	OR	OFF	2003/07/23 14:32
S32	5	"2246545"	EPO; JPO; DERWENT	OR	OFF	2003/07/23 14:32
S33	9	(throttle with signal) and motor and toy	USPAT	OR	OFF	2003/12/01 11:47
S34	3	(throttle with signal) same motor and toy and "pulse width"	USPAT	OR	OFF	2003/12/01 11:46
S35	0	((throttle with signal) same motor and toy and "pulse width") and velocity	USPAT	OR	OFF	2003/12/01 12:15
S36	0	(throttle with signal) same motor and toy and "pulse width" and velocity	USPAT	OR	OFF	2003/12/01 12:14
S37	207	(throttle with signal) and motor and velocity and "pulse width"	USPAT	OR	OFF	2003/12/01 11:47
S38	80	((throttle with signal) and motor and velocity and "pulse width") and "duty cycle"	USPAT	OR	OFF	2003/12/01 12:09
S39	3	(((throttle with signal) and motor and velocity and "pulse width") and "duty cycle") and "throttle signal"	USPAT	OR	OFF	2003/12/01 11:48
S40	13	(((throttle with signal) and motor and velocity and "pulse width") and "duty cycle") and (motor with (high or low))	USPAT	OR	OFF	2003/12/01 11:56
S41	0	(((throttle with signal) and motor and velocity and "pulse width") and "duty cycle") and (motor with terminal with (high or low))	USPAT	OR	OFF	2003/12/01 11:57
S42	0	((throttle with signal) and motor and velocity and "pulse width") and "% duty cycle"	USPAT	OR	OFF	2003/12/01 12:09
S43	20	((throttle with signal) and motor and velocity and "pulse width") and (percent with "duty cycle")	USPAT	OR	OFF	2003/12/01 12:09
S44	1006	motor and "pulse width" and velocity and "duty cycle"	USPAT	OR	OFF	2003/12/01 12:36
S45	58	(motor and "pulse width" and velocity and "duty cycle") and (throttle adj3 signal)	USPAT	OR	OFF	2003/12/01 12:36

EAST Search History

S46	26	((motor and "pulse width" and velocity and "duty cycle") and (throttle adj3 signal)) and batter$	USPAT	OR	OFF	2003/12/01 12:22
S47	137	motor and "pulse width" and (velocity with linear) and "duty cycle"	USPAT	OR	OFF	2003/12/01 12:36
S48	1	(motor and "pulse width" and (velocity with linear) and "duty cycle") and (throttle adj3 signal)	USPAT	OR	OFF	2003/12/01 12:49
S49	1810	"toy vehicle" or "toy car" and motor and "pulse width" and velocity and (throttle adj3 signal)	USPAT	OR	OFF	2003/12/01 12:50
S50	0	("toy vehicle" or "toy car") and motor and "pulse width" and velocity and (throttle adj3 signal)	USPAT	OR	OFF	2003/12/01 12:50
S51	2	("toy vehicle" or "toy car") and motor and "pulse width" and (throttle adj3 signal)	USPAT	OR	OFF	2003/12/01 12:54
S52	215	("toy vehicle" or "toy car") and (motor with (off or disabl$))	USPAT	OR	OFF	2003/12/01 12:55
S53	156	("toy vehicle" or "toy car") and (motor with (off or disabl$)) and battery	USPAT	OR	OFF	2003/12/01 12:56
S54	48	("toy vehicle" or "toy car") and (motor with (off or disabl$)) and battery and signal	USPAT	OR	OFF	2003/12/01 12:57
S55	16	("toy vehicle" or "toy car") and (motor adj3 (off or disabl$)) and battery and signal	USPAT	OR	OFF	2003/12/01 12:57
S56	109	"180"/$.ccls. and (toy same vehicle)	USPAT	OR	OFF	2003/12/01 13:42
S57	421	"180"/$.ccls. and ((toy or child$) same vehicle)	USPAT	OR	OFF	2003/12/01 13:42
S58	11	("180"/$.ccls. and ((toy or child$) same vehicle)) and motor and "pulse width"	USPAT	OR	OFF	2003/12/01 13:42
S59	1	("6287167").PN.	USPAT; USOCR	OR	OFF	2004/09/01 14:39
S60	0	"446"/$.ccls and (motor with velocity)	USPAT	OR	ON	2004/09/01 15:13
S61	0	"446"/$.ccls and (motor with angular)	USPAT	OR	ON	2004/09/01 14:40
S62	0	"446"/$.ccls and (motor with angl$)	USPAT	OR	ON	2004/09/01 14:41
S63	45	"446"/$.ccls. and (motor with velocity)	USPAT	OR	ON	2004/09/01 15:03
S64	7	("446"/$.ccls. and (motor with velocity)) and (throttle or valve)	USPAT	OR	ON	2004/09/01 15:03
S65	21	("446"/$.ccls. and (motor with velocity)) and (throttle or signal)	USPAT	OR	ON	2004/09/01 15:14
S66	0	"180"/$.ccls and (motor with velocity)	USPAT	OR	ON	2004/09/01 15:14
S67	750	"180"/$.ccls. and (motor with velocity)	USPAT	OR	ON	2004/09/01 15:24
S68	605	("180"/$.ccls. and (motor with velocity)) and (throttle or signal)	USPAT	OR	ON	2004/09/01 15:24
S69	67	("180"/$.ccls. and (motor with velocity)) and (throttle with signal)	USPAT	OR	ON	2004/09/01 15:24
S70	44	(("180"/$.ccls. and (motor with velocity)) and (throttle with signal)) and (velocity with signal)	USPAT	OR	ON	2004/09/01 15:15
S71	163	"180"/$.ccls. and (motor adj3 velocity)	USPAT	OR	ON	2004/09/01 15:24
S72	143	("180"/$.ccls. and (motor adj3 velocity)) and (throttle or signal)	USPAT	OR	ON	2004/09/01 15:24
S73	13	("180"/$.ccls. and (motor adj3 velocity)) and (throttle with signal)	USPAT	OR	ON	2004/09/02 11:57
S74	4	(("180"/$.ccls. and (motor adj3 velocity)) and (throttle with signal)) and (motor with low)	USPAT	OR	ON	2004/09/02 11:58
S75	286	(motor adj3 velocity) and ((throttle or speed or pedal or lever) with signal) and vehicle	USPAT	OR	ON	2004/09/02 12:41
S76	145	((motor adj3 velocity) and ((throttle or speed or pedal or lever) with signal) and vehicle) and (motor with low)	USPAT	OR	ON	2004/09/02 12:46
S77	157	((motor adj3 velocity) and ((throttle or speed or pedal or lever) with signal) and vehicle) and (motor same (low and high))	USPAT	OR	ON	2004/09/02 13:10
S78	58	(((motor adj3 velocity) and ((throttle or speed or pedal or lever) with signal) and vehicle) and (motor same (low and high))) and (motor same terminal)	USPAT	OR	ON	2004/09/02 13:10
S79	166	((280/14.26) or (280/624)).CCLS.	USPAT; USOCR	OR	OFF	2004/09/02 14:57
S80	1	("6217039").PN.	USPAT; USOCR	OR	OFF	2004/09/02 15:06
S81	41	("Re32346" | "0831210" | "2009684" | "2112052" | "2391720" | "2497175" | "2523449" | "2603889" | "2734284" | "2745196" | "2746117" | "3027658" | "3045367" | "3058241" | "3389481" | "3744163" | "3993318" | "3997985" | "4060918" | "4083128" | "4126323" | "4554749" | "4839972" | "4944099" | "4998358" | "5388846" | "5400484" | "5408763" | "5452907" | "5459949" | "5475936" | "5484149" | "5498009" | "5645288" | "5678833" | "5682687" | "5741018" | "5836592" | "5842293" | "5934693" | "6050574").PN.	USPAT	OR	ON	2004/09/02 14:57
S82	4	"6217039".URPN.	USPAT	OR	ON	2004/09/02 15:00
S83	1	("5836592").PN.	USPAT; USOCR	OR	OFF	2004/09/02 15:27
S84	6	("3202434" | "3993318" | "4932675" | "5498009" | "5645288" | "5741018").PN.	USPAT	OR	ON	2004/09/02 15:06
S85	6	"5836592".URPN.	USPAT	OR	ON	2004/09/02 15:07
S86	727	280/617	USPAT	OR	ON	2004/09/02 15:27
S87	716	((280/617) or (280/618) or (280/623)).CCLS.	USPAT; USOCR	OR	OFF	2004/09/02 15:29
S88	215	(((280/617) or (280/618) or (280/623)).CCLS.) and snowboard	USPAT	OR	ON	2004/09/02 15:53
S89	139	(280/611).CCLS.	USPAT; USOCR	OR	OFF	2004/09/02 16:06
S90	5	("3057086" | "3762075" | "3951414" | "4162089" | "4389200").PN.	USPAT	OR	ON	2004/09/02 15:56
S91	7	"4871186".URPN.	USPAT	OR	ON	2004/09/02 15:57
S92	9	"4772041".URPN.	USPAT	OR	ON	2004/09/02 15:58
S93	4	("3057086" | "3762075" | "3951424" | "4389200").PN.	USPAT	OR	ON	2004/09/02 16:00
S94	485	((280/633) or (280/634)).CCLS.	USPAT; USOCR	OR	OFF	2004/09/02 16:06
S95	71	(((280/633) or (280/634)).CCLS.) and snowboard	USPAT	OR	ON	2004/09/02 16:15
S96	58	((((motor adj3 velocity) and ((throttle or speed or pedal or lever) with signal) and vehicle) and (motor same (low and high))) and (motor same terminal)) and (low and signal)	USPAT	OR	ON	2004/09/02 16:19
S97	15	(((((motor adj3 velocity) and ((throttle or speed or pedal or lever) with signal) and vehicle) and (motor same (low and high))) and (motor same terminal)) and (low and signal)) and (low with terminal)	USPAT	OR	ON	2004/09/02 16:29
S98	2	(("6287167") or ("5056613")).PN.	USPAT; USOCR	OR	OFF	2004/09/13 16:14
S99	1	((("6287167") or ("5056613")).PN.) and (motor with direction)	USPAT	OR	ON	2004/09/13 16:17

EAST Search History

S100	0	((("6287167") or ("5056613")).PN.) and (change with direction)	USPAT	OR	ON	2004/09/13 16:18
S101	1	((("6287167") or ("5056613")).PN.) and direction	USPAT	OR	ON	2004/09/13 16:23
S102	604	toy and (vehicle or car) and motor and ((shift or signal) with (direction or turn$))	USPAT	OR	ON	2004/09/13 16:25
S103	408	(toy and (vehicle or car) and motor and ((shift or signal) with (direction or turn$))) and (toy with (vehicle or car)) and motor and ((shift or signal) with (direction or turn$))	USPAT	OR	ON	2004/09/13 16:26
S104	243	((toy and (vehicle or car) and motor and ((shift or signal) with (direction or turn$))) and (toy with (vehicle or car)) and motor and ((shift or signal) with (direction or turn$))) and (signal with motor)	USPAT	OR	ON	2004/09/13 16:26
S105	42	(toy and (vehicle or car) and motor and ((shift or signal) with (direction or turn$))) and (toy with (vehicle or car)) and motor and ((shift or signal) with change with (direction or turn$))	USPAT	OR	ON	2004/09/13 16:26
S106	32	((toy and (vehicle or car) and motor and ((shift or signal) with (direction or turn$))) and (toy with (vehicle or car)) and motor and ((shift or signal) with change with (direction or turn$))) and (signal with motor)	USPAT	OR	ON	2004/09/13 16:42
S107	24	(((toy and (vehicle or car) and motor and ((shift or signal) with (direction or turn$))) and (toy with (vehicle or car)) and motor and ((shift or signal) with change with (direction or turn$))) and (signal with motor)) and (delay or stop or pause or lull or interval)	USPAT	OR	ON	2004/09/14 10:22
S108	1	("5349276").PN.	USPAT	OR	OFF	2005/06/13 08:56
S109	1	S108 and pulse	USPAT	OR	OFF	2005/06/13 10:15
S110	1	S108 and time	USPAT	OR	OFF	2005/06/13 11:03
S111	0	S108 and (throttle and time)	USPAT	OR	OFF	2005/06/13 09:24
S112	1	S108 and (speed and time)	USPAT	OR	OFF	2005/06/13 09:24
S113	1	S108 and (motor and velocity)	USPAT	OR	OFF	2005/06/13 10:36
S114	1	S108 and (motor and velocity and linear)	USPAT	OR	OFF	2005/06/13 10:37
S115	1	S108 and (motor same velocity)	USPAT	OR	OFF	2005/06/13 10:38
S116	1	S108 and (reverse or direction)	USPAT	OR	OFF	2005/06/13 11:13
S117	1	S108 and (binary or switch)	USPAT	OR	OFF	2005/06/13 11:13
S118	1	("5349276").PN.	USPAT	OR	OFF	2005/09/07 18:01
S119	0	S118 and (throttle or pedal or lever)	USPAT	OR	OFF	2005/09/07 18:02
S120	982	(throttle adj3 signal) and (motor with signal)	USPAT	OR	OFF	2005/09/07 18:03
S121	388	(throttle adj3 signal) and (motor adj4 signal)	USPAT	OR	OFF	2005/09/07 18:03
S122	237	(throttle adj2 signal) and (motor adj4 signal)	USPAT	OR	OFF	2005/09/07 18:04
S123	110	S122 and ((transistion or change) with signal)	USPAT	OR	OFF	2005/09/08 17:30
S124	495	((snowboard or ski) with seat)	USPAT	OR	OFF	2005/09/08 17:30
S125	240	S124 and "280"/$.ccls.	USPAT	OR	OFF	2005/09/08 17:31
S126	10	("3325179" | "3588138" | "3917301" | "4193609" | "4260036" | "4632408").PN. OR ("6036202").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2005/09/08 17:32
S127	13	("1005450" | "1655713" | "3190668" | "3297334").PN. OR ("3695626").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2005/09/08 17:43
S128	2	(("3190668") or ("3297334")).PN.	USPAT	OR	OFF	2005/09/08 17:44
S129	10	(US-5289100-$ or US-5762532-$ or US-6468127-$ or US-4081729-$ or US-4328427-$ or US-5056613-$ or US-6384555-$ or US-6591178-$ or US-4706195-$ or US-5349276-$).did.	USPAT	OR	OFF	2006/02/22 08:07
S130	6	S129 and throttle	USPAT	OR	OFF	2006/02/22 08:07
S131	1	S129 and pedal	USPAT	OR	OFF	2006/02/22 08:09
S132	9	S129 and switch	USPAT	OR	OFF	2006/02/22 08:16
S133	6168	(vehicle or car or automobile) and (throttle with signal) and motor	USPAT	OR	OFF	2006/02/22 08:28
S134	2969	(vehicle or car or automobile) and (throttle with signal) and motor and ((change or transition or increase or decrease or slow$ or reduc$ or fast$) with signal)	USPAT	OR	OFF	2006/02/22 08:30
S135	13	S134 and (toy or child$)	USPAT	OR	OFF	2006/02/22 09:55
S136	1	("20020121395").PN.	US-PGPUB	OR	OFF	2006/02/22 08:43
S137	0	S136 and signal	USPAT	OR	OFF	2006/02/22 08:43

EAST Search History

S138	1	S136 and signal	US-PGPUB	OR	OFF	2006/02/22 08:43
S139	11	S135 and (signal same time)	USPAT	OR	OFF	2006/02/27 18:56
S140	1	("20020121395").PN.	US-PGPUB	OR	OFF	2006/02/28 07:26
S141	143	"toy vehicle" and ((motor or throttle or speed) with signal)	USPAT	OR	OFF	2006/02/28 07:31
S142	109	S141 and time	USPAT	OR	OFF	2006/02/28 07:30
S143	44	S141 and (time with signal)	USPAT	OR	OFF	2006/02/28 07:30
S144	60	S141 and (time same signal)	USPAT	OR	OFF	2006/02/28 07:32
S145	86	(toy adj2 (car or automobile or vehicle)) and ((motor or throttle or speed) adj5 signal)	USPAT	OR	OFF	2006/02/28 07:32
S146	53	S145 and (time same signal)	USPAT	OR	OFF	2006/03/06 12:33
S147	86	(toy adj2 (car or automobile or vehicle)) and ((motor or throttle or speed) adj5 signal)	USPAT	OR	OFF	2006/03/06 12:33
S148	53	S147 and (time same signal)	USPAT	OR	OFF	2006/03/06 12:33
S149	17	S148 and binary	USPAT	OR	OFF	2006/03/06 12:34
S150	3	(("3732751") or ("5762532") or ("5994853")).PN.	USPAT	OR	OFF	2006/03/06 12:48
S151	0	S150 and binary	USPAT	OR	OFF	2006/03/06 12:51
S152	3	S150 and switch	USPAT	OR	OFF	2006/03/06 12:51

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NOTICE OF ALLOWANCE AND FEE(S) DUE

26231 7590 11/15/2006

FISH & RICHARDSON P.C.
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EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 11/15/2006

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

TITLE OF INVENTION: SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1400	$300	$0	$1700	02/15/2007

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

26231 7590 11/15/2006

FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

TITLE OF INVENTION: SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1400	$300	$0	$1700	02/15/2007

EXAMINER	ART UNIT	CLASS-SUBCLASS
AVERY, BRIDGET D	3618	180-065100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 11/15/2006

FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 11/15/2006

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *9/07/06*.

2. ☒ The allowed claim(s) is/are *1-10,41,46-53 and 60-81*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other *See Continuation Sheet*.

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Continuation of Attachment(s) 9. Other: Note: The drawings filed on 4/23/02 are approved by the Examiner.

BRIDGET AVERY
PATENT EXAMINER
11/07/06

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3300

Notice of References Cited	Application/Control No. 10/076,795	Applicant(s)/Patent Under Reexamination NORMAN ET AL.	
	Examiner Bridget Avery	Art Unit 3618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,336,858	06-1982	Loyzim, Robert J.	180/179
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

ISSUE CLASSIFICATION

ORIGINAL			CROSS REFERENCE(S)						
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
180	65.1	446	465	484					
INTERNATIONAL CLASSIFICATION									
B 6 0 K	1/00								
	/								
	/								
	/								
	/								

Bridget Avery 11/07/06
(Assistant Examiner) (Date)

Denise Williams 11-13-06
(Legal Instruments Examiner) (Date)

CHRISTOPHER P. ELLIS 11/8/06
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600
(Primary Examiner) (Date)

Total Claims Allowed: 41

O.G. Print Claim(s)	O.G. Print Fig.
62	1

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1		31	22	61		91		121		151		181
2	2		32	23	62		92		122		152		182
11	3		33	24	63		93		123		153		183
3	4		34	25	64		94		124		154		184
4	5		35	29	65		95		125		155		185
5	6		36	30	66		96		126		156		186
6	7		37	26	67		97		127		157		187
7	8		38	27	68		98		128		158		188
8	9		39	31	69		99		129		159		189
9	10		40	32	70		100		130		160		190
	11	12	41	28	71		101		131		161		191
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	26		56		86		116		146		176		206
	27		57		87		117		147		177		207
	28		58		88		118		148		178		208
	29		59		89		119		149		179		209
	30	20	60		90		120		150		180		210

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/076,795	NORMAN ET AL.
	Examiner	Art Unit
	Bridget Avery	3618

SEARCHED			
Class	Subclass	Date	Examiner
search	updated	11/7/2006	BA

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
see	attached	11/7/2006	BA

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Allowable subject matter discussed with Chris Ellis & Chris Bottorff	11/7/2006	BA

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/076,795	NORMAN ET AL.
Examiner	**Art Unit**
Bridget Avery	3618

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date
Final	Original	11/7/06
	1	=
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Claim		Date
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Claim		Date
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	02/12/2002	David A. Norman	50097-8USPT	3663

26231 7590 01/25/2007

FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
AVERY, BRIDGET D	
ART UNIT	**PAPER NUMBER**
3618	
MAIL DATE	**DELIVERY MODE**
01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

Supplemental Notice of Allowability	Application No.	Applicant(s)	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *9/07/06*.

2. ☒ The allowed claim(s) is/are *1-4,6-10,41,46-53 and 60-81*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
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4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
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Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other *See Continuation Sheet*

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Continuation of Attachment(s) 9. Other: Note: The drawings filed on 4/23/02 are approved by the Examiner.

BRIDGET AVERY
PATENT EXAMINER

Notice of References Cited	Application/Control No. 10/076,795	Applicant(s)/Patent Under Reexamination NORMAN ET AL.	
	Examiner Bridget Avery	Art Unit 3618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,336,858	06-1982	Loyzim, Robert J.	180/179
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Norman et al.	Art Unit :	3618
Serial No.	: 10/076,795	Examiner :	Bridget D. Avery
Filed	: February 12, 2002	Confirmation No.:	3663
		Notice of Allowance Date: November 15, 2006	
Title	: SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE		

MAIL STOP ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF ALLOWANCE

In response to the Notice of Allowance mailed November 15, 2006, enclosed is a completed issue fee transmittal form PTOL-85b.

Please charge the required Issue Fee in the amount of $1,400, and Publication Fee in the amount of $300 along with any additional charges or credits to Deposit Account No. 06-1050 referencing the above attorney docket no.

Respectfully submitted,

Date: February 14, 2007

/Elizabeth Philip Dahm/
Elizabeth Philip Dahm
Reg. No. 51,352

PTO Customer No. 26231
Fish & Richardson P.C.
1717 Main Street
Suite 5000
Dallas, Texas 75201
Telephone: (214) 760-6119
Facsimile: (214) 747-2091

90211312.doc

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

26231 7590 11/15/2006

FISH & RICHARDSON P.C.
P.O. Box 1022
Minneapolis, MN 55440-1022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	**02/12/2002**	**David A. Norman**	**14489-004001**	**3663**

TITLE OF INVENTION: **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	**NO**	**$1400**	$300	**$1700**	**02/15/2007**

EXAMINER	ART UNIT	CLASS-SUBCLASS
AVERY, BRIDGET D.	**3618**	**180-065100**

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

[ ] Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

[ ] "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. **Fish & Richardson P.C.**
2. _____
3. _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE (CITY and STATE OR COUNTRY)

Innovation First, Inc. **Greenville, Texas**

Please check the appropriate assignee category or categories (will not be printed on the patent): [ ] individual [X] corporation or other private group entity [ ] government

4a. The following fee(s) are enclosed:
[X] Issue Fee
[X] Publication Fee (No small entity discount permitted)
[ ] Advance Order - # of Copies _____

4b. Payment of Fee(s):
[ ] A check in the amount of the fee(s) is enclosed.
[ ] Payment by credit card. Form PTO-2038 is attached.
[X] The Director is hereby authorized to charge the required fee(s), or credit any overpayment, to Deposit Account Number 06-1050 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

[ ].a. Applicant claims SMALL ENTITY status. See 37 CFR 1.2.7. [ ]b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.
NOTE: The issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered agent or; or the assignee or other party in interest as shown by the records of the Untied States Patent and Trademark Office.

(Authorized Signature) /Elizabeth Philip Dahm/ (Date) **February 14, 2007**

Typed or Printed Name Elizabeth Philip Dahm Registration No. 51,352

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)

Electronic Patent Application Fee Transmittal

Application Number:	10076795
Filing Date:	12-Feb-2002
Title of Invention:	SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE
First Named Inventor/Applicant Name:	David A. Norman
Filer:	Elizabeth Philip/Della Gonzales
Attorney Docket Number:	50097-8USPT

Filed as Large Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1400	1400
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1700**

Electronic Acknowledgement Receipt

EFS ID:	1516062
Application Number:	10076795
International Application Number:	
Confirmation Number:	3663
Title of Invention:	SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE
First Named Inventor/Applicant Name:	David A. Norman
Customer Number:	26231
Filer:	Elizabeth Philip/Susan Williams
Filer Authorized By:	Elizabeth Philip
Attorney Docket Number:	50097-8USPT
Receipt Date:	14-FEB-2007
Filing Date:	12-FEB-2002
Time Stamp:	16:27:03
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$1700
RAM confirmation Number	344
Deposit Account	061050

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)

1	Issue Fee Payment (PTO-85B)	Reply.pdf	326590	no	2
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8328	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	334918		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

SUPPLEMENTAL DECLARATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE, the specification of which:

[] is attached hereto.
[X] was filed on February 12, 2002 as Application Serial No. 10/076,795.
[] was described and claimed in PCT International Application No. _____ filed on _____ and as amended under PCT Article 19 on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information I know to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim the benefit under Title 35, United States Code, §119(e)(1) of any United States provisional application(s) listed below:

U.S. Serial No.	Filing Date	Status
60/268,447	02/12/2001	Expired

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information I know to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

U.S. Serial No.	Filing Date	Status

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

Country	Application No.	Filing Date	Priority Claimed
			[] Yes [] No
			[] Yes [] No

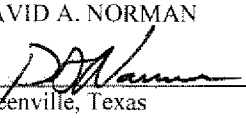
Please direct all telephone calls to ELIZABETH PHILIP DAHM at telephone number (214) 760-6119.

Please direct all correspondence to the following:

26231
PTO Customer Number

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Full Name of Inventor: DAVID A. NORMAN

Inventor's Signature:  Date: 22 FEB 07

Residence Address: Greenville, Texas

Citizenship: United States

Post Office Address: 3112 Old Mill Road
Greenville, Texas 75402

Full Name of Inventor: ROBERT H. MIMLITCH, III

Inventor's Signature: _____ Date: 2007-02-22

Residence Address: Rowlett, TX

Citizenship: United States

Post Office Address: 5606 Luna Dr.
Rowlett, TX 75088

Full Name of Inventor: RICHARD D. TORRANCE

Inventor's Signature: Richard Torrance Date: 2-22-07

Residence Address: Greenville, Texas

Citizenship: United States

Post Office Address: 5001 Peacock
Greenville, Texas 75402

90212187.doc

14489-004001

Electronic Acknowledgement Receipt

EFS ID:	1537960
Application Number:	10076795
International Application Number:	
Confirmation Number:	3663
Title of Invention:	SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE
First Named Inventor/Applicant Name:	David A. Norman
Customer Number:	26231
Filer:	Elizabeth Philip/Della Gonzales
Filer Authorized By:	Elizabeth Philip
Attorney Docket Number:	50097-8USPT
Receipt Date:	22-FEB-2007
Filing Date:	12-FEB-2002
Time Stamp:	18:05:18
Application Type:	Utility

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	SuppDecl.pdf	72616	no	4
Warnings:					

Information:	
Total Files Size (in bytes):	72616

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/076,795	NORMAN ET AL.	
	Examiner	Art Unit	
	Bridget Avery	3618	

ISSUE CLASSIFICATION

ORIGINAL			CROSS REFERENCE(S)						
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
180	65.1	446	465	484					
INTERNATIONAL CLASSIFICATION									
B 6 0 K	1/00								
	/								
	/								
	/								
	/								

Bridget Avery
(Assistant Examiner) (Date)

(Legal Instruments Examiner) (Date)

(Primary Examiner) (Date)

Total Claims Allowed: 40

O.G. Print Claim(s)	O.G. Print Fig.
62	1

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1		31	21	61		91		121		151		181
2	2		32	22	62		92		122		152		182
10	3		33	23	63		93		123		153		183
3	4		34	24	64		94		124		154		184
	5		35	28	65		95		125		155		185
4	6		36	29	66		96		126		156		186
5	7		37	25	67		97		127		157		187
6	8		38	26	68		98		128		158		188
7	9		39	30	69		99		129		159		189
8	10		40	31	70		100		130		160		190
	11	11	41	27	71		101		131		161		191
	12		42	32	72		102		132		162		192
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	19	14	49	40	79		109		139		169		199
	20	15	50	37	80		110		140		170		200
	21	16	51	9	81		111		141		171		201
	22	17	52		82		112		142		172		202
	23	18	53		83		113		143		173		203
	24		54		84		114		144		174		204
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	26		56		86		116		146		176		206
	27		57		87		117		147		177		207
	28		58		88		118		148		178		208
	29		59		89		119		149		179		209
	30	19	60		90		120		150		180		210

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,795	05/29/2007	7222684	50097-8USPT	3663

26231 7590 05/09/2007

FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

David A. Norman, Greenville, TX;
Robert H. Mimlitch III, Rowlett, TX;
Richard Torrance, Greenville, TX;

UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.:	7,222,684	Confirmation Number 3663
Assignee:	INNOVATION FIRST, INC	
Serial No.:	10/076,795	
Filing Date:	02-12-2002	
Docket No.:	0011478.0023	
Customer No.:	34755	

Title: SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Change in Status

This letter is provided notice under 37 CFR §1.27 that the Owner of the Patent entitled above is a small entity. This assertion is being signed by an attorney of record in accordance to 37 CFR 1.27(c)(2)

If the Patent Office has any questions or comments, please contact the undersigned at 312-521-2778.

Respectfully submitted,

By: /AKS USPTO 43075/
Adam K Sacharoff
Reg. No. 43075

Dated: September 10, 2014

Much Shelist, PC
191 N. Wacker Drive, Suite 1800
Chicago, Illinois 60606
T: 312/521-2778
F: 312/521-2878

Electronic Acknowledgement Receipt

EFS ID:	20096064
Application Number:	10076795
International Application Number:	
Confirmation Number:	3663
Title of Invention:	SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE
First Named Inventor/Applicant Name:	David A. Norman
Customer Number:	26231
Filer:	Adam Sacharoff
Filer Authorized By:	
Attorney Docket Number:	50097-8USPT
Receipt Date:	10-SEP-2014
Filing Date:	12-FEB-2002
Time Stamp:	12:00:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	SIGNED_PowerAttorney.pdf	968258 73c7ecf205f33b8b5098223ebfddc71c806f4011	no	1

Warnings:	
Information:	

2	Assignee showing of ownership per 37 CFR 3.73.	AssigneeStatement.pdf	118126 f311abed0dea840fd2442396cd8e7d012955964c	no	3
Warnings:					
Information:					
3	Assertion of entitlement to small entity status	SmallEntity.pdf	116675 1394e36b85b273522b1cb180881f3af27e80e844	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	1203059	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office: U.S DEPARTMENT OF COMMERCE

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒ Practitioners associated with Customer Number: 34755

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒ The address associated with Customer Number: 34755

OR

☐	Firm or Individual Name			
	Address			
	City		State	Zip
	Country			
	Telephone		Email	

Assignee Name and Address: Innovation First, Inc.
1519 Interstate 30 West
Greenville, TX 75402

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	7/7/14
Name	Vince Mouer	Telephone	903-453-0845
Title	General Counsel		

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office;U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Innovation First, Inc.

Application No./Patent No.: 7,222,684 Filed/Issue Date: 05-29-2007

Titled: SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Innovation First, Inc., a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 012818, Frame 0072, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

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   2. From: _____ To: _____

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PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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4. From: _____ To: _____

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6. From: _____ To: _____

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/aks uspto 43075/	09/10/2014
Signature	Date
Adam K Sacharoff	43075
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that yoube given certain informationin connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, pleasebe advised that: (1) the general authority forthe collection of thisinformation is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and(3) the principal purpose forwhich the information isused by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent applicationor patent. If you do not furnish the requested information,the U.S. Patent and Trademark Office may not be able to process and/or examineyour submission,which may result in termination of proceedings or abandonment of the applicationor expiration of the patent.

The informationprovided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the informationin order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an InternationalApplication filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, arecord may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from thissystem of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
10/076,795	02/12/2002	3618	2040	50097-8USPT	45	8

CONFIRMATION NO. 3663

CORRECTED FILING RECEIPT

34755
ADAM K. SACHAROFF
MUCH SHELIST DENENBERG AMENT & RUBENSTEIN
191 N. WACKER DRIVE, Suite 1800
CHICAGO, IL 60606-1615

OC000000070760887

Date Mailed: 09/17/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

David A. Norman, Greenville, TX;
Robert H. Mimlitch III, Rowlett, TX;
Richard Torrance, Greenville, TX;

Applicant(s)

David A. Norman, Greenville, TX;
Robert H. Mimlitch III, Rowlett, TX;
Richard Torrance, Greenville, TX;

Power of Attorney: The patent practitioners associated with Customer Number 34755

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/268,447 02/12/2001

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 04/01/2002
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 10/076,795**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
** **SMALL ENTITY** **

Title

SYSTEM, APPARATUS, AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE

Preliminary Class

180

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/076,795	02/12/2002	David A. Norman	50097-8USPT

CONFIRMATION NO. 3663

34755
ADAM K. SACHAROFF
MUCH SHELIST DENENBERG AMENT & RUBENSTEIN
191 N. WACKER DRIVE, Suite 1800
CHICAGO, IL 60606-1615

POA ACCEPTANCE LETTER

OC000000070760865

Date Mailed: 09/17/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/10/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/byemane/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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10/076,795	02/12/2002	David A. Norman	50097-8USPT

CONFIRMATION NO. 3663

POWER OF ATTORNEY NOTICE

26231
FISH & RICHARDSON P.C. (DA)
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

Date Mailed: 09/17/2014

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/10/2014.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/byemane/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101