

March 3, 1953

H. N. MAIER
CAPSULE DISPENSER

2,630,245

Filed Aug. 27, 1946

3 Sheets-Sheet 1

Fig. 2

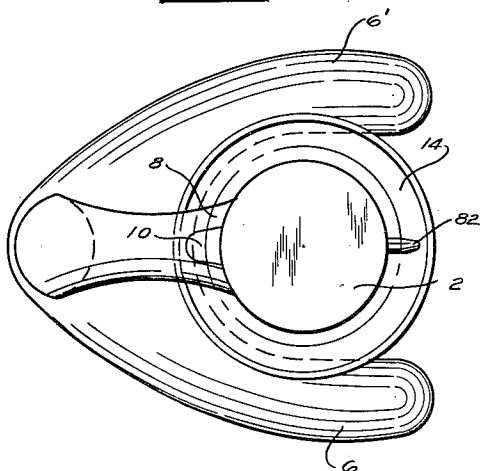


Fig. 1

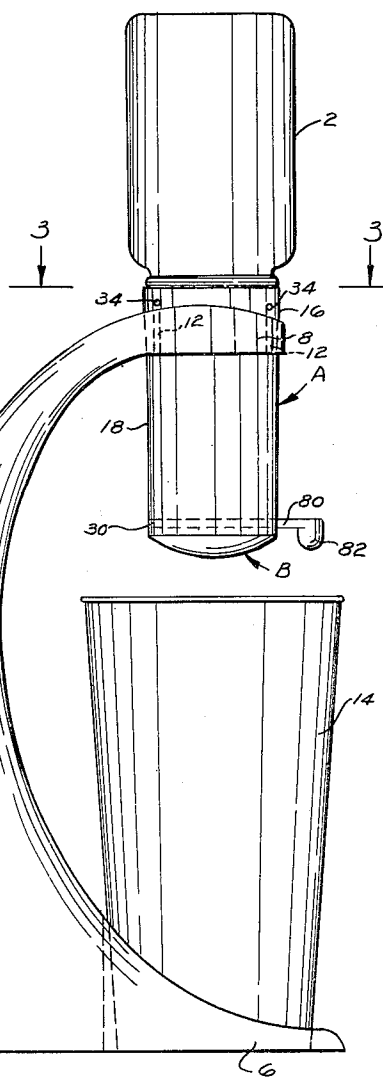
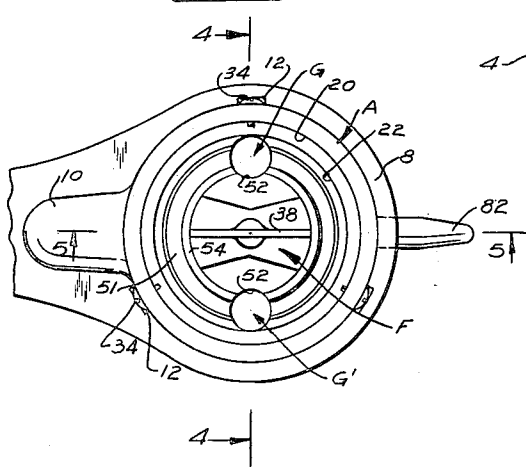


Fig. 3



INVENTOR.
HERBERT N. MAIER.

BY *James Franklin*
ATTORNEYS.

March 3, 1953

H. N. MAIER
CAPSULE DISPENSER

2,630,245

Filed Aug. 27, 1946

3 Sheets-Sheet 2

Fig. 4

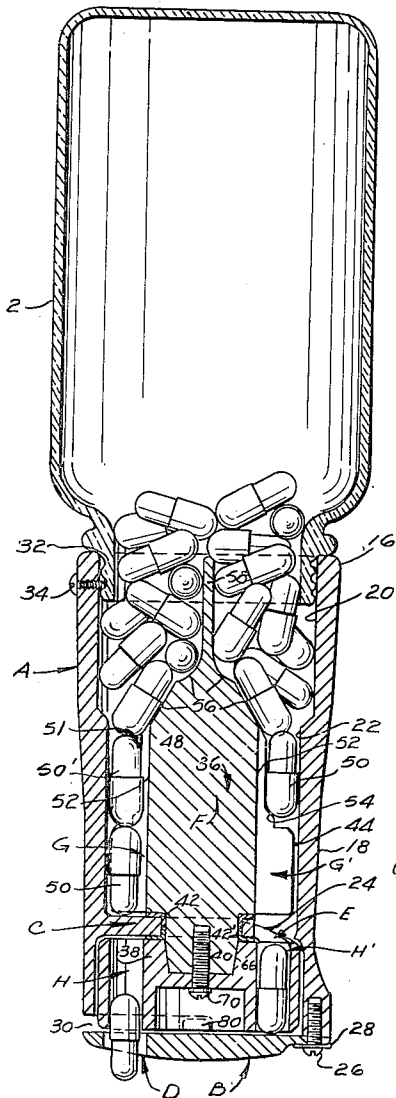


Fig. 5

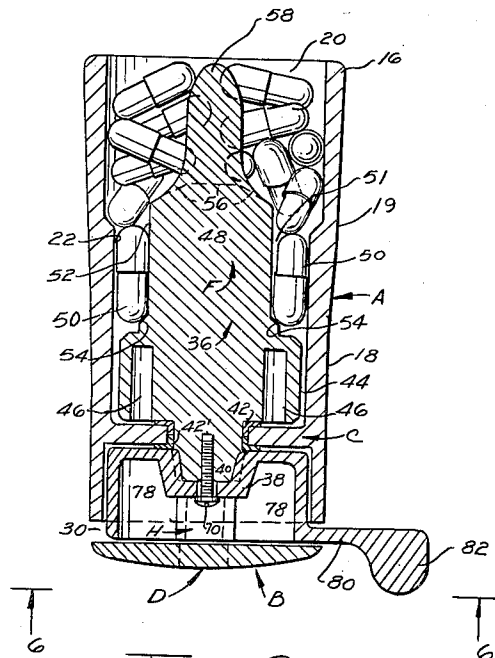
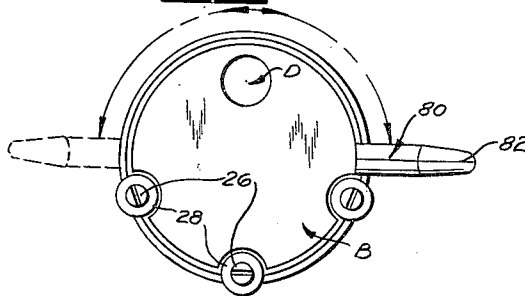


Fig. 6



INVENTOR.
HERBERT N. MAIER

BY
James F. Franklin
ATTORNEYS.

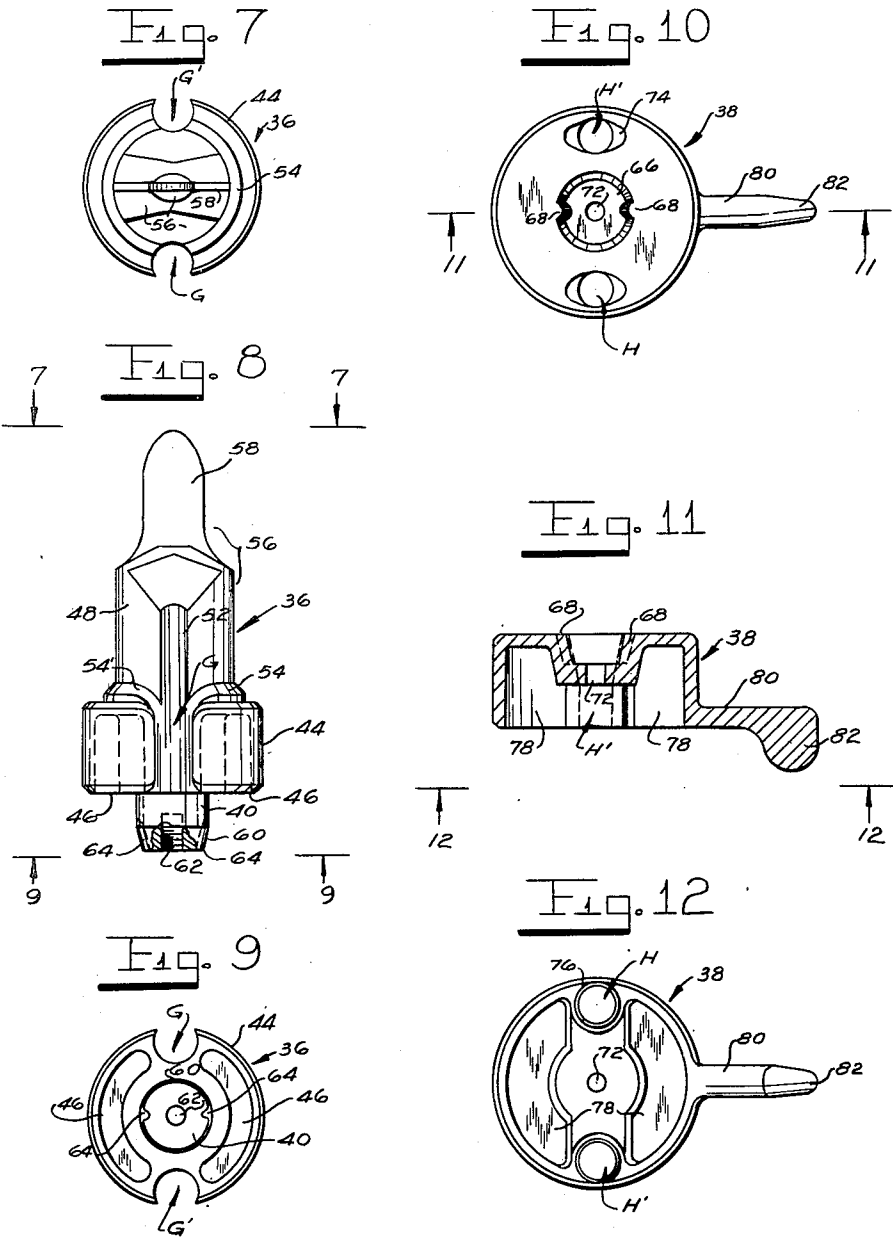
March 3, 1953

H. N. MAIER
CAPSULE DISPENSER

2,630,245

Filed Aug. 27, 1946

3 Sheets-Sheet 3



INVENTOR.
HERBERT N. MAIER

BY
James Franklin

ATTORNEYS.

UNITED STATES PATENT OFFICE

2,630,245

CAPSULE DISPENSER

Herbert N. Maier, Pottstown, Pa., assignor to
Doehler-Jarvis Corporation, New York, N. Y.,
a corporation of Michigan

Application August 27, 1946, Serial No. 693,244

19 Claims. (Cl. 222-10)

1

This invention relates to a capsule dispenser.

While disc and tablet dispensers which dispense one or more discs or tablets for a given actuation of the dispenser are well-known, the construction of capsule dispensers which will perform a similar function has been complicated by the peculiar shape which capsules possess and particularly by the fact that capsules are considerably longer than they are wide. The increased use of capsules as a medicament containing means has made all the more important the construction of a dispenser for the selective distribution of capsules.

A further complicating factor in the design of a suitable capsule dispenser is the nature of the capsule itself, which must be of a material which is quickly and easily dissolved by the body fluids in order that the capsule contents may be exposed to the digestive process. Necessarily then, the capsule is a fragile and easily deformable container. As a result, a capsule dispenser must be constructed in such a manner as not to place undue strain upon the capsules dispensed thereby, lest the capsule be broken open, thus exposing its contents, or deformed, thus jamming the dispenser and interrupting the egress of capsules therefrom.

It is the prime object of the present invention, therefore, to provide a capsule dispenser of simple construction, adapted to mass production methods, from which capsules may be selectively dispensed in a convenient manner.

It is a further object of the present invention to provide such a dispenser in which no undue strain or pressure is placed upon the capsule in the course of its passage through the dispenser.

It is still another object of the present invention to provide a dispenser in which dispensing and feeding occur simultaneously, each being dependent upon and controlled by the other.

It is still another object of the present invention to provide a dispenser of the type described which can contain a considerable head or supply of capsules or a very small supply thereof without affecting the smooth feeding and dispensing which is its characteristic.

Yet another object of the present invention is to provide a dispenser in which feeding and dispensing of the capsules takes place without the employment of any force-feeding apparatus which might tend to deform or destroy the capsules.

It is a further object of the present invention to provide a capsule dispenser adaptable for dispensing capsules of different sizes by the replacement of a single part thereof.

Another object of the present invention is to facilitate the rotation of the movable part of a capsule dispenser by utilizing the capsules themselves as roller bearings.

2

Still another object of the present invention is to provide a capsule dispenser adapted to removably receive a capsule container and to dispense the contents thereof.

To the accomplishment of the foregoing objects and such other objects as may herein-after appear, my present invention relates to the capsule dispenser as sought to be defined in the appended claims and as described in the following specification, taken together with the accompanying drawings, in which:

Fig. 1 is a side view of a capsule container and capsule dispenser appropriately mounted in dispensing position, but with the dispenser not fully inserted into its mount;

Fig. 2 is a top view thereof;

Fig. 3 is a top view, on an enlarged scale, of the capsule dispenser of Fig. 1, taken along the line 3-3 of Fig. 1, with the capsule container removed;

Fig. 4 is a cross-sectional view of the capsule container and capsule dispenser of Fig. 1 taken along the line 4-4 of Fig. 3;

Fig. 5 is a cross-sectional view of the capsule dispenser of Fig. 1 taken along the line 5-5 of Fig. 3;

Fig. 6 is a bottom view of the capsule dispenser taken along the line 6-6 of Fig. 5, with the rotor handle shown in solid and dotted lines in its two extreme positions of travel;

Fig. 7 is a top view of the upper rotor section of the capsule dispenser of my invention;

Fig. 8 is a side view thereof;

Fig. 9 is a bottom view thereof;

Fig. 10 is a top view of the lower rotor section of the dispenser of my invention;

Fig. 11 is a side cross-sectional view of said lower rotor section taken along the line 11-11 of Fig. 10; and

Fig. 12 is a bottom view of said lower rotor section.

Generically described, the capsule dispenser of my invention comprises a capsule receptacle, generally designated as A, carrying at its bottom a closure, generally designated as B, and carrying spaced above said closure B, at a distance therefrom related to the length of a capsule, a partition, generally designated as C, said closure B having a dispensing orifice D and said partition C having an orifice E, said orifices being of capsule-passing dimensions and being out of registry one with the other. Journalled inside of said receptacle A is a rotor, generally designated as F, provided with at least one capsule-passing channel G positioned above the partition C and with at least one capsule-receiving chamber H positioned between the partition C and the closure B, said channel G and chamber H being in registry one with the other and both being of capsule-passing dimensions. The rotor F is movable be-

3

tween a position where the capsule-passing channel G and the capsule-receiving chamber H align with the orifice E in the partition C, so that a capsule may pass from the channel G to the chamber H, and a position where the chamber H aligns with the dispensing orifice D in the closure B, whereby a capsule may be dispensed.

Turning now to the drawings more in detail and first to Fig. 1 thereof, the capsule receptacle A, with a capsule container 2 in the form of an open-necked bottle received in the upper end thereof, is supported in a vertical manner by a stand 4 comprising a bifurcated base 6, 6' and holding ring 8. Said holding ring 8 is provided with an elongated aperture portion 10 and longitudinal grooves 12 for purposes hereinafter to be explained. Positioned beneath the dispenser there may be a glass 14 for catching the capsules as they are dispensed.

The receptacle A may be of any external cross-sectional shape and is here shown as cylindrical. Its external diameter at its upper portion 16 is greater than, and its external diameter at its lower portion 18 is less than the internal diameter of the holding ring 8. Hence, it may be inserted into the holding ring 8 from above and will be securely supported therein by its upper portion 18. Its rotation in the holding ring 8 is prevented by the engagement in the longitudinal grooves 12 of the protruding heads of screws 34 in the upper portion 16 of the receptacle A. Fig. 1 shows the dispenser in a position just prior to said engagement, with a small amount of downward motion remaining for the dispenser before it takes up its final position.

The interior of the receptacle A is cylindrical and comprises an upper cylindrical section 20 and a lower cylindrical section 22 of smaller internal diameter.

The partition C may be formed integrally with the receptacle A and is in the shape of an annular ring apertured at E and with the upper surface 24 thereof being sloped downward to meet the lower surface thereof on either side of said aperture E (see particularly Fig. 4), thus defining a pair of inclined ramps.

The closure B is secured to the receptacle A by means of screws 26 and flanges 28 in such a position that its orifice D is diametrically opposed to the orifice E in the partition C. The screws 26 are disposed over less than 180° of the lower circumference of the receptacle A. Over the remaining 180° of said lower circumference of the receptacle A, the lower surface of the receptacle A is spaced from the closure B as at 30 for a purpose hereinafter to be described.

The upper part 20 of the receptacle A is open-ended at its top and is adapted to removably receive the threaded neck 32 of the capsule container 2, here shown as a bottle. The container is secured to the receptacle by means of screws 34, the tips of which engage the threads on the neck 32.

The rotor F preferably comprises an upper rotor section 36 and a lower rotor section 38. The upper rotor section 36 is basically of circular cross-section (see Figs. 7, 8 and 9) of dimensions adapted to cooperate in specific manner with the interior cylindrical surface of the receptacle A. The lower part 40 of the upper rotor section 36 is adapted to fit inside of and rotate within the interior surface of the annular partition C, riding on cup shims 42, 42' which serve as bearing surfaces, the sole bearing surfaces built into the dispenser.

4

Positioned immediately above the partition C is the main rotor section 44 which is, in the embodiment here shown, provided with a pair of diametrically opposed capsule-passing channels G, G'. For purposes of reducing the weight of the total structure, the non-channelled portions of the main rotor section 44 may be cut out as at 46.

Positioned above the main rotor section 44 is another cylindrical section 48, the diameter of which is so chosen with respect to the inner diameter of the portion 22 of the receptacle A that the distance therebetween is closely equal to the diameter of a capsule 50. Thus, between the cylindrical section 48 of the upper rotor section 36 and the interior surface of the section 22 of the receptacle A there is defined a capsule-feeding ring space 51 into which capsules may pass. In Figs. 4 and 5 capsules 50 are shown in said capsule-feeding ring space.

For facilitating feeding, the cylindrical section 48 is provided with grooves 52 in line with the capsule-passing channels G, G'. In Fig. 4 capsule 50' is shown in said groove 52.

Between the cylindrical section 48 and the main rotor section 44 is an outwardly and downwardly inclined annular surface 54 the maximum radius of which is intermediate between the maximum radius of the cylindrical section 48 and the radius of the interior of the lower section 22 of the receptacle A and preferably exceeds the radius of the cylindrical section 48 by an amount less than the radius of a capsule 50.

As the capsules pass into the capsule-feeding ring space 51, a part of their lower surfaces will rest upon the annular surface 54, as may best be seen from Fig. 4. The annular surface 54 is, in the vicinity of the grooves 52 and capsule-passing channels G, G', downwardly inclined as at 54' (see Fig. 8), and thus capsules resting upon the annular surface 54 are guided into the capsule-passing channels G, G'.

Above the cylindrical portion 48 (see particularly Figs. 7 and 8) the upper rotor section 36 is so shaped that as the rotor F is rotated, capsules are guided into the capsule-feeding ring space 51 in a vertical position by the inclined surfaces thereon, which define capsule-guiding means 56. An upstanding member 58 may be optionally provided atop the capsule-guiding means 56 in order to agitate the capsule contents of the receptacle A and thus facilitate their smooth feeding along the capsule-guiding means 56 and into the capsule-feeding ring space. This member 58 preferably should project into the neck 32 of the capsule container 2, and is thin and flat, in order to prevent the formation of jams therein.

The lower portion 40 of the upper rotor section 36 is tapered as at 60 and is further provided with an internally threaded screw-receiving hole 62 and a pair of diametrically opposed channels 64 for purposes of connection with the lower rotor section 38, as explained in detail below.

The lower rotor section 38 (illustrated in Figs. 10 through 12) is provided at its upper part with a tapered central depressed section 66 adapted to receive the tapered portion 60 of the upper rotor section 36. A pair of lugs 68 fit into the channels 64 in the upper rotor section 36 to connect the two sections together so that rotation of one will rotate the other, and so that the channels G, G' and the chambers H, H' will be in registration to form a set of passages. Screw 70 passing through screw hole 72 in the lower rotor section 38 and engaging with the threads in

screw hole 62 of the upper rotor section 36 fastens the two sections together.

The lower rotor section 38 is provided with two diametrically opposed capsule-receiving chambers H, H', the upper surfaces of which are flared as at 74 to facilitate capsule entry therein and the lower surfaces of which are slightly tapered as at 76 to facilitate capsule exit therefrom. For purposes of reducing the weight of the structure, those portions of the lower rotor section 38 not otherwise utilized may be cut out as at 78.

A rotor lever 80 terminating in a thumb-contacting portion 82 may be integrally formed with the lower rotor section 38. The lever 80 projects outwardly from the receptacle A through the semi-circular opening 30 previously referred to between the closure B and the lower surface of the receptacle A. Since this opening 30 extends over an arc of more than 180° the lever 80 and hence the lower rotor section 38 and the upper rotor section 36 may all be rotated through an arc of 180°, as may best be seen from the dotted lines of Fig. 6.

With the construction as above set forth, the assembly of the capsule dispenser of my invention will be seen to be exceedingly simple. The bearing surfaces 42, which may comprise cup shims are first put in place on the receptacle A. The upper rotor section 36 is then inserted from above and the lower rotor section 38 is mated therewith by means of the tapered sections 60 and 66. Cooperation between the channels 64 and the lugs 68 ensure that the capsule-passing channels G, G' in the upper rotor section 36 will align with the capsule-receiving chambers H, H' in the lower rotor section 38. The two rotor sections are then fastened together by means of screw 70, after which the closure B is secured in place by means of the screws 26 and the flanges 28, the positioning of which over less than 180° ensures that the orifice D in the closure B is diametrically opposed to the orifice E in the partition C.

The entire dispenser as thus assembled is then inserted into the holding ring 8 and is so aligned therewith that the lever 80 and thumb-contacting portion 82 thereof pass through the elongated orifice 10 of the holding ring 8. The dispenser is then rotated approximately 180° so that the lever 80 and the thumb-contacting portion 82 take up the position shown in Fig. 1 and the dispenser is permitted to slide down through the holding ring 8 until the heads of the screws 34 pass inside the longitudinal grooves 12 and the downward motion of the dispenser is arrested by the larger diametered portion 16 thereof coming in contact with the upper surface of said holding ring 8. Any desired capsule container 2 may then be upset and its open neck 32 may be inserted into the open top of the receptacle A and secured therein by means of the cooperation of the screws 34 and the threads on the neck 32.

Urged by their own weight, capsules will move down. By motion of the lever 80 through successive 180° arcs the upper rotor section 36 will rotate and the upstanding member 58 and the capsule-guiding means 56 will move capsules, will guide them into vertical positions, and will further guide them into the capsule-feeding ring space 51 between the cylindrical section 48 of the upper rotor section 36 and the interior surface of the portion 22 of the receptacle A. Capsules in this ring will have the inner part of their lower surface bearing against the outward-

ly and downwardly inclined annular surface 54 and will be kept in contact therewith by their own weight and the weight of the capsules above. If the rotor F is further rotated through successive 180° arcs, the annular ring 54 and the side of the rotating cylindrical portion 48 will tend to move the lower and inner surfaces of the capsules 50 which are in contact with them. The outer surfaces of the capsules 50, being in contact with the inner walls of the receptacle A, will resist this action and as a result the capsules will rotate about their own axes.

If the capsules did not rotate, that is to say, if there were no frictional effect on their outer surfaces, the capsules would travel with the rotor F. However, since the capsules do rotate, considerable relative motion occurs between the axes of the capsules and the rotor F (and consequently the annular ring 54). Thus, capsules move along the annular ring 54 until they come into registration with the channels G. When this occurs, the bottom support for the capsule disappears and it, therefore, falls into the channel G if that channel is empty. If it is not empty, the capsule will merely fall upon and rest upon the top of the capsule already in the channel G. The downwardly inclined portions 54' of the annular surface 54 aid in effecting the passage of the capsule from the capsule-feeding ring space 51 to the channel G.

The grooves 52 in the cylindrical portion 48 also have an important function. When a capsule comes into registration with the channel G the rotational driving force imparted by both the annular ring 54 and the outer surface of the cylindrical portion 48 disappear, and the capsule consequently travels with the remainder of the capsules lined up in the capsule-feeding ring space 51, but without rotating as the remainder do. It then drops smoothly into the capsule-passing channel G. In the situation above mentioned where the capsule, in attempting to enter the channel G, finds that channel already occupied, the capsule would rest in the groove (see capsule 50' in Fig. 4) and since in that position it will not make simultaneous contact with the rotor and the inner walls of the receptacle A, it will not rotate about its own axis but will instead travel with the rotor.

A secondary effect of the rotation of the capsules about their own axes when they are in the capsule-feeding ring space 51 is their action as roller bearings between the rotor F and the receptacle A, facilitating rotation of the rotor F.

Capsules 50 will, in the operation of my dispenser, commonly pass into the capsule-passing channels G, G' at diametrically opposed positions therein. A 180° rotation of the lever 80 and hence of the rotor F will bring a capsule in a capsule-passing channel G into registry with the orifice E. During this rotation the lower surface of the capsule will slide along the upper surface of the partition C and down the inclined ramp 24. When the capsule comes to the orifice E its bottom support will disappear and it will then, by its own weight, drop into the capsule-receiving chamber H in the lower rotor section 38, which chamber is, as has been explained, in registration with the channel G.

Upon the next 180° rotation of the rotor F, the chamber H containing a capsule will be brought into registration with the orifice D and the capsule contained therein will then fall out by its own weight. At the same time the other capsule-receiving chamber H' will be in registra-

tion with the orifice E and the capsule in the channel G' thereabove will fall into the chamber H'.

The dispensing cycle as above described will continue for as long as there are capsules in the dispenser. It will be seen that in the normal operation of my dispenser there will always be a capsule in a capsule-dispensing chamber H ready for dispensing and there will always be a capsule in a capsule-feeding channel G ready to refill the chamber H as fast as the capsules therein are dispensed and after each 180° rotation of the rotor.

Should the capsule in the chamber H in registry with the orifice D fail to be dispensed, subsequent smooth operation of the dispenser will not be prevented thereby. In such a case, the chamber H will, upon rotation of the rotor F through 180°, come into registry with the orifice E. The capsule in the channel G thereabove will be gravity-urged downward into contact with the upper surface of the capsule in the chamber H. Since the length of the chamber H is related to the length of a capsule, the top surface of the capsule in the chamber H will be a very small distance below the lower surface of the partition C. Consequently, upon a further rotation of the rotor F through 180°, the capsule in the channel G, which had fallen on top of the capsule in the chamber H, will ride up the inclined upper surface 24 of the partition C without jamming and without being deformed.

By the construction of my dispenser, the capsule contents thereof may be preserved over a considerable period of time since air can gain access to the capsule contents only through a very devious and torturous route passing around the lower rotor section 33 and up through the orifice E.

Since capsules are today generally of quite similar dimensions, a single dispenser assembly will serve for many capsules. Should the necessity for dispensing capsules of a different diameter arise, the only parts which would have to be replaced would be the upper and lower rotor sections 35 and 38, the orifices D and E being made large enough to accommodate capsules of all diameters.

While I have described the capsule dispenser of my present invention in a preferred form, it will be apparent that many changes may be made therein without departing from the spirit of the invention defined in the following claims.

I claim:

1. A capsule dispenser comprising a capsule receptacle, said receptacle being provided with a partition near its bottom and a closure at its bottom, the partition and closure being separated a distance related to the length of a capsule, the partition having an orifice and the closure having an orifice, said orifices being out of registry, a rotor journaled in said receptacle and comprising an upper rotor section above the partition and a lower rotor section below the partition, said rotor sections being simultaneously rotatable, the upper rotor section being provided with at least one capsule-passing channel and the lower rotor section being provided with at least one capsule-receiving chamber, the said channel and chamber being in registry, said rotor being movable between a position when said channel and chamber align with the partition orifice to pass a capsule from the channel to the chamber and a position where the chamber aligns with the closure orifice to dis-

pense a capsule from the chamber through the closure.

2. A capsule dispenser comprising a capsule receptacle, said receptacle being provided with a partition near its bottom and a closure at its bottom, the partition and closure being separated a distance related to the length of a capsule, the partition having an orifice and the closure having an orifice, said orifices being out of registry, a rotor journaled in said receptacle and comprising an upper rotor section above the partition and a lower rotor section below the partition, said rotor sections being simultaneously rotatable, the upper rotor section being provided with a plurality of capsule-passing channels and the lower rotor section being provided with a plurality of capsule-receiving chambers, each channel being in registry with a chamber to form a set of passages, said rotor being movable between positions when first one and then another set of passages aligns with the partition orifice to pass a capsule from the channel to the chamber of the set and positions when first one and then another chamber aligns with the closure orifice to dispense capsules from that chamber through the closure.

3. A capsule dispenser comprising a cylindrical capsule receptacle, said receptacle being provided with a partition near its bottom and a closure at its bottom, the partition and closure being separated a distance related to the length of a capsule, the partition having an orifice and the closure having an orifice, said orifices being out of registry, a rotor journaled in said receptacle and comprising an upper rotor section above the partition and a lower rotor section below the partition, said rotor sections being simultaneously rotatable, the upper rotor section being provided with at least one capsule-passing channel and with a cylindrical portion so dimensioned as to be spaced from the interior of said cylindrical receptacle a distance closely equal to the cross-sectional diameter of a capsule, defining therebetween a capsule-feeding ring space, and with capsule-guiding means surmounting said cylindrical portion whereby capsules may be guided into said capsule-feeding ring space in a vertical position, and the lower rotor section being provided with at least one capsule-receiving chamber, the said channel and chamber being in registry, said rotor being movable between a position when said channel and chamber align with the partition orifice to pass a capsule from the channel to the chamber and a position where the chamber aligns with the closure orifice to dispense a capsule from the chamber through the closure.

4. A capsule dispenser comprising a cylindrical capsule receptacle, said receptacle being provided with a partition near its bottom and a closure at its bottom, the partition and closure being separated a distance related to the length of a capsule, the partition having an orifice and the closure having an orifice, said orifices being out of registry, a rotor journaled in said receptacle and comprising an upper rotor section above the partition and a lower rotor section below the partition, said rotor sections being simultaneously rotatable, the upper rotor section being provided with a plurality of capsule-passing channels and with a cylindrical portion so dimensioned as to be spaced from the interior of said cylindrical receptacle a distance closely equal to the cross-sectional diameter of a capsule, defining therebetween a capsule-feeding ring space, and with capsule-guiding means surmounting said cylindrical portion whereby capsules may be guided

into said capsule-feeding ring space in a vertical position, and the lower rotor section being provided with a plurality of capsule-receiving chambers, each channel being in registry with a chamber to form a set of passages, said rotor being movable between positions when first one and then another set of passages aligns with the partition orifice to pass a capsule from the channel to the chamber of the set and positions when first one and then another chamber aligns with the closure orifice to dispense capsules from that chamber through the closure.

5. A capsule dispenser comprising a cylindrical capsule receptacle, a rotor section journaled in said receptacle, the rotor section being provided with at least one capsule-passing channel and with a cylindrical portion thereabove so dimensioned as to be spaced from the interior of said cylindrical receptacle a distance closely equal to the cross-sectional diameter of a capsule defining therebetween a capsule-feeding ring space, said cylindrical portion carrying a groove in line with and communicating with the capsule-passing channel, the most outwardly radially disposed portions of said groove corresponding to the surface of said cylindrical portion and hence being spaced from the interior of said receptacle by the same distance as said cylindrical portion.

6. A capsule dispenser comprising a cylindrical capsule receptacle, a rotor section journaled in said receptacle, the rotor section being provided with a plurality of capsule-passing channels with a cylindrical portion thereabove so dimensioned as to be spaced from the interior of said receptacle a distance closely equal to the cross-sectional diameter of a capsule defining therebetween a capsule-feeding ring space, said cylindrical portion carrying grooves in line with and communicating with said capsule-passing channels, the most outwardly radially disposed portions of said grooves corresponding to the surface of said cylindrical portion and hence being spaced from the interior of said receptacle by the same distance as said cylindrical portion and capsule-guiding means surmounting the cylindrical section.

7. The capsule dispenser of claim 5, in which the cylindrical portion of said rotor section terminates at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which, taken from the axis of rotation of said rotor section, is intermediate between the maximum radius of said cylindrical portion and that of the interior of said receptacle, said surface contacting the lower surface of capsules in said capsule-feeding ring space, rotating said capsules therein, and guiding them into said capsule-passing channel.

8. The capsule dispenser of claim 6, in which the cylindrical portion of said rotor section terminates at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which, taken from the axis of rotation of said rotor section, is intermediate between the maximum radius of said cylindrical portion and that of the interior of said receptacle, said surface contacting the lower surface of capsules in said capsule-feeding ring space, rotating said capsules therein, and guiding them into said capsule-passing channel.

9. The capsule dispenser of claim 5, in which the cylindrical portion of said upper rotor section terminates at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which, taken from the axis of ro-

tation of said rotor section, is intermediate between the maximum radius of said cylindrical portion and that of the interior of said receptacle, said surface contacting the lower surface of capsules in said capsule-feeding ring space, rotating said capsules therein, and guiding them into said capsule-passing channel.

10. The capsule dispenser of claim 5, in which the cylindrical portion of said upper rotor section terminates at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which, taken from the axis of rotation of said rotor section, is greater than the radius of said cylindrical portion by an amount less than the radius of a capsule, said surface contacting the lower surface of capsules in said capsule-feeding ring space, rotating said capsules therein, and guiding them into said capsule-passing channel.

11. The capsule dispenser of claim 6, in which the cylindrical portion of said upper rotor section terminates at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which, taken from the axis of rotation of said rotor section, is greater than the radius of said cylindrical portion by an amount less than the radius of a capsule, said surface contacting the lower surface of capsules in said capsule-feeding ring space, rotating said capsules therein, and guiding them into said capsule-passing channels.

12. In the capsule dispenser of claim 1, means at the upper part of said receptacle for receiving and fastening therein the open end of a capsule container, at a position above said rotor whereby the capsule contents of said container may pass into said dispenser.

13. In the capsule dispenser of claim 1, means at the upper part of said receptacle for receiving and fastening therein the upper end of a capsule container, at a position above said rotor whereby the capsule contents of said container may pass into said dispenser, and a thin flat upstanding member fixed to the top of said rotor for agitating the capsule contents of said container.

14. In a capsule container, a two-piece rotor comprising an upper rotor section and a lower rotor section, said rotor sections being simultaneously rotatable, said upper rotor section being provided with at least one capsule-passing channel, with a cylindrical portion thereabove, and with capsule-guiding means surmounting said cylindrical portion, the lower rotor section being provided with at least one capsule-receiving chamber, and means connecting said two rotor sections so that said capsule-passing channel and said capsule-receiving chamber are in registry but are axially separated one from the other.

15. In a capsule container, a cylindrical receptacle, a rotor section journaled in the receptacle, said rotor section being provided with at least one capsule-passing channel and with a cylindrical portion having a groove in line with and communicating with said capsule-passing channel, said cylindrical portion terminating at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which, taken from the axis of rotation of said rotor section, is greater than the radius of said cylindrical portion by an amount less than the radius of a capsule.

16. A capsule dispenser comprising a cylindrical capsule receptacle, a rotor section journaled in said receptacle, the rotor section being provided with at least one capsule-passing channel

11

and with a cylindrical portion thereabove so dimensioned as to be spaced from the interior of said cylindrical receptacle a distance closely equal to the cross-sectional diameter of a capsule defining therebetween a capsule-feeding ring space, said cylindrical portion carrying a groove in line with and communicating with the capsule-passing channel, movable means for ejecting capsules from said dispenser, and means operatively connecting said ejecting means and said rotor section for rotating the latter each time a capsule is ejected.

17. A capsule dispenser comprising a cylindrical capsule receptacle, a rotor section journaled in said receptacle, the rotor section being provided with a plurality of capsule-passing channels with a cylindrical portion thereabove so dimensioned as to be spaced from the interior of said receptacle a distance closely equal to the cross-sectional diameter of a capsule defining therebetween a capsule-feeding ring space, said cylindrical portion carrying grooves in line with and communicating with said capsule-passing channels, and capsule-guiding means surmounting the cylindrical section, movable means for ejecting capsules from said dispenser, and means operatively connecting said ejecting means and said rotor section for rotating the latter each time a capsule is ejected.

18. The capsule dispenser of claim 16, in which the cylindrical portion of said rotor section terminates at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which taken from the axis of rotation of said rotor sections, is intermediate between the maximum radius of said cylindrical

12

portion and that of the interior of said receptacle, said surface contacting the lower surface of capsules in said capsule-feeding ring space, rotating said capsules therein, and guiding them into said capsule-passing channel.

19. The capsule dispenser of claim 17, in which the cylindrical portion of said rotor section terminates at its lower end in an outwardly and downwardly inclined annular surface the maximum radius of which taken from the axis of rotation of said rotor sections, is intermediate between the maximum radius of said cylindrical portion and that of the interior of said receptacle, said surface contacting the lower surface of capsules in said capsule-feeding ring space, rotating said capsules therein, and guiding them into said capsule-passing channel.

HERBERT N. MAIER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
198,706	Taylor	Dec. 25, 1877
1,031,589	Russell	July 2, 1912
1,067,211	Birchfield	July 8, 1913
1,173,308	Rockwell	Feb. 29, 1916
1,703,083	Abbott	Feb. 26, 1929
1,969,590	Turgill et al.	Aug. 7, 1934
2,100,216	Hughes	Nov. 23, 1937
2,176,232	Warren et al.	Oct. 17, 1939
2,227,167	Warren	Dec. 31, 1940
2,330,256	Ashton	Sept. 28, 1943
2,378,004	Duell	June 12, 1945