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(54) **ASSEMBLY FOR DISPENSING BULK PRODUCTS**

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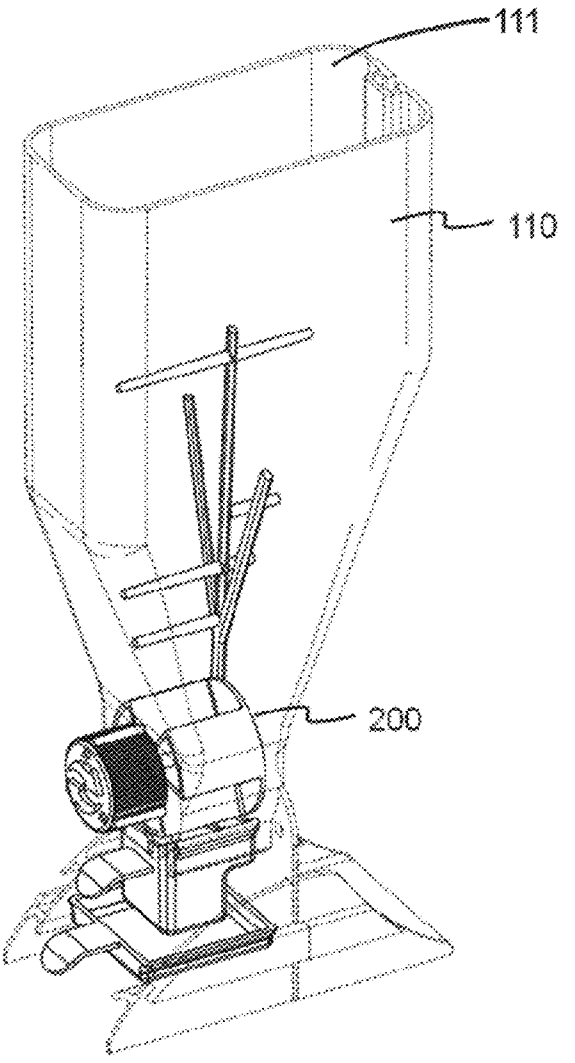
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(57) **ABSTRACT**

The invention relates to a dispenser for bulk products, such as powdered products, for dispensing said product in a controlled and hygienic form. According to an embodiment of the invention, the dispenser assembly comprises a container (**110**) for storing the bulk product and is endowed with an opening (**111**) for filling the bulk product and an opening (**112**) for dispensing said bulk product; a means (**200**) for dispensing the bulk product in a controlled manner provided beneath said second opening; and a means (**300**) for receiving said dispensed bulk product.



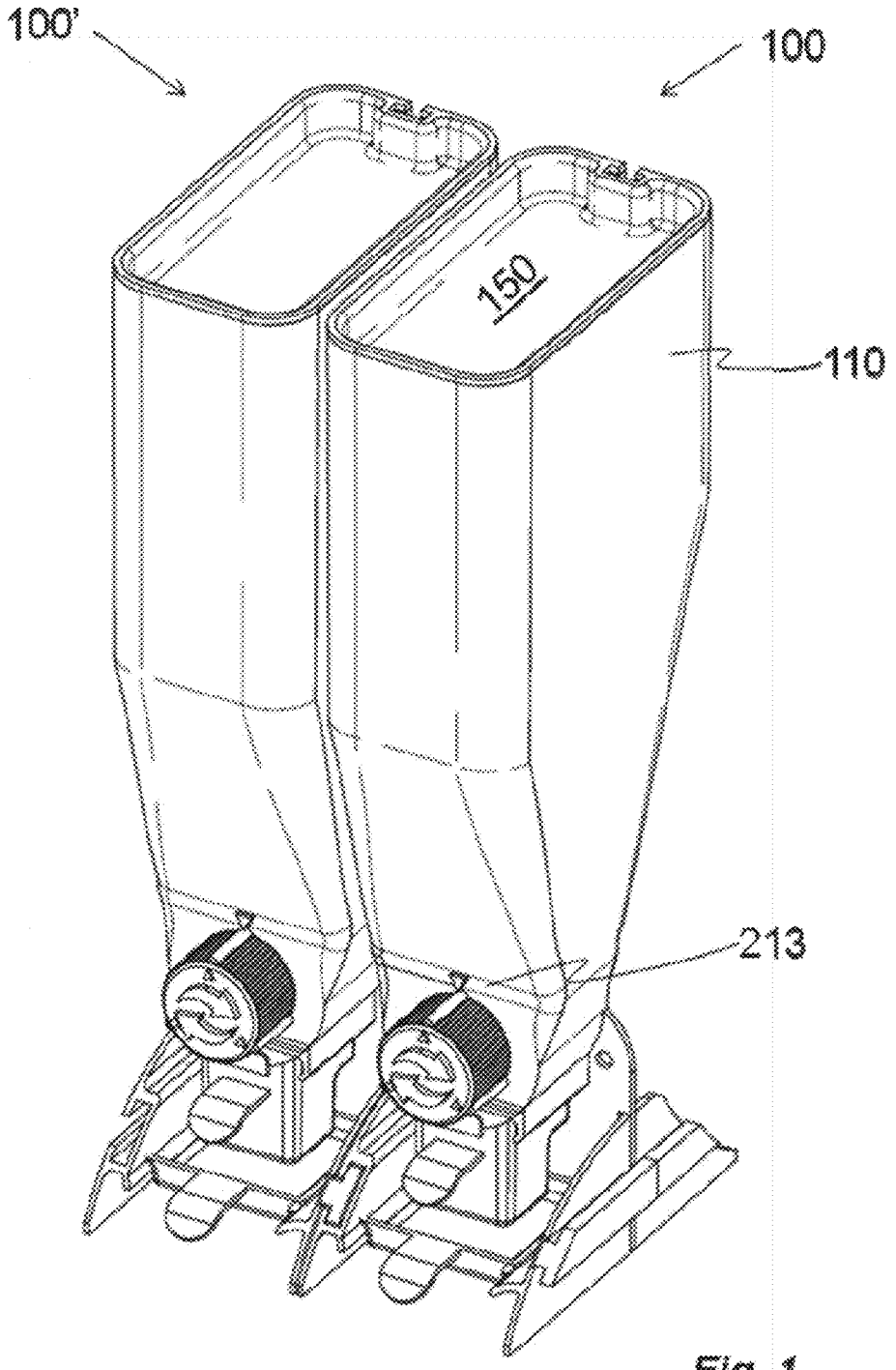


Fig. 1

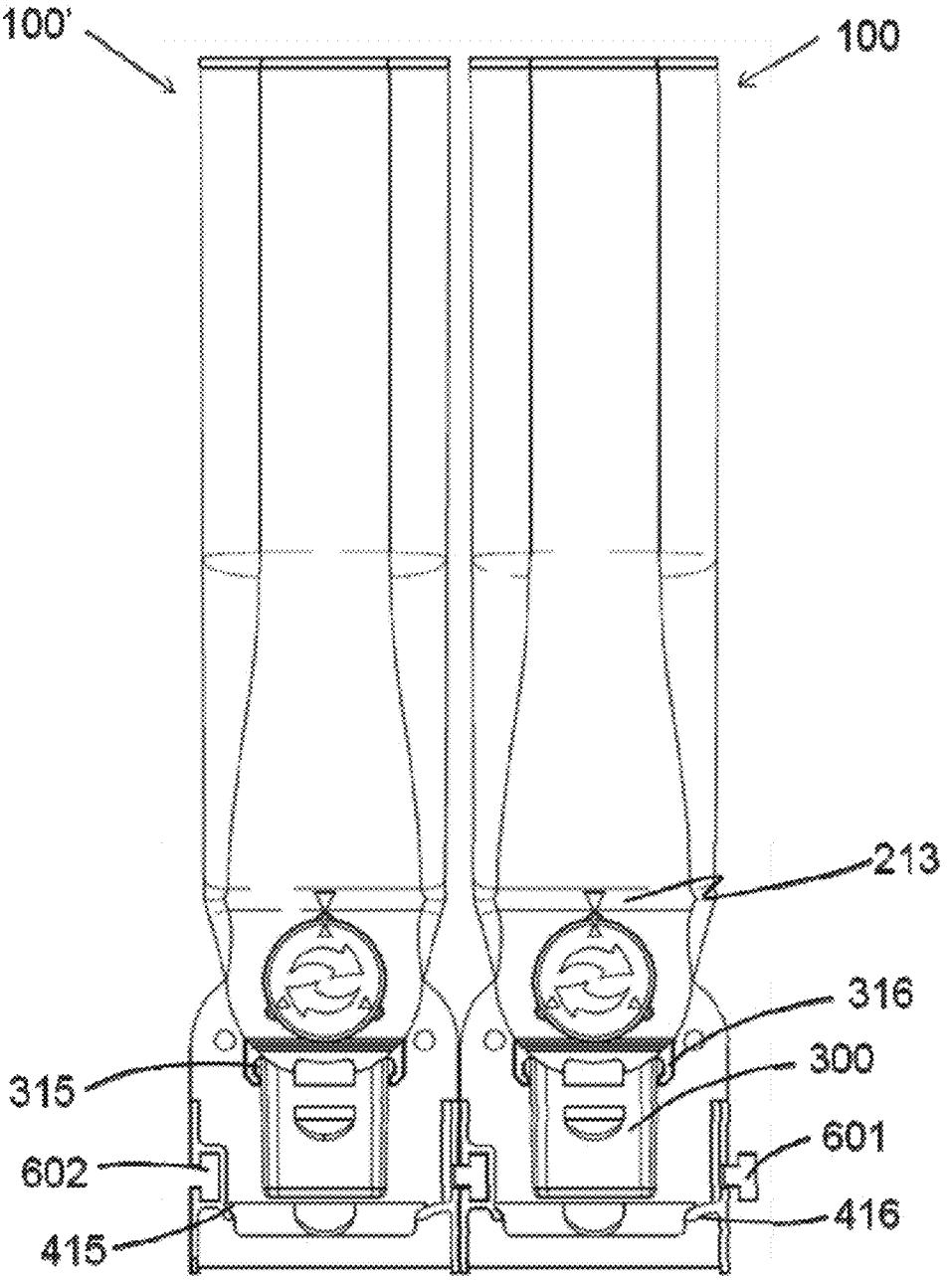


Fig. 2

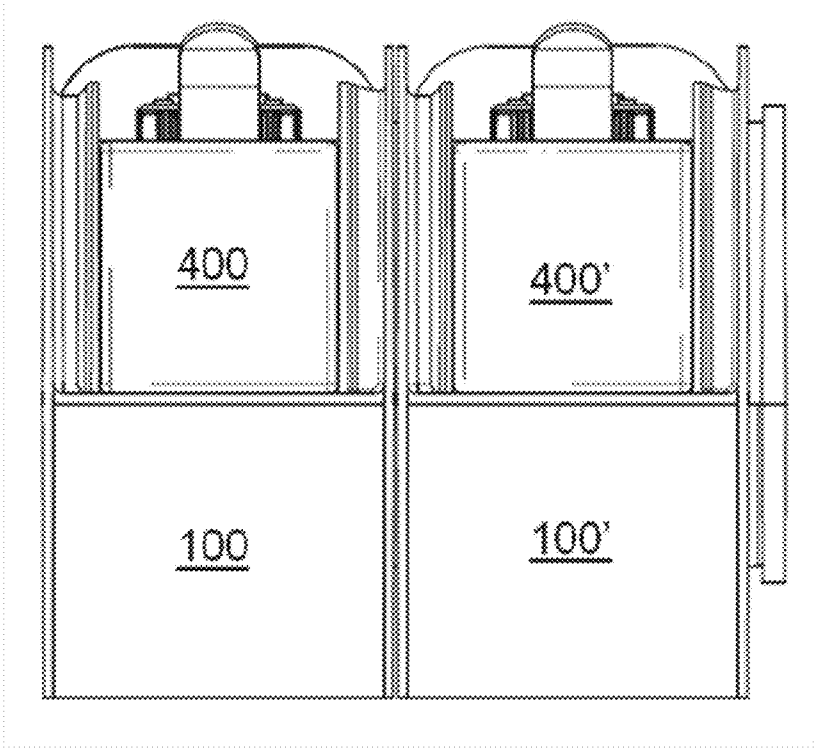


Fig. 3

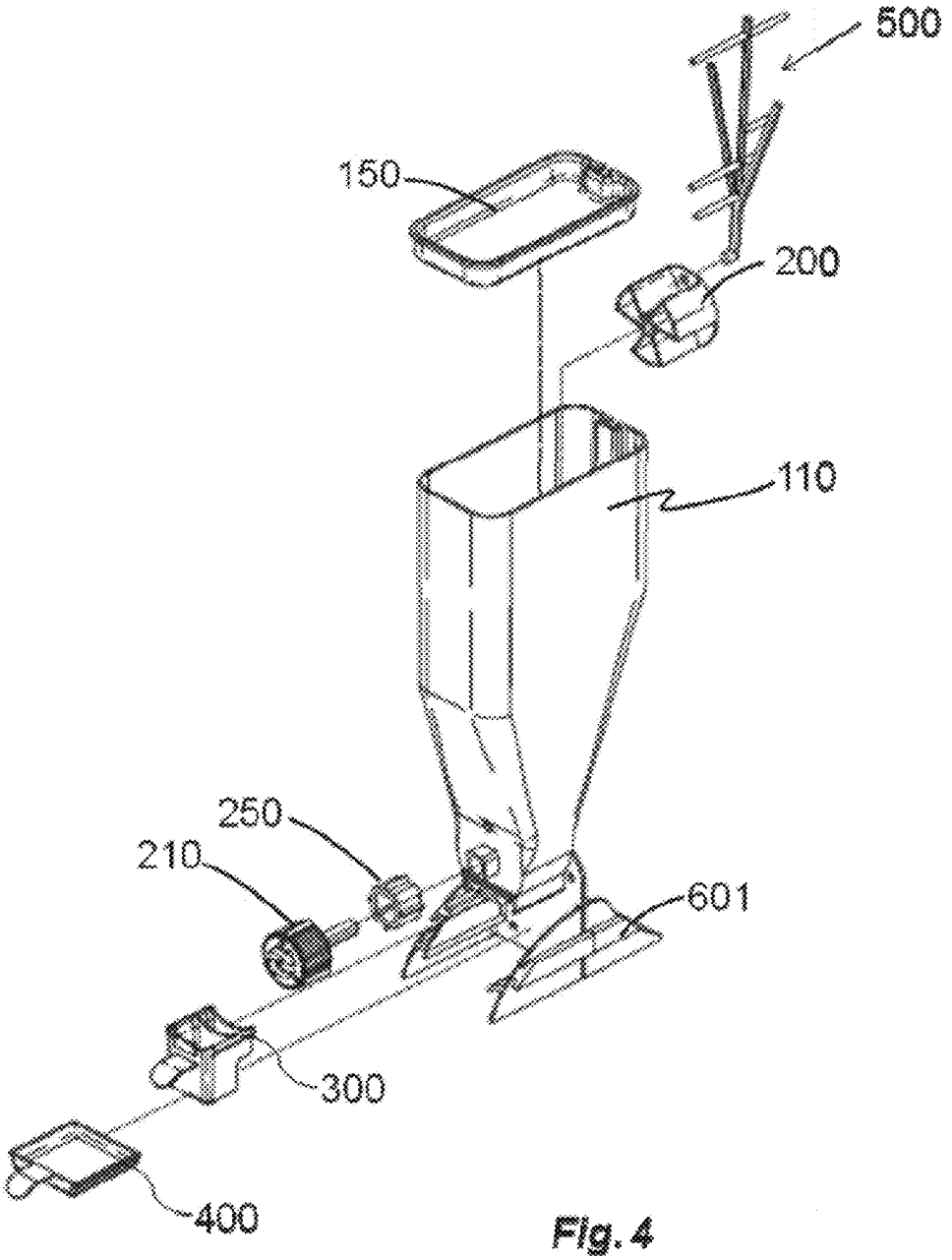


Fig. 4

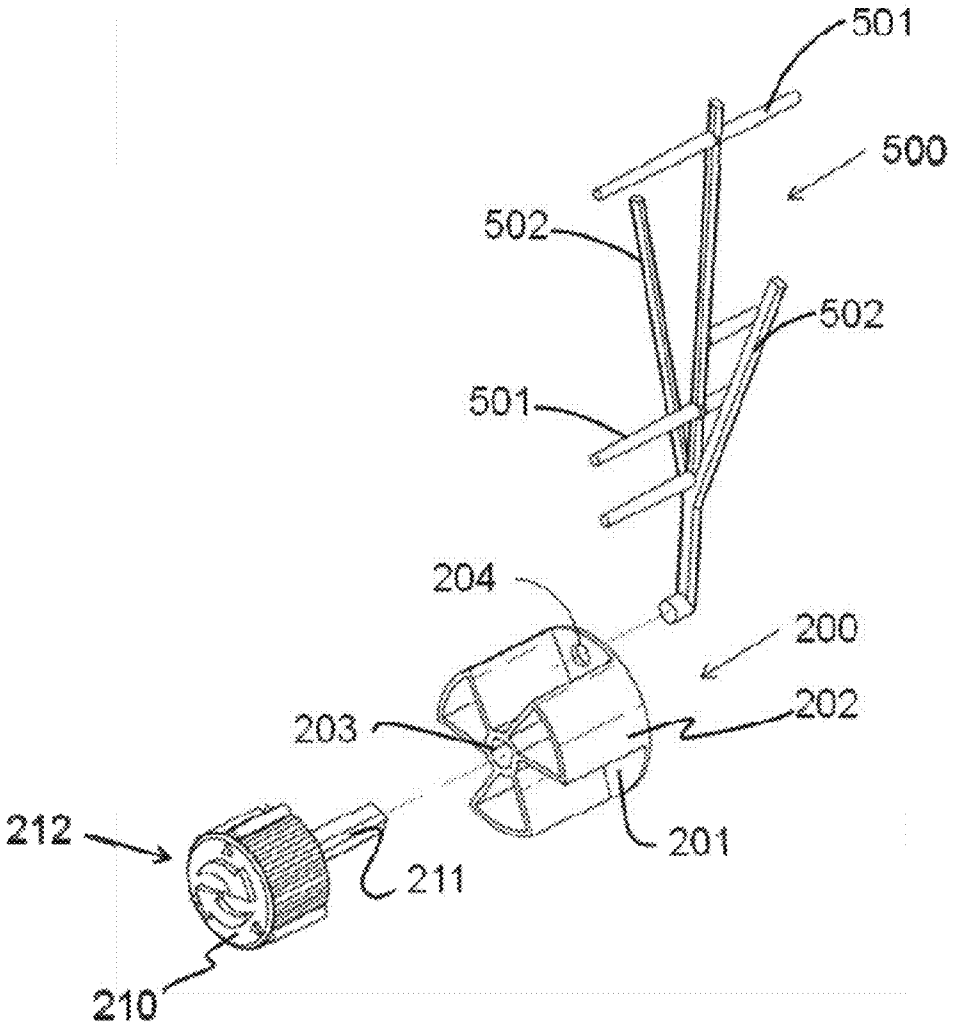


Fig. 5

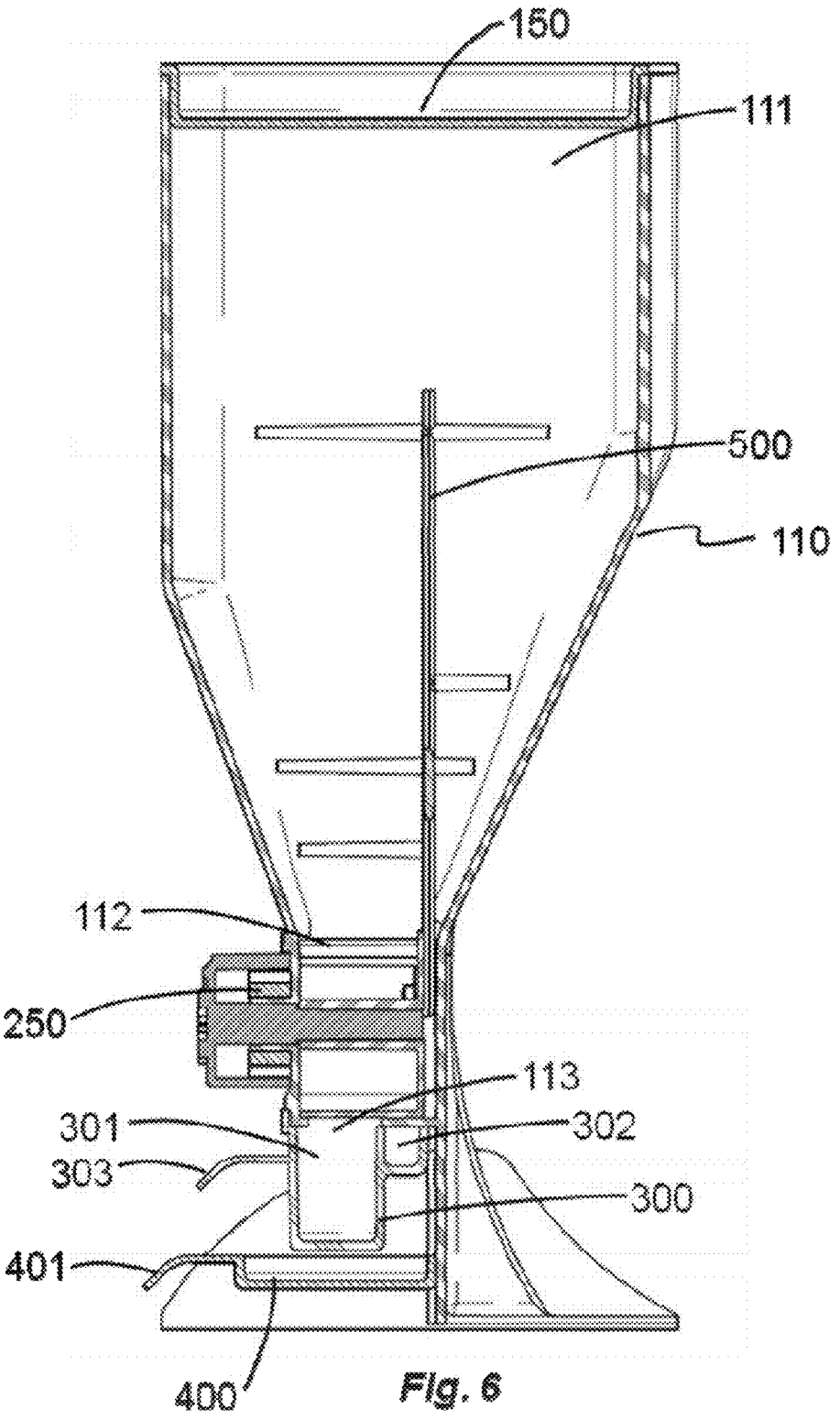


Fig. 6

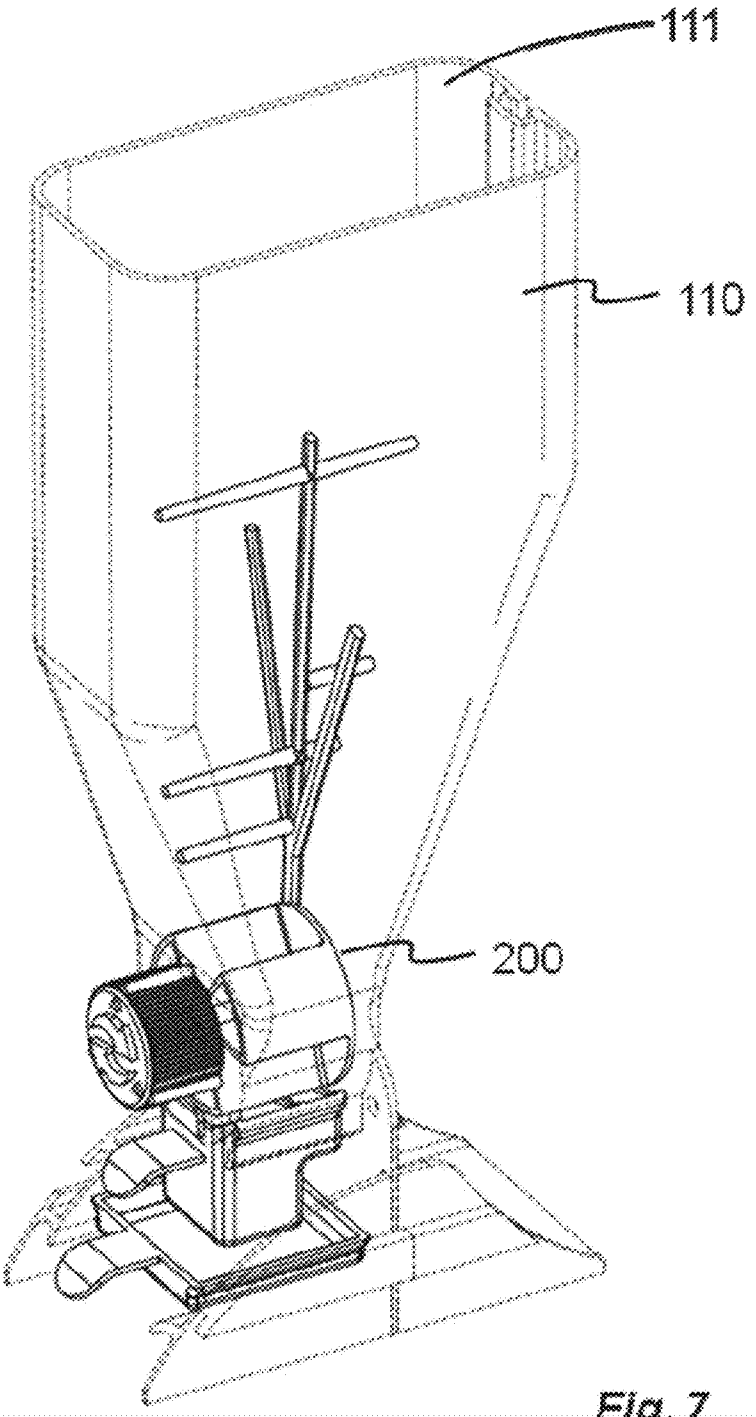


Fig. 7

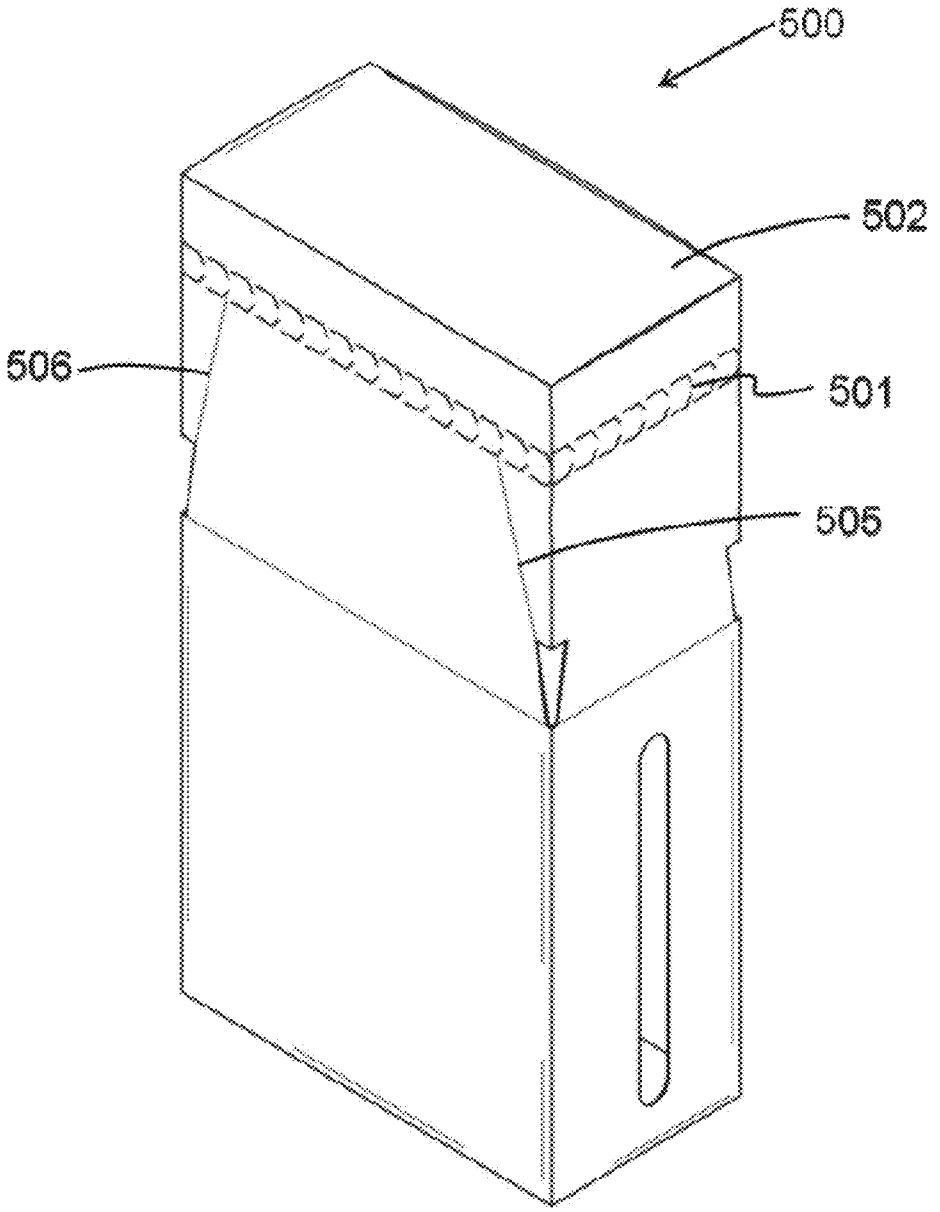


Fig. 8

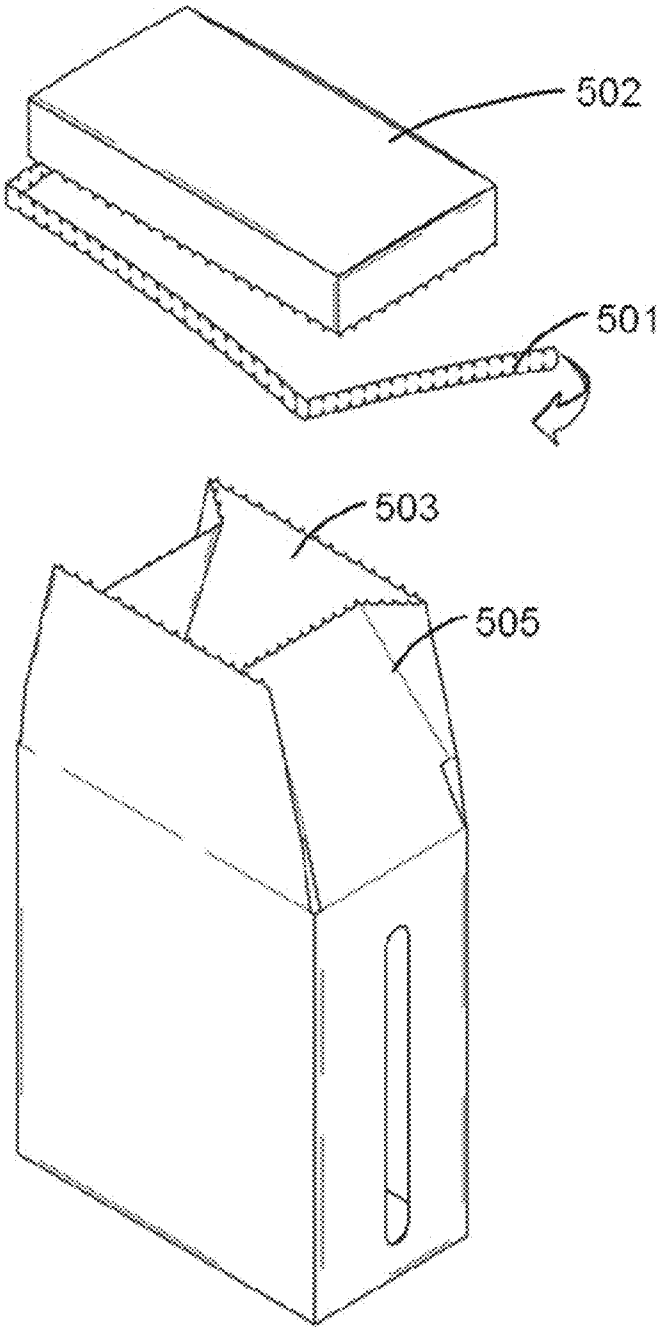


Fig. 9

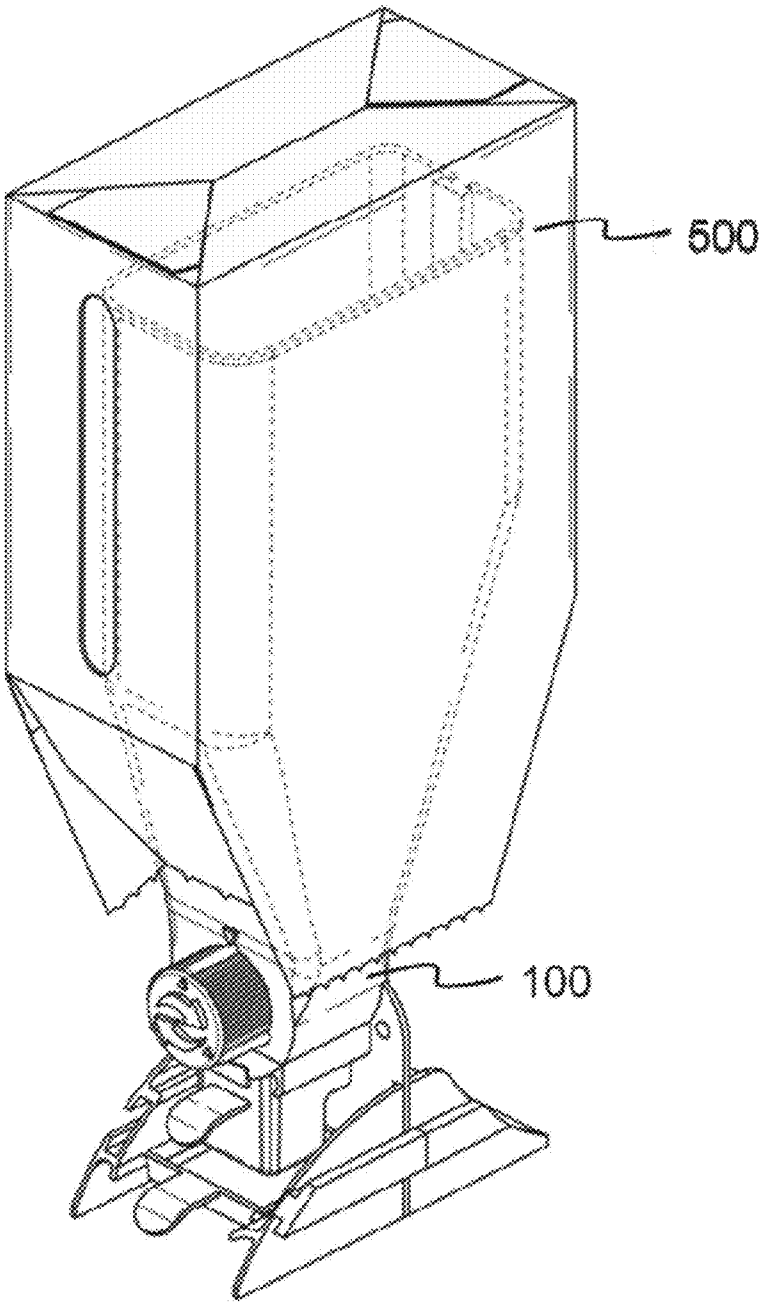


Fig. 10

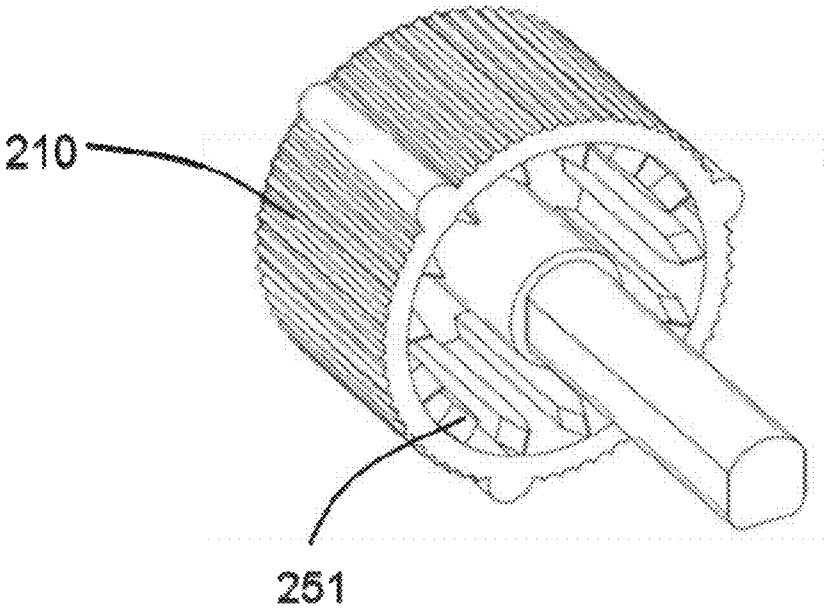


Fig. 11

ASSEMBLY FOR DISPENSING BULK PRODUCTS

FIELD OF THE INVENTION

[0001] The invention generally relates to a dispenser for bulk products and, more particularly, the invention relates to a dispenser for bulk products, such as powdered products, for dispensing said product in a controlled and hygienic manner.

BACKGROUND OF THE INVENTION

[0002] Bulk products can generally be defined as products in their raw state, not processed into a certain unit, as are powdered products. Although such products may be packaged and sold to the consumer by weight, for example, the quantity, weight, and potential mixture of different components which make up the product may vary.

[0003] In the case of food products, examples of bulk products are sugar, flours, powdered food supplements etc. In other words, the consumer generally acquires these products by weight, and can determine the quantity to be consumed.

[0004] Today consumers are increasingly concerned about nutrition. Cardiovascular diseases, hypertension, high cholesterol, osteoporosis, among others, are just some examples of diseases or negative aspects of the health of an individual that may be related to food or age. In this sense, an increasing number of people seek healthy eating in order to prevent and/or minimize potential or already existing diseases or even with a view to improving physiological conditions by way of appropriate nutrition.

[0005] Aspects involving suitable or healthy nutrition also include food supplements. Food supplements, as defined herein, consist of vitamins, minerals, fibers, fatty acids, amino acids, among others, or mixtures thereof, which may be in isolated or combined form or combined with other components, and may be presented both in the form of capsules or in bulk, such as a powder. Oftentimes, when in bulk form, said supplements generally comprise in their packaging a spoon in the form of a doser, for the correct measurement of the quantity to be ingested.

[0006] Some individuals may consume more than one food supplement or a combination of food supplements that may depend on a prescribed diet to help attain a certain objective or improve an existing physiological condition. In this sense, there may be food supplements or a combination of food supplements designed to reduce weight, arterial pressure, to improve physical performance etc.

[0007] However, when the bulk products, including food supplements, are commercialized in packaging by weight, there is a series of drawbacks regarding practicality of use of these products. Firstly, said packagings are generally large and relatively heavy. Handling and storing such packagings is not practical, since they occupy considerable space in the cupboard in addition to the need to open and close the lid every time the product is consumed. Moreover, if the product is commercialized in a non-rigid packaging, such as the so-called 'economy' packagings—generally made of a flexible polymer material—there is the drawback of appropriate closing of these packagings, as normally said packagings do not have their own lid or closing means. Nevertheless, when the content of the packaging is nearing depletion, it is often necessary to insert an arm and a hand inside the packaging to be able to withdraw the product, which is not always possible depending on the size of the mouth opening of the packaging, obliging the consumer to pour the content into another container, oftentimes not in a controlled manner. Regarding the potential wastage of products, common packagings and dosers do not prevent losses of bulk products that might fall out of the doser or the packaging, in addition to the negative aspect of disposal and used packagings already in waste dumps.

[0008] The present invention is designed to remedy such drawbacks, among others.

DESCRIPTION OF THE INVENTION

[0009] In order to overcome the drawbacks cited above, among others, the invention proposes an assembly for dispensing bulk products, guaranteeing a certain dose in a practical manner and also enabling various reutilization cycles, that comprises:

[0010] a container for storing the bulk product and endowed with an opening for filling the bulk product and an opening for dispensing said bulk product;

[0011] a means for dispensing the bulk product in a controlled manner provided beneath said second opening; and

[0012] a means for receiving said dispensed bulk product.

[0013] According to alternative or additional embodiments of the invention, the assembly for dispensing bulk products may further comprise the following characteristics, on their own or in combination:

[0014] said opening for filling the bulk product is closed by a lid;

[0015] said means for dispensing the bulk product comprises a pulley endowed with open and closed portions;

[0016] said pulley comprises three open portions and three closed portions;

[0017] said open and closed portions of said pulley comprise substantially the same radial length;

[0018] said open and closed portions of said pulley comprise an angular length substantially corresponding to the width of said second opening;

[0019] said means for receiving said dispensed bulk product is a dosing drawer;

[0020] said dosing drawer further comprises a knob;

[0021] said drawer further comprises a second compartment provided in the rear portion of said first compartment;

[0022] said dispenser assembly further comprises a tray provided beneath said drawer;

[0023] said tray further comprises a knob;

[0024] said dispenser assembly further comprises side fastening means;

[0025] said side fastening means are formed by male and female rails enabling one dispenser assembly to slide and fasten to another;

[0026] said pulley further comprises an agitator that extends vertically inwardly of the container;

[0027] said agitator comprises vertical and horizontal segments to agitate the bulk product inside the container when the pulley is driven;

[0028] said assembly further comprises a packaging;

[0029] said packaging comprises a shape substantially equivalent to the shape of said container;

[0030] said packaging further comprises an upper opening defined by a perforated strip;

[0031] said packaging further comprises side folds to conform to the shape of said container and be fastened therein; and

[0032] said pulley is driven by a handle; and

[0033] said handle further comprises a toothed ring in the internal part to vibrate during its turning path, there is fastened to the body of the dispenser a part that strikes these teeth causing vibration, and this vibration impacts the pulley causing the powder to fall by vibration and gravity to the dosing tray.

BRIEF DESCRIPTION OF THE DRAWINGS

[0034] The invention will now be described in relation to particular embodiments, with references to the accompanying drawings. Said drawings are schematic, and their dimensions or proportions may not correspond to the embodiment, as they are designed merely for didactic illustration, without imposing any limitations other than those defined in the claims ahead, wherein:

[0035] FIG. **1** is a perspective view of the dispenser assembly according to an embodiment of the invention;

[0036] FIG. **2** is a front view of the assembly of FIG. **1**;

[0037] FIG. **3** is a bottom view of the assembly of FIG. **1**;

[0038] FIG. **4** is an exploded perspective view of the assembly of FIG. **1**;

[0039] FIG. **5** is an exploded view of the means for dispensing the bulk product;

[0040] FIG. **6** is a cut-off side view of the assembly of FIG. **1**;

[0041] FIG. **7** is an internal perspective view of the assembly of FIG. **1**;

[0042] FIG. **8** is a perspective view of a packaging to be used with the dispenser assembly of the invention;

[0043] FIG. **9** is the same perspective view of FIG. **8** with the packaging being opened;

[0044] FIG. **10** is a perspective view of the packaging of FIG. **8** mounted on a dispenser assembly of the invention; and

[0045] FIG. **11** is a rear view of the handle, showing its toothed portion.

DESCRIPTION OF PARTICULAR EMBODIMENTS

[0046] With reference to the drawings, there is represented an assembly (**100**) for dispensing bulk products according to a particular embodiment of the invention. The dispenser assembly (**100**) comprises a container (**110**) for storing the bulk product and, as represented in this embodiment, the container (**110**) comprises four side walls, that is, a front, right-side, left-side and rear wall, with upper (**111**) and lower (**112**) openings also being provided. Obviously, the container (**110**) for storing the bulk product can be any suitable shape, and as represented in this embodiment, the container (**110**) has a parallelepiped shape, having a cone portion approximately from its lower half.

[0047] The upper opening (**111**) may be provided for filling the container (**110**) with a bulk material, such as a food supplement, and its lower opening (**112**) is provided for dispensing said bulk material, by gravity. A lid (**150**) may be provided for closing the upper opening (**111**), in order to prevent other residues, dust or even humidity from entering the container (**110**) and, in any way, contaminating the bulk material. A lid (**150**) may be provided to be inserted into and removed from the upper opening (**111**) of the container (**110**) by snap-fit, for example. Naturally, there may be provided other means of fastening, fitting, opening and closing the lid (**150**) of the container (**110**), such as the use of hinges, runners, joints, locks etc. Moreover, the opening for filling the container (**110**) with the bulk material does not necessarily need to be provided in the upper portion (**111**) of said container (**110**), and may also be located in one of its side walls or in another site not defined herein.

[0048] As already mentioned, in the lower portion of the container (**110**) there is also provided a second opening (**112**) for dispensing the bulk material by gravity. Beneath this second opening, there is provided a means for dispensing the bulk product in a controlled manner. The means for dispensing the bulk product in a controlled manner, as per the embodiment illustrated herein, consists of a pulley (**200**) comprising open (**201**) and closed (**202**) portions distributed radially at intervals along its perimeter. According to this embodiment, the pulley (**200**) comprises three open portions (**201**) and three closed portions (**202**), but naturally a greater or lesser number of open and closed portions (**201**, **202**) may be provided.

[0049] Preferably, the radial segment that corresponds to each of the open and closed portions (**201**, **202**) of the pulley (**200**) have the same angular length, such that the volume capacity of each of the portions is substantially the same. Still preferably, the radial length of each of the portions may correspond to the width of the lower opening (**112**) of the container (**110**) for storing the bulk product. In an alternative embodiment, the lower opening (**112**) may be slightly smaller than the radial length and width of each of the portions (**201**, **202**) of the pulley (**200**). Accordingly, the pulley (**200**) may operate, on the one hand, as a means of closing the lower opening, when the closed portion (**202**) of the pulley (**200**) is in contact with the lower opening (**112**) of the container (**110**) and, on the other hand, may operate as a means of dosing the bulk product, since the product will be transferred by gravity of the storage container (**110**) to the open portion (**201**) of the pulley (**200**).

[0050] The pulley (**200**) may be directly mounted on a specific portion provided in the structure of the dispenser itself, as per the illustrated embodiment, or alternatively be mounted on an axle provided in its rear portion. The fastening means of the pulley (**200**) are indifferent for the scope of the invention and may be determined by a person skilled in the art, provided that they enable the pulley (**200**) to rotate at least partially.

[0051] In the front part of the pulley (**200**), there may be provided a means for driving the pulley (**200**), such as a handle (**210**) or button endowed with an asymmetric axle (**211**) that is encased in a corresponding opening (**203**) provided in the pulley (**200**) itself. The asymmetric axle (**211**) may be desirable for, on the one hand, allowing the transfer of a force applied on the handle to the pulley (**200**) and, on the other hand, allowing markers (**212**, **213**) to be provided on the handle or button and on the container, to indicate the positive of the pulley (**200**) in relation to the lower opening (**112**), that is, in the closed position (**202**) (in which no product is dispensed), or open, that is, in which the product is dispensed, as will become clearer from the description on how to operate the dispenser of the invention.

[0052] The handle (**210**) may further comprise a toothed ring (**250**) mounted on the axle (**211**), between the handle and the pulley (**200**), to provide a controlled turning course of the handle. In other words, the toothed ring creates a resistance to

the natural turning of the handle, mechanically interacting with the inner teeth (**251**, FIG. **11**) of the handle and creating vibration, allowing the rotational movement to be made in a more controlled manner by the user and, consequently, the user may make the turn better such that the markers meet each other, without running the risk of turning the handle more than necessary.

[0053] Beneath the pulley (**200**) there may be provided a dosing drawer (**300**) in which the bulk product is collected. The drawer (**300**), as per the illustrated embodiment, is encased in rails (**316**) provided in the structure of the dispenser assembly (**100**) itself and, accordingly, comprises corresponding rails (**315**) so that it may encase in, be fastened to and slide on the dispenser assembly. The dosing drawer (**300**) comprises a first compartment (**301**), provided to receive the bulk product after dispensing, and may also comprise a knob (**303**) to facilitate its removal from or insertion into the dispenser assembly (**100**). A second compartment (**302**), provided after the first compartment (**301**), in a particular embodiment, may be desirable in order to prevent seepage and wastage of the bulk product, as will also become obvious with the description of how to operate invention ahead.

[0054] Beneath the dosing drawer (**300**) there may also be provided a tray (**400**), also endowed with a knob (**401**), for collecting any bulk product remains as may fall from the drawer (**300**). Like the drawer, the tray may be encased, fastened on the dispenser assembly by means of rails (**415**, **416**) provided both in the structure of the dispenser assembly as on the tray itself.

[0055] In an additional embodiment, the rear part of the pulley (**200**) comprises an opening (**204**) in which there may be encased an agitator (**500**), which extends vertically from the pulley (**200**) inwardly of the storage container (**110**) and solidary to the rotational movement of the pulley (**200**). The agitator may comprise a series of vertical (**502**) and horizontal (**501**) segments to agitate the bulk product inside the container (**110**) when the pulley is driven, as will become clear from the description of how to operate the assembly of the invention.

[0056] The dispenser assembly (**100**) may further comprise side openings (**601**, **602**) of the male and female kind for side encasement with other dispenser assemblies (**100**, **100'**), respectively, so as to form two or more solidary assemblies.

[0057] The following description relates to operating the dispenser assembly (**100**) of the invention.

[0058] A quantity of bulk product, such as a powdered food supplement is dispensed from its original packaging inside the container (**110**) for storing the bulk product through the upper opening (**111**) of said container (**110**). Once the bulk product has been dispensed, when maximum or desired limit for storage in the container (**110**) is reached, the lid (**150**) of the upper opening (**111**) may be closed in order to prevent the product from being contaminated by other external elements or be subjected to the action of humidity, which may facilitate the development of fungus or pellets in the bulk product, whereby adversely affecting adequate dispensing.

[0059] When the bulk product is filled into the container (**110**), it passes through the lower opening (**112**) of said container (**110**) and comes into contact with the controlled dispensing means, namely the pulley (**200**), as per the illustrated embodiment. If the closed portion (**202**) of the pulley (**200**) is in contact with the lower opening (**112**) of the container (**110**), the bulk product will remain contained inside the container (**110**). When the drive handle (**210**) of the pulley (**200**) is turned clockwise, for example, it will change from a closed position (**202**) in relation to the lower opening of the container (**110**), to its open portion (**201**). By gravity, the bulk product will fill the inside of the open portion (**201**) of the pulley (**200**) with the bulk product. By continuing the rotational movement of the handle (**210**), namely by 180°, the user will dislocate the open portion (**201**) of the pulley (**200**) containing the bulk product to inside the drawer (**300**). Thus, the bulk product is transferred, also by gravity, from inside the open portion (**201**) of the pulley (**200**) to the first compartment (**301**) of the drawer (**300**). Since the open and closed portions (**201**, **202**) of the pulley (**200**) are **60**° out of phase with each other, as per this embodiment, it will become clear that when an open portion (**201**) of the pulley (**200**) is aligned with the dispenser exit, the closed portion (**202**) of the pulley (**200**) will be aligned with the lower opening (**112**) of the container (**110**).

[0060] The product contained inside the first compartment (**301**) of the drawer (**300**) may be withdrawn when removing the drawer (**300**), using the knob (**303**), outwardly of the dispenser assembly (**100**). Since a certain quantity of bulk product may exceed the height of the first compartment (**301**) of the drawer (**300**), as it is pulled, the bulk product will be dragged to the second compartment (**302**) by contact of the bulk product exceeding the height of the drawer (**300**) with the structure of the dispenser assembly. Naturally, the second compartment (**302**) may have a smaller storage volume than the first compartment (**301**), since it is designed merely to receive any excess bulk product, so as to prevent any wastage. The bulk product contained in the compartments (**301**, **302**) of the drawer (**300**) may be poured for consumption.

[0061] Moreover, still to minimize any additional wastage, a tray (**400**) may be provided beneath the drawer (**300**) with a view to collecting any amount of bulk product as may fall from the drawer (**300**). The tray may be easily withdrawn or inserted by its knob (**401**) and the bulk product as may be contained in the tray (**400**) may also be poured for consumption or reinserted into the compartment (**110**) of the assembly.

[0062] The agitator (**500**) provided in solidary form to the pulley (**200**) enables the bulk product contained inside the container (**110**) to be agitated, so as to foster a mixture of the product and keep it homogenized, and assist the fall of the bulk product from the walls of the container **110**, as well as to fill the open portion of the pulley **201**, whenever the pulley (**200**) is driven by way of the handle (**210**). As mentioned, the agitator (**500**) may comprise rods both vertical (**502**) and horizontal (**501**) to rotate the bulk product efficiently. Accordingly, as the pulley (**200**) is turned by its handle (**210**), the agitator (**500**) is also moved inside the container (**110**) in an oscillatory movement, due to the transfer of the rotational movement of the pulley (**200**) to a vertical oscillatory movement of the agitator.

[0063] After several uses, it may be desirable to clean or wash the dispenser assembly (**100**) of the invention. In this case, the assembly of the invention provides a simple disassembly of all its component parts for cleaning and washing, as can be seen in FIG. **4**. In this sense, both the drawer (**300**), and the tray (**400**) and the upper (**111**) lid (**150**) may be easily removed. The pulley (**200**) may also be removed by way of the upper opening (**111**) of the container (**110**), by withdrawing the handle (**210**) with the axle. Since the pulley (**200**) is merely encased in a semi-circular structure provided in the lower portion of the container (**110**), it can simply be removed by pulling it through the upper opening (**111**) and then inserting it again. The agitator may also be simply encased in the

pulley (**200**) by way of the opening (**204**), such that it may also be easily removed for cleaning.

[0064] The accompanying drawings also represent the dispenser assembly formed by two containers (**110**) which are encased together by way of the male and female rails (**601**, **602**), forming a solidary unit of two or more assemblies (**100**, **100'**). This junction of two or more assemblies may form a dispensing station of one or more bulk products to form a combination of various products, in a simple and efficient manner.

[0065] FIG. **8** represents a suitable packaging (**500**) to be used with the dispenser assembly of the invention. The packaging preferably has a parallelepiped shape substantially like the shape of the container of the dispenser assembly, and may also have width and height measurements similar to those of said container with a view to being encased therein, as will become clearer ahead. In the upper portion of the packaging, there may be provided a portion having a perforated strip (**501**) for removing the lid (**502**) from the packaging, as represented in FIG. **10**. In other words, when the strip (**501**) is removed, the lid (**502**) detaches from the remainder of the packaging, forming an opening (**503**). Once opened, the content of the packaging, such as a food supplement, may be poured inside the container (**110**) through the upper opening (**111**) thereof.

[0066] Side folds (**505**, **506**) enable the opening of the packaging to conform to the cone portion of the container (**110**) such that the packaging (**500**) conforms to the shape of the container and, accordingly, becomes fastened therein, as represented in FIG. **10**. Advantageously, the packaging may comprise a label with information and the indication of the food supplement, whereby enabling this information to be easily and quickly related to the user of the dispenser assembly of the invention, since the packaging may be kept in the dispenser assembly.

[0067] It must be recognized that although the present invention has been described in relation to its particular embodiments, persons skilled in the art may propose a series of modifications in shape or structure, or may apply the principles of the invention to other applications not foreseen herein yet without straying from the concepts expounded herein. Therefore, the accompanying claims should be interpreted as encompassing all and any equivalents falling within the concepts of the invention.

1. An assembly for dispensing bulk products, comprising:
- a container for storing the bulk product and endowed with an opening for filling the bulk product and an opening for dispensing said bulk product;
- a means for dispensing the bulk product in a controlled manner provided beneath said second opening; and
- a means for receiving said dispensed bulk product.

2. The assembly of claim **1**, wherein said opening for filling the bulk product is closed by a lid

3. The assembly of claim **1**, wherein said means for dispensing the bulk product comprises a pulley endowed with open and closed portions.

4. The assembly of claim **3**, wherein said pulley comprises three open portions and three closed portions marked on the handle and on the container, which marks an open or closed position of the pulley.

5. The assembly of claim **4**, wherein said open and closed portions of said pulley comprise substantially the same radial length.

6. The assembly of claim **3**, wherein said open and closed portions of said pulley comprise an angular length substantially equal to or less than the width of said opening for dispensing the bulk product.

7. The assembly of claim **1**, wherein said means for receiving said dispensed bulk product is a dosing drawer endowed with a compartment.

8. The assembly of claim **7**, wherein said dosing drawer further comprises a knob.

9. The assembly of claim **7**, wherein the compartment is a first compartment, and wherein said dosing drawer further comprises a second compartment provided at the rear portion of said first compartment.

10. The assembly of claim **1**, wherein said dispenser assembly further comprises a tray provided beneath said means for receiving the bulk product.

11. The assembly of claim **10**, wherein said tray further comprises a knob.

12. The assembly of claim **1**, wherein said dispenser assembly further comprises side fastening means.

13. The assembly of claim **12**, wherein said side fastening means are formed by male and female rails that enable the sliding and fastening of one dispenser assembly to another.

14. The assembly of claim **3**, wherein said pulley further comprises an agitator which extends vertically inwardly of the container.

15. The assembly of claim **14**, wherein said agitator comprises vertical and horizontal segments to agitate the bulk product inside the container when the pulley is driven.

16. The assembly of claim **1**, further comprising a packaging.

17. The assembly of claim **16**, wherein said packaging comprises a shape substantially equivalent to the shape of said container.

18. The assembly of claim **16**, wherein said packaging further comprises an upper opening defined by a lid separable by a perforated strip.

19. The assembly of claim **16**, wherein said packaging further comprises side folds to conform to the shape of said container and be fastened therein.

20. The assembly of claim **3**, wherein said pulley is driven by a handle.

21. The assembly of claim **20**, wherein said handle further comprises a toothed ring on the inner part to vibrate during its turning path, and a part fastened on the body of the dispenser that strikes these teeth causing vibration, this vibration proceeds to the pulley, causing the powder to fall by vibration and gravity to the dosing tray.

* * * * *