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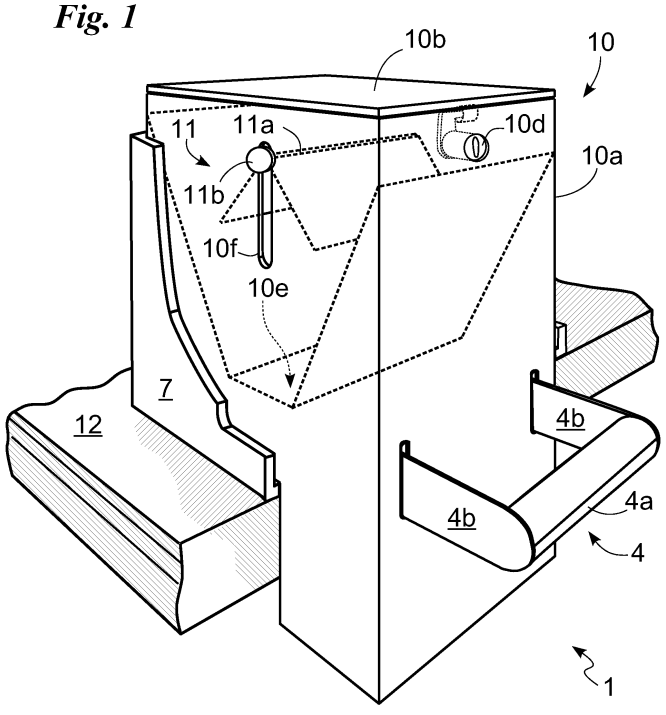
(54) **A dispenser for loose products**

(57) A dispenser (1) for loose products suitable to allow the withdrawal of loose products (1 a) from a vessel (10) and comprising a base structure (2) that can be secured to said vessel (10), which defines an inner volume and which has an inlet section (2a) suitable to allow the passage of the loose products (1a) from the container to the inner volume and an outlet section (2b) suitable to allow the exit of said loose products (1 a): bread, dried fruit, sweets, liquorice, from the inner volume; a distribution unit (3) housed inside the base structure (2) and suitable to alternately enable filling and emptying of at least part of the inner volume; and actuating means (4) suitable to move the distribution unit (3) in a substantially rectilinear direction in relation to the base structure (2), thus defining a loading configuration of the dispenser (1) in which the distribution unit (3) allows the entry of the loose products (1 a) into the inner volume through the inlet section (2a) and an unloading configuration of said dispenser (1) in which the distribution unit (3) allows the exit of the loose products (1 a) from the inner volume through the outlet section (2b).

Fig. 1



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Description

[0001] The present invention relates to a dispenser for loose products.

[0002] In detail, it is suitable to permit the withdrawal from a container of loosely stocked products, that is to say products arranged therein in a random manner and usually without the use of any wrapping/containers to enclose a predefined quantity of said products. The dispenser can therefore be used to dispense solid products such as bread, sweets, cereals, dried fruit (peanuts, pistachios, etc.) or other small items stored in bulk and loosely inside a vessel.

[0003] As is known, currently such dispensers are composed of a container inside which loose products are placed, that is to say products not divided by specific wrappings and therefore stored in bulk without any particular order or arrangement, and of a cover suitable to close said container.

[0004] In order to permit the rapid withdrawal of at least some of the items contained in the dispenser, the cover is appropriately hinged to the container and easy to move in relation thereto.

[0005] To withdraw products, the user raises the cover and takes out the desired quantity with one hand, placing the products in a specific vessel held in the other hand.

[0006] The prior method described above has several significant drawbacks.

[0007] A first problem consists of the fact that the products are taken out by hand which implies a lack of hygiene. When withdrawing, for example, bread or sweets from the dispenser, the user's hands come into contact with the contents of the dispenser thereby compromising the products contained therein from a hygienic point of view.

[0008] To overcome this problem a first solution was that of providing scoops for use with the dispensers. Such scoops however make the use of the dispensers more complex and often remain unutilised.

[0009] Other systems adopted, for example based on the use of taps or similar methods to dispense the loose products on demand are complicated to implement since they require parts with special shapes and precise construction tolerances and are therefore easily subject to malfunctioning and jamming.

[0010] Moreover, these latter systems are particularly difficult to adjust and imprecise as regards quantities dispensed.

[0011] In this situation the technical purpose of the present invention is to devise a dispenser for loose products able to substantially overcome the drawbacks mentioned above.

[0012] Within the sphere of said technical purpose one important aim of the invention is to provide a dispenser which allows loose products to be withdrawn from a container in a simple manner.

[0013] Another important purpose is to provide a dispenser having a structure easily adaptable to the contents and substantially not subject to jamming.

[0014] A further purpose of the invention is to create a dispenser which allows items to be withdrawn from the container without touching them and thereby spoiling the other items inside said dispenser.

[0015] The technical purpose and specified aims are achieved by a dispenser for loose products as described in the appended Claim 1.

[0016] Preferred embodiments are described in the dependent claims.

[0017] The characteristics and advantages of the invention are clearly evident from the detailed description of a preferred embodiment of the invention, with reference to the accompanying drawings, wherein:

Fig.1 shows a perspective and overall view of the dispenser for loose products;
Fig. 2a is a cross-section of the dispenser according to the invention suitable for dispensing small products, such as sweets;
Fig. 2b shows the cross-section in Fig. 2a with the dispenser in a second configuration;
Fig. 3a is a cross-section of the dispenser according to the invention suitable for dispensing small products, such as bread and rolls;
Fig. 3b shows the cross-section in Fig. 3a with the dispenser in a second configuration; and
Fig. 4 shows an exploded diagram of the main components of the dispenser according to the invention.

[0018] With reference to the drawings, reference numeral **1** globally denotes a dispenser for loose products according to the invention.

[0019] It is used to dispense loose products **1a** contained in a vessel **10.** Said loose products 1a may consist of foods such as bread, dried fruit (for example peanuts and pistachios), sweets, liquorice, placed in the vessel 10 in bulk and loose and which are therefore not wrapped/housed in wrappings/containers capable of defining a predefined quantity of products 1a.

[0020] The vessel 10 is suitable to contain loose products 1a and thus comprises, in the known manner, a central body **10a** defining a variable storage volume **10c,** in which the loose products 1a are placed, a cover **10b** movable in relation to said central body 10a and through which the products 1a can be introduced into the storage volume and a lock **10d** suitable for securing the cover 10b to the central body 10a preventing access to the storage volume 10c.

[0021] It is attached to the top of the dispenser 1 by glue, screws or other means not shown in the drawing, in such a way as to allow the loose products 1a to enter the dispenser under gravity through an aperture **10e** (Fig. 4) obtained in the wall of the vessel 10 and suitable to be secured to the dispenser 1 for loose products 1a.

[0022] In particular, in order to favour the passage under gravity of the products 1a from the vessel 10 to the dispenser 1, the storage volume 10c has a conveyor func-

tion, a preferred direction of extension and a tapered cross-section, that is to say a cross-section which gradually narrows as it advances downwards along the preferred direction of extension so that the aperture 10e coincides with the smallest cross-section of the storage volume 10c.

[0023] Inside the storage volume 10a, the dispenser 1 has a weight relief apparatus **11,** that is an element suitable to discharge part of the weight of the loose products 1a preventing them from compacting at the aperture 10e so as to be unable to exit from said aperture.

[0024] Said weight relief apparatus 11 comprises a lightening body **11a,** upon which at least some of the loose products 1a rest, and sliding means **11b** suitable to allow said lightening body 11a to translate substantially along said preferred direction of extension of the storage volume 10c.

[0025] The lightening body 11a, as shown in Fig.1, may be composed of a V-shaped sheet preferably arranged so as to have the tip facing upwards, that is with the tip facing in the opposite direction to the aperture 10e.

[0026] The sliding means 11b are composed of pins, screws or other similar elements integral with the lightening body 11a and suitable to allow said body 11a to slide in specific slots **10f** extending in a direction substantially parallel to the preferred direction of extension of the storage volume 10c and obtained along the central body 10a. In particular, said sliding means 11b allow the lightening body 11a to slide freely in said preferred direction of extension and thus allow the body 11a to remain almost always in contact with the loose products 1a.

[0027] In short, the dispenser 1 comprises a base structure **2** defining an inner volume and that can be secured to said vessel and a distribution unit **3,** composed substantially of a drawer of variable volume, housed inside the base structure 2 and suitable to alternately enable the filling and emptying of at least part of said inner volume, as described further below. In particular, the base structure 2 and the vessel 10 may be made as a single piece. In particular, the vessel 10 and the base structure 2 may be made as a single component.

[0028] The dispenser 1 for loose products 1a is in addition advantageously provided with actuating means 4 suitable to move the distribution unit 3 in relation to the base structure 2 thus defining a loading configuration of the dispenser 1 in which the distribution unit 3 is positioned so as to allow entry of the loose products 1a into the inner volume and an unloading configuration wherein said distribution unit 3 allows the exit of the products 1a from the base structure 2, and thereby, from the dispenser 1.

[0029] In detail, in the loading configuration illustrated in Figures 2a and 3a, the positioning of the distribution unit 3, as described further below, is such as to allow at least a portion of the inner volume to be placed in connection with the vessel 10 by means of the inlet section 2a enabling the entry of the loose products 1a into the dispenser 1 under gravity.

[0030] Conversely, in the unloading configuration illustrated in Figures 2b and 3b, the distribution unit 3 blocks the inlet section 2a and said portion of inner volume is in connection with the outlet section 2b enabling the exit of the loose products 1a from the structure 2, and thus, from the dispenser 1, under gravity.

[0031] In order to allow said passage of the products 1a, the base structure 2 has an inlet section **2a** which is arranged to coincide with the vessel 10 and which allows the products 1a to enter the distribution unit 3 and an outlet section **2b** obtained on the opposite side to the inlet section 2a relative to the volume and through which the products 1a exit from the distribution unit 3.

[0032] The distribution unit 3 may consist of a hollow body **3a** having a through cavity suitable to delimit a portion of the inner volume. Preferably, it has a cavity with a cross-section at least equal to that of the inlet section 2a so that when the dispenser 1 is in the loading configuration, it is substantially suitable to enclose the inlet section 2a favouring the entrance of the loose products 1a into the portion of volume delimited by the hollow body 3a.

[0033] Lastly, the distribution unit 3 has an abutment body **3b** suitable to be placed so as to coincide with the inlet section 2a. The body 3b may be composed of a sheet, a suitably shaped plate or other similar element which, when the dispenser 1 passes into the unloading configuration, is coincident with the aperture 10e so as to almost entirely close said aperture and thereby prevent the exit of the products 1a from the vessel 10.

[0034] Preferably, the sizing of the distribution unit 3 and in particular of the hollow body 3a and of the abutment body 3b is such that, in an intermediate position between the aforesaid two configurations, the cavity defined by the hollow body 3a is not connected to the two sections 2a and 2b and therefore the loose products 1a are unable to enter or exit such cavity. Moreover, in such intermediate position the abutment body 3b closes the aperture 10e preventing the exit of the products 1a from the vessel 10.

[0035] The passage of the dispenser from one configuration to the other, as described above, is implemented by the actuating means 4 which, preferably, permits the movement of the distribution unit 3 in a substantially rectilinear direction in an active or passive manner.

[0036] In the first case, the means 4 is suitable to move the distribution unit 3 and may thus comprise a piston or other similar element suitable to move the distribution unit 3 following an input given by the user by means of a button or other similar element suitable to command such movement.

[0037] In the second case, the actuating means 4 is suitable to permit the movement of the distribution unit 3 solely by means of an action by the user and, in particular, solely through the application of a driving force. In detail, it comprises a handgrip **4a** external to the base structure 2 and at least one connecting element **4b** suitable to secure the handgrip 4a to the distribution unit 3 thereby enabling a user to move said distribution unit 3 solely by

applying a driving force. Preferably there are two connecting elements so as to guarantee a correct movement of the distribution unit 3.

[0038] In addition, the dispenser 1 may be provided with return members **6** suitable to permit the distribution unit to pass automatically from the unloading to the loading configuration. Said return members 6 are, for example, provided on the opposite side with respect to the hollow body 3a and may be composed of traction springs capable of extending during the passage of the distribution unit 3 from the loading to the unloading configuration and to command the return of the distribution unit 3 to the unloading configuration.

[0039] To guarantee the correct movement of the distribution unit 3, the base structure 2 may be provided with guide elements **2c,** such as rails, slots or other similar elements which enable the distribution unit 3 to slide in relation to the base structure 2.

[0040] Lastly, the dispenser 1 comprises an outlet duct **5** having a tubular shape and secured to the base structure in correspondence with the outlet section 2b so as to permit the loose products coming out of the structure 2 to be directed; and a locking unit **7** suitable to secure the dispenser 1 to a support **12** such as an item of furniture, a bracket, an outdoor or indoor wall.

[0041] In particular, the outlet duct 5 and the base structure 2 may be made as a single piece and more specifically, the outlet duct 5, the base structure 2 and the vessel 10 may be made as a single piece.

[0042] In particular, the outlet duct 5 and the base structure 2 may be made as a single component and, more in particular, the outlet duct 5, the vessel 10 and the base structure 2 may be made as a single component.

[0043] Lastly, the dispenser 1 may comprise a payment apparatus, not shown in the drawing, suitable to allow the user to pay the price corresponding to a certain quantity of the loose products 1a, and locking members appropriately connected to said apparatus and suitable to allow or prevent the movement of the distribution unit 3. In particular, said members may consist, in the known manner, of a piston or other similar element which, on the basis of a signal from the payment apparatus, is suitable to abut with the distribution unit 3, locking the dispenser 1 in the loading configuration or allowing the passage of the dispenser 1 to the unloading configuration.

[0044] The locking unit 7 is composed of a shaped plate suitable to be placed between the vessel 10 and the support 12 so as to secure the dispenser 1 to said support 12. In particular, the locking unit 7, as shown in Fig.1, is composed of a plate having a substantially L-shaped profile so as to permit the dispenser 1 to be secured to either to a horizontal support 12, such as a piece of furniture or a bracket, or to a vertical support 12 such as an internal or external wall.

[0045] The locking unit 7 is attached to the dispenser 1 and to the support 12 by means of specific connecting means such as pins, screws or bolts, suitable to engage in housings, slots or holes obtained in said structure and suitable to enable fast, simple coupling. In some cases said connecting means may further comprise a hook or the like to couple the dispenser 1, for example, by means of an attachment, a joint.

[0046] The functioning of the dispenser for loose products, described above in a structural sense, is as follows.

[0047] Initially, the dispenser 1 for loose products 1a is connected to the vessel 10 in such a way that the aperture 10e is positioned substantially to coincide with the inlet section 2a and arranged on a specific support 12, as shown in Fig.1. Once positioned, the distribution unit 3 is brought into the loading configuration and locked in such position by the locking members. In detail, in such configuration the hollow body 3a of the distribution unit is arranged substantially to coincide with the inlet section 2a so that the storage volume of the vessel 10 is connected to the portion of the inner volume delimited by the hollow body 3a. Once such positioning is completed, the vessel 10 is filled with loose products 1a which, since the aperture 10e has been arranged so as to coincide with said portion of the inner volume, pass from the storage volume 10a to the body 3a, filling the latter.

[0048] Moreover, during the filling of the vessel 10, some of the loose products 1a come to rest on the lightening body 11a and thereby discharge at least part of their weight thereon.

[0049] To withdraw the loose products 1a, the user places a collection cup 13 under the outlet duct 5 and inserts the amount of money corresponding to the desired quantity of products in the payment apparatus which, accordingly, commands the locking members to release the distribution unit 3.

[0050] At this point, the user grips the handgrip 4 and pulls the distribution unit 3 making the dispenser 1 pass from the loading to the unloading configuration.

[0051] Such operation brings the abutment body 3b to coincide with the inlet section 2a preventing the passage of the loose products 1a from the vessel 10 to the dispenser 1.

[0052] At the same time, as a result of such movement of the distribution unit 3 the traction springs, or return members 6, extend and accumulate the energy needed to return to the loading configuration.

[0053] Moreover, said movement causes the hollow body 3a to move next to the outlet section 2b allowing the loose products 1a contained therein to exit from the distribution unit 3, pass through the outlet duct 5 and thus into the collection cup 13 placed under the dispenser 1.

[0054] Once the unloading of the loose products 1a is completed, the dispenser 1 is brought back to the loading configuration by the return members 6.

[0055] In detail, during such movement, the hollow body 3a is returned to coincide with the inlet section 2a and, as a result, the distribution unit 3 is locked in such position by the locking members.

[0056] The invention permits significant advantages.

[0057] The dispenser 1 makes it possible to withdraw loose products 1a from a vessel 10 simply and quickly

without the need for any particular or difficult manoeuvres.

[0058] A further important advantage is represented by the particular shaping of the distribution unit 3, which prevents any loose products 1a from leaving the vessel 10 if not required. When the dispenser passes to the unloading configuration, the abutment body 3b, thanks to its particular sizing, is placed so as to coincide with the aperture 10e obstructing it almost fully and thereby preventing the passage of loose products 1a through said aperture.

[0059] Another advantage, which is no less important, is that the products 1a can be withdrawn from the vessel 10 without touching the loose products 1a.

[0060] A further advantage of the dispenser 1 is that it permits the withdrawal of a predefined quantity of products 1a at each passage from the loading to unloading configuration.

[0061] Such advantage is achieved due to the fact that the dispenser 1 causes the exit of a substantially constant volume of products 1a equal to the portion of the distribution unit 3 delimited by the hollow body 3a.

[0062] In detail, said advantage means payment operations can be made much simpler in that by knowing the exact quantity of products 1a withdrawn there is no need to weigh the vessel to determine the weight of the products, enabling the use of automated methods of payment such as for example the apparatus. Another advantage is the simplicity of use of the dispenser 1 which, in practice, may be activated simply by applying a driving force and therefore simply by translating the distribution unit 3.

[0063] A last but by no means lesser advantage is the presence of the return members 6 which allow the dispenser to return automatically from the unloading to the loading configuration.

[0064] All the variants comprised in the definition of the first claim are admissible. In particular, the drawer may also be made so as to tip with the action of the handle in a horizontal direction.

Claims

1. A dispenser (1) for loose products suitable to enable loose products (1 a) to be taken from a vessel (10), **characterised in that** it comprises a base structure (2) defining an inner volume and which can be secured to said vessel (10); said base structure (2) having an inlet section (2a) suitable to enable passage of said loose products (1 a) from said vessel to said inner volume and an outlet section (2b) suitable to enable exit of said loose products (1 a) from said inner volume; a distribution unit (3) housed inside said base structure (2) and suitable to alternately enable filling and emptying of at least part of said inner volume; and actuating means (4) suitable to move said distribution unit (3) along a substantially rectilinear direction relative to the base structure (2), thus defining a loading configuration of said dispenser (1) in which said distribution unit (3) allows entry of said loose products (1 a) into said inner volume through said inlet section (2a) and an unloading configuration of said dispenser (1) in which said distribution unit (3) allows exit of said loose products (1 a) from said inner volume through said outlet section (2b).

2. A dispenser (1) as claimed in claim 1, wherein said actuating means (4) is of the passive type.

3. A dispenser (1) as claimed in the preceding claim, wherein said actuating means (4) comprises a handgrip (4a) external to said base structure and at least one connecting element (4b) suitable to secure said handgrip (4a) to said distribution unit (3) thereby enabling a user to move said distribution unit (3).

4. A dispenser (1) as claimed in one or more of the preceding claims, comprising return members (6) suitable to enable said distribution unit (3) to automatically move from said unloading configuration to said loading configuration.

5. A dispenser (1) as claimed in one or more of the preceding claims, wherein said distribution unit (3) comprises a hollow body (3a) delimiting a portion of said inner volume and suitable to be filled when said dispenser (1) is in said loading configuration.

6. A dispenser (1) as claimed in one or more of the preceding claims, wherein said hollow body (3a) has a through cavity suitable to enable passage of said loose products (1a) from said inlet section (2a) to said outlet section (2b).

7. A dispenser (1) as claimed in one or more of the preceding claims, being secured to said vessel (10) at said inlet section (2a) and having an opening (10e) suitable to enable passage of said loose products (1 a) from said vessel (10) to said dispenser (1) under gravity.

8. A dispenser (1) as claimed in the preceding claim, wherein said vessel (10) is suitable to define a storage volume having a tapering section the smaller section of which is coincident with said opening (10e).

9. A dispenser (1) as claimed in one or more of the preceding claims, wherein said distribution unit (3) comprises an abutment body (3b) suitable to be placed at said inlet section (2a) when said dispenser (1) is in said unloading configuration.

10. A dispenser (1) as claimed in the preceding claim, wherein, when said dispenser (1) is in said unloading

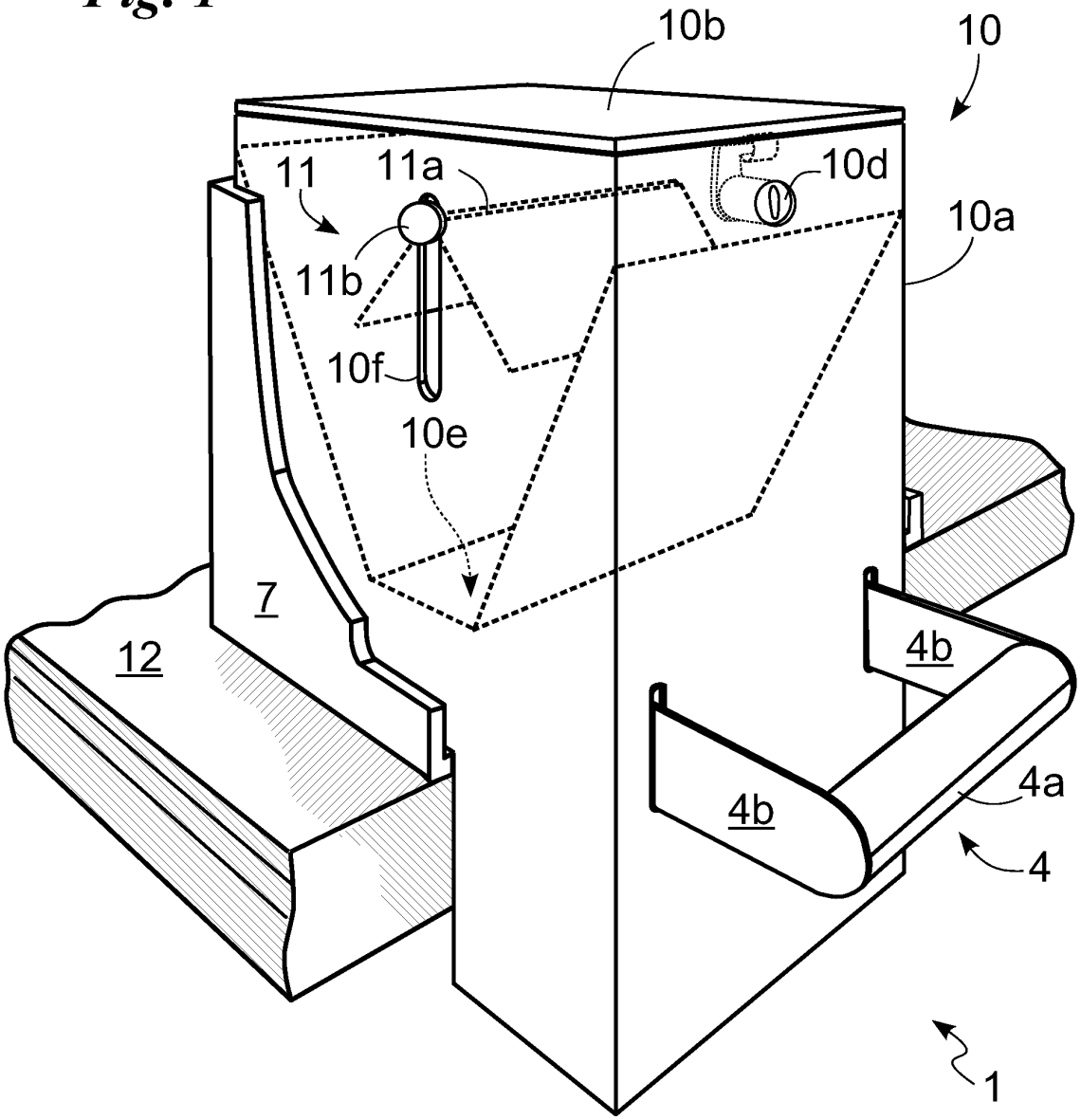
configuration, said abutment body (3b) obstructs said opening (10e) almost fully.

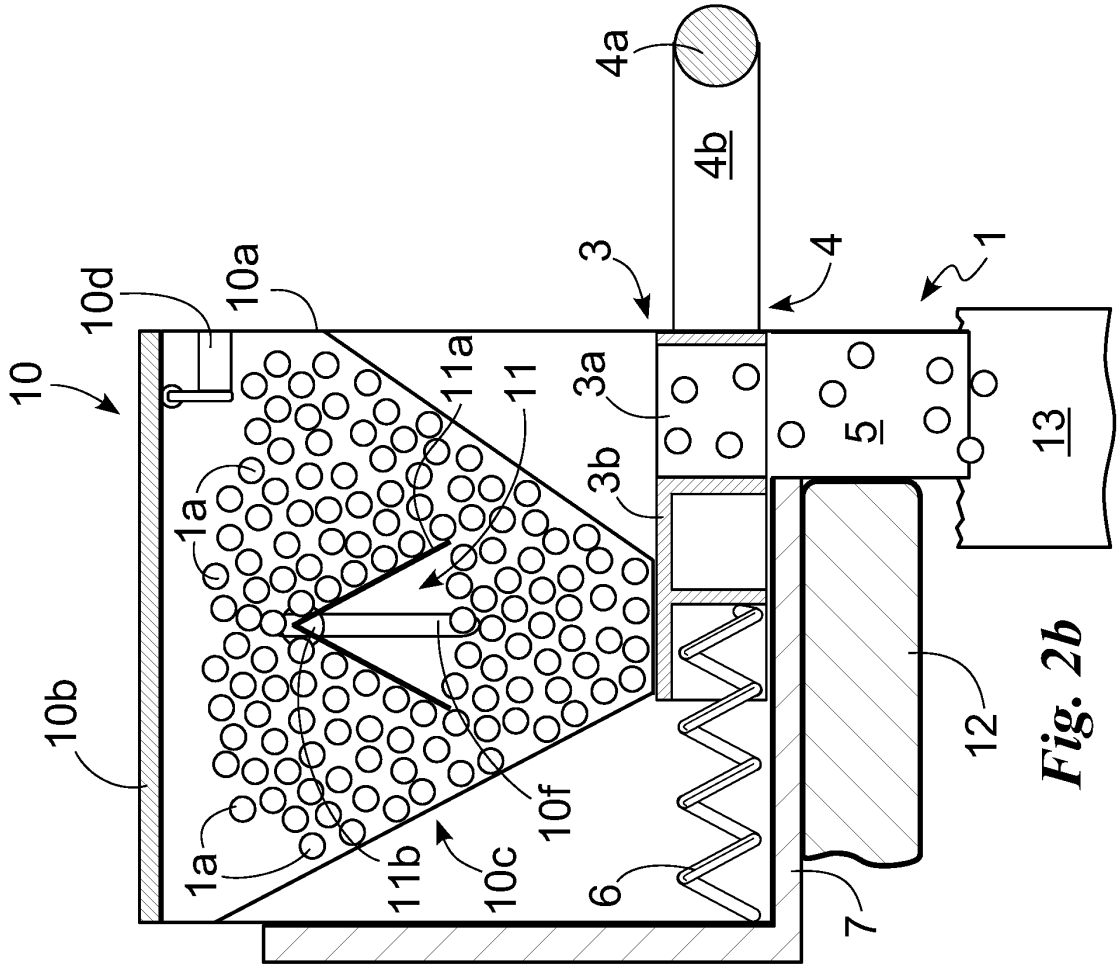
11. A dispenser (1) as claimed in one or more of the preceding claims, comprising an outlet duct (5) placed close to said outlet section (2b) and suitable to enable said loose products (1 a) coming out of said dispenser (1) to be directed.

12. A dispenser (1) as claimed in one or more of the preceding claims, comprising a payment apparatus suitable to enable payment for the loose products (1 a) taken out through said dispenser (1).

13. A dispenser (1) as claimed in the preceding claim, comprising locking members connected to said apparatus and suitable to alternately enable or prevent motion of said distribution unit (3).

Fig. 1

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4b
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10d
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7

Fig. 2b

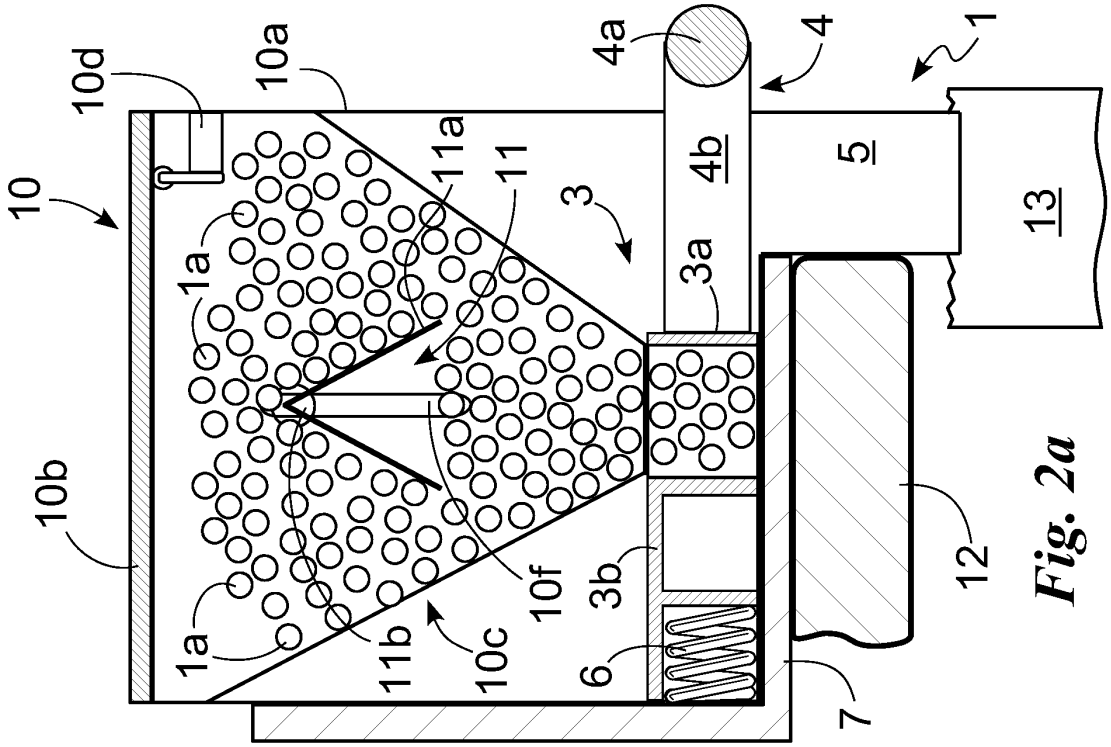
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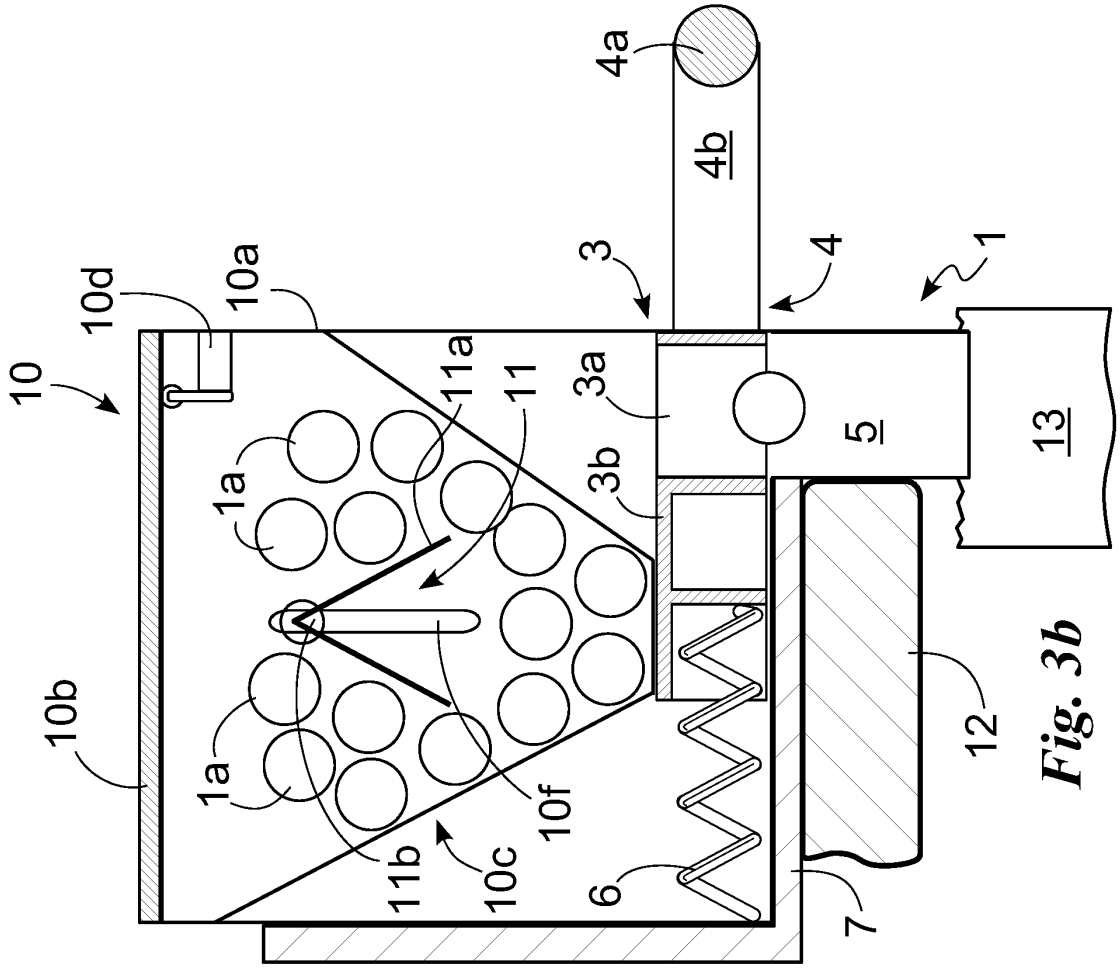
Fig. 2a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12

Fig. 3b

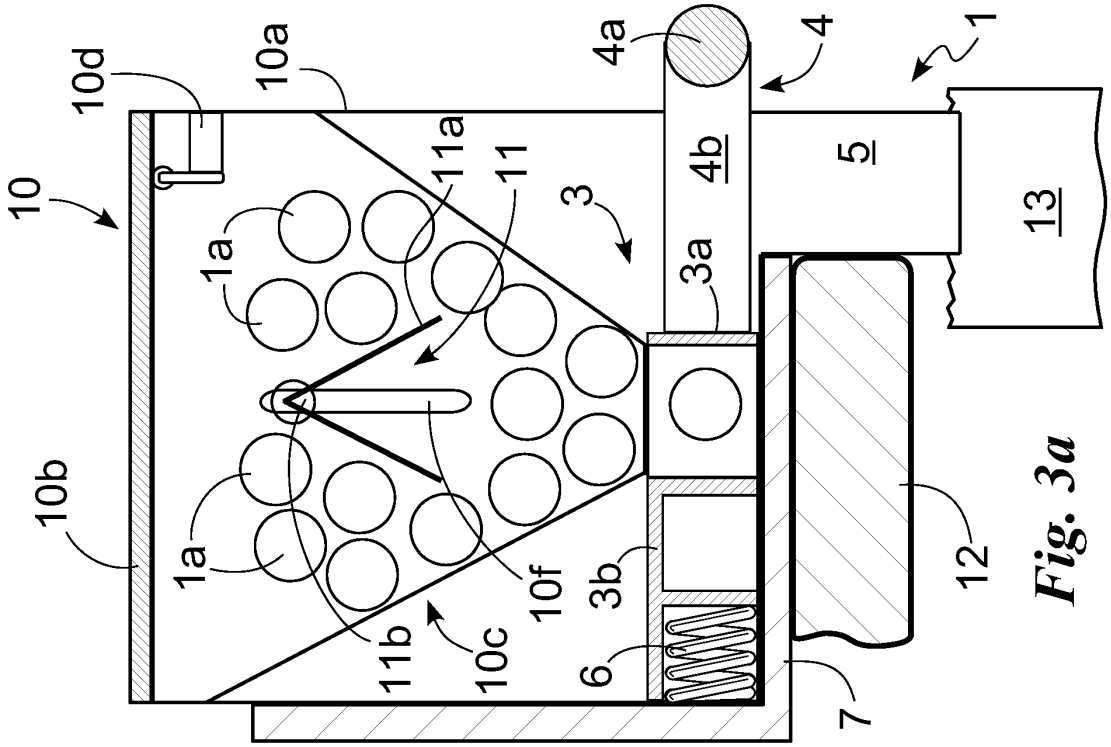
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Fig. 3a

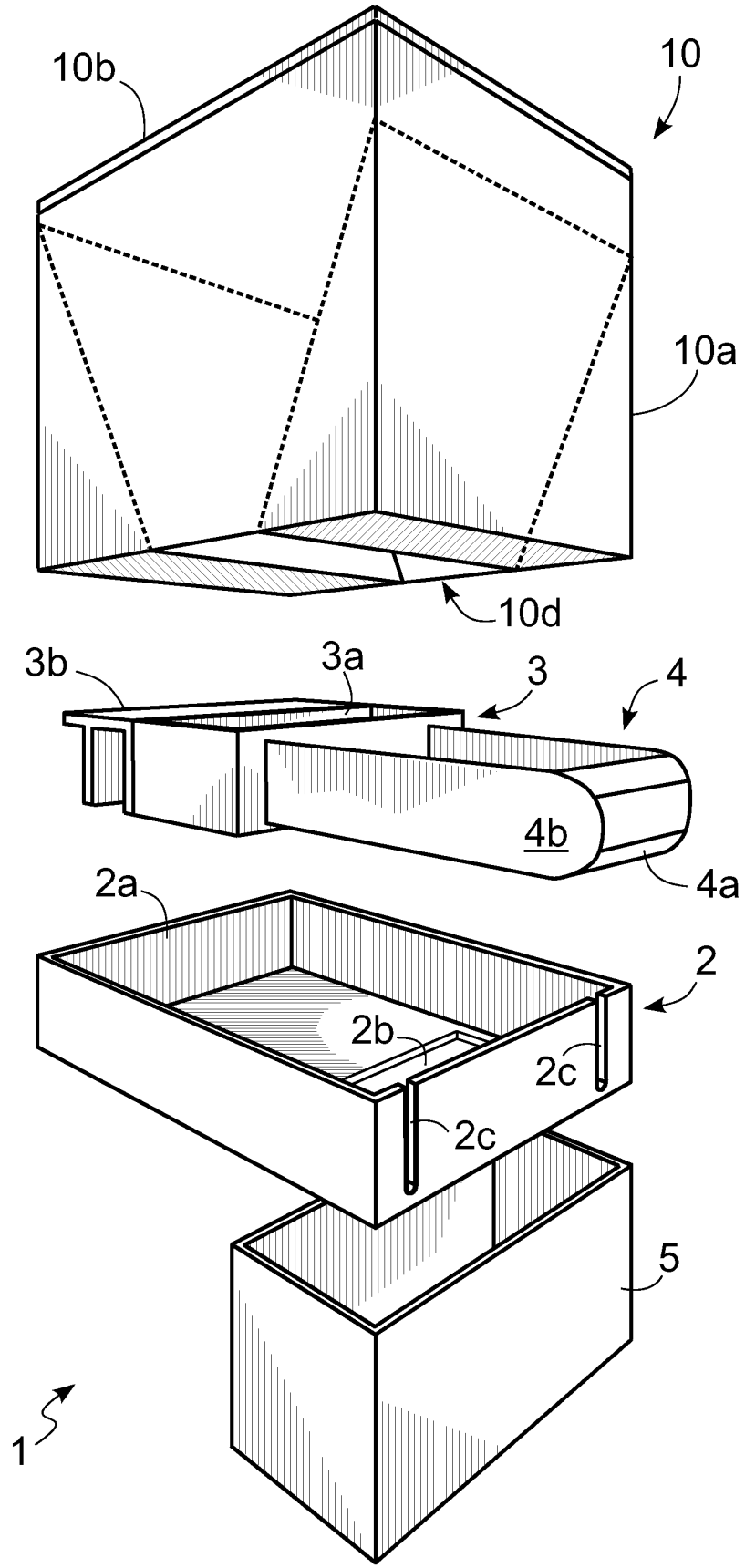

Fig. 4