

Title: Cotton wool dispenser

The invention covers a packaging for stacking of absorbing materials such as cotton wool tampons and such hygiene articles. The packing consists of (1) first end, (2) a second end and (3) a closure face and (4) cylindrical (rounded) side wall which embodies a storage for the articles and which also connects the first end and the second end to the final closure face and thus enabling the withdrawal of one article at a time. The aperture on at least one side is smaller than the withdrawn article in the same direction, whilst the second end encounters the resting-points that define a resting surface to support the packaging on its supporting surface. The aperture can be re-closed as of free choice.

As of US 1,890.295 A, packaging of the mentioned stacking of cotton wool tampons is already known. This packaging is suitable for transport of cotton wool tampons from the production line to retailers and further to the final users and protects the tampons against dust and spray from an area above after the packaging is opened. In connection with the withdrawal (dispensing) of the tampons this packaging includes an aperture, which faces the support face, which also can be closed by a flap, hinged to the underside of the packaging.

This invention is furthermore known as of: FR 1 552 648 A1, as a support of the above mentioned type to flexible sheet formed articles such as round shaped cotton wool tampons, where the dispenser is constructed with an aperture that is smaller than the article. The stack of articles is lead towards the dispensing aperture by the aid of an intermediate platform with the help of a spring-loaded device.

The drawback of these types of packagings is that the aperture for removal of the articles is situated on end face of the packaging, which also forms the supporting platform. Should these packages be placed on the supporting platform in a way that the end wall with its aperture facing downwards so as to avoid soiling and spray from above, this will enable the end wall to be subject to soil and moisture that is situated below the supporting platform level and thus enabling these aliens to enter the packaging and damage the contents of the packaging.

A packaging covering the first space containing the absorbing material, a second space, which is situated below the first space, is known in US 6,588,626. The first space is therefore elevated above the supporting surface so as to protect this from puddles of water on the supporting surface. The aperture for the dispensing the articles is situated in the compartment
5 wall and the articles are therefore not protected in the same way against soil and spray.

The aim of the invention is to produce a packaging for a stack of absorbing materials, such as cotton wool tampons or the similar articles of hygiene, where the packaging protects the articles against soil and spray from above and the sides as well as to prohibit contamination
10 from below and also on the supporting surface – as well as to enable the articles to be withdrawn from the packaging one by one.

Another aspect of this invention is to produce a packaging with sufficient ventilation in the vicinity around the outmost article, which is not protected by the end walls, and so as to
15 eliminate biological contamination in the way of, mould, and bacterial cultures.

The characteristic of the invention, and so as to achieve the above mentioned targets for packaging, the special features as of demand 1 are recognised by the mentioned features in connection with the demand 1's opening characteristics.

20 Advantageous methods of production are mentioned in dependent demands 2-10.

To assist the supporting means, the end wall aperture is elevated above the supporting surface and thereby limits the packaging contact area of the part of the packaging, which contains the articles, and thus avoiding any fluids in the vicinity of the supporting surface
25 entering the packaging and damaging this or the contents.

The end with the aperture covers the packaging resting points on which the package can stand on. The resting points can at least be three, a rounded edge or cover one or more surfaces. The resting points lays level and defines the resting surface. When the packaging
30 stands upon the resting surface it then, at all times, supports the packagings point of gravity.

The second end of the packaging, in comparison to the end wall, forms a resting surface for the extruding support-devices of which the resting points, that lay within an outward going distance to the end walls aperture. When the packaging is standing on the resting surface the aperture turns downwards and is raised higher than the supporting surface. By this, the articles are protected, and especially the outermost, against dust, soil and spray from above as well as they avoid contact with the supporting surface and soil and moist that can be on the supporting surface.

- 10 In accordance to the invention, the packaging is mainly formed as a container of a stiff or semi stiff material such as cardboard, plastic or metal. The rounded surface of the packaging is formed as a tube, which embodies and holds the stack of articles. It is advantageous that the tube has body dimension that fits the articles dimensions and form – but can however, have any other geometric shape. The material should be suitable so as to eliminate dust and spray, – but, as a result of the special construction, which will reduce the packaging contact with the surface, need not be able to sustain continued contact with water other places than the packaging resting points.

This means that the packaging design can have a greater freedom in choice of materials and construction. In a preferred design pattern this can be produced as single use packaging.

- 20 The packing can be filled during production and be finally sealed at the first end by folding, heating, welding or adhesion methods or, by fitting an end wall. In specific cases, where reusable packaging is concerned, the packagings first end can be closed with a removable flap cover allowing refilling.

- 25 Basically, the articles can be removed from the packaging in two directions. A radial direction, which is substantially at a 90-degree angle to the axis of the stack or, an axial direction, that is substantially parallel to the axis of the stack. In a preferable execution form the packaging longitudinal axis, which runs from the first, to the second end of the packaging will run in a parallel axis so that the articles can be withdrawn one by one in that direction.

According to the invention, and in an advantageous execution form, the supporting device is formed by a elongation of the packagings circular wall. In this way, the supporting devices can easily be produced at low cost.

5 When in use in a moist environment it is advantageous that the supporting devices include ventilation openings that permit airflow so as to avoid formation of mould within the area that is enclosed by the packagings outer wall, the supporting device and the supporting surface.

10 In an advantageous execution form the resting points form a straight line. The packaging rests steady on this closed line, which forms the resting surface. This will reduce the possibility of water damage to the packing as contact with the supporting surface.

In another execution form the supporting devices are formed as a number consisting of at
15 least three legs. By this, the packaging rests only on a few points and thus reducing furthermore the possibility of the supporting surface being damaged by fluids. Furthermore, the packing will be less sensitive to uneven supporting surfaces thus making the packaging even more steady.

20 The articles can be forced towards the aperture simply by the weight of the stack of articles but will mainly be led to this with the aid of an advancing device. In an advantageous execution form, the advancing device would be formed by the help of an intermediate base, which lies towards the end of the article stack opposite the aperture and thus pressing against the opposite end. The thrust force can be attained by attaching the intermediate base to the
25 packaging by the aid of elastic elements which can be pre-tensioned at fillings stage so that the intermediate base and the stack of articles are forced or drawn to the aperture and thereby brought into contact towards the aperture in the end wall. In accordance to the invention, alternative execution forms such as "screw" devices as known from example lipsticks, can be implemented.

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The inventions is explained below with reference to the drawing. On the drawings the following is shown:

- Fig. 1 – A inaugural production form for a packaging in accordance to the invention.
- 5 • Fig. 2 – The packaging, as in accordance to fig.1, and as seen from below.
- Fig. 3 – The packaging in accordance to fig. 1 showing the spring-loaded intermediate base
- Fig. 4 - Set from the front as an alternative production form for a packaging in accordance to the invention as a tube.
- 10 • Fig. 5 – The packaging in accordance to fig. 4 seen from the side and as a section
- Fig. 6 – The packaging as in accordance to fig. 4 seen from below, and

Figures 1 and 2 show an inaugural execution form of the packaging in accordance to the invention. The packaging covers a first end, a second end complete with a end-wall, a
15 Cylindrical (rounded) wall 4 which embodies a volume area 5 to facilitate a stack 12 of flat, flexible and absorbing articles 10. The end-wall 3 covers an aperture 6 for withdrawal of the articles 10. The aperture 6 has a dimension d , in this as shown execution form a diameter of a circular aperture, where the dimension d is less than that of the articles dimension D in the same direction. The stack of articles 12 lies with the outermost article 11 against the end wall
20 3 and retains by this. The outermost article 11 is however accessible for withdrawal through aperture 6. The articles 10 can be easily be withdrawn one by one by grabbing the outermost article and withdrawing this through aperture 6.

The rounded wall 4 is extended outwards over the apertures 6 level so as to form supporting
25 devices 8. When the packaging is placed on a supporting surface with aperture 6 in the end wall 3 facing downwards, the packaging rests only on supporting points 7 by the supporting devices end 8. The aperture 6 is elevated above the supporting surface in a way that articles 10, and especially the outermost article 11 does not come into contact with soil or fluids on the supporting surface. Another advantage with this execution form is that the packagings
30 contact with the supporting surface is reduced to a straight supporting face.

The packaging has an advantageous cross section, which is adapted to the articles dimensions and shape as of figures 1 and fig. 2 shown execution form is a round shaped end-wall cross section, of which can have an other arbitrary geometric shape such as an ellipse or an enclosed polygon. Further more, an aperture 6 assumes any shape what-so-ever as long as the conditions are fulfilled so that the aperture 6's dimensions d is less than those of the articles dimensions D in the same direction.

Fig. 3 shows a special advantageous execution form in accordance to the invention and where the article stack 12 into contact towards the aperture 6,s end-wall by the aid of an advancing system. In the shown execution form the advancing system shaped as an intermediate base 14 which is forced against the article stacks ends that faces away from the aperture by the aid of elastic elements such as springs 15, which connects the intermediate base 14 with the rest of the packaging. In the shown execution form the spring 15 is a spring loaded device positioned between the intermediate base 14 and, for this packaging belonging end-wall 18. The spring 15 is tensioned in the filling with articles 10 and the article stack is thus brought into contact with aperture 6. So as to protect the outermost articles 11 during transport the apertures can be held closed with thin foil which can be held in place with a attached lid, which is adjacent to the end-wall 3,s side, which faces outwards. (is not shown on the drawing) Alternatively, or as a supplement, the packaging can include a lid 16 which, during transport, is fitted on the packagings second end 2 so as to protect the outermost article 11, and which is demountable and possibly can be fitted on the packagings first end 1, as shown in fig. 3.

Fig. 4 – fig. 6 shows an alternative execution form for the packaging in accordance to the invention. The packaging is constructed as a tube, where the rounded wall 104 is a tube with a significant elliptical cross section with a small main axis and a larger main axis. The packaging is filled with folded articles 110 as shown in fig. 5 and the packaging is thereafter closed at its first end 101 by permanently squeezing the rounded wall 104, for example by rabbeting, welding or adhesion. The other end, 102, covers the end-wall 103 with its slit formed aperture 106. The aperture 106's dimensions d and the folded articles 110 dimensions D I the same direction measures, as shown in fig. 5 are parallel with the ellipses

small main axis. The articles 110 presses against the aperture 106 on account of the weight and their elasticity which seeks to elongate each article in a single level. When the outermost article 111 is withdrawn through aperture 106 then the following article is drawn towards the aperture as a result of the friction between the articles 110 supported by the above mentioned elasticity force that seeks to stretch each article to a single level.

When the packaging is placed vertical in the resting points 107 the aperture 106 and thus the whole article stack 112 is elevated above the supporting face by the aid of the supporting device 108 as in the fig. 4 – fig. 6 shown execution forms is developed as leg 117 forming a extension of the rounded wall 104 towards the end-wall 103. By forming the supporting devices 108 as a leg 117 another advantage is attained as the packagings contact with the supporting surface reduces to few resting points 107 without influencing the stability. Contrary, a packaging standing only on a number of legs 117 and resting on a number of resting points is even more steady on uneven surfaces.

In case of there being fluids on the resting surface, a damp environment can occur within the space internally in the packaging surrounded by the supporting face as well as the supporting devices 108, the end-wall 103 and the outermost article 111. In such damp environments there is a danger of formation of mould and bacterial cultures or other types of biological contamination. So as to avoid accumulation of humid environments in contact with the outermost articles 111 the supporting devices 108 can be developed with ventilation apertures 109 in forms of holes in the side and/or as an intermediate space between the legs 117.

List of reference numbers

- 1, 101 The packagings first end
- 2, 102 The packagings second end
- 5 3, 103 End-wall
- 4, 104 Rounded wall
- 5, 105 The packagings internal volume.
- 6, 106 Aperture
- 7, 107 Resting points
- 10 8, 108 Supporting devices
- 10, 110 Articles
- 11, 111 Outermost article
- 12, 112 Article stack
- 13, Article stack axis
- 15 14, Intermediate base
- 15, Spring
- 16, Cover
- 18, End-wall at packagings first end 1, 101
- 109, Ventilation opening
- 20 117, Leg
- d, Apertures 61, 106 dimension
- D, Articles 10, 110 dimension in the same direction.

Patent Demands

1. The packaging for a stack (12, 112) of flexible, flat and absorbing articles (10, 110) such as
cotton wool tampons, with a first end (1, 101), a second end (2, 102) with an end-wall (3,
5 103) and a rounded wall (4, 104) which surrounds a internal volume (5, 105) for the articles
(10, 110) occupation and which connects the first end (1, 101) with the articles (10, 110)
second end (2, 102) to the end-wall (3, 103) which has an aperture (6, 106) for withdrawal of
one article (11, 111) a time, where apertures (6, 106) dimension (d) in the least direction is
less that the articles dimension (D) in the same direction, whilst second end (2, 102) covers
10 resting points (7, 107) which defines a resting face to supporting the packaging on a
supporting surface **recognised by**,
the establishing of, in relation to the end-wall (3,103), protruding supporting devices (8,
108) positioned at an outward distance to the end-walls (3, 103) aperture (66, 106).
- 15 2, Packaging as of demand 1, is **recognized by**,
the packaging is an oblong container made of stiff, half stiff or a flexible material as foil,
cardboard or metal.
- 3, The packaging as of any of the preceding demands is **recognized by**,
20 the article stacking axis (13, 113) stands mainly vertical on the apertures (6, 106) plan
- 4, This package, as of the preceding demands, is **recognized by**,
the supporting devices (8, 108) are formed by an extension of the rounded wall.
- 25 5, As of demand 4 the packaging is **recognized by**,
the rounded end-walls (4, 104) extension includes ventilation openings (9, 109).

6, As of all of the previous demands, the packaging is **recognized by**,
the resting points (7) form a closed line.

7, The packaging, as of demands 1 – 5, is **recognized by**,
5 the supporting devices (108) are formed with at least 3 legs.

8, As of any of the preceding demands, the packaging is **recognized by**,
there being an advancing source to transport the stack (12) towards the aperture (6) in the
end wall (3).

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9, The packaging, as of demand 8, is **recognized by**,
the advancing source includes a spring-loaded intermediate base (14) which forces the stack
of articles (12) towards the dispensing aperture (6) in the end wall (3).

15 10, As of one of the previous demand, the packaging is **recognized by**,
the packaging contains at stack (12, 112) of flexible, flat and absorbing articles (10, 110)
such as cotton wool tampons..

20 Please find below a list of related documents as noted by the Danish governments "Agency of
Patents and Trademarks" (Patent og Varemærksstyrelsen)

- US 1,101,053
- PCT WO 00/011271
- US 5,704,714
- US 2005/0276653 AL

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