US006975205B1

(54) **CART RETURN CREDIT SYSTEM**

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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 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **09/535,076**

(22) Filed: **Mar. 23, 2000**

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/153,912, filed on Sep. 16, 1998, now Pat. No. 6,486,768.

(51) Int. Cl.^{7} **H04Q 19/00**
(52) U.S. Cl. **340/5.92**; 194/211; 705/14; 235/383; 340/518.5
(58) Field of Search 340/5.9, 5.91, 340/5.92, 568.5; 705/14; 194/211; 235/383

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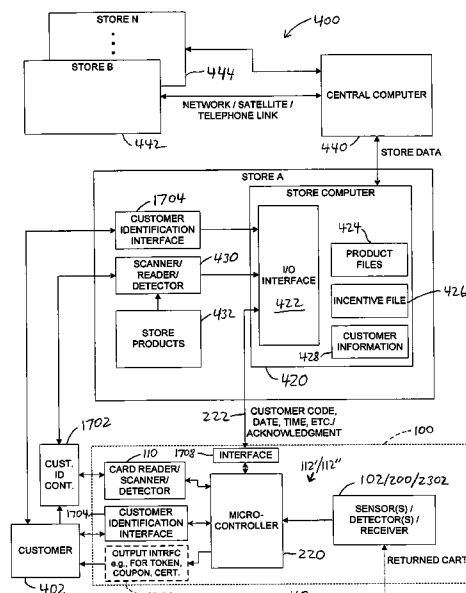*Primary Examiner*—Michael Horabik
Assistant Examiner—M Shimizu
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(57) **ABSTRACT**

A system and method for providing an incentive to a customer of a store to return a shopping cart to a cart return location. The system generates a cart return signal. The system determines whether a cart is being removed from or returned to the cart corral. Alternatively, a radio frequency identification system may be used to detect return of a cart. The shopper is credited with points or credits in a frequent shopper or reward program for returning the shopping cart to the cart return location. The cart return system may be readily configured to integrate with a wide range of existing, or new frequent shopper or loyalty programs.
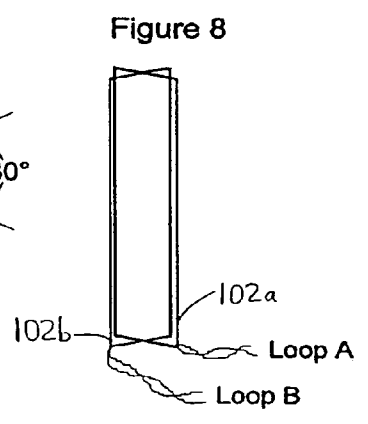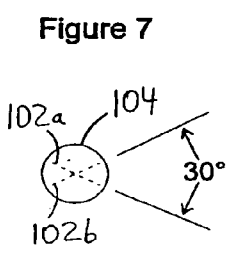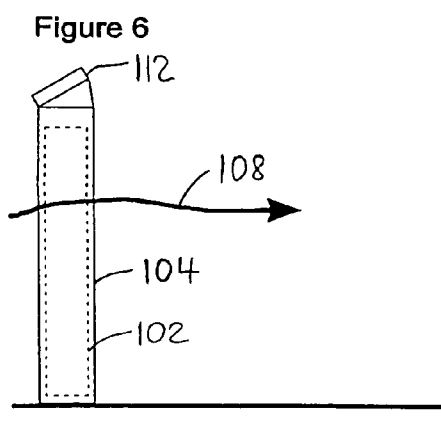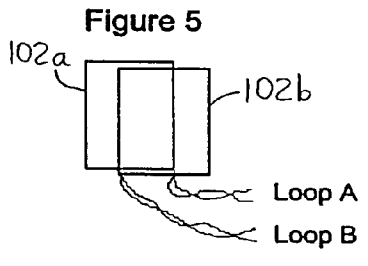
15 Claims, 14 Drawing Sheets

Figure 1

Figure 2

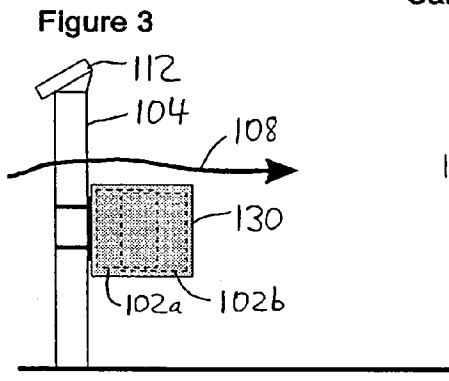Figure 3

Figure 4

Figure 5

Figure 6

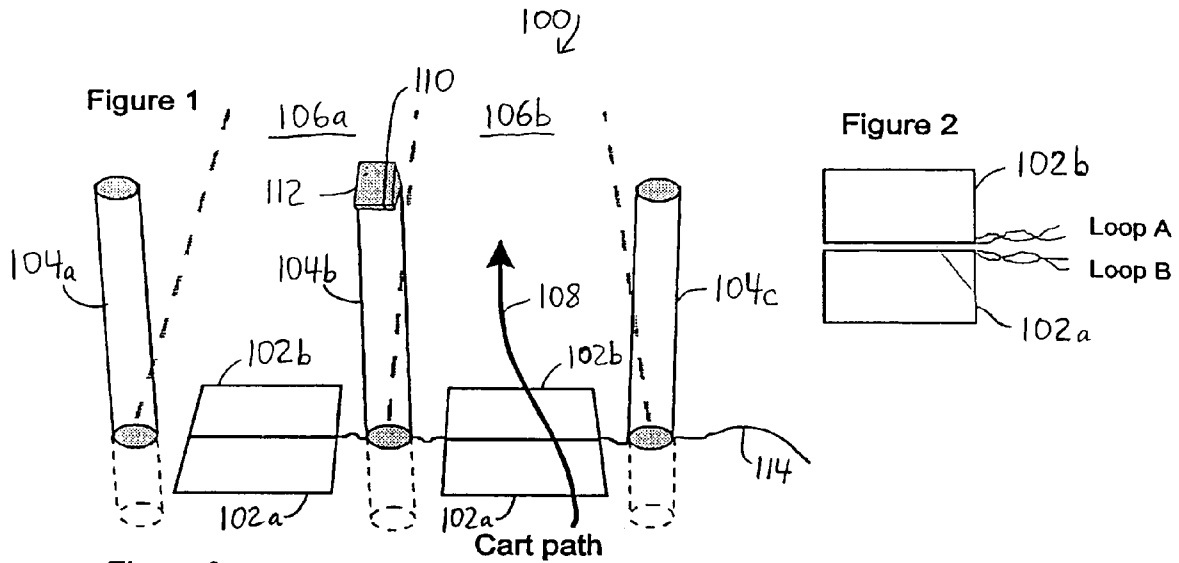Figure 7

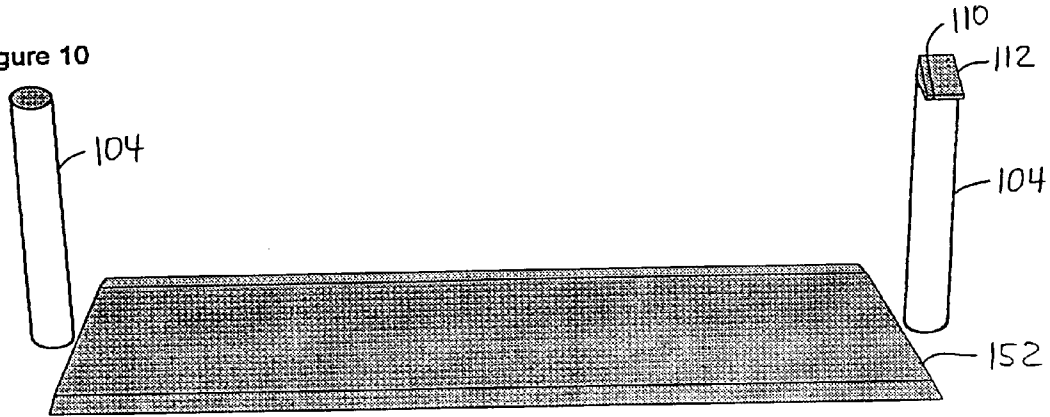Figure 8

Figure 9

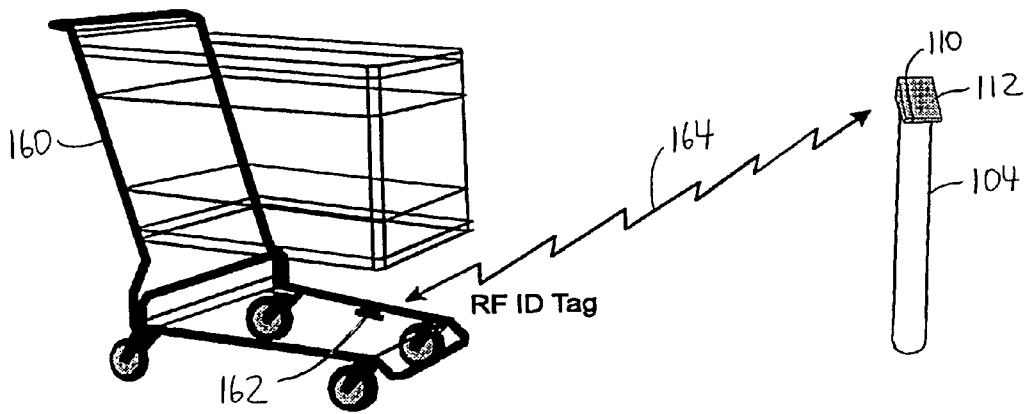Three lane, twelve loop array:
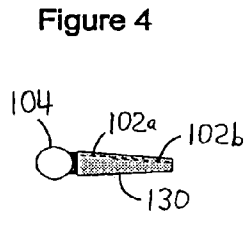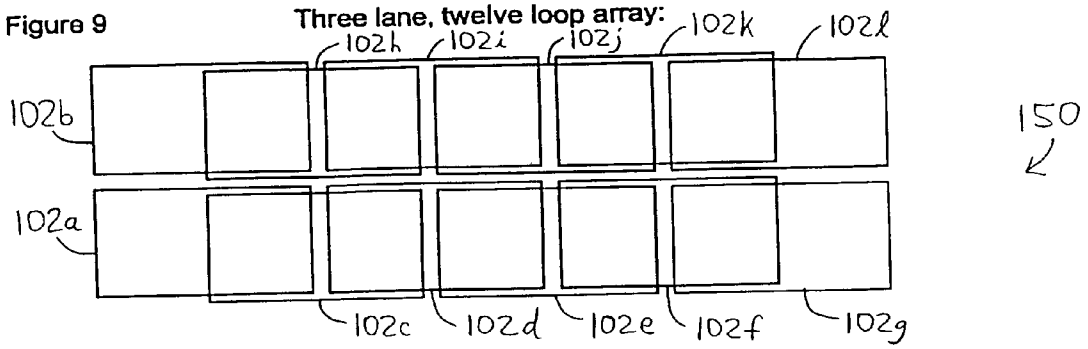
Figure 10

Figure 11

RF ID Tag

Figure 12   Cart Detector circuit

Figure 13   System Electronics

SYMBOLS A AND B REPRESENT THE OUTPUTS OF THE LOOP DETECTORS.

A IS THE FIRST LOOP TO BE PASSED BY A RETURNING CART, B THE SECOND.

300

(READY, NO CART)

302 A ON?
NO → 304 B ON?
NO →

YES
(CART DETECTED)

306 WAIT 50 MS

YES (from B ON? 304) → 310 START TIMER

312 A ON WITHIN 10 SECONDS?
NO →
YES → 314

308 B ON?
YES → (CART COMING OUT BACKWARDS)
NO

(CART RETURNING NORMALLY)

314 WAIT UNTIL A AND B ARE BOTH OFF

316 WAIT 10 SECONDS

(CART BACKED UP)

320 START TIMER

322 B ON AND A OFF WITHIN 10 SECONDS?
NO → 324 WAIT UNTIL A AND B ARE BOTH OFF
(GIVE UP, TOO SLOW)

YES (CART MOVING IN)

328 A ON?
NO →
YES →

326 A AND B OFF?
NO →
YES (CART FULLY RETURNED)

FIG.14
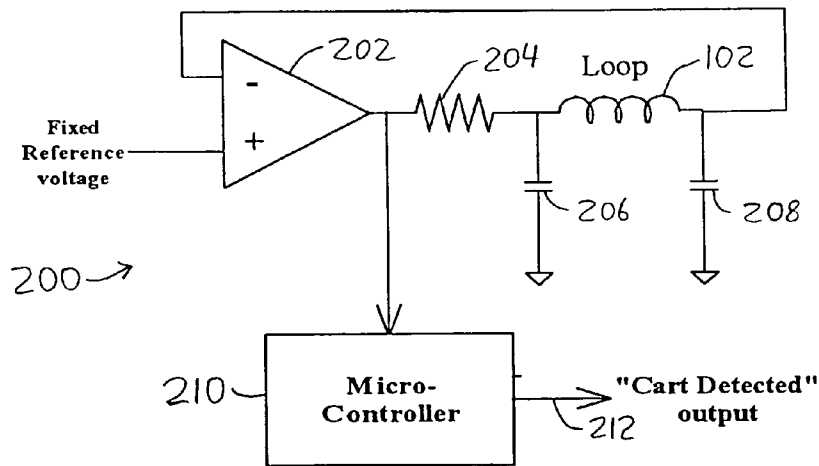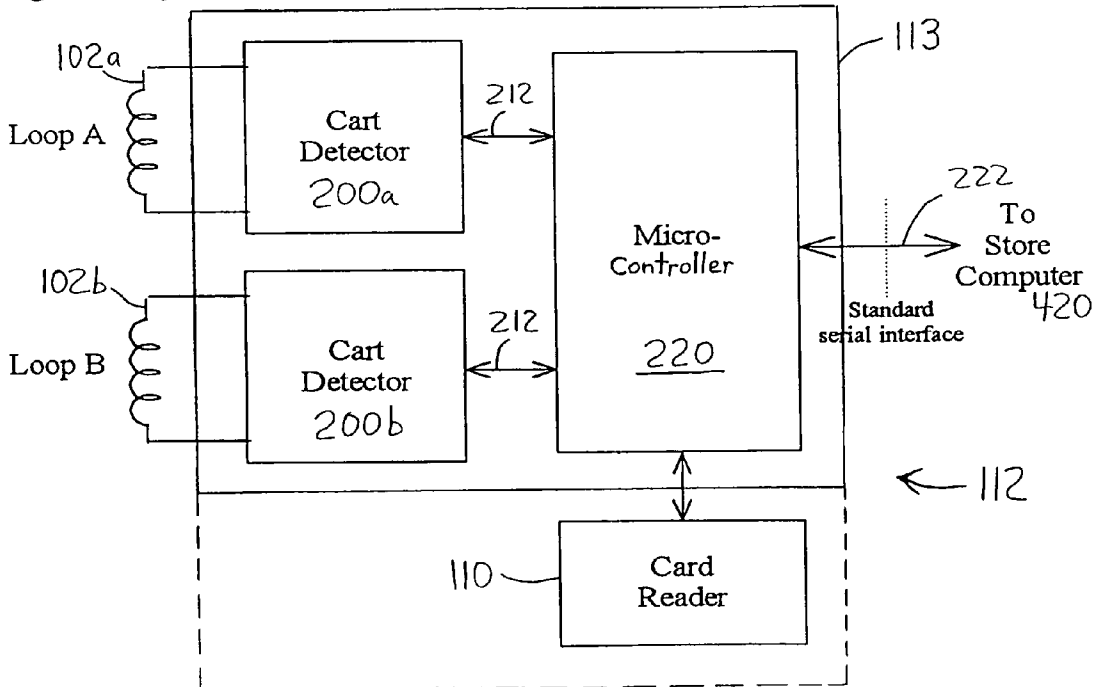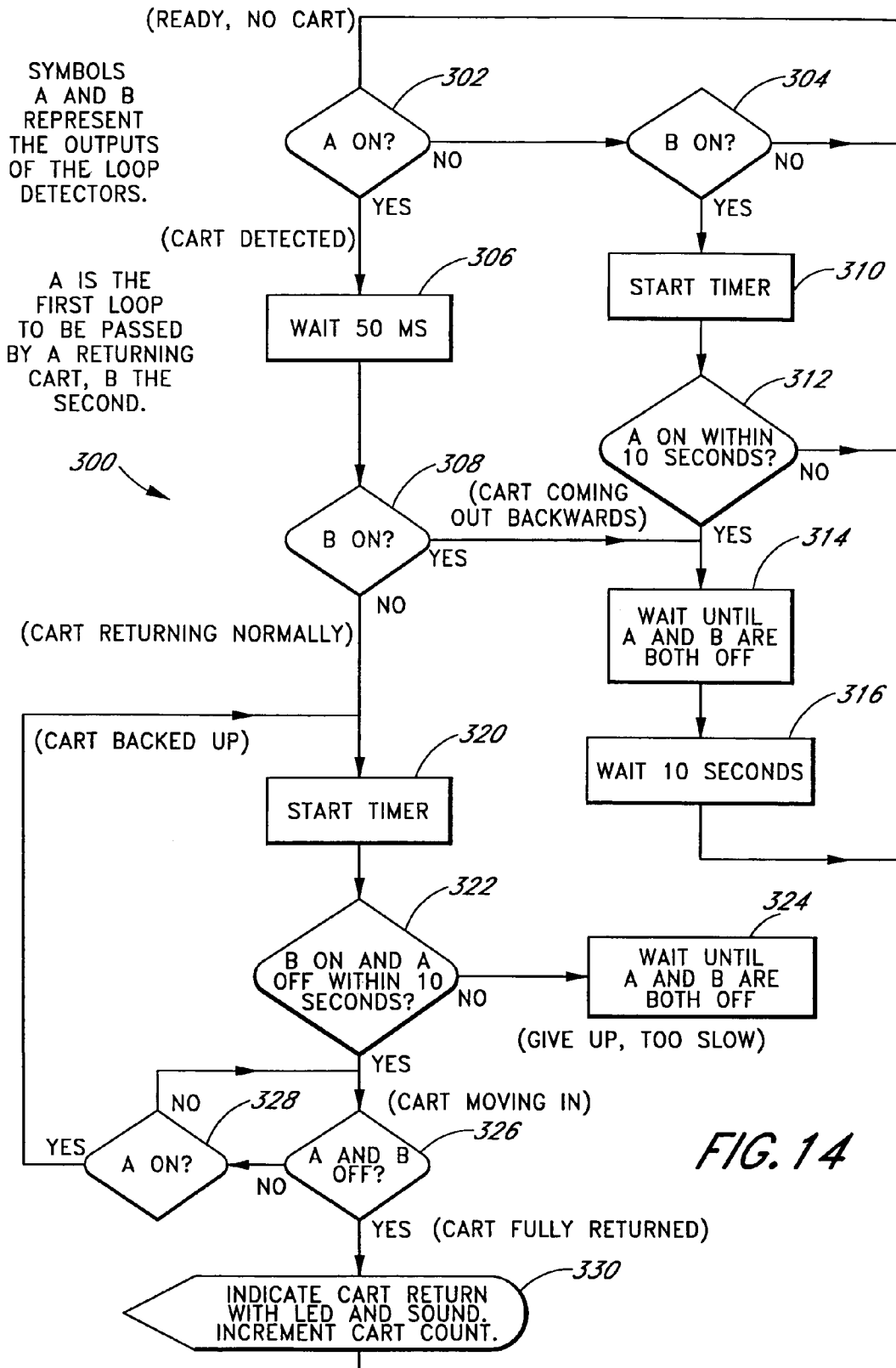
330 INDICATE CART RETURN WITH LED AND SOUND. INCREMENT CART COUNT.

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