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(54) Portable medicine dispenser.

(57) A dispenser (10) of pills (16) and other medicine comprises a housing (12), a compartment (14) formed within the housing for containing a quantity of pills, and a reservoir (18) formed within the housing for containing either a liquid medicine or a quantity of another liquid such as water to assist in taking the pills. A timer (20) contained within the housing indicates when the medicine should be taken. A straw (30) extends through a cap (34) and into the reservoir to assist in drinking the liquid. The cap is hinged (34b) in such a manner that when it closes it bends the straw so that it forms a seal that prevents leakage of the liquid. The pill compartment can be extended from the housing, and it has a sliding lid (52) that can be closed to prevent the pills from spilling or opened to afford access to the pills. The medicine dispenser has a flattened shape so that it can be carried easily in a pocket or purse.

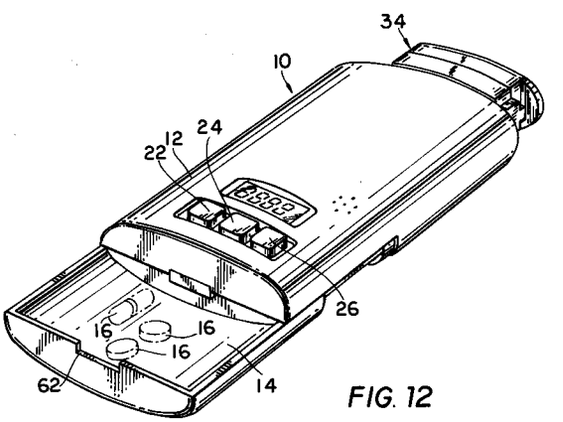

FIG. 12

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BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to a portable medicine dispenser and more particularly to a novel and highly effective dispenser of liquid medicine or of pills plus a liquid to aid in taking the pills.

Description of the Prior Art

A major problem of physicians in managing their patients and of those with illnesses in managing their own medication with or without the supervision of a physician is ensuring that the prescribed medicine is taken at the prescribed times.

It is often of the utmost importance that medicine prescribed by a physician be taken on schedule. If taken at intervals that are too lengthy, the medicine may not have its intended curative effect. If taken at intervals that are too brief, the medicine may produce dangerous side effects. A common side effect is drowsiness that can make it hazardous to drive a car or to operate other heavy machinery. The list of side effects resulting from the misuse of prescription medicines is virtually endless and includes potential damage to every organ of the body and even the death of the patient. Over-the-counter medicines are generally less dangerous but can also easily produce serious side effects including death if taken at intervals so brief as to result in a massive overdose. Often medicine is taken at intervals that are alternately too lengthy and too brief. This can cause both less-than-optimum efficacy and dangerous side effects.

A prime reason for failure to take medication at intended intervals is simple forgetfulness. Another reason is that either the medication or some liquid to aid in swallowing it is not at hand at the prescribed time.

Various attempts have been made heretofore to overcome the problem of forgetfulness mentioned above. In the case of a prescription medicine, a label is typically applied to its container directing that it be taken every so many hours, or with meals, or at bedtime, for example. In the case of an over-the-counter medicine, there may be a label bearing directions to take it as often as desired, but, for example, not more often than once every four hours. The problem is that one tends to forget to take the medicine at, say, 2:00 p.m. as prescribed by a physician or, in the case of an over-the-counter medicine, as intended by the patient, but remembers and takes it at, say, 4:00 pm. By the next scheduled time, say 6:00 p.m. one may forget whether the medicine was last taken at 2:00 p.m., 3:00 p.m., or 4:00 p.m. Even if one remembers clearly that it was 4:00 p.m., there may be doubt whether to meet the 6:00 p.m. schedule or to delay it by two hours or perhaps by less than that, in view of the earlier delay.

Another conventional attempt to deal with the problem of forgetfulness involves asking a spouse or companion for help in remembering. This can improve the odds that the medicine will be taken at proper intervals but it is certainly not a total solution and moreover burdens the memories of two persons and requires that the second person be present or make a phone call, etc., at the time the medicine is to be taken.

A conventional attempt to deal with the problem of the unavailability of the medicine or of some liquid to aid in swallowing it at the prescribed time involves the use of portable pill boxes and flasks. However, pill boxes and flasks can become separated, require separate handling, and can be inconvenient to use.

It is believed that no ideal solution to the problems outlined above has been found heretofore.

OBJECTS AND SUMMARY OF THE INVENTION

An object of the invention is to provide a remedy for the problems outlined above and more particularly to provide a novel and highly effective dispenser of liquid medicine or of pills and a liquid to aid in taking the pills. The term "pills" is used generically herein to include all medicines that are not in liquid form, including pills, tablets, capsules, caplets and powders.

The foregoing and other objects are attained in accordance with the invention by providing a pill dispenser comprising a housing, a compartment formed within the housing for containing a quantity of pills, and a timer contained within the housing for indicating when the pills should be taken.

In accordance with an independent aspect of the invention, adapted particularly for dispensing a liquid medicine, a medicine dispenser is provided comprising a housing, a reservoir formed within the housing for containing a quantity of liquid medicine, and a timer contained within the housing for indicating when the medicine should be taken.

In accordance with another independent aspect of the invention, a pill dispenser is provided comprising a housing, a compartment formed within the housing for containing a quantity of pills, and a reservoir formed within the housing for containing a quantity of liquid to assist in taking the pills.

In accordance with the best mode known to the inventor for practicing the invention, there is provided a pill dispenser comprising a housing, a compartment formed within the housing for containing a quantity of pills, a reservoir formed within the housing for containing a quantity of liquid to assist

in taking the pills, and a timer contained within the housing for indicating when the pills should be taken.

BRIEF DESCRIPTION OF THE DRAWING

A better understanding of the objects, features and advantages of the invention can be gained from a consideration of the following detailed description of the preferred embodiment thereof, in conjunction with the appended figures of the drawing, wherein a given reference character always refers to the same element or part, and wherein:

Fig. 1 is a view in front elevation of a preferred embodiment of a medicine dispenser constructed in accordance with the invention;

Fig. 2 is a view in right-side elevation of the medicine dispenser of Fig. 1;

Fig. 3 is a top plan view of the medicine dispenser;

Fig. 4 is a bottom plan view thereof;

Fig. 5 is a left-side elevation thereof;

Fig. 6 is a rear elevation thereof;

Fig. 7 is a perspective view thereof;

Fig. 8 is a view similar to Fig. 7 showing a cap and straw removed for adding liquid to a reservoir formed in the medicine dispenser;

Fig. 9 is a perspective view showing the cap open and the straw extended for drinking liquid from a reservoir;

Fig. 10 is a top plan view of the dispenser with the cap open;

Fig. 11 is a perspective view of the dispenser with a pill compartment thereof in an extended position and a lid of the pill compartment closed;

Fig. 12 is a view similar to Fig. 11 showing the lid of the pill compartment open;

Fig. 13 is a perspective view similar to Fig. 11 but showing the dispenser from the rear;

Figs. 14, 15 and 16 are sectional views showing the operation of the pill compartment and its lid; and

Fig. 17 is a sectional view on a larger scale taken in a direction at right angles to the views of Figs. 14-16.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The figures show a medicine dispenser 10 constructed in accordance with the invention. It comprises a housing 12, a compartment 14 formed within the housing 12 for containing a quantity of pills 16 (Fig. 12), a reservoir 18 (Fig. 9) formed within the housing 12 for containing a quantity of liquid (either liquid medicine or a plain liquid such as water to assist in taking the pills 16), and a timer 20 contained within the housing 12 and including a display for indicating when the pills should be taken.

The housing 12 plus at least two of the three elements 14, 18 and 20 are included in a dispenser constructed in accordance with the invention as broadly conceived. Preferably, all three of the elements 14, 18, and 20 are included in the dispenser.

As the figures show, the housing 12 is flattened so as to be conveniently carried in a pocket or purse. The reservoir 18 holds a quantity of liquid at least sufficient to facilitate the swallowing of as many pills 16 as are intended to be taken at a predetermined time.

The timer 20 is preferably digital, though an analogue timer can be employed in accordance with the invention. The timer 12 can be either a 12-hour timer or a 24-hour timer that in either case can be set to show local time. Alternatively, or in addition, the timer 20 may count up from zero to a predetermined indication or down from a predetermined indication to zero. For example, if medicine is to be taken every four hours, the timer 20 may be constructed to count from 0 to 4 hours. On the other hand, the timer can also be constructed to count down from a predetermined indication to zero. That is, 4 hours may be set manually into the timer 20 and its display by means of an hour button 22 and a minute button 24, and the timer may count from that value down to 0.

Whether the counter counts up or down, it can preferably be cleared manually by a clear button 26. Alternatively, it can be reset automatically upon completing its count.

Preferably, the medicine dispenser 10 also includes means responsive to the timer 20 for generating a signal to indicate when the pills should be taken. Ideally, a sound signal such as a tone or beep is generated. A sound opening 28 comprising for example perforations in the housing 12 is provided to facilitate the propagation of the sound from the housing 12.

A straw 30 extends through an aperture 32 in a cap 34 and into the reservoir 18 to facilitate drinking water or another liquid including a liquid medicine. The cap 34 is articulated and includes a top portion 34a hinged at 34b. When the top portion 34a of the cap 34a swings to the closed position, the straw 30 is bent over and forms a seal so that the liquid in the reservoir 18 cannot leak out.

As Fig. 8 shows, the straw 30 extends through a fitting 36 having a plurality of projections such as lugs 38. The lugs 38 are adapted to pass through corresponding recesses 40 formed in a retainer 42 secured in an aperture formed in the housing 12. With the straw 30, cap 34 and fitting 36 withdrawn as in Fig. 8, a liquid can be poured into the reservoir 18. When the lugs 38 are moved down to

the underside of the retainer 42 in which the recesses 40 are formed and the cap 34 is then oriented to the position shown for example in Fig. 7, the lugs 38 are out of alignment with the recesses 40 and are held by the retainer 42 to form a watertight seal. An o-ring can be added to ensure that the seal is absolutely watertight.

The articulated top portion 34a of the cap 34 includes a latch 44 (Fig. 9) adapted to latch under an undercut ledge 46 (Fig. 10) when the top portion 34a is in the closed position shown for example in Fig. 7. The distal end 44a of the latch 44 extends through an opening 48 in the lid 34 (Fig. 10) and enters a recess 50 (Fig. 8), thereby preventing accidental pivoting of the lid 34 and fitting 36 with respect to the housing 12 when the dispenser 10 is being carried in a pocket or purse.

The dispenser 10 can thus safely be carried in a pocket or a purse without the risk of spilling the liquid contained in the reservoir 18.

The pill compartment 14 is formed with a lid 52 that can be moved between a closed position shown for example in Figs. 11, 14 and 15 and an open position shown in Figs. 12 and 16. The entire compartment 14 can be extended from the housing 12 as shown in Figs. 11, 12, 13, 15 and 16. To this end, the drawer or compartment 14 is formed with an incurved runner 54 (Fig. 17) that cooperates with an inverted T guide 56 at either side of the drawer or compartment 14 to facilitate sliding of the drawer 14 between the closed position illustrated in Fig. 14 and the open position illustrated in Fig. 15 for example. The lid 52 is formed with a tab 58 that can be accommodated in either or both of slots 60 (Fig. 11 for example) and 62 (Fig. 12 for example). When the compartment 14 is closed, the tab 58 is accommodated in both the slot 60 and the slot 62. A boss 68 snaps past the rear wall 70 of the compartment 14 when the lid 52 is in the closed position shown in Fig. 15, thus keeping the drawer 52 in the closed position until it is intentionally opened.

Ridges 64 (see Figs. 5 and 6 for example) formed on the bottom of the drawer or compartment 14 facilitate a grip that enables the drawer or compartment 14 to be opened by hand. The tab 58 of the lid 52 is retained in the slot 62 so that when the drawer 14 is initially opened the lid 52 is in the closed position, preventing accidental spilling of the pills 16. Also, in this position, as Fig. 13 indicates, a screw 66 closing a battery compartment is exposed, enabling changing of the battery that powers the timer 20.

In order to open the lid 52, the tab 58 is engaged by a finger as indicated in Fig. 11 and the lid 52 is pushed to the rear so that the rear wall 70 moves to the rear of the boss 68. The lid 52 can then be moved further to the rear until the tab 52 is engaged in the slot 60, thereby exposing the pills 16 so that one or more can be withdrawn as required. When the compartment 14 is closed, the lid 52 abuts a wall 70, which prevents it from moving further to the rear. The outside wall of the compartment 14 on the other hand slides over a ledge 72. This automatically moves the lid 52 to its closed position, thereby safeguarding the pills 16 against spilling the next time the compartment 14 is opened.

Thus there is provided in accordance with the invention a novel and highly effective portable medicine dispenser that can be used to dispense a liquid medicine, or to dispense pills plus a liquid to aid in taking the pills. Many modifications of the preferred embodiment of the invention described above will readily occur to those skilled in the art upon consideration of this disclosure. Accordingly, the invention is not limited except by the appended claims.

Claims

1. A pill dispenser comprising:
a housing;
a compartment formed within the housing for containing a quantity of pills; and
a timer contained within the housing for indicating when the pills should be taken.

2. A medicine dispenser comprising:
a housing;
a reservoir formed within the housing for containing a quantity of liquid medicine; and
a timer contained within the housing for indicating when the medicine should be taken.

3. A pill dispenser comprising:
a housing;
a compartment formed within the housing for containing a quantity of pills; and
a reservoir formed within the housing for containing a quantity of liquid to assist in taking the pills.

4. A pill dispenser comprising:
a housing;
a compartment formed within the housing for containing a quantity of pills;
a reservoir formed within the housing for containing a quantity of liquid to assist in taking the pills; and
a timer contained within the housing for indicating when the pills should be taken.

5. A dispenser according to claim 4 wherein the housing is flattened so as to be conveniently carried in a pocket or purse.

6. A dispenser according to claim 4 wherein the reservoir holds a quantity of liquid at least sufficient to facilitate the swallowing of as many pills as are intended to be taken at a predetermined time.

7. A dispenser according to claim 4 wherein the timer is digital.

8. A dispenser according to claim 4 wherein the timer is a 12-hour timer that can be set to show local time.

9. A dispenser according to claim 4 wherein the timer is a 24-hour timer that can be set to show local time.

10. A dispenser according to claim 4 wherein the timer counts up from zero up to a predetermined indication.

11. A dispenser according to claim 10 wherein the timer is manually resettable.

12. A dispenser according to claim 10 wherein the time is automatically reset to zero upon reaching the predetermined indication.

13. A dispenser according to claim 4 wherein the timer counts down from a predetermined indication to zero.

14. A dispenser according to claim 13 wherein the timer is manually resettable.

15. A dispenser according to claim 13 wherein the timer is automatically reset to the predetermined indication upon reaching zero.

16. A dispenser according to claim 4 further comprising means responsive to the timer for generating a signal for indicating when the pills should be taken.

17. A dispenser according to claim 16 wherein the signal is audible.

18. A dispenser according to claim 4 further comprising a straw extending into the reservoir to facilitate drinking liquid from the reservoir.

19. A dispenser according to claim 18 further comprising an articulated cap movable between an open position and a closed position, the cap in the closed position bending the straw to form a seal therein for preventing the liquid in the reservoir from spilling.

20. A dispenser according to claim 19 further comprising a fitting, the straw extending through the fitting, and the housing being formed with an aperture in which the fitting is received, the fitting being formed with lugs removably engageable with the housing so that the fitting can be withdrawn together with the straw and cap for permitting a liquid to be poured into the reservoir and can be inserted so that the lugs engage the housing and secure the cap and straw in position with the straw extending into the reservoir.

21. A dispenser according to claim 4 wherein the compartment is movable with respect to the housing so that it can be extended therefrom.

22. A dispenser according to claim 21 further comprising a lid for the compartment constructed so that, when the compartment is moved to the extended position, the lid is normally in a closed position preventing spilling of pills contained within the compartment.

23. A dispenser according to claim 22 wherein the lid is constructed os that it can be manually engaged for movement from a position in which it closes the compartment to a position in which it provides access to pills contained within the compartment.

24. A dispenser according to claim 23 wherein the lid is constructed so that when the compartment is moved to the closed position with respect to the housing the lid is automatically moved to its closed position with respect to the compartment.

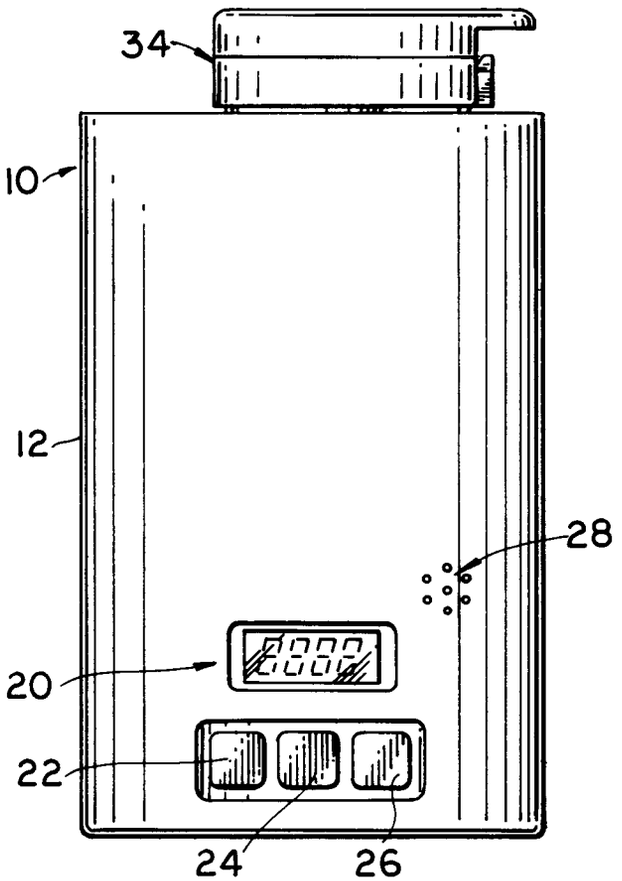

FIG. 1

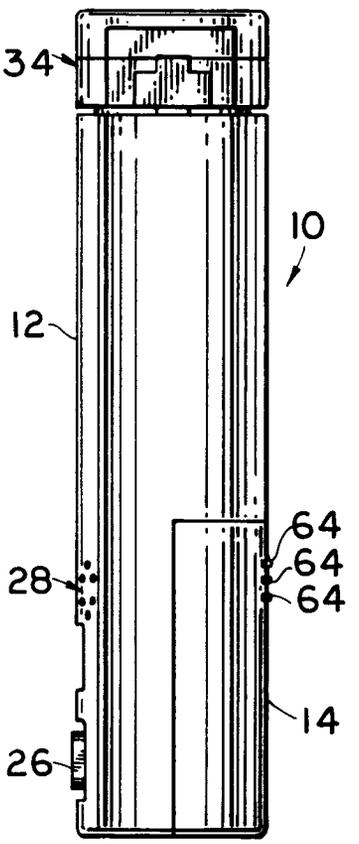

FIG. 2

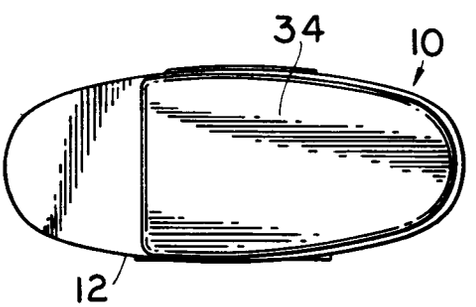

FIG. 3

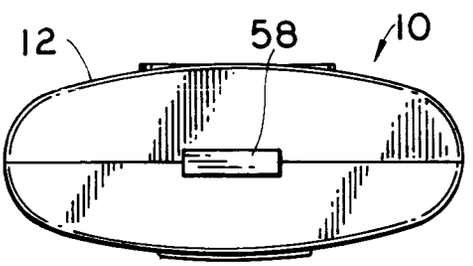

FIG. 4

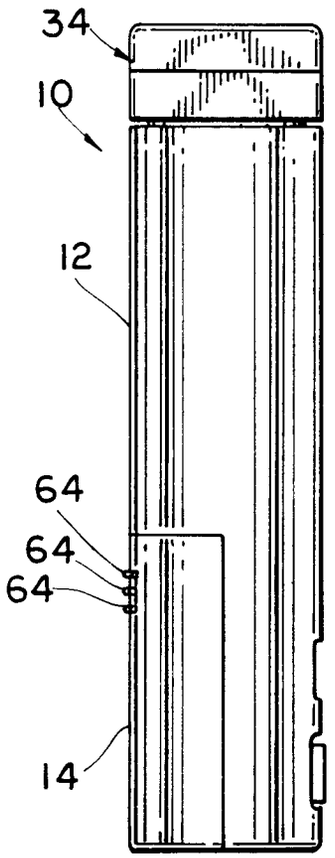

FIG. 5

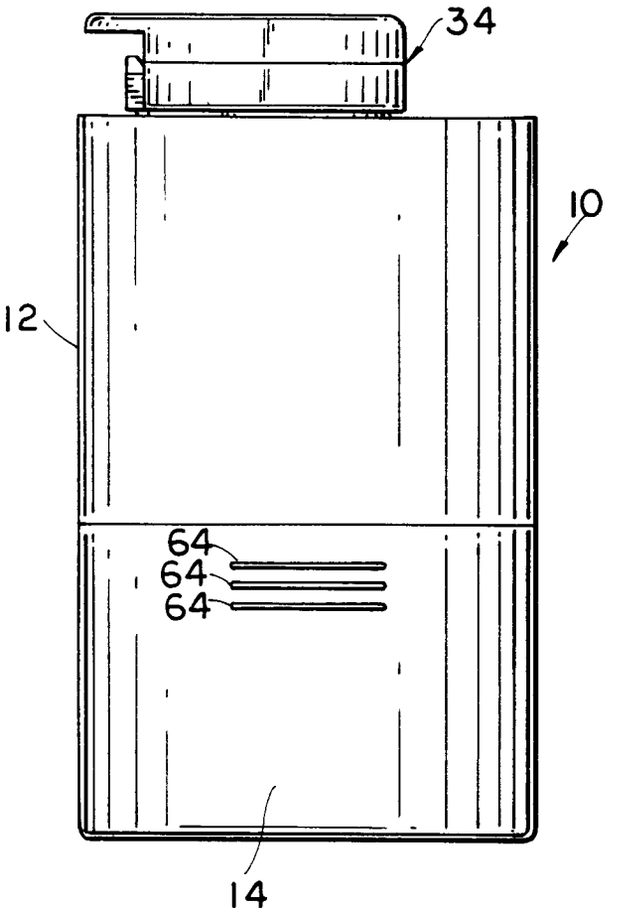

FIG. 6

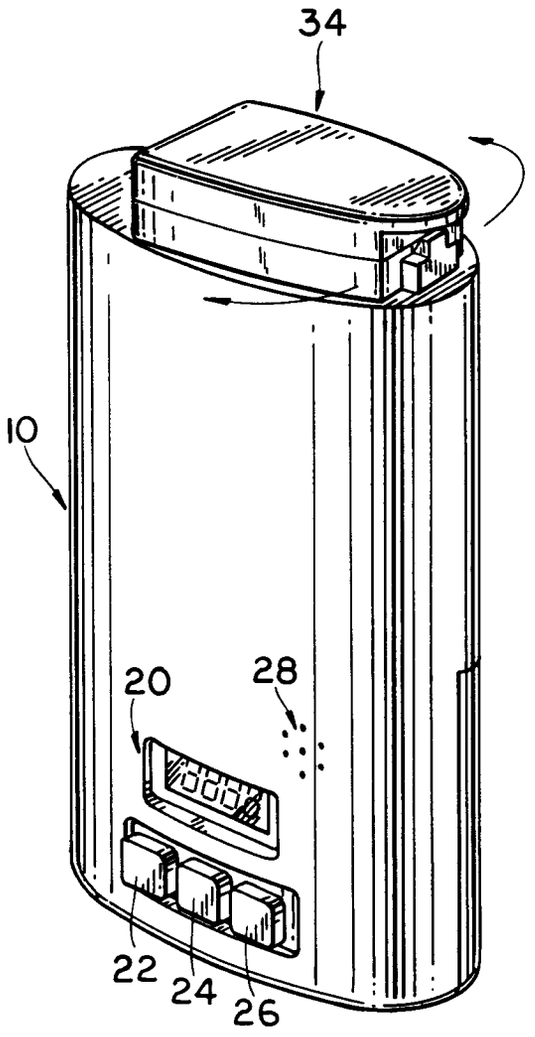

FIG. 7

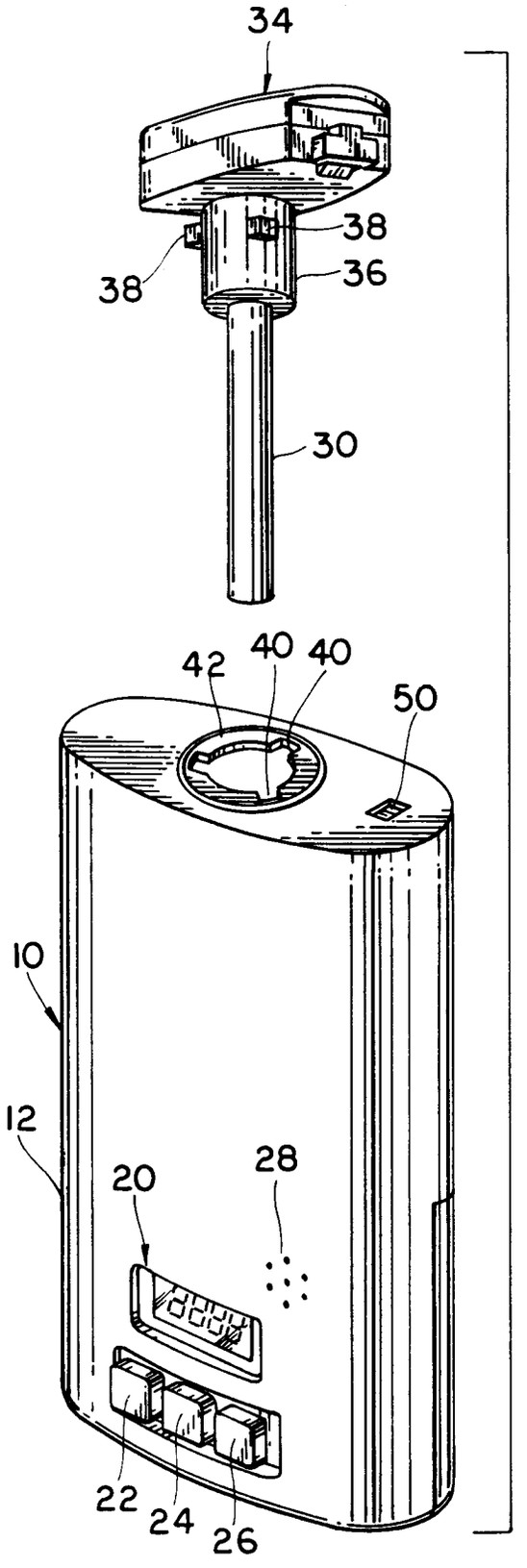

FIG. 8

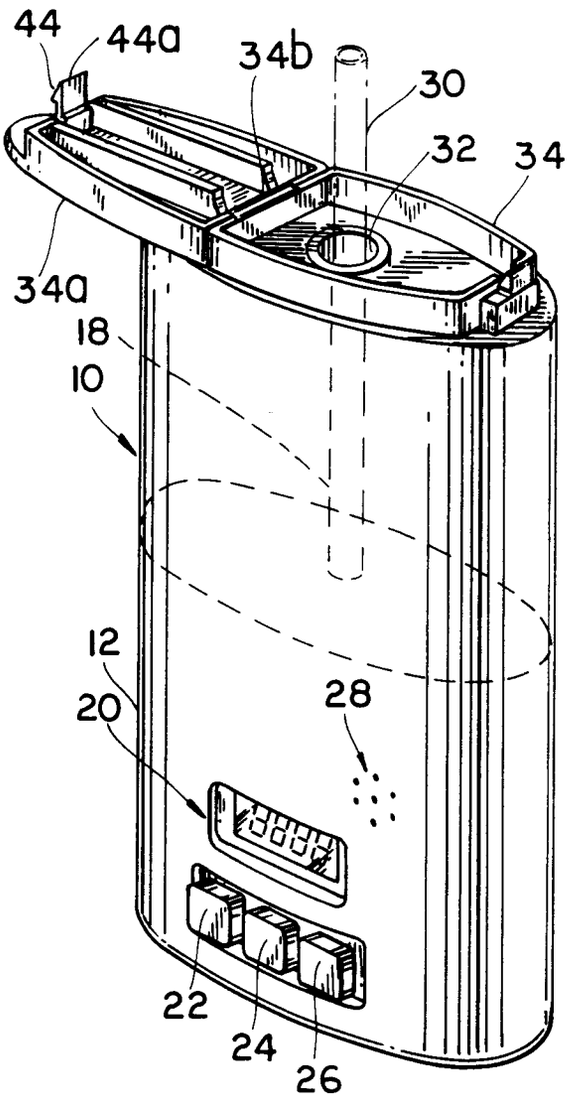

FIG. 9

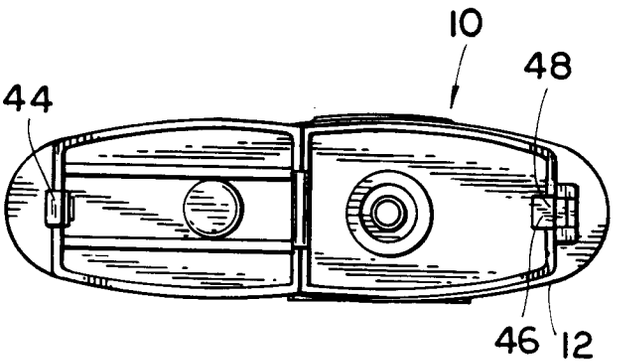

FIG. 10

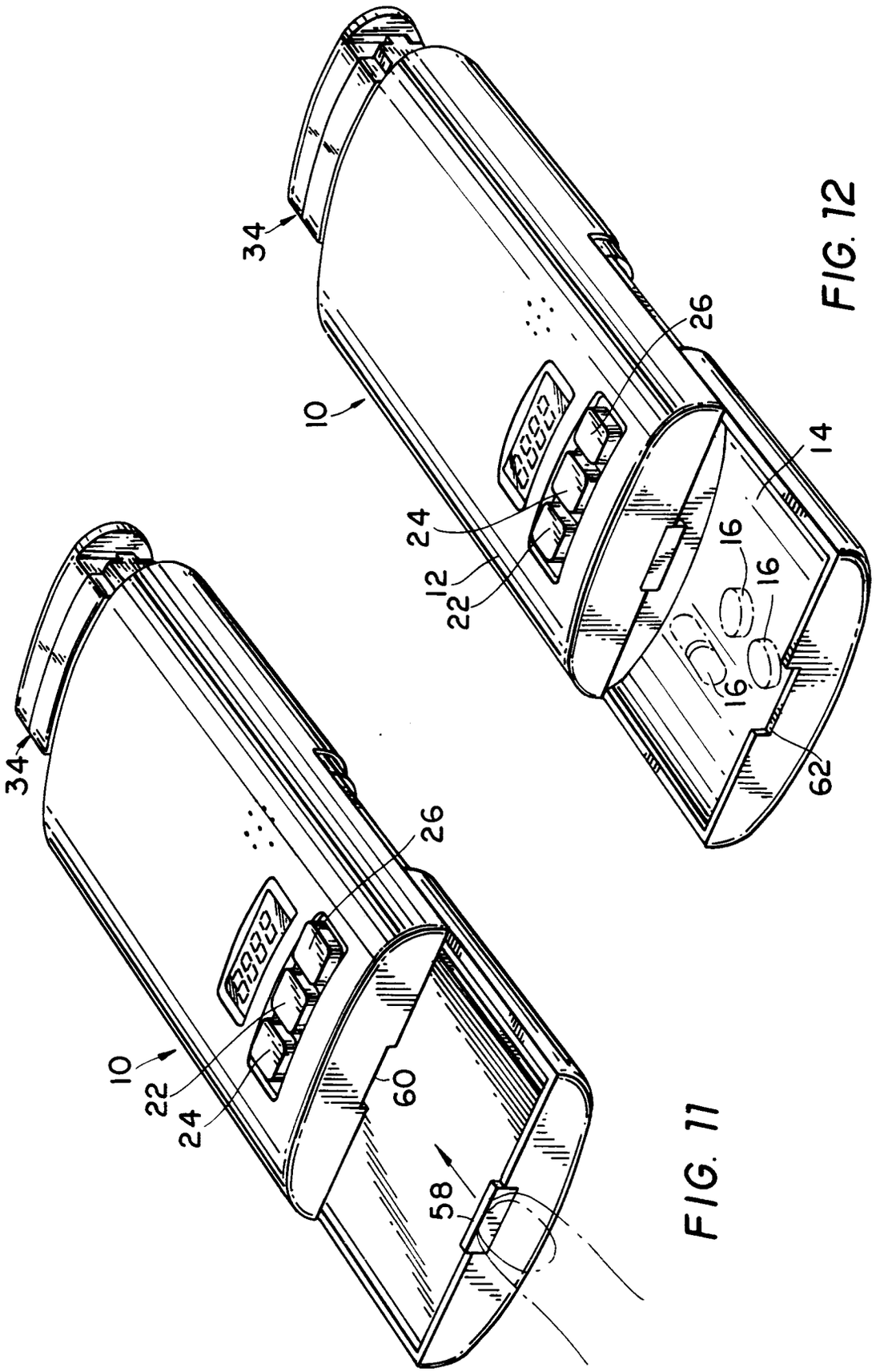

FIG. 12

FIG. 11

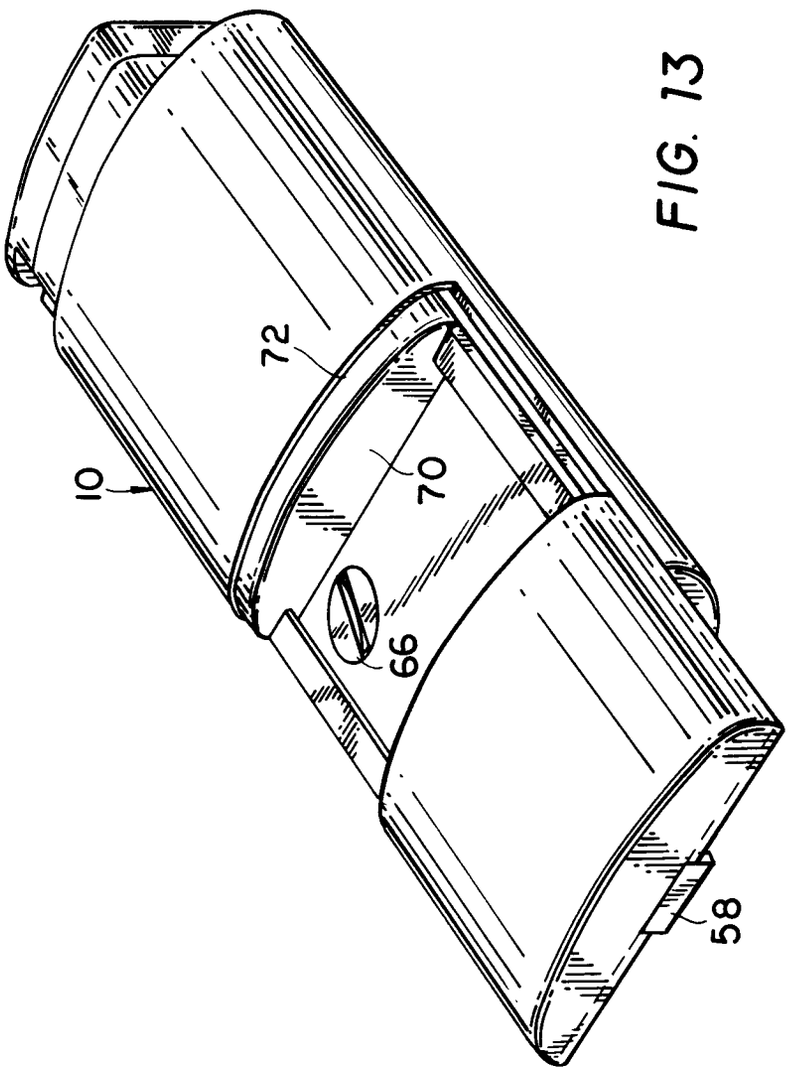

FIG. 13

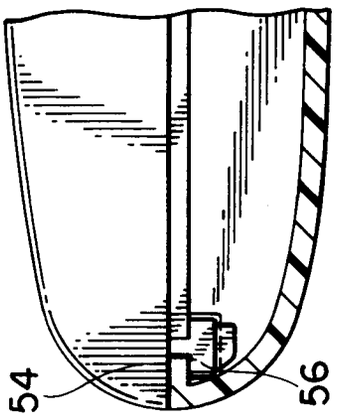

FIG. 17

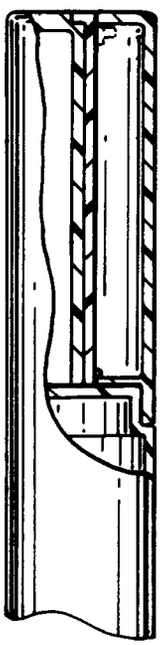

FIG. 14

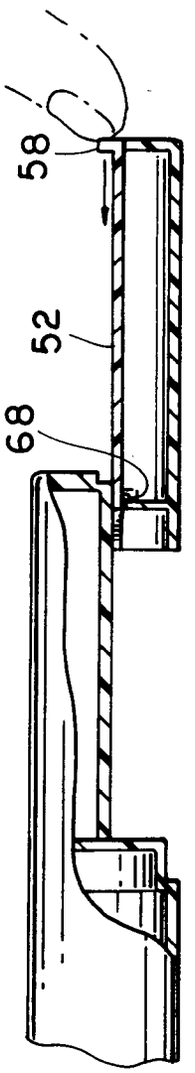

FIG. 15

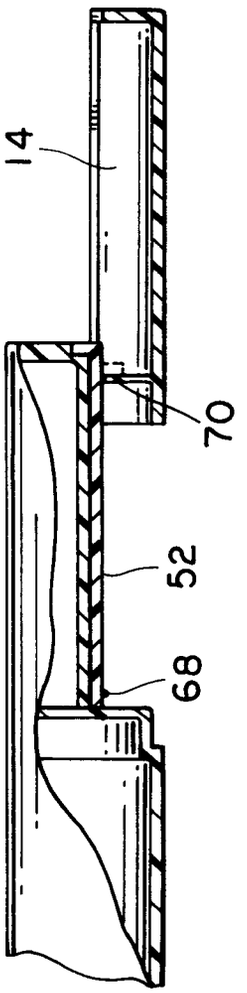

FIG. 16

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 25 0047

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X Y	US-A-5 020 037 (RAVEN) * the whole document *	1 2-17	A61J7/04
Y	DE-A-3 518 531 (HAFNER) * page 11, line 7 - line 19; figure 3 *	2	
Y	US-A-2 766 796 (TUPPER) * claim 1; figures 1-4 *	3-17	
A	US-A-2 042 351 (MEHAFFEY) * figures 1,2 *	2-5	
A	US-A-3 302 644 (KENNEDY) * claim 1; figures *	3	
A	FR-A-2 146 880 (EZEM COMPANY) * claim 1; figures *	18	
A	US-A-4 448 541 (WIRTSCHAFTER) * column 4, line 33 - line 36; figure 4 *	21	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A61J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22 SEPTEMBER 1992	GODOT T.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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