June 15, 1965 E. J. LACHANCE 3,189,221

DISPENSER

Filed July 16, 1963 2 Sheets-Sheet 1

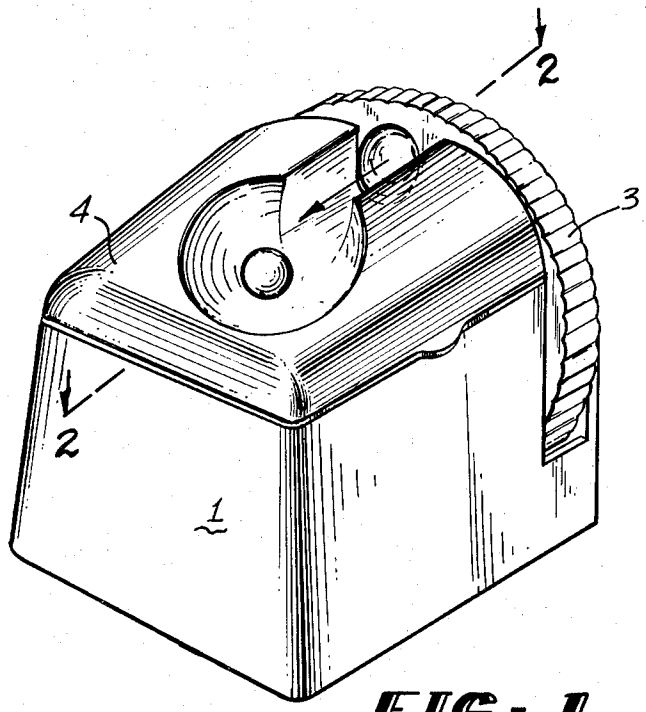


FIG - 1

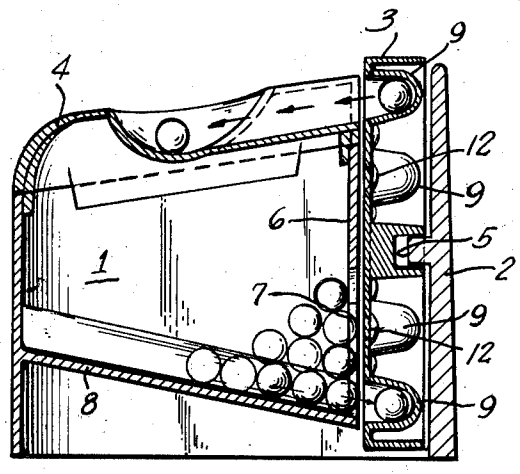


FIG - 2

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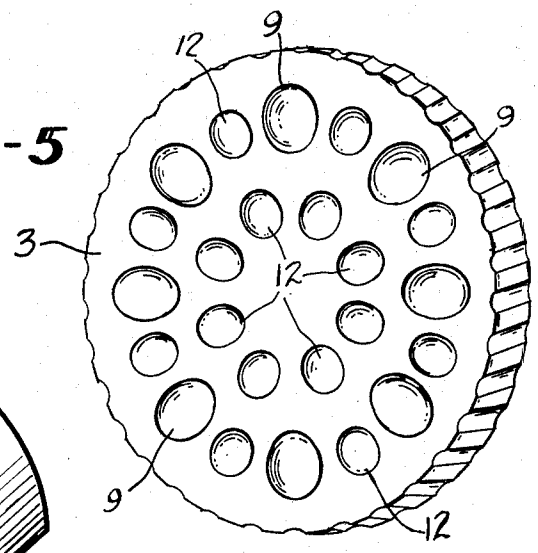
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June 15, 1965 E. J. LACHANCE 3,189,221

DISPENSER

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FIG-5



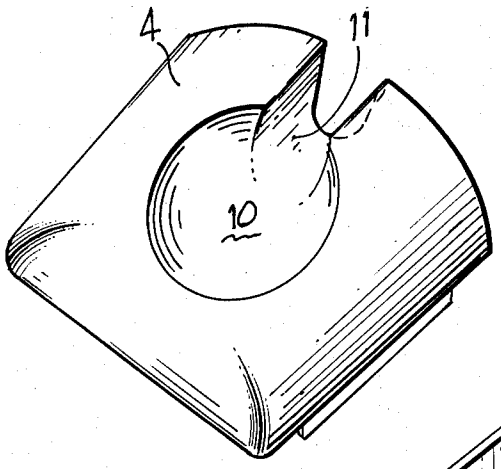


FIG-3

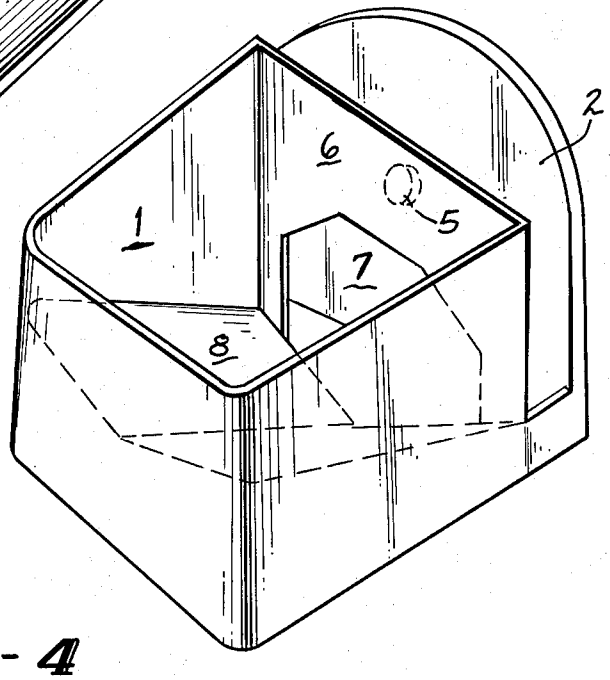


FIG-4

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3,189,221

DISPENSER

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Filed July 16, 1963, Ser. No. 295,418
7 Claims. (Cl. 221—192)

This invention relates to a dispenser, particularly one adapted to singly dispense small articles substantially spherical in shape.

Small spherical articles, the familiar spherical vitamin capsules for example, are frequently inconvenient to remove from the containers in which they are sold or dispensed and have a tendency to slip from the fingers in the process of removal. Moreover, when they are tipped from the conventional bottles, more than the desired amount usually falls out and the additional handling is undesirable from a sanitary point of view in addition to being inconvenient.

It is an object of this invention to provide a novel dispenser which readily and conveniently dispenses spherical objects.

It is a further object of this invention to provide a dispenser which dispenses spherical objects, particularly those small in size, one at a time without jamming and breaking.

It is still a further object of this invention to provide a dispenser for small spherical articles which is simple in construction, attractive in appearance and inexpensive to manufacture.

The features of the invention are shown in the accompanying drawings in which:

FIGURE 1 is a perspective view of the assembled dispenser.

FIGURE 2 is a vertical section along the line 2—2.

FIGURE 3 is a perspective view of the cover.

FIGURE 4 is a perspective view of the base.

FIGURE 5 is a perspective view of the dispensing wheel.

The dispenser of the invention consists of three principal parts, a base unit, a dispensing wheel and a cover.

As shown in FIGURES 1 through 5, the base unit comprises a hopper or receptacle 1 which is integrally joined to and spaced from the vertical back 2. The vertical back is provided with a centrally located hub 5 or similar means on which the dispensing wheel 3 is mounted and is free to rotate in a vertical plane. A cover 4 is provided for hopper 1.

The receptacle is formed by three outer sides of the base unit, a fourth interior side 6 and a bottom 8. The interior side 6 is spaced from the back 2 to provide, with the back, the opening within which wheel 3 is free to rotate. The interior side 6 is provided with an aperture 7 which extends from the bottom 8 upwards for a portion of the height of side 6 and the aperture 7 is large enough for the articles to pass through it to the wheel. The bottom 8 of the receptacle preferably slopes slightly downwardly in the direction of the dispensing wheel 3 to facilitate the gravity flow of articles to be dispensed toward the dispensing wheel 3. According to the preferred embodiment, the base also slopes inwardly from each side wall toward the center to form a trough (see FIGURE 4). The bottom 8 is also spaced upward a short distance from the lowermost edges of the base unit in order to allow the articles from the hopper to meet the openings in the wheel in a manner to be described later.

The dispensing wheel 3 is a substantially flat disk adapted to be mounted in the space between hopper interior side 6 and back 2 to rotate in a vertical plane on hub 5. Knurled edges may be provided on the circumference of the wheel to facilitate rotation. In the surface of the disk facing the hopper equally spaced and radially located near the outer edge, are pockets or cups 9 depressed within the wheel. These pockets are slightly larger in size and adapted to receive the articles to be dispensed from the hopper. The pockets 9 are substantially hemispherical in shape. In the preferred embodiment, the portion of each pocket toward the center of the wheel is slightly extended so that a somewhat oval shape is presented. Dispensing into the receiving cup 10 is thereby facilitated.

On occasion the generally spherical articles which are to be received in the pockets 9 of the dispensing wheel 3 may bridge or jam, because of prolonged immobility, and fail to feed. To avoid bridging and to insure feeding of the spherical articles into the pockets 9, it is desirable to provide agitating means, such as the dimples 12. Certain spherical articles are partially received in random fashion by one or more of the dimples 12 while the wheel 3 is at rest. Upon rotation of the wheel the aritcles are swept out of the dimples by the shearing effect created by the interior side 6 at the aperture 7. The shearing action provides sufficient turbulence to shake up the spherical articles and to insure feeding.

The cover 4 is provided with a central receiving cup 10 and channel 11 which connects the cup with the forward edge of the cover coincident with interior side 6 of the hopper so as to come into register with each pocket 9 as it comes into position for dispensing.

In operation, the articles to be dispensed, spherical vitamin capsules, for example, are stored in hopper 1. Due to the downwardly sloping base, the capsules tend under the influence of gravity to flow through the aperture 7 which is large enough to permit one or more of the capsules to pass through and rest upon the face of dispensing wheel 3. As each pocket 9 of the wheel comes into alignment with the aperture one capsule falls into the pocket.

The wheel is made to rotate by hand and, as each pocket comes into alignment with the aperture 7, especially when there is a trough structure as preferred, a capsule falls into a pocket. The capsule is carried upwardly by rotation of wheel 3 until the pocket in which it rests comes into alignment with the channel 11 in the cover 4. As the wheel is stopped at this point, the capsule is dispensed (rolls by gravity) into the channel and rolls into the central receiving cup 10 from which it may be conveniently picked up with the fingers. If the cup is slightly enlarged in the direction of the center of the wheel and the channel has a slight slope downward in the direction of the receiving cup, the dispensing of the capsule from the pocket of the wheel into the channel and then into the cup is facilitated. In addition by spacing the pockets adequately apart, the contents are maintained in a substantially enclosed space until brought up into position for dispensing. Six to ten openings provide a convenient number for small articles. The clearance between interior side and the front surface of the wheel as well as between the back and the back surface of the wheel is minimal, merely sufficient to permit the wheel to rotate freely.

This device provides a convenient means for storing a supply of small articles in a closed container and singly dispensing them in a convenient, sanitary manner. Although it is apparent that the dispenser may be constructed from various materials, its simplicity readily lends itself to manufacture from plastic by molding very inexpensively. The cover may be molded from a transparent plastic permitting the contents to be viewed for display purposes and also to continually show the state of supply.

The cover is preferably removable and held in place on the hopper by friction fit in conventional manner.

A recess in the rear center of the wheel to register with hub 5 may be used for mounting and rotation on hub 5, although other means may also be used if desired. In the former case, however, if the hub is molded to extend only partially into the recess provided for in the wheel, the wheel may be mounted on the hub by forcing the back away from the interior side 6 and sliding the wheel into place.

What is claimed is:

1. A dispenser including (1) a base unit, (2) a dispensing wheel and (3) a cover contining a cup, said base unit comprising a hopper having three sides, an apertured side and inclined bottom, and a vertical back spaced away from said side; said dispensing wheel being disposed and rotatably mounted in a vertical plane within the space between said vertical back and side of the hopper, the perimeter of said wheel extending beyond said fourth side of the hopper, a plurality of substantially hemispherical pockets radially located near the outer edge of the dispensing wheel in the surface facing said side, said pockets being adapted to receive individually by gravity feed the article to be dispensed from the hopper through the said aperture in said side when in the lowest position and adapted to dispense said article into said cup in the cover when in the highest position; an inclined channel connecting said cup with the forward edge of said cover, said channel registering with each pocket when in dispensing position and conveying by gravity the dispensed article from pocket to receiving cup.

2. A dispenser as in claim 1 having article agitating means on the dispensing wheel.

3. A dispenser as in claim 2 wherein the agitating means are dimples in the face of the dispensing wheel.

4. A dispenser as in claim 1 wherein the pockets are slightly inwardly extended to present a substantially oval opening.

5. A dispenser as in claim 4 having article agitating means on the dispensing wheel.

6. A dispenser including (1) a base unit, (2) a dispensing wheel and (3) a cover for a hopper in said base unit and a cup in said cover, said base unit comprising a hopper having three sides, a fourth apertured side and inclined bottom, said bottom being spaced upwardly from the lowermost edges of the base unit and inclined inwardly toward its central line and also toward said fourth side, a vertical back in said base unit spaced away from said fourth side of the hopper; said dispensing wheel being rotatably mounted on a hub between said back and fourth side, the perimeter of said wheel extending beyond said fourth side of the hopper, a plurality of substantially hemispherical pockets radially located near the outer edge of the dispensing wheel in the surface facing said fourth side, said pockets registering with said aperture and adapted to receive individually the article to be dispensed through said aperture when in the lowest position of the wheel, conveying and dispensing said article into said cup in said cover when in the highest position of the wheel; said cover for the hopper containing said cup and an inclined sloping channel connecting said cup with each pocket when in dispensing position, being adapted to convey the dispensed article by gravity from said pocket to said cup.

7. A dispenser comprising (1) a hopper, (2) a dispensing wheel and (3) a cover containing a cup, said hopper having four sides and an inclined bottom, said dispensing wheel being rotatably mounted in a vertical plane adjacent one side of said hopper and the perimeter of said wheel extending beyond the adjacent side, said side of the hopper adjacent the dispensing wheel having an aperture adjacent the bottom, a plurality of substantially hemispherical pockets radially located near the outer edge of the dispensing wheel in the surface facing said aperture, said pockets being adapted to receive individually by gravity feed the article to tbe dispensed through said aperture when in the lowest position and adapted to dispense said article into said cup in the cover when in the highest position, said cup in the cover being connected with the forward edge of said cover by an inclined channel which registers with each pocket when in dispensing position and conveys the dispensed article from pocket to cup.

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