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

(10) Patent No.: **US 6,833,785 B2**
(45) Date of Patent: **Dec. 21, 2004**

(54) **VEHICLE SECURITY SYSTEM**

(75) Inventors: **Michael Wayne Brown**, Georgetown, TX (US); **Rabindranath Dutta**, Los Angeles, CA (US); **Michael A. Paolini**, Ausitn, TX (US); **Newton James Smith, Jr.**, Austin, TX (US)

(73) Assignee: **International Business Machines Corporation**, Armonk, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 108 days.

(21) Appl. No.: **10/093,446**

(22) Filed: **Mar. 7, 2002**

(65) **Prior Publication Data**

US 2003/0169161 A1 Sep. 11, 2003

(51) **Int. Cl.**^{7} **B60R 25/10**; B60R 25/04
(52) **U.S. Cl.** **340/426.12**; 340/426.19; 340/426.2
(58) **Field of Search** 340/426.1, 426.11–426.23, 340/425.5, 5.31, 5.72; 307/10.2–10.5; 280/287; 342/357.07

(56) **References Cited**

U.S. PATENT DOCUMENTS

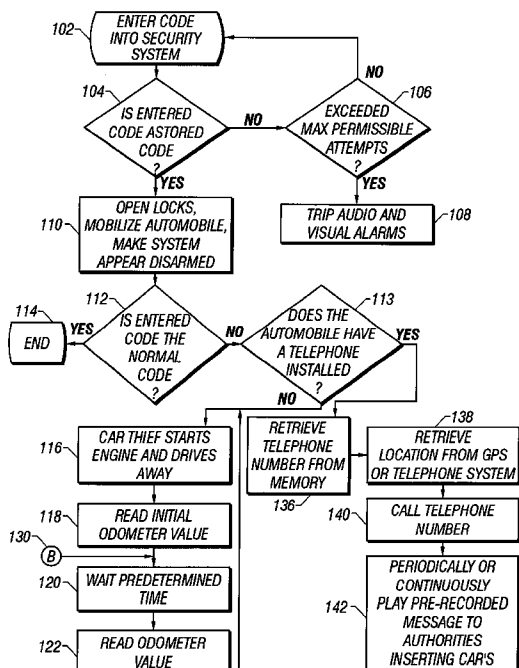|					
3,878,511 A	*	4/1975	Wagner	....	340/5.28
4,821,309 A	*	4/1989	Namekawa	....	455/404.1
5,157,375 A	*	10/1992	Drori	....	340/429
5,307,048 A	*	4/1994	Sonders	....	340/426.12
5,349,329 A	*	9/1994	Smith	....	340/539.21
5,513,244 A	*	4/1996	Joao et al.	....	455/404.1
5,635,901 A	*	6/1997	Weinblatt	....	340/426.12
5,818,329 A	*	10/1998	Allen	....	340/426.17
5,874,889 A	*	2/1999	Higdon et al.	....	340/426.36
6,018,291 A	*	1/2000	Marble et al.	....	340/426.12
6,049,269 A	*	4/2000	Byrd et al.	....	340/426.21
6,067,007 A	*	5/2000	Gioia	....	340/426.19
6,434,400 B1	*	8/2002	Villevieille et al.	......	455/550.1

* cited by examiner

Primary Examiner—Jeffery Hofsass
Assistant Examiner—Anne V. Lai
(74) Attorney, Agent, or Firm—Mark S. Walker; Streets & Steele; Jeffrey L. Streets

(57) **ABSTRACT**

A method, computer program product, and system for alerting authorities during a car theft. A personal identification number, either a normal code or a duress code, is received into an vehicle security system. If the duress code has been entered, then the security system is disarmed, wherein the vehicle may be entered and driven away without any indication of an alarm. However, the duress code triggers a process by which authorities are notified and the location of the vehicle may be provided. The vehicle is disabled upon a certain event or condition, such as a pre-determined amount of time passing or a pre-determined distance driven. The method may also require satisfying a second event or condition before disabling the vehicle, such as the vehicle traveling at a low speed, in order to avoid causing an unsafe condition. The duress code preferably has an identical number of alphanumeric characters as a normal personal identification number entered to disarm the security system.
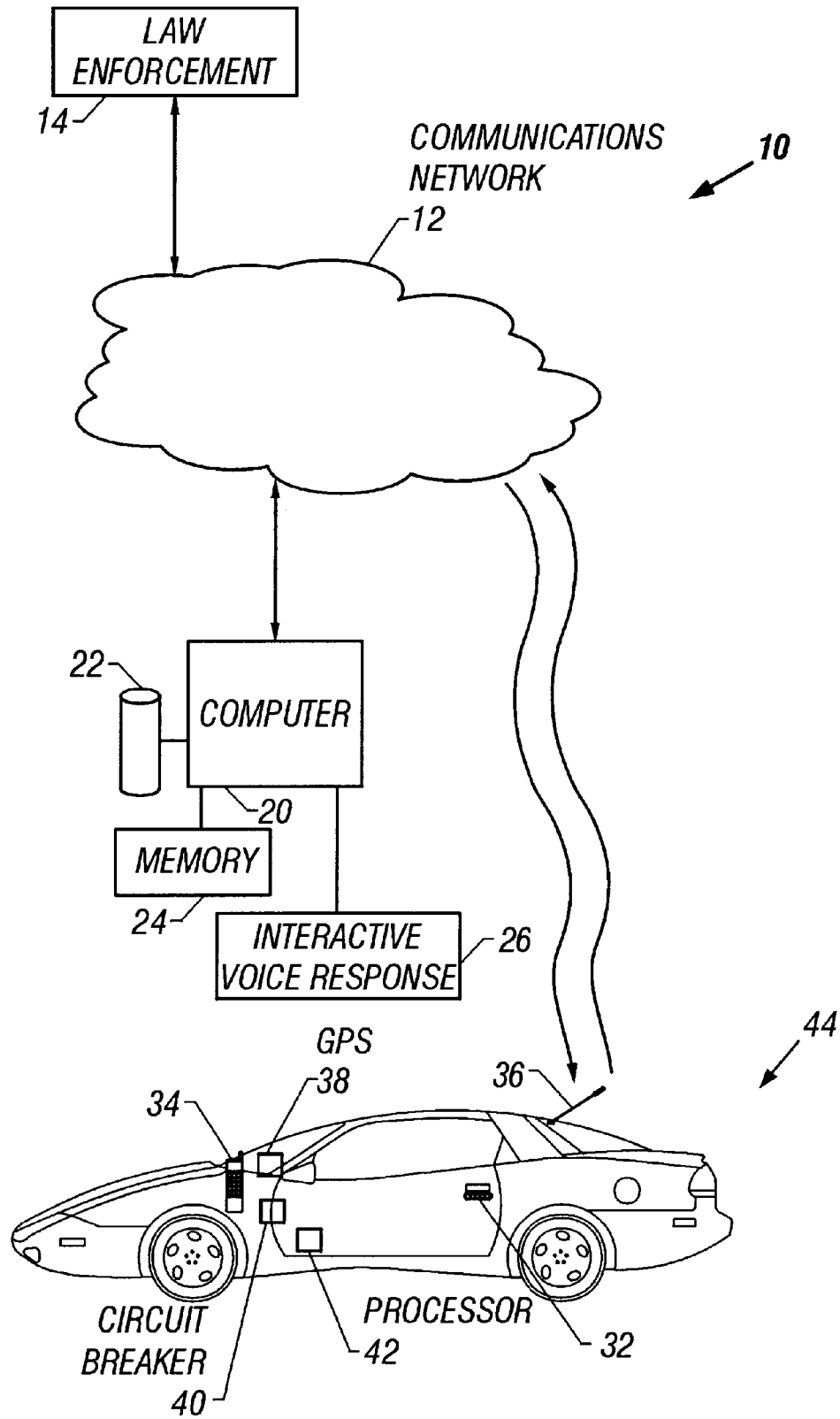
30 Claims, 3 Drawing Sheets

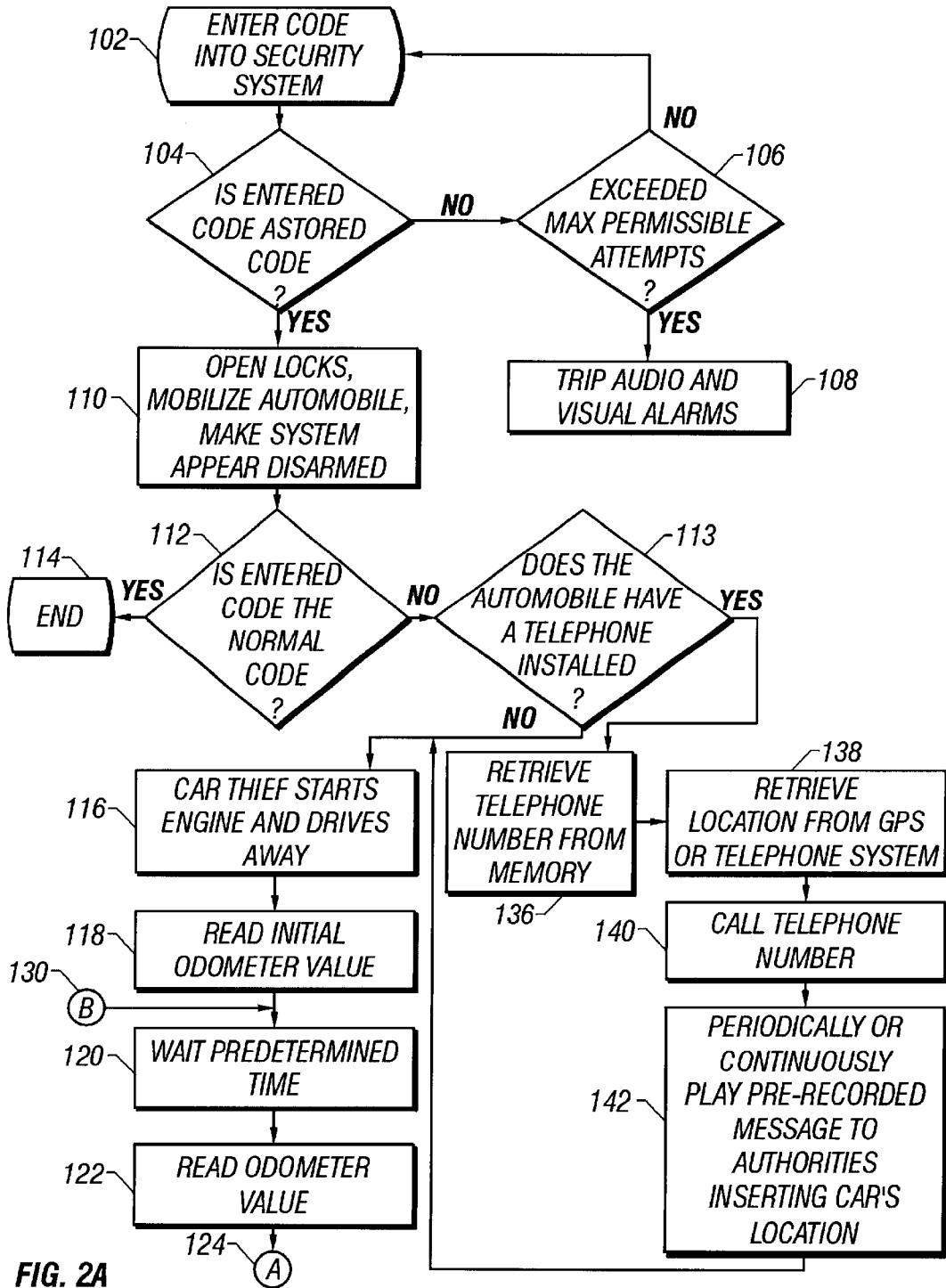**FIG. 1**

FIG. 2A

102 — ENTER CODE INTO SECURITY SYSTEM

104 — IS ENTERED CODE ASTORED CODE ?

106 — EXCEEDED MAX PERMISSIBLE ATTEMPTS ?

NO

YES

YES

108 — TRIP AUDIO AND VISUAL ALARMS

110 — OPEN LOCKS, MOBILIZE AUTOMOBILE, MAKE SYSTEM APPEAR DISARMED

112 — IS ENTERED CODE THE NORMAL CODE ?

113 — DOES THE AUTOMOBILE HAVE A TELEPHONE INSTALLED ?

114 — END

YES

NO

YES

NO

116 — CAR THIEF STARTS ENGINE AND DRIVES AWAY

136 — RETRIEVE TELEPHONE NUMBER FROM MEMORY

138 — RETRIEVE LOCATION FROM GPS OR TELEPHONE SYSTEM

118 — READ INITIAL ODOMETER VALUE

140 — CALL TELEPHONE NUMBER

130 — B

120 — WAIT PREDETERMINED TIME

142 — PERIODICALLY OR CONTINUOUSLY PLAY PRE-RECORDED MESSAGE TO AUTHORITIES INSERTING CAR'S LOCATION

122 — READ ODOMETER VALUE
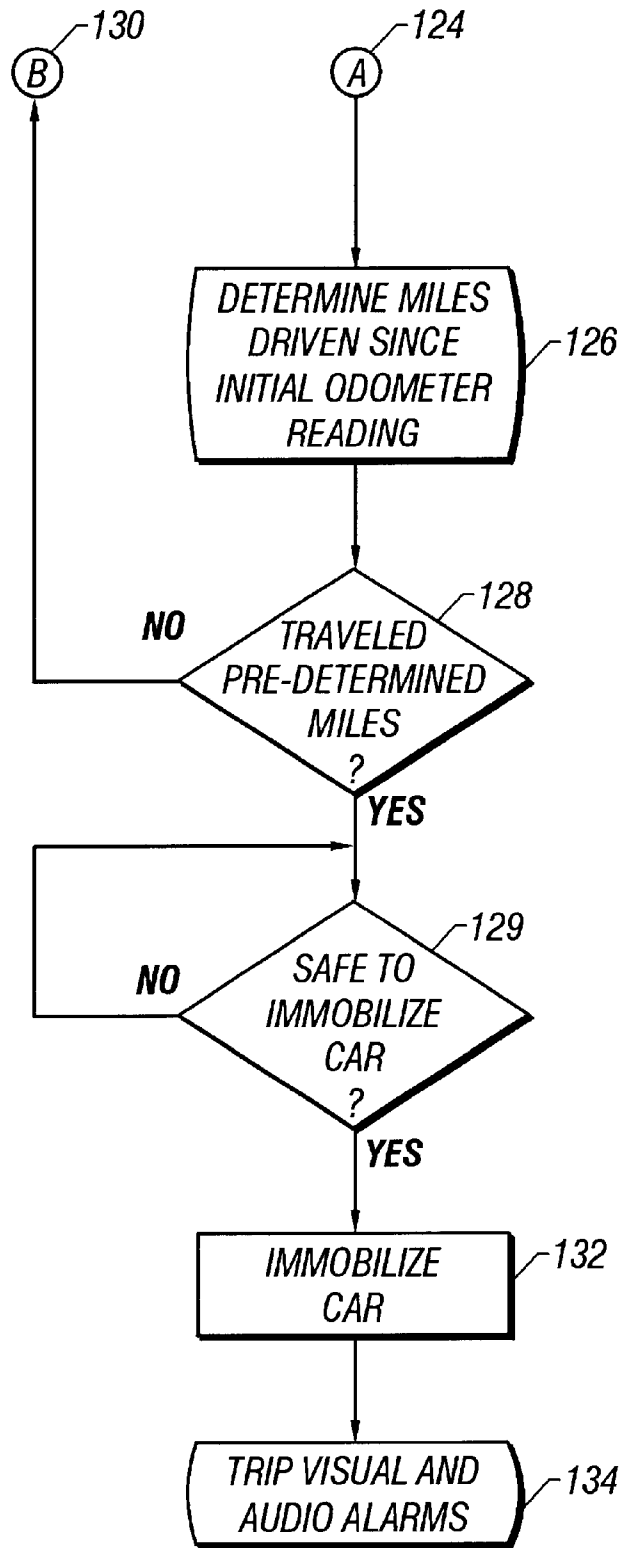
124 — A

FIG. 2B

VEHICLE SECURITY SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to security systems for vehicles and more specifically, to methods for notifying or summoning authorities during a crime in progress.

2. Description of the Related Art

There is good reason for car owners to take precautions when approaching their cars in a public parking lot, especially if they are alone at night. Car thieves will sometimes directly confront or assault a car owner and forcibly take the car. When confronted with such a threat, the first concern of the car owner is to escape to safety, even if escaping requires the owner to abandon the car to the thief. Nevertheless, there is a need for a vehicle security system and method that will frustrate the purpose of the car thief.

A conventional car security system may either sound an alarm or disable the vehicle immediately at the time of theft. Such a system may be ineffective since an experienced car thief will recognize the existence of the vehicle security system. Furthermore, disabling the vehicle during a forcible robbery in the presence of a car owner or operator can be dangerous, since the prolonged contact between the car owner and thief allows the thief to direct violence against the car owner.

Therefore, there is a need for a method and system that notifies appropriate law enforcement or security authorities of the crime in progress. It would be desirable if the method and system facilitated separation of the thief and the car owner by allowing the car thief to drive off. It would be even more desirable if the method and system enabled a quick and simple recovery of the car.

SUMMARY OF THE INVENTION

The present invention provides a method, computer program product, and system for alerting authorities or emergency contacts during a car theft. The method comprises receiving a personal identification number into a vehicle security system; determining that a duress code has been entered; disarming the security system, wherein the vehicle may be entered and driven away without any indication of an alarm; and then disabling the vehicle upon satisfying a certain condition, such as a pre-determined amount of time or a predetermined distance. Before disabling the vehicle, it may be preferable to also satisfy a second condition, such as the vehicle traveling at a low speed, in order to avoid causing an unsafe condition. Preferably, the duress code has an identical number of alphanumeric characters as a normal personal identification number entered to disarm the security system.

The security system processor or controller within the vehicle determines that the duress code has been entered by reading the entered code, and then comparing the entered code with the duress code that is stored in memory. The vehicle is then later disabled by various means, for example, by closing a solenoid valve in a fuel line or by opening a circuit breaker in an ignition power circuit. After the vehicle has been disabled, the security system may then alert people around the car by setting off an alarm selected from sounding the horn, sounding an alarm siren, blinking the headlights, blinking the tail lights or combinations thereof.

for authorities or other emergency contacts from the security system memory, and then silently calling authorities at the telephone number retrieved in order to notify them of the car theft and allow them to determine the vehicle's location. In the future, mobile telephone systems will have the capability to determine the location of a given mobile telephone (a capability referred to as "Enhanced 911") and using this feature would serve the present purpose. If a global positioning system is installed in the vehicle, the method further comprises reading the vehicle's location from the global positioning system, and then notifying the authorities of the vehicle's location. Notification may be by means selected from a pre-recorded message or an interactive voice response system, or combinations thereof.

The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of a preferred embodiment of the invention, as illustrated in the accompanying drawings wherein like reference numbers represent like parts of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic of a system that may be used to implement the present invention.

FIGS. 2A and 2B show a flow chart of a method for alerting authorities during a car theft.

DETAILED DESCRIPTION

The present invention provides a method for using a vehicle security system in a manner that provides an outward appearance of a typical use of the security system or other electronic device, but in reality the security system is being used to notify authorities or emergency contacts of a crime in progress and/or to disable a vehicle shortly after the vehicle is stolen. More specifically, the present invention uses an alternate code, or duress code, to replace a normal security code that must normally be entered into a security system or other type of device.

The user's duress code will preferably have a format that is similar to that of the user's normal code, so that it is improbable that a thief observing the user's entry of the duress code on the keypad would know that the user's duress code was entered since the number sequence is not readily identifiable. In particular, the duress code and normal code should contain the same number of characters and the same type of characters. Especially since the duress code appears to result in the disabling of the security system, the thief will presumably have no reason to suspect an alarm has been triggered.

In one embodiment, the system accepts a security code having a certain number of digits assigned to the user and a certain number of digits that are option codes. The option codes may allow the user to initiate a variety of predetermined actions or enter a variety of predetermined information. The predetermined actions may include, without limitation, setting an alarm, triggering a false error message, and calling a friend. Such predetermined actions are only limited by the nature of electronic communications and control, how widely the electronic communication of the network of the monitoring service will reach and the authorization that the user has provided to facilitate the requested actions. The predetermined information may include, without limitation, the user's duress, the number of thieves, the type of weapons carried by the thieves, and how many

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.