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(54) **Paper towel dispenser**

(57) The present invention provides an improved dispenser for paper towels, toilet paper, or similar paper or tissue products stored on a roll with perforated tear-off sheets which supports convenient tear-off of the sheets without unraveling and a hygienic storing place for the rolls. The dispenser comprises at least a) a housing for vertically storing the roll consisting of a bottom wall, at least one side wall (2) whereof one is provided with a slit for leading the paper product out, and a removable lid (1) with a hole for means for locking the roll (4, 5) covering the upper side, b) a hollow shaft (7) mounted on the inner bottom side of the housing to hold the roll and containing a flexible element (6), c) a base plate (8) to support the roll on the hollow shaft having a central hole for sliding the base plate (8) over the hollow shaft (7), d) means for supporting the base plate (11) fixed on the inner side of the side walls of the housing, and d) means for locking the roll (4, 5) positioned on the upper side of the hollow shaft (7), their lower end (5) being engaged with the flexible element (6) and their upper end (4) extending through the hole in the lid (1).

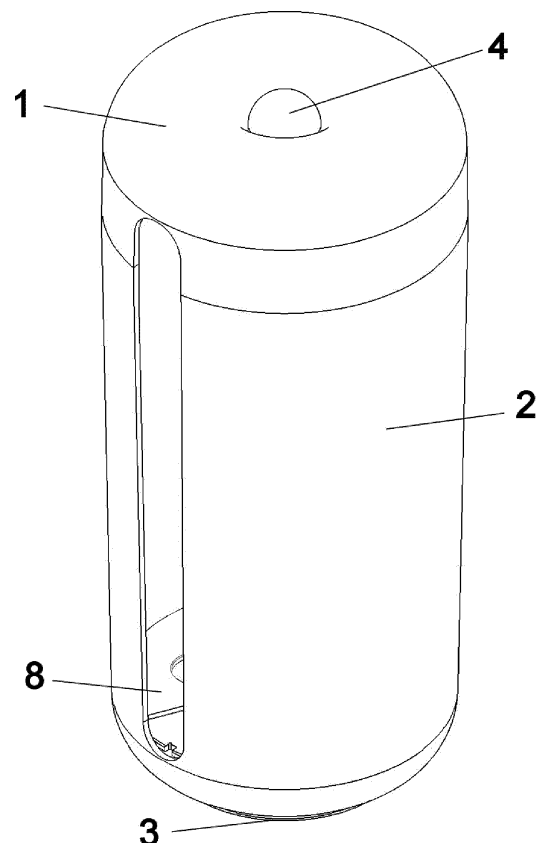


Fig. 1

EP 2 674 084 A1

Description

[0001] The present invention relates to a dispenser for paper towels, toilet paper, or similar paper or tissue products stored on a roll with perforated tear-off sheets.

[0002] Most commonly the dispensers for paper towels are designed to store the rolls in an upright position wherein the central cardboard core of the roll is put onto a pole fixed on the base of the storing device. Tearing a sheet off of the roll is difficult due to the tendency of the roll to unravel during tear-off. One either has to hold the roll with one hand while the other tears a sheet off or the dispenser is provided with some tear-off aid. These aids consist mostly of a second pole or some kind of edge to tear the sheet along or a slit through which the paper is guided. But without stopping the roll additionally by hand unraveling of the roll can't effectively be prevented.

[0003] Other means for storing the rolls are the combined dispensers for kitchen rolls of cling film, aluminum foil, and paper towels. The paper towel roll is then usually mounted in horizontal orientation beneath a housing for the other roll products. While the housing is fitted with cutting-off means for the films and foils the paper towel roll once again has to be held with a hand while tearing a sheet off to prevent unraveling of the roll during tear-off.

[0004] The most evident disadvantage of these known dispensers which require touching the rolls by hand is that the paper towels will get dirty and wet during usage especially when used during cooking in the kitchen. Splashes of water, oil, etc. are a second source for dirt on the rolls when the dispensers are placed near the oven, stove, or working area. Similar problems exist for the toilet paper rolls in the form of dust and bacteria.

[0005] The problem to be solved by the present invention is to provide an improved dispenser for paper towels, toilet paper, or similar paper or tissue products stored on a roll with perforated tear-off sheets which supports convenient tear-off of the sheets without unraveling and a hygienic storing place for the rolls.

[0006] The problem is solved by a dispenser for paper towels, toilet paper, or similar paper or tissue products stored on a roll with perforated tear-off sheets which comprises at least a) a housing for vertically storing the roll consisting of a bottom wall, at least one side wall (2) whereof one is provided with a slit for leading the paper product out, and a removable lid (1) with a hole for means for locking the roll (4, 5) covering the upper side, b) a hollow shaft (7) mounted on the inner bottom side of the housing to hold the roll and containing a flexible element (6), c) a base plate (8) to support the roll on the hollow shaft having a central hole for sliding the base plate (8) over the hollow shaft (7), d) means for supporting the base plate (11) fixed on the inner side of the side walls of the housing, and e) means for locking the roll (4, 5) positioned on the upper side of the hollow shaft (7), their lower end (5) being engaged with the flexible element (6) and their upper end (4) extending through the hole in the lid (1).

[0007] The dispenser according to the present invention has an upright, preferably cylindrical, housing with an open top which can be closed by a lid. Other shapes of interest for a pleasing design are for example shapes with a cross-section in the form of a square, rectangle, hexagon, or octagon. One of the walls is provided with a slit for leading the paper product out. The lid has a hole through which the upper portion of means for locking the roll inside of the housing during tear-off of a sheet are extending through making them accessible for being actuated from the outside.

[0008] A hollow shaft is mounted on the bottom of the housing which holds the roll in place. The inside of the hollow shaft is provided with a flexible element which is in contact with the lower end of the locking means for the roll pushing them upwards. When the lid is being closed it preferably has to be pushed onto the top of the housing against the force of the flexible element. The roll is supported on the shaft by a base plate which is slid over the shaft and rests on supporting means which are fixed on the inside of the side walls of the housing. Advantageously the lid is secured onto the side walls against the pressure of the flexible element by a bayonet lock. This fixing method for the lid is more efficient in preventing the lid from popping open than snap-on means and more convenient for the user than screw caps.

[0009] Preferably the flexible element is a compression spring or a compressible polymer material. Examples for the compressible polymer material are soft rubbers or foams (especially closed cell types of PU, PE and the like).

[0010] In a preferred embodiment of the dispenser the lower end of the means for locking the roll consists of a member which fits into the hollow shaft and is connected to the upper end with a plate which is being pressed against the upper end of the roll when the means for locking the roll are actuated by pushing the upper end of the means for locking the roll downwards. The member then moves piston-like inside of the hollow shaft and guides the plate onto the upper end of the roll. The plate is advantageously equipped with a high friction surface which is made either by coating the surface or by applying grooves and/or ribs. When the means for locking are pressed downwards the lower side of the plate locks the roll in place and prevents unraveling by exerting force onto the upper end of the roll. The base plate is therefore positioned in such a height that the upper end of the supported roll is at least level with the upper end of the hollow shaft, preferably reaching several millimeters higher.

[0011] In a further preferred embodiment of the invention the means for supporting the base plate allow for supporting the base plate in an upper and a lower position in order to accommodate the dispenser for different roll sizes. Enhancing the versatility of the dispenser this enables the user to either use standard size and jumbo size rolls or metric and non-metric size rolls.

[0012] Advantageously the positioning of the base plate in two different levels is achieved by constructing

the means for supporting the base plate of ribs extending on their upper side less towards the inside of the housing than on their lower side forming two levels to support the base plate on and equipping the base plate with alternating notches corresponding to the two different rib lengths. In order to avoid that the base plate is turning together with the roll the ribs are extending on the wall side a little bit higher than the upper support level. When placing the base plate in the upper position the smaller notches are aligned with the ribs so that the base plate rests upon the upper edge of the rib. The sides of the notches are then bracketing the ribs and therefore blocking the turning motion of the base plate.

[0013] In order to use the lower position the base plate has to be lifted above the upper end of the ribs and the larger notches have to be aligned with the ribs. The base plate can then be slid over the hollow shaft and the ribs into the lower position. Again the sides of the notches block the turning motion of the base plate.

[0014] To improve the stability of the dispenser when standing on a surface the bottom wall of the housing is preferably connected to a suction cup for securing the dispenser on smooth surfaces. This avoids the dispenser from tipping over and allows for a convenient tear-off without the need for a heavy or large base.

[0015] Fig. 1 shows a perspective view of an example of the invention and Fig. 2 shows an explosion drawing of the same. This example is not limiting the invention but only demonstrating an advantageous embodiment.

[0016] The dispenser for paper towels is shown with a cylindrical shape. It has therefore only one side wall (2) with a slit. Not shown in the figures are the bayonet locks which are fixed on the upper side of side wall (2) and the lower side of lid (1). Suction cup (3) is mounted to the bottom side of the dispenser housing by screw (10) and washer (9). Hollow shaft (7) is also of cylindrical shape and equipped with an end cap on the bottom side having a bore. Screw (10) is long enough to screw into this bore securing the hollow shaft (7) in place at the same time. The flexible element (6) is a compression spring which fits with its outer diameter into the inner diameter of hollow shaft (7). In order to load a roll of paper towels into the dispenser base plate (8) is slid over hollow shaft (7) and positioned onto the means for supporting the base plate (11). Fig. 3a shows a cross-section of the dispenser and Fig. 3b an enlarged view of the encircled area of Fig. 3a giving a detail view of the means for supporting the base plate (11). They form a lower and an upper edge onto which the base plate (8) will rest. The upper edge is topped by a third edge which prevents the base plate (8) from turning if it is positioned on the upper edge.

[0017] Fig. 5 shows a top view of base plate (8). One can see the alternating small and large notches around the circumference which have to be aligned with the ribs of the means for supporting the base plate (11).

[0018] Then the paper towel roll is put over hollow shaft (7) onto base plate (8) and the means for locking the roll (4, 5) are inserted into hollow shaft (7). The lower end of

the means for locking the roll (5) consists of a cylindrical member whose outer diameter closely fits into the inner diameter of hollow shaft (7). The upper end of the means for locking the roll (4) consists of a short cylinder to be pressed or glued into the lower end of the means for locking the roll (5), a plate with ribs on the lower side, and a ball shaped knob. Fig. 4 shows a bottom side view of the upper end of the means for locking the roll (4) depicting the rib structure on the plate. The length of the flexible element (6) and the lower end of the means for locking the roll (5) are adjusted so that lid (1) has to be pushed against the pressure of flexible element (6) onto side wall (2) and that the plate of the upper end of the means for locking the roll (4) is able to push onto the upper end of the paper towel roll. Finally lid (1) is closed by twisting it into the bayonet locks after the first sheet has been pull through the slit.

Reference numbers

[0019]

- | | |
|----|---|
| 1 | Lid |
| 2 | Side wall |
| 3 | Suction cup |
| 4 | Upper end of means for locking the roll |
| 5 | Lower end of means for locking the roll |
| 6 | Flexible element |
| 7 | Hollow shaft |
| 8 | Base plate |
| 9 | Washer |
| 10 | Screw |
| 11 | Means for supporting the base plate |

Claims

1. A dispenser for paper towels, toilet paper, or similar paper or tissue products stored on a roll with perforated tear-off sheets, **characterized in that** it comprises at least
 - a housing for vertically storing the roll consisting of a bottom wall, at least one side wall (2) whereof one is provided with a slit for leading the paper product out, and a removable lid (1) with a hole for means for locking the roll (4, 5) covering the upper side,

- a hollow shaft (7) mounted on the inner bottom side of the housing to hold the roll and containing a flexible element (6),
 - a base plate (8) to support the roll on the hollow shaft (7) having a central hole for sliding the base plate (8) over the hollow shaft (7), 5
 - means for supporting the base plate (11) fixed on the inner side of the side walls (2) of the housing,
 - means for locking the roll (4, 5) positioned on the upper side of the hollow shaft (7), their lower end (5) being engaged with the flexible element (6) and their upper end (4) extending through the hole in the lid (1). 10
- 15
2. A dispenser according to claim 1, **characterized in that** the flexible element (6) is a compression spring or a compressible polymer material.
 3. A dispenser according to one of the preceding claims, **characterized in that** the lower end of the means for locking the roll (5) consists of a member which fits into the hollow shaft (7) and is connected to the upper end of the means for locking the roll (4) with a plate which is being pressed against the upper end of the roll when the means for locking the roll (4, 5) are actuated by pushing the upper end of the means for locking the roll (4) downwards. 20 25
 4. A dispenser according to one of the preceding claims, **characterized in that** the means for supporting the base plate (11) allow for supporting the base plate (8) in an upper and a lower position in order to accommodate the dispenser for different roll sizes. 30 35
 5. A dispenser according to one of the preceding claims, **characterized in that** the means for supporting the base plate (11) consist of ribs extending on their upper side less towards the inside of the housing than on their lower side forming two levels to support the base plate (8) on and the base plate (8) is equipped with alternating notches corresponding to the two different rib lengths. 40 45
 6. A dispenser according to one of the preceding claims, **characterized in that** the bottom wall of the housing is connected to a suction cup (3) for securing the dispenser on smooth surfaces. 50
 7. A dispenser according to one of the preceding claims, **characterized in that** the lid (1) is secured onto the side walls (2) against the pressure of the flexible element (6) by a bayonet lock. 55

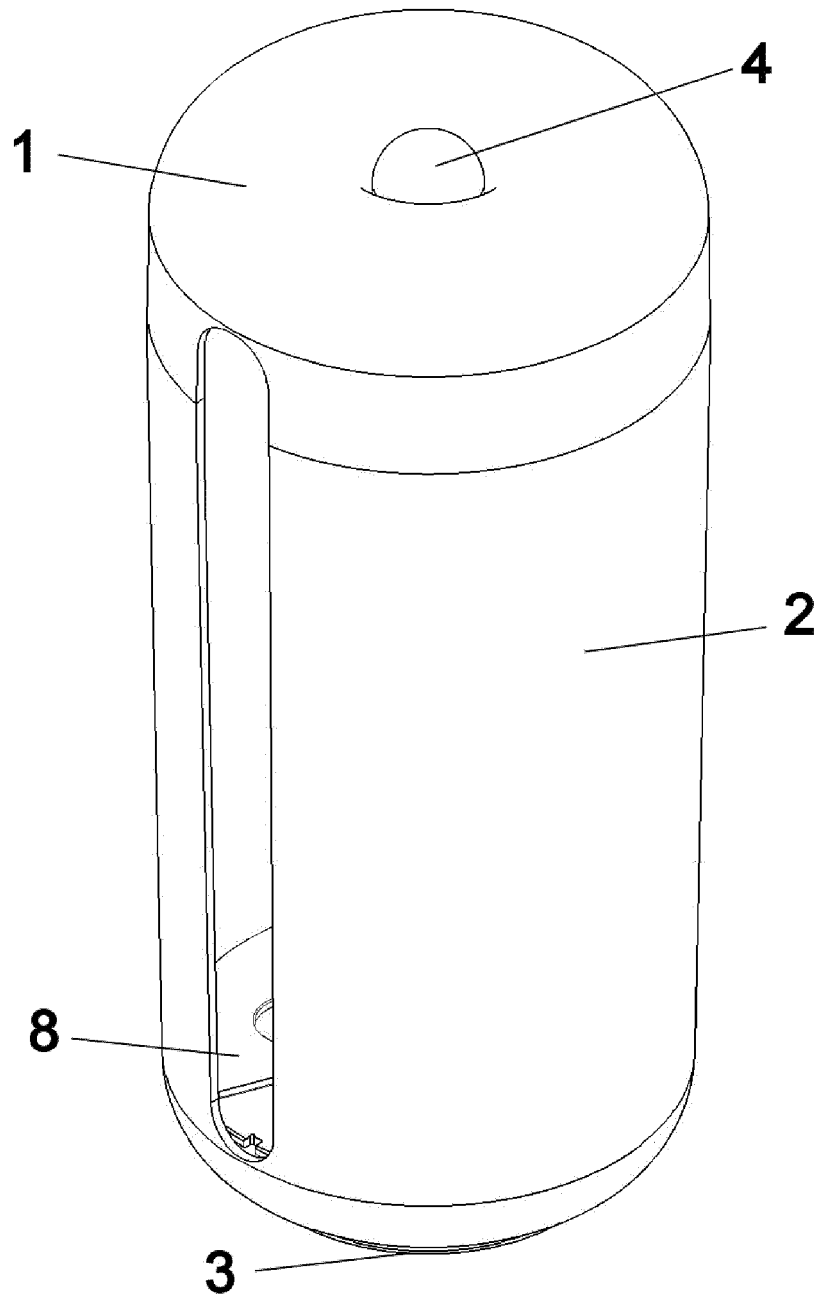


Fig. 1

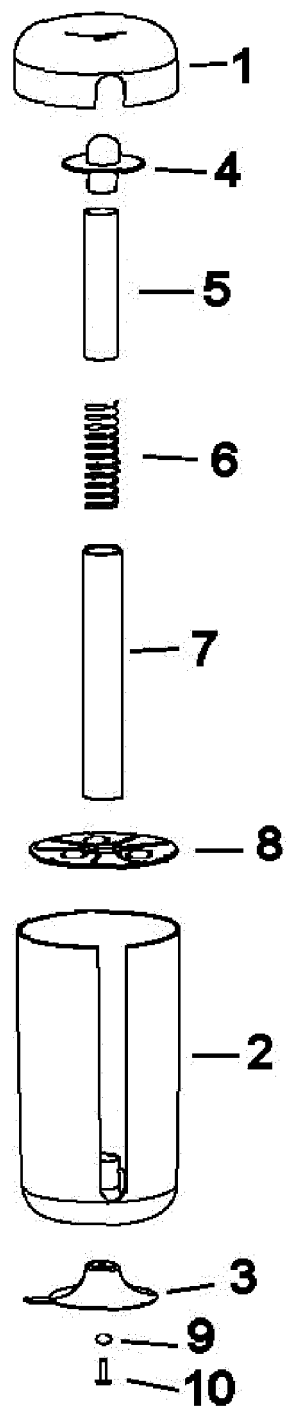


Fig. 2

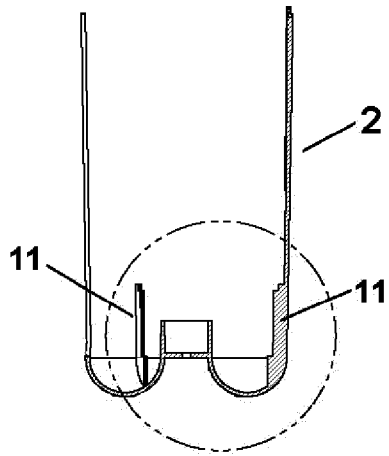


Fig. 3a

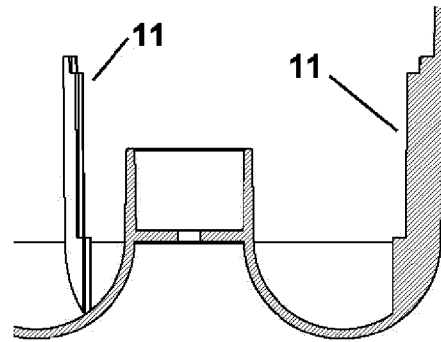


Fig. 3b

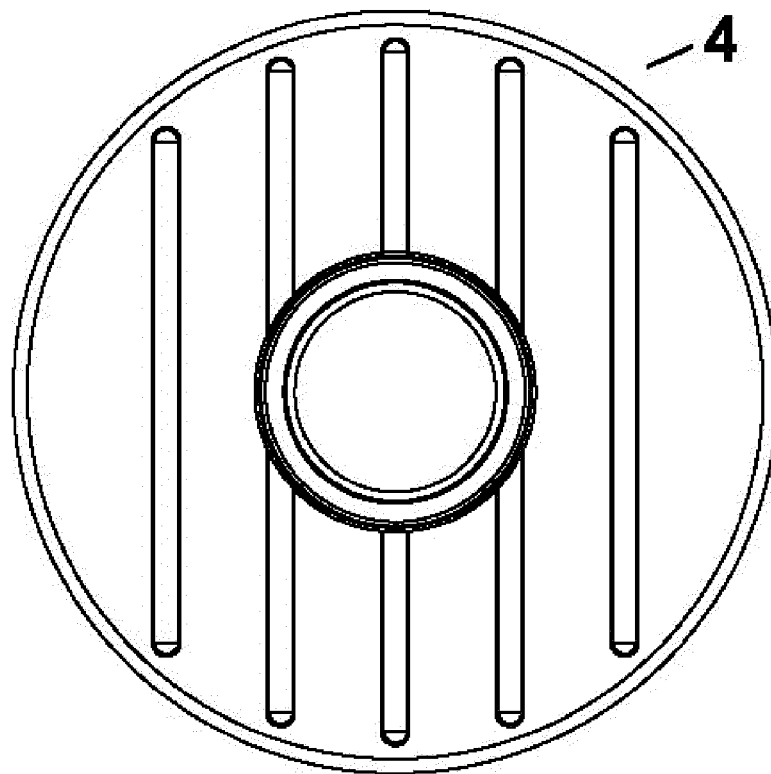


Fig. 4

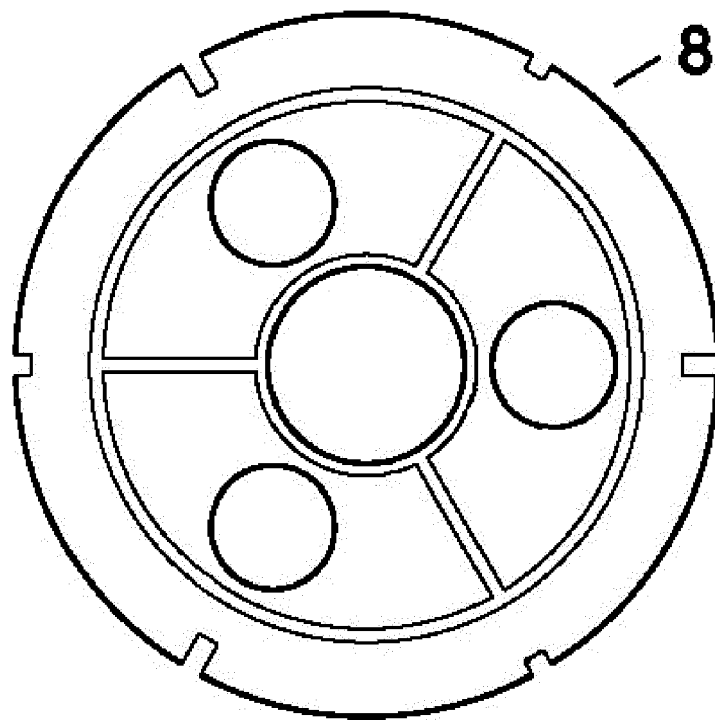


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 12 17 1688

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 7 328 869 B1 (ZIES GEORGE PHILIP JOHN [US]) 12 February 2008 (2008-02-12) * column 3, line 19 - column 4, line 58; figure 1 *	1-3,6,7	INV. A47K10/38
Y	----- US 4 487 376 A (COMPTON FRED A [US]) 11 December 1984 (1984-12-11) * column 2, line 16 - line 54; figures *	1-3,6,7	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 November 2012	Examiner Fordham, Alan
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 12 17 1688

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15-11-2012

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