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[54] **TABLET DISPENSING DEVICE**
1 Claim, 10 Drawing Figs.

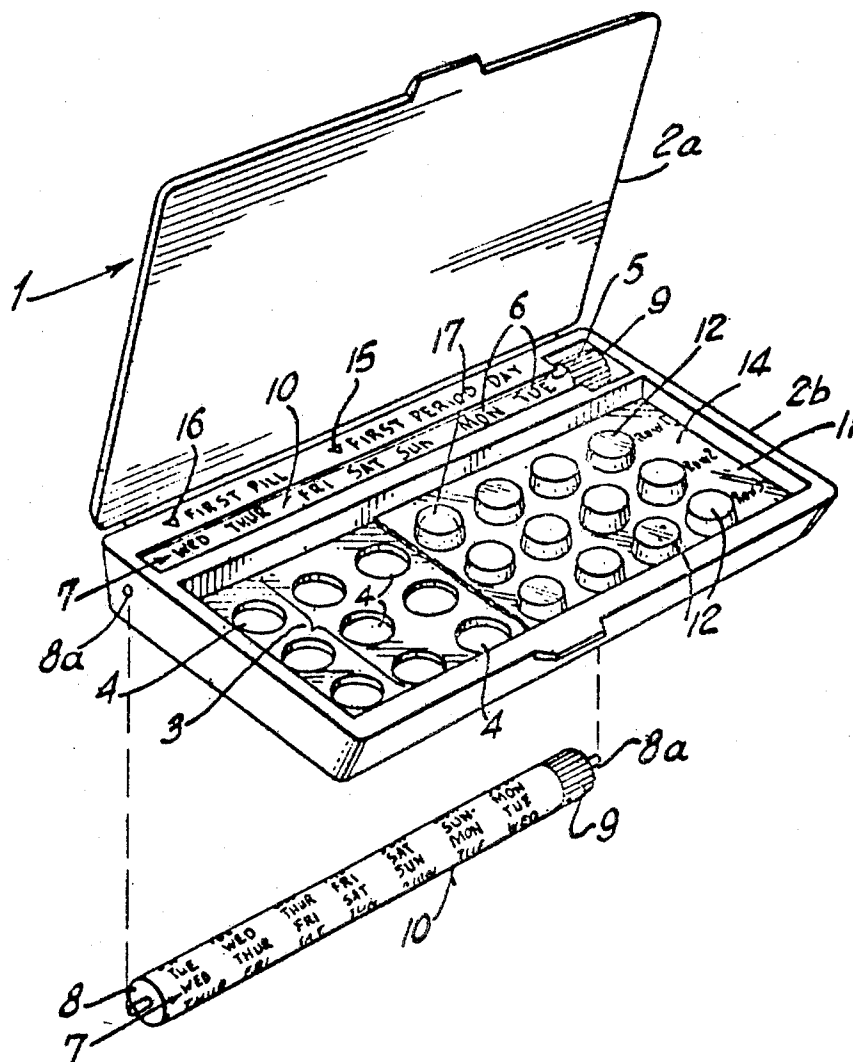
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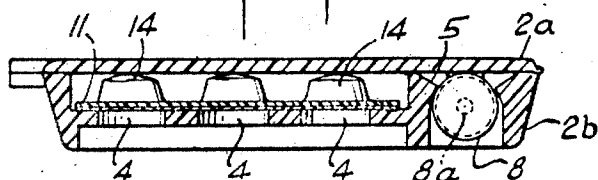
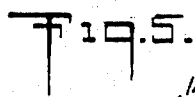
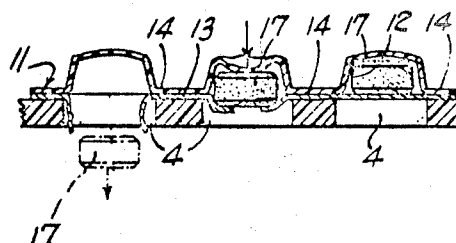
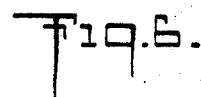
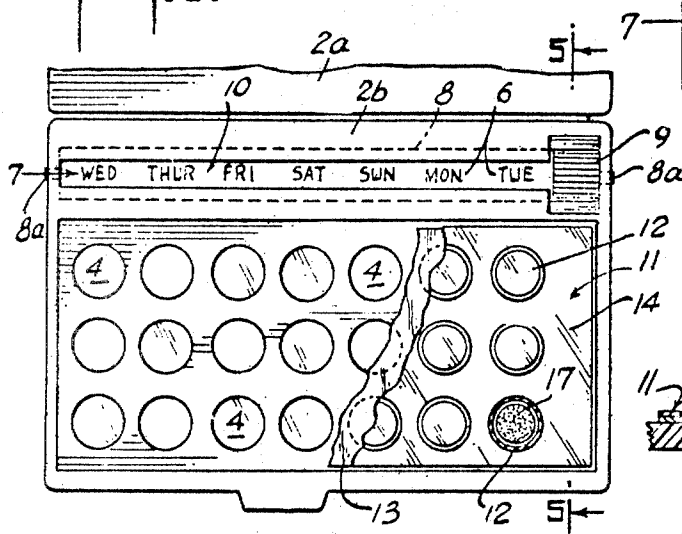
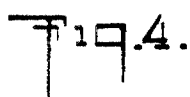
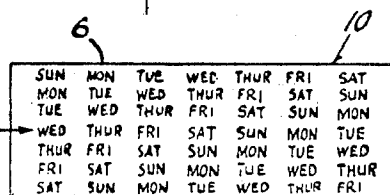
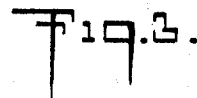
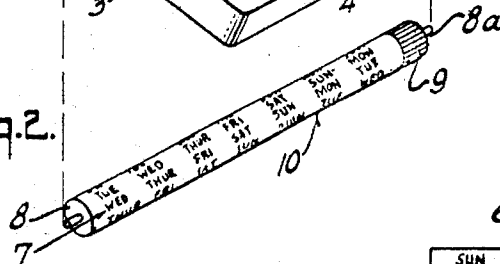
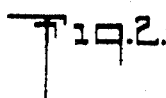
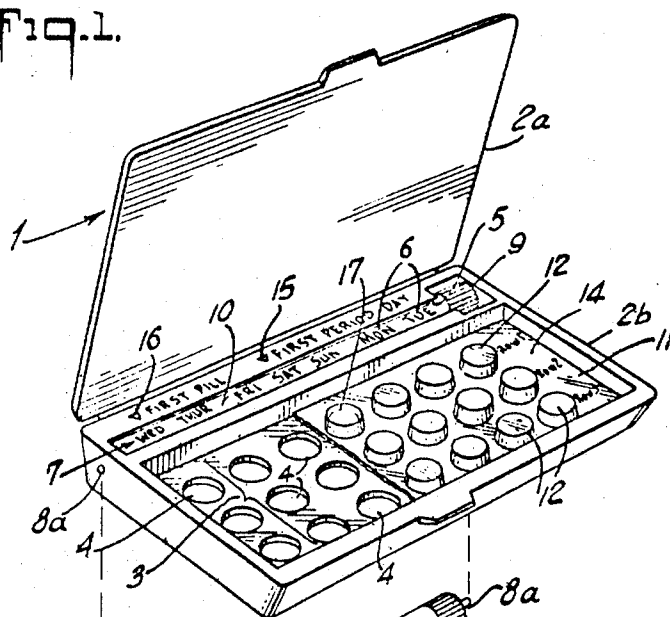
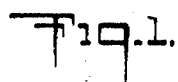
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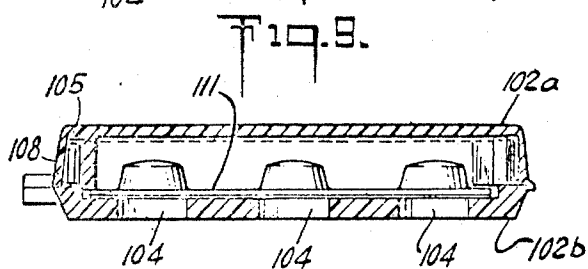
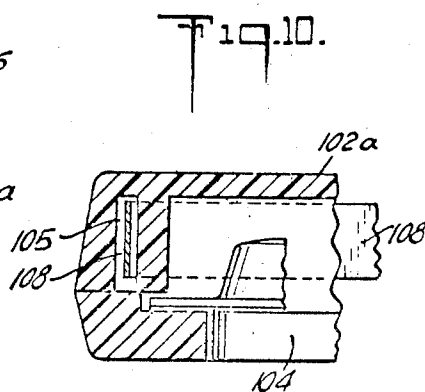
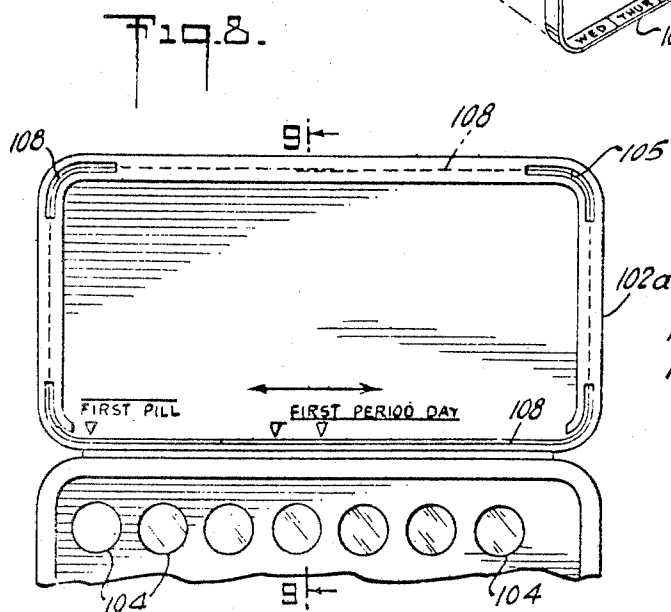
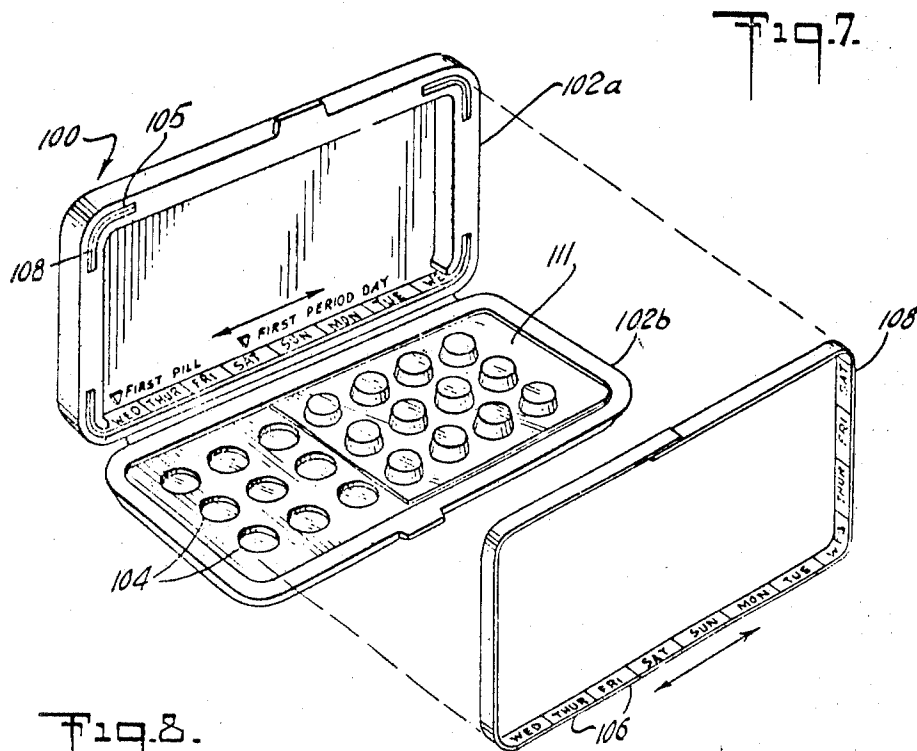
ABSTRACT: A preferred embodiment of a series of tablet dispensers is disclosed having a base containing seven columns of tablet locations and a cylindrical member rotatably mounted in the base and containing on its surface seven series of indicia of time. Each series is axially disposed and includes an indicia for each day of the week arranged sequentially with respect to time. The indicia of each series are spaced so that each indicia is registerable with a column of tablet locations. The seven series of such indicia are arranged circumferentially of the cylindrical member and each series begins with an indicia representing a different day of the week.

In using the dispenser, the cylindrical member is rotated until the day on which the first tablet is to be taken registers with the first column of tablet locations. When the indicia representing the appropriate day is registered with the first column of tablet locations, the indicia representing subsequent days register with the other columns of tablet locations.





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TABLET DISPENSING DEVICE

BACKGROUND OF THE INVENTION

It has become the general practice in the treatment of patients to prescribe that medication be taken in accordance with a fairly rigid time schedule. This is particularly true in the case of oral contraceptives where the user must strictly adhere to a schedule of use which is determined by the user's individual menstrual cycle. Failure to adhere to the prescribed schedule of use will generally result in a failure of the medication to induce the physiological effect on which contraception is based.

In order to assist users of oral contraceptives in following the prescribed regimen, oral contraceptive tablets are generally packaged in dispensers which permit the user to determine immediately on any given day of the week whether a tablet was in fact taken that day. This is most often accomplished by associating an empty or occupied tablet position with indicia representing the particular day of the week. Typical of tablet dispensers of this type are those described in U.S. Pats. Nos. 3,143,207, 3,199,489, 3,227,127, 3,261,455, 3,276,573 and 3,283,885. Each of the tablet dispensers described therein achieves to a large degree its intended purpose, but, due to their complexity, these dispensers may not be suitable for use by illiterate or nonperceptive women.

THE INVENTION IN GENERAL

A. Its Broad Concept

Now, according to this invention there is provided a tablet dispenser comprising a base containing an essentially parallel series of columns of tablet locations, the number of columns of tablet locations being equal to the number of medicament doses to be taken in a given conventional calendar cycle of time, be it day or week. One, and only one, indicia of time is visibly associated with, and preferably registered with, each of the columns of tablet locations, each indicia representing a point of time within the cycle of time at which medication is to be taken and together making up a series of indicia in which the individual indicia are arranged sequentially with respect to time. A plurality of these series of indicia, at least one for each given point in time at which medication is to be taken and beginning with an indicia representing that given point in time, are disposed on the surface of a movable member adjacently in the direction of its movement. An appropriate series of indicia may thus be visibly associated with the columns of tablet locations according to the user's particular physiological cycle.

By virtue of this construction the patient can be instructed to position the movable member carrying the indicia so that the indicia representing the first moment in time that medication is to be taken visibly registers with the first column of tablet locations, that is, the column located at the far left side of the dispenser base. Indicia representing subsequent moments in time at which medication is to be taken will automatically visibly register with each of the other columns of tablet locations. The patient can be instructed to take the first tablet in the first column of tablets at the first time of indicated use and to thereafter take the first tablet in each successive column, moving from left to right, at the indicated moment in time through the last column of tablets, at which time a given cycle of time, e.g. one day or one week, is completed. The user is instructed to then take the second tablet in the first column of tablets and to continue the above procedure until the supply of tablets is exhausted.

B. The Advantages of the Invention

The dispenser of this invention eliminates the cost associated with dispensers of the type shown in U.S. Pat. Nos. 3,227,127 and 3,261,455 wherein a member with a single series of indicia is activated by the user after each tablet is taken and thereby moved into position to indicate the next tablet and the time of taking it.

The dispenser of this invention also eliminates the main problem, namely, there is no natural "first tablet", associated with tablet dispensers wherein a given indicia of time is per-

manently associated with a given tablet or column of tablets. In the case of circular dispensers with either singular or plural series of fixed indicia, such as that shown, for example, in U.S. Pat. Nos. 3,276,573 and 3,283,885, there is no location along the circumference of the circle which is a natural "first tablet" location. Likewise, after the first tablet is taken there is no natural "second tablet". The problem is no less serious in the case of a calendar type device, an example of which is shown in U.S. Pat. No. 3,099,352, wherein the user, except by pure happenstance, begins the regimen somewhere in the center of the matrix of tablets, works toward the bottom of the calendar, and then completes the regimen at the top of the calendar.

The dispenser of this invention is also superior to the dispenser described in U.S. Pat. No. 3,143,207, a dispenser apparently designed in an attempt to provide a natural "first tablet". In that dispenser the movable member carrying the indicia of time is bulky and a portion of the same must be discarded after the indicia are properly positioned. In addition, and most importantly, in that dispenser the number of columns of tablets must inherently be either greater or lesser than the number of doses of the medication taken in a natural calendar cycle of time. Thus, for example, in a once a day regimen, Monday's tablet may be located in the first column of tablets one week but in the second column of tablets the second week. In the dispensers of this invention the tablet associated with a given point in time is always located in the same column of tablets.

C. Various Embodiments of the Invention

It is envisioned that the "tablet locations" of the dispensers of this invention will most often be apertures, slightly larger than the tablets, in the dispenser base and that the tablets will be contained in a "press out laminate" well-known in the art.

The tablets are arranged in the laminate in such a pattern as to register with the apertures in the dispenser base. By thus exerting downward pressure on any given tablet, the portion of the laminate underlying the tablet and overlying the aperture is ruptured and the tablet expelled through the aperture into the hand of the patient.

In the preferred embodiment of the invention, the "movable member" carrying the indicia is of circular cross-section and is rotatably mounted in the base. Where the movable member is a cylinder, each series of indicia is suitably printed axially on the surface of the cylinder and the spacing of the individual indicia is such that an indicia is visibly registerable with each column of tablets. The plurality of these series of indicia are disposed circumferentially of the cylinder. Thus, by rotating the cylinder, any given dosage time may be visibly registered with the first column of tablets, the remaining dosage times properly registering with the remaining columns of tablets.

In an alternate embodiment of the invention, the "movable member" carrying the indicia is a strip of paper slidably mounted adjacent the top of the columns of tablets. Indicia representing each dosage time in the cycle of time are printed sequentially with respect to time on a visible surface of the strip at equidistantly spaced locations, the number of such indicia being equal to at least one less than two times the number of columns of tablets ($2N - 1$). Thus, any dosage time may be visibly registered with the first column of tablets by sliding the strip into proper position.

THE INVENTION IN DETAIL

The invention will be more fully understood from the following detailed description of the two embodiments described briefly immediately above, read in conjunction with the appended drawings.

In the drawings:

FIG. 1 is a view in perspective of one embodiment of the present invention;

FIG. 2 is a view in perspective of the movable indicia carrying member of the dispenser of FIG. 1;

FIG. 3 is a view of the surface of the movable calendar means of FIG. 2 in "flat" condition;

FIG. 4 is a top view of the dispenser of FIG. 1;
 FIG. 5 is a cross-sectional view through the base of the dispenser of FIG. 4 along line 5—5;
 FIG. 6 is a schematic representation of the dispensing of a tablet from the dispensers of this invention;
 FIG. 7 is a view in perspective of a second embodiment of the dispensers of this invention, and also shows a view in perspective of the movable indicia carrying member;
 FIG. 8 is a plan view of the top of the base of the dispenser of FIG. 7;
 FIG. 9 is a view in cross-section of the dispenser of FIG. 7, taken along line 9—9, when the same is closed; and
 FIG. 10 is an enlargement of the left side of FIG. 9.

Referring to FIGS. 1 through 6, the tablet dispenser, 1, has a molded plastic base consisting of a top, 2a, and a bottom, 2b. The bottom, 2b, contains seven parallel columns, 3, of tablet locations in the form of apertures, 4, with three apertures in each column. The number of columns of tablet locations is equal to the number of tablets (seven) to be taken in a given conventional calendar cycle of time (one week), the dispenser being designed for use with contraceptive tablets.

At the top of each column, 3, of apertures, 4, is a window, 5, through which is seen an indicia, 6, representing a day of the week, and these indicia are arranged in chronological order from left to right. As shown in FIG. 3, this series, 7, of indicia is printed on a sheet, 10, which is wrapped around a cylinder, 8, so that each series of indicia are disposed axially of the cylinder. The cylinder is mounted on an axle 8a, in the base and is rotatable in either direction. The cylinder is so positioned in the base that each indicia in the series, 7, registers with a column of tablets locations.

A plurality, namely seven, of these series, 7, of indicia, 6, are printed in parallel rows on the sheet, 10, so that when the sheet is wound on the cylinder the series will be adjacently disposed around the circumference of the cylinder. Each series begins with an indicia representing a different day of the week. The cylinder, 8, is provided at one end with a knurled portion, 9, which permits the turning of the same when it is in place in the base as will be explained more fully hereinafter.

The base bottom, 2b, is adapted to receive a laminate, 11, only a portion of which is shown in FIG. 1. The laminate is made up of a thin, rupturable metal foil, 13, and a transparent, pliable film, 14, intimately bonded to the foil sheet, 13, forming a series of tablet compartments, 12, occupied by tablets, 17. Each tablet is arranged so that when the laminate, 11, is inserted into the base bottom, 2b, each tablet, 17, lies over an aperture, 4.

In using the dispenser illustrated, the indicia carrying cylinder, 8, is rotated until the day of the week on which the menstrual cycle began appears adjacent the row of tablets under the indicator, 15, "First Period Day". The first tablet is then taken on the day corresponding to the day of the week represented by the indicia, 16, adjacent the first row of tablets. On each successive day, the succeeding tablet from left to right are taken.

Referring specifically to FIG. 6, to dispense a tablet, 17, pressure is applied to the plastic film, 14, over the tablet, 17. The foil, 14, is thereby ruptured and the tablet, 17, passes through the aperture, 4. Insofar as the "press-out" laminate is concerned, its operation is identical to other "press-out" laminates well-known in the art.

In order to prevent the accidental turning of the cylinder, 8, after it has been set, any convenient friction or ratchet device

may be used. Since the pattern of tablet administration should not change from month to month, another convenient way to prevent the accidental turning of cylinder, 8, is to make provision for snapping knurled nob, 9, from the cylinder once the proper setting has been obtained.

Referring now to FIGS. 7 through 10, a second embodiment, 100, of the invention is shown. This dispenser also has a base having a top, 102a, and a bottom, 102b. The bottom, 102b, as in the case of the earlier described embodiment, has a plurality of columns of apertures, 104, and a press-out laminate, 111, carrying the tablets at spaced positions registering with the apertures.

This embodiment, however, does not utilize a rotatable indicia carrying cylinder to visibly associate the appropriate day of the week with each column of apertures. Rather an endless flexible paperboard strip, 108, is slidably mounted in a run, 105, provided in the top, 102a, of the base. Indicia, 106, representing each day of the week are printed in chronological order at equidistantly spaced locations on one surface of the strip, 108. Enough of these chronologically arranged indicia are provided that indicia representing any day of the week may be registered with the first column of tablets by manually sliding the paperboard strip in the run. In order to accomplish this and in order for the appropriate indicia to register with the remaining columns, indicia numbering at least one less than twice the number of tablet columns ($2N-1$) must be provided.

While several specific embodiments of the invention have been described, it should be apparent that many other embodiments of the invention can be provided which fall within the spirit and scope of the broad inventive concept. Consequently, the invention should not be considered to be limited to the specific embodiments described.

I claim:

1. A tablet dispenser comprising:

a base containing an essentially parallel series of columns of tablet locations, the number of columns being equal to the number of medicament doses to be taken in a given conventional calendar cycle of time;

one and only one indicia of time being visibly associated with each of the columns of tablet locations, each indicia representing a point of time within the cycle of time at which medication is to be taken and together constituting a series of indicia in which the indicia are arranged sequentially with respect to time, said series of indicia being essentially linearly disposed on a movable member located above the tablet columns and reading chronologically right side up from left to right; and

a plurality of said series of indicia equal in number to at least the number of medicament doses to be taken in said cycle of time being disposed on the surface of said movable member adjacently in its direction of movement, at least one series of indicia beginning with the indicia representing each point in time at which medicament is to be taken, said movable member being of generally circular cross-section and being rotatably mounted in the base and each series of indicia being disposed axially of said member, the rotatable member being so located and the spacing of the individual indicia in the series being such that an indicia of each series is visibly registerable with each column of tablet locations, the plurality of said series of indicia being disposed circumferentially of the rotatable member.