(12) **United States Patent**

Bruwer

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(54) **TOUCH SENSOR AND LOCATION INDICATOR CIRCUITS**

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Related U.S. Application Data

(63) Continuation of application No. 10/873,190, filed on Jun. 23, 2004, now Pat. No. 7,084,531, which is a continuation of application No. 09/806,860, filed as application No. PCT/ZA99/00107 on Oct. 8, 1999, now Pat. No. 6,984,900, which is a continuation-in-part of application No. 09/169,395, filed on Oct. 9, 1998, now Pat. No. 6,248,089.

(51) **Int. Cl.**
H01H 3/26 (2006.01)
(52) **U.S. Cl.** **307/140**
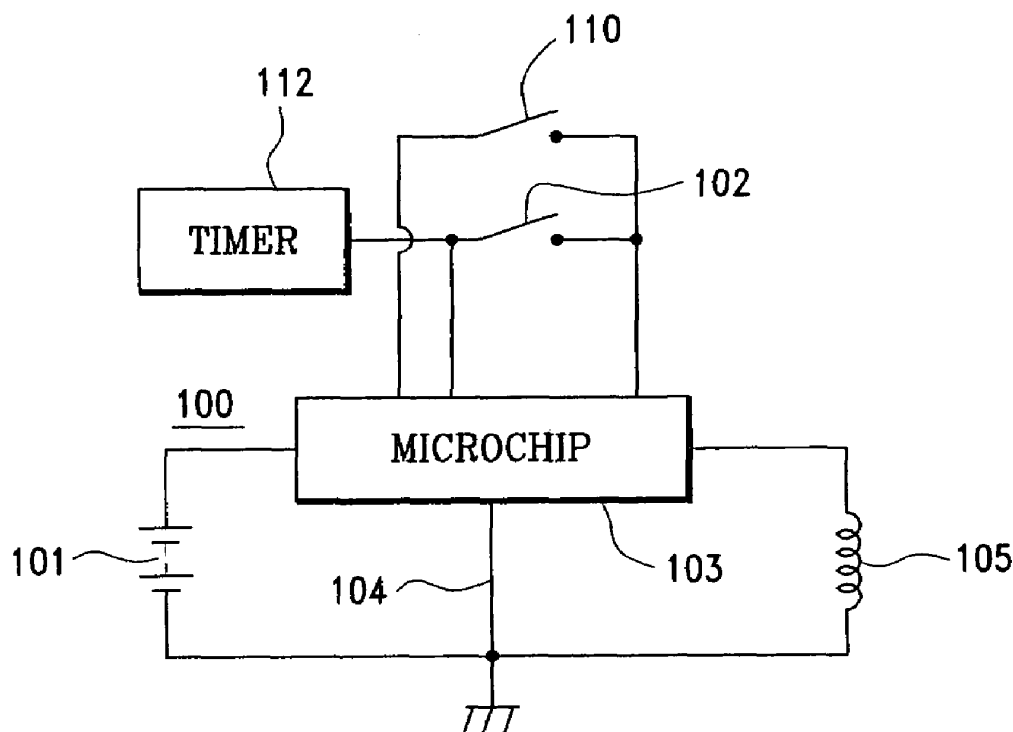
(58) **Field of Classification Search** 307/140
See application file for complete search history.

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Primary Examiner—Robert L. DeBeradinis
(74) *Attorney, Agent, or Firm*—Jones, Tullar & Cooper

(57) **ABSTRACT**

An electronic circuit for use with an exhaustible power source and load such as a light bulb, a radio or motor, includes a microchip with an input that transmits a signal to the microchip when the load is activated or deactivated. The input does not form a serial link between the power source and the load. The power switch, by on/off switching, controls energy flow from the power source to the load. The electronic circuit has an automatic delayed shut-off function for the load and, a find-in-the-dark indicator and a power source level indicator which are active when the load is not energized and the power source is not being charged. The input to the microchip acts as an activation/deactivation user interface. The microchip allows the user to select specific functions based on the time duration of activation signals, the time duration between activation signals and the number of activation signals at the input.

55 Claims, 6 Drawing Sheets

FIG. 1

FIG. 2

FIG. 3

FIG 4

FIG 5

FIG 6

FIG 7

MICROCHIP 103

102

105

101

FIG 8A

SWITCH 202

Vout

204

CONTROL 201

205

TIMER 203

105

102

803

101

FIG 8B

102

V_{IN}^{+}

SWITCH 202

Vout

206

CONTROL 201
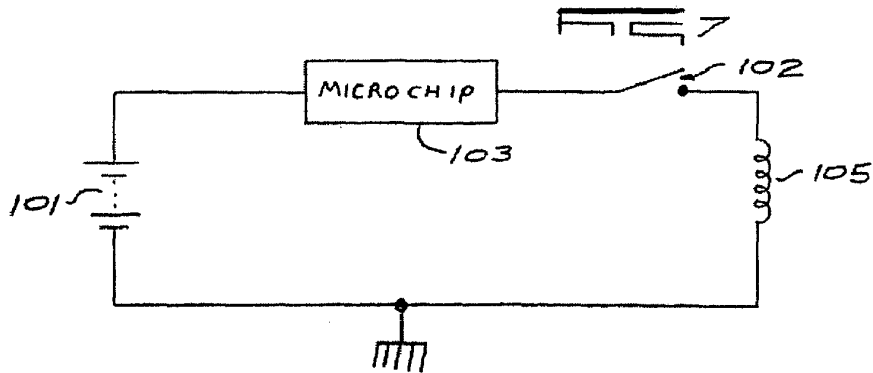
207

101

TIMER 203

105

803

FIG 9

FIG 10

FIG 11
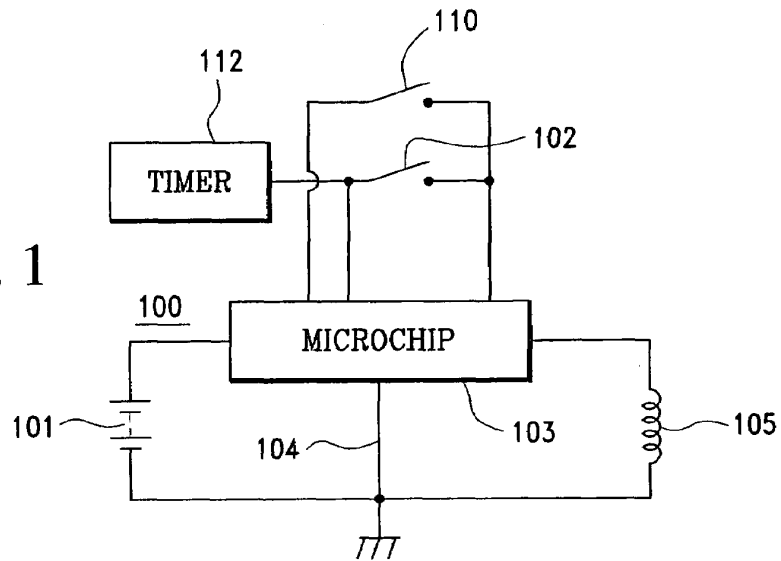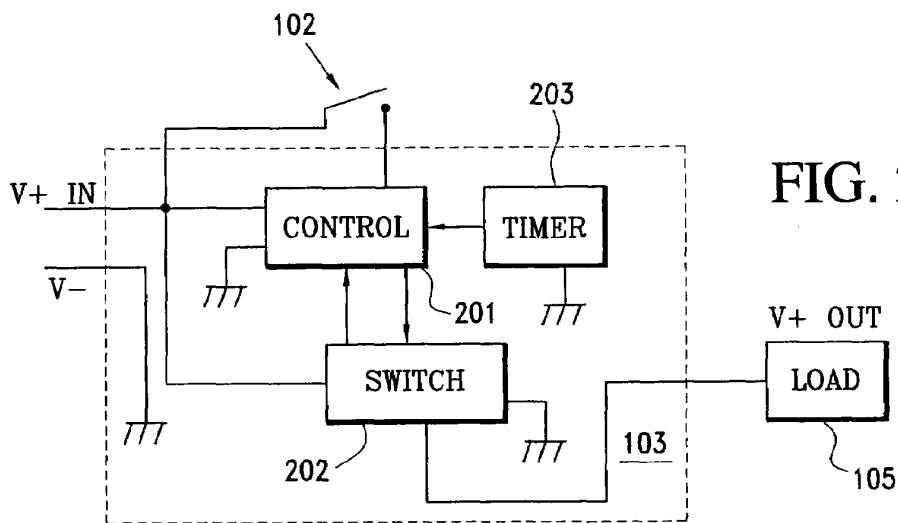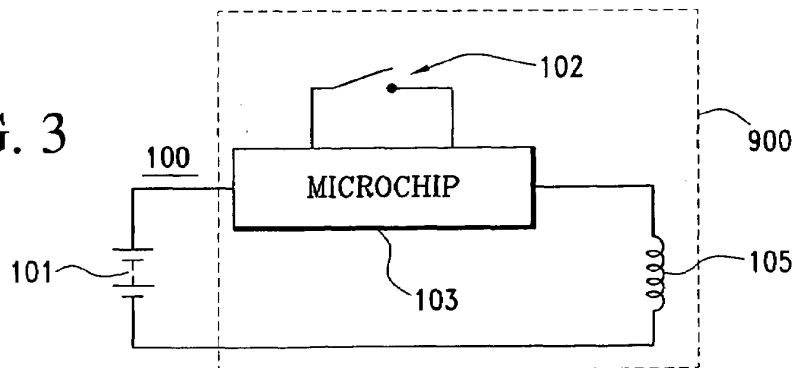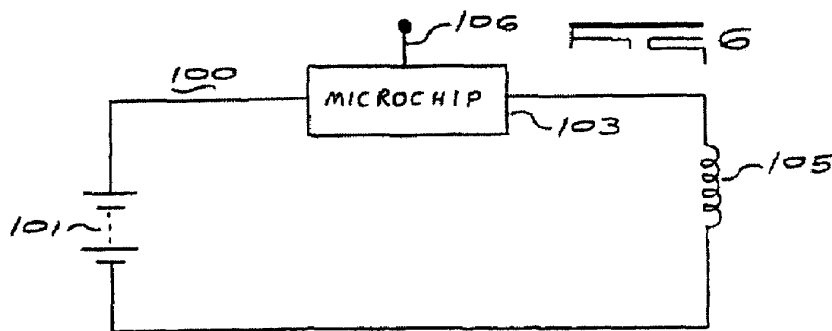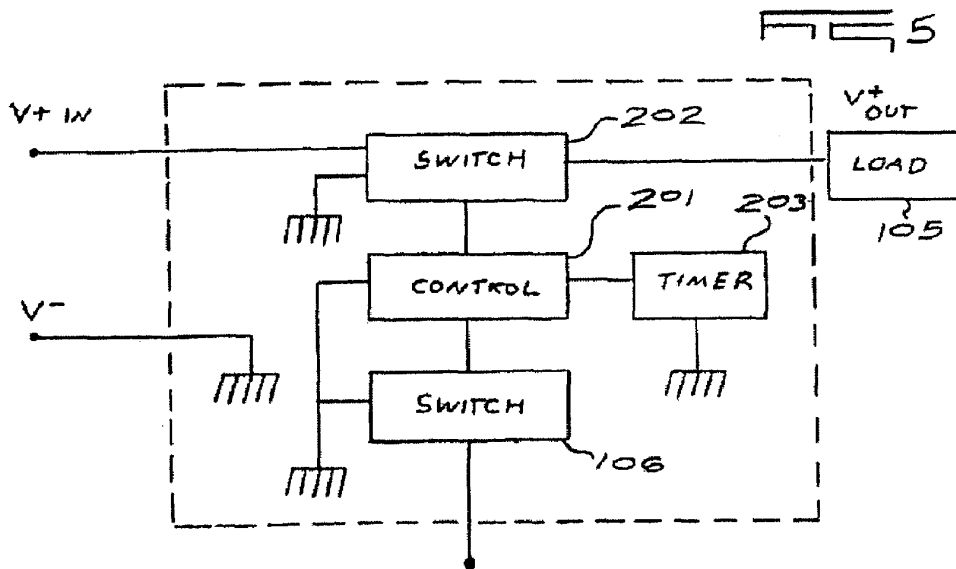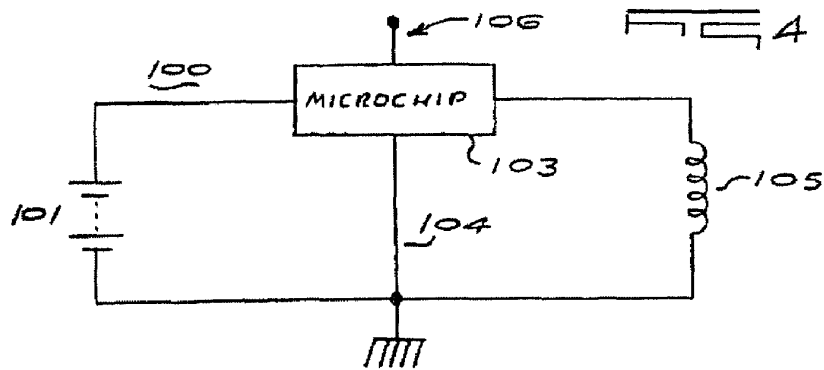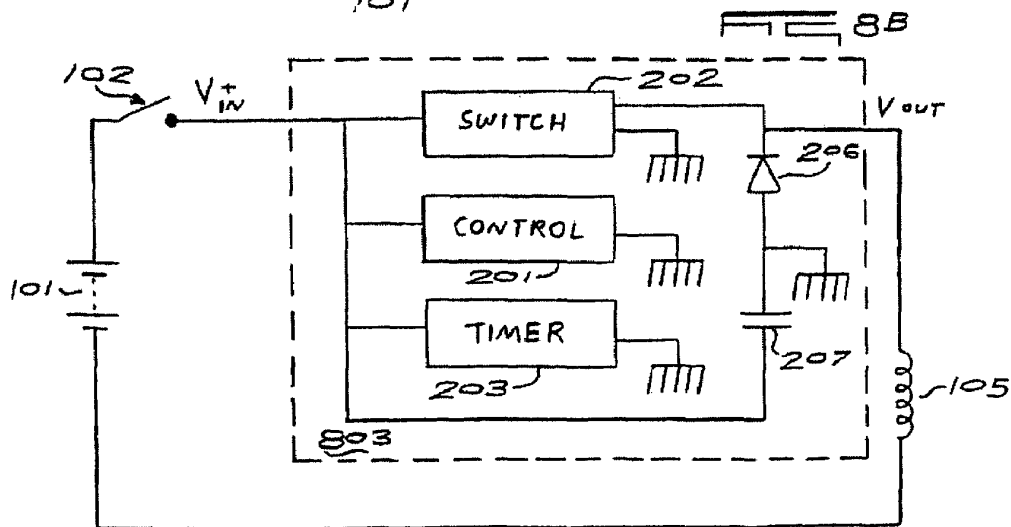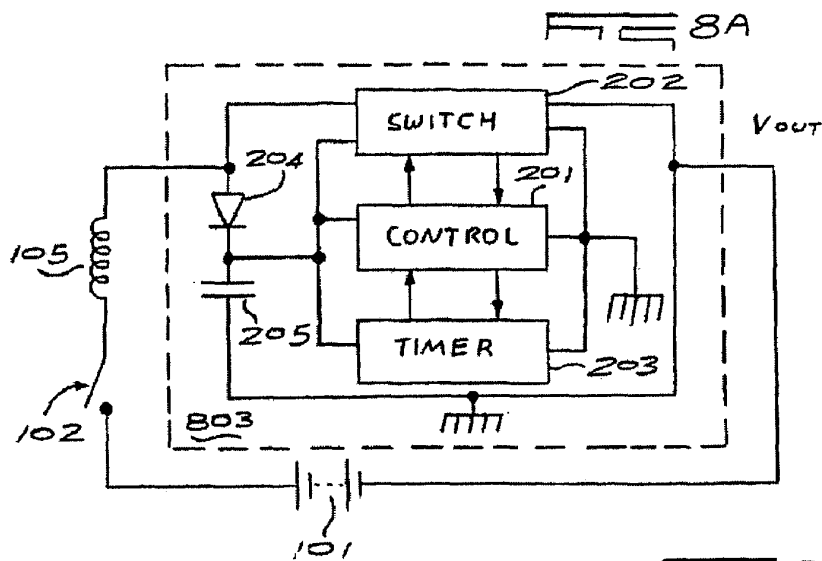
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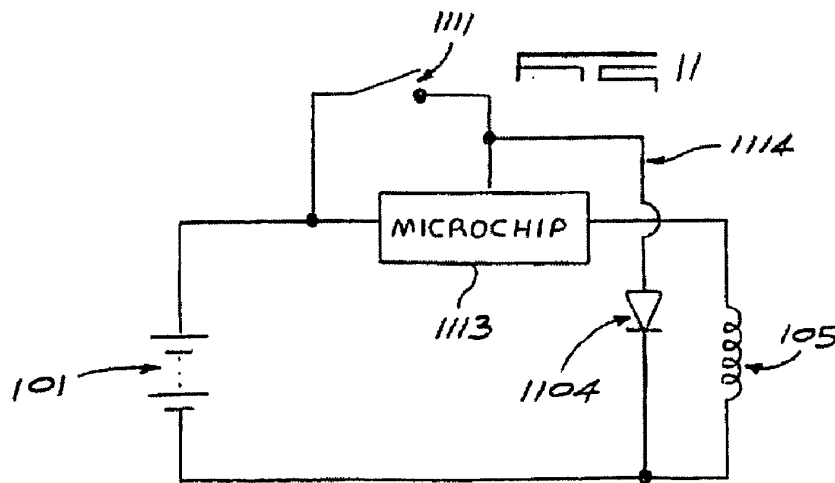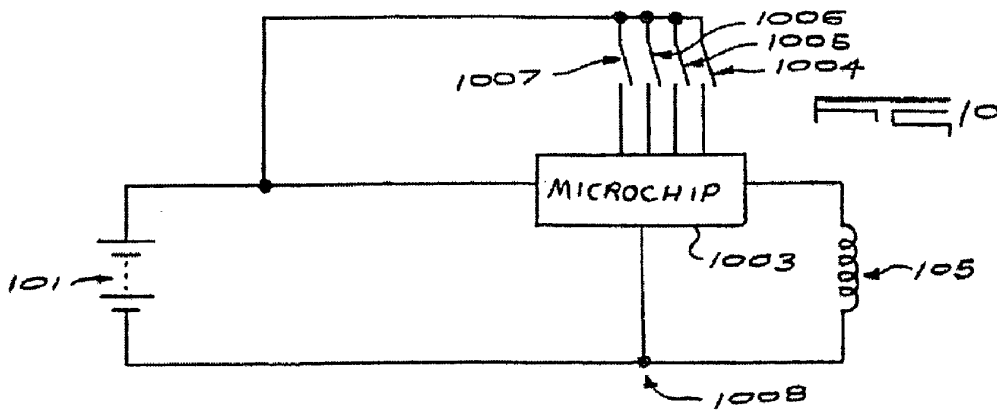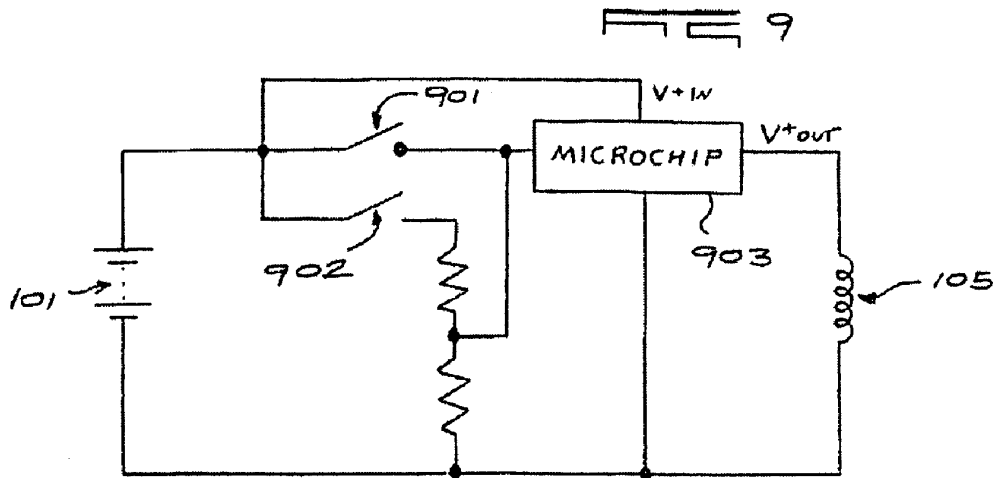
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