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(54) A dispensing device for detergent tablet

(57) The present invention provides a tablet dispensing device (10) adapted to retain a detergent tablet. The tablet dispensing device comprises a first leg (11) and a second leg (12) whereby the first leg is pivotally connected (15) to the second leg. The first and second legs are movable around the pivotal connection (15) enlarging or narrowing the angle between the first and second leg. At least one leg comprises a holding means retaining the tablet in between the first and second leg once the tablet is introduced in between the first and second leg.

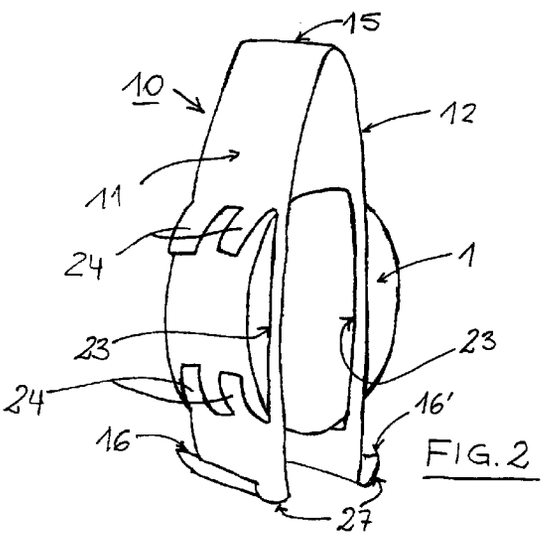

FIG. 2

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Description

Field of the Invention

The present invention relates to a dispensing device for detergent tablet for use in dish and laundry washing machines.

Background of the Invention

Detergent compositions formed in non particulate solids such as bars or tablets or briquettes are known in the art. In the following, the term "tablet" will refer to any form of non particulate solids. The tablet provides a number of advantages to both the consumer and the manufacturer. Indeed, said tablet prevents spillage of the detergent composition. Furthermore, said tablet eliminates the need for the user to estimate the dosage of detergent composition required and ensures that the correct dosage of detergent composition per wash cycle is used by the user.

To further simplify handling and in order to maximize dissolution, thus performance of the detergent tablet, many detergent compositions manufacturers provide the consumer with dispensing devices in which to place the detergent tablet prior to being placed in the washing machine. As a result, dispensing devices in the form of baskets or cradles are often utilized for example in automatic dish or laundry washing machines to maximize the performance of the tablet.

The tablets available on the market are generally sold packed in containers in a loose way or individually wrapped in bags. Therefore, the user needs if necessary to unwrap said tablet, to take a tablet between the fingers and eventually to put said tablet in the separate dispensing device. We found that small granules or particulate and/or fine dust of detergent are present on the tablets themselves or lying in the container. We also found that the granules or particulate and/or dust are created by the friction between said tablet and the other tablets and/or the inner side walls of the container or bag.

In this manner, the fingers get in contact with the dust and/or small particulate of detergent composition of the tablets. Small granules or particulate and/or fine dust of detergent may remain stuck on the fingers or in between the nails of the fingers during this handling. This is not very convenient for the user, since it is an unpleasant feeling. Indeed, after every handling the user needs to wash her/his hands to eliminate said detergent particulate or dust.

It is therefore an object of the present invention to provide a dispensing device for tablets of a detergent composition which can be filled with such a detergent tablet without the user having to take said detergent tablet in between the fingers.

Summary of the Invention

The present invention provides a tablet dispensing device (10) adapted to retain a detergent tablet. The tablet dispensing device comprises a first leg (11) and a second leg (12) whereby the first leg is pivotally connected (15) to the second leg. The first and second legs are movable around the pivotal connection (15) enlarging or narrowing the angle between the first and second leg. At least one leg comprises a holding means retaining the tablet in between the first and second leg once the tablet is introduced in between the first and second leg.

Brief Description of the Figures

Figure 1 is a front view of a tablet dispensing device of a first embodiment of the present invention.

Figure 2 shows a perspective view of a tablet dispensing device of a second embodiment of the present invention.

Figure 3 illustrates a side view of a tablet dispensing device of a third embodiment of the present invention.

Figures 4a to 4c schematically show the sequence of handling and use of any of the embodiments of the present invention.

Figures 5a and 5b are perspective front views of a detergent tablet which may be used in any of the embodiments of packages according to the present invention.

Detailed Description of the Invention

In the following any form of non particulate solids such as bars or tablets or briquettes will be encompassed by the term "tablet" (1). Pharmaceuticals in tablet form are, for example, tablets according to the present invention. Preferably, said tablet is made of a detergent composition, specifically a detergent composition for washing of laundry or dish. Said tablet may have any shape or dimension. Preferably, said solid, non particulate tablet is symmetrical to ensure the uniform dissolution of said tablet in the wash liquor or in other specific environments.

According to the present invention the detergent tablet (1) may comprise any ingredients known in the art. Such ingredients may include surfactants, suds suppressers, beaches, chelants, builders, enzymes, fillers and perfumes.

According to the present invention the detergent composition of the tablet (1) is prepared in its granular or particulate form and then formed into tablets of the desired shape and size by any one of the methods known in the art. Suitable methods include compression, extrusion and casting. The detergent composition may be homogeneously distributed throughout the tablet or may comprise distinct layers of certain detergent ingredients. Preferably, the shape of said detergent tab-

let is cylindrical, as shown, for example, in Figure 5a. In this case the dimensions of said detergent tablet are defined by the diameter (d) and by the height (h). Usually, detergent tablets have a cylindrical shape with the diameter being greater than the height of said tablet. Another possible shape of said tablet is rectangular, as shown, for example in Figure 5b. In this case the dimensions of this detergent tablet are defined by the length (L), by the width (w) and by the height (h). Usually, in a rectangular tablet the length is the greatest dimension and the width is equal to the height.

Figure 1 shows a tablet dispensing device (10) in a first embodiment of the present invention. The tablet dispensing device comprises a first leg (11) and a second leg (12). The first leg is pivotally connected (15) to the second leg. The angle between the two pivotally connected legs forms an acute angle. This angle is measured when the tablet dispensing device is in its rest position and in the enclosed region between the two legs starting from one leg towards the other leg at the minimal distance. The "rest position" of the tablet dispensing device according to the present invention is the position of the legs when there is no force exerted on the legs themselves. In practice the tablet dispensing device according to the present invention resembles tweezers.

The first and second legs are movable around the pivotal connection (15) enlarging or narrowing the minimum distance between the first and second leg. Consequently, the angle between the first and second leg can be enlarged or narrowed compared to the angle when the tablet dispensing device is in its rest position. The enlarging of the distance or of the angle is at least such that the free ends (16, 16') of the legs can be distanced from each other to pick and introduce a detergent tablet between the two legs.

The tablet dispensing device according to the present invention further comprises a holding means (20). The holding means retains the tablet in between the tablet dispensing device once the tablet is introduced in between the first and second leg at least until the tablet is dissolved in the wash solution. In particular, as used herein, the wording holding means refers to any mechanism whereby access to the tablet, once inserted in the tablet dispensing device, is reduced so that the tablet cannot be readily removed. This holding means may also provide a substantially reduced access to the tablet by infants and children, thereby providing a child resistant feature to the tablet dispensing device according to the present invention.

In a preferred embodiment of the present invention the holding means comprise a hook (21) and a counter-hook (21'), as shown in Figure 1. Each of the legs (11) and (12) comprises an extension in form of a hook. These hooks are located on the surfaces of legs which approach each other by squeezing together the legs and facing each other. In the following the surfaces of the legs which approach each other by squeezing together the legs and facing each other is called the innermost surfaces of the legs. Figure 1 illustrates the tablet dispensing device when the hooks are in engaged position. In this manner, the legs are retained in this position and the tablet, once inserted into the tablet dispensing device, is held between the legs. In practice, the tablet is held by the tablet dispensing device by squeezing the tablet between the legs (11) and (12). We found that the engagement between the hook and counter-hook also provides a child resistant feature to the tablet dispensing device according to the present invention. The smallest or the greatest dimension of the tablet may be squeezed between the legs of the dispensing device.

In another preferred embodiment of the present invention the holding means comprises a recess (23) on the leg (11) or (12). The recess is on the innermost surface of the leg. The recess is characterized by two dimensions which are the length and the width. The width of the recess corresponds to the height (h) of a cylindrical tablet or to the width (w) of a rectangular tablet. The length of the recess corresponds only partially to the diameter (d) of the cylindrical tablet or only partially to the length (L) of a rectangular tablet or completely corresponds to the height (h) of a rectangular tablet.

Preferably, the recess (22) is placed in such a manner on the innermost surface of the leg that the length of the recess is parallel to the leg pointing towards the pivot (15). Consequently, a tablet is preferably retained between the legs (11) and (12) such that the tablet does not protrude perpendicularly to the direction of the legs, as shown, for example in Figures 1 and 2. Preferably, each leg (11) and (12) of the tablet dispensing device of the present invention comprises a recess. In another preferred embodiment, the recess (22) is a cut (23) through the thickness of one or both legs. In this manner the tablet, when it is inserted between the legs partially protrudes through the cut over the outermost surface of the leg. This is shown, for example, in Figure 2. We found that this improves the retaining of the tablet between the legs of the tablet dispensing device.

As a preferred option, the tablet dispensing device may further comprise the hook (21) and counter-hook (21') in addition to the recess (22) or the cut through the thickness (23). The hook and counter-hook are then located under the recess or under the cut through the thickness with respect to the pivot (15). The hook and counter-hook provide the tablet dispensing device with a child resistant feature.

As another preferred option, the first and second legs are movable around the pivotal connection (15) in a resilient manner. This option can be applied to any of the embodiments described above. Consequently, due to the resiliency of the pivotal connection, the first and second legs automatically return to their rest position once the force applied to the legs is released. We found that this further provides an advantageous holding property of the tablet between the legs. Indeed, when the tablet is held between the legs, enlarging the distance of

the legs between each other, the legs further exert a pressure onto the tablet. This is due to the resiliency of the pivotal connection which tends to close the legs towards each other. Therefore, the user does not need to exert any additional forces onto the legs to keep the tablet between the tablet dispensing device.

As a preferred option, the tablet dispensing device may further comprise at least a flexible arm (24) located in the region of the cut through the thickness (23). This flexible arm is bent outwards around the outer surface of the tablet when the tablet is retained in the holding means, as shown in Figure 2. Otherwise this flexible arm is within the plane of the cut through the thickness as shown in Figure 3. In another preferred optional embodiment of the present invention, the tablet dispensing device comprises a fastening means (25). As used herein fastening means refers to any means which can be adapted to secure the tablet dispensing device to the interior of an automatic dish or laundry washing machine such that it can be released therefrom when required. The fastening means is preferably made of similar or identical material to that of the tablet dispensing device itself. The fastening means may preferably be located on top of the pivot (15). Alternatively, the fastening means may also be loated at the extension of the free end (16, 16') of at least one leg.

The fastening means preferably comprises at least a hook, as shown in Figure 3. The hook is fastened preferably on a side wall of a cutlery basket. We found that the tablet dispensing device is able to stand along the free ends (16, 16') of the legs (11, 12) with and without holding a tablet. Preferably, the stability upon standing of the tablet dispensing device can be improved by having the edge of the free ends bent to form a convex portion (26), as shown in Figure 1 or 2.

The tablet dispensing device according to the present invention can be used in the following manner as illustrated in Figures 4a to 4c. The tablet dispensing device is held in a hand, in a manner that the space between the free ends (16, 16') remains always unobstructed and at least two fingers are able to press onto the legs (11) and (12). In this manner, the tablet dispensing device can be passed over a tablet between the free ends (16, 16') as shown in Figure 4a. The tablet dispensing device is pushed onto the tablet, thereby the legs are spread apart in a flexible manner and the angle between the legs is increased, as shown in Figure 4b. The tablet dispensing device is pushed onto the tablet until the tablet is retained in the holding means, as finally illustrated in Figure 4c.

In a second preferred embodiment of the present invention the tablet dispensing device has to be squeezed in order to separate the legs (11, 12) from each other. In this case the tablet dispensing device is made like a clothes-peg. The squeezing force may be exerted on part of the legs of the tablet dispensing device, preferably on a part above the pivot (15) with respect to the holding means (20). After having separated through squeezing the legs from each other, the user is able to pick up a tablet and retain the tablet between the legs, as already described in Figures 4a to 4c.

The tablet dispensing device of the present invention may be formed from any water resistant material that can withstand moderately elevated temperatures, such as those reached in automatic washing machines, e.g. about 95° C, for a relatively long period of time (about 3 hours) and which can be formed into the desired shape. Preferably the dispensing device is made of low cost thermoplastic material such as polypropylene and formed by injection moulding or thermoforming. The means (20) which allows to take said detergent tablet and introduce said tablet into said dispensing device without having a contact between the fingers of a user and said detergent tablet is preferably formed from the same material as the body of said dispensing device.

We found that the tablet dispensing device according to the present invention has following further advantages. The tablet dispensing device according to the present invention does not need a cradle, as in EP-A-699 410, to hold and retain a tablet. Consequently, the tablet dispensing device according to the present invention is of a simplier construction and has a lower cost compared to the tablet dispensing devices of the prior art. Furthermore, due to its simple construction, the tablet dispensing device can be of low weight and can take a minimal space in the packaging when assembled together with the tablets. Consequently, it is also easy to assemble the package and this tablet dispensing device together. Indeed, no separate packaging from the main packaging containing the tablets has to be foreseen for the tablet dispensing device according to the present invention.

Finally, the tablet dispensing device according to the present invention is relatively easy to produce. Indeed, this tablet dispensing device is preferably produced as a flat piece first in a thermoforming or injection moulding process, and then formed by bending around the pivot (15) to achieve the tweezers-like tablet dispensing device according to the present invention. The bending around the pivot is achieved by warming up the flat piece and bending the warmed up flat piece over a mould of appropriate shape. Another possibility is to injection mould the tablet dispensing device immediately in the right shape.

Claims

1. A tablet dispensing device (10) adapted to retain a detergent tablet comprising a first leg (11) and a second leg (12) whereby the first leg is pivotally connected to the second leg, the first and second legs being movable around the pivotal connection (15) enlarging or narrowing the angle between the first and second leg, characterized in that at least one leg comprises a holding means retaining the tablet in between the first and second leg once the

tablet is introduced in between the first and second leg.

2. A tablet dispensing device according to claim 1 characterized in that the holding means comprise a hook (16) and a counter-hook (16').

3. A tablet dispensing device according to any of the preceding claims characterized in that the holding means comprises at least a recess.

4. A tablet dispensing device according to claim 3 characterized in that the recess is a cut through the thickness of the leg.

5. A tablet dispensing device according to claim 4 characterized in that the tablet dispensing device further comprises a flexible arm (24).

6. A tablet dispensing device according to any of the preceding claims characterized in that the first and second legs are movable around the pivotal connection (15) in a resilient manner

7. A tablet dispensing device according to any of the preceding claims characterized in that the tablet dispensing device further comprises a fastening means (25) adapted to secure said dispensing device in a releasable manner to the interior of an automatic washing machine.

8. A tablet dispensing device according to any of the preceding claims characterized in that the edges of the free ends (16, 16') of the legs (11, 12) are bent such to form a convex portion (26).

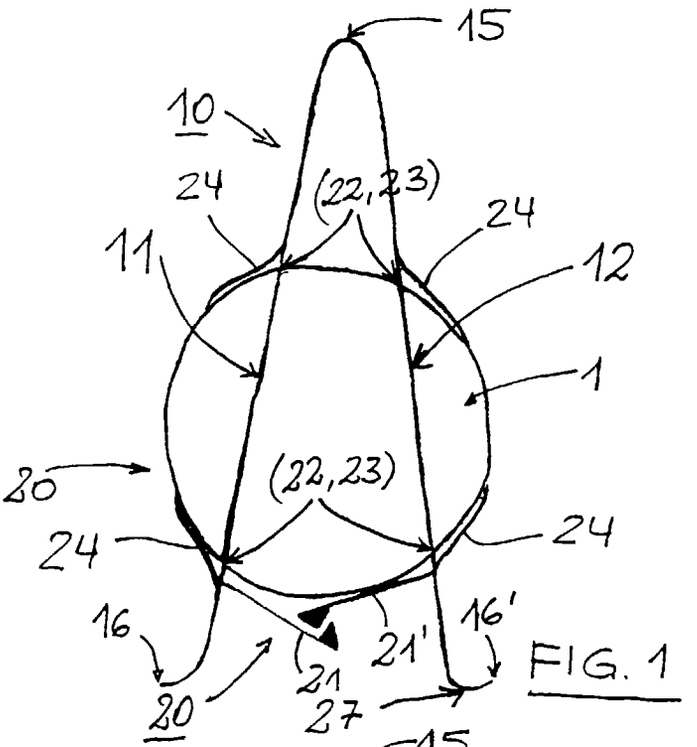

15
10
24
(22,23)
24
11
12
1
20
(22,23)
24
24
16
16'
21
21'
20
27

FIG. 1

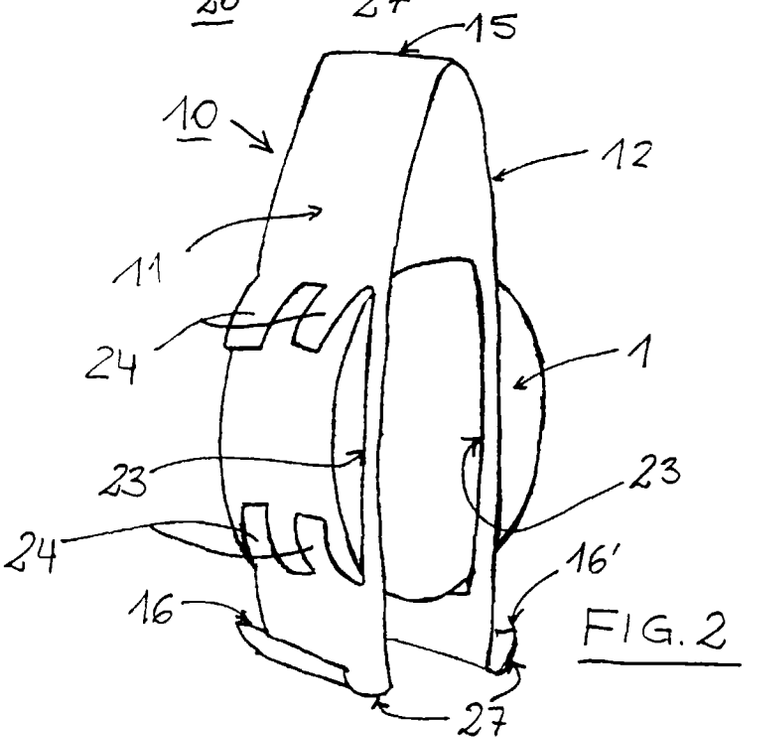

15
10
12
11
24
1
23
23
24
16'
16
27

FIG. 2

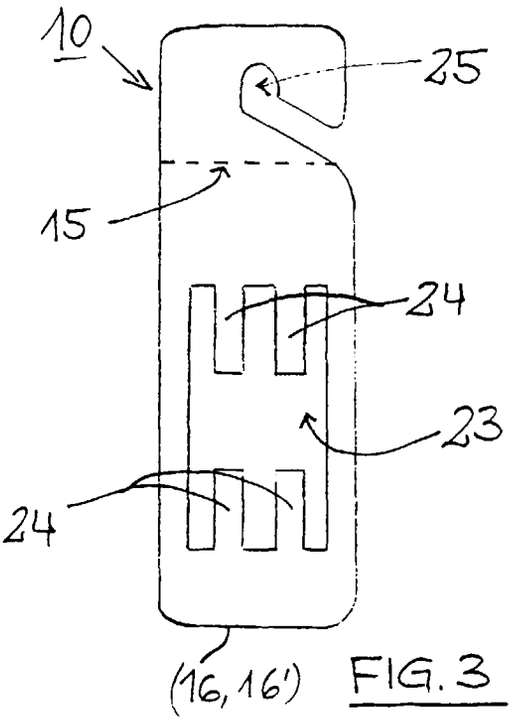


FIG. 3

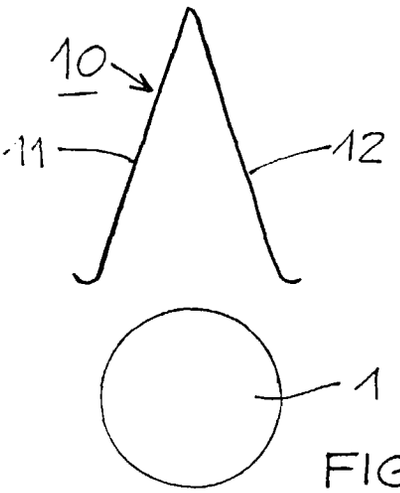


FIG. 4a

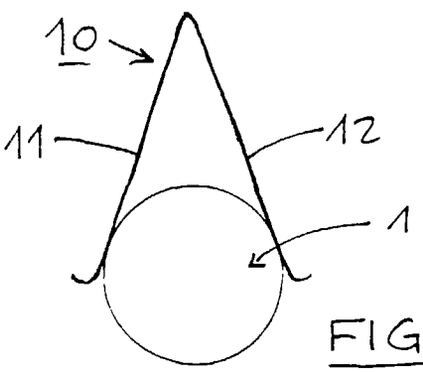


FIG. 4b

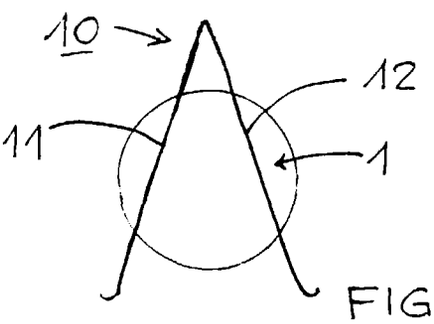


FIG. 4c

Fig. 5a

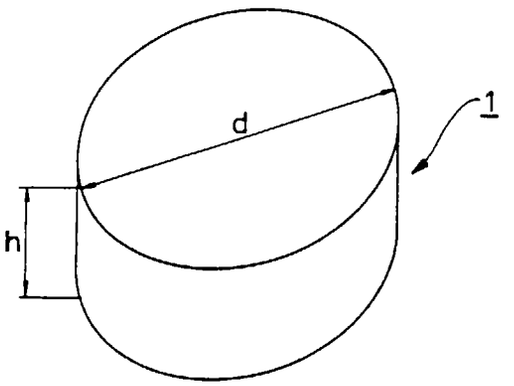
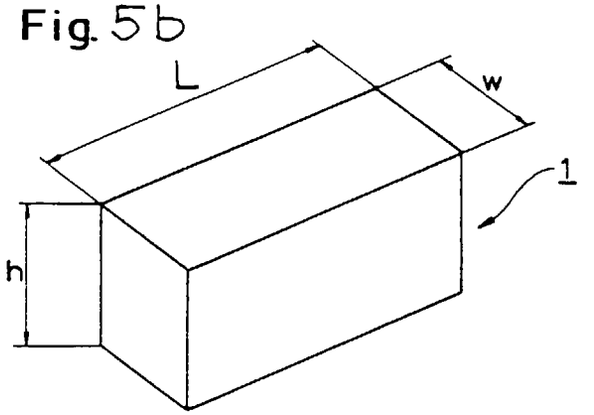


Fig. 5b



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EUROPEAN SEARCH REPORT

Application Number
EP 96 30 1380

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	EP-A-0 691 102 (THE PROCTER & GAMBLE COMPANY) * claims; figures * ---	1	A47L15/44
A	DE-A-23 24 185 (HENKEL & CIE GMBH) * claim; figures * -----	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

A47L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	27 August 1996	Courrier, G

CATEGORY OF CITED DOCUMENTS

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