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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G08B 25/01	A1	(11) International Publication Number: WO 96/20464 (43) International Publication Date: 4 July 1996 (04.07.96)
(21) International Application Number: PCT/CA94/00703 (22) International Filing Date: 23 December 1994 (23.12.94) (71)(72) Applicant and Inventor: GREEN, Diane, P. [CA/CA]; 730 St. Clarens Avenue #703, Toronto, Ontario M6H 4E8 (CA).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ). Published <i>With international search report.</i>
(54) Title: A PERSONAL GPS SECURITY SYSTEM (57) Abstract A fully automatic personal security system which combines the benefits of world-wide LORAN-C or GPS navigation. The security system comprises satellite imaging means (14), detection apparatus (15), electronic surveillance interrogator (16), mobile interrogator (17), implanted electronic memory circuitry or chip (18) which transmits a uniquely coded beacon signal in response to a general interrogation signal in addition to a second more important physiologically controlled emergency frequency which communicates emergency data including position coordinates, and a central dispatch station (19) which receives the emergency data and accurately displays all necessary emergency information, superposed on a digitized map at a position corresponding to the specific location of an emergency frequency emittance.		

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A PERSONAL GPS SECURITY SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the invention

5 The present invention relates generally to an elaborate security system for protecting a human being hereinafter referred to as "host". In turn "host" refers to any living creature of value. Measuring the "value" of any living creature is relative. A prized race horse or beloved pet will fall within the scope of this invention.

10 In particular, the major component of the present invention is an implanted electronic memory circuit or chip hereinafter referred to as "chip," triggered mainly but not limited to noncontrollable physiologic parameters of the host for expediting a response by law enforcement personnel whenever his personal security is compromised. The reference "his" in this invention relates to both the male and female gender. In addition, a host
15 found to be in physical distress such as from a heart attack will also fall within the scope of this invention. Thus a variety of personal security conditions including a LORAN-C, GPS or any other positioning interrogation signal for lost or missing hosts may establish contact with the central station. The device then communicates longitude and latitude coordinate, emergency, and personal information to the central dispatch station 19. All
20 pertinent information is conveniently displayed to an operator at the central dispatch station in a manner which permits the most efficient dispatching possible of the proper responding authorities to administer appropriate security measures.

25 2. Description of the Background

As a society, we haven't been able to adequately prevent the widespread
uprise in violent crime. Statistics tell us that there are too numerous
murders, forcible rapes, robberies, aggravated assaults, child abductions
both by known and unknown hosts, burglaries, etc. Most times a violent
30 offender has been incarcerated more than once. Our continuing efforts to combat violent crime must be congratulated but we are still in need of assistance. A method of countering violent crime is proposed by utilizing the advantages of LORAN-C, GPS or other positioning means as well as providing even the slightest chance of saving the life of someone in serious medical
35 distress.

Prior art devices have been proposed for tracking lost pets or farm animals. For example, Netherlands Pat. No. 8,701,027 issued to B.J. Leferink and M.B.B. Gebbink discloses a means for providing farm animals with an individual distinguishing mark, particularly for identification and

registration. The aim of the invention was to implant a uniquely programmed transmitter (implanted electronic memory circuitry or chip) in the animals so that a transmission signal for each animal was received each time the transmitter was brought into brief contact with an electromagnetic field which externally induced the energy which was required for transmission.

Despite the above-described field of identification and registration, it is important to note that the prior art generally teaches the tracking of an animal that is within range to be scanned by a hand-held gun and antenna loop. For example, the prior art devices provide means of identifying animals that are safe and already in custody. However, the prior art does not offer an Loran-C or GPS interrogator means for a specific host or provide means for dispatching emergency personnel to a host in distress.

Another important factor of this invention relates to the Personal Digital Assistants (PDA's) of today. They offer handwriting recognition. Marks made on the screen may be translated into the digital representations of the printed or handwritten characters they symbolize. But these recognition software packages are still in a fairly primitive stage, and recognition is often slow and inaccurate enough to render the product ineffective. Surprisingly, individual handwriting techniques may vary to such a extent that it would take a powerful software program to adequately provide the first time user with not only a worthwhile but truly functional product.

A proposal is made to combine the benefits of a controller; similar to that of a personal digital assistant (PDA); LORAN-C, GPS, or other positioning means along with improved handwriting recognition software as outlined later, and/or verbal dictation means through a speech recognition component.

It is further proposed that a controller as described above be combined with a highly confidential identification scanning means for security purposes where one or more hosts are gathered together in a crowd.

Still, prior art devices have been proposed for monitoring the comings and goings of one or more hosts in a controlled environment. For example, a United States Pat. No. 5,341,126 issued to Roger O. Boykin provides a magnetic cuff or anklet to announce movement upon which the magnetic cuff or anklet is attached when passing through an entrance way.

However, the following proposed electronic surveillance interrogator, as described below, will not only provide law enforcement personnel the opportunity to plan their line of attack in advance but also help to protect museums, banks and airports, etc. from dangerous or unwanted felons. In short, law enforcement personnel are offered that essential edge through

improved performance if the intruder or intruders are known ahead of time.

SUMMARY OF THE INVENTION

5 It is, therefore an object of the present invention to provide a personal security system which promptly alerts a central dispatch operator to an emergency situation in progress. Information displayed on a digitized map will allow for efficient dispatching of emergency personnel to a host in distress.

10 It is an object of the present invention to provide a means of continuous sensing or communication between the implanted "chips" and central dispatch control system through 24 military satellites orbiting the earth.

15 It is an object of the present invention to provide a chip with special encrypted data to be read only by those authorized to do so. Unauthorized interrogations shall not provide the administrator with confidential information. It is an object of the present invention to provide a chip that adapts to the individual physiologic parameters of each host such as heart rate, blood pressure, etc. Upon implantation each chip will monitor the physical system until a determination is made as to the normal physical state of the host.

20 Additionally, it is another object of the present invention to provide a means for disengaging the emergency frequency feature from time to time. Records such as "Forms of Authorization" related to this particular feature manipulation should be maintained in an appropriate manner. Backup tests should also be performed to verify correct status, whether the feature is
25 indeed activated or not.

It is another object of the present invention to provide law enforcement personnel with the means of locating any lost or missing hosts once implanted with the chip comprising a transmitter with a uniquely coded beacon signal in response to a general interrogation signal.

30 It is another object of the present invention to provide the benefits of a uniquely designed controller for mass private use. The controller may be any suitable microprocessor, microcomputer, or microcontroller or its functional equivalent; preferably similar to that of a personal digital assistant (PDA); along with LORAN-C, GPS or other positioning means. Other
35 beneficial features include either improved handwriting recognition software and/or commonly known verbal dictation means through a speech recognition component.

It is still another object of the present invention to provide law enforcement personnel with a detection apparatus comprising a controller. The

controller as outlined above may be any suitable microprocessor, microcomputer, or microcontroller or its functional equivalent; preferably similar to that of a personal digital assistant (PDA); along with LORAN-C, GPS or any other positioning means, and highly confidential identification
5 scanning means for security purposes where one or more hosts are gathered together in a crowd. Additionally, features may include either improved handwriting recognition software and/or verbal dictation means through speech recognition.

It is another object of this invention to provide a method for improved
10 handwriting recognition software through a training mode 29 wherein the user may program his or her handwriting into the computer memory via writing on the screen or other platform means.

It is yet another object of the present invention to provide law enforcement personnel with a means of establishing two-way verbal contact
15 utilizing the aforementioned controller enhancement with the central dispatch operator or more specifically their own home base or station.

It is further another object of the present invention to provide the central dispatch officer or home base with a means of relaying a facsimile depiction; through control of the mother controller to the enhanced
20 controller, of any information such as mug shots, in addition to any scanned satellite images that may help a law enforcement officer in the carrying out of his duties.

It is still another object of the present invention to provide central dispatch operators with a quick means of satellite imaging through control
25 over any number of satellites. Each of these 24 satellites are potentially linked to a multitude of telescopes. Thus, control of this nature may adequately provide law enforcement personnel with an understanding as to what an emergency situation entails where there is more than a single incident in a similar geographical area. Means for storage and production of hard copies
30 are also provided.

It is another object of the present invention to provide law enforcement personnel with a means of greater safety measures by accurately identifying any intruder ascertained to be illegally within a dwelling or involved in the commission of a crime prior to actual physical confrontation with said
35 intruder.

It is yet another object of the present invention to provide commercial or residential security monitoring agencies with greater electronic identification means. One that will allow the operator at the central dispatch station 19 to work more closely with local law enforcement agencies

by accurately identifying any intruders equipped with the chip. For security purposes, this code should be decipherable by police investigation only.

Furthermore, it is another object of the present invention to provide commercial or residential security monitoring agencies with a mobile interrogator / transponder device which may itself be interrogated at any time for locating lost or stolen valuables.

It is another object of the present invention to provide law enforcement agencies with the means of enforcing judgements such as restraining orders, and conditions of bail. Conditions of bail may restrict the host to certain geographical boundaries or forbid him from knowingly associating with other more specific hosts.

Finally, it is an object of the present invention to provide law enforcement agencies with the means of compiling data through software control concerning abnormal behaviour once a pattern has been established over a period of time.

According to the present invention, the above-described and other objects are accomplished by providing a method for both communication and interaction between host and law enforcement personnel utilizing the benefits of world-wide LORAN-C, GPS or other positioning systems.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features and advantages of the present invention will be more readily apprehended from the following detailed description in connection with the appended drawings, in which:

FIG. 1 & 2 depicts potential implantees.

FIG. 3 depicts a top view section of a chip.

FIG. 4 depicts a side view section of a chip.

FIGS. 5, 5A and 5B depict a satellite with a communication link between central dispatch and police for finding lost children.

FIGS. 6, and 6A depict satellite and central dispatch monitoring everyday life.

FIG. 7 depicts a child in the process of wandering off with a stranger.

FIG. 8 depicts a crowd which may be interrogated by an officer equipped with scanner.

FIG. 9 depicts a man in an airport which may be an escaped felon.

FIG. 10 depicts a couple exercising; emergency frequency shall not activate.

FIG. 11 depicts an officer in communication with homebase.

FIGS. 12 and 13 show various types of interrogators.

FIG. 14 depicts a view of a multitude of telescopes (broken apart); each manipulated by a central dispatch operator.

FIG. 15 depicts a top view of these telescopes.

FIG. 16. depicts an officer in communication with homebase.

FIG. 17 depicts a threat which will induce an emergency frequency activation.

FIG. 18 depicts a moneybag potentially equipped with a mobile interrogator.

5 FIGS. 19 and 20 show various styles of mobile interrogators with optional flashing lights.

FIG. 21 depicts a top view of a detection apparatus.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

10 The following description is of the best mode presently contemplated for carrying out the invention. This description is not to be taken in a limiting sense, but is made merely for the purpose of describing the general purposes of the invention.

A personal security system comprises satellite imaging means 14, detection apparatus 15, electronic surveillance interrogator 16, mobile
15 interrogator 17, implanted electronic memory circuit or chip 18 which transmits a uniquely coded beacon signal in response to a general interrogation signal in addition to a second more important physiological controlled emergency frequency which communicates emergency data when necessary to a central dispatch station 19 which is manned by a central
20 dispatch operator.

FIGS. 1 and 2 depict human beings potentially implanted with a chip. The chip 18 is to be placed in a location under the skin which is insensitive to external influences. Alternatively, the chip may be implanted in any other type of living host such as a race horse or beloved pet.

25 The chip 18 comprises a housing inside which electronic components are installed. These electronic components comprise: a transmitter unit; receiving unit; memory storage unit; and a power source. It is desirable that the chip provide for reliability, low cost, relatively long life of batteries or other power supplies and convenient to use.

30 Security over the chip 18 and its contents are of the utmost importance. Therefore the chip shall not be changed by any external magnetic or electric influences and it must have a lengthy lifespan. The longer the lifespan the better. But it is to be understood that the chip is constantly being monitored for weaknesses or unusual data errors; if the battery or other
35 power source should become weak or if there appears to be any hardware problems, the chip is targeted for re-implantation purposes and the host should be notified.

In the event of power loss it is suggested that the chip 18 be a) completely replaced and parts recycled or destroyed so as to avoid the

possibility of fraudulent use; and b) the power source from within the chip may be completely replaced or recharged by any known method of recharging internally or externally in or out of the host. To conserve the battery life, the beacon signal is preferably a periodic pulse transmission. Also in the case of exchanging power sources, the non-volatile memory can be depended upon to retain identification and history data when removed.

Potential for the emergency frequency to correctly activate for one person, but not the other when really needed is too great a disadvantage to overcome if using standardized chips. Therefore if emergency frequencies are to work effectively, the chip 18 must be able to identify with both the known and unknown state of each physical system by variant signatures. For many physical systems, physiological parameters comprise multi-dimensional regions. Heart rate, blood pressure etc., differ greatly from person to person. But each has their own inner and outer boundary from which is the norm. If the response signature lies wholly within the bounded region, the system is deemed to be in the known state. Conversely, if the response signature does not lie wholly within the bounded region, the system is deemed to be in a state other than the known state.

Upon implantation each chip 18 will monitor the physical system until a determination is made as to the normal physical state of the host. Stress is the body's response to external conditions that are emotionally upsetting or perceived as a threat. The resulting physiological changes are referred to as the fight or flight response which prepares the body to deal with danger. This response involves almost every organ and body function, including the brain and nerves, the heart and blood flow, the release of hormones, digestion, and muscle function. With day to day stress fluctuation is expected but is to be held within the bounded region.

Lifespan of the system may be extensive depending on the source chosen to power a chip. It is therefore intended to provide for a chip 18 that potentially calibrates itself to the user day to day. As the physical system ages, the bounded region fluctuates to adequately reflect its normal physical state.

When an emergency frequency is to be activated, a response signature representative of the unknown system state would have been compared to the calibrating but uniform signature representative of the known state. The difference between the two signatures is to be distinct; a severe rise outside the bounded region that is not momentarily broken. A person suddenly startled by a friend may register outside the bounded region but a decline toward the bounded region; however slight, is expected because the perceived

threat is gone.

Emergency frequencies are not to be activated by simple physical exertion but rather by real-life emergency situations. A gradual rise in heart rate etc., is expected during physical activity such as a leisurely jog
5 or hard aerobics. The purpose of the emergency frequency is to detect not only unnaturally high; but sudden increases of physiological parameters in the physical system.

Prior to an emergency frequency activation, time may be marked for data verification and a brief analysis will occur. If the response signature
10 representative of the unknown system state as compared to the calibrated but uniform signature representative of the known state severe then activation will occur.

Security over confidential information must be adequately protected if the public will even attempt to accept the idea of mass microchipping.
15 Measures to prevent unauthorized interrogations may include the utilization of an encryption feature. Chips 18 scanned by unauthorized interrogators may yield cryptic data only. A special code or codes may also be required before actual interpretation takes place. Police issue scanners as outlined later will be outfitted with security measures of its own.

Unfortunately, there are a number of reasons why the emergency frequency feature would no longer be necessary after implantation occurs. Therefore a means for deactivation and reactivation is provided by software control. False alarms are of great concern and should be taken into account when a host befalls the following: a sudden accident, illness, mental or physical
20 handicaps; any circumstance that would cause the host significant physical distress and therefore inaccurately send a message for help. It is to be understood that great care must be taken to ensure the proper maintenance of records for legal purposes. It is advised that a form (s) be filled out prior to any changes in the service provided by this personal security system such
25 as activation or deactivation of the emergency signal.

Implantation is recommended soon after birth. But a newborn is so often very fragile; his behaviour uncertain, it is suggested that the emergency frequency feature not be activated until a certain age. A parent may request activation at a later time; or activation may take place automatically
30 through software control when the child reaches a certain age.

Execution of implantation may be uniform in that every host receives said chip 18 in a specific limb for example. Likewise, the implantation may be strictly random; for security purposes only the administrator of the chip may know the exact point of insertion. Therefore no part of the human body

can be easily dismembered if the whereabouts of the chip is completely unknown. Preferably the chip would be implanted near a major artery; any attempt made to remove the chip by either the host himself or an undesirable such as a serial killer could render the host dead.

5 Method of implantation is in no way a part of the present invention although anyone skilled in the art will realize that transport of the chip 18 can be carried out using any mechanical means but preferably with the aid of some disinfectant so as to avoid the possibility of infection. It is also possible to allow transport to take place by any means of fluid means.

10 The chip 18 and central dispatch controller; the controller being any suitable microprocessor, microcomputer, or microcontroller or its functional equivalent, are in the state of continuous communication via GPS satellites. Information may be received and transmitted at any time 24 hours a day. Reliable monitoring behind the scenes by software control allows the dispatch operator (s) to deal with emergencies at hand without the distraction of
15 regular transmissions. When an emergency occurs or there appears to be a hardware problem with a particular transmission the controller designates it as a "priority" alert. As the situation continues to be monitored the central dispatch operator is made aware of a "priority" status as related information
20 appears on the controller display. Backup copies of the "priority" status readings may be preserved by tape, floppy or other retention means.

Chances are that a host may not always be in a view of a satellite. Subways or particular types of buildings may pose some problems. Whereas, reading and storing the last seven pulses transmitted from the chip 18 for
25 eg. will provide the controller a means of mathematically calculating the last known navigational position before falling out of view. The controller will be faithfully searching for the host once messages between it and the chip are disrupted. When and if the satellite finds the lost or missing chip and an emergency frequency has not in fact been activated the "alert" status
30 will be abandoned.

In the event of sudden death an emergency frequency will signal the central dispatch operator. But it is the intention of this invention to intervene before actual death occurs. If in view of a satellite, host deterioration or complete loss of vital signs are monitored by central
35 dispatch station 19. All pertinent information such as date and time of an emergency frequency signal activation, as well as rate of blood loss, and heart failure etc. right through to the actual death may be duly recorded and maintained in the chip 18 as well as the central dispatch backup system for future analysis.

It is advised that the chip 18 be equipped with a secondary; passive power source, one that may be powered by external means in the event that a host is found long after the life of the primary power source. Additionally, non-volatile memory can be depended upon to retain identification and history data when analyzed. Readings from the chip may offer a clue as to the events surrounding death.

FIG. 21 depicts a top view of a detection apparatus 15 for use by law enforcement personnel such as the police or FBI. Information displayed on the device is highly confidential. It is therefore intended to be used only by those authorized to do so. For security purposes it is advised that a special code be entered before each use. The on/off switch 27 may prompt the user to input a series of secret numbers before accessing the system. A GPS transponder 25 is also provided to aid in locating lost or stolen police issue hardware.

The enhanced detection apparatus 15 comprises a controller. The controller may be any suitable microprocessor, microcomputer, or microcontroller or its functional equivalent; preferably similar to that of a personal digital assistant (PDA); along with LORAN-C, GPS or any other positioning means, microphone 23, display 26, and more importantly a highly confidential identification scanning means 24 and activation switch 32. Additional features include handwriting recognition software and/or verbal dictation means 35 through a speech recognition system.

It is to be understood that a generic detection apparatus 15 may be just as valuable. It would incorporate a simple controller or its functional equivalent, microphone 23, display 26, confidential scanning means 24 and activation switch 32 and finally LORAN-C, GPS or any other positioning means.

The detection apparatus 15 hereinafter referred to as "scanner" includes a display 26; which is preferably a pressure sensitive display, allowing for not only writing thereof but for conveying messages between central dispatch and law enforcement personnel through a keyboard 36, digital or manual. The dispatch operator is able to transmit information through software control to the scanner 15 such as criminal records, mug shot pictorials, known aliases, in addition to satellite images that may allow the law enforcement officer a better understanding as to where a host (s) may be situated; whether nearby or possibly within a specific dwelling.

Additionally, central dispatch is provided a zoom function 28 to allow the operator to reduce or enlarge specific areas of a digitized map. These particular images may be transmitted to law enforcement officers out in the

field. In turn these images may be reduced or enlarged. Likewise, the officer may generate a search of his own with the appropriate digitized maps aiding in the location of a specific host (s). Other information that may be displayed on the scanner display 26 may also include: the identification of a host if a chip 18 is detected through manual scanning 32. Alternately, the scanner 15 may be fashioned to locate a specific chip where one or more hosts are in a crowd. The targeted chip may be recognized through any sensing or electromagnetic field 24 which is radiated outward or any other registering means. An audible signal may sound to alert the user of accurate identification.

Communication between field officers and their prospective home base or central dispatch is of utmost importance. Therefore a switch from digital (serial) communication 30 to voice communication 31 may occur at any time. In voice mode 31, the operator can better direct law enforcement personnel in an emergency situation. Voice mode 31 is especially useful if the officer signals a need for assistance.

A panel of indicator lights is provided under push buttons to indicate which of the push buttons have been depressed. In addition, an optional audible signal may be incorporated to sound when a push button has been depressed. A collapsible handle 37 is provided for easy handling.

It is to be understood that the aforementioned controller is provided for both private and public sectors. Therefore an enhanced controller without confidential scanning means is to be included in this invention.

The scanner 15 will be the law enforcement officers right hand aid. Field notes may be written on the pressure sensitive display 26 or verbally recorded 33 through verbal dictation means 35.

The controller may be programmed to recognize the voice of a particular individual or it may be dual programmed to interpret dialogue of several (potentially any) individuals taking into account the differences in speech patterns, such as inflections, pitch, accents, and other variations in spoken words through speaker independent technology. A law enforcement officer may be able to record conversations during encounters out in the field. Dictation may occur at the time of encounter or may take place at a later time. Alternatively, the user may chose to make hand written notes. Therefore a switch from digital 30 and/or verbal dictation 35 to handwriting mode 34 may occur at any time.

The present invention may utilize pre-programmed templates defining handwriting styles stored in the controller memory. Also included is a method of improved handwriting recognition software through a training mode 29

wherein the user may program his or her handwriting into the controller memory via writing on the pressure sensitive display 26 or other platform means. During the programming phase, the user may write or print discretionary words or in a predetermined sequence as pre-programmed by the controller. For example, the controller will cause the word "meeting" to be displayed on the associated displaying device. Then the controller will cause the display 26 to give an indication that the user is to write the word "meeting" on the display 26 or other platform means. At this point, the user may chose to accept the style or rewrite the word to his preference.

It is to be understood that handwriting styles may vary greatly even among single users. Built in dictionaries have been known to help in the recognition of words, but they are not 100% accurate. Words are often changed to other than what the user intended. Therefore it is necessary to provide a means for greater accuracy by storing more than a single likeness of a word. Even further it is to be understood that the controller may look for and understand four out of five letters of a word; the letter misunderstood may then be added individually or within its entirety to a template. An option for this addition may be provided through prompting. A series of drop down menus may aid the user. "Yes" or "No" may be highlighted. If addition is requested, the "Yes" selection is actuated. The very essence of the character (from start to finish; the bridge between other known characters) may be highlighted. In the event that a manual keyboard 36 is not incorporated in the design of the controller, a drop down miniature keyboard may be provided on the display 26 to indicate which of the unknown characters it represents. The user only needs to press the corresponding key and the controller will come to recognize it as another form of the user's own unique writing style.

Initially, the programming phase should be quick and easy for the user to understand. All letters of the alphabet will be encompassed through the programming of various words or strings of words. Certain letters will be concentrated on more than others such as the letter Z; ones that are less frequently used in everyday use.

After the programming phase is complete, the controller may still have difficulties understanding certain character representations due to the broad writing style of an individual. Therefore the user is given a choice as to make additions to a template during or after an entry is completed.

The present invention includes a test mode wherein the user may test the quality of the templates created in training mode 29. During the test phase the system will cause a word to the displayed on the screen and ask the user

to write the word. If the system matches the word recognition parameters with the word on the display, the system will give an indication that the word is correctly tested and move on to the next word. If there is no match, the system will prompt the user to either add the latest addition to its memory or begin the process over again by rewriting the word.

The present invention includes a control means, which is able to read the function keys. The system is turned on by holding down a function key as designated for a predetermined time. The training mode 29 is selected by pressing the same or other designated key. The test mode is selected by pressing other designated keys.

Satellite imaging is another very important aspect of this invention. It may provide law enforcement personnel a better understanding as to what an emergency situation entails, especially where there is at least one or more criminal occurrences within parallel geographical areas. Therefore multiple telescope manipulation is an aspect of this invention.

FIG. 14 depicts a view of a multitude of telescopes (broken apart); each manipulated by a central dispatch operator. FIG. 15 depicts a top view of these telescopes. Telescope casing 22 rotates on the stem 20 allowing the lens 21 to potentially focus on any given emergency.

Even with the uprise in violent crime, it has been found in some cases that police force numbers have not risen, but rather declined in areas where needed. The culprit most probably: budget cuts and the simple lack of dollars and cents in our ever fragile economy. Therefore it is desired to provide law enforcement officers a potential means of quicker response time where more serious cases of violent crime are being carried out against our fellow human beings.

Another aspect accredited to the use of satellite imaging is bringing about the principle of accountability for ones actions back to life. If it were universally assumed that becoming involved in the commission of a violent crime meant more easily apprehended and convicted offenders, one would be less likely to commit the crime.

As with any city in the world, there are certain populated areas requiring additional police attention due to higher outbreaks in crime. Therefore it is more advantageous for a central dispatch operator to utilize a system of telescopes 14 linked to their own satellite. An individual satellite may be linked up to 6 telescopes for example with each one being manipulated in any direction by central dispatch operators. Zoom features 28 may easily allow for close-ups or enlargements of any potential crime scene, especially neighbouring crime scenes. Up to six images may be displayed on

a single dispatch monitor at a time. Therefore any one or more of six monitored situations can be recorded 33 on demand. However, it is recommended that a more personal approach be taken such as one monitor and one or possibly two telescopes per dispatch operator.

5 With these cluster telescopes 14 at their disposal, central dispatch operators may perform a number of scans within their jurisdiction in the event of an emergency. Emergencies may entail the notification of central dispatch by an emergency frequency signal from an implanted chip 18 for example, whether medically or criminally induced. Detection of an emergency
10 frequency should effect a reading to be displayed on a monitor quickly identifying who specifically is in need of assistance. Central dispatch station 19 provides a zoom function 28 to allow the operator the reduce or enlarge specific areas of a digitized map in which the emergency frequency signal transmits. The dispatch operator may begin with a general map of
15 Canada and the emergency frequency signal would indicate a province in which an emergency has occurred. The dispatch operator may then zoom in on that particular province, city, then area, and finally pinpoint the street or building in which the host is tracked.

 Supplemental personal information may include social security numbers, names of relatives to contact in an emergency, special medical needs, and/or
20 medical records, as well as continuous physiological monitoring.

 At the same time, operators at central dispatch may initiate an additional search; or the search may be automatic through software control. The search entails a GPS radial scan which should readily identify additional
25 persons in the vicinity of the endangered. In turn any unusual but noncontrollable physiologic parameters such as excessively increased heartrate, blood pressure etc. will be instantly established. Therefore culpability in the event of a criminal act may be easier to determine; especially when coupled with eye witness accounts of the victim or
30 bystanders.

 Let it be understood that in all probability not every host will have been outfitted with an implanted chip. Accordingly, in the event that only a single frequency were detected; most probably the victims', a quick satellite scan utilizing a powerful multitude of telescopes 14 should provide
35 central dispatch with a better understanding at to what the "priority" alert situation entails. Important clues that might have otherwise gone astray due to the inadvertent lack of immediate police attention, may be preserved through controller storage and production of hard copies.

 Images transmitted to central dispatch may occur in any of a variety of

ways. The following examples are not to be taken in a limiting sense, but are made merely for the purpose of describing a means for data retrieval and storage.

5 Signals may be transmitted to: a) a relay station, which in turn transmits to central station; b) or transmits directly to central station. In any event these transmitted signals should effect the images scanned to be displayed on the central dispatch monitor. The dispatch operator determines whether an emergency situation is in progress.

10 It is to be understood that hospitals, seniors' homes, or thrill rides at theme parks; may be seen as potential trouble spots, and as such may be registered in the controller as hot spots with the aid of software which provides electronic mapping of cities as detailed below. Nevertheless, central dispatch operators should be required to check the integrity of data of each transmitted signal. A child on a roller coaster is not to be
15 construed as an emergency.

Databases can be created for addresses, landmarks, and the like. Databases consisting of street numbers and street names can be compiled in ASCII files, which can then be imported into a map scheme and individually located. Once these custom locations are saved to the map, the user has a
20 permanent record of locations, and other important data that appears on a map of a particular city.

If an emergency situation is in progress, the central dispatch operator may actuate a command to record the incident as it is being observed. Alternatively, records may be automatic through software control once central
25 dispatch has initiated a satellite imaging search. At the same time all physiological data is duly recorded. It is preferred that all data be stored on Cd-Rom because of its extensive storage capability. Additional backups may remain on the central dispatch controller for a designated period of time.

SURVEILLANCE MEANS

30 Another aspect of this invention relates to the electronic surveillance means of a host once detected in both authorized or unauthorized areas. An interrogator 16, as known in the art, or any other form of registering means can be discretely mounted near a door and/or recessed anywhere in the wall of a structure.

35 Interrogators 16 may be placed anywhere throughout an establishment. As such they are potentially mounted in the following areas: private dwellings, warehouses, banks, retail outlets, vehicles, armoured vehicles and/or commodity carrying pieces thereof, airports, government facilities etc., wherever the need arises.

When a person with an implanted chip 18 approaches an interrogator signal; the signal is received by an implanted chip. The chip will respond to the interrogation signal by giving coded information to the interrogator 16. Once interrogated, a hosts special identification code can be registered
5 in a small database or controller for a predetermined period of time. Alternatively, detection of unwanted hosts may be transmitted immediately to any form of security monitoring agency. For security purposes, this code should be decipherable by police investigation only. Date, time of entry and/or exit is important especially when a host is involved in the commission
10 of a crime.

The implanted chip 18 operates with two very important modes that provide for the following energy preserving measures: a) since the chip is in a state of continuous sensing by the central controller it need only discharge intermittent pulses in an effort to exact an efficient amount of
15 power from its internal battery or other power source; and b) when a host having a chip implanted therein wanders through a monitored area, the internal battery; or other power source, may terminate transmission of these intermittent pulses, in turn receiving power from the interrogator so as to preserve the life of the battery. When the stored energy from the
20 interrogation signal is not available, the internal battery or other power source within the chip 18 resumes operation.

Provided is a new and innovative interrogator device that may be attached to any distinct object of value such as a museum artifact. The combination interrogator / transponder 17 is mobile and is itself capable of
25 being interrogated by homebase or whatever the case may be, and its mere presence should be obscured so as to avoid immediate detection.

In the case of a stolen armoured truck commodity carrying piece, any information stored by the mobile interrogator 17, as attached to money sacks or the like, may be interrogated through GPS technology by central dispatch
30 or homebase. Any host found immediately near or within the vicinity of this mobile interrogator 17 for any unusual or prolonged periods of time may be questioned by law enforcement personnel for eye witness accounts. The mobile interrogator 17 comprises a transmitter unit, receiving unit, an interrogator unit and memory storage unit or any other element needed to provide for the
35 scope of this invention.

Features of the mobile interrogator 17 that may be attached to any suitable object of value may include any one or more of the following:

a) in the event of loss or theft the object in addition to the identity of the carrier; if chip implanted, may be traced at any time by a security

monitoring agency through GPS technology;

b) programmed to remain within a designated area right down to the inch. Tampering or attempted removal may induce an emergency frequency of its own;

c) programmed to move with designated hosts only and within certain time frames; d) retention of data such as date, time, identity and location of the last several known hosts for example to have come within close proximity of said object. Particular variants of data stored in memory is relative;

e) draw primary yet uninterrupted power supply through modern technology;

f) rely on its own internal battery or power source when out of range of primarily supplied power source;

g) potentially equipped with a passive power source, one that may be powered by external means in the event that an object is found after the secondary power source such as battery had died. Additionally, non-volatile memory can be depended upon to retain identification and history data when analyzed. Readings from the object may offer a clue as to its journey if lost or stolen;

h) periodic recordings as well as objects found stationary after a certain period of time may trigger the calculation of new longitude and latitude coordinates;

i) all data such as description of item, owner of item, etc. may be maintained in both the mobile interrogator device as well as the central dispatch database. For security purposes, manipulation of data such as registered ownership should not be easily affected by external sources unless authorized to do so. Pass codes may be helpful to ensure security over data changes; and

j) alert central dispatch of low or rapidly diminishing power supply.

These mobile interrogators are intended for both private and public sector use, although control over security issue units such as those potentially used in museums are of utmost importance. Measures should be taken to provide for access of internal circuitry only by those authorized to do so.

By all rights any unwanted tampering of this mobile interrogator should evoke emergency measures of its own. If the signal from this mobile device is out of satellite view and tampering continues in an attempt to remove stored data such as the name of a registered owner, the internal device might become totally inoperable. Benefits are realized when manipulation of data cannot occur. On the other hand, if tampering is successful and the emergency frequency is not detected by central dispatch, non-volatile memory must be

depended upon to retain identification and history data if the mobile interrogator 17 is in fact ever recovered at a later date.

Security of these units is of paramount importance to prevent fraudulent use. But most important of all, it is strongly recommended that any mobile interrogator 17 employed in the commission of a crime be interrogated and any or all information obtained thereof albeit coded, be deciphered by police investigation only. The identity of perpetrators should be adequately protected from unauthorized personnel. More importantly, a mobile unit shall not be manipulated to randomly interrogate people and illegally imitate another's identity.

EXAMPLES OF HOW THE SECURITY SYSTEM MAY BE USED

The following are some examples in which the personal security system may be used:

MURDER - In general operation, the occurrence of a variety of security conditions will compel the chip 18 to transmit an emergency frequency signal which will require immediate attention from an operator at the central dispatch station 19. When a communication link is established, the chip communicates longitude and latitude coordinate data, as well as emergency and personal information such as name etc., to the central dispatch operator. The information is conveniently displayed to the dispatch operator along with continuous physiological monitoring.

Execution of a GPS radial scans might readily identify other hosts or a quick satellite scan with powerful telescopes 14 may better explain the situation at hand. Important clues may be preserved through controller storage and production of hard copies.

CHILD ABDUCTIONS - A child abducted may be quickly found if implanted with the chip 18. An emergency frequency activation or GPS interrogation may quickly advise the authorities of the child's whereabouts. This technique would facilitate recovery in both parental and stranger abductions. Divorce related abductions are amazingly high, and an emergency frequency may not be activated since a child would not perceive his parent as a threat. Interrogation is essential in these cases.

ADULT ABDUCTIONS - Both males and females have fallen prey to abductions. Some are never heard from again; while others are found murdered with their anguish and its perpetrator never exposed. Future incidents may be reduced drastically if an implanted chip 18 was employed. Circumstances leading up to a missing person report may vary but ultimately this filed report will provide the law enforcement officers with a legal means of GPS interrogation.

VIOLENT RAPES - In some cases rapists are repeat offenders. If incarcerated, they are eventually paroled by convincing everyone that they have learned their lesson and they would never rape again. Such is not always the case. Both women and men alike are victims of violent rape, and if equipped with the chip 18 an emergency frequency may help a victim escape this fate.

AIRPORT SECURITY / HIJACKINGS - Metal detectors coupled with interrogators 16 may aid airport security in the detection of wanted or dangerous felons. As a person passes through the detector system, his presence is registered and silent alarms are sounded. Security is alerted to the presence of this offender. Identification codes are required to be pre-programmed in the security database. When a match is detected, security is instantly informed and local authorities are notified. Within minutes he may be taken into custody for questioning.

CONVICT ESCAPES - Persons wanted by local or national authorities wouldn't succeed in being so elusive. Anyone having been implanted with a chip 18 can never, ever easily escape again without being detected throughout the world. A GPS interrogation should quickly reveal his or her whereabouts.

BURGLARIES - A simple store theft or sophisticated heist of historical treasures, museum artifacts, or priceless gems would otherwise be stopped through the use of mobile and/or improved electronic surveillance interrogators 16.

When an intruder wanders through a portal his presence may be immediately registered by electronic surveillance interrogators 16 mounted near a door and/or recessed anywhere in the wall of a structure. Once interrogated, a silent alarm may alert the security monitoring agency which in turn notifies local authorities. An exact number of intruders as well as codes reflecting their identity may be easily furnished. True identification should be decipherable by police investigation only. Interrogators 16 and 17 may also be programmed to simply retain information related to the crime without the collaboration of any security monitoring agencies. Police investigation will still be required for deciphering the true identification of an intruder.

Mobile interrogators 17 have a dual function; to interrogate and be interrogated itself at any time. Security over a priceless item may be ensured by attaching a simple mobile interrogator to it. Once positioned in a gallery, execution of a GPS scan will determine the exact longitude and latitude coordinates of any item deemed to be of value. These coordinates are then locked in the computer memory. Movement, however slight, will actuate

an immediate response by central dispatch or homebase, whichever the case may be.

5 MEDICAL EMERGENCIES - Persons requiring immediate medical attention would benefit from an implanted chip 18. A signature response outside the bounded region is cause to activate the emergency frequency feature. Once geographically located, assistance will be on its way. Physiological parameters are duly monitored by a central dispatch operator.

10 RED FLAG FREQUENCIES - Potentially red flag frequencies may be put on such citizens as police officers or recently paroled convicts. An officers' safety is imperative out in the field. Activation of his or her emergency frequency however housed; by chip 18 or scanner 15, will cause the situation to override all others monitored at central dispatch.

15 Likewise, the whereabouts of a paroled convict may be closely monitored at all times. Thus, parole violations may be kept to a minimum, and hosts may effectively be kept away from another. Depending on stipulations at time of conviction a Judicial Judge may specify that a paedophile not be found within so many feet of a specific child or children under a certain age, although an encounter between a particular host and child; whilst meeting briefly in passing, will not be enough to red-flag the situation. An extended time period of close-proximity (time allowances being kept within reason) will give cause to investigate for the possibility of infractions.

20 TROUBLE READINGS - It is the intention to potentially provide authorities the means of compiling data through software control concerning abnormal behaviour once a pattern has been established over a period of time. Unusual behaviour might involve two implanted hosts coming within close proximity at unusual times, such as in the middle of the night. This alone isn't enough to red-flag the situation. But specific patterns coupled with sporadic readings slightly outside the bounded region are. Chips sensed are identified by name and age. If the chip 18 emitting trouble readings is determined as belonging to a minor the chip is red-flagged. The number of occurrences may be ten or twenty before the controller targets the individual for potential investigation. Chances are instances of child abuse where it exists may be diminished. Whatever the case, children discovered to be under severe stress must be appropriately dealt with. Their happiness and well being is a common goal for all parents.

35

CLAIMS

1. A security system comprising:
 - means for generating an interrogation signal;
 - means for transmitting a general signal in response to an interrogation
 - 5 signal;
 - means for transmitting an emergency signal in response to a physiological condition;
 - means for receiving said emergency signal.
2. The security system according to claim 1 wherein said emergency signal
- 10 contains coordinate or location information.
3. The security system according to claim 1 wherein said means for receiving said emergency signal comprises a relay station means.
4. The security system according to claim 2 further comprising telescope
- 15 means to image an area where an emergency signal is detected.
5. The security system according to claim 4 wherein said telescope means comprises a plurality of telescopes capable of imaging multitude areas substantially simultaneously.
6. The security system according to claim 4 further comprising means to store said images for further reference.
- 20 7. The security system according to claim 1 wherein said means for transmitting a general signal and an emergency signal comprises a chip with a transmitting unit, a receiving means, a memory storage means, and a power source.
8. The security system according to claim 7 wherein said power source is
- 25 rechargeable or replaceable.
9. The security system according to claim 8 wherein said power source includes a passive power source means.
10. The security system according to claim 1 wherein said means for transmitting an emergency or general signal employs periodic pulse
- 30 transmission.
11. The security system according to claim 7 wherein said memory storage means comprises non-volatile memory means.
12. The security system according to claim 7 wherein said chip includes means to monitor the physical state of a host and means to determine the
- 35 normal ranges of various physiological parameters of said host.
13. The security system according to claim 12 wherein said parameters include pulse and blood pressure.
14. The security system according to claim 12 wherein said chip includes means to generate said emergency signal only when said parameters are outside

said normal range.

15. The security system according to claim 14 wherein said chip includes means to verify where said parameters are outside said normal range prior to generating said emergency signal.

5 16. The security system according to claim 1 wherein said means for transmitting a general signal includes means to prevent unauthorized interrogation.

17. The security system according to claim 1 further comprising means to deactivate said means for generating an emergency signal.

10 18. The security system according to claim 1 wherein said means for receiving said emergency signal comprises a control system for prioritizing a plurality of said emergency signals.

19. The security system according to claim 18 wherein said control system includes means to monitor and search for interrupted general signals.

15 20. The security system according to claim 14 wherein said memory storage means retains information of the various physiological parameters outside said normal range.

20 21. The security system according to claim 1 further including a portable scanner means for locating the position of a general signal or an emergency signal.

22. The security system according to claim 21 wherein said portable detection means further comprises handwriting recognition means.

23. The security system according claim 21 wherein said portable detection means further comprises speech recognition means.

25 24. The security system according to claim 22 wherein said handwriting recognition means includes a training system which analyzes sample writing.

25. The security system according to claim 24 wherein said handwriting recognition means includes a test system for testing the training system analysis of the sample writing.

30 26. The security system according to claim 1 further including registration means for detecting said general signal in authorized or unauthorized areas.

27. The security system according to claim 7 wherein said chip is implantable in a living host.

28. A security system comprising:

35 an interrogator means including means for transmitting a signal, means for receiving a signal;

means for attaching said interrogator means to an object or item;

means for determining the position of an object or item to which said interrogator means is attached.

29. The security system according to claim 28 further including means for identifying a general signal in close proximity to said interrogator means.

30. The security system according to claim 29 further including memory means for storing information from said general signal.

5 31. The security system according to claim 28 further including control means, responsive to said means for determining the position of an object or item, for controlling said means for transmitting a signal.

32. The security system according to claim 30 wherein said memory storage means comprises non-volatile memory storage.

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Fig. 1



Fig. 2



Fig. 3

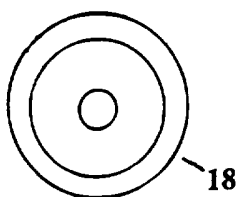
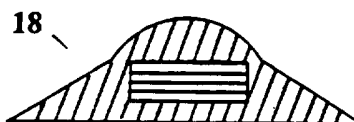


Fig. 4



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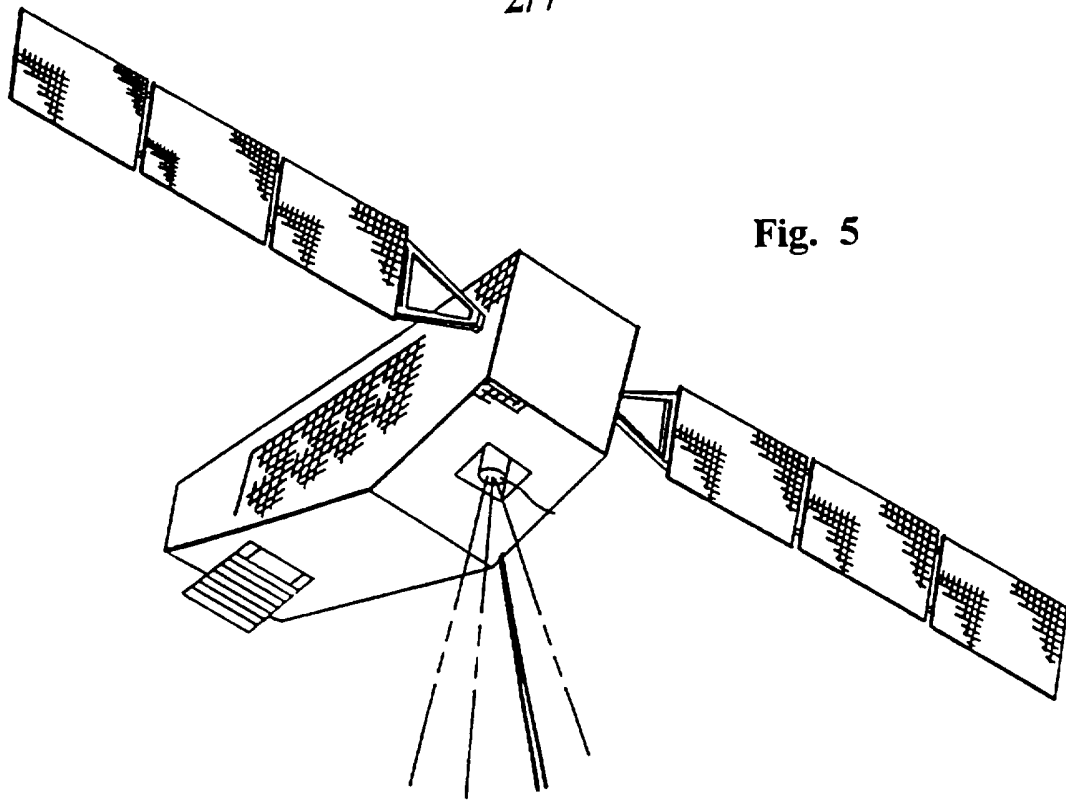
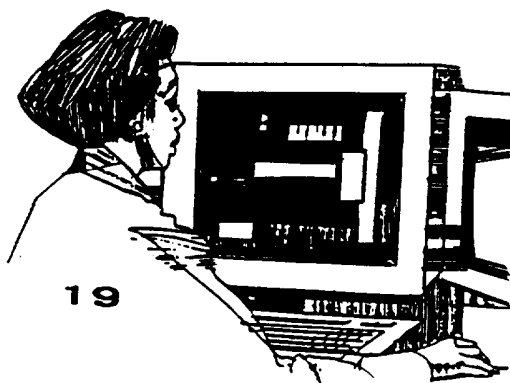


Fig. 5

Fig. 5B

Fig. 5A



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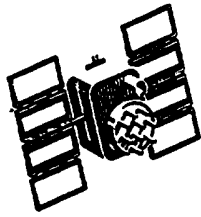


Fig. 6

Fig. 6A

Fig. 7

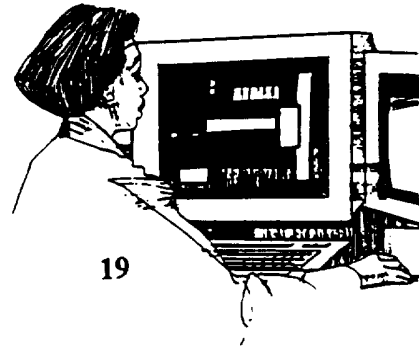


Fig. 8



Fig. 9



Fig. 10

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Fig. 11

Fig. 12

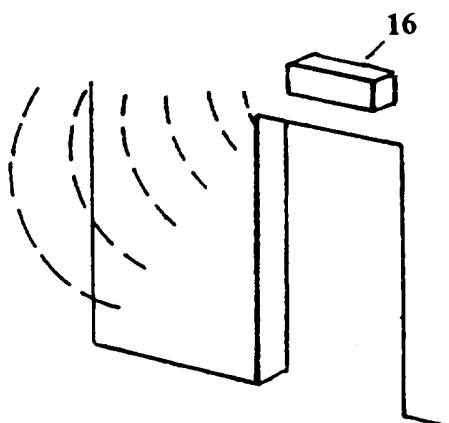
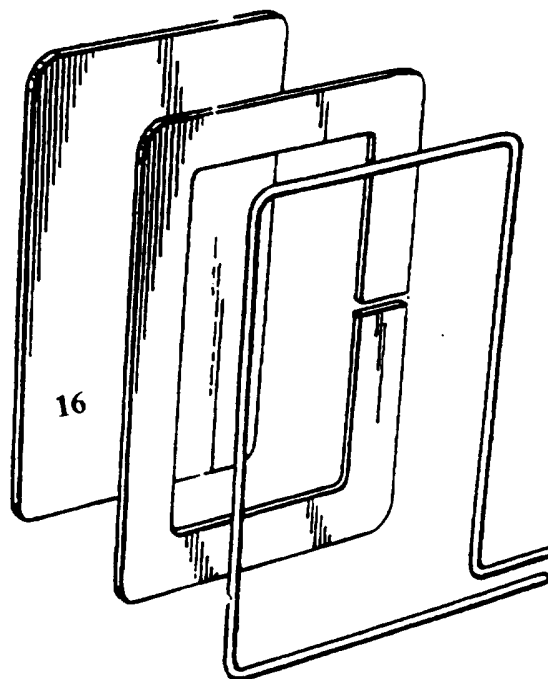


Fig. 13

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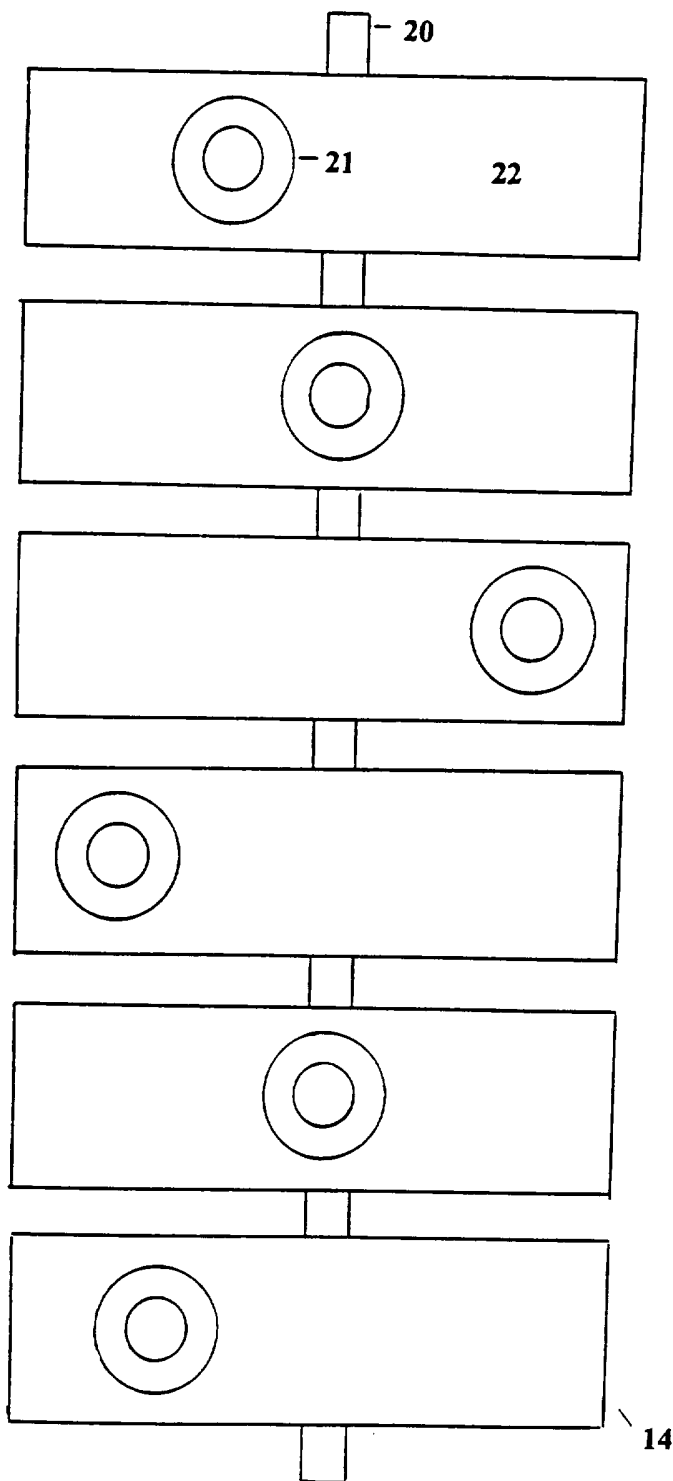


Fig. 14

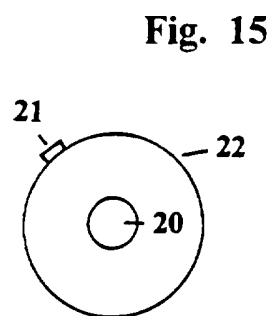


Fig. 15

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Fig. 16

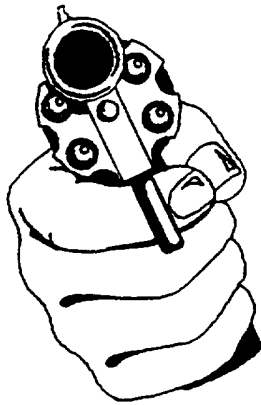


Fig. 17



Fig. 18

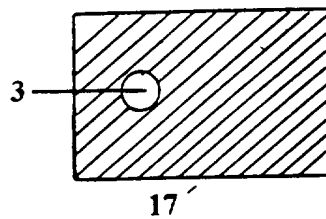


Fig. 19

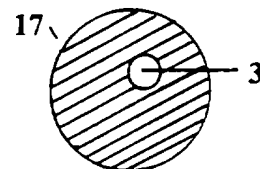
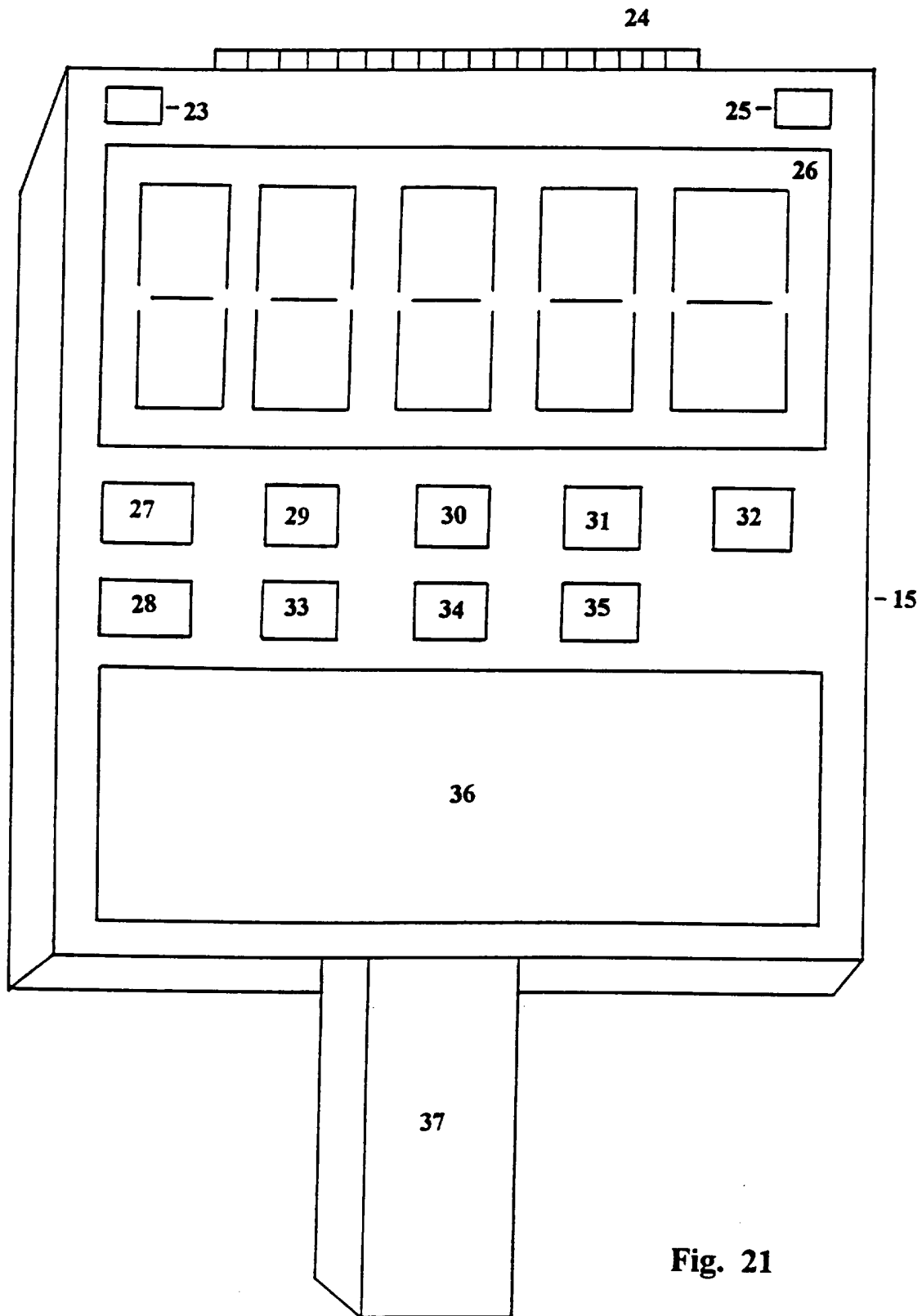


Fig. 20

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INTERNATIONAL SEARCH REPORT

Intern. Appl. No.
PCT/CA 94/00703

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G08B25/01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G08B A61B B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	DE,U,94 08 119 (FREESE CHRISTIAN) 15 September 1994 see the whole document ---	1-3,7,8, 10-20
X	DE,U,93 05 831 (TITZE MICHAEL) 24 February 1994 see page 5, line 3 - page 8, line 5; figures 1-6 ---	1-3,7,8, 10-20
X	WO,A,93 16452 (SIMMS INDUSTRIES) 19 August 1993 see page 5, line 6 - page 10, line 21 see page 19, line 8 - line 33; figures 1,8 ---	1-3,7,8, 10-20,26
X	US,A,5 218 344 (J. RICKETTS) 8 June 1993 see abstract ---	1
-/--		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- *&* document member of the same patent family

Date of the actual completion of the international search

29 August 1995

Date of mailing of the international search report

1 1. 09. 95

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INTERNATIONAL SEARCH REPORT

Inter. Patent Application No
PCT/CA 94/00703

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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