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French et al.

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(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.

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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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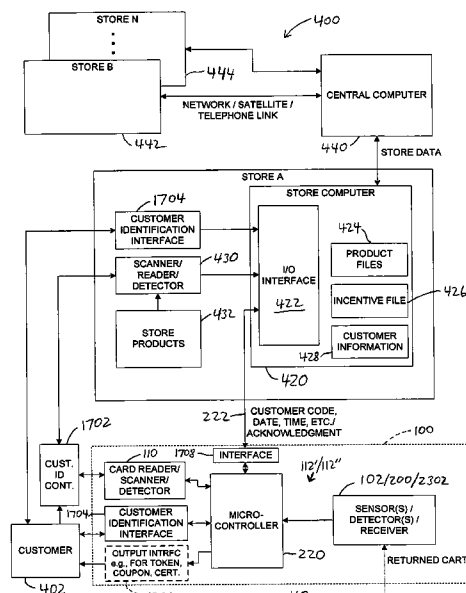
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(57) **ABSTRACT**

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

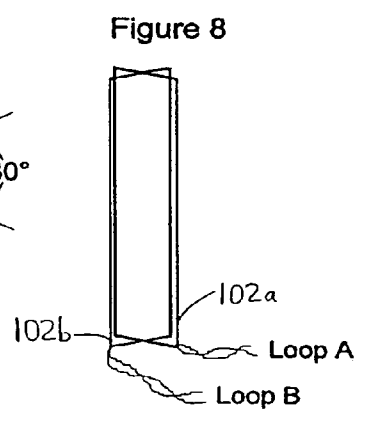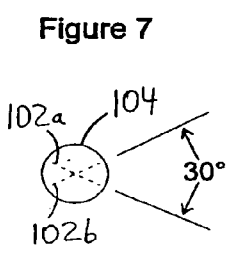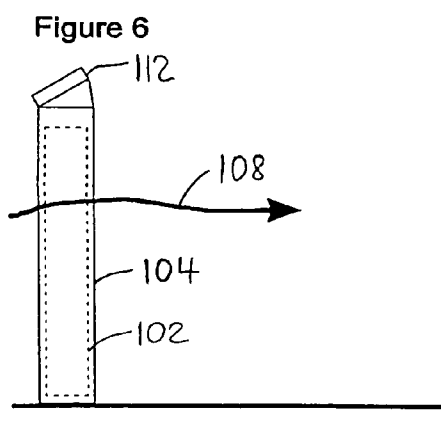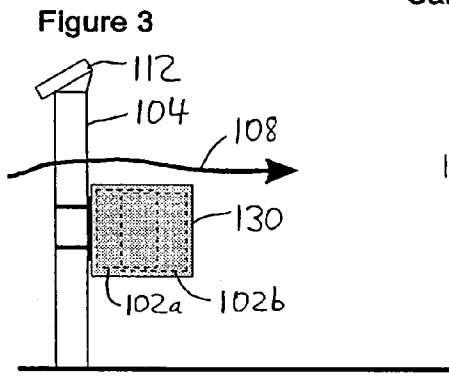Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Three lane, twelve loop array:

102b

102h

102i

102j

102k

102l

150

102a

102c

102d

102e

102f

102g

Figure 10

104

110

112

104

152

Figure 11

160

162

164

RF ID Tag

110

112

104
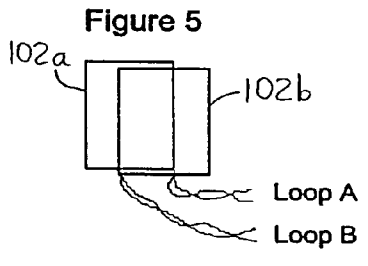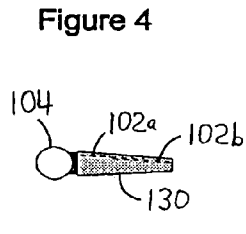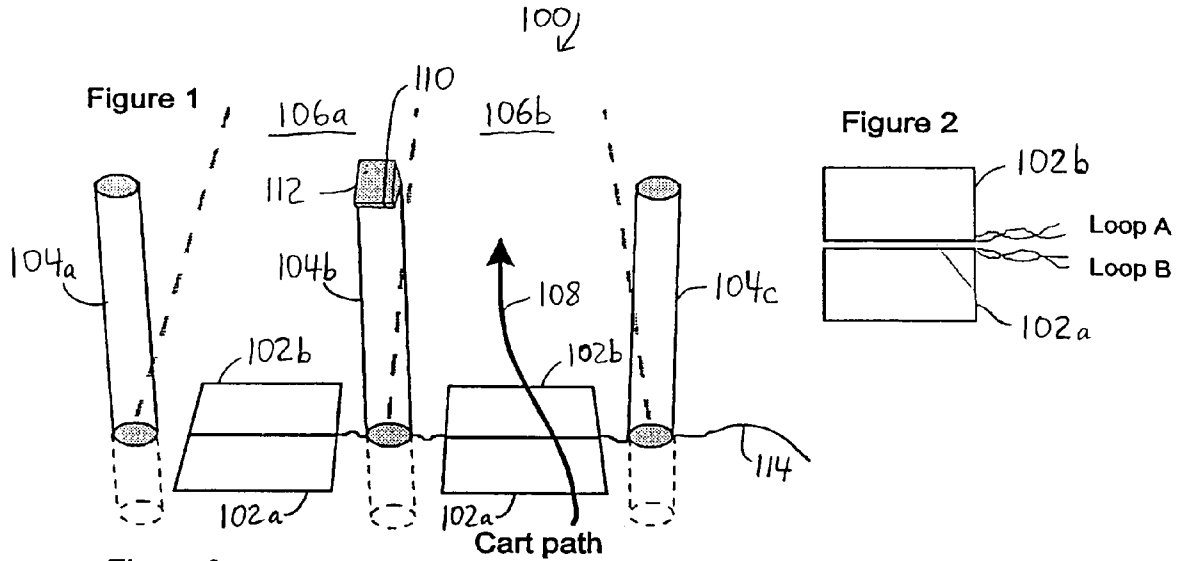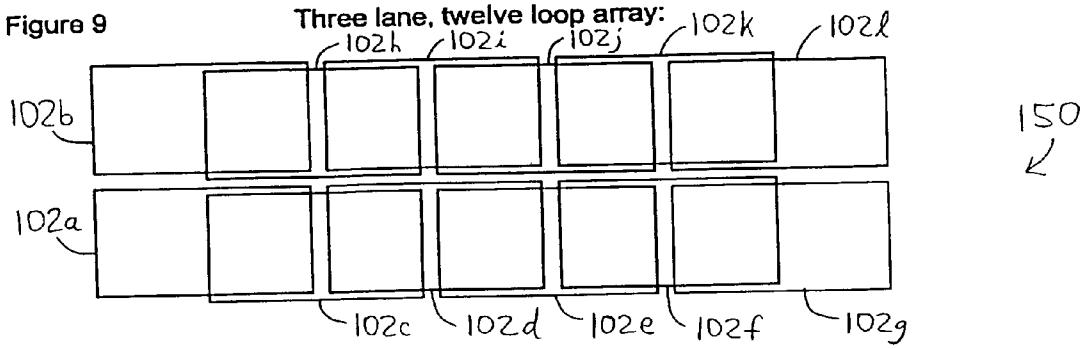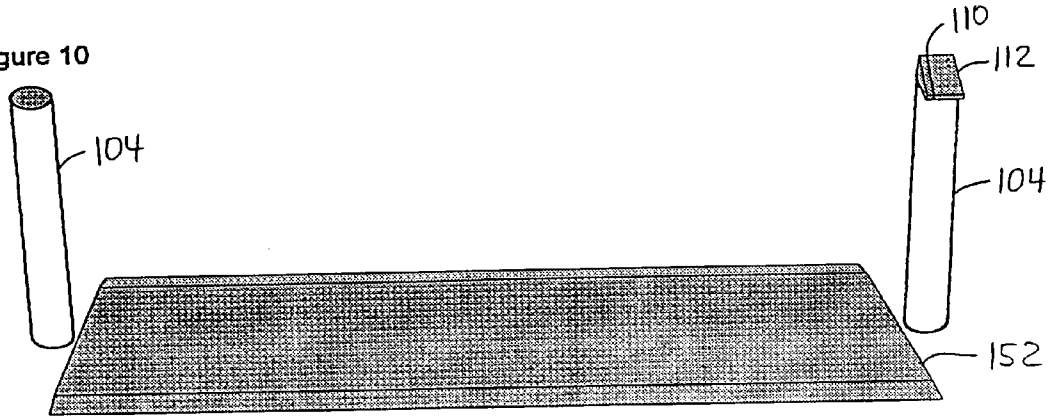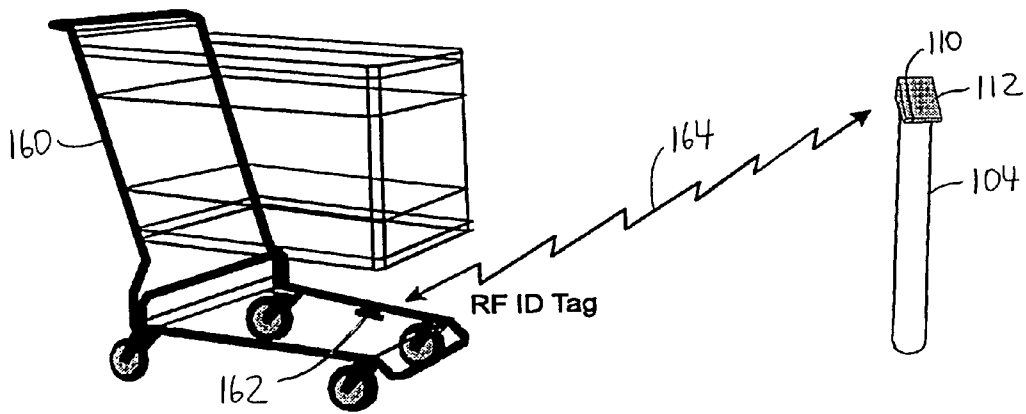
Figure 12   Cart Detector circuit

202

204   Loop   102

Fixed
Reference
voltage

−

+

206   208

200

210   **Micro-Controller**

"Cart Detected" output

212

Figure 13   System Electronics

102a

Loop A

113

Cart Detector

200a

212

Micro-Controller

220

222

To Store Computer

420

Standard serial interface

102b

Loop B

Cart Detector

200b

212

112

110   **Card Reader**

(READY, NO CART)

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

A ON? *302*

NO

B ON? *304*

NO

YES

YES

(CART DETECTED)

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

WAIT 50 MS *306*

START TIMER *310*

300

B ON? *308*

(CART COMING OUT BACKWARDS)

A ON WITHIN 10 SECONDS? *312*

NO

YES

YES

NO

(CART RETURNING NORMALLY)

WAIT UNTIL A AND B ARE BOTH OFF *314*

(CART BACKED UP)

START TIMER *320*

WAIT 10 SECONDS *316*

B ON AND A OFF WITHIN 10 SECONDS? *322*

NO

WAIT UNTIL A AND B ARE BOTH OFF *324*

(GIVE UP, TOO SLOW)

YES

(CART MOVING IN)

NO *328*

A ON?

A AND B OFF? *326*

FIG.14

YES

NO

YES (CART FULLY RETURNED)

INDICATE CART RETURN WITH LED AND SOUND. INCREMENT CART COUNT. *330*

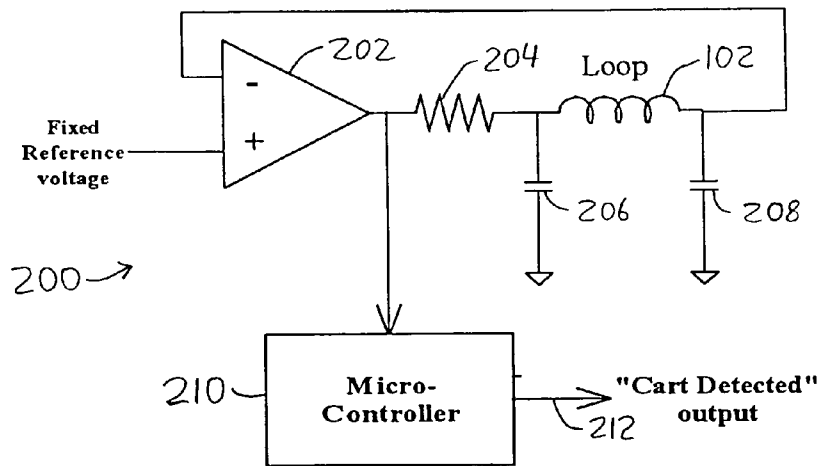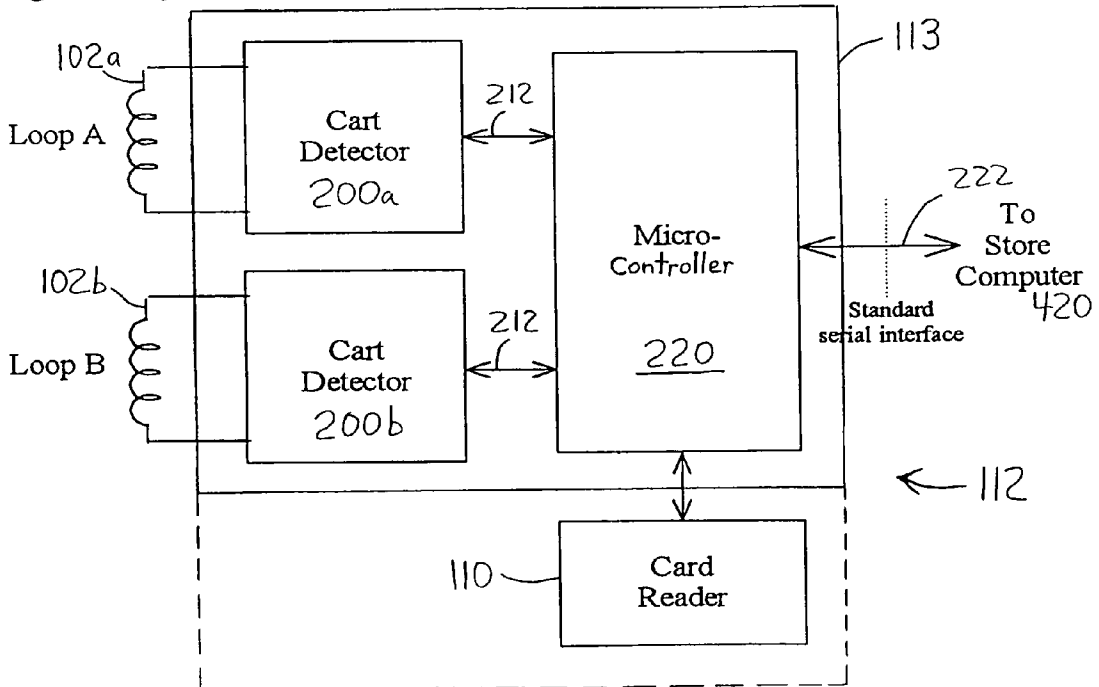# DOCKET ALARM
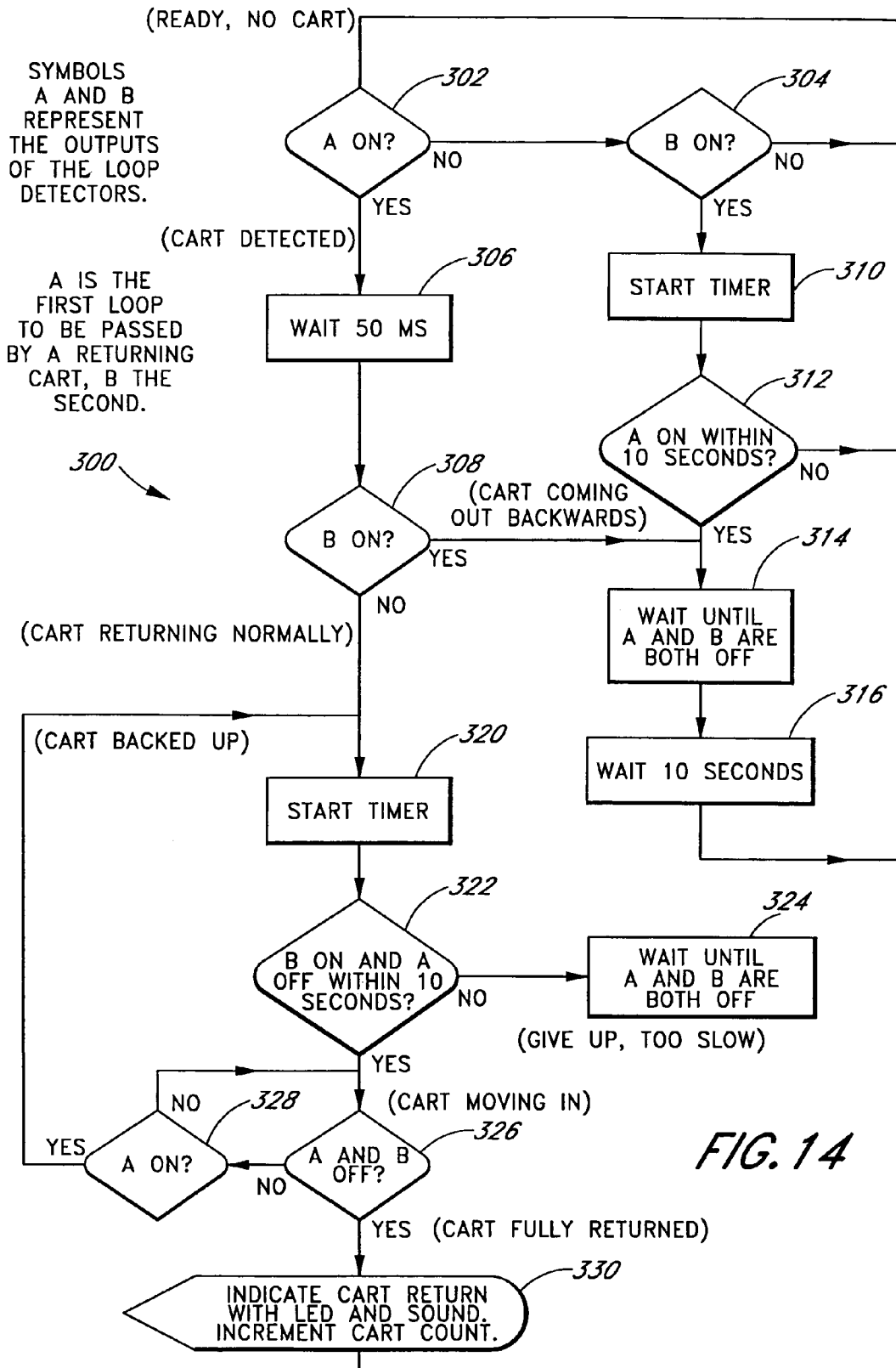
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