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Courier Press, Leamington Spa, England.

Description

The invention relates to a medicament dispensing container.

Packages for solid medicaments in the past have appeared in a number of forms and in various degrees of complexity. The common container used by pharmacies for the dispensing of pills and capsules is an open-ended glass or plastic cylinder with a cap closure to retain the medicament when not being dispensed. The cap closure is sometimes a screw cap or alternatively may be a plastic snap-off cap or any of a variety of child resistant closures that require careful alignment of cap position in order to remove it from the container. Such caps rather than simplifying the opening and closing of containers usually make the process more difficult.

Certain of the prior art devices are especially designed to act as containers for the delivery of one unit of medication; e.g. a single capsule or pill at a time. Such devices are disclosed for example in U.S.A. Patent Specification No. 4,154,365 which shows a dispensing container for single capsules which is essentially a pair of axial, telescoped members in which the inner member carries a stack of pills or other articles to be dispensed and the inner member may be reciprocated within the outer member between a normal, non-dispensing position and the dispensing position. The tubular members have openings which register when the inner member is depressed relative to the outer member, to allow the lowermost article of the stack to pass through the registered dispensing openings by gravity. A drawback of this kind of dispenser is that the openings must be carefully registered and held in place until the article drops out. This requires careful manual manipulation and there is difficulty, for a patient having limited or painful finger mobility, in using such devices.

Austrian Specification No. 337,907 shows telescopically disposed inner and outer cylinders which can be moved axially relative to one another against the force of a spring, such movement allowing a closing jaws arrangement, at one end of the inner cylinder, to open to permit dispensing of pills from the inner cylinder and also causing a resilient stop to be inserted into the inner cylinder to limit the number of pills dispensed.

According to the invention there is provided a medicament storing and dispensing device for storing small objects and dispensing them one at a time comprising two receptacles one telescoped within the other and a resilient means acting as a gate between a storing compartment and a delivery compartment characterised in that:

an outer one of the receptacles contains the objects to be dispensed and has an inner structure dividing the outer receptacle into an upper compartment and a lower compartment and a connecting delivery tube having a bevelled end ramp;

the other, inner receptacle is slidably enclosed by the lower compartment of the outer receptacle and has an inner structure for receiving and dispensing capsules by reciprocal motion within the outer receptacle;

the resilient means exerts a force tending to separate the outer and inner receptacles and entry of the small objects into the inner receptacle is controlled by reciprocal motion of the inner receptacle within the outer receptacle.

Such a device can readily be operated by an individual with limited finger mobility the lower receptacle being simply pressed into the upper receptacle to allow delivery of a single pill or capsule into the palm of the user's hand.

In one embodiment of the invention, particularly suitable for use with capsules, the outer receptacle is essentially a cylindrical storage container for capsules having one end preferably permanently closed. Alternately the outer receptacle can be closed with a removable cap or may be fitted with a locking closure which may be joined directly to the neck of a standard capsule bottle thus providing a permanently attached dispensing device for said bottle. The outer receptacle is divided into the upper storage compartment and the lower delivery compartment by a funnel-shaped capsule delivery guide integrally joined to the inner walls of the outer receptacle and terminating at its narrow end in the delivery tube, the end of which tube is provided with inwardly bevelled walls forming a delivery tube ramp at the open terminal end acting as a delivery port.

The outer receptacle is preferably further provided with a circular distributor plate or disc having a central opening preferably in the shape of a sexafoliate circle or a sexfoil, the distributor plate being closely fitted at its outer circumference to the inner walls of the outer receptacle and positioned immediately adjacent to the funnel-shaped capsule delivery guide.

A inner receptacle of smaller diameter is telescoped inside the outer receptacle allowing limited reciprocating motion within the outer receptacle between a rest position and an operating position. The inner walls of the inner receptacle are fitted with a plurality of arcuate members acting as an escapement alternately allowing or preventing the passage of a small object from the upper storage compartment to the lower delivery compartment. The arcuate members can have both concave and convex surfaces and be resiliently mounted on flexible rodlike projecting members integrally attached to the inner walls of the inner receptacle and positioned immediately below the capsule delivery port. The arcuate members are closed together at their upper extremities blocking the capsule delivery port in the operating position and are closed at lower extremities and form a claw-like cradle in the rest position. The

resiliently mounted arcuate members are positioned against the capsule delivery tube ramp in such a way that the resiliently mounted arcuate members exert a force tending to force the inner receptacle out of the outer receptacle. The inner wall of the outer receptacle and the outer wall of the inner receptacle are provided with the opposing shoulders extending circumferentially around the cylinders to limit the reciprocal motion of the inner receptacle and prevent the escape of the inner receptacle.

In an alternate embodiment of the invention especially suitable for use with tablets or similar disc shaped objects, the structure of the device is modified to accommodate the disc shape of the tablets. In this alternate embodiment the outer receptacle is fitted at the lower end of the funnel-shaped delivery guide with a tablet delivery tube which is essentially rectangular in cross section to align the tablets in edge to edge order. The delivery end of the tube is provided with outwardly bevelled walls forming a gate opening and tablet delivery means. The outer receptacle and funnel-shaped delivery guide are further provided with a fixed vertical dividing wall of diamond shaped cross section extending through part of the vertical dimension of the outer receptacle. This divider wall partially aligns the tablets for edge to edge entry into the tablet delivery tube. In this alternate embodiment the inner receptacle is provided with resiliently mounted finger or bar elements positioned to act as a gate to prevent delivery of a tablet when in the rest or non-operating position and to allow delivery of a single tablet when in the operating position. In this alternate embodiment the inner receptacle is also telescoped inside the lower delivery compartment of the outer receptacle allowing limited reciprocating motion within the outer receptacle between a rest position and an operating position. The inner walls of the inner receptacle are fitted with a framework structure bearing resiliently mounted bar members. The bar members are mounted at their lower extremities so that the tablet delivery tube is partially blocked by the upper extremities of the bar members when in the rest position. The upper extremities of the bar members are slightly enlarged in cross section relative to the lower and middle parts of the bar members. The upper extremities of the bar members are positioned against the outwardly bevelled tablet delivery tube ramp so that the upper extremities are spread apart, allowing a tablet to escape when the inner receptacle is pressed against a surface, such as the palm of the user's hand. Release of pressure allows the inner receptacle to return to the rest position blocking the tablet delivery tube and preventing escape of a tablet in the rest position.

In order to operate the device it is only necessary to press the projecting inner cylinder into the outer cylinder until the capsule drops out of the device. It should be noted that pressing the inner cylinder into the outer cylinder forces the arcuate members against the inclined capsule delivery tube ramp preventing the escape of a second capsule from the capsule delivery tube by formation of a gate across the capsule delivery tube port. It should further be noted that when the device is allowed to come to the operating position the resiliently mounted arcuate members exert a force tending to force the inner cylinder out of the outer cylinder. At the rest position, the ends of arcuate members adjacent the delivery tube ramp return to the open position allowing a capsule to enter the claw-like cradle formed by the closed lower ends of the arcuate members in the rest position.

In an alternate embodiment of the invention the length of said arcuate members may be varied so that a measured number of small objects can be delivered at one time. It should be noted that the number of small objects which may be delivered at one time is directly dependent on the length of the arcuate members. In the further alternate embodiment for use with disc-shaped tablets, the device delivers tablets by pressing the inner receptacle into the outer receptacle until the tablet drops through the tablet delivery tube. When in the rest position, the tablet exit port is blocked by the upper extremities of the resiliently mounted bar members. When the inner receptacle is pressed into the upper outer receptacle, the resiliently mounted bar members are spread apart allowing a tablet to exit and said bar members exert a force against the outwardly bevelled ramp tending to force the inner receptacle out of the outer receptacle. At the rest position the upper extremities of the resiliently mounted bar members partially block the tablet delivery port preventing further tablet escape.

A special feature of the invention is its simplicity of operation for individuals affected by disease which limits finger mobility. Thus such an individual need only invert the dispensing device and press lightly against the palm of his hand thus dropping a capsule into the hand.

It should further be noted that the container can be made of any suitable material but preferably of polyethylene, polypropylene, polystyrene, polyvinyl chloride or nylon. Preferably high density polyethylene is used for the body of the device, nylon is used for the construction of the resilient hinge member carrying the arcuate members, and polypropylene for the cap.

As previously indicated, the dispensing device may be closed at the storage end by any conventional closure device. Non-removable closures are preferred since the container is preferably filled by the manufacturer and discarded after use. The exit end of the device may also be fitted with a closure device such as a conventional screw cap, snap or a child-resistant closure.

The invention is diagrammatically illustrated by way of example in the accompanying drawings, in which:—

Figure 1 is a front view of a medicament dispensing container according to the invention in an inverted position for storage;

Figure 2 is a view of the container of Figure 1 as it would be used, that is to say the container is in an operating position with an inner cylinder pressed against the palm of a user's hand thereby releasing a capsule into the palm;

Figure 3 is a view of the container as it would be used, that is to say after a capsule has been delivered and the inner cylinder has returned to a rest position;

Figure 4 is a longitudinal view of the container with a portion of the outer casing cut away to expose the operational inner section of the container;

Figure 5 is an enlarged longitudinal section of a portion of the container in the rest position in which only the section of the container having moving parts is shown, in which a capsule is shown being held in a claw-like cradle formed by the arcuate members in the rest position;

Figure 6 is an enlarged longitudinal section of a portion of the container in the operating position in which only the section of the container having moving parts is shown, in which the two cylinders are in registry, forcing the arcuate members against the capsule delivery tube ramp forming a gate blocking a capsule from leaving the delivery tube while delivering a single capsule to the exit port;

Figure 7 is a section of the storage part of the container at the distributor plate or disc showing the sexfoil or sexafoliate circle cut out in the disc to align the capsules in their entry to the funnel-shaped capsule delivery guide;

Figure 8 is a view of a cross-section through the entire container showing the lateral displacement of the four arcuate members and the two telescoped cylinders and the outer casing;

Figure 9 is an enlarged longitudinal section of an alternate tablet device in which only the section of the container having moving parts is shown in which a tablet is blocked from leaving the tablet delivery tube in the rest position;

Figure 10 is an enlarged longitudinal section of the alternate tablet device shown in Figure 9 but rotated 90° around the longitudinal axis; and

Figure 11 is an enlarged longitudinal section of the alternate tablet device of Figure 9 shown in the operating position.

The dispensing comprises two main elements, an outer cylinder 1 and an inner cylinder 2 which is telescoped inside the outer cylinder 1.

Referring to Figures 4 to 8, the outer cylinder 1, which may have one end permanently closed or may be closed by means of a removable top 12, includes a funnel-shaped capsule delivery guide 3 integrally joined at its widest circumference to the inner surface of the outer cylinder 1. Preferably a distributor disc 6 is positioned immediately above the funnel-shaped guide 3 to align the objects to be dispensed before entry into the funnel-shaped guide and thereby prevent jamming in the guide. The funnel-shaped guide 3 is joined at its narrow end to a relatively thick walled capsule delivery tube 4 terminating in an opening provided by inwardly bevelled walls forming a capsule delivery tube ramp 5. The funnel-shaped guide 3 is preferably located approximately midway between the extreme ends of the outer cylinder 1.

The inner cylinder 2 is telescoped within the outer cylinder 1 at the end at which the delivery tube 4 is provided at the narrow end of the funnel-shaped capsule delivery guide 3. The inner cylinder 2 is reciprocally slidable within the outer cylinder 1 between two positions. In a first, operating position shown in Figure 6, the ends of the inner cylinder 2 and the outer cylinder 1 are flush whereas in a second, rest position shown in Figure 5, the inner cylinder 2 protrudes a small distance from the outer cylinder 1. The inner walls of the inner cylinder are provided with a plurality, preferably four, of rod-like hinge supports 9 projecting radially inwardly and terminating in flat resilient hinge members 8 carrying arcuate members 7 forming a gate positioned in alignment with the longitudinal axis of the cylinder with concave surfaces of said arcuate members faced toward the longitudinal axis and convex surfaces faced toward the cylinder walls. The arcuate members 7 are positioned immediately below the capsule delivery tube 4 so that one end of each arcuate member 7 is in slidable contact with the bottom edge of the capsule delivery tube ramp 5.

It can be seen from Figures 5 and 6 that in the rest position of Figure 5 the lower ends of the arcuate members 7 are brought together forming a claw-like cradle suitable for holding one of the objects to be dispensed. The inner cylinder 2 in this position is prevented from sliding further out of the outer cylinder 1 by co-operating ridges or shoulders 10, 11 located respectively circumferentially on the outer wall of the inner cylinder 2 and circumferentially on the inner wall of the outer cylinder 1. In the operating position of Figure 6, the inner cylinder 2 is flush with the outer cylinder 1 exerting a vertical force transmitted through the hinge support members 9, and the resilient hinge members 8 and holding the upper ends of the arcuate members 7 in closed relationship acting as a gate preventing the exit of the objects from the capsule delivery tube 4.

To align and distribute the capsules as they enter the funnel-shaped capsule delivery guide 3, the removable disc 6 has a sexfoil opening 13, Figure 7, the disc 6 being closely fitted to the inner wall of the upper compartment of the outer cylinder 1 and placed at the circumferential junction 14 of the funnel-shaped guide 3 and the inner wall of the outer cylinder.

In the embodiment for use with tablets or disc-shaped objects shown in Figures 9—11, an inner cylinder 22 is telescoped within an outer cylinder 20 enclosing a tablet delivery tube 24 at the narrow end of a funnel-shaped tablet delivery guide 23. The inner, lower cylinder 22 is reciprocally slidable between a rest position illustrated in Figures 9 and 10 and an operating position illustrated in Figure 11. In the rest position the tablet is prevented from dropping out of the tablet delivery tube 24 by enlarged upper ends 26 of vertically mounted bar members 27. In the operating position of Figure 11 the inner, lower cylinder 22 and a projecting inner framework structure 28 is pressed vertically into the outer cylinder 20 forcing the enlarged heads 26 of the vertical bar members 27 against a capsule tube delivery ramp 25 thereby spreading the upper ends 26 of the bar members 27 apart and allowing a tablet to drop from the tablet delivery tube 24. Release of pressure on an inner cylinder framework 29 allows the inner cylinder 22 to return to the rest position. The inner cylinder 22 is provided with external upper 33 and lower 30 circumferential rings. The inner cylinder 22 is thus prevented from sliding completely free of the upper cylinder and is held in position to prevent tablet escape by contact of the lower circumferential ring 30 with an internal shoulder 31 acting as a stop at the lower end of the outer cylinder 20.

A partial vertical divider wall 21 of diamond shaped cross section bisects an upper storage compartment 34 of the outer cylinder 20 and extends partially downward into the funnel-shaped delivery guide 23. The divider wall 21 serves to separate and align the tablets dropping into the delivery guide 23 for edge to edge entry into the delivery tube 24 thus helping to provide smooth operation of the device.

Claims

1. A medicament storing and dispensing device for storing small objects and dispensing them one at a time comprising two receptacles one telescoped within the other and a resilient means acting as a gate between a storing compartment and a delivery compartment characterised in that:

an outer one (1; 20) of the receptacles contains the objects to be dispensed and has an inner structure (3; 23) dividing the outer receptacle (1; 20) into an upper compartment and a lower compartment and a connecting delivery tube (4; 24) having a bevelled end ramp (5; 25);

the other, inner receptacle (2; 22) is slidably enclosed by the lower compartment of the outer receptacle (1; 20) and has an inner structure (9, 29) for receiving and dispensing capsules by reciprocal motion within the outer receptacle (1; 20);

the resilient means (7, 8; 27, 28) exerts a force tending to separate the outer and inner receptacles and entry of the small objects into the inner receptacle (2; 22) is controlled by reciprocal motion of the inner receptacle (2; 22) within the outer receptacle (1; 20).

2. A medicament storing and dispensing device according to claim 1, for dispensing single small capsule-shaped objects, characterised in that the resilient means comprises:

a plurality of resilient members (8) attached at one end to the inner wall of the inner receptacle (2) and exerting a force tending to separate outer (1) and inner (2) receptacles; and

a plurality of arcuate members (7) having convex and concave faces attached on the convex face to the resilient members (8), the arcuate members being positioned to slide against the inwardly bevelled end ramp (5) with reciprocating motion of the inner receptacle (2) and the inner (2) and outer (1) receptacles being provided in their opposing faces with integrally attached circumferential rings or shoulders (10, 11) which prevent the escape of the inner receptacle (2) from the outer receptacle.

3. A medicament storing and dispensing device according to claim 2, characterised by a distributing and aligning disc (6) having an opening (13) to align the capsule-shaped objects, the disc (6) being peripherally fitted to the inner wall of the upper storage compartment.

4. A medicament storing and dispensing device according to claim 2 or claim 3, characterised in that the inner dividing structure of the outer receptacle (1) comprises a funnel-shaped guide (3) integrally attached to the inner walls of the container at the circumference (14) of the funnel rim and terminating at its narrow end in the delivery tube (4).

5. A medicament storing and dispensing device according to any one of claims 2 to 4, characterised in that the arcuate members (7) have facing concave surfaces forming a ribbed cagelike holder and are positioned to maintain sliding contact at one end with the bevelled end ramp (5) of the delivery tube (4) whereby the arcuate members (7) are brought alternately together at the sliding contact ends to form a gate preventing exit of the small objects or at the opposite ends provide a ribbed cage like holder open to the delivery tube (4) to permit entry of one of the small objects from the tube (4).

6. A medicament storing and dispensing device according to claim 3 or claim 4 or claim 5 when appendent to claim 3, characterised in that the opening (13) in the distributing and aligning disc is in the shape of a sexafoliate circle or sexfoil.

7. A medicament storing and dispensing device according to any one of claims 1 to 6, characterised in that the upper compartment of the outer receptacle (1) is provided with a locking closure for attachment to the neck of a standard capsule bottle.

8. A medicament storing and dispensing device according to claim 1, for dispensing tablets, characterised in that the resilient means comprises bar-shaped members (27) resiliently mounted on the inner structure (23) of the inner receptacle and vertically positioned to act as a gate controlling the release of the tablets from the delivery tube (24).

9. A medicament storing and dispensing device according to claim 8, characterised in that the bar shaped members (27) have enlarged upper ends (26) and are positioned to slide against the outwardly bevelled end ramp (25) whereby the bar members (27) are spread apart when the inner receptacle (22) is pressed into the outer receptacle (20) and return to a parallel position partially blocking the tablet delivery tube (24) when pressure is released.

10. A medicament storing and dispensing device according to claim 9, characterised in that the tablet delivery tube (24) is of rectangular cross section whereby the tablets are restricted to an edge to edge alignment.

Patentansprüche

1. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung zur Aufbewahrung kleiner Gegenstände und Abgabe derselben jedes für sich, umfassend zwei Behälter, von denen einer in dem anderen teleskopartig geführt ist, und eine elastiche Einrichtung, die als Sperre zwischen einem Aufbewahrungsabteil und einem Freigabeabteil wirkt, dadurch gekennzeichnet,

daß ein äußerer (1; 20) der Behälter die abzugebenden Gegenstände enthält, und einen Innenaufbau (3; 23), der den äußeren Behälter (1; 20) in ein oberes Abteil und ein unteres Abteil teilt, und ein verbindendes Freigaberohr (4; 24) mit einer abgeschrägten Endschrägfläche (5; 25) aufweist;

der andere, innere Behälter (2; 22) gleitend vom unteren Abteil des äußeren Behälters (1; 20) umschlossen wird, und einen Innenaufbau (9; 29) zur Aufnahme und Abgabe von Kapseln durch hin- und hergehende Bewegung innerhalb des äußeren Behälters (1; 20) hat;

die elastische Einrichtung (7, 8; 27, 28) eine Kraft mit der Tendenz ausübt, den äußeren und den inneren Behälter zum trennen, und das Eintreten der kleinen Gegenstände in den inneren Behälter (2; 22) durch hin- und hergehende Bewegung des inneren Behälters (2; 22) innerhalb des äußeren Behälters (1; 20) geregelt wird.

2. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach Anspruch 1, zur Abgabe einzelner kleiner, kapselförmiger Gegenstände, dadurch gekennzeichnet, daß die elastische Einrichtung eine Mehrzahl elastischer Glieder (8), die mit einem Ende an der Innenwand des inneren Behälters (2) befestigt sind und eine Kraft in Richtung einer Trennung von äußerm (1) und innerem (2) Behälter ausüben;

(und eine Mehrzahl von gekrümmten Gliedern (7) mit konvexen und konkaven Flächen, welche Glieder an der konvexen Fläche der elastischen Glieder (8) befestigt sind, wobei die gekrümmten Glieder so angeordnet sind, daß sie gegen die nach innen abgeschrägte Endschrägfläche (5) bei hin- und hergehender Bewegung des inneren Behälters (2) gleiten, und der innere (2) und äußere (1) Behälter an ihren gegenüberliegenden Flächen mit einstückig angebrachten Umfangringen oder Schultern (10, 11) ausgestattet sind, welche den Austritt des inneren Behälters (2) aus dem äußeren Behälter verhindern, umfaßt.

3. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach Anspruch 2, gekennzeichnet durch eine Verteilungs- und Ausrichtungsscheibe (6) mit einer Öffnung (13) zur Ausrichtung der kapselförmigen Gegenstände, wobei die Scheibe (6) im Randbereich mit der Innenwand des oberen Aufbewahrungsabteils verbunden ist.

4. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach Anspruch 2 oder 3, dadurch gekennzeichnet, daß der teilende Innenaufbau des äußeren Behälters (1) eine trichterförmige Führung (3) umfaßt, die einstückig an den Innenwänden des Behälters im Umfangsbereich (14) des Trichterrandes befestigt ist und mit ihrem engeren Ende in dem Freigaberohr (4) endigt.

5. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach einem der Ansprüche 2 bis 4, dadurch gekennzeichnet, daß die gekrümmten Glieder (7) konkave Frontflächen aufweisen, die einen gerippten, käfigartigen Halter bilden und so angeordnet sind, daß Gleitkontakt an einem Ende mit der abgeschrägten Endschrägfläche (5) des freigaberohres (4) aufrecht erhalten wird, wobei die gekrümmten Glieder (7) abwechselnd an den Gleitkontaktenden zusammengebracht werden, um eine Sperre zu bilden, welche den Austritt der kleinen Gegenstände verhindert, oder an den gegenüberliegenden Enden einen zum Freigaberohr (4) geöffneten, gerippten, käfigartigen Halter bilden, um das Eintreten eines der kleinen Gegenstände aus dem Rohr (4) zu ermöglichen.

6. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach Anspruch 3 oder Anspruch 4 oder Anspruch 5, falls von Anspruch 3 abhängig, dadurch gekennzeichnet, daß die Öffnung (13) in der Verteilungs- und Ausrichtungsscheibe die Form eines sechsblätterigen Kreises oder Sechsblattes aufweist.

7. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach einem der Ansprüche 1 bis 6, dadurch gekennzeichnet, daß das obere Abteil des äußeren Behälters (1) mit einer Anschlußabdeckung zur Anbringung an den Hals einer Standardkapselflasche ausgestattet ist.

8. Eine Medikamentenaufbewahrungs- und

-abgabevorrichtung nach Anspruch 1, zur Abgabe von Tabletten, dadurch gekennzeichnet, daß die elastische Einrichtung stegförmige Glieder (27) umfaßt, die elastisch am Innenaufbau (23) des inneren Behälters montiert und vertikal angeordnet sind, um als eine Sperre die Freisetzung der Tabletten aus dem Freigaberohr (24) zu regeln.

9. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach Anspruch 8, dadurch gekennzeichnet, daß die stegförmigen Glieder (27) vergrößerte obere Enden (26) aufweisen und so angeordnet sind, daß sie gegen die auswärts abgeschrägte Endschrägfläche (25) gleiten, wobei die Stegglieder (27) nach außen gespreizt werden, wenn der innere Behälter (22) in den äußeren Behälter (20) gepreßt wird, und in eine das Tablettenfreigaberohr (24) teilweise blockierende Parallelstellung zurückkehren, wenn der Druck aufgehoben wird.

10. Eine Medikamentenaufbewahrungs- und -abgabevorrichtung nach Anspruch 9, dadurch gekennzeichnet, daß das Tablettenfreigaberohr (24) rechteckigen Querschnitt hat, wobei die Tabletten in eine Rand-an-Rand-Ausrichtung gezwungen werden.

Revendications

1. Dispositif de stockage et distribution de médicaments pour stocker des petits objets et les distribuer un par un, se composant de deux réceptacles, l'un monté de manière télescopique dans l'autre, et de moyens élastiques agissant comme une porte entre un compartiment de stockage et un compartiment de distribution, caractérisé en ce que:

le réceptacle extérieur (1, 20) contient les objets à distribuer et comporte une structure intérieure (3, 23) divisant le réceptacle extérieur en un compartiment supérieur et un compartiment inférieur, avec, en liaison, un tube de distribution (4, 24) comportant une rampe d'extrémité inclinée (5, 25);

le réceptacle intérieur (2, 22) est contenu de manière coulissante dans le compartiment inférieur du réceptacle extérieur (1, 20) et comporte une structure intérieure (9, 29) pour recevoir et distribuer des gélules, par un mouvement alternatif à l'intérieur du réceptacle extérieur (1, 20);

les moyens élastiques (7, 8, 27, 28) exercent une force tendant à séparer les réceptacles extérieur et intérieur, et l'entrée des petits objets dans le réceptacle intérieur (2, 22) est contrôlée par le mouvement alternatif du réceptacle intérieur (2, 22) dans le réceptacle extérieur (1, 20).

2. Dispositif de stockage et distribution de medicaments selon la revendication 1, pour distribuer un par un des petits objets en forme de gélule, caractérisé en ce que les moyens élastiques se composent:

d'une pluralité d'éléments élastiques (8) fixés par une extrémité sur la paroi intérieure du réceptacle intérieur (2), et exerçant une force tendant à séparer les réceptacles extérieur (1) et intérieur (2); et

d'une pluralité d'éléments en forme d'arc (7) présentant des faces convexes et concaves, fixés sur la face convexe des éléments élastiques (8), les éléments en forme d'arc étant placés pour coulisser sur la rampe d'extrémité inclinée vers l'intérieur (5) avec le mouvement alternatif du réceptacle intérieur (2), et les réceptacles intérieur (2) et extérieur (1) étant pourvus, sur leurs faces en opposition, de nervures ou épaulements circulaires (10, 11) qui évitent que le réceptacle intérieur (2) s'échappe du réceptacle extérieur.

3. Dispositif de stockage et distribution de médicaments selon la revendication 2, caractérisé par un disque de distribution et d'alignement (6) comportant une ouverture (13) pour aligner les objets en forme de gélule, le disque (6) ajusté par son pourtour avec la paroi intérieure du compartiment de stockage supérieur.

4. Dispositif de stockage et distribution de médicaments selon la revendication 2 ou la revendication 3, caractérisé en ce que la structure de division intérieure du réceptacle extérieur (1) se compose d'un guide en forme d'entonnoir (3) formé intégralement avec les parois intérieures du réceptacle sur le pourtour (14) du bord de l'entonnoir, et se terminant par le tube de distribution (4) à son extrémité étroite.

5. Dispositif de stockage et distribution de médicaments selon l'une des revendications 2 à 4, caractérisé en ce que les éléments en forme d'arc (7) ont des surfaces en regard l'une de l'autre concaves, formant un support en forme de cage grillagée, et sont placés pour maintenir un contact coulissant entre une de leurs extrémités et la rampe d'extrémité incliné (5) du tube de distribution (4), de sorte que les éléments en forme d'arc (7) sont alternativement ramenés l'un vers l'autre à leurs extrémités de contact coulissant pour former une porte empêchant la sortie des petits objets, ou forment à leurs extrémités opposées un support en forme de cage grillagée ouvert vers le tube de distribution (4) pour permettre l'entrée de l'un des petits objects en provenance du tube (4).

6. Dispositif de stockage et distribution de médicaments selon la revendication 3, ou 4, ou 5 lorsque cette dernière est dépendante de la revendication 3, caractérisé en ce que l'ouverture (13) dans le disque de distribution et d'alignement est de forme sexdigitée.

7. Dispositif de stockage et distribution de médicaments selon l'une des revendications 1 à 6, caractérisé en ce que le compartiment supérieur du réceptacle extérieur (1) est pourvu d'une fermeture de blocage pour fixation sur le col d'un flacon à gélules classique.

8. Dispositif de stockage et distribution de médicaments selon la revendication 1, pour distribution de comprimés, caractérisé en ce

que les moyens élastiques se composent d'éléments en forme de barre (27) montés élastiquement sur la structure intérieure (23) du réceptacle intérieur, et placés verticalement pour agir comme une porte contrôlant la libération des comprimés depuis le tube de distribution (24).

9. Dispositif de stockage et distribution de médicaments selon la revendication 8, caractérisé en ce que les éléments en forme de barre (27) ont des extrémités supérieures élargies (26), et sont placés pour glisser contre la rampe d'extrémité inclinée vers l'extérieur (25), de sorte que les éléments en forme de barre sont écartés l'un de l'autre lorsque le réceptacle intérieur (22) est pressé dans le réceptacle extérieur (20), et reviennent en position parallèle en bloquant partiellement le tube de distribution de comprimés (24), lorsque la pression est supprimée.

10. Dispositif de stockage et distribution de médicaments selon la revendication 9, caractérisé en ce que le tube de distribution (24) est de section transversale rectangulaire de sorte que les comprimés sont limités à un alignement bord à bord.

Fig. 1.

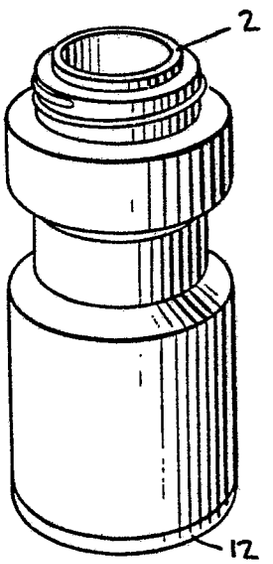


Fig. 8.

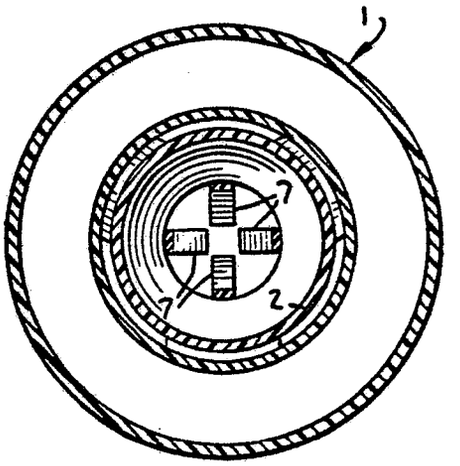


Fig. 3.

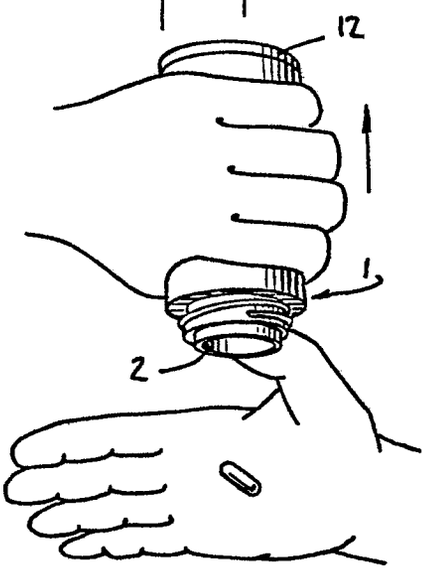


Fig. 2.

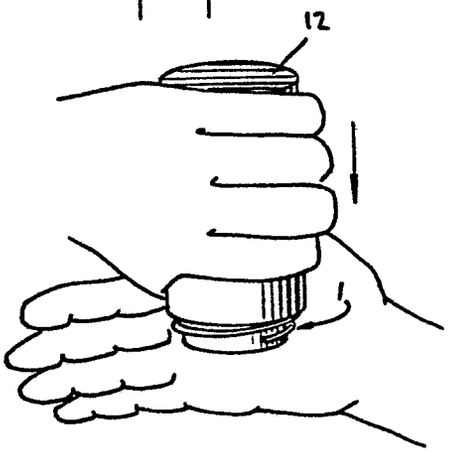
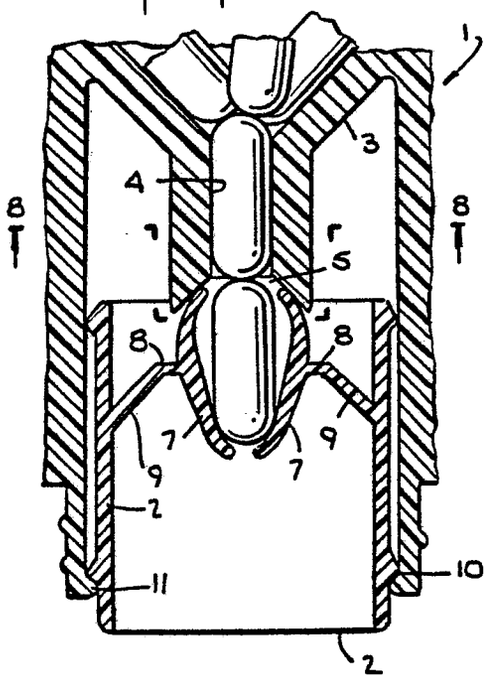


Fig.5.



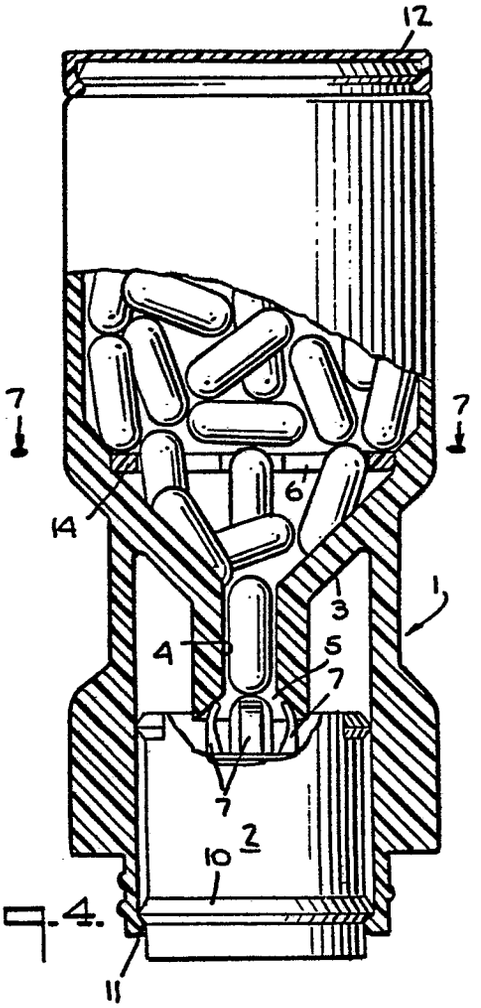


Fig.4.

Fig.6.

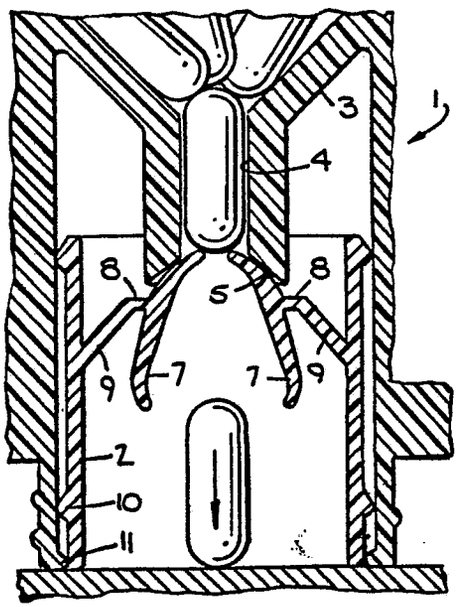


Fig.7.

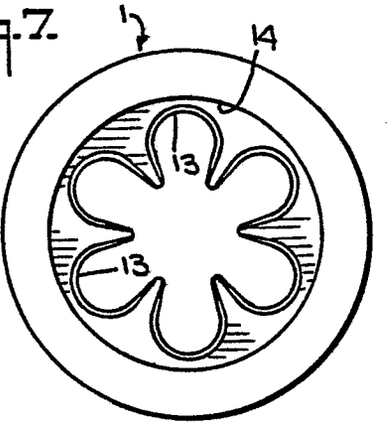


Fig.9.

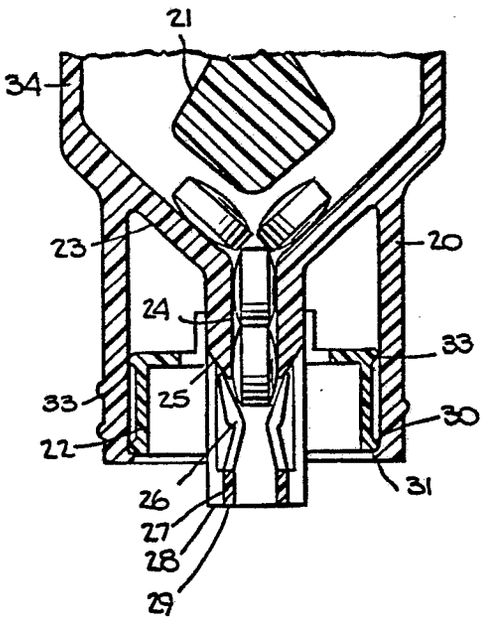


Fig.10.

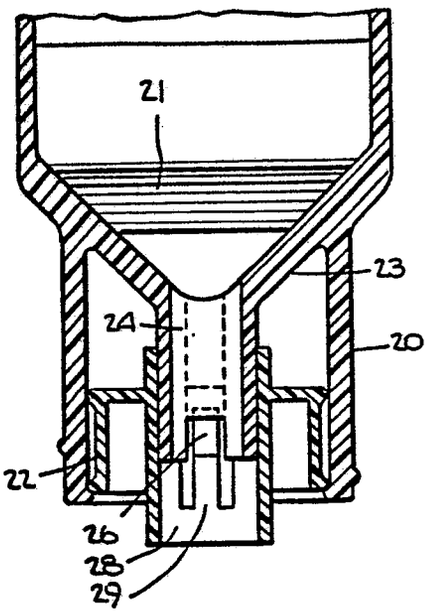


Fig.11.

