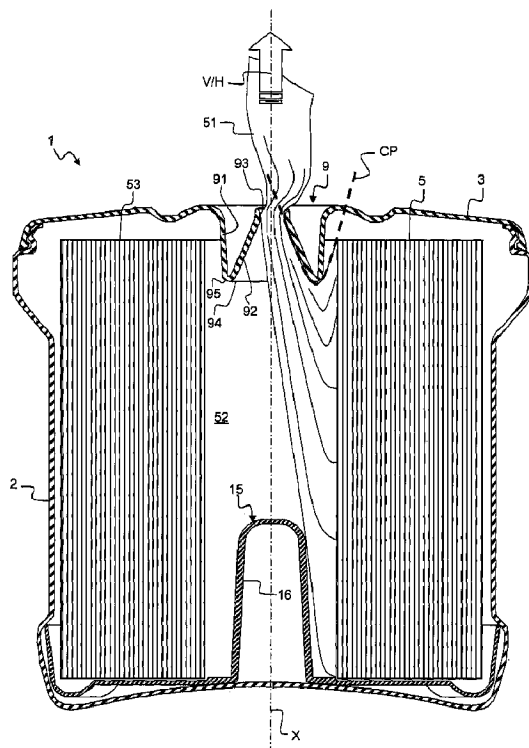




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(54) Title: DISPENSER FOR STATIC CENTER-FEED CORELESS ROLL OF SHEET PRODUCT



(57) **Abrégé/Abstract:**

A sheet product dispenser (1) for dispensing a strip (51) of a sheet product from a static center-feed coreless roll of sheet product, said roll (5) comprising a central cavity (52), the dispenser comprising a container for accommodating the roll (5), and a dispensing

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piece (9) which protrudes toward an interior of the container from one end of the container and which includes a guidance (92) between a receiving opening (94) for receiving the strip (51) of sheet product from said roll (5) and a dispensing opening (93) for dispensing the strip (51) of sheet product outside of the dispenser (1), wherein the dispensing piece (9) is arranged to engage into the central cavity (52) of the roll (5). The dispensers (1) allow providing a dispensing opening so that withdrawal of a sheet product is facilitated by avoiding collapsing or clogging. Furthermore, the dispenser (1) has a compact configuration that allows gaining space during delivery and transportation.

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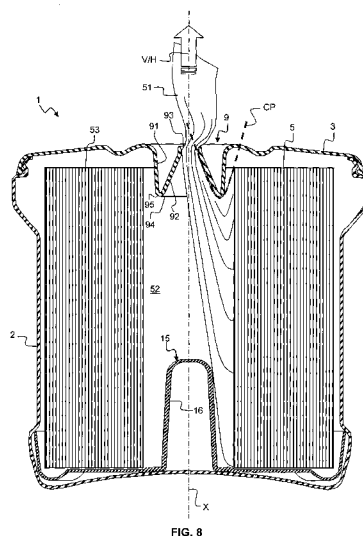
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(57) Abstract: A sheet product dispenser (1) for dispensing a strip (51) of a sheet product from a static center-feed coreless roll of sheet product, said roll (5) comprising a central cavity (52), the dispenser comprising a container for accommodating the roll (5), and a dispensing piece (9) which protrudes toward an interior of the container from one end of the container and which includes a guidance (92) between a receiving opening (94) for receiving the strip (51) of sheet product from said roll (5) and a dispensing opening (93) for dispensing the strip (51) of sheet product outside of the dispenser (1), wherein the dispensing piece (9) is arranged to engage into the central cavity (52) of the roll (5). The dispensers (1) allow providing a dispensing opening so that withdrawal of a sheet product is facilitated by avoiding collapsing or clogging. Furthermore, the dispenser (1) has a compact configuration that allows gaining space during delivery and transportation.

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DISPENSER FOR STATIC CENTER-FEED CORELESS ROLL OF SHEET
PRODUCT

FIELD OF THE INVENTION

5 An aspect of the invention relates to sheet product dispensers and in particular to sheet product dispensers for dispensing a strip of a sheet product from a static center-feed coreless roll of sheet product. Such dispensers find a particular, though non exclusive, application in dispensing paper sheet products.

10 BACKGROUND OF THE INVENTION

Sheet product dispensers are well known in the art. Sheet product dispensers are generally used for dispensing sheet products such as absorbent tissues, wipes, paper towels or sheets made of any other absorbent or non-absorbent material.

15 FIGS. 1A, 1B, 2A, 2B and 2C illustrate a drawback of known sheet product dispensers, namely the collapsing and clogging effects when sheet product are dispensed centrally in either a vertical V or horizontal H direction, respectively. The dispenser 1 has a container with a cylindrical housing 2. The cylindrical housing 2 comprises a side wall 21 and a bottom portion 22
20 which closes a first end of the cylindrical housing 2. A second end of the cylindrical housing 2 is open and can be closed by a lid or cover 3 to form a closed container for storing a source of a sheet product, e.g. a roll of paper 5. The lid 3 comprises a dispensing opening 4, for example in the center of the lid surface of the lid 3. The sheet product can be unwound sheet by sheet 51
25 from the center of the roll 5. Precuts in the sheet product or cutting means (not shown) may help cutting sheets of predefined or desired lengths, respectively. Typically, the roll 5 is a coreless roll of sheet product. In this case, the central cavity or hollow core region 52 lacks the supporting effect of a core (e.g. a hollow cylinder made of cardboard). This enables unwinding the
30 roll from the center towards the side of the roll (as illustrated by the arrow U). However, this also results in a deformation and collapsing effect (as illustrated by the arrow C) of the roll of sheet product on itself. In a dispenser positioned such as to dispense sheet vertically (FIG. 1A), the sheet product collapses from both sides toward the central cavity 52. In a dispenser positioned such

as to dispense sheet horizontally (FIGS. 1B and 2A), the sheet product collapses from the top portion toward the bottom portion. In both case, there is a tendency of the sheet product to fill-in the central cavity 52 that is not finely and equally defined all along the roll length anymore. This tendency is further enhanced when the central cavity grows as sheets are dispensed from the roll. FIGS. 2B and 2C illustrate that collapsing at the bottom of the dispenser or close to the dispensing opening, respectively, result in the dispenser to be jammed due to the friction between the withdrawn sheet 51 and the collapsed central cavity 52. Further, an additional clogging/stuffing of the dispenser can also occur when multiple sheets are withdrawn simultaneously through the dispensing opening 4.

A dynamic solution to the collapsing effect is known from WO 2007057537 that describes a dispenser, particularly for dispensing toilet paper, comprising a housing for housing a roll of paper, the housing having a front side with a dispensing opening via which the paper is unwound sheet by sheet, and comprising means for locking the front side to the housing. This dispenser is characterized by virtue of the fact that the front side comprises a hatch for accessing the interior of the housing via which the free end of the roll can be removed. A dispenser of this type permits the user to solve problems of paper blocking inside the housing without, however, being able to steal the roll or, in any event, while leaving it in its original shape so that it can still be used. Such a dispenser comprises a push plate arrangement that apply a longitudinal pressure on the roll towards the inner surface of the front face of the dispenser. Said arrangement also prevents the roll from rotating. Further, said arrangement keeps the roll in shape while preventing it from collapsing when the roll is unwound. However, this is a complex dispenser comprising moving parts.

A static solution to the collapsing effect is known from US 6,082,663 that describes an apparatus which dispenses a static centerflow rolled sheet product. The rolled product is disposed within a housing defined by a front side, back side, and side walls. The front side includes an opening through which an end of the rolled sheet product is pulled. A protrusion is defined, for example, on the back side member and extends towards the front side within the housing. The protrusion is disposed and has a length so as to extend into

the rolled sheet product center void a sufficient distance to prevent the rolled product from collapsing on itself as the sheet product is withdrawn.

However, such dispensers are subject to clogging or stuffing because multiple sheets can be dispensed through the opening at the same time.

5 SUMMARY OF THE INVENTION

It is an object of the present invention to propose a sheet product dispenser that overcomes the above mentioned drawbacks. In particular, it is an object of the present invention to provide a sheet product dispenser that avoids, at least greatly reduce, collapsing effect of the roll of sheet product within the dispenser and/or clogging/stuffing effect during dispensing.

According to one aspect, there is provided a sheet product dispenser for dispensing a strip of a sheet product from a static center-feed coreless roll of sheet product, said roll comprising a central cavity, the dispenser comprising:

- a container for accommodating the roll,
- 15 - a dispensing piece which protrudes toward an interior of the container from one end of the container and which includes a guidance between a receiving opening for receiving the strip of sheet product from said roll and a dispensing opening for dispensing the strip of sheet product outside of the dispenser,

20 wherein the dispensing piece is arranged to engage into the central cavity of the roll.

The dispensing piece may comprise a cylindrical outer wall connected to the guidance, the guidance protruding into the container and tapering towards the interior of the container to a first tapered end defining the receiving opening, and wherein the dispensing piece may engage the central cavity of the roll such that the receiving opening is located below a planar cylindrical surface of the roll closest to the dispensing piece.

The receiving opening may have a larger cross-section than the dispensing opening.

30 The guidance may be cone-shaped with the receiving opening forming the base of the cone-shaped guidance and the dispensing opening forming a second tapered end of the guidance.

The container may comprise a centering element protruding from another end of the container opposite to the one end of the container, and

wherein the centering element may be arranged to engage into the central cavity of the roll.

The centering element may be integrally formed with a bottom portion of the container or formed separately as an insert to be placed on an inner surface of the bottom portion of the container.

The dispensing piece and the centering element each may have a circular cross-section perpendicular to a longitudinal axis of the dispenser.

The dispensing piece and the centering element each may have a length so as to extend into the central cavity a sufficient distance to prevent the roll from collapsing on itself.

The container may comprise a cylindrical housing with a loading opening for loading the roll and a lid for closing the loading opening of the housing, wherein the lid may be attachable onto the housing in a removable manner for loading the roll into the container or closing the container.

The dispensing piece may be integrally formed with the lid or formed separately as a separate element to be fixed into an opening of the lid.

The dispenser may comprise means for compressing the roll within the container along at least one of its cylindrical surface. The bottom portion may be arranged outwardly concave so that a center part of the bottom portion is pressed onto one end of the roll inside the housing.

A handle may be attached at the container. The handle may be L-shaped, one leg of the handle being parallel with a side wall of the cylindrical housing.

According to another aspect, there is provided an arrangement comprising the sheet product dispenser according to the invention and supporting means so as to mount said dispenser at a vertical supporting surface.

According to a further aspect, there is provided a method of dispensing a strip of a sheet product from a static center-feed coreless roll of sheet product loaded into a container of a dispenser, said roll comprising a central cavity, wherein the method comprises:

- engaging a dispensing piece into the central cavity of the roll, the dispensing piece protruding from one end of the container towards an interior of the container, the dispensing piece including a guidance between a

receiving opening for receiving the strip of sheet product from the roll and a dispensing opening for dispensing the strip of sheet product outside of the dispenser,

- causing the sheet product when dispensed to circumvent a tapered end of the guidance before penetrating through the receiving opening, travelling along the guidance and leaving the dispenser through the dispensing opening.

With the invention, it is possible to easily and reliably remove the strip of paper once and even the source of sheet product has collapsed inside the dispenser due to the continued removal of paper by the user. Thus, clogging or stuffing of the sheet product dispenser may be avoided.

Other advantages will become apparent from the hereinafter description of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is illustrated by way of examples and not limited to the accompanying drawings, in which like references indicate similar elements:

- FIGS. 1 and 2 illustrate the collapsing and clogging effects in a dispenser of the prior art dispensing sheet product in a either vertical or horizontal direction;

- FIG. 3 is a cross-section view illustrating a sheet product dispenser according to an embodiment of the invention;

- FIG. 4 is a side view of a sheet product dispenser used as a portable dispenser according to an embodiment of the invention wherein sheet product are dispensed in a vertical upside direction;

- FIG. 5 is a side view of a sheet product dispenser used as a fixed (e.g. wall supported) dispenser according to another embodiment of the invention wherein sheet product are dispensed in a horizontal direction;

- FIG. 6 is a side view of a sheet product dispenser used as a fixed (e.g. wall supported) dispenser according to still another embodiment of the invention wherein sheet product are dispensed in a vertical downside direction;

- FIG. 7 is a top view of the sheet product dispenser used as a portable dispenser of FIG. 4; and

- FIG. 8 is a cross-section view illustrating the sheet product dispenser according to FIG. 3 during the dispensing process.

DETAILED DESCRIPTION OF THE INVENTION

The following detailed description should be read with reference to the drawings. The drawings depict exemplary embodiments and are not intended to limit the scope of the invention.

In the following description, the terminologies "top", "bottom", "vertical", or "horizontal" are used to explain the position of the various elements relatively to each other according to particular embodiments as depicted in the drawings, and also the operation of the dispenser. This is not intended to limit the use of the dispenser in a particular position. For example, the terminology "top" can be replaced by "front" while "bottom" can be replaced by "back". The dispenser can be used in a vertical, horizontal, even inclined, fixed, or portable manner. The terminology static with respect to the roll is intended to mean that the roll is substantially non-rotating within the housing during the unwinding process.

FIG. 3 shows a cross-sectional view of an embodiment of the sheet product dispenser. Similarly to the embodiment of FIGS. 1 and 2, the dispenser comprises a container with a cylindrical housing 2 and a lid 3. The cylindrical housing 2 comprises a side wall 21 and a bottom portion 22 which closes a first end of the cylindrical housing 2. A second end of the cylindrical housing 2 is open and forms a loading opening and can be closed by the lid 3. The side wall 21 and the bottom portion 2 of the housing 2 can be formed as an integral element, i.e. by known molding and extrusion techniques. The lid 3, formed as a separate element, can be removably attached to the second end of the housing 2 for closing the container and/or loading the container with the sheet product, e.g. the sheet roll 5. The lid 3 has a substantially planar lid surface which is perpendicular to the longitudinal axis X of the cylindrical housing 2. The lid surface is encompassed by a circumferential edge which extends perpendicular from the lid surface. The circumferential edge defines an inner cross-section which is slightly larger than the outer cross-sectional area of the cylindrical housing such that the lid 3 can be attached onto the housing 2 according to various manners known in the art (thread or screwing arrangement, snapping arrangement, hinge

arrangement, locking arrangement, etc...). The lid 3 can be removed so that the interior of the housing 2 is fully opened for loading with a source of a sheet product, e.g. a roll 5. The roll 5 may be made of absorbent or non-absorbent material of a woven or non-woven type. The sheets may be used
5 as wipes, paper towels, toilet paper, cleaning tissues and the like. The individual sheets may be sized as desired to accommodate the many uses of the towels. Furthermore, pre-perforation lines may be formed to allow the user to tear off a sheet after the pre-perforation line has left a dispensing piece 9.

10 In FIG. 3, the container is shown loaded with a sheet roll 5 so that the sheet roll axis is substantially coaxial or parallel to the longitudinal axis X of the housing 2.

In the dispenser of FIG. 3, a dispensing piece 9 for withdrawal of the strip of sheet product 51 is integrally formed with the lid 3. As an alternative
15 embodiment (not shown), the dispensing piece 9 is formed as a separate element from the lid 3, the dispensing piece 9 being attached to the lid 3 according to any appropriate manner (screwed, snapped, glued, etc...). The dispensing piece 9 has a cylindrical outer wall 91 which protrudes into the housing 2. The outer wall 91 is substantially parallel to the longitudinal axis X.
20 This further helps supporting the roll 5 closed to the dispensing opening. The outer wall 91 may also be slightly conical which taper towards the interior of the housing 2 to a first tapered end 95. The diameter of the dispensing piece 9 is adapted to the inner diameter of the coreless roll 5 such that the dispensing piece 9 engages the central cavity 52 of the sheet roll 5. This
25 allows the sheet roll 5 to be centered within the housing 2.

The dispensing piece 9 has a guidance 92 which couples the hollow core region 52 of the sheet roll 5 with a dispensing opening 93. The dispensing opening 93 is arranged in the interior of the dispensing piece 9. The dispensing opening 93 can be arranged so that it opens to the outside
30 above the surface of the lid 3, coplanar with the surface of the lid 3 or below the surface of the lid 3. Hence, the dispenser 1 can be vertically stacked onto one another by placing a bottom portion 22 of one dispenser 1 onto the planar surface of the lid 3 of another dispenser 1. The vertical stacking of dispensers may be useful for a space efficient storing in packing boxes for storage,

shipment and display.

The guidance 92 may be cone-shaped with a receiving opening 94 forming the base of the cone-shaped guidance 92 and the dispensing opening 93 forming a second tapered end 96 (defining some kind of rim) of the guidance 92. This allows sheets 51 to be formed smoothly from the unwound strip of sheet product. The cone-shaped guidance 92 can be connected with an inner end of the outer wall 91 of the dispensing piece 9 at the first tapered end 95 defining the receiving opening 94. Other cross-sectional configurations of the guidance 92 may be possible such as cylindrical, slit-like shapes or the like.

The dispensing piece 9 engages the central cavity 52 of the sheet roll 5 such that the first tapered line 95 defining the receiving opening 94 is located below the upper surface 53 of the roll 5. The upper surface 53 of the roll 5 is the planar cylindrical surface closest to the dispensing piece 9 of the lid 3.

As an example, for a roll having a diameter ranging from 184 to 190 mm, a core diameter of 58 mm, and a height ranging from 192 to 198 mm, a dispensing piece may have a receiving opening of 32 mm, a dispensing opening of 11 mm, a penetrating length of the guidance or cylindrical outer wall length of 32 mm, and cone-shaped guidance angle with respect to the cylindrical outer wall of 23°. This is an example, as what matter in order to avoid the clogging/stuffing effect as explained hereinafter is that the dispensing piece engages the central cavity of the sheet roll sufficiently to provide a support to a collapsed roll when the roll is almost totally unwound.

To ensure that the axial direction of the roll 5 is substantially held in place, the the roll 5 may be compressed along at least one of its planar cylindrical surface (either the one closest to the lid 3, or the one closest to the bottom portion 22). The housing 2 can be structured allowing fixing the roll 5 within the housing 2. For example, the bottom portion 22 can be arranged outwardly concave, so that a center part of the bottom portion 22 is pressed onto one end of the cylindrical sheet roll 5 inside the housing 2 thereby holding the sheet roll 5 between the bottom portion 22 and the lid 3. Such an arrangement also prevents the roll 5 from rotating within the housing 2. It is well adapted to the dispensing of static center-feed roll.

Further, the bottom portion 22 of the housing 2 is provided with a

centering element 15. The centering element 15 has a cylindrical outer wall 16 which protrudes into the housing 2. The outer wall 16 may also be slightly conical and tapers towards the interior of the housing 2. The diameter of the centering element 15 is adapted to the inner diameter of the sheet roll 5 such that the centering element 15 engages the central cavity 52 of the sheet roll 5.

The centering element 15 can be formed integrally with the bottom portion 22 of the housing 2 such that the bottom portion 22 has a recess which forms the protrusion of the centering element 15 to the interior of the housing 2. The centering element 15 can be formed in a respective molding process used for manufacturing the housing 2.

Alternatively, the centering element 15 can be formed as a separate part which can be inserted into the interior of the housing 2 so that it is arranged on a slightly convexly shaped or planar inner surface of the bottom part 22. The centering element 15 can be held in the center of the housing 2 by an adjustment element 17. The adjustment element 17 can be disc-shaped and have a diameter substantially corresponding to the inner diameter of the bottom portion 22 of the housing 2. Furthermore, the adjustment element 17 can also be formed by a number of arms radially extending from the outer wall 16 of the centering element 15.

On its radially outer ends the adjustment element 17 may be provided with protrusions 18 extending towards the bottom portion 22. The protrusions 18 can be integrally formed with the adjustment element 17 or can be attached to adjustment element 17. In particular, when used with a housing 2 having a bottom portion 22 which is concave, the protrusions 18 allow a safe position of the centering element 15 to be maintained and prevent the centering element 15 from tilting with respect to the sheet roll axis.

FIG. 4 is a side and partially transparent view of a sheet product dispenser 1 used as a portable dispenser according to an embodiment of the invention wherein sheet product are dispensed in a vertical direction V. The sheet product dispenser 1 further comprises a handle 6 for ease of grasping the dispenser. It is arranged to be portable and to be positioned onto a horizontal supporting surface SH, e.g. a table or the like.

The handle 6 is formed to extend beyond the side surface of the housing 2. The handle 6 may have an L-shape comprising a short leg 61 integrally

attached to the housing 2 and a long leg 62 extending in parallel to the side wall 21 along the axial direction of the cylindrical housing 2. The handle 6 may be of a tubular shape. The handle 6 dimensions are such that the dispenser can be easily grasped by a hand. The handle 6 can be either
5 attached (U-shaped) or not (L-shaped) to the housing by its end.

FIG. 5 is a side and partially transparent view of a sheet product dispenser 1 used as a fixed dispenser according to another embodiment of the invention wherein sheet product are dispensed in a horizontal direction H.

FIG. 6 is a side and partially transparent view of a sheet product
10 dispenser 1 used as a fixed dispenser according to still another embodiment of the invention wherein sheet product are dispensed in a vertical direction V. The dispensing piece 9 is pointing down towards the bottom.

In both embodiments, the housing 2 of the dispenser is arranged to be mounted onto a vertical supporting surface SV, e.g. a wall, through
15 appropriate supporting means 60 (screwed, glued, or inserted in a specific wall mount or wall holder).

FIG. 7 is a top view of the sheet product dispenser 1 used as a portable dispenser of FIG. 4. A view of a sheet product dispenser 1 used as a fixed
20 dispenser would be similar while lacking the handle 6.

Since the dispenser 1 may be used in environments where moisture, dirt and debris are prevalent, a water resistant design is preferred for the dispenser 1 to exclude moisture and dirt from intruding into the interior of the dispenser 1. The housing 2 is preferably made of plastic and can be manufactured by blow molding, injection molding and the like and may be
25 formed with the handle 6 as an integral product to increase the water tightness of the dispenser 1. The lid 3 may be molded separately and may be made of the same or similar materials as the housing 2.

FIG. 8 is a cross-section view illustrating the sheet product dispenser according to FIG. 3 after the sheet product dispenser 1 has been loaded with
30 a roll 5 of sheet product, and during the dispensing process.

During the process of loading a sheet source into the dispenser 1, a roll 5 as the sheet source is put into the open housing 2. The roll 5 may be a paper roll, in particular a center-feed roll, wherein the roll 5 is not provided with a central core, so that a free end in the center portion of the roll 5 is

accessible. The roll 5 is positioned with its axis extending coaxially with the axis X of the cylindrical housing 2. The sheet roll 5 is dispensed from its center to its circumference. The sheet roll 5 may be of any size to fit within the housing 2 of the dispenser 1. In order to guide the free end of the strip 51
5 from the roll 5 through the dispensing opening 93 it can be fed firstly through said opening before the lid 3 is attached onto the housing 2. After the lid 3 is then attached to the housing 2, the free end of the strip 51 can be completely withdrawn from the dispenser 1. The roll 5 of sheet product is unwound as a strip or sheet by sheet 51. Though, FIGS.4 or 6 depicts sheet product
10 dispenser 1 positioned such as to dispense sheets in the vertical direction V, the hereinafter described effects are also applicable to sheet product dispenser 1 positioned such as to dispense sheets in the horizontal direction H (FIG. 5).

On the one hand, the centering element 15 allows the bottom region of
15 the roll 5 to be centered within the housing 2 and, further, avoids, at least reduces the collapsing effect of the roll on itself in the bottom region (as depicted in FIGS. 2A and 2B). Further, it avoids a clogging/stuffing effect via the bottom region of the roll 5.

On the other hand, the dispensing piece 9 allows the top region of the
20 roll 5 to be centered within the housing 2 and, further, avoids, at least reduces the collapsing effect of the roll on itself in the top region (as depicted in FIGS. 2A and 2C). Further, the dispensing piece 9, in particular the cone-shaped guidance 92 connected with the inner end of the outer wall 91 of the dispensing piece 9 at the tapered end 95 below the top surface 53 of the roll
25 5, causes the unwound sheet (in the top region) to circumvent the tapered end 95 before penetrating through the receiving opening 94, travelling through the cone-shaped guidance 92 and reaching the dispensing opening 93. The circumventing path is illustrated by the dotted line CP. In particular, this feature combined with the static center-feed unwinding of the roll avoids
30 two of more sheets to adhere to each other and to be dispensed at the same time. Thus, this allows sheets 51 to be formed one by one from the unwound strip of sheet product by avoiding a clogging/stuffing effect via the top region of the roll 5 even at the end of unwinding of the roll 5. In a dispenser comprising only the dispensing piece 9 of the invention (namely not the

centering element 15), the dispenser is able to dispense even a collapsed roll in the bottom region without clogging or jamming effect to be noticed.

The centering element 15 in combination with the dispensing piece 9, both engaging the central cavity 52 of the roll 5, enables supporting the sheet roll 5 through its two ends. In a dispenser positioned such as to dispense sheet vertically (FIGS. 4 and 6), the collapsing of sheet product from both sides toward the central cavity 52 is avoided, at least greatly reduced. In a dispenser positioned such as to dispense sheet horizontally (FIG. 5), the collapsing of the sheet product from the top portion toward the bottom portion is avoided, at least greatly reduced. In both case, the tendency of the sheet product to fill-in the central cavity 52 all along the roll length is avoided. Further, the tendency to jam the dispenser by dispensing two or more sheets at the same time is also avoided.

CLAIMS

- 5 1. A sheet product dispenser (1) for dispensing a strip (51) of a sheet product from a static center-feed coreless roll of sheet product, said roll (5) comprising a central cavity (52), the dispenser comprising:
- a container for accommodating the roll (5),
 - a dispensing piece (9) which protrudes toward an interior of the container
- 10 from one end of the container and which includes a guidance (92) between a receiving opening (94) for receiving the strip (51) of sheet product from said roll (5) and a dispensing opening (93) for dispensing the strip (51) of sheet product outside of the dispenser (1),
- wherein the dispensing piece (9) is arranged to engage into the central cavity (52)
- 15 of the roll (5),
- wherein the dispensing piece (9) comprises a cylindrical outer wall (91) connected to the guidance (92), the guidance (92) protruding into the container and tapering from the interior of the container from a larger end (95) defining the receiving opening (94), and wherein the dispensing piece (9) engages the central cavity (52)
- 20 of the roll (5) such that the receiving opening (94) is located below a planar cylindrical surface (53) of the roll (5) closest to the dispensing piece (9),
- wherein the receiving opening (94) has a larger cross-section than the dispensing opening (93).
- 25 2. The sheet product dispenser according to claim 1, wherein the guidance (92) is cone-shaped with the receiving opening (94) forming a base of the cone-shaped guidance (92) and the dispensing opening (93) forming a tapered end (96) of the guidance (92).
- 30 3. The sheet product dispenser according to claim 1 or 2, wherein the container further comprises a centering element (15) protruding from another end

of the container opposite to the one end of the container, and wherein the centering element (15) is arranged to engage into the central cavity (52) of the roll (5).

4. The sheet product dispenser according to claim 3, wherein the centering
5 element (15) is integrally formed with a bottom portion (22) of the container or formed separately as an insert to be placed on an inner surface of the bottom portion (22) of the container.
5. The sheet product dispenser according to claim 3 or 4, wherein the
10 dispensing piece (9) and the centering element (15) each has a circular cross-section perpendicular to a longitudinal axis (X) of the dispenser (1).
6. The sheet product dispenser according to claim 1 or 5, wherein the
15 container comprises a cylindrical housing (2) with a loading opening for loading the roll (5) and a lid (3) for closing the loading opening of the housing (2), wherein the lid (3) is attachable onto the housing (2) in a removable manner for loading the roll (5) into the container or closing the container.
7. The sheet product dispenser according to claim 6, wherein the dispensing
20 piece (9) is integrally formed with the lid (3) or formed separately as a separate part to be fixed into an opening of the lid (3).
8. The sheet product dispenser (1) according to any one of the claims 1 to 7,
25 wherein the dispenser comprising means for compressing the roll (5) within the container along at least one of its cylindrical surface (53).
9. The sheet product dispenser (1) according to claim 4, wherein the container
comprises a cylindrical housing (2) with a loading opening for loading the roll (5) and a lid (3) for closing the loading opening of the housing (2), wherein the lid (3)
30 is attachable onto the housing (2) in a removable manner for loading the roll (5) into the container or closing the container; and

wherein the bottom portion (22) is arranged outwardly concave so that a center part of the bottom portion (22) is pressed onto one end of the roll (5) inside the housing (2).

5 10. The sheet product dispenser (1) according to any one of the claims 1 to 9, wherein a handle (6) is attached at the container.

11. The sheet product dispenser (1) according to claim 6, wherein a handle (6) is attached at the container; and wherein the handle (6) is L-shaped, one leg (62)
10 of the handle (6) being parallel with a side wall of the cylindrical housing (2).

12. An arrangement comprising the sheet product dispenser (1) according to any one of the claims 1 to 11 and supporting means (60) so as to mount said dispenser at a vertical supporting surface (SV).

15

13. A system comprising a sheet product dispenser (1) according to any one of claims 1 to 11; and a static center-feed coreless roll of sheet product accommodated in the container of the dispenser (1), wherein the system comprises a circumventing path (CP), which is arranged between the central cavity
20 (52) of the roll (5) and the larger end (95), and which is adapted for causing the sheet product to be dispensed by circumventing said larger end (95) before penetrating through the receiving opening (94), travelling along the guidance (92) and leaving the dispenser (1) through the dispensing opening (93).

25 14. A method of dispensing a strip (51) of a sheet product from a static center-feed coreless roll of sheet product loaded into a container of a dispenser (1), said roll (5) comprising a central cavity (52), wherein the method comprises:

- engaging a dispensing piece (9) into the central cavity (52) of the roll
(5), the dispensing piece (9) protruding from one end of the container towards an
30 interior of the container, the dispensing piece (9) including a guidance (92) between a receiving opening (94) for receiving the strip (51) of sheet product from

- the roll (5) and a dispensing opening (93) for dispensing the strip (51) of sheet product outside of the dispenser (1), the dispensing piece (9) further comprising a cylindrical outer wall (91) connected to the guidance (92), the guidance (92) protruding into the container and tapering from the interior of the container from a larger end (95) defining the receiving opening (94), the dispensing piece (9) being engaged in the central cavity (52) of the roll (5) such that the receiving opening (94) is located below a planar cylindrical surface (53) of the roll (5) closest to the dispensing piece (9), wherein the receiving opening (94) has a larger cross-section than the dispensing opening (93),
- 10 - causing the sheet product when dispensed to circumvent (CP) said larger end (95) of the guidance (92) before penetrating through the receiving opening (94), travelling along the guidance (92) and leaving the dispenser (1) through the dispensing opening (93).

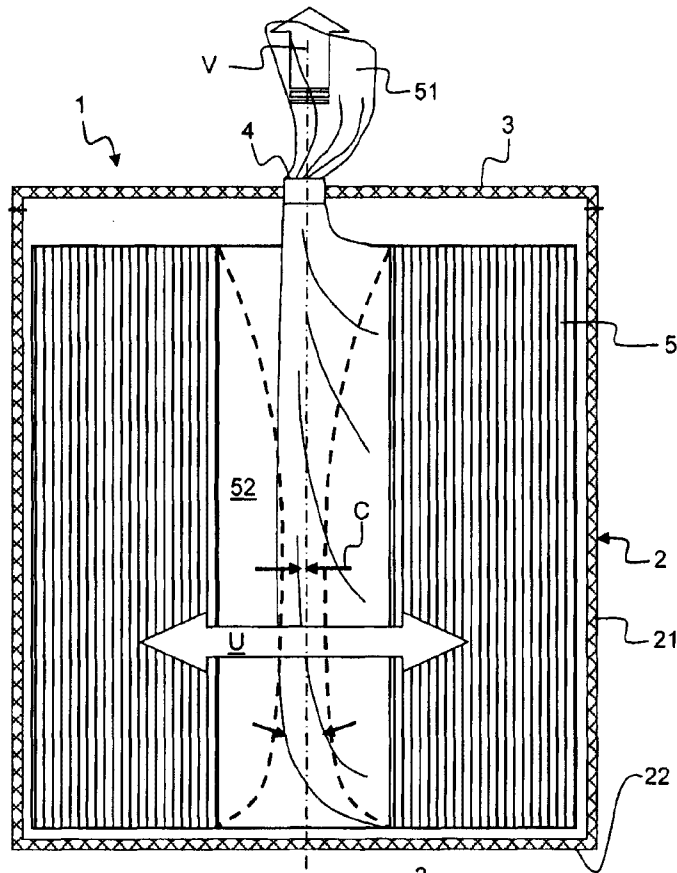


FIG. 1A (Prior Art)

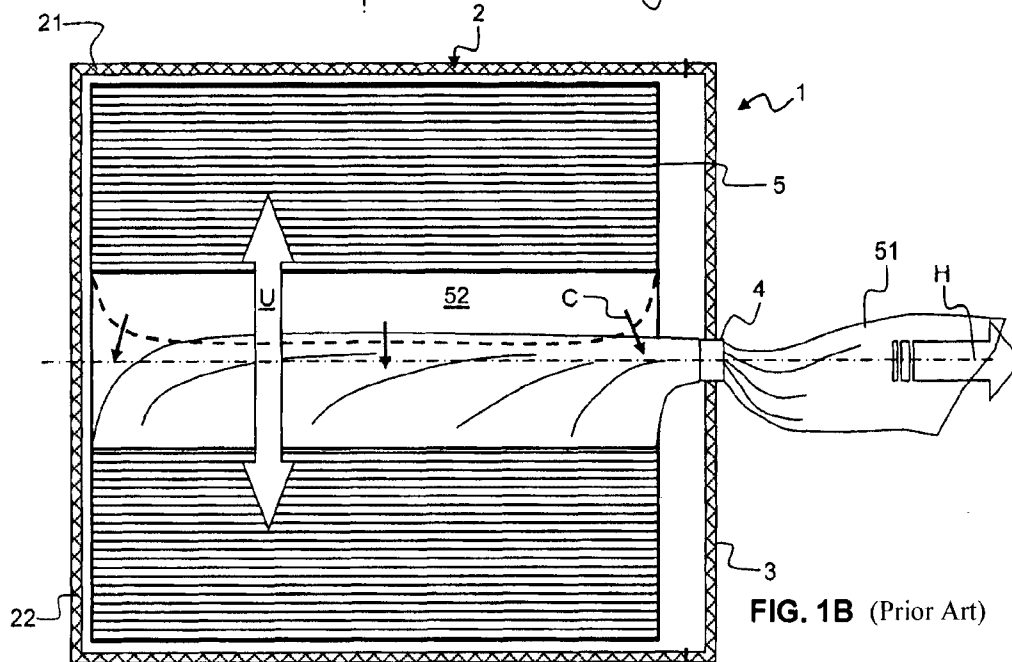


FIG. 1B (Prior Art)

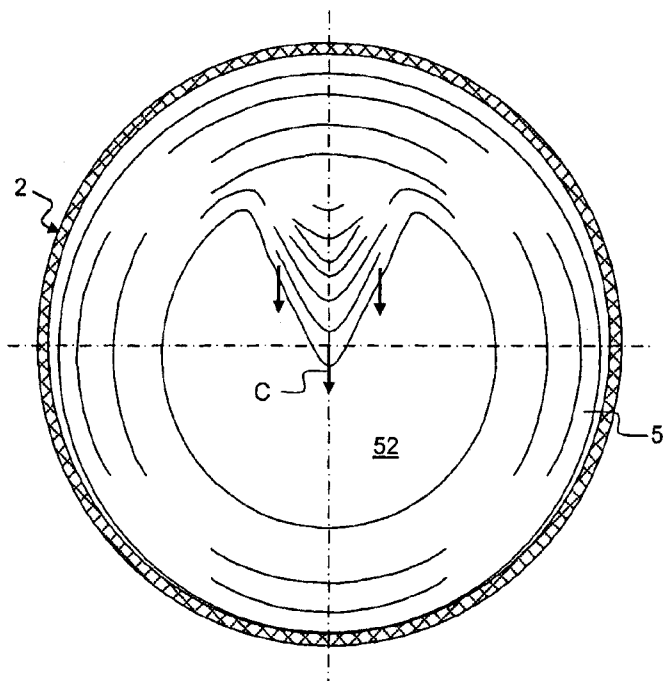


FIG. 2A (Prior Art)

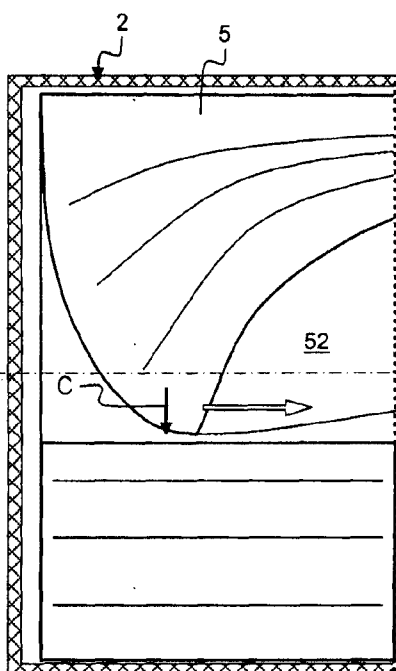


FIG. 2B (Prior Art)

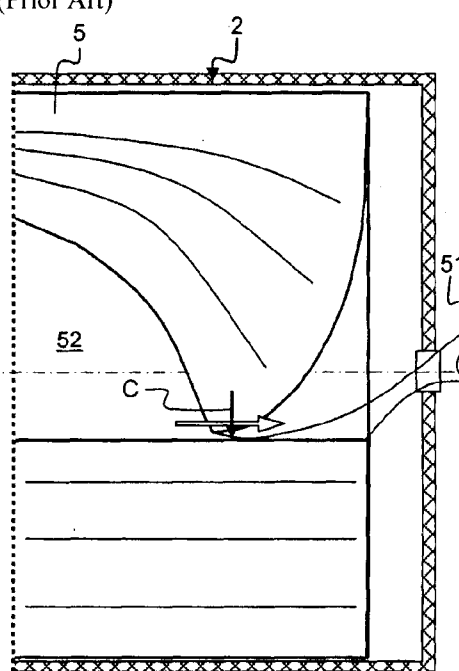


FIG. 2C (Prior Art)

3 / 8

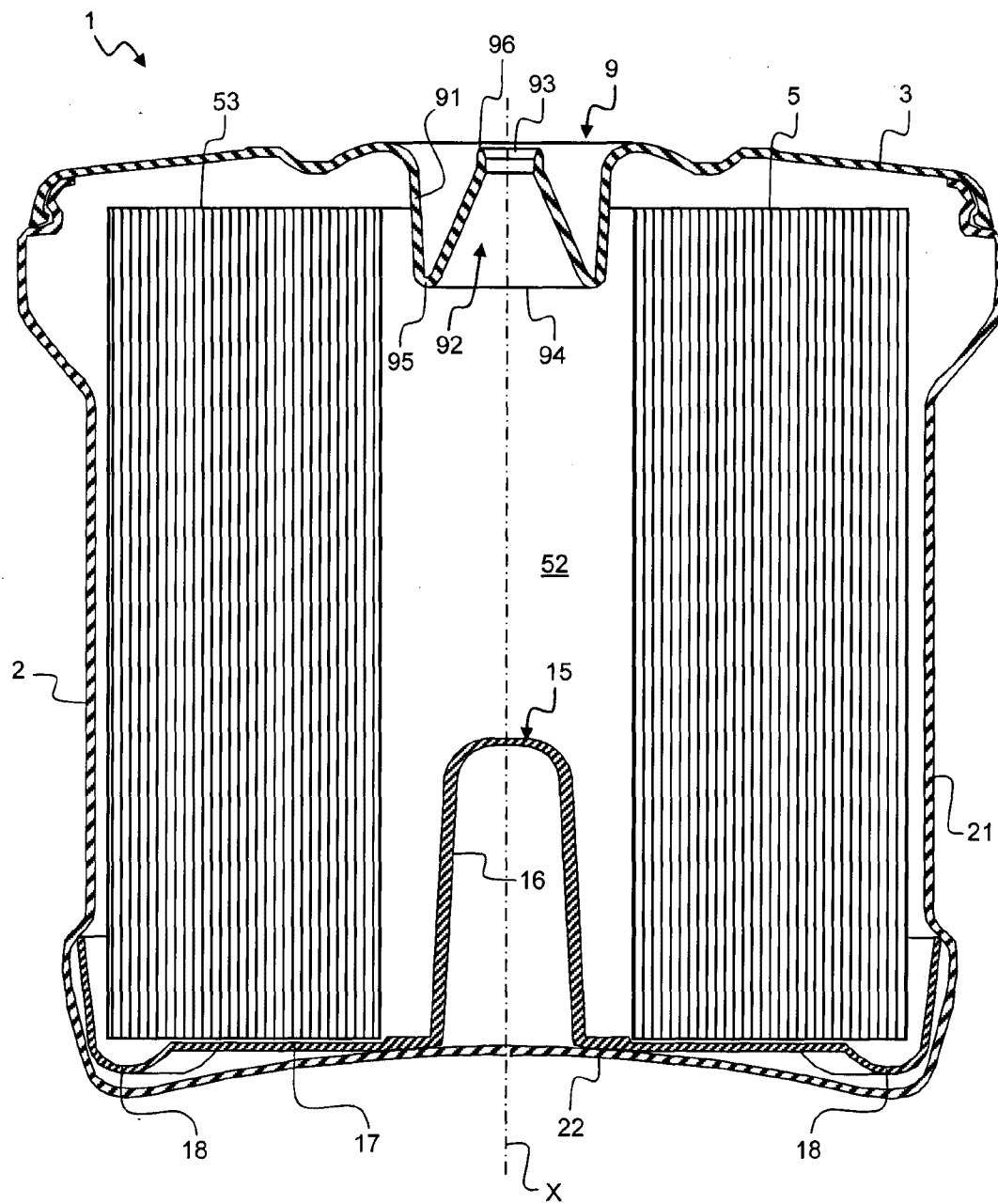


FIG. 3

4 / 8

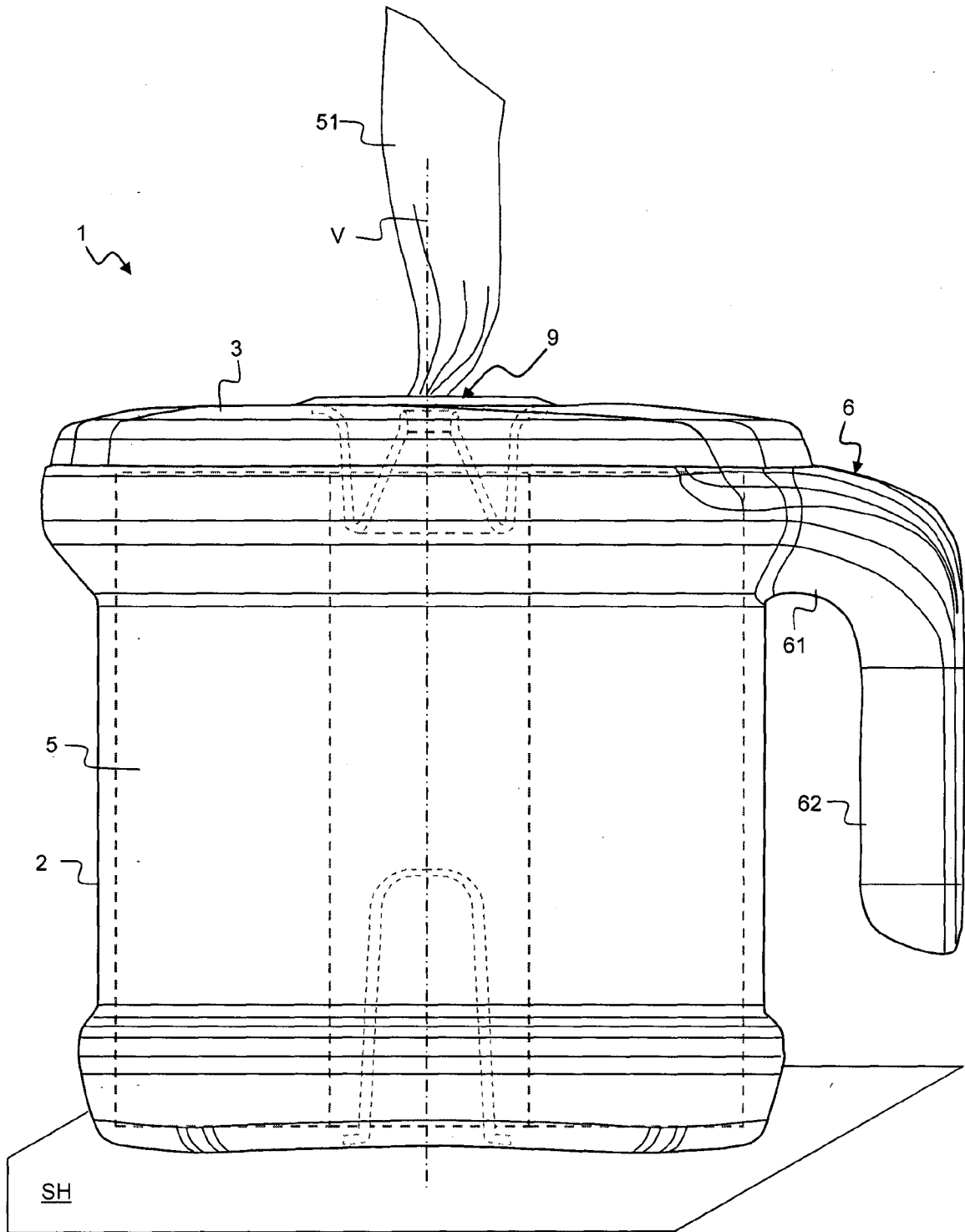


FIG. 4

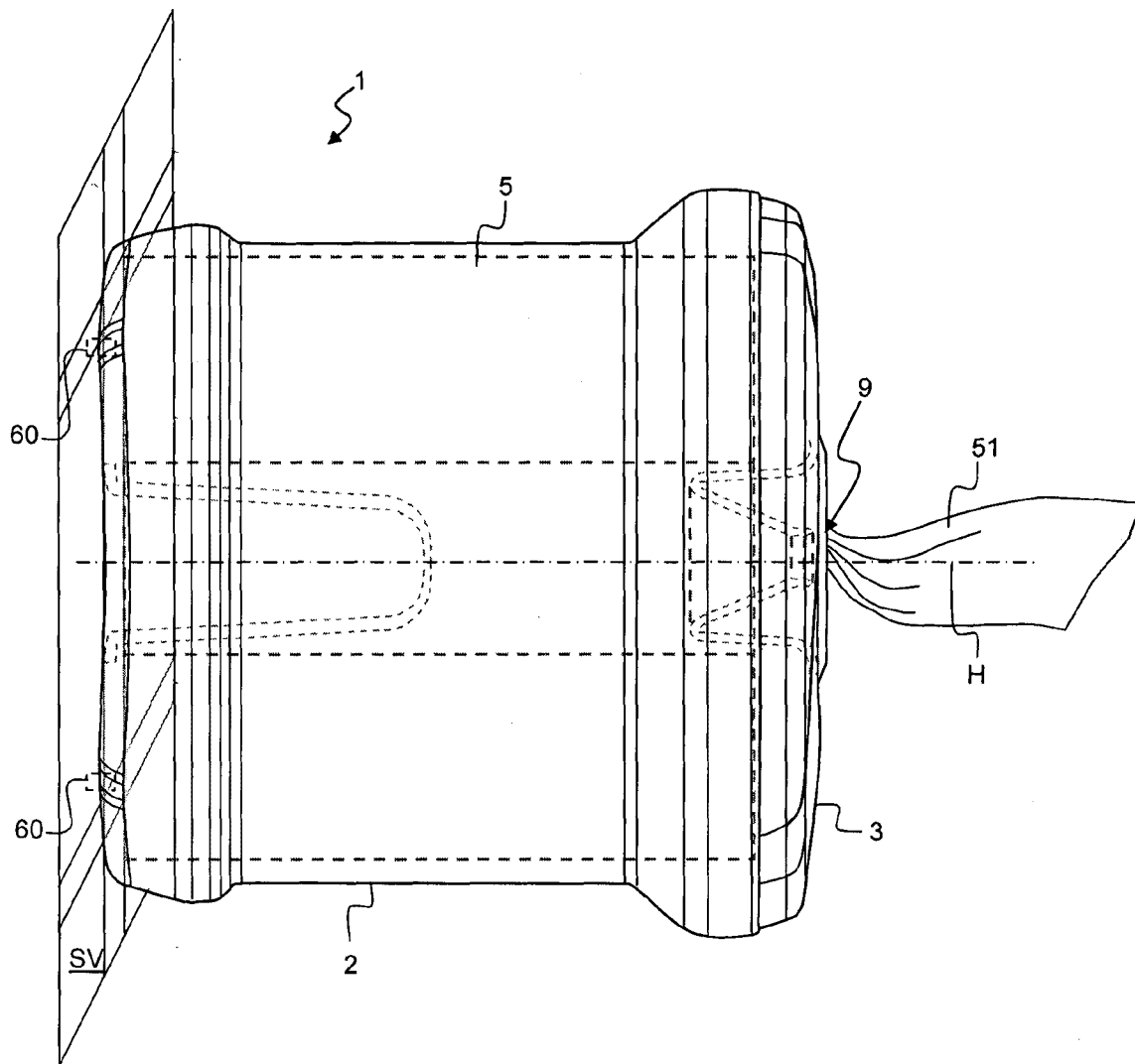


FIG. 5

6 / 8

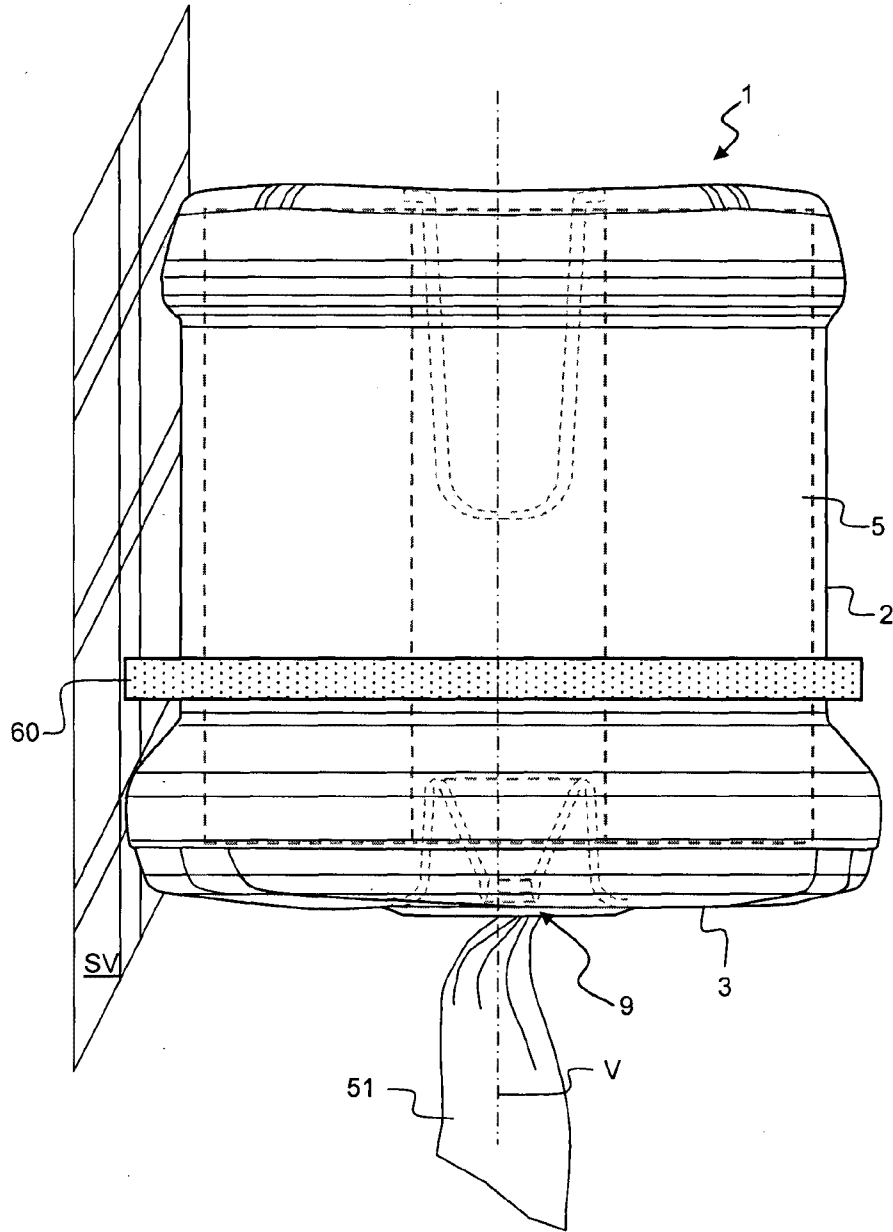


FIG. 6

7/8

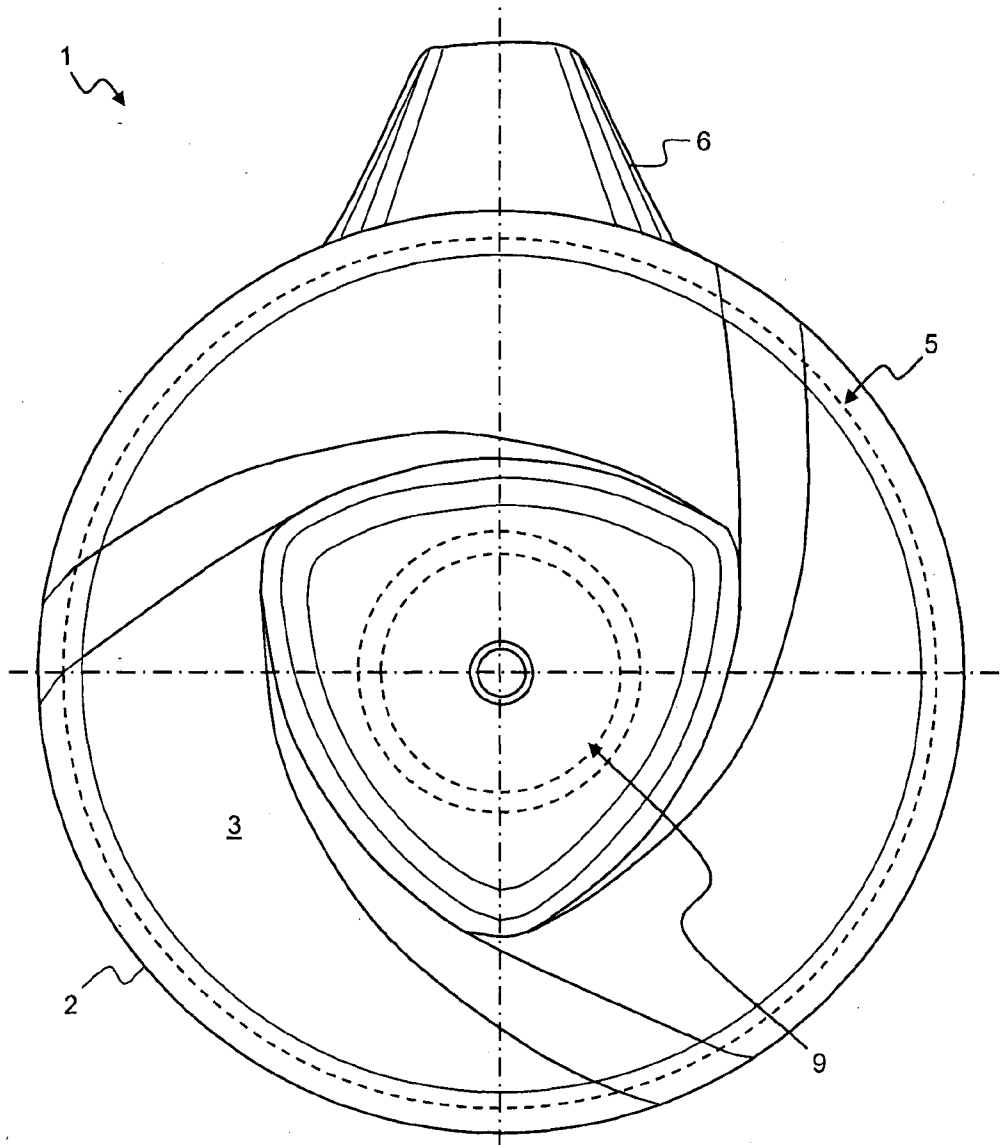


FIG. 7

8 / 8

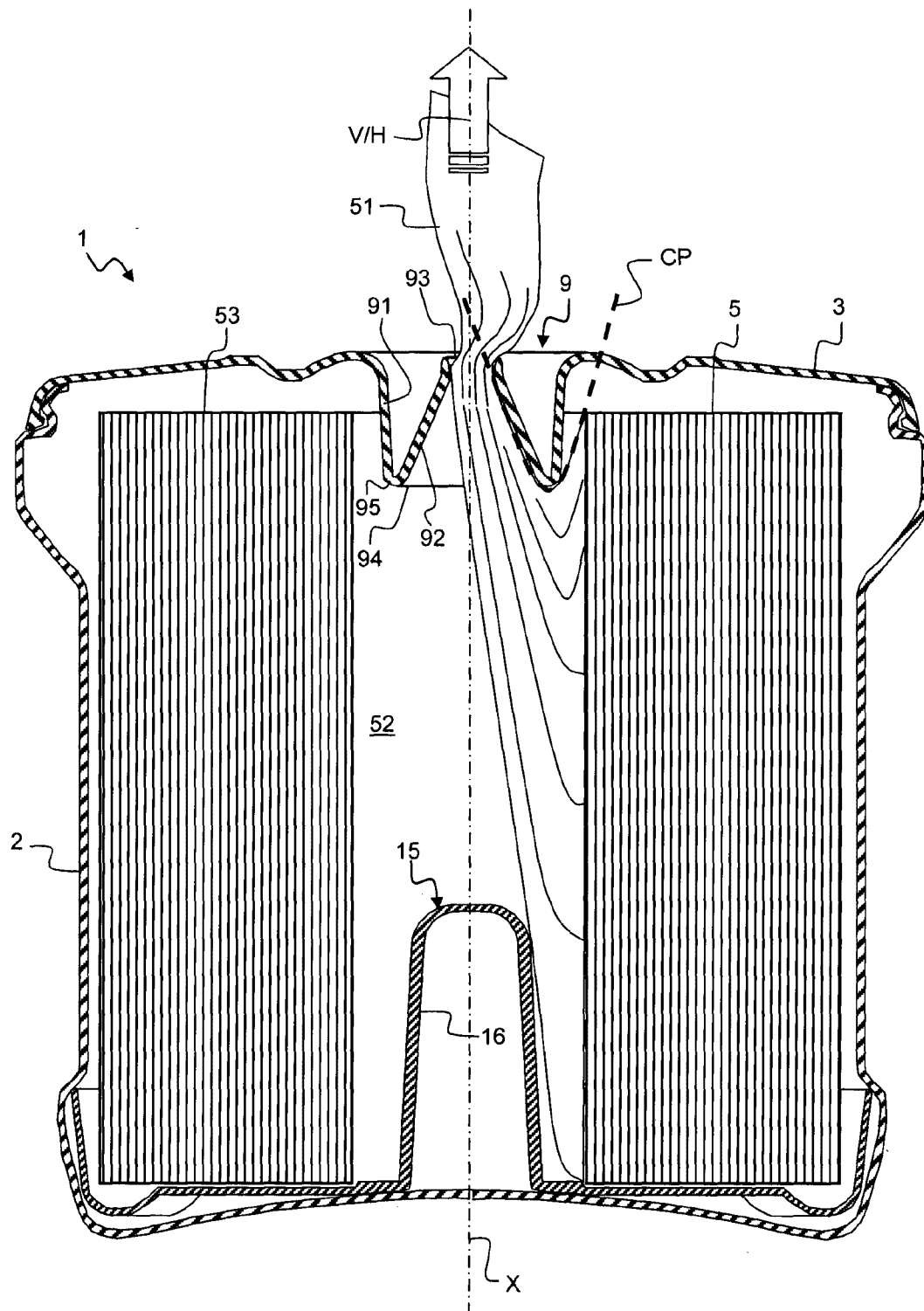


FIG. 8

