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(54) **PILL HOLDER AND REMINDER DEVICE**

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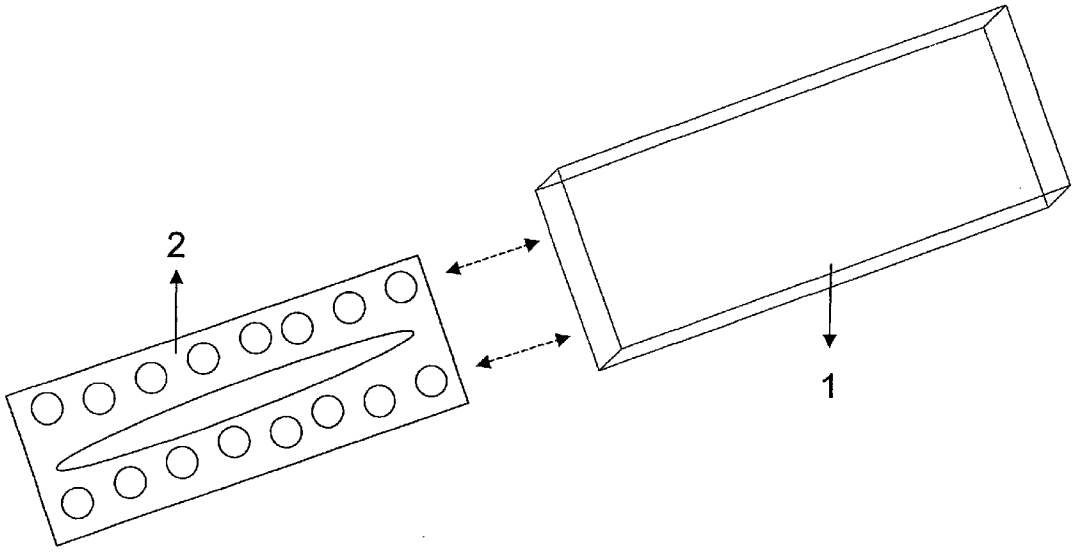
(57) **ABSTRACT**

More and more pills are supplied as blister packs. The present invention therefore provides a cover/holder for a blister pack of pills, which is capable of issuing a warning when ingestion is next due. When the blister pack of pills is inserted into the holder, an electric circuit is activated so that a timer then begins and once the timing period has been attained this initiates an alarm, the timing period is based on the recommend ingestion intervals. When the blister pack of pills is removed for ingestion the circuit is open and not functioning, once replaced the circuit is closed and timing commencement begins again. When the blister pack is made of foil, the foil itself may be used to close the electric circuit.



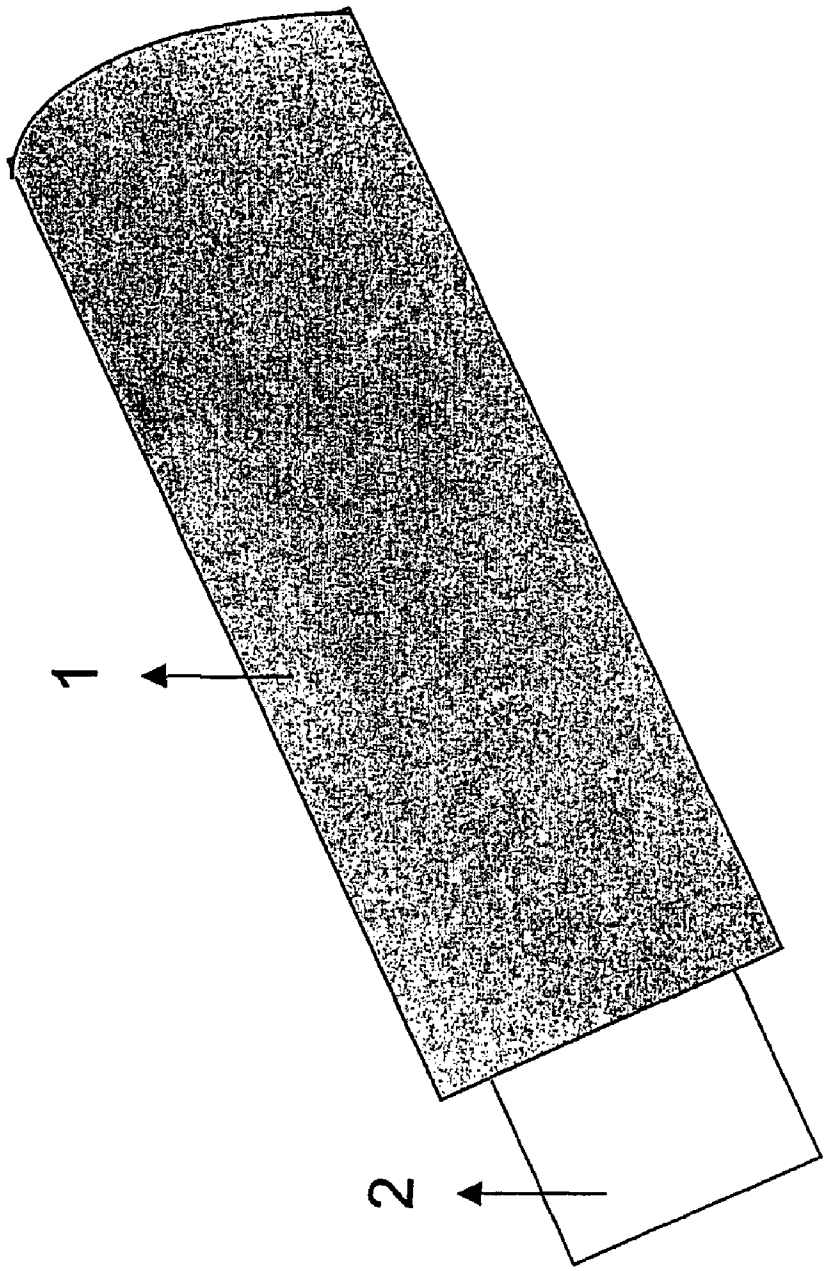


FIG. 1

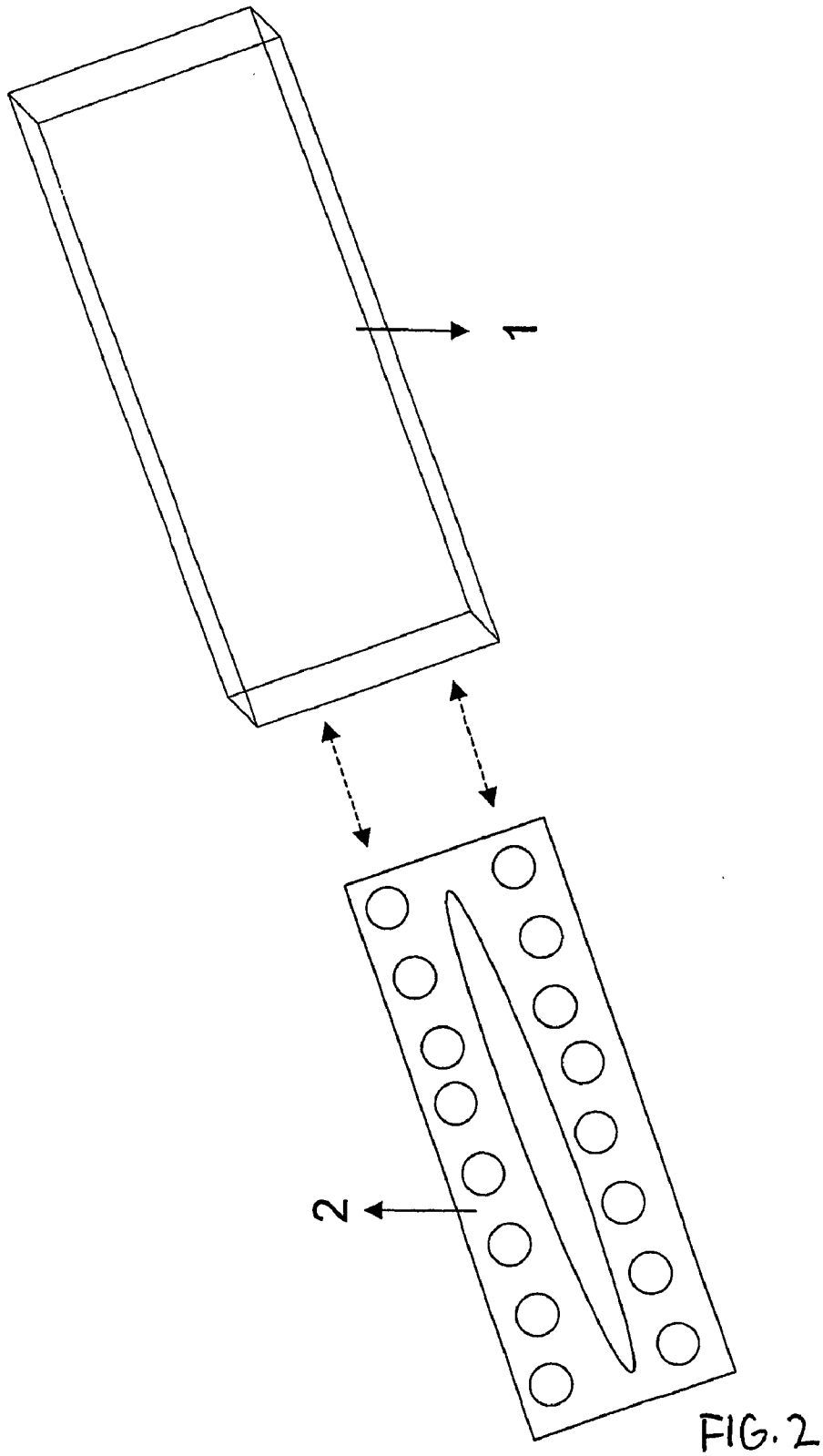


FIG. 2

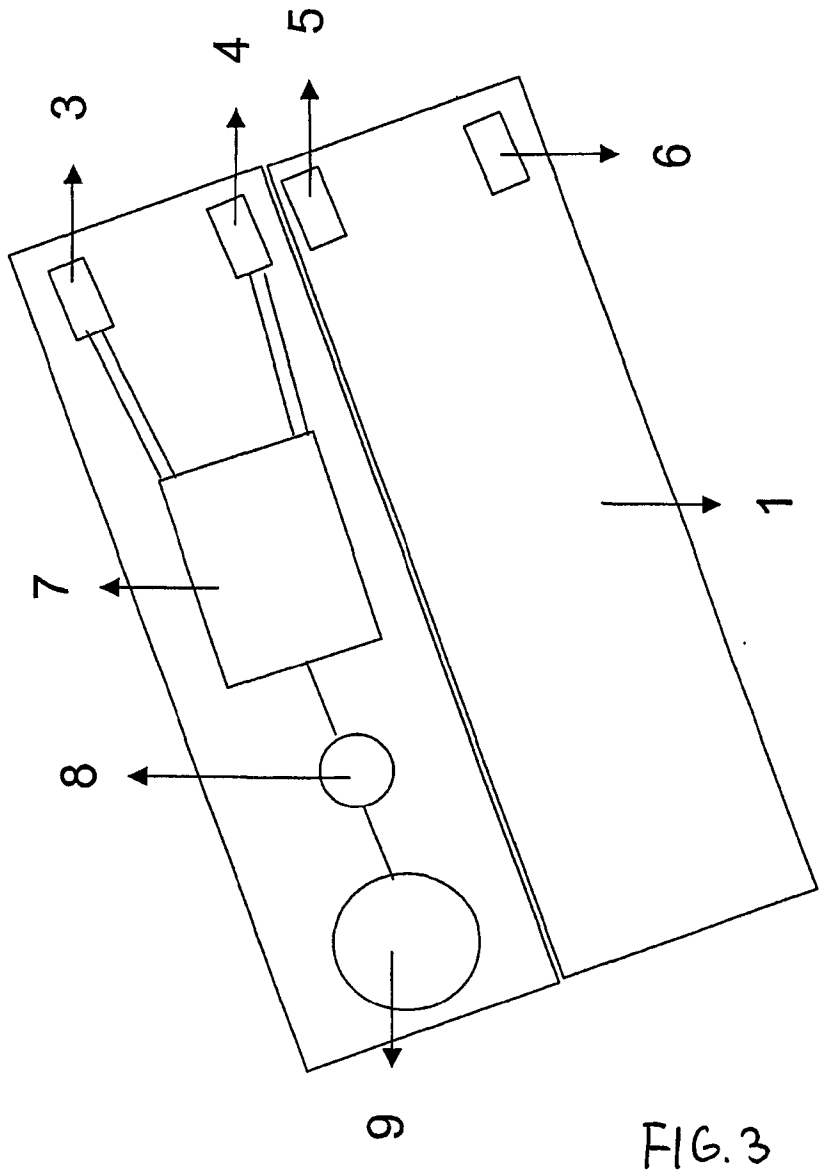


FIG. 3

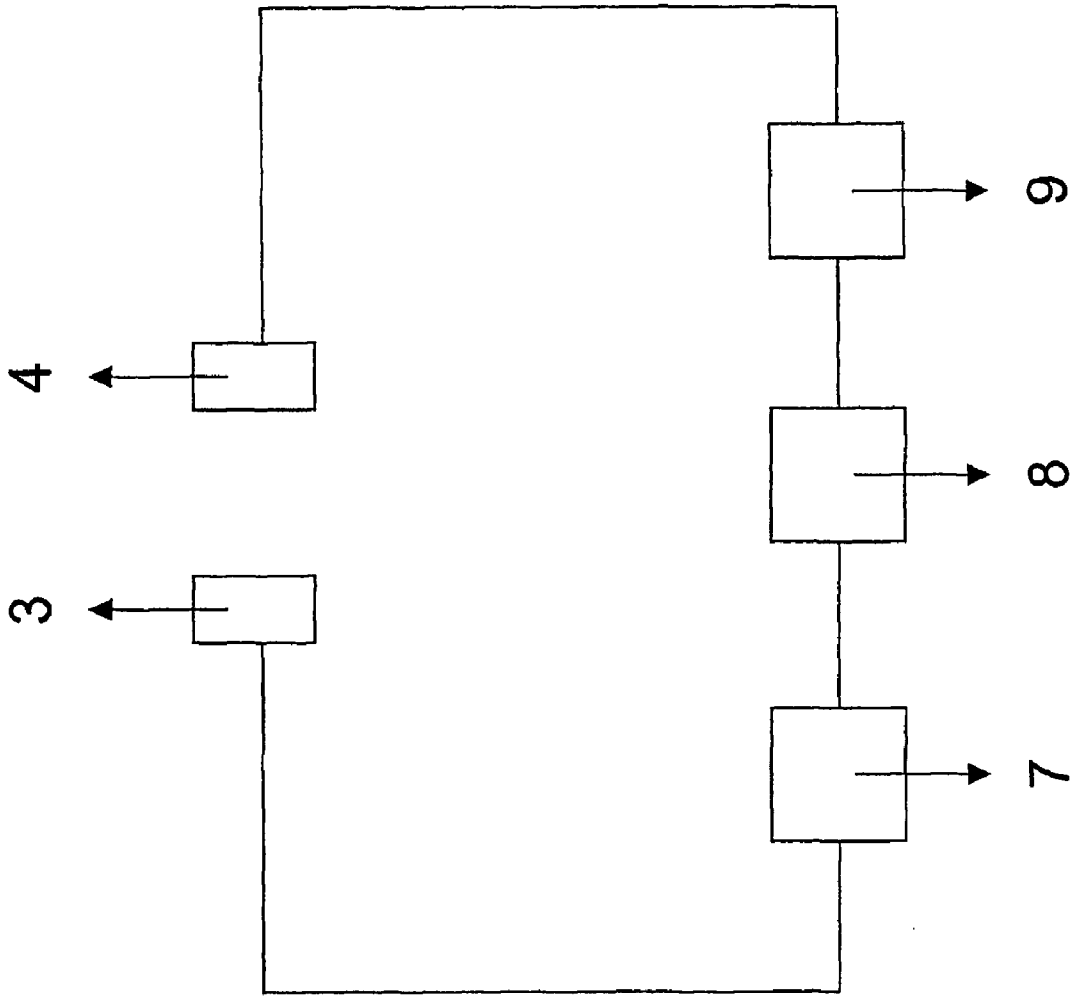


FIG. 4

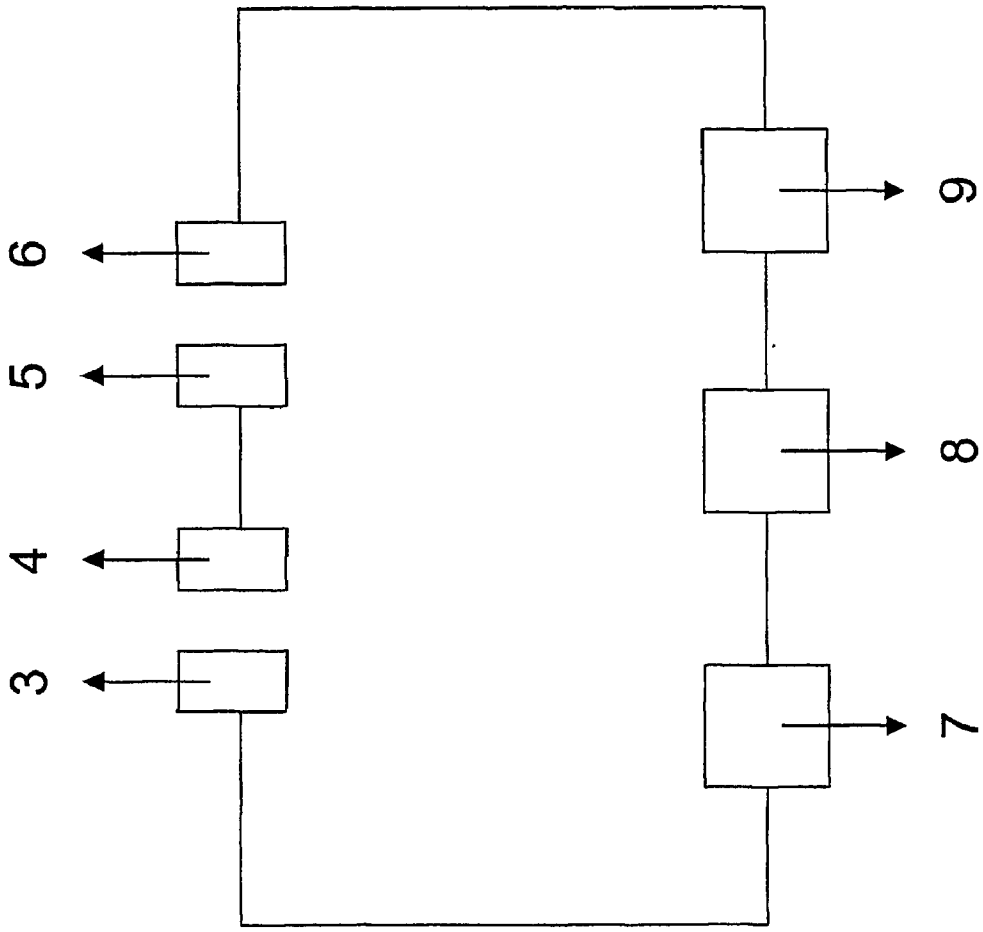


FIG. 5

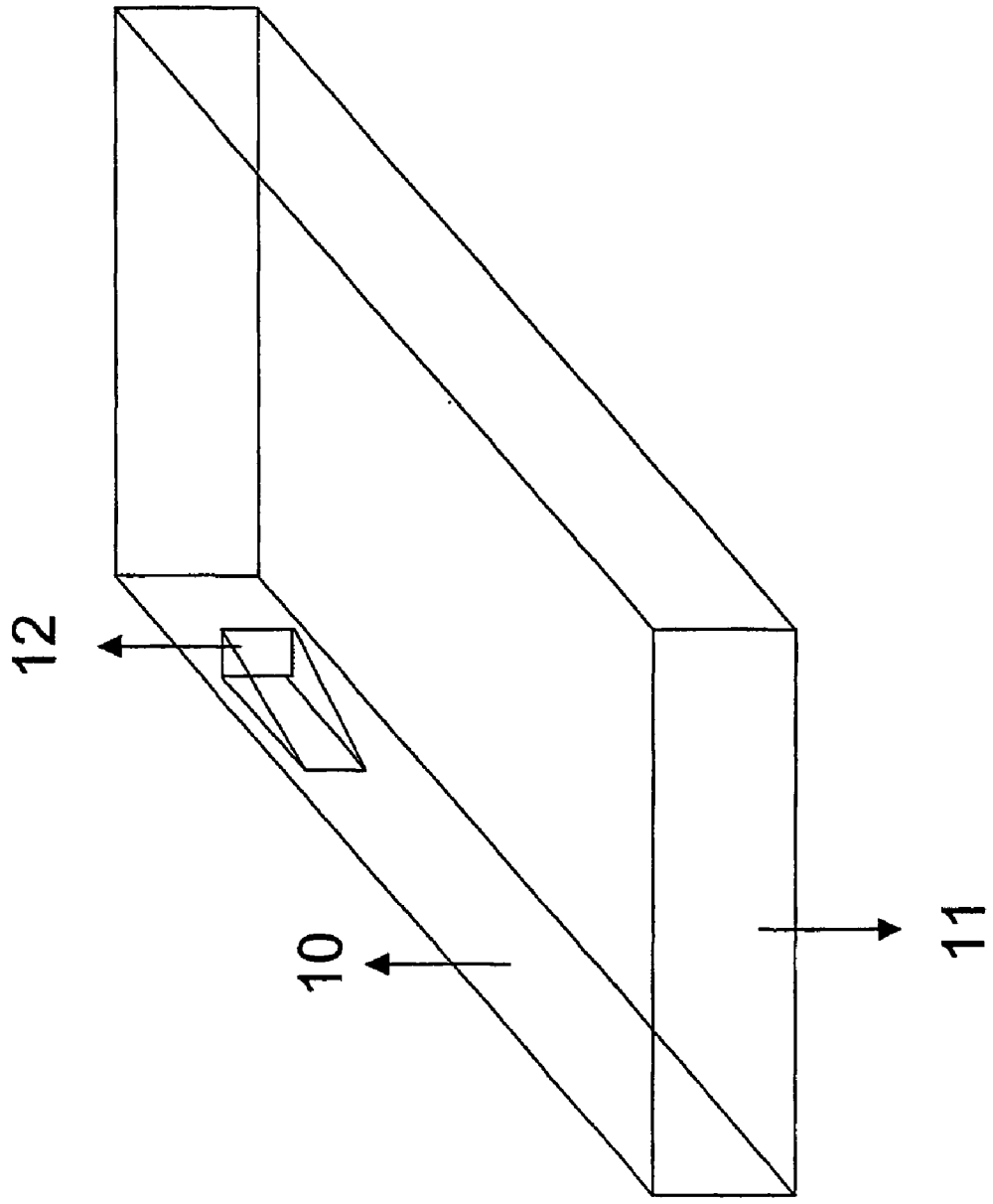


FIG. 6

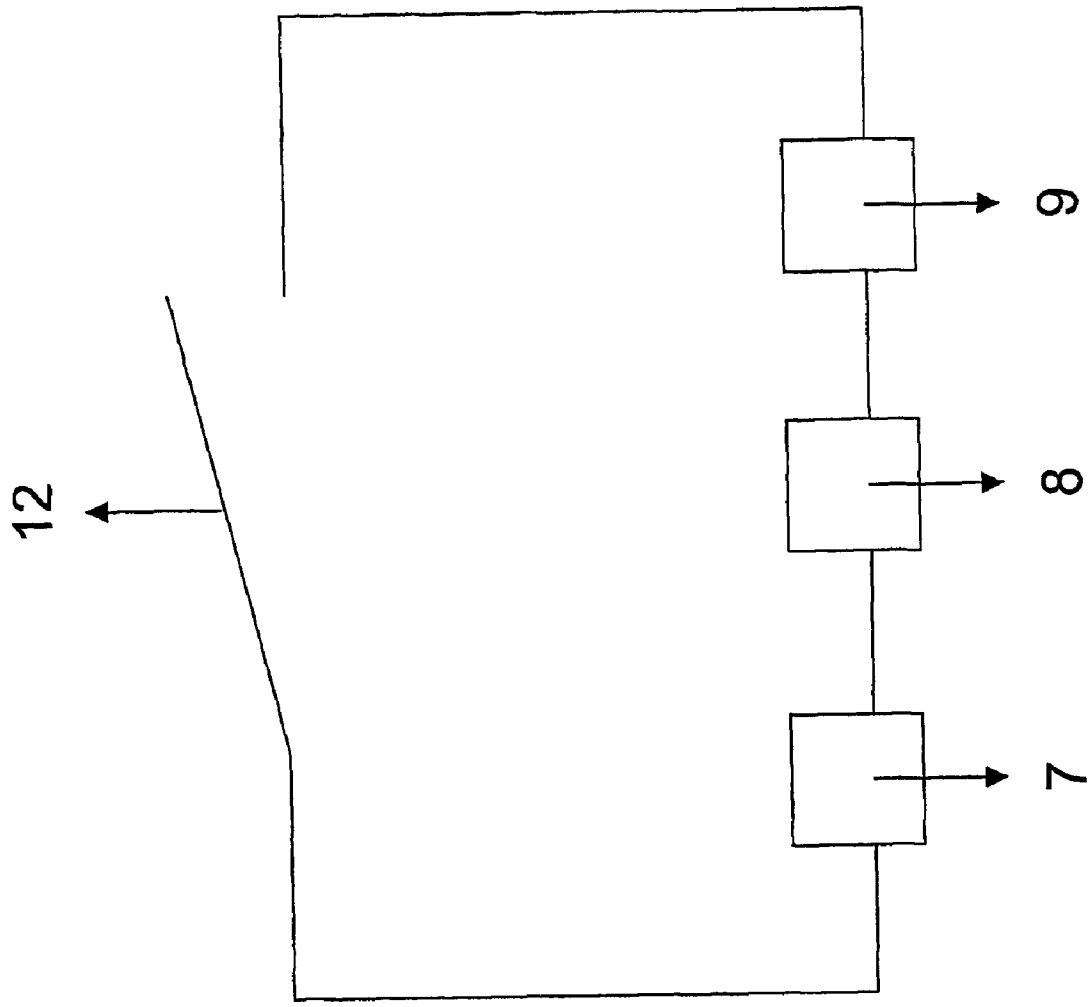


FIG. 7

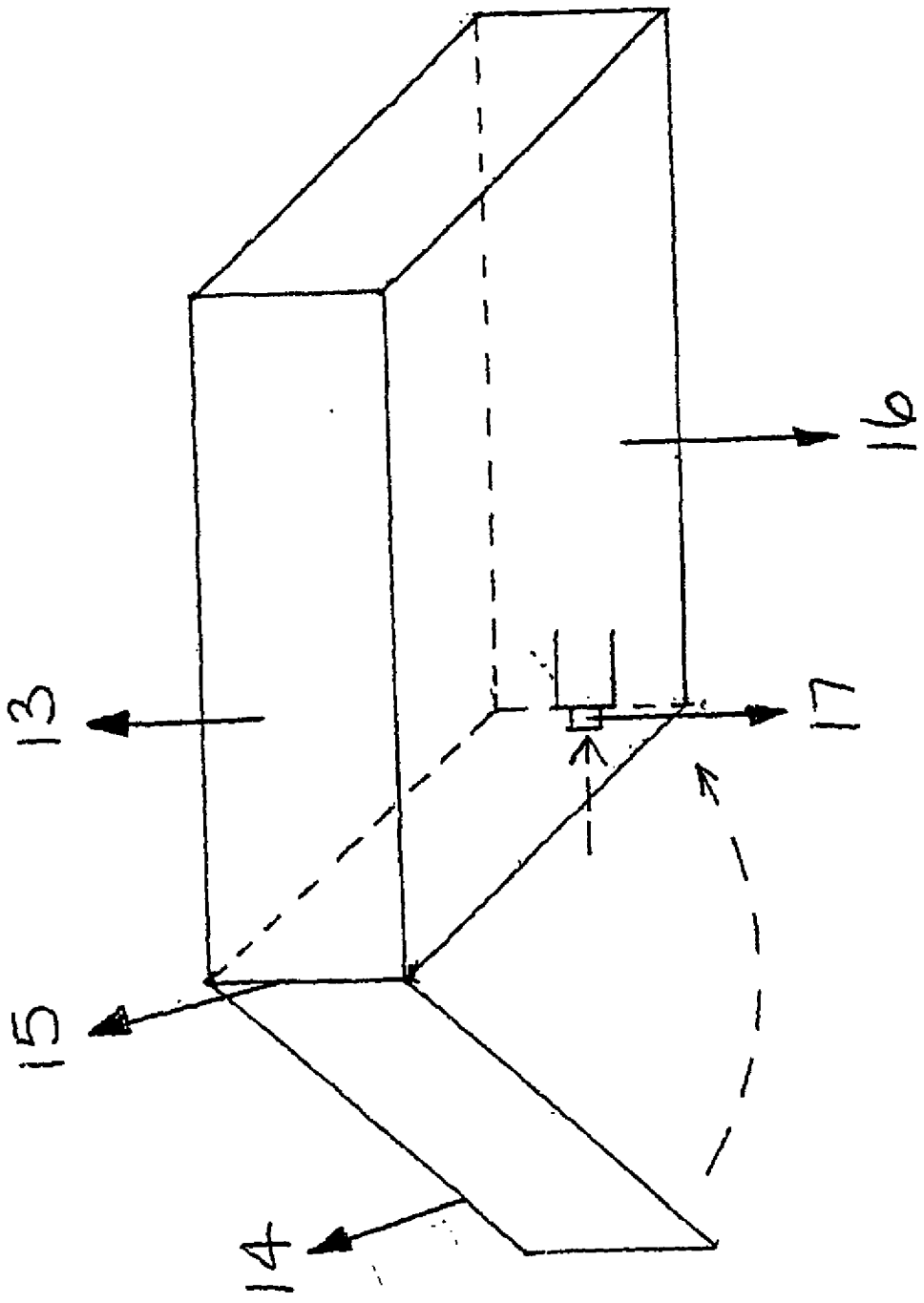


FIG. 8

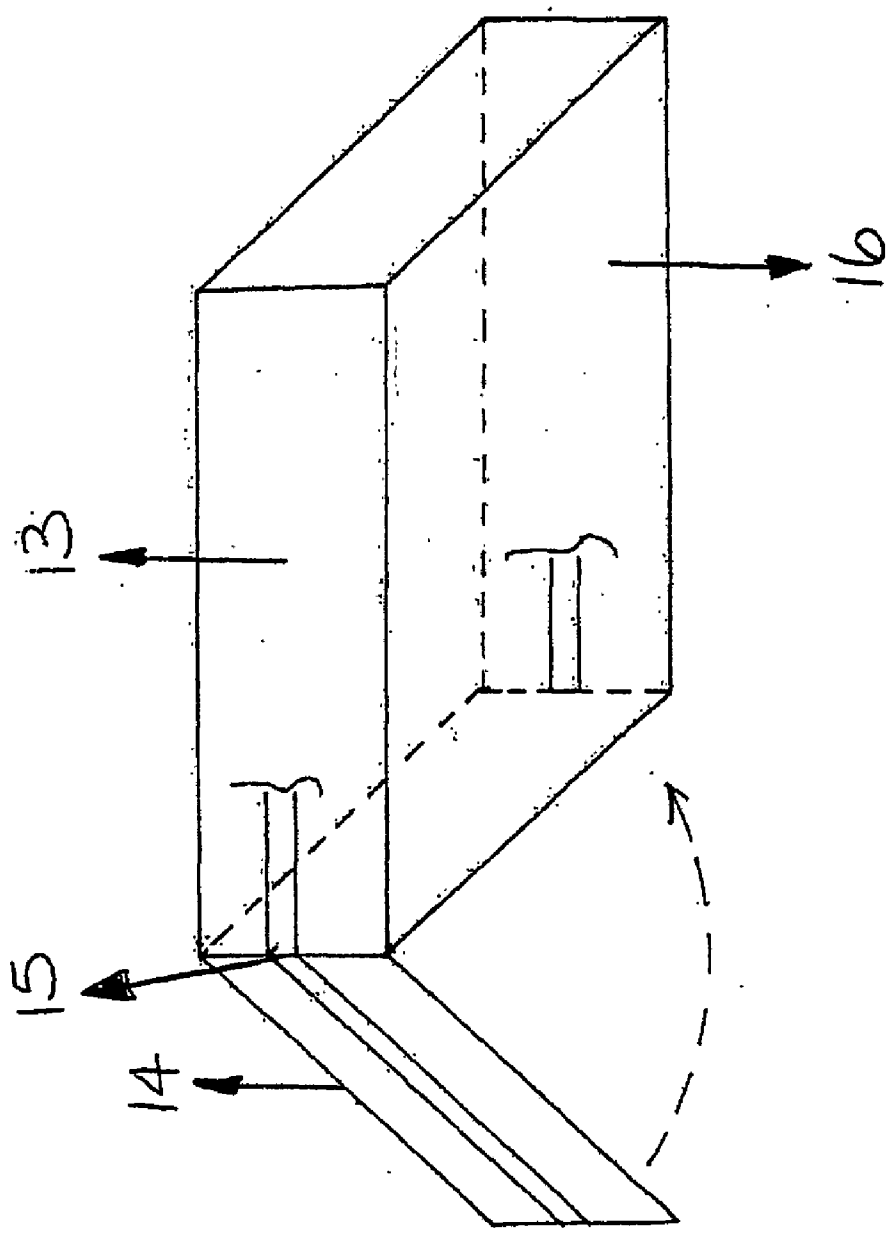


FIG. 9

PILL HOLDER AND REMINDER DEVICE

[0001] The present invention relates to pill containers and in particular to containers that are capable of issuing a reminder/warning when ingestion is next due.

[0002] One of the most common problems associated with the periodic taking of medication is the failure to take pills on time. Often, a person simply forgets to take a pill when the appropriate time comes. Sometimes a person forgets when he or she has taken their last pill. A person may forget whether he or she indeed took a pill the last time.

[0003] Some medications demand the building up of a body accumulation of drugs to a certain level and maintaining that level by a precise regime of pill taking. Failure to take pills according to that regime results in an excess or deficiency of medication level, either of which may have adverse effects.

[0004] Many medications are given in maximum safe dosages. Exceeding those dosages by taking pills too often, such as when one forgets when the last pill was taken or if the last pill was taken too late and another pill too soon, may have serious consequences. Failure to take sufficient pills due to failure to remember when pills were last taken or failure to remember to take a pill at an appointed time or other interruption of a regime may reduce body level of a medication to an ineffective amount. Not only are such reduced levels ineffectual, but also such reduced levels may produce either a sensitivity to a drug or an immunity to its effects. Later prescriptions of the same drugs may not be advisable, even if prescribed regimes of medication are closely followed at a later time.

[0005] Some repetitive medications by the nature of their composition dull the memory encumbering the ability to remember when the medication was last taken or when it next should be taken.

[0006] Devices have been proposed which dispense pills following selected intervals. For example, U.S. Pat. Nos. 3,818,473 and 5,495,961. Such devices are cumbersome and neither ensure that the articles so dispensed will be used at the appropriate time due to their unavailability nor ensure that subsequent intervals will be properly programmed.

[0007] Several pill boxes have been designed for personal use and for convenient carrying. Such pill boxes have not provided active reminders that a pill should be taken nor do they contain a timer, which can be set for the next dosage before returning a pill box to its normal carrying position.

[0008] More and more pills are supplied as blister packs and the present inventors have developed a holder or container for blister packs whereby insertion of the blister pack into the holder or container activates a timer and a reminder/warning system. In a preferred embodiment where the blister pack has a foil backing the inventors have found that the electrical conductivity of the foil backing can be used as part of an electrical circuit, which provides an alarm/reminder system.

[0009] The present invention therefore provides a holder for a blister pack of pills comprising a timer and an alarm/reminder system that is activated by insertion of the blister pack into the holder.

[0010] The present invention is therefore a holder for blister packs of pills which actively reminds a person at the appropriate time when a pill should be taken. The holder automatically sets in action a reminder when it is time for taking the next dosage.

[0011] According to a preferred embodiment of the invention, useful with foil based blister packs, electrical contacts are provided on the inner surface of the holder such that upon insertion of the blister pack into the holder the foil of the blister pack closes the circuit between the contacts and so activates a reminder/warning device to flag when the next ingestion is due.

[0012] Alternatively a switch device may be incorporated into the inner surface of the holder that is closed upon insertion of the pack and opened when the pack is removed for the next ingestion.

[0013] As a further embodiment the holder may be provided with a closure member such as a hinged cover which, when closed activates the timer and reminder system. In this way opening the holder breaks the circuit and closure reactivates the circuit.

[0014] A circuit is provided in the wall of the holder comprising a timer, a source of energy, usually electricity and an alarm. In the preferred embodiment, the timer has an hour indicating indicia-bearing disk mounted on the outer cover of the holder. Any conventional form of small timer may be employed; the timer may be mechanical or more preferably digital. When the desired time period expires the alarm is activated usually by completion of the electric circuit to allow power to flow to the alarm device.

[0015] A noise-producing device is preferred as the reminder/warning device. A buzzer is preferred, but a bell or chime may be used. A variable device, such as a controllable sound deadening device, may be used to change the intensity of sound produced by the signal according to the desires and needs of the user. Any convenient signal may be used. A light may be employed where the device is worn in a visible spot. Temperature change may be employed as a signal when the device is configured for wearing against the skin, which may be particularly useful for patients with hearing and/or sight difficulties.

[0016] The pill holder may be made of any material and its method of manufacture is not important. Moulded plastic such as polystyrene or polypropylene may be used and it may of course, be decorated for aesthetic purposes. In a preferred embodiment the blister pack has a foil component which may be the entire material. In this instance the foil itself may be used to complete the circuit and activate the timer. In a further preferred embodiment the electric circuitry including the contacts, a battery, a timer and the alarm/warning device are all moulded within the holder. It is also preferred that the holder be a sheath into which the blister pack can be inserted and that it be provided with electrical contacts on both inner surfaces so that the circuit is completed however the blister pack is inserted into the sheath.

[0017] In an alternative embodiment a switch is provided on the inner surface of the holder that is closed upon insertion of the blister pack. Conveniently the switch may be a spring-loaded armature, which extends from the circuit into the empty holder and is pushed down to complete the circuit as the blister pack is inserted. It is preferred that the spring be mounted in the half of the holder remote from the

end where the blister pack is inserted to reduce the likelihood of inadvertent activation of the timer/warning system.

[0018] In the embodiment when the closure of the cover completes the circuit and activates the circuit, the cover is preferably hinged at one side of the opening to the holder and pressing the cover to close either activates a switch are completes the circuit.

[0019] The timer may be pre-set for example, when pills need to be taken once per day or may be variable to allow for different intervals. The nature of the alarm system can be varied according to the nature and circumstances of the patient. It may for instance create a noise such as a buzzer or a bell and/or it may generate a flashing light. Alternatively it may generate a radio signal, which activates a remote alarm/warning system such as a telephone or a device in a central dispensary in for example a hospital.

[0020] The holder can also be provided with an indicator on the outer surface such as a light to confirm that the timer/warning system has been activated.

[0021] The present invention is illustrated by the drawings in which:

[0022] **FIG. 1** shows a holder according to the invention containing a blister pack of pills.

[0023] **FIG. 2** is a diagrammatic illustration of how the blister pack can be removed from and inserted into the holder.

[0024] **FIG. 3** shows a configuration of the circuitry in the holder.

[0025] **FIGS. 4 and 5** shows alternate circuitry that can be used.

[0026] **FIG. 6** shows an alternate embodiment in which a switch is provided on the inner surface of the holder.

[0027] **FIG. 7** shows the circuitry to be used with the holder show in **FIG. 6**.

[0028] **FIG. 8** shows a box like container with a hinged cover.

[0029] **FIG. 9** like **FIG. 8** shows a box like container with a hinged cover employing an alternate form of circuitry.

[0030] Referring to **FIG. 1** the holder **1** is of a size and shape that the blister pack **2** can be readily inserted and removed from the holder but fits sufficiently strongly to be in good contact with the inner surface thereof as is shown in **FIG. 2**.

[0031] **FIG. 3** shows a holder **1** opened up to show the inner surface useful when the foil of the blister pack itself completes the circuit. Contacts **3**, **4**, **5** and **6** are provided on the inner surface. These contacts are in turn linked with a battery, which is in turn linked to a reminder/warning device **9**. The circuitry may be on the surface or embedded in the holder providing the contacts are exposed for contact with the foil of the blister pack. **FIG. 4** is a simple illustration of the circuitry to be used and **FIG. 5** illustrates the preferred circuitry in which contacts are provided on both the inner surfaces of the holder so that the circuit is completed irrespective of which way the blister pack is inserted into the holder.

[0032] Accordingly in operation when the blister pack **2** is inserted into the holder **1** of **FIG. 3** the foil of the blister pack will close the circuit between the contacts **3** and **4** and/or **5** and **6**. This will complete the circuit enabling the battery to activate the timer **7** which has been set to activate the alarm and provide a reminder when the next pill is due to be taken. Upon expiration of the set period the timer will activate the alarm/reminder mechanism **8**, removal of the blister pack to take the next pill will break the circuit and deactivate the alarm system. Replacement of the blister pack will then reactivate the system for the next cycle.

[0033] **FIG. 6** shows an alternate shape of holder **10**, which has an open end **11** for the insertion of a blister pack. A spring-loaded switch **12** is provided on the inner surface of the pack (shown in the open position), which is closed as the blister pack is inserted and opened as it is removed.

[0034] **FIG. 7** shows the circuitry that can be used in the holder of **FIG. 6**, references **7**, **8**, and **9** being to the battery, timer and alarm respectively.

[0035] **FIG. 8** shows a box like holder **13** provided with a cover **14** hinged at one wall **15** of the holder. The other wall of the holder **16** is provided with a switch **17** which is activated when it is depressed by closure of the cover.

[0036] **FIG. 9** shows a similar system to **FIG. 8** except that conductive elements **17**, **18** and **19** are provided in the walls **13**, **14** and **16** so that the circuit is closed by closure of the cover.

[0037] In both embodiments the cover may be spring loaded to favour the closed position to avoid unplanned opening of the holder.

[0038] The holder and the blister pack may be supplied together as a single system or the holder may be supplied separately and reused for several blister packs.

1. A holder for blister packs containing a timer and reminder/warning device whereby the timer is activated upon insertion of the blister pack so that a reminder/warning is emitted when the next ingestion is due.

2. A holder according to claim 1, in which electrical contacts are provided on the inner surface of the holder such that upon insertion of a foil based blister pack into the holder the foil of the blister pack closes the circuit between the contacts and so activates a reminder/warning device to flag when the next ingestion is due.

3. A holder according to claim 1, provided with a switch on its inner surface that is closed upon insertion of the blister pack to activate the reminder/warning device.

4. A holder according to claim 1, in which the timer is activated by closure of a cover on the holder.

5. A holder according to any of the preceding claims, in which the reminder/warning device consists of a power source, an electrically operated timer and an electrically operated alarm forming a circuit with the electrical contacts or switch.

6. A holder according to claim 1, claim 2, or claim 4, in which two sets of contacts are provided on opposite inner surfaces of the holder.

7. A holder according to any of the preceding claims, wherein the reminder/warning device provides a sound to remind that the next ingestion is due.

8. A holder according to any of the preceding claims, wherein the reminder/warning device provides a light to remind that the next ingestion is due.

9. A holder according to any of the preceding claims, wherein the reminder/warning device provides a radio signal beamed to a remote location to provide a reminder that the next ingestion is due.

10. A holder according to any of the preceding claims, also containing a device that indicates when the timer is activated.

11. A holder according to claim 10, in which the device is a light.

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