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(71) Applicant and

(72) Inventor: KENMAR, Bray [AU/AU]; 9 West, 481 St  
Kilda Road, Melbourne, Victoria 3004 (AU).

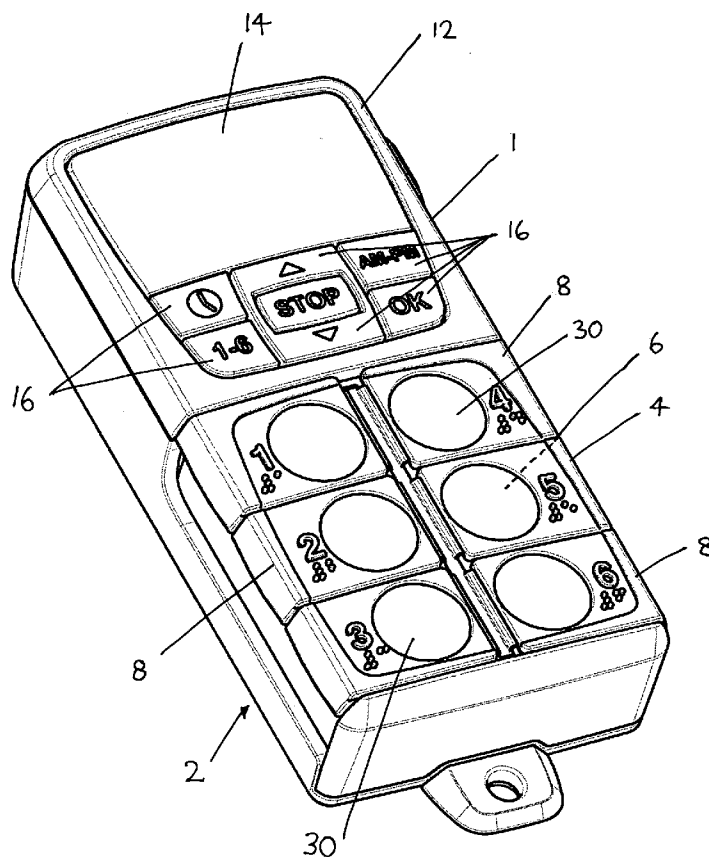
(74) Agent: DAVIES COLLISON CAVE; 1 Nicholson Street,  
Melbourne, Victoria 3000 (AU).

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(54) Title: MEDICAMENT DISPENSING DEVICE



(57) Abstract: A device for storing and dispensing medicament, comprising a base unit mounting a plurality of medicament compartments each adapted to store a dose of medicament in solid or semi-solid form, a separate lid for closing each compartment, and a programmable alarm system to receive input data corresponding to the times at which the dose in the respective compartments is to be taken and operative to provide a corresponding alarm to the user.

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## MEDICAMENT DISPENSING DEVICE

### Related Application

- 5 This application claims priority from Australian Patent Application No. 2006906687, the content of which is incorporated herein by reference in its entirety.

### Field of the Invention

- 10 The present invention relates to a medicament dispensing device and more particularly to a device in which separate items of medicament in solid or semi-solid form are stored for subsequent dispense in accordance with a predetermined schedule.

### Background of the Invention

- 15 Some medical treatment regimes require a patient to take a number of different medicaments throughout the day, usually at specific timed intervals. This often presents difficulty for a patient to ensure that the correct medicament is taken at the correct time. Particularly with a complex regime, it is relatively easy for a patient to forget to take the  
20 medicament at a certain time or, conversely, may not be able to recall whether or not a particular medicament was taken at the prescribed time. These difficulties may be particularly acute with frail or elderly patients and/or when the regime is not constant from day to day.

### 25 Summary of the Invention

- According to the present invention there is provided a device for storing and dispensing medicament, comprising a base unit mounting a plurality of medicament compartments each adapted to store a dose of medicament in solid or semi-solid form, a separate lid for  
30 closing each compartment, and a programmable alarm system to receive input data corresponding to the times at which the dose in the respective compartments is to be taken

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and operative to provide a corresponding alarm to the user.

Particularly advantageously, the unit is adapted for attachment to a lanyard or clip so that the entire unit can be carried on the body or clothing of a user, for example suspended  
5 from the user's neck by means of the lanyard.

Preferably, the base unit includes a programmable control part with a screen and buttons for programming the alarm system.

10 Preferably, the base unit includes a mounting part for receiving a container in which the plurality of compartments are provided.

Preferably, the base unit is arranged for snap-fit engagement with the container.

15 Preferably, the control part is provided at one end of the device and an attachment is mounted at an opposite end of the device for connection so that the screen can be easily viewed when the device is held by a user to which the lanyard is attached.

Preferably, the control part is positioned to be operable and readily viewed by a user when  
20 the compartments are fitted to the device in adjacent relation thereto.

Preferably the alarm has a visual mode and/or an auditory mode and/or a sensory mode. It is particularly preferred that the visual mode includes illumination of the relevant  
25 compartment.

Particularly advantageously the alarm is deactivated in response to opening of the lid of the designated compartment.

Advantageously the device includes a plurality of separate medicament containers each  
30 removably mounted on the base unit with each container having a sufficient number of compartments to provide a complete day's medication for the user. The selected container

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can be installed into a mounting part of the unit by a sliding action or, alternatively, the container could be dropped into or clipped onto the base unit to be releasably locked therein.

- 5 Preferably, the device includes a plurality of switches on the base unit which are arranged to align with the associated compartments to be actuated by opening of the lids, to thereby deactivate the alarm.

Preferably, the device includes the container removably fitted thereto.

10

Preferably, the container includes a displaceable post associated with each compartment and arranged to actuate a respective switch on the base unit in response to one of the lids being opened.

- 15 Preferably, each lid has a recessed surface arranged to display a label or receive written information relevant to the contents of the compartment.

Preferably, the recessed surface is etched.

- 20 Preferably, wherein the base unit includes a label recess with a removable clear cover.

In a preferred embodiment, the compartments are arranged in rows with the lids being at an upper side of the compartments. Programming controls and a screen are provided on an upper face of the unit adjacent one end of the row of compartments.

25

#### Brief Description of the Drawings

The invention is described in more detail, with reference to the accompanying drawings, in which:

- 30 Figure 1 is a perspective view of a dispensing device in accordance with the preferred embodiment of the invention and comprising a base unit carrying a replaceable

- 4 -

medicament storage container;

Figure 2 is a plan view of the device shown in Figure 1;

Figure 3 is a view showing the storage container removed from the base unit, with the storage container being illustrated in exploded form to better show its detailed construction;

Figure 4 is a plan view of the base unit;

Figures 5A to 5E show in diagrammatic form possible programming functions for the base unit;

Figure 6 illustrates a set of containers together with a dispenser;

Figure 7 is a perspective view of a tray;

Figure 8 illustrates another embodiment of the device;

Figure 9 shows a rear view of the device of Figure 7; and

Figure 10 is a perspective view of the device in an insulating bag.

## 15 Detailed Description of the Invention

The storage and dispensing device 1 in accordance with the preferred embodiment of the invention comprises a base unit 2 carrying a replaceable storage container 4 having a plurality of compartments 6 each intended to store a prescribed dose to be taken at a specific time and consisting of one or more capsules, tablets or other solid or semi-solid form medicament. The entire container 4 is intended to store the doses required over a complete day and in the embodiment shown has eight such compartments 6 which should be a sufficient number to suit most of the complex administration regimes; it is, however, to be understood that within the broad concept of the invention there may be greater than or fewer than eight compartments. Advantageously, the device is provided with a set of seven such containers 4, one for each day of the week. Each compartment 6 is open at its upper side and is closed by a separate hinged lid 8 having indicia thereon to designate the corresponding compartment. As shown, the designating indicia comprises a number (1 to 8 for each of the eight compartments included in this embodiment) and a corresponding Braille character for the assistance of those who may be visually impaired. Each lid 8 is releasably retained in its closed position by means of a simple snap-lock, detent, or other

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lock which is sufficient to retain the lid in its closed position without accidentally opening but which is readily openable by the patient when access to the compartment is required.

The container 4 is releasably mounted on the base unit 2 which has a mounting part 10 for  
5 the container and a programmable control part 12 with a screen 14 and program and control buttons or pads 16 (referred to hereinafter simply as "buttons") which lie adjacent to the upper face of the container 4 when mounted on the base unit 2. In the embodiment shown, the screen 14 and buttons 16 lie adjacent the end of the container although it is to be understood that other configurations are possible. The control part 12 also includes  
10 batteries which may be rechargeable.

In the embodiment shown, the mounting part 10 of the base unit 2 is of generally channel form into which the container 2 slidably fits, the channel 10 having at each side a longitudinal groove 10a into which engages a corresponding longitudinal rib 4a at the side  
15 of the container 4. The container 4 is releasably locked in its fully inserted position in the channel 10 by a spring-loaded detent lock or snap clip feature which is releasable to permit subsequent removal of the container 4. In the embodiment shown, the lock is incorporated within the housing of the control part 12 to engage with the end of the container when it is pushed into its fully mounted position. A pair of release buttons 18 at opposite sides of the  
20 control part 12 are depressible between the finger and thumb of a user to release the lock as required.

The control part 12 is programmable with data as to the time of the day at which medicament from each respective compartment is to be taken by the patient and as will be  
25 appreciated, a separate time input will be required for each compartment. For the embodiment shown in which there are eight compartments, if a particular regime requires less than eight doses to be dispensed daily, say four doses, appropriate time input will only be made for compartments 1 - 4. The control part 12 provides an alarm which is activated at the programmed time input for an individual compartment in order to advise the user to  
30 take the medicament from that compartment. The alarm can take a variety of forms, visual and/or auditory and/or sensory. In practice however it is envisaged that the alarm may

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include a visual component which will be discussed shortly, together with an auditory component which may be a voice message and/or a buzzer (or even both in an alternating fashion) together with the option of an alternative sensory alarm such as vibration which will be felt when the unit is carried on the body of the user. The programming will enable  
5 a choice to be made concerning alarm modes to suit the circumstances of a particular user; for example, when a user is in a public space they may decide to choose just the visual and sensory modes but not the auditory mode(s). Although the alarm, when given, can be manually deactivated by the user pressing a button on the control part, it is particularly preferred that deactivation requires opening of the lid of the corresponding compartment.

10

Figures 5A to 5E show in diagrammatic form possible programming functions for the control part 12 of the unit.

To effect deactivation of the alarm by opening of the relevant compartment lid, each lid 8  
15 is associated with a switch or sensor which is operative to deactivate the alarm when the lid is opened. In the embodiment shown in which the eight compartments are arranged in two rows of four compartments at either side of a central axis of the base unit, a row of switches 22 is incorporated within the base of the mounting channel 10 to extend longitudinally thereof. Each lid 8 is formed with a short extension 8a at its inner edge and  
20 which will swing downwardly when the lid is swung upwardly to open the compartment. A row of posts 24 (see Fig. 3) is incorporated centrally within the container 4 immediately beneath the lid extensions 8a. The posts 24 are aligned with the switches 22 in the mounting channel 10 when the container is fully installed whereby when a lid is opened, its extension 8a will depress the post 24 to engage the corresponding switch 22 in the  
25 mounting channel and thereby deactivate the alarm.

In the embodiment shown, the switch posts 24 are formed integrally in a single array having sufficient flexibility to ensure that the posts will be activated individually. It is also to be noted that for manufacturing convenience, each opposite pair of compartments is  
30 associated with a single post 24 and a single switch 22 in the base unit. Although opening of either compartment of the pair would deactivate the alarm, the risk of opening the

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wrong compartment of the pair is quite small, particularly with the visual alarm system which will now be described. It is, however, to be understood that that risk although small could be eliminated by providing a separate switch and post for each compartment rather than each pair.

5

Although the visual alarm will usually include a visual indication on the display screen 14 such as an illuminated or flashing numeral signifying the relevant compartment, it preferably also includes illumination of the compartment. For this purpose, the container 4 is formed from a translucent material. LEDs 26 are installed in the base of the mounting channel 10 to lie beneath the respective compartments of the container when fully installed. Activation of the alarm to signify that medicament is to be taken from a designated compartment will result in energisation of the LED beneath that compartment whereby the compartment will be illuminated so as to be readily visible and identifiable to the user; the LED when activated may be permanently illuminated or may repeatedly flash.

15 Although LEDs mounted in the base of the unit are preferred, in alternative arrangements an LED could be built into each compartment or its lid, with an appropriate electrical connection being made between the container and the base unit in the installed condition of the container.

20 It is also preferred that each lid 8 has on its upper surface a zone 30 which is able to be marked with a pencil or semi permanent pen by the user whenever the compartment has been opened and the dose removed and/or to enable the user to write the time at which the dose in the compartment is to be dispensed; alternatively the zone 30 may be a recess to receive an adhesive label for the same purpose. This may provide added comfort for the user so that merely by looking at the unit the user will be assured that the relevant medicaments to a particular time have been taken without needing to open the compartments themselves. It is also preferred that the rear face of the unit has a recess to receive an adhesive label carrying patient and medication information.

30 With a medicament regime of the type for which the unit of the preferred embodiment of the invention is envisaged, it is important that the unit is readily accessible at all times to



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the user. For this purpose, the unit is of a size such that it can be carried on the body of the user and is of a design such that it is able to be carried on a lanyard so that it can be hung from the user's neck, perhaps being concealed within a shirt or blouse for example. For this purpose the base unit 2 has at its upper end beyond the control part 12, a mounting 32  
5 to which a lanyard can be attached by clipping so that the base unit with the attached container will hang freely with the container lying beneath the control part. It follows from this that the individual locks for retaining the lids in their closed position must be adequate to ensure against accidental opening of the lids which the unit is suspended vertically and even when the wearer is undergoing some physical activity. Likewise, the  
10 lock to hold the container into the base unit must be sufficient to ensure against its accidental release while the unit is being worn. Alternatively a clip can be attached to the mounting 32 and by which the unit can be attached to an article of clothing, a belt for example, or a handbag.

15 As previously mentioned, it is envisaged that the device 1 will be supplied with a set of containers 4, as shown in Figure 6, usually seven (one for each day of the week), with each container 4 having a designation corresponding to the day on which that container is to be used. The set of seven containers can be pre-loaded with a week's supply of medicament. In some instances this could be undertaken directly by a pharmacist or carer, especially for  
20 elderly patients, to ensure that the correct doses are loaded into the compartments in the correct order.

For that purpose, the containers 4 may be located in a tray 40, in side-by-side relation, for easy filling with medicaments. It may be appreciated the lids 8 associated with each  
25 container 4 are easily removed to allow quick access and are also readily replaceable. The tray 40 is shown in more detail in Figure 7 as having markings indicating the day of the week as well as corresponding position numbers so that the pharmacist or carer knows which position corresponds to which compartment when the containers are positioned in the tray and the lids are removed from the containers.

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The set of containers 4, once loaded with appropriate medicament, may be housed, in the correct order, in a dispenser 41, by the pharmacist or carer in order to assist the patient who then just needs to remove the correct container for each day and insert that container into the unit 2. For example, the first container 4 that can be removed from a dispensing slot 42  
5 of the dispenser 41 is a container 4 marked "SUNDAY". Once removed, another container 4, marked "MONDAY" is then free to fall into the dispensing slot 42 for subsequent removal the next day.

The dispenser 41 is preferably in the shape of a tower which has a clear plastics front panel  
10 42 that is hinged at a top face 43, to move between an open condition, where the containers 4 are loaded into the dispenser 41, and a closed condition, as shown. The top face 43 may also have a recess 44 for an adhesive label to carry patient and medication information.

Referring now to Figure 8, an alternative embodiment of the device 1 is shown, wherein  
15 like reference numerals are used to denote like parts. The device 1 is essentially the same as that shown in Figure 1 except the container 4 only has 6 compartments instead of 8. Also, the attachment 32 is mounted at an opposite end 45 to that shown in Figure 1 so that, when connected to a lanyard, the screen 14 can be more easily viewed when the device 1 is held by a user to which the lanyard is attached. The attachment 32 may also be used for  
20 connection to a belt clip, or the like, instead of a lanyard.

The device 1 in Figure 8 has also been modified so that the container 4 interconnects with the base unit 2 by sliding movement, followed by a snap-fit connection such that the spring loaded lock and release buttons need no longer be provided. The rear of the device 1 is  
25 shown in Figure 9 to specifically illustrate a label recess 46 with a removable clear cover that enables a label to be easily replaced.

In relation to differences in the operational and design features, the device of Figure 8 has a 7 button function keypad. Numbers 1-6 appear across the bottom edge of the screen. If  
30 medication is not taken (and hence the timer not turned off at the given time) that number will flash also at the next preset time warning the user about medication not taken. Lastly,

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an on screen battery indicator shows when battery level is low.

Irrespective of the differences between the devices of Figures 1 and 8, both devices share a common advantage of having a readily observable and programmable control part 12  
5 indirectly adjacent relation to the mounting part 10, which carries the container 4 to allow clear and unambiguous identification of which compartment 6 needs to be accessed for medication. This is particularly important for elderly or infirm users.

While it is preferred for the device to comprise the base unit with a set of removable  
10 containers individually mounted on the base unit, a somewhat simplified version may consist of a single fixed container to be loaded with medicament each day as required.

A bag 50 may also be provided to fit over the device 1, as shown in Figure 10. The bag 50 is formed as an insulating pocket to help protect the device against elevated temperatures  
15 such as may be experienced if the device 1 is left in the sun. In particular, the bag 50 may be fitted over the mounting part 10 and container 4 and fastened in place using draw string 51 so as to protect at least the container 4 from elevated temperatures that could otherwise damage capsules or medication held within the container 4. The control part 12 and screen  
14 are preferably still able to be viewed and accessed, even when the bag 50 is in place.

20

The embodiments have been described by way of example only and modifications are possible within the scope of the invention.

Throughout this specification and claims which follow, unless the context requires  
25 otherwise, the word "comprise", and variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or group of integers or steps but not the exclusion of any other integer or group of integers.

## Claims:

1. A device for storing and dispensing medicament, comprising a base unit mounting a plurality of medicament compartments each adapted to store a dose of medicament in solid or semi-solid form, a separate lid for closing each compartment, and a programmable alarm system to receive input data corresponding to the times at which the dose in the respective compartments is to be taken and operative to provide a corresponding alarm to the user.
2. A device as claimed in claim 1, wherein the base unit includes a programmable control part with a screen and buttons for programming the alarm system.
3. A device as claimed in claim 2, wherein the base unit includes a mounting part for receiving a container in which the plurality of compartments are provided.
4. A device as claimed in claim 3, wherein the base unit is arranged for snap-fit engagement with the container.
5. A device as claimed in any one of claims 2 to 4, wherein the control part is arranged to be in directly adjacent relation to the compartments to allow for clear and unambiguous identification of which compartment needs to be accessed for medication.
6. A device as claimed in claim 5, wherein the control part is positioned to be operable and readily viewed by a user when the compartments are fitted to the device in adjacent relation thereto.
7. A device as claimed in any one of claims 2 to 4, wherein the control part is provided at one end of the device and an attachment is mounted at an opposite end of the device for connection so that the screen can be easily viewed when the device is held by a user to which the lanyard is attached.
8. A device as claimed in any one of claims 1 to 7, wherein the alarm system has a visual mode and/or an auditory mode and/or a sensory mode.
7. A device as claimed in claim 8, configured whereby an alarm, activated by the alarm system is deactivated in response to opening of the lid of the designated compartment.
8. A device as claimed in claim 9, wherein the device includes a plurality of switches on the base unit which are arranged to align with the associated compartments to be

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actuated by opening of the lids, to thereby deactivate the alarm.

9. A device as claimed in claim 10, including the container removably fitted thereto.

10. A device as claimed in claim 11, wherein the container includes a displaceable post associated with each compartment and arranged to actuate a respective switch on the base unit in response to one of the lids being opened.

11. A device as claimed in claim 1, wherein each lid has a recessed surface arranged to display a label or receive written information relevant to the contents of the compartment.

12. A device as claimed in claim 13, wherein the recessed surface is etched.

13. A device as claimed in claim 1, wherein the base unit includes a label recess with a removable clear cover.

14. A kit including:

a device as claimed in any one of claims 1 to 13;

a plurality of containers adapted to be releasably secured to the device, each container corresponding to a day of the week; and

a dispenser for sequentially dispensing each container.

15. A kit as claimed in claim 14, further including a tray for holding the containers while medicament is dispensed into the containers.

16. A kit as claimed in claim 15, wherein the tray has markings to indicate the days of the week as well as position numbers which identify the position of compartments associated with each container.

17. A device, substantially as described with reference to the drawings and/or examples.

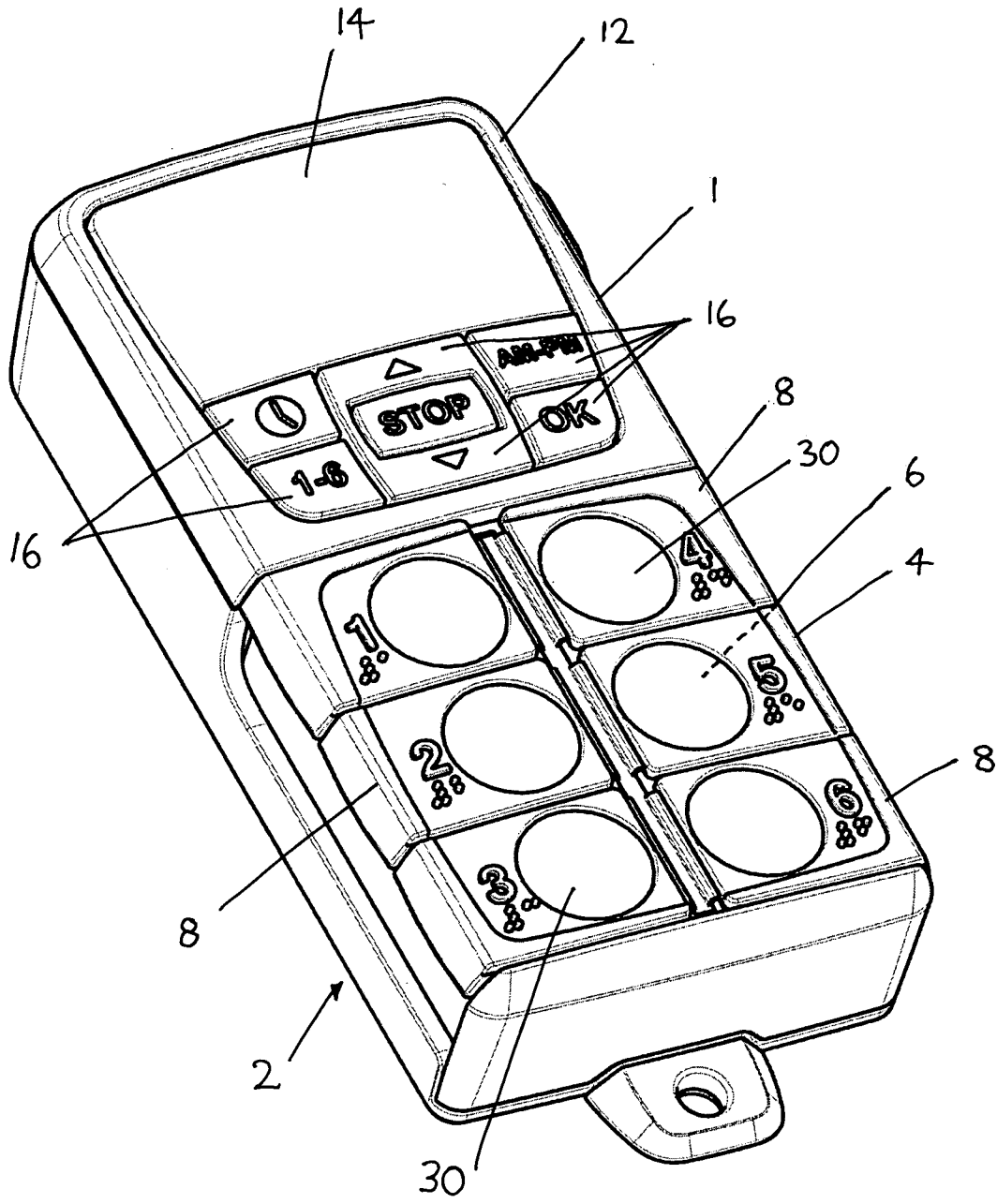


FIG. 1

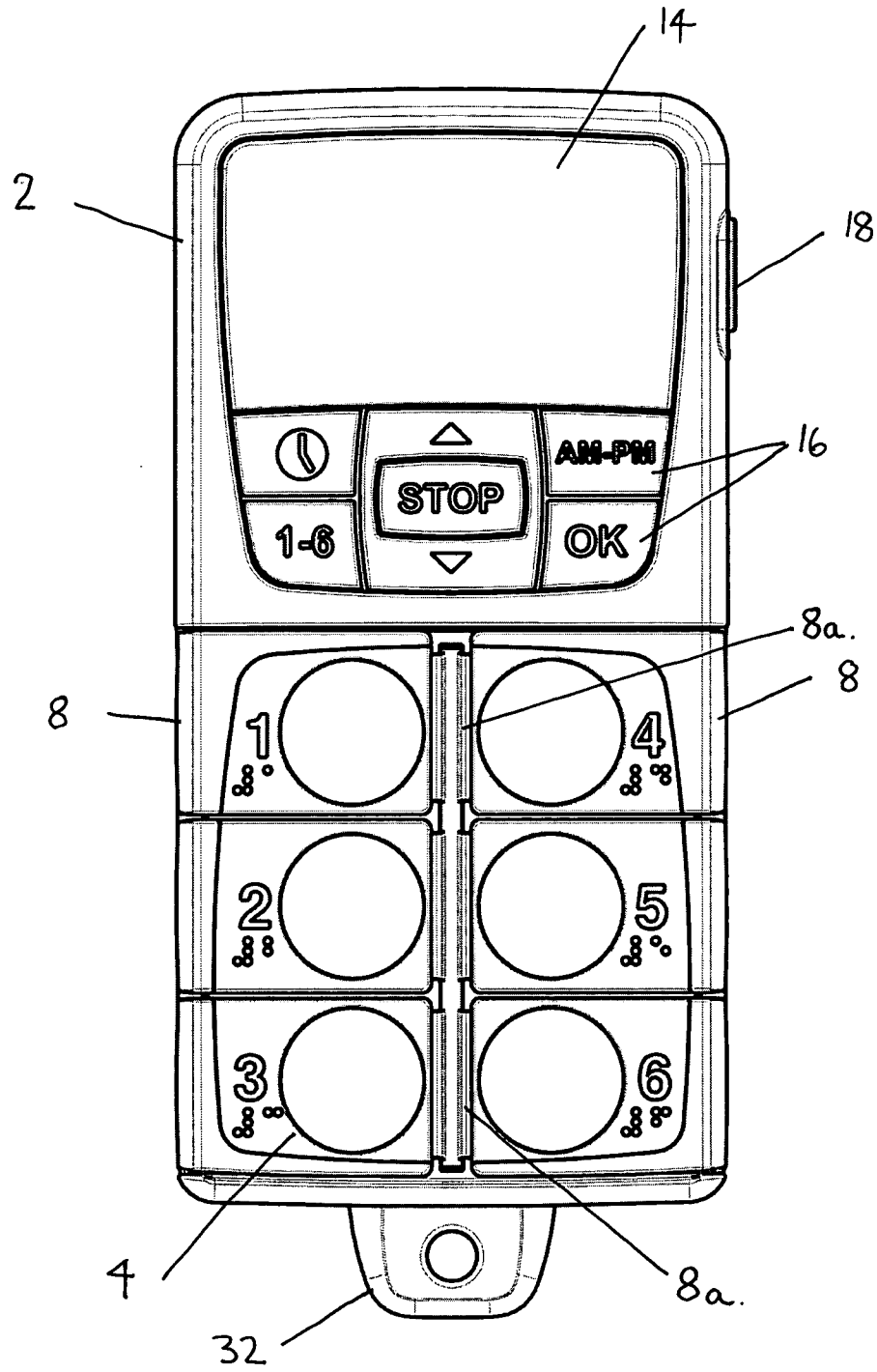


FIG. 2





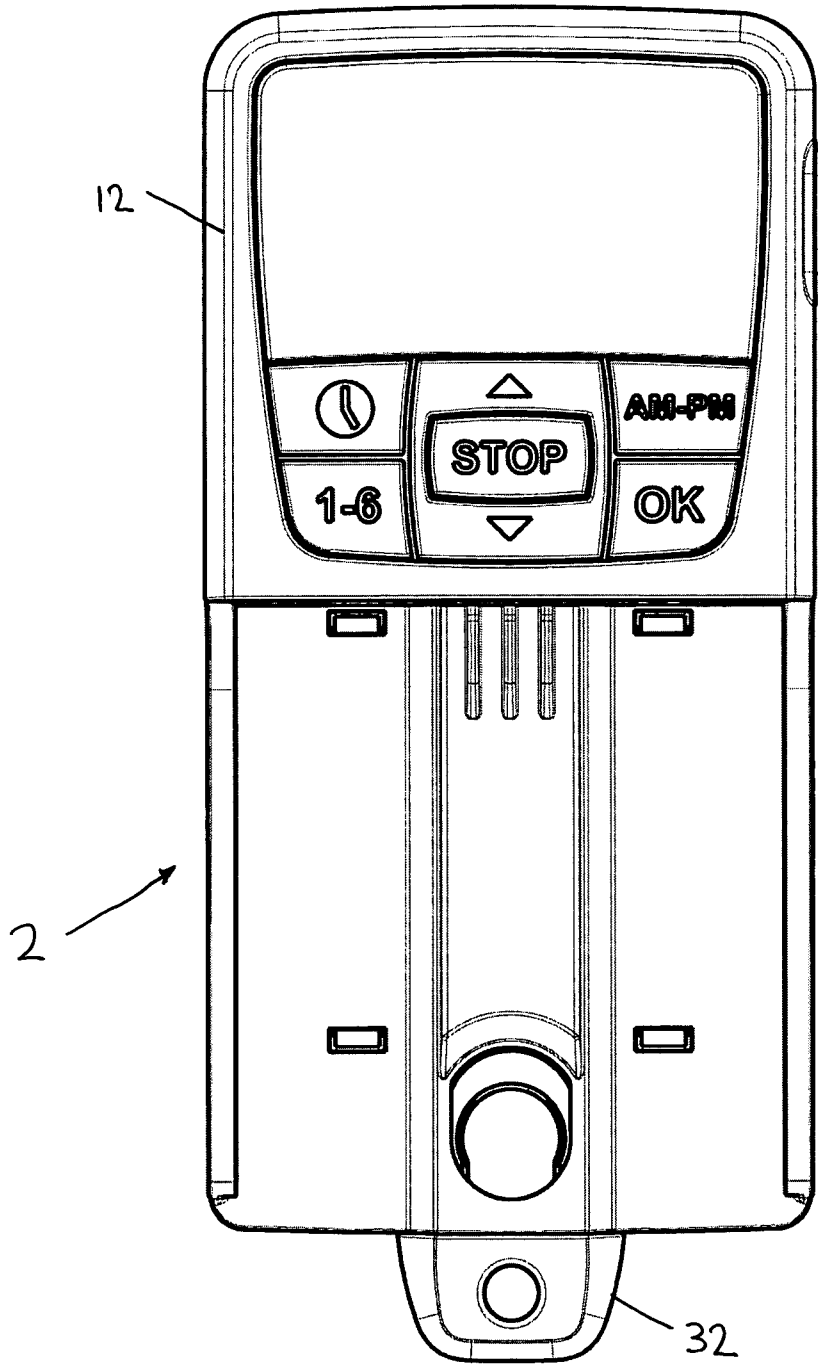
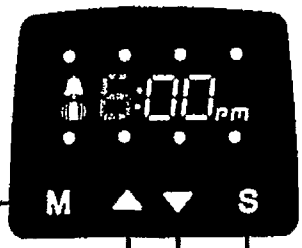


FIG. 4

**SET CLOCK - TIME OF DAY**

**HOURS**



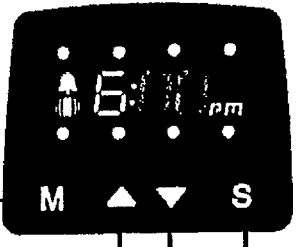
1 Press **M** (Mode)  
Hour flashes

2 Press **▲▼**  
to select hour

3 Press **S** (Set)  
to set hour  
Hour stops flashing

To reset or start again  
- press **M** (Mode) twice  
in quick succession

**MINUTES**

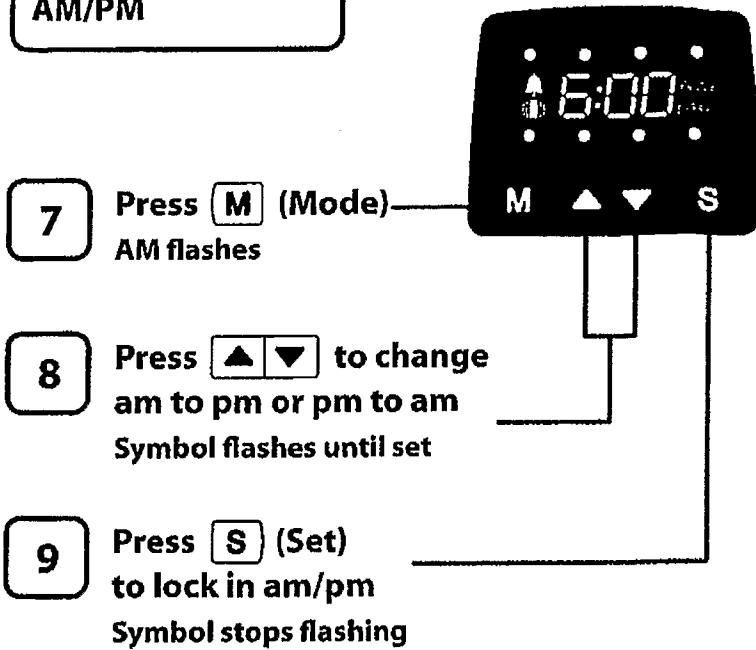


4 Press **M** (Mode)  
Minutes flash

5 Press **▲▼**  
to select minutes

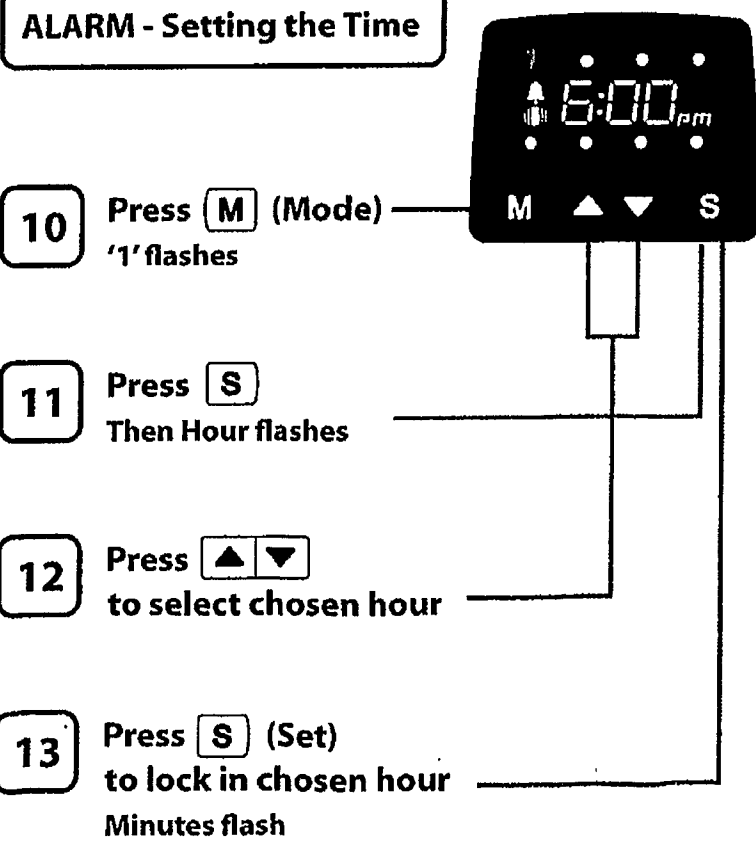
6 Press **S** (Set)  
to set minutes  
Minutes stop flashing

AM/PM



SET POSITION '1'

ALARM - Setting the Time



If time of day set is correct press **M** (Mode) until selected position No: 1, 2 etc is showing

FIG. 5C

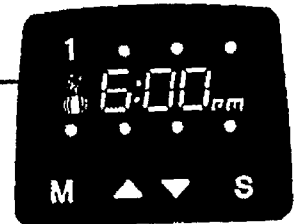
14 Press   to select chosen minutes

15 Press **S** (Set) to lock in chosen minutes  
Minutes stop flashing

ALARM - Alerting Method

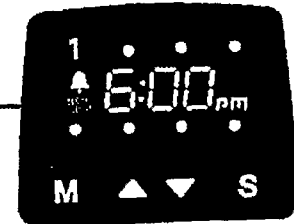
Alarm consists of a buzzer and voice message alternating.


16 Press **M** (Mode)  (Bell symbol) flashes



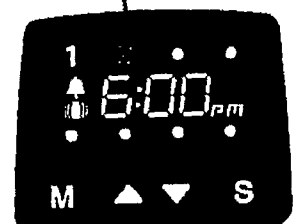
17 Press **S** (Set) if alarm required

If not required press **M** (Mode) again  
Vibrate symbol flashes



18 Press **S** (Set) if Vibrate () required  
Symbol stops flashing

If not required press **M** (Mode) again  
'2' flashes.....



SET POSITION '2'

19 With '2' flashing press **S** (Set)  
Then hour flashes

Repeat steps 12 to 18 for each position

**NOTE 1**

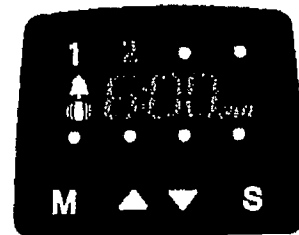
When the time for each box is reached the following occurs:

- A** LED light flashes underneath box (Intermittently every second until turned off)
- B** The Alarm (buzzer) sounds. The 50db intermittent buzzer goes off every 1.5 seconds for 0.5 seconds. Buzzer cycles 5 times.

**C** Voice Activation says whatever time is pre-set, eg. '9.00pm', '12.30pm' etc

**D** Vibration starts and continues until turned of

**E** Number and time flash on screen



**DEACTIVATION**

Deactivation of alarm is by virtue of opening the required box lid, ie. 1,2 etc

This process pushes the plunger which presses on the dome layer - see diagram.

This action turns off the flashing LED, vibration, alarm and flashing time on screen.  
 Note: The alarm buzzer and voice activate together and continue intermittently for 5 minutes or until turned off.

After 5 minutes - if not deactivated - the buzzer and vibration will stop. However the LED will continue to flash every 2 seconds until turned off.

**OTHER FEATURES**

**TO CANCEL OUT**

Eg: If using less than 8 positions

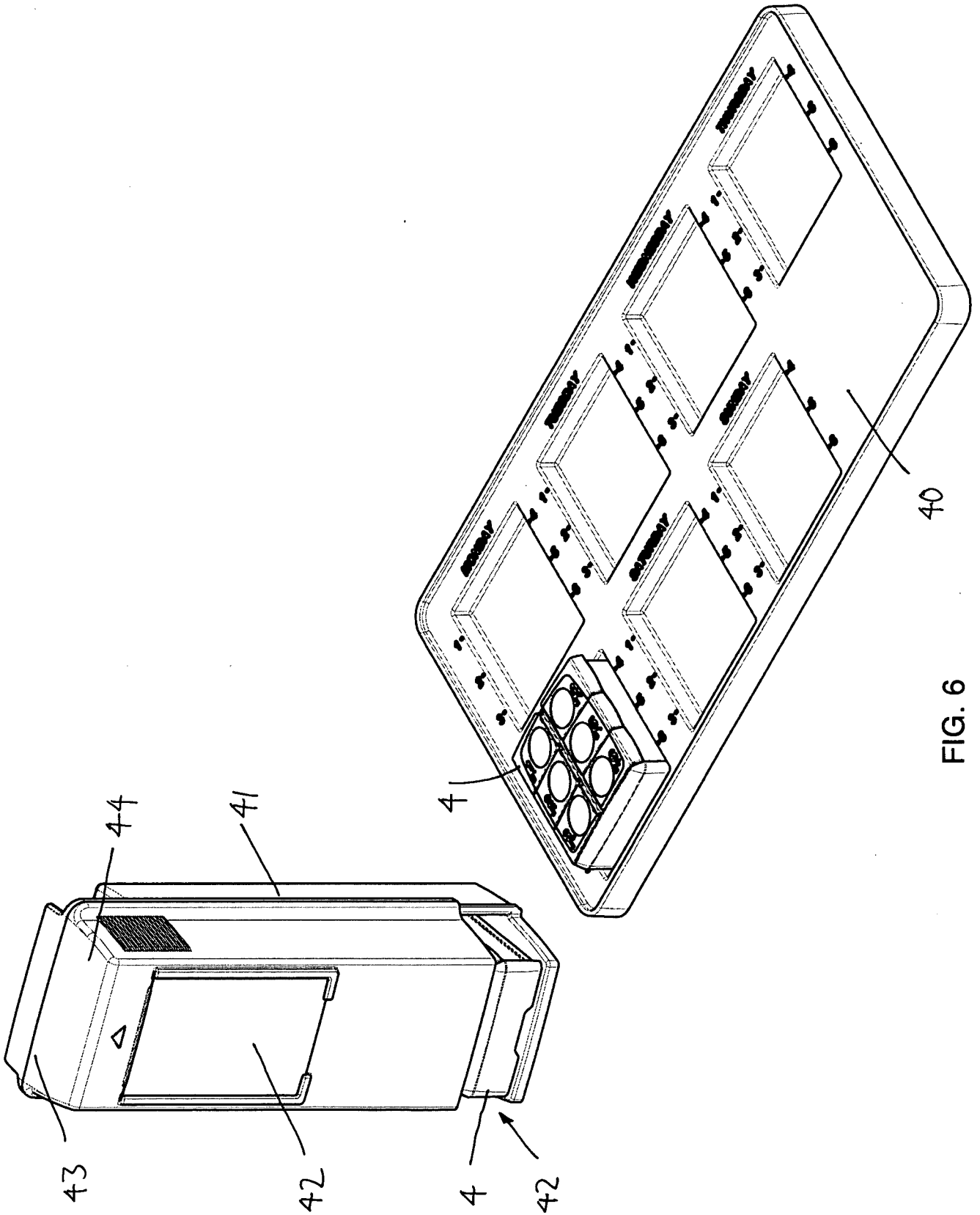
Hold down **S** (Set) for 3 seconds

**TO LOCK KEY PAD**

In order to avoid accidental changes

Hold down **M** (Mode) for 3 seconds

To re-activate key pad hold down **M** (Mode) again for 3 seconds



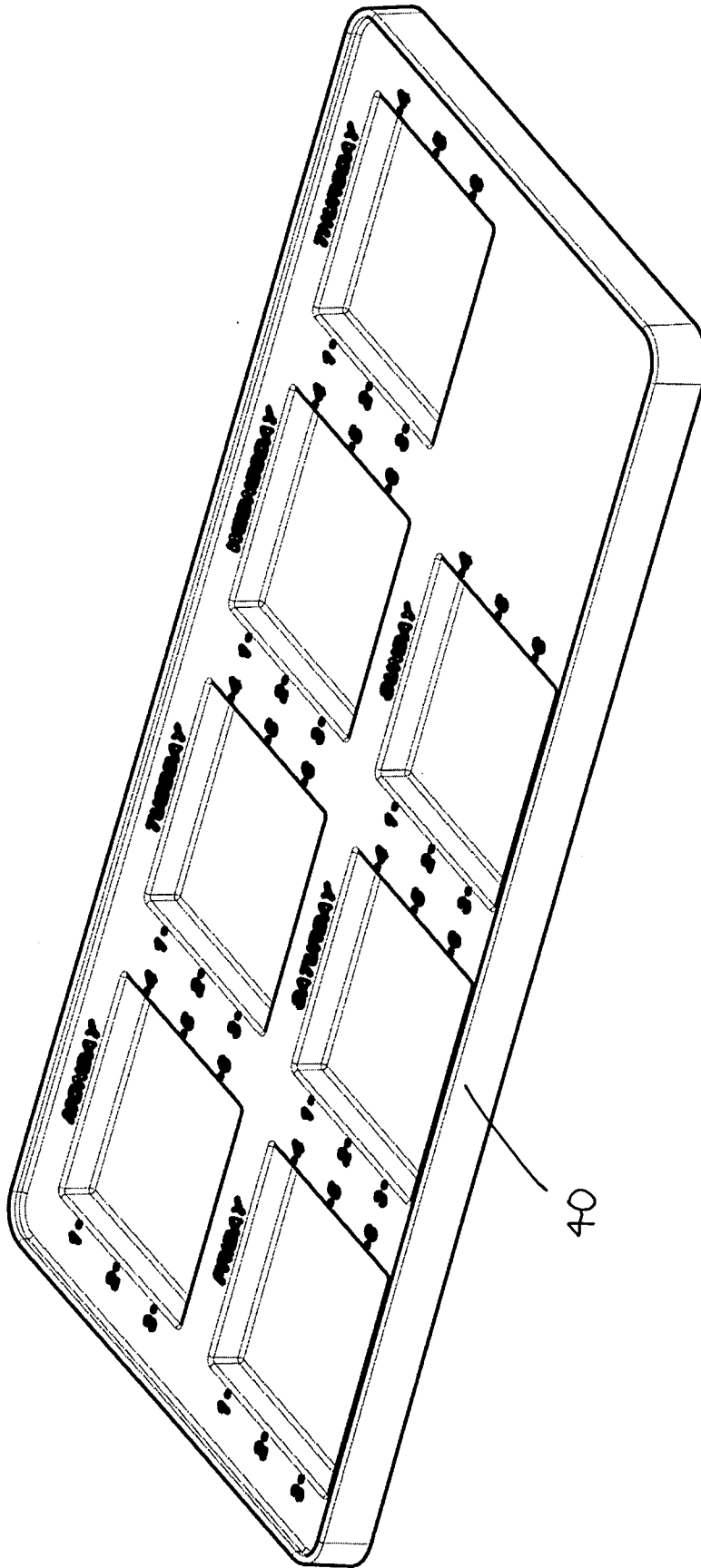


FIG. 7



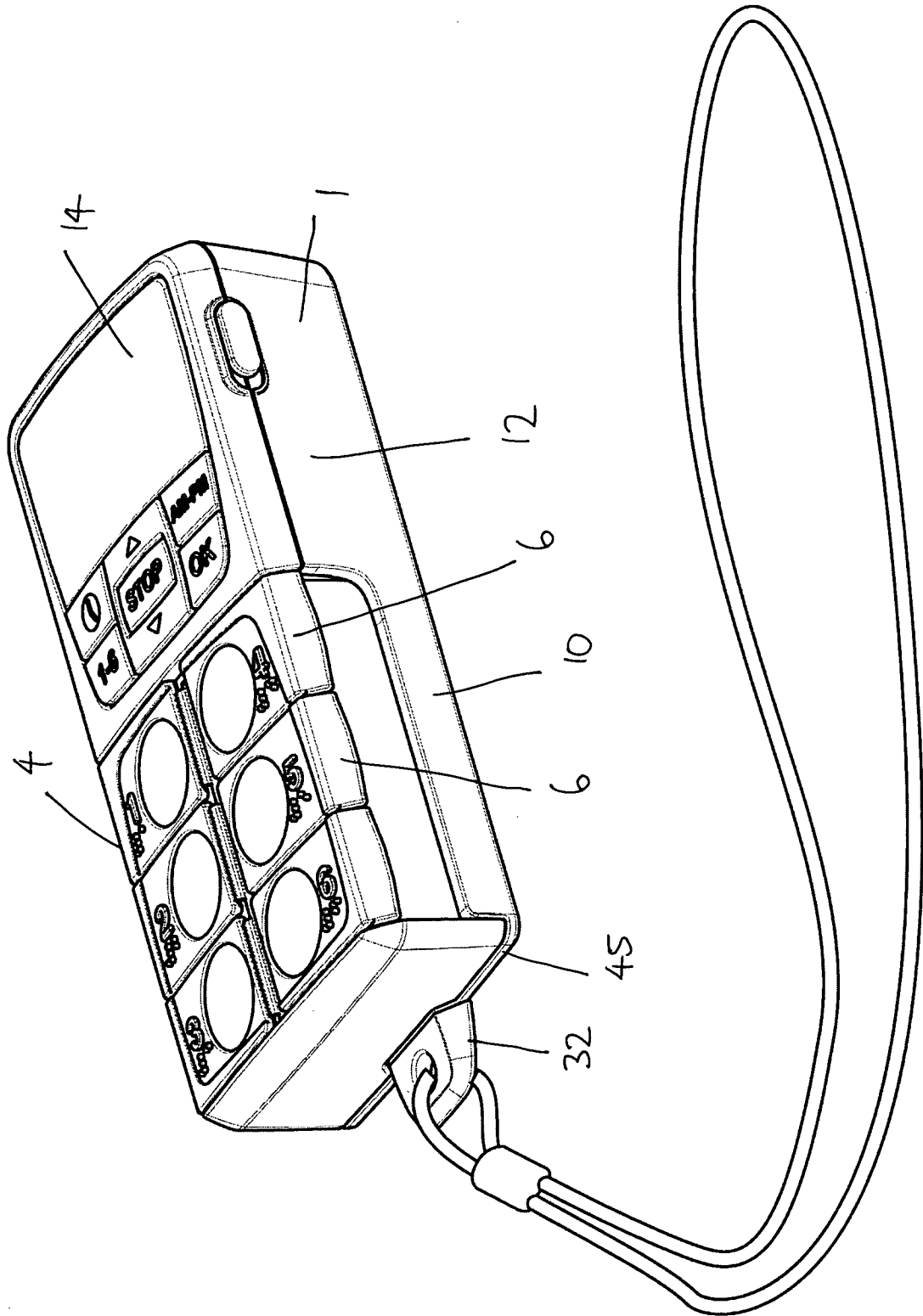


FIG. 8

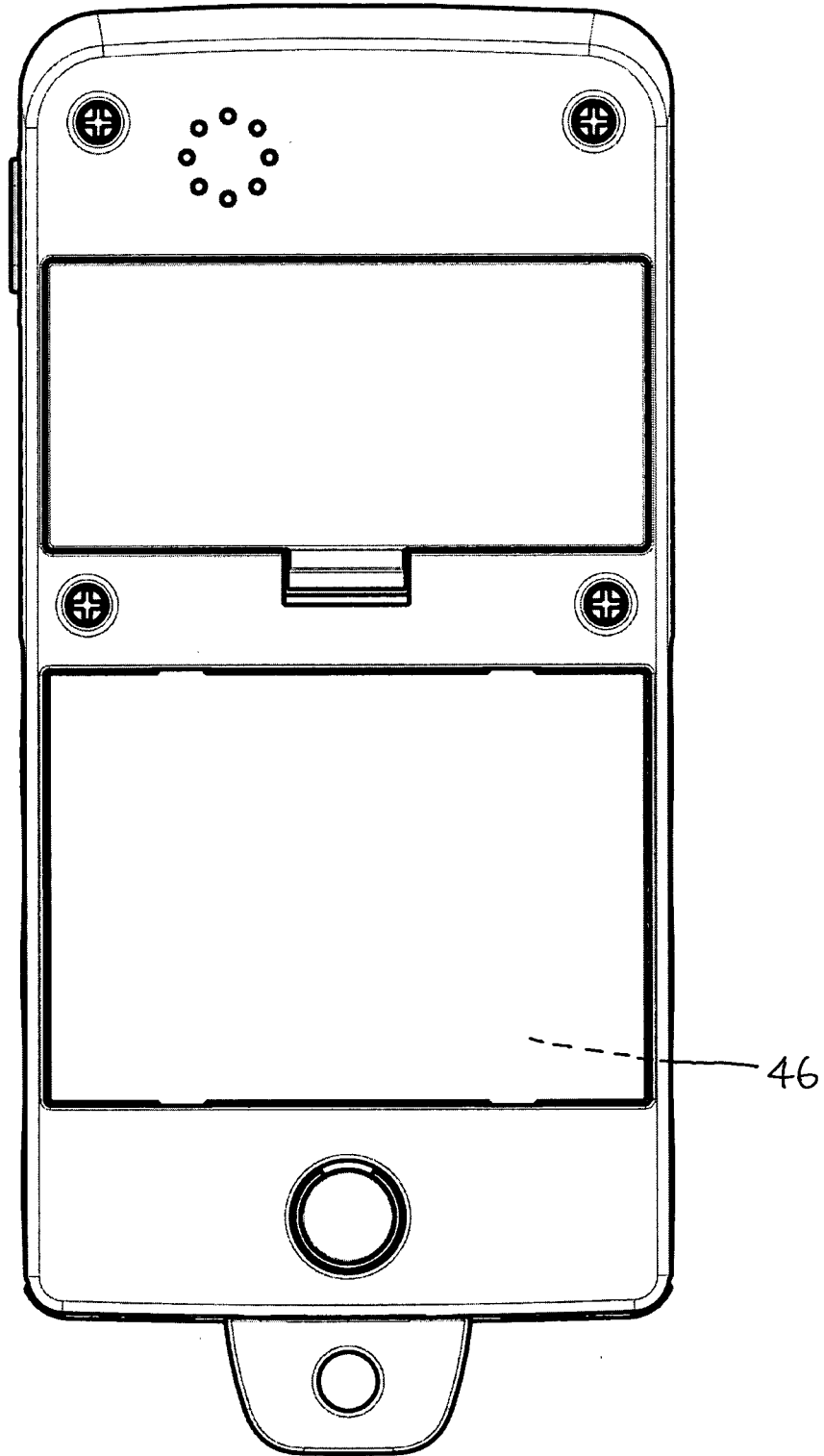


FIG. 9

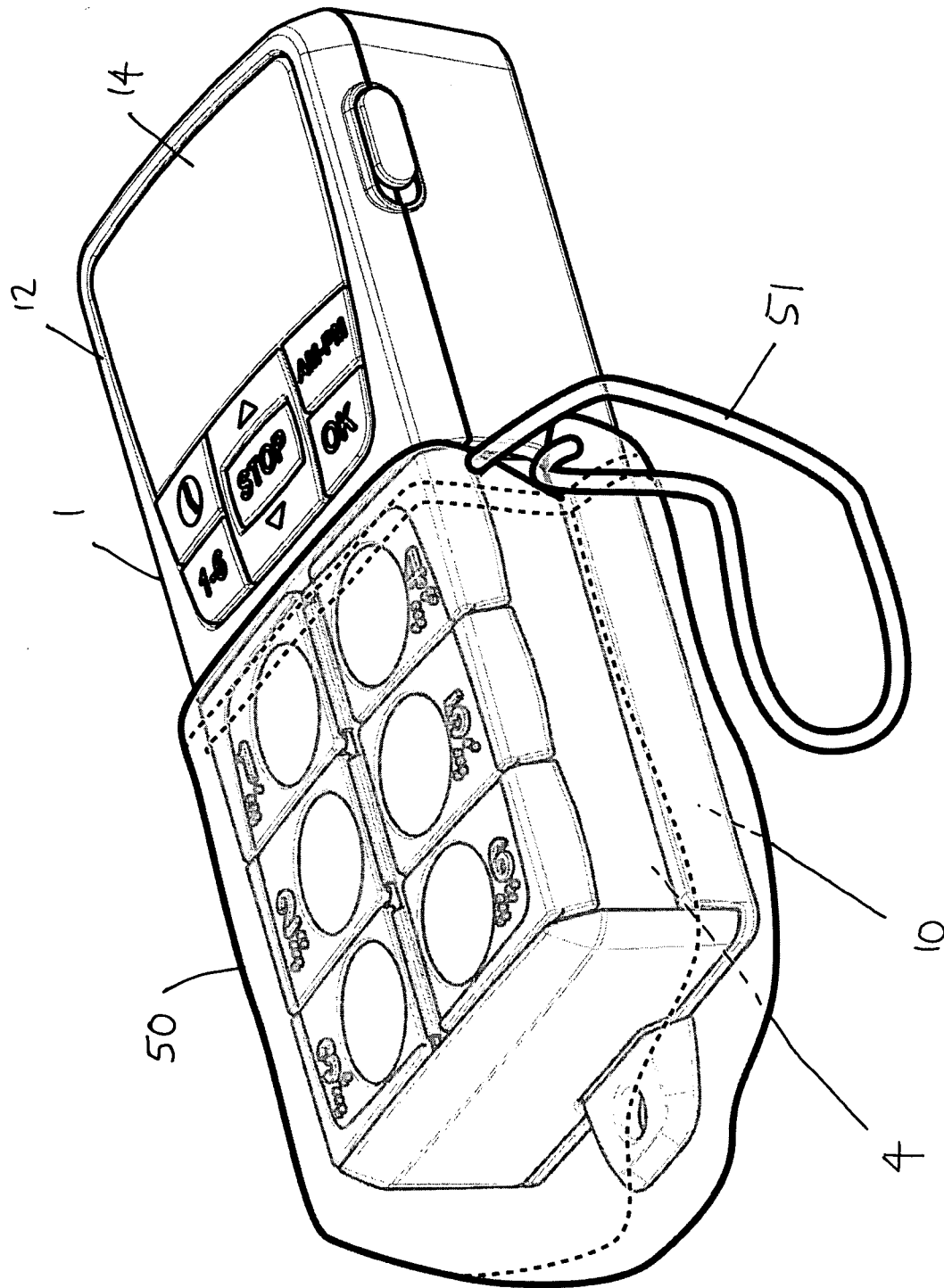


FIG. 10

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2007/001849

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl.		
A61J 7/04 (2006.01)      B65D 83/04 (2006.01)		
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)		
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 practicable, search terms used) DWPI: IPC A61J, B65D 83/-, B65D 85/-, G07F and keywords: warning, alarm, alert, pill, tablet, dosage, dispenser, release, pouch, pocket, lid, cap, program, schedule, time, regime; and like terms		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4717042 A (McLAUGHLIN) 5 January 1988 Entire specification	1-17
X	US 6449218 B1 (LLUCH) 10 September 2002 Entire specification	1-17
X	US 5954225 A (POWE) 21 September 1999 Entire specification	1-17
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 18 February 2008	Date of mailing of the international search report 27 FEB 2008	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustrialia.gov.au Facsimile No. +61 2 6283 7999	Authorized officer A. ALI AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : (02) 6283 2607	

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2007/001849

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6169707 B1 (NEWLAND) 2 January 2001 Entire specification	1-17
X	US 2003/0043026 A1 (NOBLE et al.) 6 March 2003 Entire specification	1-17
X	EP 1629822 A2 (DOSE CONTROL OY) 1 March 2006 Entire specification	1-17
X	US 4526474 A (SIMON) 2 July 1985 Entire specification	1-17
X	US 6021902 A (WU) 8 February 2000 Entire specification	1-17
X	EP 1161933 A2 (MEDPORT, INC.) 12 December 2001 Entire specification	1-17
X	GB 2344194 A (DOUGHTY) 31 May 2000 Entire specification	1-17

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2007/001849

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member
US 4717042	NONE
US 6449218	NONE
US 5954225	NONE
US 6169707	NONE
US 20030043026	NONE
US 4526474	DE 3335301 EP 0129785 HK 10890
US 6021902	NONE
EP 1161933	CA 2349510 US 6662081
GB 2344194	NONE
EP 1629822	NONE
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.	
END OF ANNEX	