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(54) **THEFT DETECTION DEVICE**

(57)

ABSTRACT

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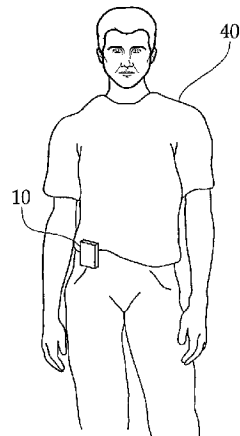
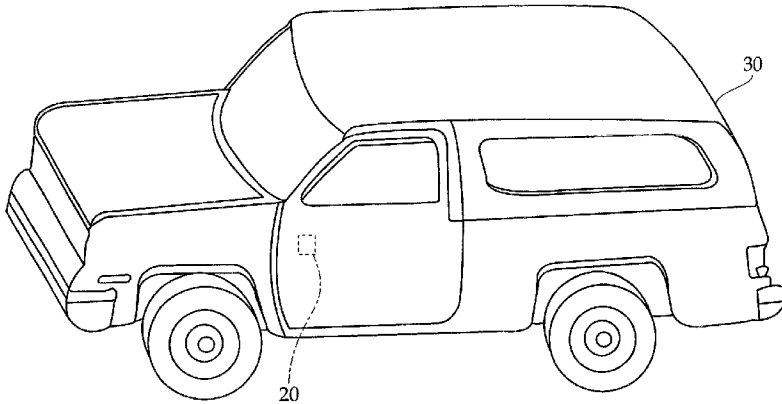
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A theft detection device, for warning a property owner that a item of property such as an automobile, a child, or a personal item has been brought beyond a predetermined acceptable distance, comprising a plurality of transmitters and a receiver. Each transmitter continuously transmits a unique signal. The receiver monitors the signals from the transmitters, and determines when the signal strength therefrom drops below a predetermined threshold level or is missing altogether. When the property is moved from the owner beyond an acceptable distance, the signal strength will drop below the threshold level and will not be detected, indicating an alert condition. Once an alert condition is established by the receiver, a beeping unit is activated to provide an audible warning to the owner that the property has been stolen, so that the authorities can be immediately notified.



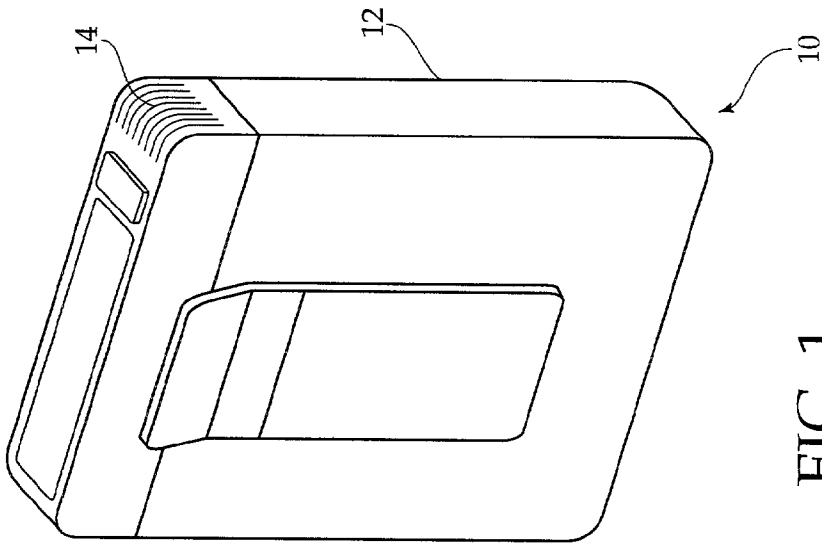


FIG. 1

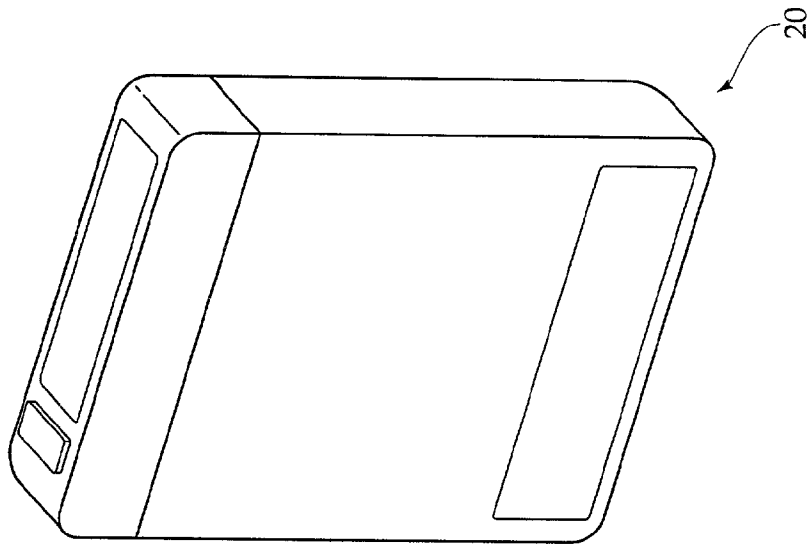


FIG. 2

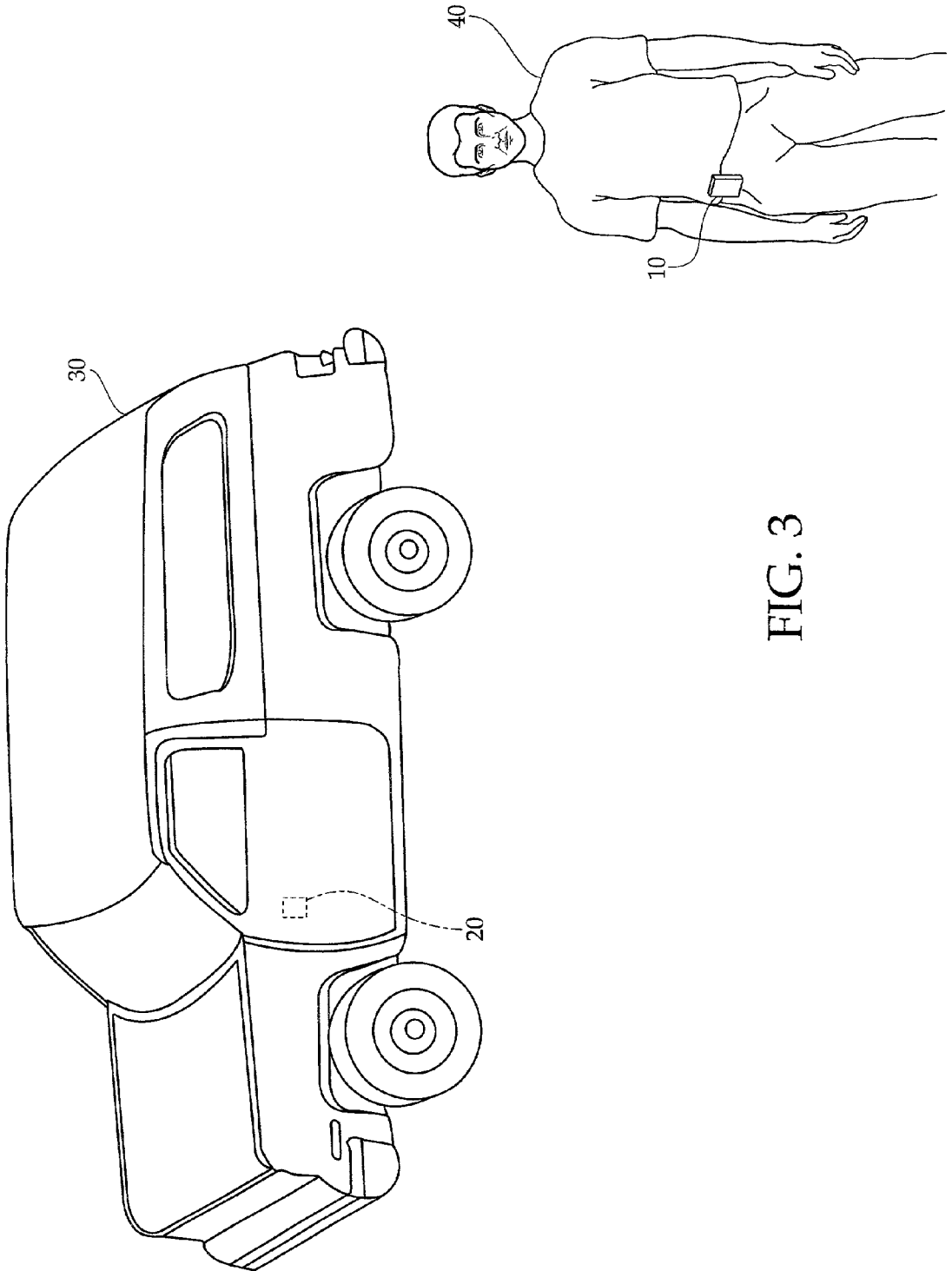


FIG. 3

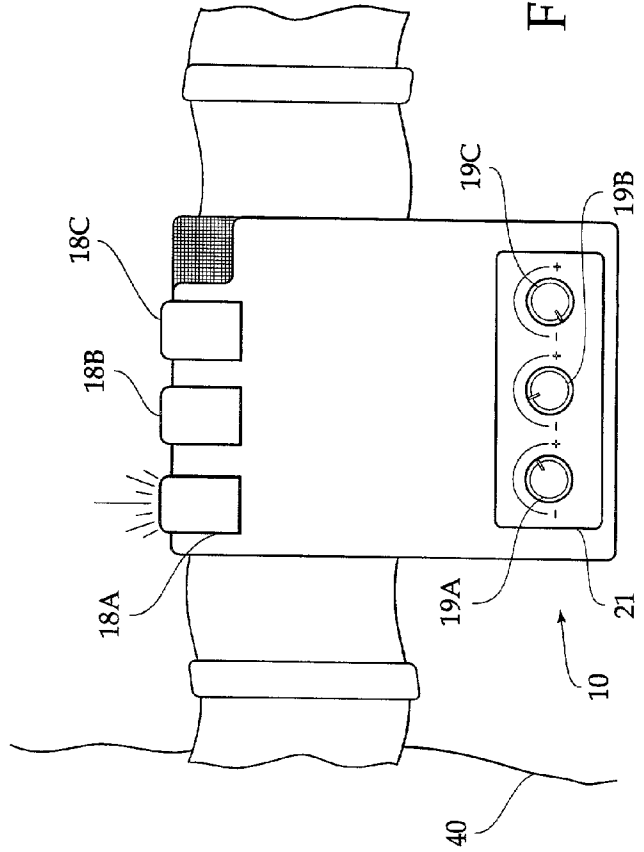
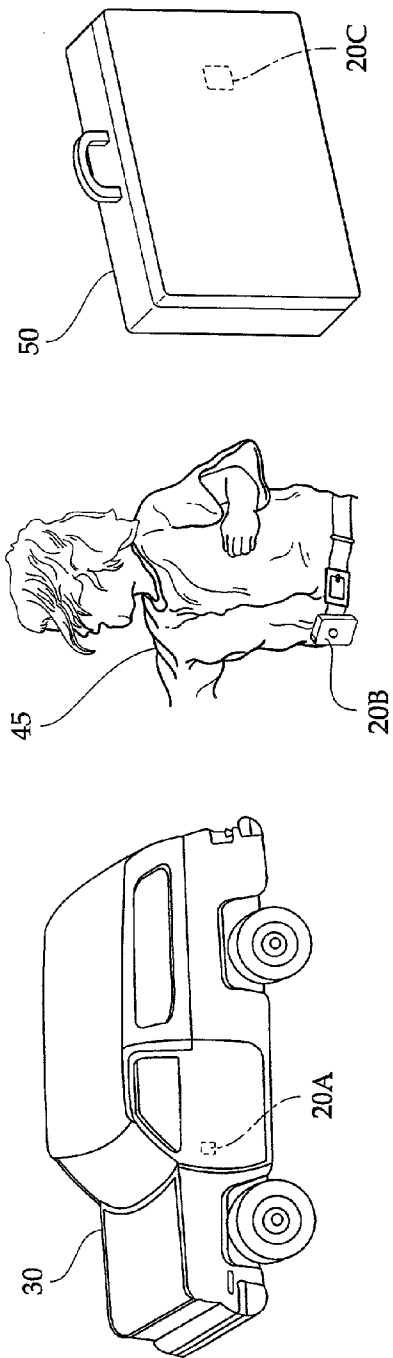


FIG. 4

THEFT DETECTION DEVICE

CROSS REFERENCES AND RELATED SUBJECT MATTER

[0001] The invention relates to subject matter contained in utility application Ser. No. 09/454,781, filed in the United States Patent Office on Dec. 3, 1999.

BACKGROUND OF THE INVENTION

[0002] The invention relates to a theft detection device. More particularly, the invention relates to a device for warning a property owner when a car has been stolen, because the property has exceeded a predetermined distance from the owner.

[0003] Police statistics indicate that millions of automobiles are stolen every year. Auto owners generally seek to prevent car theft through the use of alarms. Very frequently, the automobiles are stolen right beneath their owner's noses.

[0004] Alarms are generally ineffective in preventing automobile theft. A professional car thief can quickly bypass an automobile alarm. However, most people ignore car alarms, believing them all to be false alarms set off by owners who inadvertently trigger them. Accordingly, many thieves will continue to steal a car, even while the alarm sounds.

[0005] Accordingly, it has been well established that automobile alarms are ineffective at preventing car theft. Other solutions must be proposed in an attempt at combating auto theft.

[0006] Items of personal property are also stolen frequently each year. In particular, laptop theft encourages thousands of briefcase larceny incidents every year. Airports are a particularly popular site for such thefts. Other than requiring that the owner pay constant attention to such property, little can be done to prevent such incidents or even warn the owner that the property has been cleverly taken from the owner by a skilled thief.

[0007] Every year, abductions of young children number in the thousands. Parents seek to prevent abductions mainly through supervision and education.

[0008] Supervision seeks to deter would-be wrongdoers from abducting children, since abductors would typically cower upon the presence of an adult, and would fear the severe consequences if a witness were to identify them.

[0009] Education seeks to prevent abductions by teaching children not to talk to or accept a ride from strangers, to look for identifiable landmarks if they are abducted, to learn their home phone number or to dial "911" in an emergency, etc.

[0010] Neither supervision nor education is completely effective in preventing all child abductions. Accordingly, further help is needed to prevent abductions of children.

SUMMARY OF THE INVENTION

[0011] It is an object of the invention to produce a automobile theft prevention device which prevents auto theft, kidnapping, and the wrongful taking of personal property. Accordingly, the theft prevention device will warn a prop-

erty owner when the automobile, child, or personal property has traveled more than a predetermined distance away from the owner.

[0012] It is a still further object of the invention that the device is unobtrusive to the owner. Accordingly, the receiver of the invention may be embodied in "beeper-like" housings.

[0013] It is a further object of the invention that the device allows the proximity of several items of property to be monitored simultaneously. Accordingly, the owner is alerted when any one of these monitored items has been moved beyond an appropriate range, and is informed which item has been moved beyond said range.

[0014] It is a still further object of the invention that the appropriate proximity range for each of the monitored items may be separately adjusted by the user.

[0015] The invention is a theft detection device, for warning a property owner that a item of property such as an automobile, a child, or a personal item has been brought beyond a predetermined acceptable distance, comprising a plurality of transmitters and a receiver. Each transmitter continuously transmits a unique signal. The receiver monitors the signals from the transmitters, and determines when the signal strength therefrom drops below a predetermined threshold level or is missing altogether. When the property is moved from the owner beyond an acceptable distance, the signal strength will drop below the threshold level and will not be detected, indicating an alert condition. Once an alert condition is established by the receiver, a beeping unit is activated to provide an audible warning to the owner that the property has been stolen, so that the authorities can be immediately notified.

[0016] To the accomplishment of the above and related objects the invention may be embodied in the form illustrated in the accompanying drawings. Attention is called to the fact, however, that the drawings are illustrative only. Variations are contemplated as being part of the invention, limited only by the scope of the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] In the drawings, like elements are depicted by like reference numerals. The drawings are briefly described as follows.

[0018] FIG. 1 is a diagrammatic perspective view, illustrating a receiver suitable for use by a property owner, according to the present invention.

[0019] FIG. 2 is a diagrammatic perspective view, illustrating a transmitter, suitable for attachment to or within an automobile, a child, or a personal item, according to the present invention.

[0020] FIG. 3 illustrates a owner and automobile, wherein the owner is wearing the receiver, and the automobile is equipped with the transmitter.

[0021] FIG. 4 illustrates multiple property items which each have a transmitter, as well as a property owner wearing an embodiment of the receiver equipped for monitoring the separate transmitters.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] FIG. 1 illustrates a receiver 10 according to the present invention. The receiver 10 has a housing 12, which

may be configured similar to that of a typical pager. The receiver **10** has a beeping unit **14**, for producing an audible warning when an alert condition is established.

[0023] FIG. 2 illustrates a transmitter **20**, which is associated with an item of property. For simplicity sake, the term "property" as used herein can refer to an automobile, an item of person property such as a briefcase or luggage, or can even refer to children or pets.

[0024] The transmitter is shown in FIG. 2 as being embodied in a pager-like housing, so that it may be portable. Accordingly, the transmitter **20** could be used with different types of property, and with in different automobiles. Alternatively, when used with automobiles, the transmitter **20** could be permanently installed in the automobile, and hard-wired to the vehicle's electrical system, so as to derive a constant source of power therefrom. Other possible configurations and housings for the transmitter include, but are not limited to watches, bracelets, animal collars, buckles and even shoe heels.

[0025] In FIG. 3, an automobile **30** contains the transmitter **20**, and an owner **40** is wearing the receiver **10**. At all times, the receiver expects a continuous signal from the transmitter, and expects that signal to be of a signal strength that exceeds a predetermined threshold strength which would indicate an acceptable distance between the owner and automobile has not been exceeded. The acceptable distance might be set by the owner at a distance such as one hundred twenty feet, or may be set as the average distance between a parked automobile and the owner's apartment. The signal preferably consists of a unique identifying signal transmitted at a constant interval—for example, every three seconds.

[0026] When the automobile **30** is moved from the owner **40** by more than the acceptable distance, the signal strength from the transmitter **20** will drop below the threshold level so that the identifying signal will not be detected, and an alert condition will be established. In response to the alert condition, the beeping unit **14** will be activated to warn the owner that the automobile has been moved beyond the acceptable distance. In response to the beeping signal, the automobile owner will know conclusively that the automobile has been moved—since the distance between an automobile and a stationary owner would not otherwise vary. Accordingly, the owner can immediately alert the authorities of the theft.

[0027] The device may be attached to an existing car alarm or, alternatively, installed into an automobile in place of a car alarm. Further, the device may be wired to a car battery in order to maintain a constant signal to the owner of the automobile.

[0028] In the example provided in FIG. 3, the property monitored is an automobile. However, as previously described, the same principles would apply to the proximity monitoring of a child or any item of personal property. Accordingly, in FIG. 4, a further embodiment of the system is illustrated wherein separate transmitters **20A**, **20B**, and **20C** are attached to or located within an automobile **30**, a child **45** and a briefcase **50**, respectively. The receiver **10** is attached on the owner **40**, as in the previous embodiment. However, the receiver **10** has been modified to allow separate monitoring of the distinct transmitters **20A**, **20B**, and **20C**.

[0029] Each of the transmitters **20A**, **20B**, and **20C** transmit a unique identifying signal associated with that transmitter at a constant interval. The receiver **10** monitors these signals, and determines when one of the signals is missing. When one of the signals is missing, an alert condition is indicated, causing an audible alarm to sound. However, a unique visual alert is also provided to indicate which of the transmitters has exceeded the predetermined proximity. The unique visual alert comprises distinct indicating lights **18A**, **18B**, and **18C**, whose illumination indicates an alert condition for transmitters **20A**, **20B**, and **20C** respectively.

[0030] In addition, the acceptable distance can be set with a distinct sensitivity controls **18A**, **18B** and **18C**, which set the acceptable distance for transmitters **20A**, **20B**, and **20C**, respectively. By controlling the sensitivity, each of the sensitivity controls will vary the threshold by which that the unique signal from its associated transmitter will not be detected and thus will be deemed an alert condition. Apparent from the illustration in FIG. 4, for transmitter **20A**, its sensitivity control **18A** is set for long range reception, since it is acceptable to have an automobile a considerable distance from the owner without a theft situation existing. However for transmitter **20B**, its sensitivity control **18B** is set for medium range, since it is less acceptable to have a child wander such a distance, which might indicate a kidnapping. Further, for transmitter **20C**, its sensitivity control is set for short range, because even a slight distance between the briefcase and the owner tends to indicate a theft.

[0031] In conclusion, herein is presented an theft protection system which allows owners to safeguard their property by warning the owner that their property has been unexpectedly moved an unacceptable distance from said owner.

What is claimed is:

1. A theft detection system, for preventing the theft of a plurality of items of property from an owner, comprising:

a plurality of distinct transmitters, each transmitter associated with one of the items of property, each transmitter having a unique signal and a predetermined acceptable distance that the receiver should not exceed from the transmitter; and

a receiver, for separately monitoring and detecting the unique signals from each of the transmitters and assuring that each unique signal exceeds a threshold level, and for visually and audibly indicating when one of the unique signals is not detected above the threshold level which indicates that the transmitter has exceeded the acceptable distance, the receiver has distinct visual indicators for each of the transmitters for indicating to the owner which of the transmitter has exceeded its acceptable distance, wherein the acceptable distance for each transmitter is separately settable.

2. The theft detection system as recited in claim 1, wherein each transmitter transmits its unique signal at a constant interval.

3. The theft detection system as recited in claim 2, wherein the acceptable distance for each transmitter is set by a distinct sensitivity control which determines the threshold beneath which the unique signal from that transmitter will not be detected.

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