

[54] **CONTAINER FOR STORING AND DISPENSING MEDICATION**

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[21] Appl. No.: **17,388**

[52] U.S. Cl.116/121, 116/133, 190/51, 206/1.5, 206/12, 206/42, 211/128

[51] Int. Cl.G09f 9/00

[58] Field of Search.....116/114, 121, 114 J, 133; 206/1.5, 12, 45; 190/16, 51, 41, 42; 211/128; 221/2

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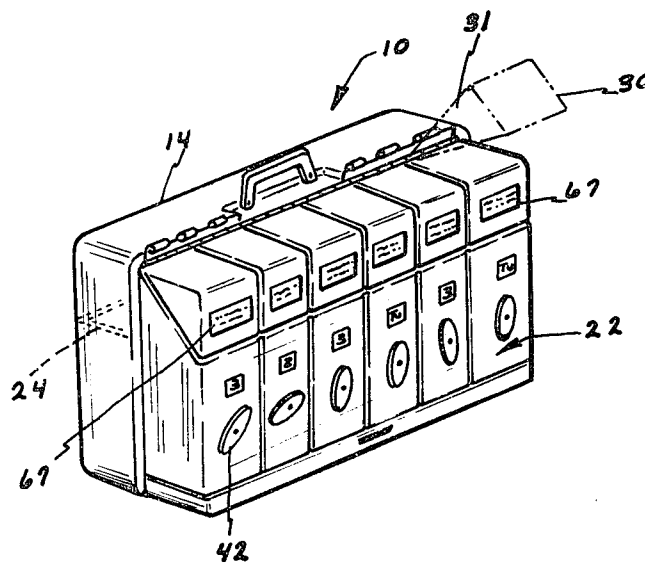
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Primary Examiner—Louis J. Capozzi
Attorney—Hauke, Gifford and Patalidis

[57] **ABSTRACT**

A container for storing and dispensing medication having means for recording and indicating the number of times such medication is dispensed during a selected period of time, comprising a plurality of compartments arranged in a side-by-side fashion, each compartment having a hinged locked cover to permit individual access to interior. A disc is rotatably mounted on an interior wall of each compartment and has a portion viewable through an opening in the forward wall of each compartment. A locking mechanism carried by each container cooperates with the disc to unlock the cover as the disc is rotated to the next position and at each position of the disc information in the form of an indication of successive time intervals is provided on the portion of the disc viewable through the wall of the container to provide a record as to the dispensing of the medication.

16 Claims, 17 Drawing Figures



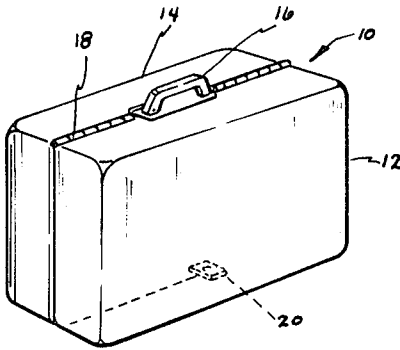


FIG-1

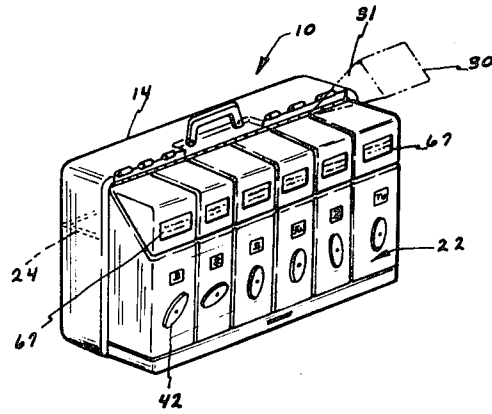


FIG-2

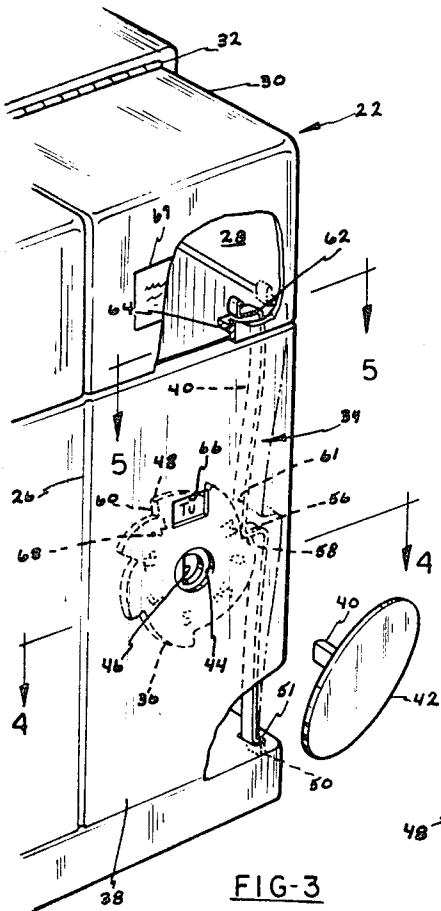


FIG-3

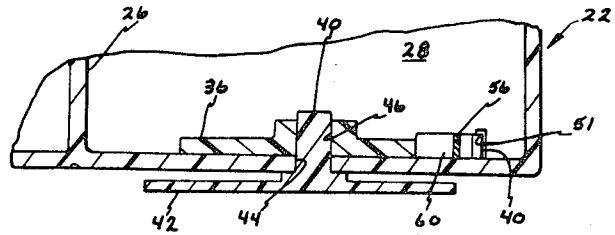


FIG-4

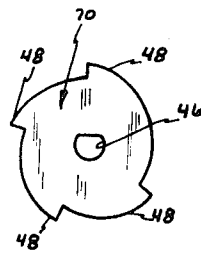


FIG-5

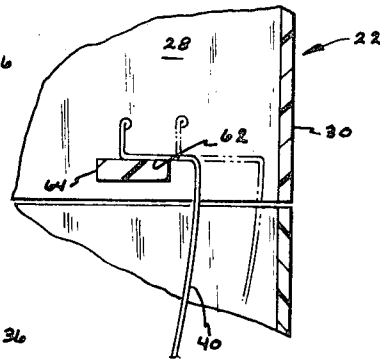


FIG-6

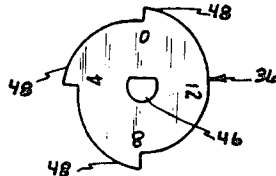


FIG-7

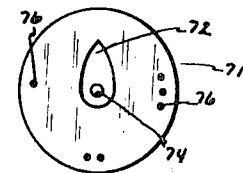


FIG-8

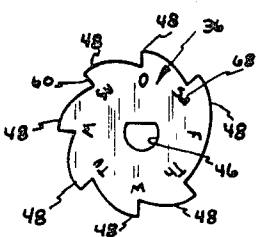


FIG-9

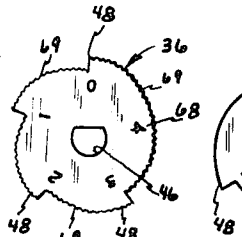


FIG-10

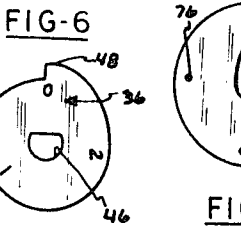


FIG-11

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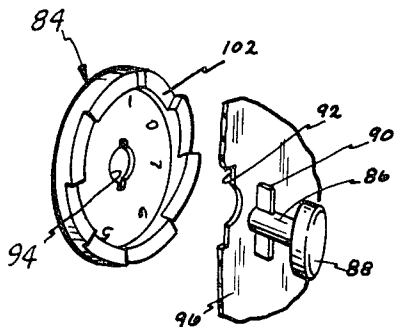


FIG-13

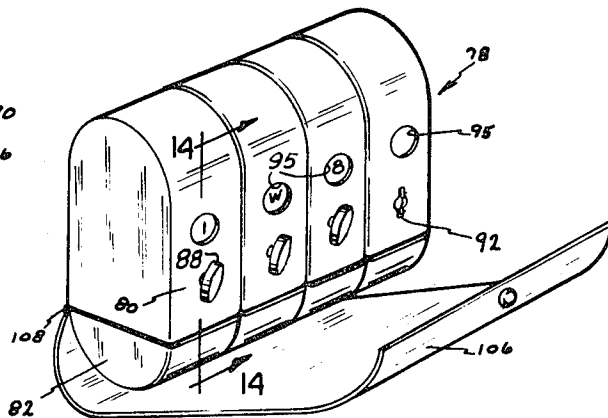


FIG-12

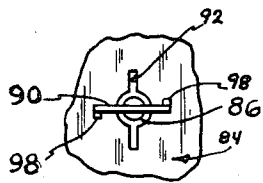


FIG-15

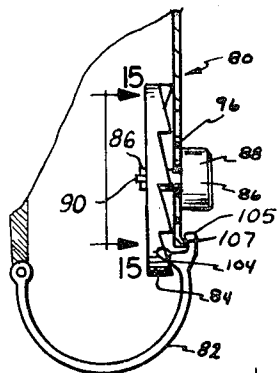


FIG-14

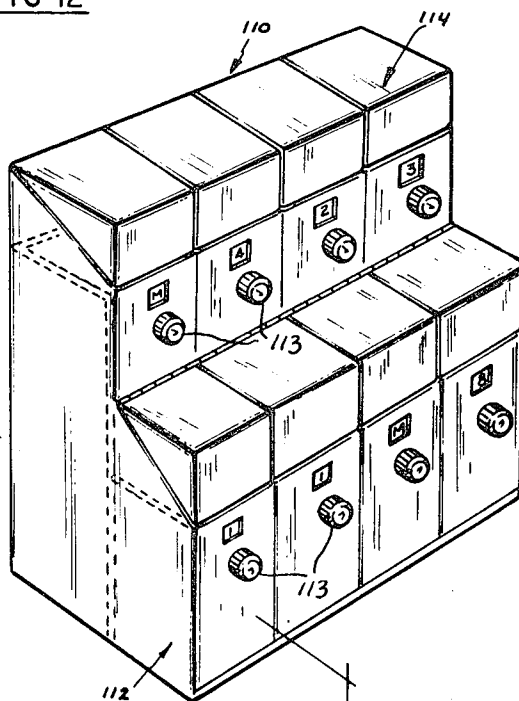


FIG-16

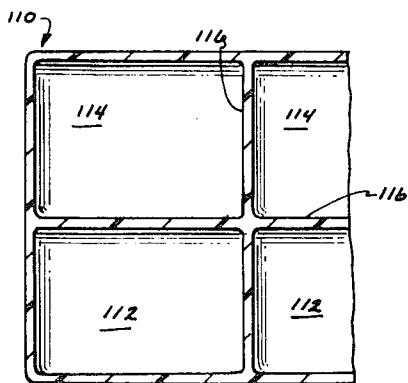


FIG-17

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CONTAINER FOR STORING AND DISPENSING MEDICATION

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a container for storing and dispensing medication, and particularly to the storing of a plurality of different medications and means for indicating whether or not such medication has been taken during a selected period of time.

2. Description of the Prior Art

Heretofore, various methods and apparatus have been employed to aid in the timely dispensation of medicines. Such apparatus is particularly useful when a person must take several medications of different amounts at different times during the day. One obvious method employed in the past to remember the amount of medication taken has consisted of recording the same with a pencil and chart. However, this method is usually inconvenient and most people will not keep one, or the chart may be misplaced, thus at best such a pencil and chart method is very unreliable. Another method employed in the past for this purpose has consisted of a plurality of tabbed strips of paper secured together on an envelope or the like so that the corresponding tabs are aligned and overlie each other. The record is made by tearing off a tab so as to leave a stub and the stub serves as a record that a certain medication has been taken. Such a method has the same basic disadvantage as the pencil and chart method, since it is possible to take the medication without making a recording.

It would therefore be desirable to provide a device which will prevent a person from taking medication until a proper recordation of the taking of the medication has been made.

SUMMARY OF THE INVENTION

The present invention, which will be subsequently described in greater detail, comprises a container having a plurality of separate compartments arranged in a side-by-side fashion with each compartment having a separate locked cover. A rotatably mounted disc having indicia arranged so as to indicate successive intervals of time to indicate the number of times the container is opened is adapted to cooperate with a locking mechanism associated with each compartment to unlock the cover each time the disc is rotated from one position to the next position. Thus medication from each of the containers may not be had until a proper recordation of the taking of a medication is made.

It is therefore an object of the present invention to provide a container for storing and dispensing medication having means for indicating the number of times such medication is dispensed.

It is also an object of the present invention to provide a container for storing and dispensing medication which insures that a proper recordation of the usage of said medication is made prior to the user thereof obtaining access to the medication.

Other objects, advantages and applications of the present invention will become apparent to those skilled in the art of storing and dispensing medication when the accompanying description of some examples of the best modes contemplated for practicing the invention is read.

BRIEF DESCRIPTION OF THE DRAWINGS

The description herein makes reference to the accompanying drawings wherein like reference numerals refer to like parts throughout the several views and in which:

FIG. 1 is a perspective view of a container for storing and dispensing medication and the like embodying the principles of the present invention;

FIG. 2 is a view in perspective of the container illustrated in FIG. 1 and with its cover removed;

FIG. 3 is an enlarged fragmentary perspective view of one of the compartments of the container illustrated in FIG. 2 and with portions broken away for purposes of clarity;

FIG. 4 is a fragmentary cross-sectional view of the container illustrated in FIG. 3 taken along line 4-4 thereof and enlarged somewhat for clarity;

FIG. 5 is a fragmentary cross-sectional view of the container illustrated in FIG. 3 and taken along line 5-5 thereof;

FIGS. 6-11 illustrate several cam devices which can be employed in container of the present invention;

FIG. 12 is a perspective view of a second embodiment of a container for storing and dispensing medication with portions thereof deleted for purposes of clarity;

FIG. 13 is a fragmentary exploded view in perspective of a portion of the embodiment illustrated in FIG. 12;

FIG. 14 is a fragmentary cross-sectional view of the container illustrated in FIG. 12 and taken substantially on line 14-14 thereof;

FIG. 15 is a fragmentary view of the container shown in FIG. 14 and taken substantially on line 15-15 thereof;

FIG. 16 is a perspective view of yet another embodiment of a container for storing and dispensing medication and constructed in accordance with the principles of the present invention; and

FIG. 17 is a fragmentary cross-sectional view of the container of FIG. 17 and taken substantially on line 17-17 thereof.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, and particularly FIGS. 1-5, there is illustrated a container 10 embodying the principles of the present invention, having a pair of removably attached covers 12 and 14, and a handle 16 to permit carrying of the container when desired. The covers 12 and 14 are hinged to the top of the container at 18, while any suitable locking means generally indicated at 20 secures the covers to the container 10 to prevent children from obtaining access thereto. The cover 12 encloses a plurality of separate compartments 22 arranged in a side-by-side fashion along the front side of the container 10, as illustrated in FIG. 2. The cover 14 encloses a receptacle 24 on the back side of the container 10, which may be used for storing bottles and the like as will be explained in greater detail hereinafter.

Each of the compartments 22 has rectilinearly shaped walls with a common side partition 26 separating the interiors 28 of the adjacent compartments. Each compartment 22 has a lid 30 formed with triangular sides 31 and having one corner hinged as at 32 such that each lid 30 is adapted to swing upwardly to permit access to the interior 28 of the compartment 22 which it closes. Thus each compartment 22 may be selectively opened and closed independent of adjacent compartments. The container 10 is preferably constructed of a plastic material to provide a lightweight structure which permits ease in handling.

Each of the compartments 22 is adapted to hold a different medication, such as vitamin pills or the like, depending upon whatever type of medication the user is required to take. The rear section 24 may be utilized to hold the containers in which the medication was originally sold, if these is an excess amount over that which the compartments 22 are adapted to hold. Further, the rear portion 24 may be used to retain other medical supplies, as for example, bandages or the like, such that the container 10 may function as a medical center for all of the family's medical needs.

To insure that the user of the container 10 takes the proper doses of medication during the proper interval of time, each compartment 22 is provided with a latching mechanism, generally indicated at 34 (FIG. 3), which prevents access to the interior of its associated compartment, and thus to the medication contained therein, until a proper recordation of the taking of the medication has been made. Since the means of recording the number of times which the medication is taken during a selected interval of time and the latching mechanism 34 cooperate with one another and function simultaneously, the two will be described at the same time.

The recordation of the number of times a particular medication has been taken from one of the compartments 22 is provided by a disc 36 which is rotatably mounted to the inner surface of the front wall 38 of each compartment 22. The disc 36 is mounted to a stem 40 which is substantially D-shaped in cross section and which extends from the center of a knob 42. The stem 40 extends through a circular aperture 44 in the front wall 38 and is received in a D-shaped opening 46 at the center of the disc 36. Since the disc 36 is preferably constructed from a plastic material and the D-shaped opening 46 is complementary to the stem 40, the stem 40 will be received within the slot 46 with a sufficient degree of tightness that the disc 36 will be retained thereon without other securing means. The disc 36 will rotate about the longitudinal axis of the stem 40 as the knob 42 is rotated. A plurality of cam surfaces 48 are formed about the outer periphery of each disc 36 and are adapted to cooperate with the latching mechanism 34 to cause the same to disengage and engage the lid 30 to open and close the same as will be described hereinafter.

The latching mechanism 34 comprises a lever 40 (FIGS. 3 and 5) made of a resilient material, such as spring steel or plastic, one end 52 of which is inserted in a slot 51 at the bottom of each compartment 22 in such a manner that the lever 50 is biased toward the cam surfaces 48 of the disc 36. An L-shaped curve 56 formed at the midsection of the lever 50 forms a shoulder 58 which cooperates with a step 60 at the end of each cam surface to prevent counterclockwise rotation of the disc, as viewed in FIG. 3. An outer surface 61 of the lever 50 above the shoulder 58 cooperates with the cam surface 48 and as can be readily seen in FIG. 3, as the disc 36 is rotated clockwise, the cam surface 48 will urge the lever 50 away therefrom until the lever 50 reaches the step 60, at which point the resilience of the lever 50 will force the same to move back toward the disc 36 and into engagement with the bottom of the step 60. The top end of the lever 50 is curved to form a second shoulder 62 (as can be clearly seen in FIG. 5) which is adapted to engage a plastic flange 64 extending inwardly from the lower surface of the lid 30. When the shoulder 58 of the lever 50 is engaged with the step 60 of the disc 36, the lever 50 is biased leftwardly such that the shoulder 62 at the top end thereof engages the top side of the flange 64 thus latching the lid 30 to prevent access to the interior of the compartment 22. In order to obtain entry into one of the compartments 22, the disc 36 must be rotated clockwise, as viewed in FIG. 3, such that the cam surface 48 engages the lever 50 to move the same a sufficient distance to cause disengagement of the shoulder 62 thereof and the flange 64. As the shoulder 62 disengages the flange 64, the lid 30 will automatically open up a sufficient distance to clear the latching mechanism 34, as is illustrated in phantom in FIG. 2. The automatic opening of the lid 30 may be accomplished in any one of several suitable means. As for example, the lid 30 may be constructed of a plastic material so designed that its own resiliency biases it to an open position when disengaged with the latching mechanism 34, or a spring (not shown) may be inserted within lid 30 in a suitable manner so as to bias the lid 30 to an open position when the same is disengaged by the latching mechanism 34.

As can be best seen in FIG. 3, the outer surface of the front wall 38 of each compartment 22 has an opening 66 through which certain indicia 68 imprinted circumferentially on the front of disc 36 may be seen by the user thereof. For example, the disc 36 in FIG. 3 has letters circumferentially spaced thereon which indicate the days of the week, Monday through Sunday, with "Tu" for Tuesday being viewable through the opening 66. Such a disc would be used when the individual was required to take the medication contained in that compartment 22 once a day. A label 67 carried on the front face of each lid 30 indicates the type of medication in each compartment and the dosage and frequency that such medication is to be taken during a selected period of time. For purposes of illustration, let it be assumed the patient is to take the medication contained within a compartment 22 once a day for a

week. The disc 36 illustrated in FIG. 3 and which can be more clearly seen in FIG. 7, has thereon circumferentially spaced about one face thereof, letters designating the days of the week from Sunday through Saturday and a designation of "0" which would be the starting point. Thus for example, on Sunday when the disc is preset at "0", the user turns the knob 42 until the letters "SU" designating Sunday appear in the opening 66. The cam surface 48 which is approximately 90° removed from the Sunday designation cooperates with the latching mechanism 34 as hereinbefore described to cause disengagement between the shoulder 62 and the flange 64, thereby causing the lid 30 to open. The user then takes the prescribed amount of medication out of the compartment 22 that he is to take on Sunday. On Monday, the user will again rotate the disc 36 until "M" for Monday appears in the opening 66 and so on each day taking the prescribed amount of medication. It can be readily seen that by viewing the particular letter designations through opening 66, the user will be able to tell whether he has taken the particular medication for that day, as he cannot take the medication for that day unless he has rotated the disc 36. It should be noted that when the user moves the disc from the last highest increment, say Saturday back to "0" the latching mechanism 34 will not unlatch the cover 30 as no cam surface is provided to cooperate with the latching mechanism 34 for the "0" position.

The accompanying chart entitled "Self Adhesive Labels" is typical of the types of labels which may be utilized on the lid 30, which would indicate to the user what medication and their use are contained in each compartment 22 and the amount and frequency such medication is to be taken.

Self Adhesive Labels

Cold	Heart
Asthma	Kidneys
Diabetes	Nerves
Blood Pressure	Gall Bladder
Swelling	Pain
1-2x-Day	Arthritis
1-3x-Day	Allergy
1-3x-Day	1-A.M. & P.M.
1-B4-Meals	2-4x-Day
1-at Bedtime	1-4x-Day

As can be seen in the chart, any combination of medication amount and frequency of use may be listed. To accommodate the varying dosages and frequency of uses of different medications, disc 36 may take several forms, each form having different indicia 68 and a corresponding number of cam surfaces 48. For example, if it is desired that a certain medication be taken four times a day, the disc illustrated in FIG. 8 is used; if two a day is the required frequency for the medication, the disc illustrated in FIG. 9 is used; and if for example, the medication is to be taken three times a day, as for instance, once at 8 o'clock, 12 o'clock and 4 o'clock the disc in FIG. 6 would be used.

The embodiment illustrated in FIGS. 10 and 11 provide a different service in that the disc 70 of FIG. 10 is blank and is adapted to be rotatably carried behind the front wall 38 in the same manner as disc 36 hereinbefore described. FIG. 11 illustrates a disc 71 which is adapted to be attached to the outer surface of the front wall 38 by any suitable bonding agent. A pointer 72 is used in place of the knob 42, and has a stem 74 similar to the stem 40 which extends through an aperture (not shown) in disc 71 to receive the rotatable disc 70. Instead of the indicia being viewable through the opening 66, the pointer simply points to the indicia which is circumferentially spaced about the disc 71. The indicia carrying disc 71 can utilize Braille, as indicated at 76, to convey the necessary information, so that the container 10 may be used by blind persons.

The disc illustrated in FIG. 8 has a plurality of small steps 69 formed on each cam surface 48 to form a ratchet for preventing the disc from rotating in a counterclockwise direction.

Referring now to FIG. 12, there is illustrated a second embodiment of the present invention in the form of a pocket size container 78, the preferred form being 2 1/2 inches in width, 4 inches in length and 3/4 inch in thickness, and therefore approximately the size of a conventional cigarette package. The medication which may also be in the form of pills or capsules is put directly into the individual compartments 80 and is retained therein by lids 82 which are disposed on the bottom side thereof. FIGS. 12 through 15 illustrate another method of unlatching and latching the lids 82 and takes the form of a disc 84, rotatably carried by a substantially cylindrically shaped stem 86. The stem 86 has a knob 88 formed at one end and a pair of radially extending flanges 90 formed at its opposite end. The flanges 90 extends through complementary shaped slots 92 and 94 in the front wall 96 and the disc 84, respectively. After the flanges 90 are inserted through the disc slot 94, the key is rotated 90° with respect to the disc until the key abuts stops 98 as clearly illustrated in FIG. 15. The disc 84, similar to the disc 36, in that the disc 84 is removable as shown in the right end compartment in FIG. 12 and is interchangeable with other similarly shaped discs so that any one of several disc configurations may be used depending upon the frequency that the medication is to be taken. The indicia carried on the face of the disc 84 is similar to that described hereinbefore and is viewable through an opening 95 in the front wall 96.

The disc 84 has a plurality of circumferentially spaced cam surfaces 102 formed on the forward surface thereof adjacent the inner side of the front wall 96. The cam surfaces are sized to cooperate with a lip 104 formed on the inner portion of the lid 82 (as can be best seen in FIG. 14), such that when the disc 84 is rotated in a clockwise direction the cam surfaces 102 exert an outwardly directed force against the lip 104 of the cover 82 to cause the top portion 105 thereof to disengage the latching member 107 formed along the lower edge of the front wall 96 of the compartment 80, whereby the resiliency of the lid 82 (or a spring not shown) causes the cover 82 to drop open to permit access to the interior of the compartment 80. The pocket size container 78 is further provided with an outer enclosure or cover 106, hinged at 108, and which is adapted to enclose all the compartments 80 of the container 78 when the same is being carried in the individual's pocket or the like.

Referring now to FIGS. 16 and 17, wherein there is illustrated a third embodiment of the present invention, in the form of a container 110 having a front row of compartments 112 which are substantially identical to the front row of compartments 22 illustrated in FIGS. 2 and 3, except the knobs 42 have been replaced by knobs 113, which differ only in their outer appearance. The embodiment illustrated in FIG. 16 is further provided with a second elevated level of compartments 114 at the rear thereof, each of the rear compartments 114 extending the full height of the container 110. Each of the compartments 112 and 114 has partitions 116 separating the same from adjacent compartments to the front, rear and side. The elevated rear compartments 114 are particularly adapted to receive large bottles and the like which would not normally fit within the forward compartments, which as indicated previously are primarily designed to receive capsules, pills or relatively small bottles containing a liquid medication. Either of the discs and the latching mechanism described hereinbefore may be used in the embodiment of FIGS. 16 and 17 so that the same functions in a similar manner.

It can therefore be seen that the present invention has provided a container for storing and dispensing medication and includes means to permit individuals utilizing the container to record each time the medication is taken before access to the medication may be had.

While the forms of the several embodiments of the invention as herein disclosed constituted preferred forms it is to be understood that other forms may be adapted all coming within the scope and spirit of the claims which follow.

What is claimed is:

1. An apparatus for storing medication comprising:
 - a compartment;
 - lid means for opening said compartment to permit access to the interior thereof;
 - latching means disposed within said compartment and adapted to engage said lid means to hold said lid means closed;
 - a knob means having a stem portion rotatably supported in an aperture in a wall of said compartment, said stem portion extending into the interior of said compartment;
 - a disc removably supported on said stem portion within said compartment and rotatable with said stem portion as said knob is rotated, said disc having means visible through an opening in said compartment wall for indicating each time said lid means is opened and thus indicative of the number of times medication is removed from said compartment;
 - cam means on said disc; and
 - follower means connected to said latching means and adapted to be engaged by said cam means when said disc is rotated, said follower means being operative to release said latching means from engagement with said lid means when said follower means is engaged by said cam means as said disc is rotated in one direction by said knob means between selected positions corresponding to said indicating means, said follower means cooperating with said cam means for preventing said discs from being rotated in an opposite direction.
2. The apparatus as defined in claim 1 further comprising a plurality of said compartments arranged in a side-by-side fashion.
3. The apparatus as defined in claim 2 further comprising a second plurality of said compartments arranged in a side-by-side relation and elevated above and behind said mentioned first plurality of compartments.
4. The apparatus as defined in claim 2 further comprising a removably attached enclosure adapted to enclose said plurality of compartments.
5. The apparatus as defined in claim 1 wherein said indicating means comprises an initial starting position and a plurality of successive time interval indicia positions arranged circumferentially on the face of said disc and facing said opening, said disc having a plurality of cam surfaces, one of each cam surfaces being associated with one of each time interval indicia positions, said lid being unlatched as said disc is rotated from one position to the next successive position.
6. The apparatus defined in claim 5 wherein said lid means remains latched as said disc is rotated from the last of said timed interval indicia positions to said initial starting position.
7. The apparatus as defined in claim 1 further comprising means for normally biasing said lid means to an open position when unlatched.
8. The apparatus defined in claim 5 wherein said lid means is carried at the top of said compartment for relative pivotal movement between an open and a closed position, said follower means comprising an arm member having one end carried by the bottom wall of said compartment, a midportion of said follower means being biased toward engagement with said disc cam surfaces, said latching means comprising an upper curved end portion of said arm member adapted to engage a flange portion formed on the inner surface of said lid means to latch said lid means when the same is in a closed position, said arm member being pivoted away from said lid flange to unlatch said lid means when said arm member is engaged by one of said cam surfaces as said disc is rotated from one position to the next successive position.
9. The apparatus defined in claim 8 further comprising means biasing said lid means to pivot said lid means to an open position so as to permit access to the interior of said compartment when said arm member is engaged by one of said cam surfaces to unlatch said lid means.
10. The apparatus defined in claim 1, further comprising a second disc supported on said stem portion and carried externally of said compartment wall, said second disc having suc-

cessive time interval indicia portions arranged circumferentially about the face of said second disc, said knob means being a pointer adapted to point to one of each of said successive indicia positions as said knob means is rotated.

11. The apparatus as defined in claim 10 wherein said indicia positions are written in Braille.

12. The apparatus as defined in claim 1 wherein said lid means has an edge pivotably secured to a backwall of said compartment, the bottom edge of the disc-carrying wall of said compartment having a projecting lip adapted to engage a portion of the front edge of said lid means to retain said lid means in a closed position, said cam means on said disc comprising a plurality of cam surfaces formed on the side of said disc facing said disc-carrying wall, said cam surfaces being formed in a circumferential arrangement around said disc, said cam surfaces adapted to engage an inwardly extending lip formed on the inner face of the front portion of said lid means

to cause said lid means front edge to disengage from said compartment wall lip as said disc is rotated from between said selected positions corresponding to said indicating means.

13. The apparatus defined in claim 12 further comprising a plurality of said compartments arranged in a side-by-side fashion.

14. The apparatus defined in claim 13 further comprising an enclosure adapted to enclose said plurality of said compartments.

15. The apparatus defined in claim 6 further comprising a plurality of said compartments arranged in a side-by-side fashion.

16. The apparatus defined in claim 15 further comprising a removably attached enclosure adapted to enclose said plurality of compartments.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,638,603 Dated February 1, 1972

Inventor(s) McClellan B. Conover

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Abstract of Disclosure, line 6, after "to" insert --the--; same line, after "interior" insert --thereof.--

Column 2, line 59, delete "these" and substitute --there--.

Column 4, line 67, delete "agnet" and substitute --agent--.

Column 5, line 37, preceding "82", delete "cover" and insert --lid--.

Signed and sealed this 20th day of June 1972.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents