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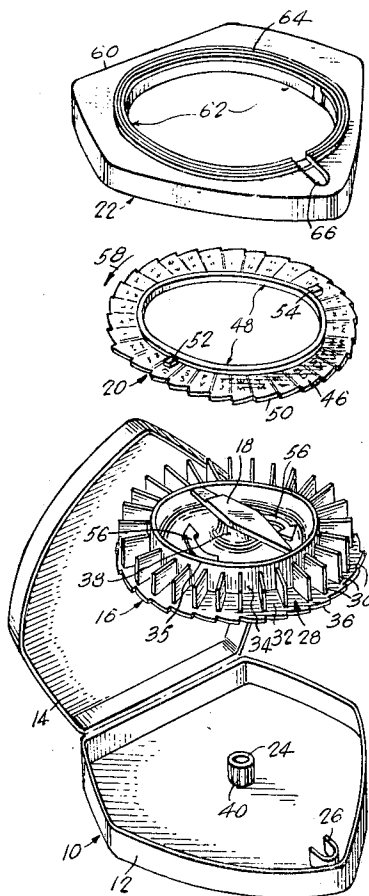
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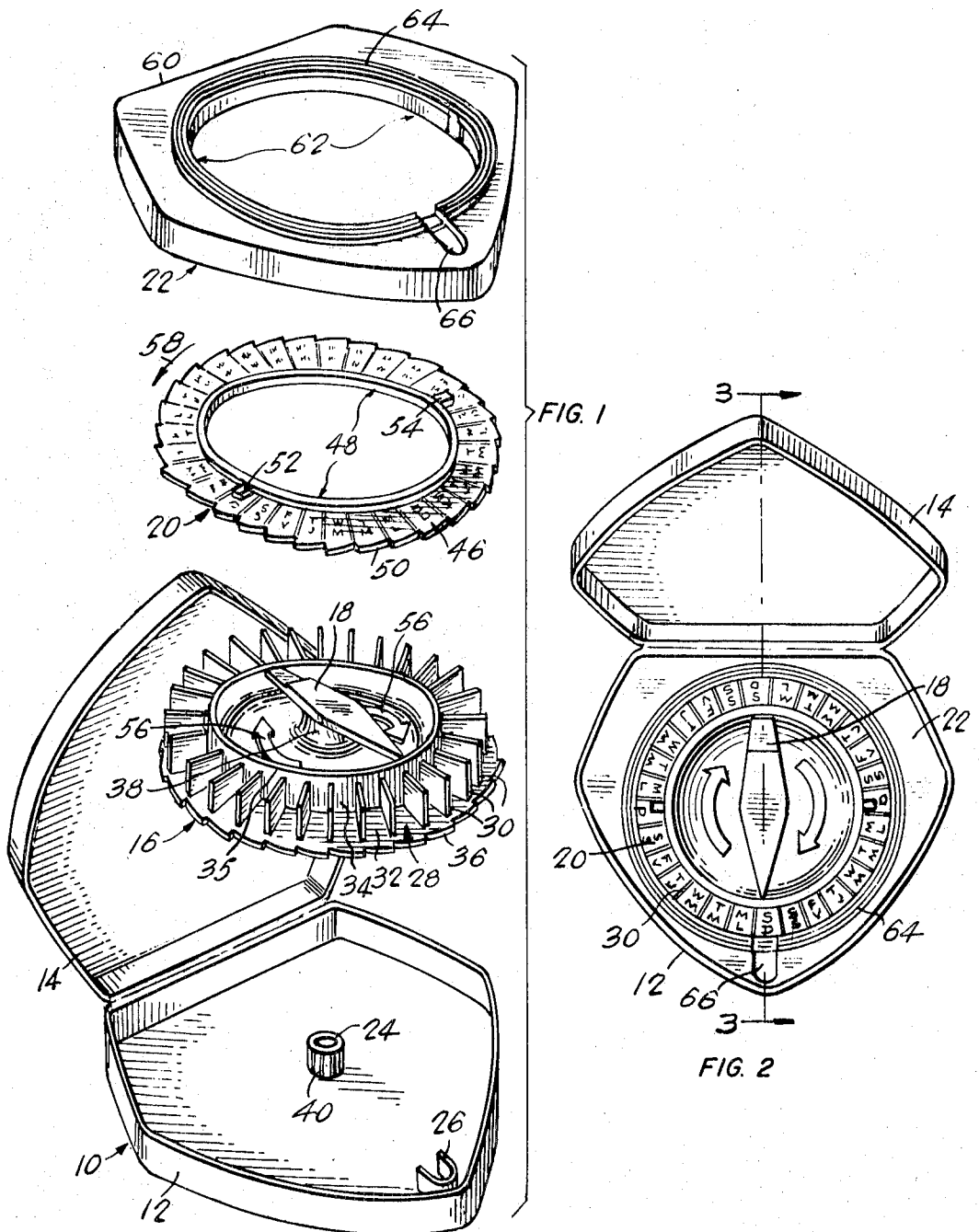
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[54] **TABLET DISPENSER**
11 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **221/5,**
221/86, 206/42, 116/121
[51] **Int. Cl.** **B65h 3/28**
[50] **Field of Search** 221/5
(thru) 8, 82, 84, 86; 206/42; 116/121

ABSTRACT: This tablet dispenser includes four elements: a case, a tablet-receiving disc with a time indicator thereon, a calendar element disposed over the disc, and a clamp element for holding the disc and the calendar element in the case. The disc and the calendar element are each provided with a ratcheted shoulder, cooperating with pawls on the clamp element, which will allow the rotation of these two elements only in a direction opposite to one another.





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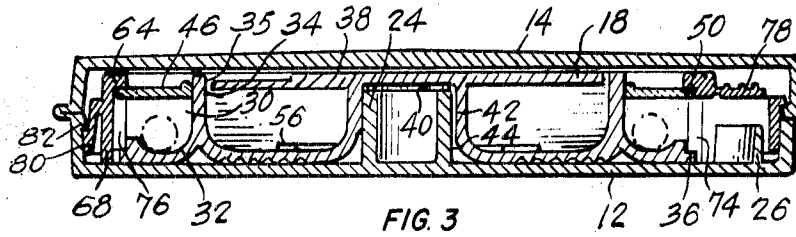


FIG. 3

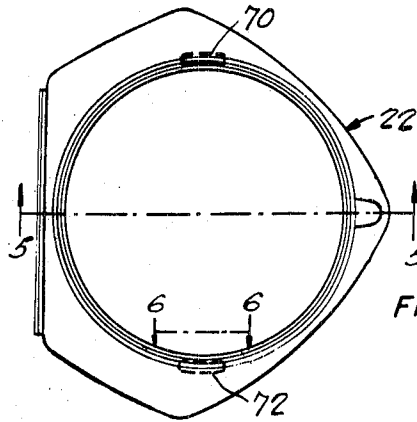


FIG. 4

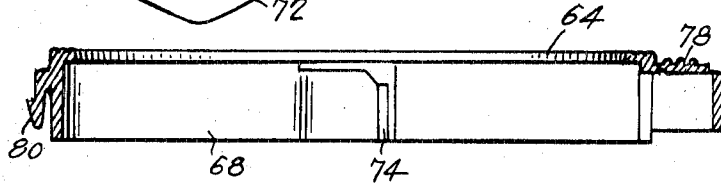


FIG. 5

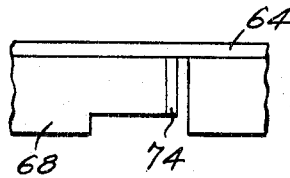


FIG. 6

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TABLET DISPENSER

This invention relates to a device for holding and dispensing tablets, pills, capsules or the like.

One object of the present invention is to provide an improved means for dispensing tablets, pills, capsules or the like (hereinafter referred to as tablets) according to a daily or time-related schedule.

Another object of the present invention is to provide an improved tablet dispenser for dispensing tablets arranged in a prescribed sequence.

Another object of the present invention is to provide an improved tablet dispenser bearing a time reference indicator for indicating when the last tablet was taken.

Another object of the present invention is to provide an improved tablet dispenser for dispensing medication-containing and nonmedication-containing tablets on a uniform daily schedule synchronized with the menstrual cycle of women.

The present invention relates in its broadest aspect, to a tablet dispenser for dispensing tablets on a time-related schedule comprising, in combination, a case having a base, a tablet disc rotatably mounted in the base, the disc defining a plurality of tablet-receiving compartments arranged in an annular pattern; a calendar element bearing a plurality of time identifications also arranged in an annular pattern and corresponding numerically to the tablet-receiving compartments, the calendar element being disposed in concentric relation to the tablet disc and being rotatable relatively thereto so as to have each of the time identifications in alignment with each of the tablet-receiving compartments; a clamp element fitting in said base and holding the calendar element and the tablet disc firmly in the base, the clamp element being provided with a tablet exit and with detent means for allowing the tablet disc to rotate in one direction only and for allowing the calendar element to rotate only in a direction opposite to that of the tablet disc; and, a time reference indicator mounted on the tablet disc and rotatable therewith so as to come into circumferential registration with any one of the time identifications on the calendar element.

Other objects and advantages of this invention will be made apparent upon reading the following description in connection with the drawings in which:

FIG. 1 is a perspective exploded view showing the main elements of the tablet dispenser of the present invention;

FIG. 2 is a top plan view showing the main elements of the tablet dispenser being assembled with the cover of the case in an opened position;

FIG. 3 is a detailed cross-sectional view taken along lines 3-3 of FIG. 2;

FIG. 4 is a top plan view of the clamp element of FIG. 1;

FIG. 5 is a cross-sectional view taken along lines 5-5 of FIG. 4; and

FIG. 6 is a cross-sectional view taken along lines 6-6 of FIG. 4.

Referring to FIG. 1 of the drawings, the tablet dispenser of the present invention comprises four main elements consisting of a case 10, having a base 12 and a cover 14, a tablet disc 16 having a time indicator 18, a calendar element 20 and a clamp element 22. These elements may be made of any suitable material; however, it has been found that the use of plastic material satisfies the standard requirements for such articles. Furthermore, because the calendar element 20 is preferably transparent, the use of plastic has been found desirable and economical.

The cover 14 and the base 12 of the dispenser case 10 are shown connected in a hinged relationship. In this particular embodiment, because a polyolefin plastic material is used, it is possible to have the case being made of a single piece of material. The base 12 is provided with a centrally disposed hub 24 on the interior surface thereof to provide a pivot for the rotation of the tablet disc 16 in base 12. The base is also provided with a guide 26 for guiding the tablets to the exit hole as it will be hereinafter described.

The tablet disc 16 defines a plurality of tablet-receiving compartments 28 physically arranged in annular pattern by radially extending partitions 30 secured on one side to the base 32 of the disc and, on another side, to wall 34 of the disc. It can be seen that the tablet disc may be partitioned to have as many compartments as the cycle of the user requires. The partitions 30 are all of the same height so that they may all support the flat annular undersurface of the calendar element 20. Wall 34 extends above the top edge of these partitions so that a circular rim 35 may be left to receive in a concentric relation the base of calendar element 20. The base 32 of disc 16 is provided on its periphery with a ratcheted shoulder 36 extending outside the partitions; in the center of the disc a hollow boss 38 is provided with an integrally or otherwise mounted thereon time reference indicator 18. The tablet disc 16 is adjusted rotatably in base 12; the disc and the base are held against rotation relative to each other by suitable holding or retaining means such as serrations or splines 40 between the interior wall 42 of boss 38 and wall 44 of hub 24.

The calendar element 20, preferably made of transparent plastic material, is annular-shaped and bears a plurality of time identifications 46 arranged in an annular pattern. These time identifications may represent hour-of-day or day-of-week markings depending on the prescribed sequence in accordance with the physician's instructions. These markings may be numbers or letters. A tablet dispenser, as is presently being described, may be used to hold and dispense contraceptive tablets on a regular schedule synchronized with the personal physiological cycle of the user. The letters represented in this particular embodiment are the first letter of each day of the week for the English and the French languages. Four weeks are represented adding up to the 28 days of the menstrual cycle of women. The calendar element 20 is disposed in concentric relation to the tablet disc 16 and is made to rotate thereon by having the top edge 35 of wall 34 inserted in hole 48 of calendar ring 20 so that the flat undersurface of element 20 may sit on top of partitions 30; each of the time identification 46 may then be rotated into alignment with any of the compartments 28. A ratcheted shoulder 50 is also provided about the periphery of calendar element 20; finger gripping means such as small plastic lugs 52 and 54 are provided on the calendar element for rotating the same relatively to the tablet disc. However, the ratchets and chamfers of shoulder 36 and 50 are of the antireverse type and will only permit rotation of tablet disc 16 and calendar element 20 in one direction only and in a direction opposite to one another. In this particular case, the tablet disc 16 will only rotate in a clockwise direction as indicated by arrows 56 on bottom surface 32 and the calendar element 20 will only rotate in a counterclockwise direction as indicated by arrow 58.

The clamp element 22 is shown having a perimeter 60 shaped to fit the contour of base 12 and is provided with a circular center opening 62 with an overhanging top edge 64. The clamp element is provided with a table exit 66 which is positioned over guide 26 of base 12. Referring to FIGS. 4, 5 and 6, the clamp element, shown in a more detailed illustration, further comprises on its interior circular wall 68 two detent means 70 and 72. Detent means 70 consists of an antireverse pawl 74 mounted on wall 68 and extending from the lower edge of wall 68 but not up to the top edge thereof in order to avoid the ratcheted shoulder 50; pawl 74 cooperates with ratcheted shoulder 36 to allow the rotational movement of disc 16 in one direction only. Detent means 72 also consists of an antireverse pawl 76 extending from the top edge of wall 68 to engage the ratcheted shoulder 50 of calendar element 20 but do not extend to the bottom of the surface so as to avoid the ratchets 36. Pawl 76 cooperates with ratcheted shoulder 50 to allow the rotational movement of calendar element 22 in one direction only and in a direction opposite to that of the tablet disc 16.

A breakaway gate or cover 78 is integrally mounted on the clamp element 22 and is positioned over the tablet exit 66.

FIGS. 3 to 6 show a preferred construction for the peripheral engagement of the clamp member with the case 10. The assembly of tablet disc 16, calendar element 20 and clamp element 22 is retained in the base 12 of case 10 by means of a resilient peripheral latch member 80 on clamp 22 which is snapped into engagement under a peripheral latch projection 82 on the inside wall of the base 12. An advantage of such a construction is that with minor alterations, the dispenser may be made easy to dismantle, once it is empty; the dispenser then need not be discarded and may be reloaded with new tablets for further use.

In assembling the dispenser of this invention, compartments 28 of tablet disc 16 are filled with tablets, preferably in a side standing position for better rolling exit action. The tablet loaded disc 16 is then positioned in case 10 by inserting hollow boss 38 over splined hub 24. Calendar element 20 is placed to sit on top of partitions 30. Then, clamp element 22 is positioned over the assembly of tablet disc 16 and calendar element 20 with the tablet exit 66 in alignment over guide 26 of the base 12; while latch 80 snaps into connection with latch projection 82, the antireverse pawl 74 of clamp 22 engages the ratcheted shoulder 36 of disc 16 and the antireverse pawl 76 engages the ratcheted shoulder 50 of calendar element 20. The dispenser is hence tightly assembled.

The dispenser in accordance with the present invention may advantageously be used on a time-related schedule in conjunction with a periodicity which may be prescribed by a physician, for example requiring that one tablet be taken each hour of day for a predetermined number of successive hours or days. The first tablet to be taken is placed in the compartment directly at the head of time indicator 18; the following compartments are successively filled with tablets in accordance with the prescribed sequence: the compartments will be filled in a counterclockwise fashion if the disc is ratcheted to rotate clockwise.

The compartment containing the first tablet to be taken is aligned with the tablet exit 66. Then, the calendar element is rotated so that a time identification is brought in alignment with the compartment containing the first tablet to be taken. The dispenser is thus ready to be utilized.

For example, assuming that all tablets are of the same type or dosage and that the first tablet is to be taken on a Sunday (represented by letters S-D in this particular case), the time indicator 18 is rotated clockwise to point the tablet exit 66; then the calendar element is rotated in a counterclockwise manner until a S-D identification is placed over the compartment, at the head of indicator 18, which carries the first pill to be taken. The breakaway seal 78 is broken and removed, and the first tablet is retrieved from the dispenser by tilting the dispenser so that the tablet will roll out of the compartment, hit guide means 26 and exit through opening 66. On the second day (Monday), indicator 18, integral with the tablet disc is moved clockwise to indicate M-L (the calendar element is no longer moved once the sequence is started); the second compartment which was (on Sunday) under S-S is moved under S-D in front of the tablet exit and the second tablet of the sequence may be retrieved. The indicator 18 therefore enables the patient to always determine when the last tablet was taken.

It is possible for a physician to prescribe a sequence of tablets comprising at least two different types of dosage. In such instances, the tablets are positioned in the compartments in their proper order of takeout and the compartment containing the first tablet to be taken in aligned with the tablet exit. An example of such a sequence will now be described. One advantageous use of the present invention is that the number of compartments may be made to coincide with the 28 days corresponding to the menstrual cycle of a woman. The 28 compartments of the tablet disc are filled with 28 tablets consisting of 21 medication containing tablets (contraceptive pills) followed by seven nonmedication containing (placebo) tablets; the tablets are usually differentiated by the color of their coating. The indicator 18 is rotated clockwise so that the

compartment containing the first tablet to be taken is brought in alignment with the tablet exit and the calendar element is rotated counterclockwise to register the day of the week on which the first tablet is taken, as previously described. If the user begins utilizing the dispenser on the fifth day of her menstrual cycle, the first tablet to be taken will be the first of the 21 contraceptive tablets and, if this day is a Sunday, the dispenser will appear as illustrated in FIG. 3 with the 7 placebo tablets in the series of compartments designated by A. Since the tablet disc can only be rotated clockwise, the placebo tablets will be taken only once the 21 contraceptive tablets have been taken. When the user has taken the 28 tablets, she simply starts again, without skipping any day, with a new and similar dispenser or with the same one refilled, thereby solving the problem of forgetfulness.

It is evident that one object of the present invention is to provide a tablet dispenser which can dispense tablets on a uniform daily schedule and a specially advantageous version of which is a container that may be filled with 21 contraceptive tablets and 7 placebo tablets. However, it will also be evident that the tablet dispenser in accordance with the present invention may also be used, for instance, if the seven compartments containing the placebo tablets were blocked, left empty or completely eliminated. It is also evident that the calendar element of the dispenser could be marked to show 21 day-of-week identifications instead of 28 and the number of compartments made to correspond to these 21 markings. Thus, any dose frequency per day can be offered for assured medication; i.e., the number of compartments in the tablet disc in this frequency multiplied by seven; or by two or three or four times seven, to fill up the normal periphery of a chosen dispenser size. It is therefore wished to be understood that various embodiments of the present invention will be apparent to those skilled in the art without departing from the spirit and scope thereof.

I claim:

1. A tablet dispenser for dispensing tablets on a time-related schedule comprising, in combination,
 - a case, having a base;
 - a tablet disc rotatably mounted in said base, said disc defining a plurality of tablet-receiving compartments arranged in an annular pattern;
 - a calendar element bearing a plurality of time identifications arranged in annular pattern and corresponding numerically to the tablet-receiving compartments said calendar element being disposed in concentric relation to the tablet disc and being rotatable relatively thereto so as to have each of said time identifications in alignment with each of said tablet-receiving compartments;
 - a clamp element fitting in said base and holding said calendar element and said tablet disc firmly in said base, the clamp element being provided with a tablet exit, and detent means for allowing the tablet disc to rotate in one direction only and for allowing said calendar element to rotate only in a direction opposite to that of the tablet disc and
 - a time indicator mounted on said tablet disc and rotatable therewith so as to come into circumferential registration with any one of said time identifications on said calendar element.
2. A tablet dispenser as defined in claim 1 wherein said tablet disc has a ratcheted shoulder and said calendar member has a circular ratcheted shoulder and wherein said detent means consist of a first antireverse pawl engaging the ratcheted shoulder of said tablet disc and a second antireverse pawl engaging said ratcheted shoulder of said calendar element.
3. A tablet dispenser as defined in claim 1 wherein said case has a cover connected with said base.
4. A tablet dispenser as defined in claim 1 wherein a breakaway seal is positioned on said clamp member over said tablet exit.

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5. A tablet dispenser as defined in claim 1 wherein said calendar member includes a transparent annular surface positioned over said tablet-receiving compartments.

6. A tablet dispenser as defined in claim 1 wherein said base of said case has integral therewith guide means adjacent said tablet exit for guiding a tablet to the tablet exit.

7. A tablet dispenser as defined in claim 1 wherein the perimeter of said clamp member is in close conformity with the interior perimeter of said base.

8. A tablet dispenser as defined in claim 5 wherein gripping lug means are provided on said ring for the rotation thereof.

9. A tablet dispenser as defined in claim 1 wherein said base has a hub centrally disposed thereon and integral therewith for receiving said tablet disc.

10. A tablet dispenser for dispensing tablets on a regular daily schedule synchronized with the personal physiological cycle of the user and in a predetermined sequence comprising, in combination:

a case having a base;

a tablet disc rotatably mounted in said base;

said disc defining a plurality of tablet-receiving compartments physically arranged in an annular pattern,

a calendar element bearing a plurality of day-of-week identifications of successive days corresponding to the

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physiological cycle of the user and numerically to the tablet-receiving compartments;

said identifications being arranged in annular pattern, said element being disposed in concentric relation to said tablet disc and being rotatable relatively thereto so as to be able to bring each of said day-of-week identifications in alignment with each of said tablet-receiving compartments,

a clamp element fitting in said base and holding said calendar element and said tablet disc firmly in said base;

said clamp element being provided with a tablet exit, and detent means for allowing said tablet disc to rotate in none direction only and for allowing said calendar element to rotate only in a direction opposite to that of the tablet disc, and

a time reference indicator mounted on said tablet disc and rotatable therewith so as to come into circumferential registration with any one of said day-of-week identifications on said calendar element.

11. A dispenser as defined in claim 10 wherein the tablet-receiving compartments contain in a predetermined sequence a series of medication containing tablets and a series of non-medication-containing tablets to be dispensed.

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