



US007950978B2

(12) **United States Patent**
Norman et al.

(10) **Patent No.:** **US 7,950,978 B2**
(45) **Date of Patent:** ***May 31, 2011**

(54) **SYSTEM, APPARATUS AND METHOD FOR PROVIDING CONTROL OF A TOY VEHICLE**

(56) **References Cited**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1135 days.

This patent is subject to a terminal disclaimer.

U.S. PATENT DOCUMENTS

| | | | |
|----------------|---------|------------------------|----------|
| 3,732,751 A | 5/1973 | Berman et al. | |
| 4,334,221 A | 6/1982 | Rosenbagen et al. | |
| 4,336,858 A | 6/1982 | Loyzim | |
| 4,341,982 A | 7/1982 | Lahti et al. | |
| 5,056,613 A * | 10/1991 | Porter et al. | 180/178 |
| 5,172,665 A | 12/1992 | Kuroda | |
| 5,349,276 A | 9/1994 | Mezzatesta, Jr. et al. | |
| 5,453,672 A | 9/1995 | Avitan | |
| 5,762,532 A * | 6/1998 | Ishizuka et al. | 446/457 |
| 5,951,362 A | 9/1999 | Siu | |
| 5,994,853 A | 11/1999 | Ribbe | |
| 6,287,167 B1 * | 9/2001 | Kondo | 446/454 |
| 6,468,127 B1 | 10/2002 | Lee | |
| 6,591,178 B2 | 7/2003 | Krueger et al. | |
| 7,222,684 B2 * | 5/2007 | Norman et al. | 180/65.1 |

* cited by examiner

(21) Appl. No.: **11/677,529**

Primary Examiner — Dmitry Suhol

(22) Filed: **Feb. 21, 2007**

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(65) **Prior Publication Data**

US 2007/0135017 A1 Jun. 14, 2007

Related U.S. Application Data

(63) Continuation of application No. 10/076,795, filed on Feb. 12, 2002, now Pat. No. 7,222,684.

(60) Provisional application No. 60/268,447, filed on Feb. 12, 2001.

(51) **Int. Cl.**

A63H 30/00 (2006.01)

B60T 7/16 (2006.01)

(52) **U.S. Cl.** **446/454**; 446/456; 446/484; 180/167; 180/65.1

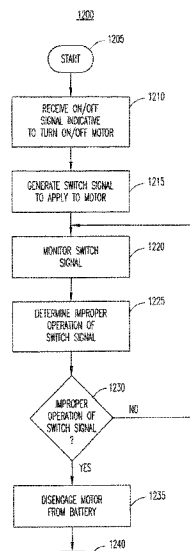
(58) **Field of Classification Search** 180/65.1, 180/167, 170, 174; 446/454-456; **A63H 30/00**

See application file for complete search history.

(57) **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).

24 Claims, 13 Drawing Sheets



Dynacraft BSC, Inc.
Exhibit 1001
Dynacraft v. Mattel
IPR2018-00039

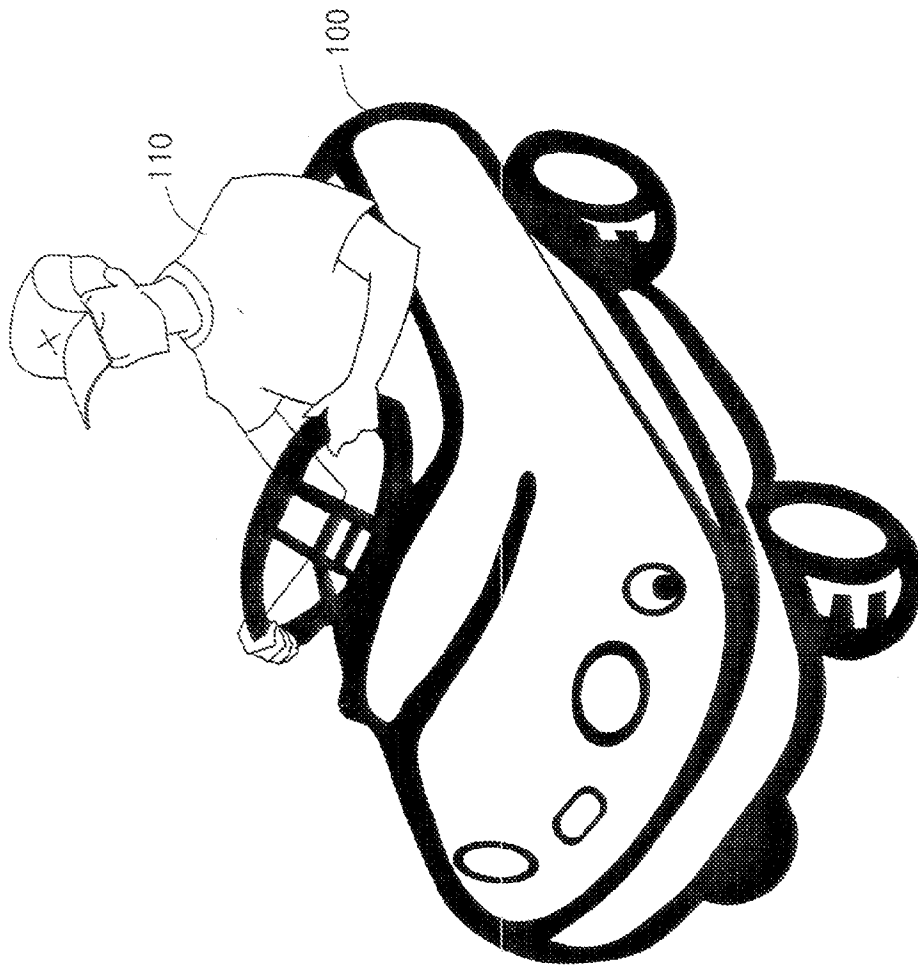


FIG. 1

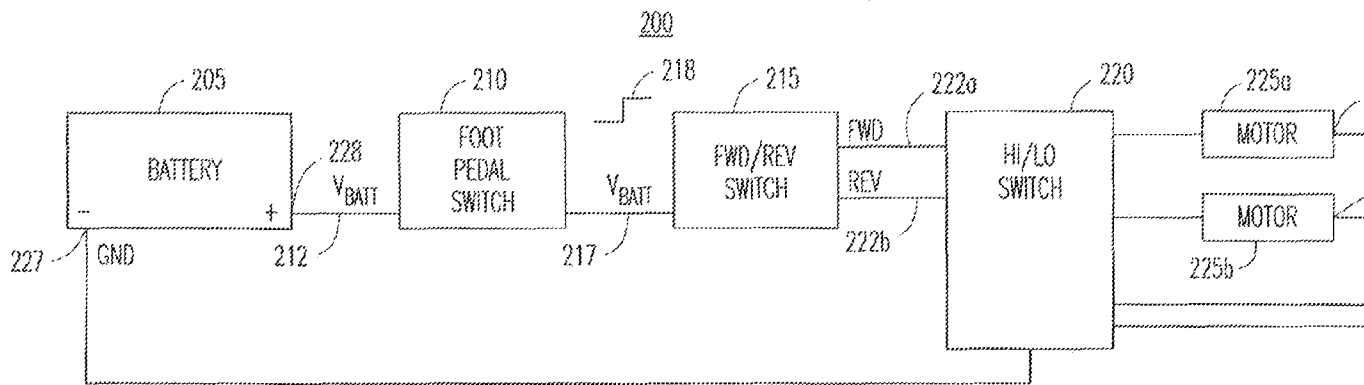


FIG. 2
(PRIOR ART)

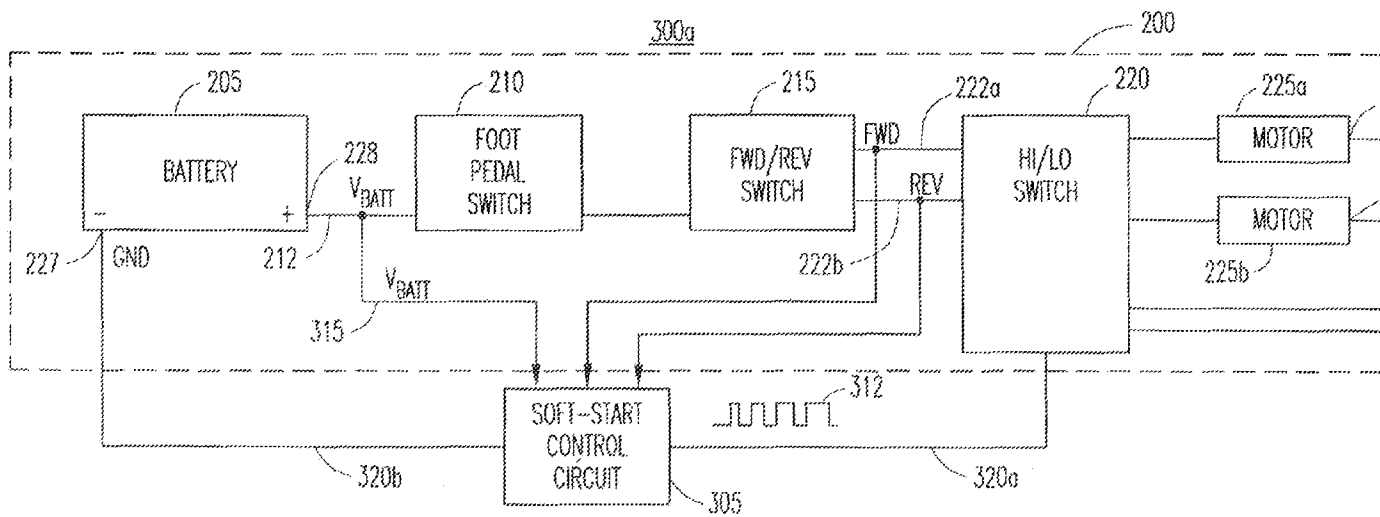


FIG. 3

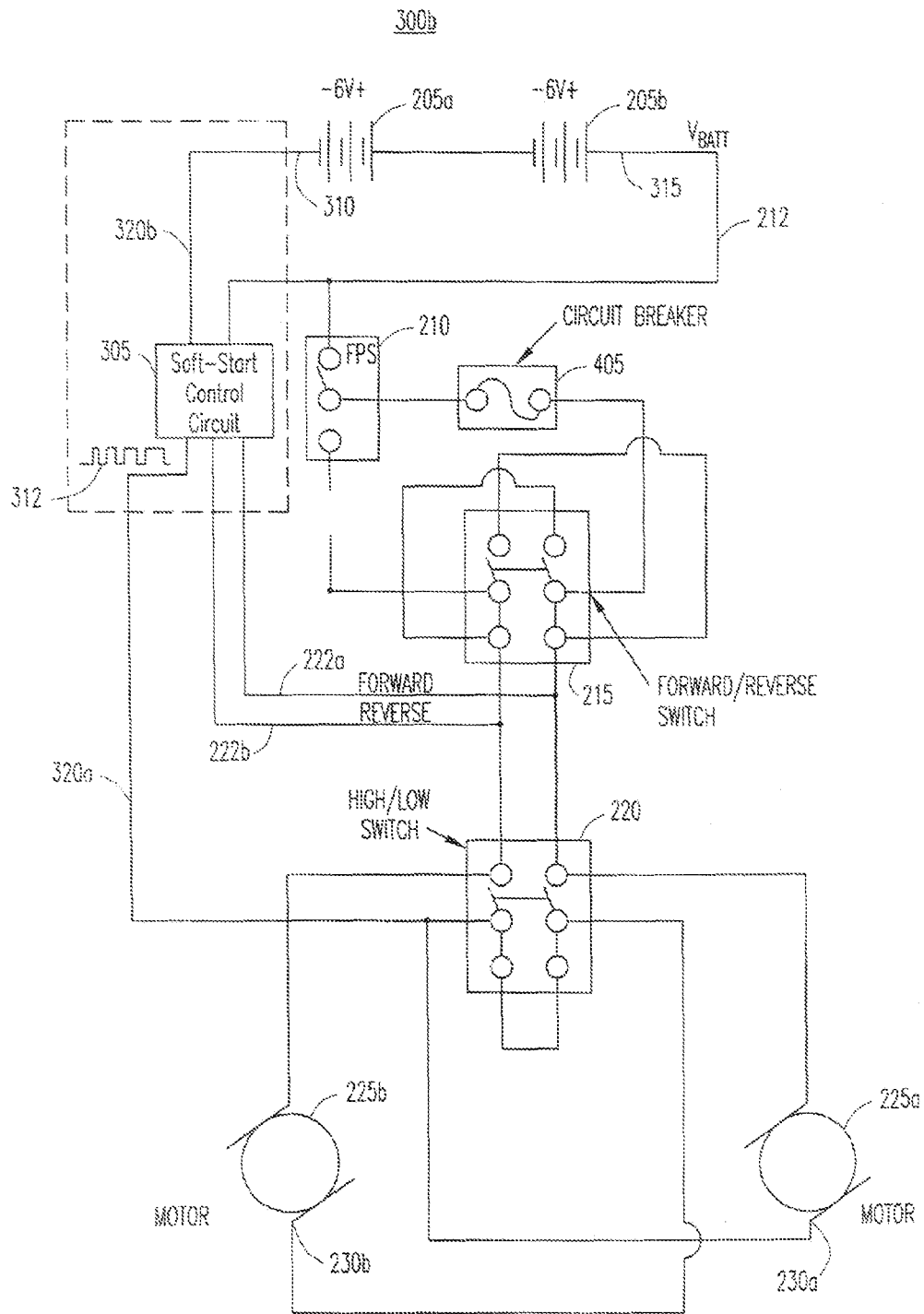


FIG. 4

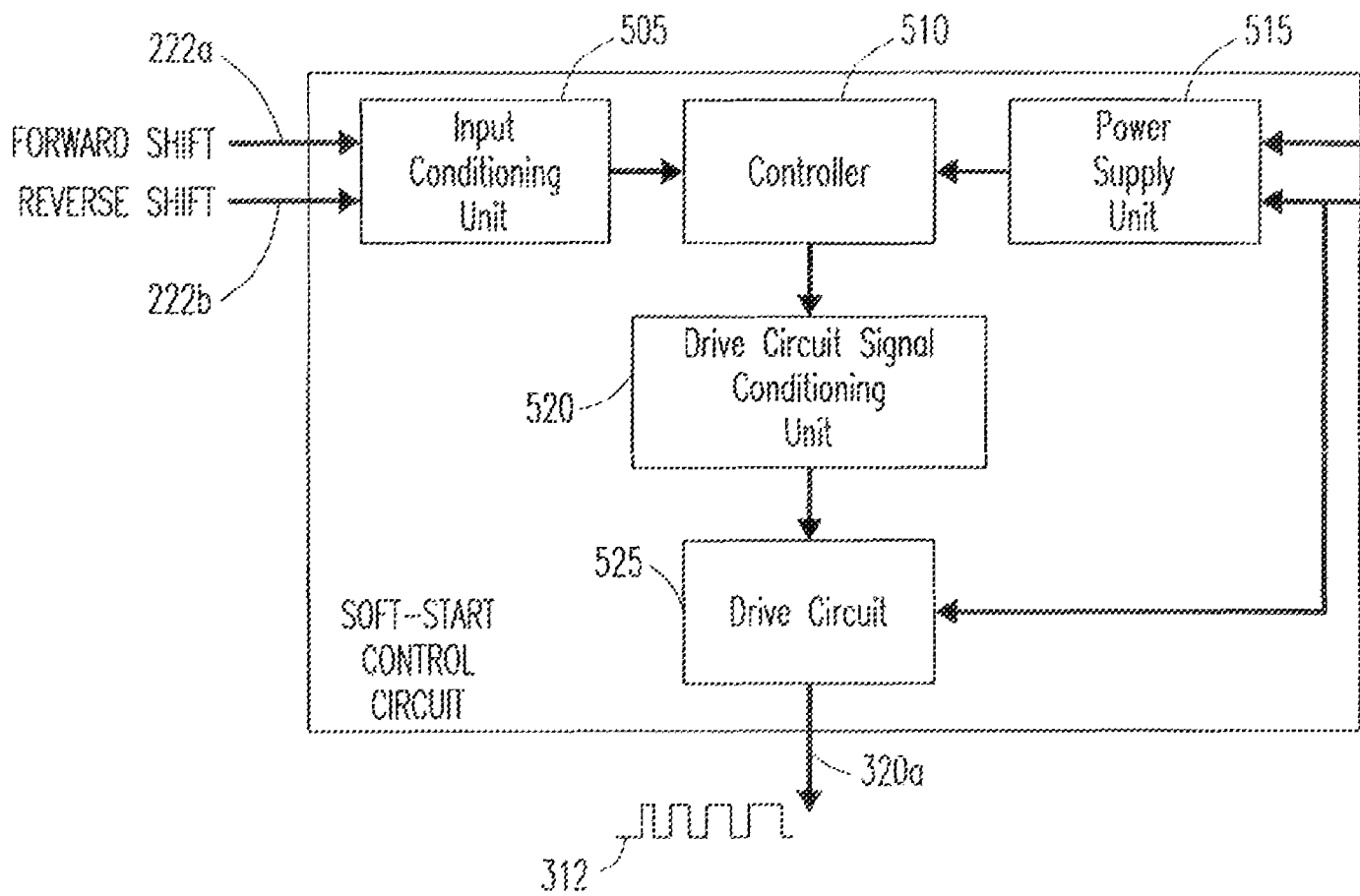


FIG. 5

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