United States Patent

[11] 3,558,003

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[21] Appl. No. **819,579**
[22] Filed **Apr. 28, 1969**
[45] Patented **Jan. 26, 1971**
[73] Assignee **Ortho Pharmaceutical Corporation**
a corporation of New Jersey

[54] **TABLET DISPENSER WITH CALENDAR INDEX**
5 Claims, 8 Drawing Figs.

[52] **U.S. Cl.** **221/2,** 221/279
[51] **Int. Cl.** **B65d 83/04**
[50] **Field of Search** 221/2, 4, 89, 263, 279, 280, 69, 82, 226, 231, 7, 8; 116, 121; 206/42, 46Pellets

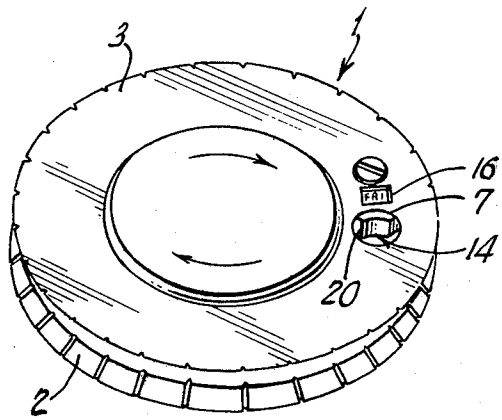
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ABSTRACT: A tablet dispenser having a continuous tablet channel is provided, the channel terminating in a tablet dispensing aperture. Rotation of the cover of the dispenser with respect to the base exerts pressure on a tablet follower disposed at the tablet channel and thus urges the tablet towards and into the tablet dispensing aperture.



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SHEET 1 OF 2

Fig. 1.

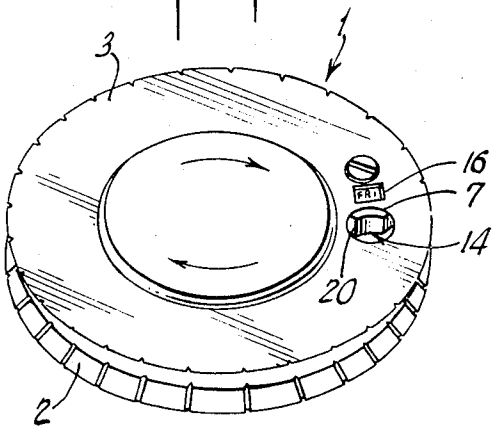


Fig. 2.

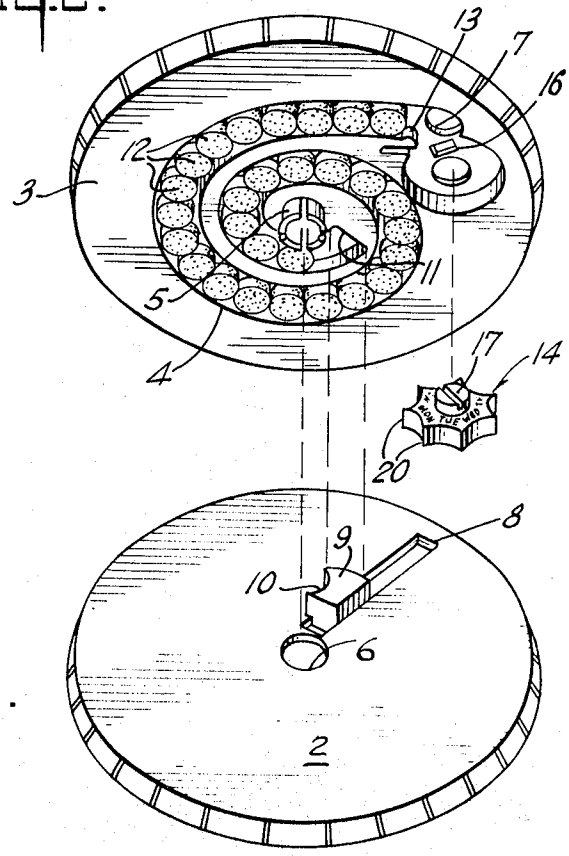


Fig. 3.

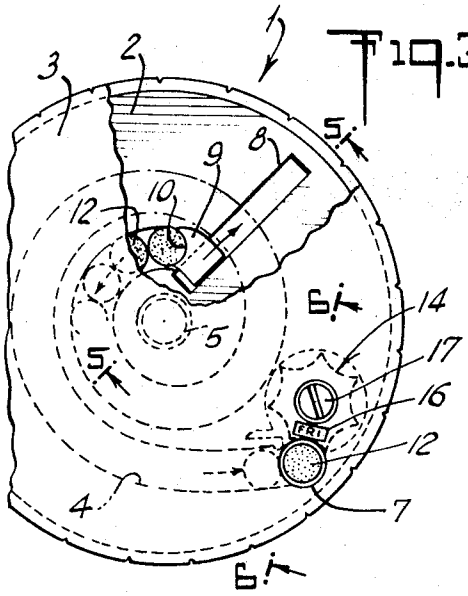


Fig. 4.

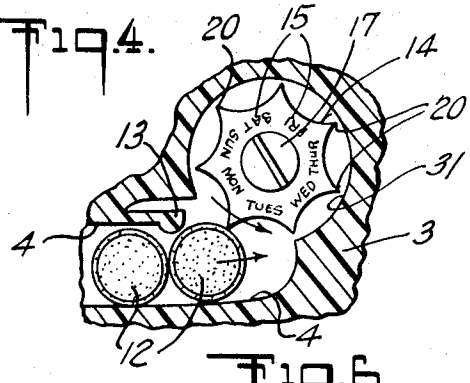


Fig. 5.

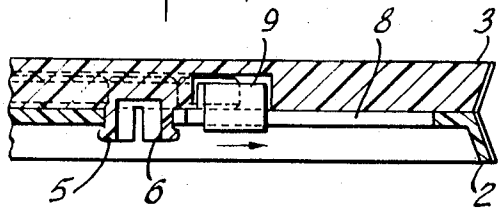
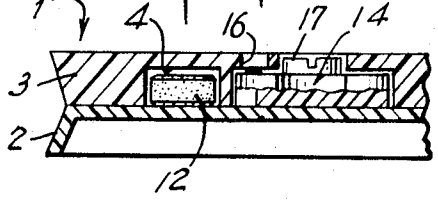


Fig. 6.



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Fig. 7.

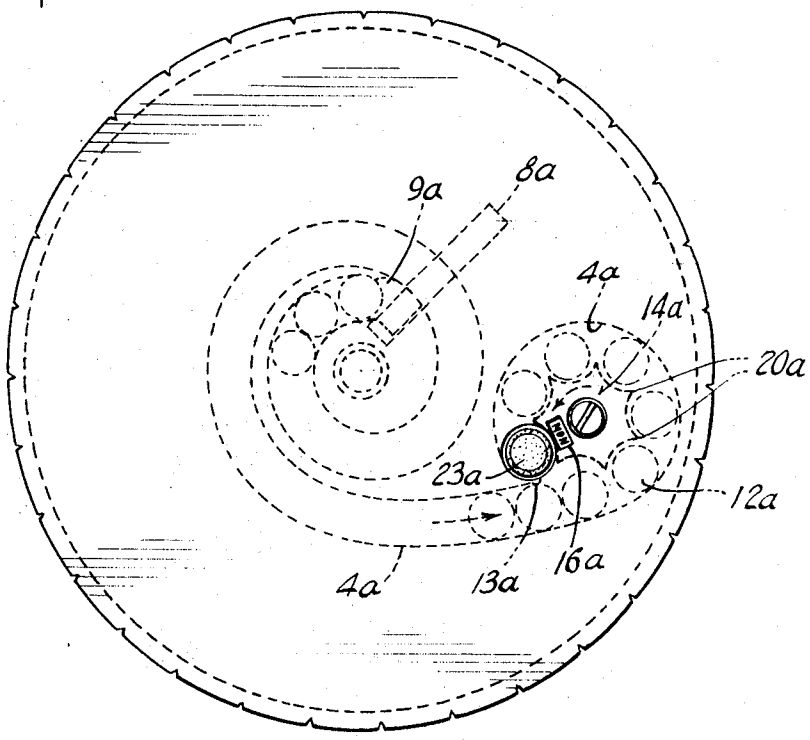
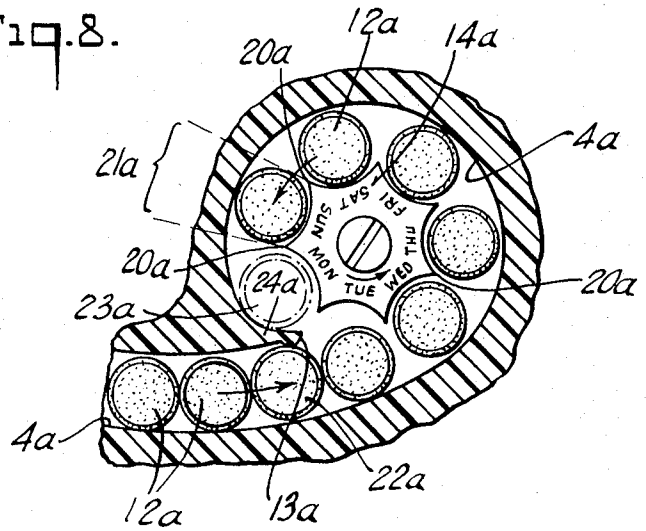


Fig. 8.



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TABLET DISPENSER WITH CALENDAR INDEX

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 very 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 the 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 upon any given day of the week whether a tablet was in fact taken on that day. This is most often accomplished by associating an empty or occupied tablet position with an indicia representing the particular day of the week involved. Most often such dispensers are provided in the form of a disc with the tablets located at spaced positions around the circumference of the same. Typical tablet dispensers of this type are those described in U.S. Pat. Nos. 3,143,207 and 3,227,127.

Initially, most oral contraceptive regimens contained 20 tablets per cycle, and it was not difficult to provide 20 spaced individual tablet positions along a circular locus at the periphery of the tablet dispenser. However, over the years the number of tablets in oral contraceptive regimens has increased, first to 21, then to 28 and now even to 35 tablets per cycle. The 28 tablet and 35 tablet regimens generally are continuous, that is, the regimen need not be interrupted to permit menstruation. It has become increasingly difficult to provide individual tablet positions for the larger number of tablets. The problem is particularly acute in the case of the continuous regimens where tablets for more than one "cycle" are preferably contained in one dispenser.

In the dispensers of this invention, the tablets are arranged in a continuous tablet channel which terminates in a tablet dispensing aperture. While this channel may be circular, the invention is most useful when the channel is, in fact, in the form of a spiral so that a maximum number of tablets may be loaded into a given dispenser.

Specifically, the tablet dispensers of this invention comprise a base and a cover rotatably mounted on the base, the cover having a tablet receiving channel integrally molded therein and terminating in a tablet dispensing aperture. A tablet follower is slidably disposed in the tablet channel so that "forward" pressure on the follower will urge the tablets toward and into the tablet dispensing aperture. The tablet follower is also slidably disposed in a slit in the dispenser base, this slit intersecting at least once the locus of every circle which can be drawn around the axis of rotation which is also intersected by the tablet channel. Thus by turning the cover of the dispenser with respect to the base may be applied through the tablet follower to the tablets in the channel to urge the tablets toward and into the tablet dispensing aperture.

In an oral contraceptive regimen it is of course necessary to provide some "calendering" means so that the day on which the tablet in the dispensing aperture is to be taken will at all times be determinable. Many calendering means for tablet dispensers are well known in the art, each such means functioning by associating a time reference indicator with an indicia representing a particular day of the week. With each rotation of the cover of the dispenser with respect to the base to place the next tablet to be taken within the tablet dispensing aperture, the calendering means automatically "advances" so that the time reference indicator is associated with the indicia representing the day on which the next tablet is to be taken.

It has been found to be particularly advantageous to provide the calendering element in the form of a spoked wheel having a series of indicia, including at least one indicia for each moment in time at which a tablet is to be taken, printed in chronological order on its major surface. One such indicia of time is associated with each spoke of the wheel. The wheel in turn is rotatably disposed adjacent and in the plane of the tablet channel so that the spokes of the wheel project into the tablet channel, whereby the passage of one tablet causes the wheel to advance one position. While the wheel can be disposed anywhere along the tablet channel, it is preferably disposed immediately adjacent the tablet dispensing aperture so that it is the passage of a tablet into the tablet dispensing aperture itself which causes the wheel to turn. By mounting the wheel at this location, it is easier to adjust the wheel upon initial use of the dispenser.

Alternatively, the tablet channel, may pass around the wheel, the spokes of the wheel and the tablet channel cooperating to define distinct but movable tablet positions, one such tablet position being associated with each indicia representing a day on which a tablet is to be taken.

Referring now specifically to the drawings:

FIG. 1 is a view in perspective of a dispenser of this invention;

FIG. 2 is an exploded view in perspective of the dispenser of FIG. 1;

FIG. 3 is a broken-away plan view of the dispenser of FIG. 1;

FIG. 4 is an enlarged view in section of a portion of the dispenser of FIG. 1 adjacent the tablet dispensing aperture;

FIG. 5 is a view in cross section of the dispenser of FIG. 1 taken along lines 5–5 of FIG. 3;

FIG. 6 is a view in cross section of the dispenser of FIG. 1 taken along lines 6–6 of FIG. 3;

FIG. 7 is a plan view partially broken away of an alternative embodiment of this invention; and

FIG. 8 is an enlarged view in cross section of the portion of the dispenser of FIG. 7 adjacent the tablet dispensing aperture, additionally showing the position of the tablets immediately before a tablet is dispensed.

Referring specifically to FIGS. 1—6 of the drawings, the dispenser 1 has a base, 2, and a cover 3. The cover 3 contains an integrally molded spiral tablet receiving channel 4 and is rotatably mounted on the base, 2, by virtue of spindle 5 and socket 6. At the end of the spiral channel, 4, is a dispensing aperture, 7. The base 2 contains a radially extending slot 8 which, when the dispenser is assembled, intersects the locus of the spiral channel, 4, once for each turn of the spiral. A tablet follower 9 is disposed both in the slot 8 of the base, 2, and in the tablet channel 4 of the cover 3. The leading edge, 10, of the follower is shaped so as to correspond to the shape of the outer periphery of the tablets, 12.

Initially, the tablet follower 9 is located at one end, 11, of the tablet channel 4. The tablets, 12, are securely held in the channel by the pressure of the follower, 9, and by detent 13 near the end of the channel 4 adjacent the dispensing aperture 7. As can be readily seen, by turning the cover, 3, of the dispenser counterclockwise with respect to the base, 2, pressure is exerted on the tablets, 12, through the tablet follower 9, urging the tablets toward and into the dispensing aperture 7.

A calendar element is provided in the form of a spoked wheel 14, there being seven such spokes, 20. The wheel is rotatably mounted in a chamber 31 adjacent the tablet dispensing aperture, 7. The spokes 20 of the wheel project into the tablet channel 4 near the end of the same. Indicia, 15, representing the days of the week are disposed in chronological order around the periphery of the wheel 14. The cover 3 of the dispenser also has a time reference window, 16, with which any given indicia of time may be registered when a tablet underlies the tablet dispensing aperture as illustrated most clearly in FIG. 3.

As illustrated in FIG. 2, the tablets will initially be located behind detent 13 so that the wheel, 14, may be adjusted by virtue of head 17 so that the indicia representing the day before the first tablet is to be taken is registered in the time reference window. Thus, when the cover 3 of the dispenser is turned

counterclockwise with respect to the base 2, the first tablet will enter the area underlying the tablet dispensing aperture, 7, thus causing the wheel, 14, to rotate one position as shown in FIG. 4. Thus the indicia representing the day on which the first tablet is to be taken will become registered with the time reference window. Further rotation of the cover counterclockwise with respect to the base is not possible until the tablet underlying the tablet dispensing aperture is removed. After removal of that tablet, further rotation of the cover counterclockwise with respect to the base will cause the next tablet to move into the tablet dispensing aperture and thus cause the calendering element to rotate one position forward. This procedure is repeated until all tablets are dispensed.

Referring not to FIGS. 7 and 8 of the drawings, in another embodiment of the invention the tablet channel 4*a* actually passes around the spoked wheel, 14*a*. Thus, the tablet channel, 4*a*, and spoked wheel, 14*a*, cooperate to form individual but movable tablet locations 21*a* between each pair of adjacent spokes 20*a*. At any given time there will be a last tablet location, 23*a*, beyond which the tablets can not go.

When initially setting the dispenser the tablets will all be behind detent 13*a*. In the case of the dispenser illustrated, the patient will be instructed to rotate the wheel until the day after the day on which the first tablet is to be taken is registered in the time reference window 16*a*. The cover 3*a* of the dispenser is then rotated counterclockwise with respect to the base 2*a* thus causing the follower, 9*a*, to urge the tablets toward and into the tablet locations, 21*a*. This will in turn cause the wheel 14*a* to rotate and each tablet location in turn to become filled with a tablet, as shown in FIG. 8.

When each tablet location is full, lip 24*a* which defines the end of the tablet channel makes it impossible to continue to rotate the cover of the dispenser counterclockwise with respect to the base. Even in absence of the lip the next tablet 22*a* in line to enter a tablet location will impinge upon the tablet 23*a* underlying the tablet dispensing aperture, thus preventing further rotation. When the tablet, 23*a*, at the end of the channel and underlying the dispensing aperture is dispensed, rotation of the cover with respect to the base is again possible and such rotation will cause the wheel to advance one position. This procedure is repeated until all the tablets are dispensed.

I claim:

1. A tablet dispenser comprising a base and a cover rotatably mounted on said base, said cover defining a tablet channel therein, said tablet channel terminating in a tablet dispensing aperture,

said base defining a slit which intersects at least once the locus of every circle which can be drawn around the axis of rotation of said cover with respect to said base which is also intersected by said tablet channel,

said dispenser also comprising a tablet follower slidably disposed in said tablet channel and in said slit, whereby the forward pressure of said follower resulting from the rotation of said cover with respect to said base urges tablets in the tablet channel toward and into said tablet dispensing aperture,

said dispenser further comprising calendering means, said calendering means comprising a series of indicia, at least one indicia representing each moment in time at which a tablet is to be taken, arranged in chronological order, and a time reference indicator with which any of said indicia may be associated, and

rotation of said cover with respect to said base to move a tablet into the tablet dispensing aperture causing activation of the calendering means to register the next indicia in said series of indicia with said time reference indicator.

2. The dispenser of claim 1 in which said tablet channel defines a spiral.

3. The tablet dispenser of claim 2 in which said calendar means is a spoked wheel rotatably mounted adjacent said tablet channel, the spokes of said wheel projecting into said tablet channel, said wheel having said series of indicia disposed circularly on a major surface of the same, each indicia being associated with a spoke of the wheel,

said cover of said dispenser defining a time reference window located radially from the point of rotation of said wheel a distance equal to the distance of said indicia from the point of rotation of said wheel, and

whereby the rotation of the cover of said dispenser with respect to the base, to move the tablets through and along the tablet channel, causes the wheel to rotate one position for each tablet that passes the point in said tablet channel at which the spokes of the wheel project into said channel.

4. The tablet dispenser of claim 3 wherein said rotatably mounted spoked wheel is mounted immediately adjacent the tablet dispensing aperture whereby passage of each tablet into the tablet dispensing aperture causes the wheel to rotate one position.

5. The tablet dispenser of claim 4 in which said wheel is mounted in a chamber adjacent the tablet dispensing opening, said chamber also representing a portion of the tablet channel, said spoked wheel and the portion of said tablet channel constituting the walls of said chamber cooperating to define a series of movable tablet positions, each tablet position being defined by two spokes of the wheel and the wall of said chamber.