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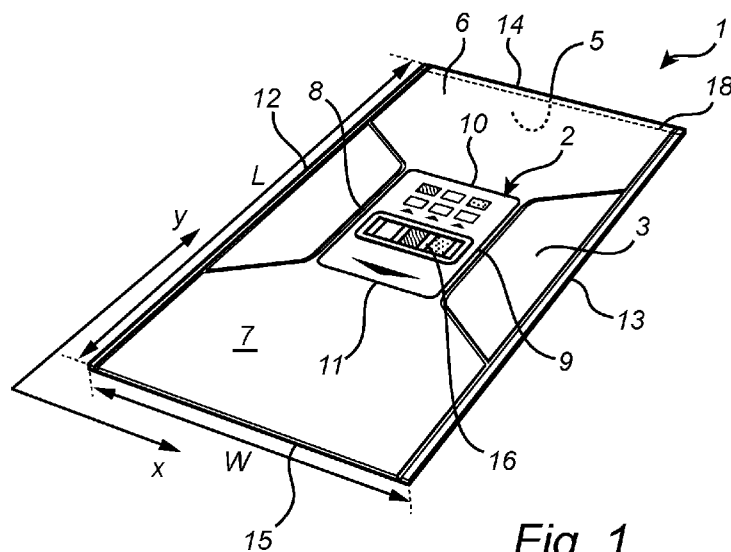


Fig. 1

(57) Abstract: The present disclosure concerns a body fluid test arrangement for an absorbent article, wherein the body fluid test arrangement includes a body fluid test device for receiving and examining voided body fluid and a support sheet. The support sheet is arranged for a releasable attachment to the top-sheet. The support sheet and the body fluid device each has a length in a longitudinal direction and a width in a transverse direction. The support sheet and the body fluid device each further comprises first and second lateral edges extending in the longitudinal direction and first and second transverse edges extending in the transverse direction. The width of the support sheet is between about 25 mm and about 75 mm and the length of said support sheet is between about 55 mm and about 106mm.

BODY FLUID TEST ARRANGEMENT FOR AN ABSORBENT ARTICLE

TECHNICAL FIELD

- 5 The present invention relates to a body fluid test arrangement for an absorbent article such as an absorbent garment. The arrangement is meant to be attached to a topsheet of the absorbent article and arranged for receiving and examining voided body fluids such as urine.

10 BACKGROUND

- Body fluid detection devices are used for determining properties and/or constituents of body fluids such as urine excreted from a person. For example, a urine detection device is often placed inside a transparent urine collecting bag that is attached to the leg of a person from whom the urine is collected via a catheter. Such a urine detection device may be provided with indicators for determining, for example, nitrite and leukocyte contents as well as electrolyte and pH values in the excreted urine. The indicators, to which urine is exposed, may be used to examine urine for developing and existing pathogen infections, which, illnesses/diseases correspond to the pH, nitrite, leukocyte and electrolyte values in the urine.

EP 1150 609 B1 and EP 0 560 099 A2 disclose devices for receiving and controlling voided body fluids such as urine.

- 25 DE 20 2007 005 962 U1 discloses a device for detecting uncontrolled voided urine for at least one property of the excreted urine.

- One problem that has not been previously addressed by the prior art for body fluid test device arranged onto a support sheet for attachment to the topsheet of an absorbent article is the need to carefully balance that the body fluid test arrangement functions correctly as a diagnostic device while the absorbent properties of the absorbent article remains satisfactory.

SUMMARY

In view of the aforesaid, it is an object to provide an improved body fluid test arrangement for placement in an absorbent article and attachment thereto,
5 which secures a reliable and quick indication of the body fluid test device forming part of the body fluid test arrangement, while at the same time secure that the absorption properties of the absorbent article remains satisfactory.

10 These and other objects of the present invention are achieved by a body fluid test arrangement for placement in an absorbent article and attachment thereto according to the appended claims.

Thus, in one aspect, a body fluid test arrangement is disclosed for an
15 absorbent article comprising a topsheet, wherein the body fluid test arrangement comprises a body fluid test device for receiving and examining voided body fluid and a support sheet. The support sheet has one wearer-facing side and one fastener side on which fastening means is arranged for a releasable attachment to the topsheet. The support sheet and the body fluid
20 test device each has a length in a longitudinal direction and a width in a transverse direction. The support sheet and the body fluid test device each further comprises first and second lateral edges extending in the longitudinal direction and first and second transverse edges extending in the transverse direction. The width of the support sheet is between about 25 and 75 mm and
25 the length of said support sheet is between about 55 and about 106 mm.

Even though the support sheet may include only liquid permeable materials, the fastening means may often include liquid impermeable materials, such as an adhesive layer or a hook material covering a major part of the fastener
30 side of the support sheet, which renders the support sheet liquid impermeable. If the support sheet is liquid impermeable there is no inlet of liquid into the absorbent article in the area covered by the body fluid test

arrangement, which have an effect on the absorbency of the absorbent article.

It has surprisingly been found that the above width and length ranges
5 combine the need of a reliable and quick indication by the body fluid test device with leakage security of the absorbent article.

In a further aspect the body fluid test arrangement is arranged on the fastener side of the support sheet and is in fluid communication with the
10 wearer-facing side of the support sheet.

This arrangement where the support sheet overlies the body fluid device during use in an absorbent article ensures that a proper amount of body fluid is directed into the body fluid test device and it also increases the comfort for
15 the wearer since the surface facing the wearer becomes smoother for the user than if the body fluid device should face the wearer directly.

In one aspect the width of the support sheet is between about 40 and about 60 mm and the length of the support sheet is between about 70 and about
20 106 mm.

In one further aspect of the body fluid test arrangement the width of the body fluid device is between about 20 and about 35 mm and the length of the body fluid device is between about 40 and about 60 mm.

25

In one aspect each of the width and the length of the support sheet is at least about 10 mm greater than the width and the length respectively of the body fluid test device.

30 In one aspect, the fastening means covers at least about 75 % of the total surface area of the fastener side of the support sheet, ensuring that the body fluid test arrangement is accurately secured against the topsheet of the

absorbent article. It may also ensure that the body fluid test arrangement lies flat against the topsheet and that no creases of the support sheet are formed.

In still one aspect, the fastening means is an adhesive and in a further aspect
5 the adhesive is a pressure sensitive adhesive.

In one aspect the support sheet comprises a liquid permeable material, preferably a fiber material such as a nonwoven fiber material.

10 In another aspect the support sheet comprises a finger grip portion along at least one of the transverse edges on the fastener side and the finger grip portion is free from adhesive.

In one aspect the body fluid test arrangement is a device for detecting and/or
15 determining a developing or existing pathogen infection, preferably a urinary tract infection.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be more closely described with reference to the enclosed
20 Figures, in which:

Figure 1 is a schematic perspective view of an embodiment of a body fluid test arrangement according to one embodiment the invention. The view shows the side, which will be facing an absorbent article when the
25 arrangement is attached thereto.

Figure 2 is an exploded perspective view of the components of the arrangement shown in figure 1.

30 Figures 3a-b illustrate an absorbent article including an illustrative body fluid test arrangement.

Figure 4 is a schematic representation of an Acquisition time apparatus.

Figure 5 is a schematic representation of a Rewet apparatus.

Figure 6 illustrates the stacked filter papers and a superposed weight from
5 the apparatus of Fig. 5.

DETAILED DESCRIPTION OF EMBODIMENTS

The present disclosure is related to a body fluid test arrangement in the form of an insert for an absorbent article such as an absorbent garment. The insert
10 is arranged to be used with a fastening means for releasably attaching the insert to a wearer-facing side of a topsheet of the absorbent article. Thus, the insert is intended to be worn together with the absorbent article. Furthermore, the insert includes a sensor or an indicator for collecting and/or determining body exudates properties and/or constituents.

15

In the following, the insert will be exemplified by a body fluid test arrangement for receiving and examining body fluids such as voided urine, wherein the arrangement is in the form of an insert of the mentioned type and which includes a body fluid test device.

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Figure 1 illustrates such a body fluid test arrangement for detecting a voided body fluid such as urine.

Figure 2 is an exploded perspective view of the components of the
25 arrangement shown in figure 1.

The body fluid test arrangement 1 is intended for collecting discharged body fluids, such as urine, and determining properties related thereto and/or constituents therein. The arrangement 1 is provided with a body fluid test
30 device 2 for determining those properties and/or constituents. The arrangement 1 may be used for detecting uncontrollably discharged urine, for example. The arrangement 1 may also be arranged for testing urine for

developing and existing pathogen infections which, for example, correspond to pH, nitrite, leukocyte and electrolyte values in the urine. Thus, a urinary tract infection may be detected and/or determined using the arrangement 1.

- 5 The arrangement 1 comprises a substantially flat rectangular body which is composed of several layers, as disclosed in figure 2. A first layer is a liquid-gathering layer 4, which may be a nonwoven layer of a liquid-permeable fibrous material. The liquid-gathering layer 4 may be made of materials that may also be used for the topsheet of an absorbent article, as described
- 10 herein below. The liquid-gathering layer 4 is placed adjacent the wearer during use and allows for excreted urine to be gathered in the body fluid test arrangement, while the arrangement 1 is comfortable to a wearer in contact therewith.
- 15 The body fluid test arrangement 1 also includes a support sheet 3 that in specific embodiments has a substantially flat layer having substantially the same rectangular shape and size as the liquid-gathering layer 4 to which the support sheet 3 is connected. The support sheet 3 may be made of the same material as the liquid-gathering layer 4 and is provided with a fastening
- 20 means 7 such as an adhesive or a mechanical fastener on one of its sides. In the following, the fastening means 7 will be further explained by reference to the use of an adhesive coating. The adhesive coating forms an adhesive surface 7 on a side of the support sheet 3.
- 25 The wearer-facing side of the support sheet 3 is connected to the liquid-gathering layer 4 through attachment at and along the longitudinal edges 12,12',13,13' of the support sheet 3 and liquid gathering layer 4. The attachment may be provided by welding the support sheet 3 and liquid gathering layer 4 to one another along said edges 12,12',13,13'. Further
- 30 attachment points may be provided, such as attaching the central portions of the support sheet 3 and liquid gathering layer 4 to each other and/or through attachment at and along the transverse edges 14,14',15,15' of the support

sheet 3 and liquid gathering layer 4. This facilitates the support sheet 3 and liquid gathering layer 4 and other components such as the body fluid test device 2 being kept in place during use, while the function of the test arrangement 1 is kept intact for collecting body fluids and detecting and/or determining properties or constituents therein.

The support sheet 3 includes a wearer-facing side 5 and a fastener side 6. The fastener side 6 of the support sheet 3 is provided with a fastening means 7 such as adhesive or mechanical fastening means. In the following, the fastening means 7 will be further explained by reference to the use of an adhesive coating. The adhesive coating forms an adhesive surface on the fastener side 6. The width of the support sheet is between about 25 and about 75 mm or between about 40 and about 60 mm and the length of said support sheet is between about 55 and about 106 mm or between about 70 and about 90 mm. The width of the body fluid device is between about 20 and about 35 mm and the length of the body fluid device is between about 40 and about 60 mm.

The support sheet 3 may include a finger grip portion 18 along at least one of the transverse edges (14,15) on the fastener side 6 and the finger grip portion 18 is free from the fastening means 7.

A body fluid test device 2 may take the form of a test card 2 attached to the fastener side 6 of the support sheet 3 at the centre thereof. The test card 2 may comprise a test housing inside of which test indicators are arranged in an indicator area 16 that may be viewed from the outside of the test card, when looking towards the side of the support sheet 3 to which the test card 2 is attached. For the purpose of providing a window through which the indicator area 16 may be viewed, the test card and, particularly, the housing thereof, may include a transparent polymeric film. The test card 2 is also provided with a fluid port that faces the fastener side of the support sheet 3 and thereby also faces the wearer of the absorbent article during use.

The test card 2 is also provided with a fluid port that faces the central portion of the support sheet 3 and a central opening 17 thereof. The fluid port is not shown in the figures, but such a fluid port as well as the opening 17 may be arranged as is shown for the device described in EP 1150609 B1 and DE 20 2007 005 962 U1 for example. The fluid port provides fluid contact with the central opening 17 of the support sheet 3, and thereby with the liquid-gathering layer 4. Voided body fluids such as urine may therefore be guided from the liquid gathering layer 4 into the test device 2 via the central opening 17 and the fluid port. Close to the fluid port inside the test card 2, a liquid swelling material may be arranged for closing the fluid port, when a sufficient amount of liquid has been collected inside the test card 2 for proper body fluid determination. Reference is made to EP 1150609 B1 and DE 20 2007 005 962 U1 for further details concerning a non-limiting example of a test card and a test arrangement related thereto.

The size of the support sheet 3 and the liquid-gathering layer 4 may also influence the amount of fluid that enters the test card 2. The right dimensions of these layers ensure that a sufficient amount of liquid enters the test card rapidly enough to secure a quick and reliable indication of the user's health condition. The support sheet namely also serves to gather liquid so that a proper amount of liquid enters the test card 2. A support sheet 3 having too small dimensions may, if for example the arrangement 1 is not correctly positioned in the absorbent article, risk that not enough liquid enters the body fluid test device 2 through opening 17 and through the fluid port of the test card 2 since the liquid absorbs too quickly into the absorbent article. For the dimensions according to the claims the performance of the indicator showed excellent performance.

Furthermore, a protective film 26 may be used for the adhesive coating. Such a protective film 26 is releasably attached to the outer-facing adhesive surface 6 of the arrangement 1, before or after the arrangement 1 is in use.

In addition, the arrangement 1 may prior to use thereof be stored in packaging such as a cover or bag (not shown). When using the arrangement 1, the packaging is opened and the protective film is removed from the adhesive surface. The test arrangement 1 is furthermore placed in an absorbent article such as an absorbent garment with the adhesive surface facing the wearer facing side of a topsheet of the absorbent article. In order for the body fluid test device 2 to function correctly the arrangement 1 should be attached to the topsheet within a region of the article to which excreted body fluids to be detected such as urine may be present when the absorbent article is worn by a wearer, this region normally being the crotch region.

Figures 3a-b illustrate an absorbent article 19 in the form of a diaper or incontinence guard to which arrangement 1 is attached.

The absorbent article 19 extends in a longitudinal direction (y) and a transverse direction (x), and has a front end portion 20, a rear end portion 21, and a crotch portion 22 located intermediate the end portions 20, 21. The crotch portion 22 is the portion of the absorbent article 19 which is intended to be placed against the crotch of a wearer during wearing of the article 19 and to constitute the main acquisition area for body fluid that reaches the article 19.

The absorbent article 19 includes a topsheet 23, a backsheet 24 and an absorbent core 25 that is disposed between the topsheet 23 and the backsheet 24.

The term *topsheet* refers to a substrate or the like that forms the inner cover of the absorbent article and in use is placed in direct contact with the skin of the wearer. The topsheet 23 may include a fiber material such as a nonwoven material e.g., spunbond, meltblown, carded, hydroentangled, wetlaid. Suitable fiber materials can be composed of natural fibers, such as

wood pulp or cotton fibers, manmade fibers, such as polyester, polyethylene, polypropylene, viscose or nylon or from a mixture of natural and manmade fibers. The topsheet material may further be composed of tow fibers, which may be bonded to each other in a bonding pattern, as disclosed for example
5 in EP-A-1 035 818. Further non-limiting examples of topsheet materials include porous foams, apertured plastic films. The materials suited as topsheet materials may be soft and non-irritating to the skin and be readily penetrated by body fluid, such as urine. The topsheet 23 may further be different in different parts of the absorbent article 19.

10

The backsheet 24 forms the back cover of the absorbent article. The backsheet 24 may be a liquid impermeable cover that may comprise a thin plastic film e.g., a polyethylene or polypropylene film, a nonwoven material coated with a liquid impervious material, a hydrophobic nonwoven material,
15 which resists liquid penetration, or a laminate e.g., of a plastic film and a nonwoven material. The liquid impermeable cover material may be breathable so as to allow vapor to escape from the absorbent core, while still preventing liquids from passing through. Examples of breathable outer liquid impermeable cover materials are porous polymeric films, nonwoven
20 laminates from spunbond and meltblown layers, laminates from porous polymeric films and nonwoven materials.

The absorbent core 25 is an absorbent structure disposed between the topsheet 23 and backsheet 24 of the absorbent article 19 in at least the
25 crotch portion 22 thereof. The absorbent core 25 may be made up of any suitable absorbent or fluid uptake material as known in the art, such as one or more layers of cellulose fluff pulp, foam or fiber waddings. The absorbent core 25 may contain fibers or particles of highly absorbent polymer material, commonly known as superabsorbents, which are materials having the ability
30 to absorb and retain large quantities of fluid upon formation of a hydrogel. Superabsorbent polymers are water-swellaable, water-insoluble organic or inorganic materials capable of absorbing at least about 20 times their weight

of an aqueous solution containing 0.9 weight percent of sodium chloride. The superabsorbents may be mixed with cellulose fluff pulp and/or may be arranged in pockets or layers in the absorbent core. The absorbent core 25 may further incorporate components for improving the properties of the absorbent core. Some examples of such components are binder fibers, fluid-dispersing materials, fluid acquisition materials, as known in the art.

The absorbent article 19 with the arrangement 1 attached thereto is worn by a wearer, such that the support layer 3, or an overlaying layer such as the liquid-gathering layer 4, of the arrangement 1 comes in contact with the wearer and matches an area of the absorbent article 19 that may come in contact with discharged body fluids of interest, in turn providing the possibility of collecting those body fluids into the test card 2. Thus, the arrangement 1 may be placed close to the crotch portion 22 of the absorbent article 19.

The test card 2 is covered by the support layer 3 of the arrangement 1 and the topsheet 23 of the absorbent article 19, when the arrangement 1 is attached to the absorbent article 19, so that it is not readily visible by the wearer. This arrangement safeguards comfort to the wearer and proper functionality of the arrangement 1. The arrangement 1 is removed from the topsheet 23 in order to detect and/or determine properties and/or constituents of the body fluids. The arrangement 1, to that end, may therefore be releasably attached to the absorbent article 19.

Thus, the arrangement 1 with collected body fluids may be peeled off from the topsheet 23 and subsequently evaluated for properties and/or constituents.

The fastening means 7 secure the attachment of the arrangement 1 in the absorbent article 19 during use of the absorbent article 19 as well as providing safe removal of the arrangement 1 after use. This also facilitates the arrangement 1 staying in place in the absorbent article 19, in order to

secure an accurate measurement or indication by the body fluid test device 2. To assure that the fastening means 7 provide accurate attachment, the width and the length of the support sheet 3 is at least about 10 mm greater than the width and the length respectively of the body fluid test device 2 so that the support sheet 3 including the fastening means 7 extends beyond the first and second lateral edges 8, 9 and the first and second transverse edges 10, 11 of the body fluid test device 2.

As mentioned hereinabove, the fastening means 7 may for example be an adhesive. The adhesive may be a pressure sensitive adhesive. Examples of suitable adhesives for fastening means 7 include NW 1052 and NW 1208 supplied by H.B. Fuller of Saint Paul MN (USA), LA 605 supplied by Savař Specialty Adhesives of Milan Italy, and product 2.01.01.05000123 supplied by Betasan of Kocaeli, Turkey.

The use of the adhesive as fastening means 7 provides the possibility of safe use and removal of the arrangement 1 as mentioned above, while providing comfort to the wearer.

The adhesive may be applied in an amount of about 10 to about 40 gsm (grams per square meter) based on a total surface area that said adhesive is covering. An adhesive that is sprayed or slotted on a surface of arrangement 1 may be applied in amount as mentioned hereinabove. The adhesive may also cover at least about 75 % of the total surface area of the fastener side of the support sheet 3.

As the skilled artisan will appreciate, many embodiments and alternatives are contemplated within the scope of the present disclosure. For example, the arrangement 1 may be provided with other types of body fluid test devices than the examples described above. For example and without limitation, the body fluid test device may be a wetting sensor such as a color indicator or a sensor providing an electrical signal or the like. Furthermore, the body fluid

test arrangement may be arranged with one single layer forming both the support sheet 3 and the liquid-gathering layer 4, wherein a simple and safe arrangement is provided. Similarly, body fluid test arrangements are contemplated having more than two layers.

5

EXAMPLE

Samples of body fluid test arrangements were sized in accordance with the length and the widths shown in Table 1 below. There were also samples left uncut. The body fluid test arrangement used was TENA U-test from SCA Hygiene Products AB. TENA U-test has a length of 150 mm and a width of 80 mm, which are thus the dimensions of one of the comparative examples. The cut and uncut samples of TENA U-test were attached to incontinence articles Tena Super Flex Comfort Stretch, Product SKU # 67805, hereinafter called Tena Flex briefs.

10

Methods

Acquisition time

This method measures the inlet characteristics of a product by determining the time required for the crotch part of an incontinence device to absorb a specified amount of liquid.

First, the absorbent article 19 is cut to remove the elastics and standing gathers. The cut part is then weighed to the nearest +/- 0.01 g and placed flat on a table, with the core facing upwards. The cut part is secured to the table with a Velcro (hook-type) fastener applied to the backsheet and the body fluid test arrangement 1 is placed in the crotch portion of the absorbent article.

An acquisition cup 30 is carefully placed in the centremost portion, the crotch portion, of the absorbent article, see figure 4. As may be seen in this figure the acquisition cup 30 at least partly overlays the body fluid test arrangement 1. The inner diameter of the cup 30 is 80 mm, the outer diameter is 130 mm

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and the height is 55mm and on the cup a metal cylinder 35 (427 +/- 5 g) is placed.

5 The absorbent article is then dosed with 100 ml of test liquid A from a dosing reservoir 27 by means of a dosing pump 28 and the time taken to absorb the dosed liquid is measured in seconds. The liquid is pumped through a plastic pipe 29 depositing the liquid in the centre of the article. The flow rate for the liquid is 20 +/- 0.5 ml/s during 5 seconds to achieve a 100 ml dosage.

10 The method used in this test is a computerized sensor method, wherein an electronic sensor 31 indicates when the product surface is free from pooled fluid through a conduit 32 conveying the electronic signal to an analog-to-digital convertor or a data acquisition system. The analog-to-digital converter 33 (or data acquisition system) that receives the electronic signal from the
15 sensor 31, converts the signal into a digital form to be read and subsequently processed by a computer 34. The acquisition time will be automatically saved in the computer program.

The test may also be run manually, without a computer. In this case a
20 stopwatch may be used, and the inlet times are taken when there is no more pooled fluid on the product surface.

The results for Acquisition time for the Tena Flex briefs of the Examples and the Comparative Examples are shown in the below Table 1.
25

Rewet

The rewet method is designed to measure product dryness after liquid inlet. The amount of liquid that is squeezed out of the wet area of a product is carefully determined, using filter papers to determine the wetness.

30 During this method the products is cut to remove the elastics and standing gathers. The cut products are then positioned with the absorbent core facing

upwards, on a flat surfaced and secured with Velcro (hooks) attached to the backsheet and the body fluid test arrangement was placed in the crotch portion of the absorbent article.

- 5 Test liquid B (see table below) is used as the dosing liquid. The absorbent article is dosed with 150 ml +/- 0.5 ml of test liquid B from a dosing reservoir 36 by means of a dosing pump 37, with a flow rate of 20 +/- 0.1 ml/s. The liquid is deposited in the centre of the product through a plastic pipe 38. A dosage cup 39 is connected to the dosage equipment, see Figure 5.

10

- Once the absorbent article is dosed, the operator carefully observes the product until all test liquid B has left the dosing cup 39 and been absorbed by the product. At this time, the operator starts the timer and the dosing cup 39 is removed. Sheets of dry filter paper 40 are stacked to obtain a weight of
- 15 80g of paper, the weight is determined to an accuracy of +/- 0.01 g. The filter paper used is a filter paper, Model 1001 from Whatman Inc., having a diameter of 150 mm. Exactly 10 minutes after the test liquid is observed to be gone, the stack of filter paper 40 is placed in the centre of the product and the weight 41 is applied directly over the 150 mm filter paper 40, to squeeze
 - 20 out any unabsorbed liquid onto the filter paper. The filter papers 40 and the weight 41 are applied to the absorbent article for a duration of 60 seconds. The weight 41 is a metal weight, 14.5 kg, 150 mm in diameter, which delivers a pressure of 8 kg/dm² for 60 seconds. A timer, accurate to +/- 0.1 sec is used to determine the 10 minute time between dosing and application of
 - 25 force. The timer is linked to controllers that turned on and off the pumps during dosing and raised and lowered the weight 41 during squeezing.

- The filter papers 40 and the weight 41 are then removed, and the filter papers are reweighed. The filter paper stack is reweighed to an accuracy of
- 30 +/- 0.01 grams. The "rewet" value in grams is the amount of fluid that is squeezed out from the absorbent articles under pressure and "rewets" the filter paper.

The more liquid the absorbent article and the body fluid test arrangement is able to retain the liquid and not give it up under pressure, the dryer it is considered to be.

5

Test liquid A (referred to in Method 1):

Synthetic urine containing the following substances: MgSO_4 , NaCl , NH_2CONH_2 , KCl , $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$, K_2SO_4 . The pH in this composition is about

10 7.

Test liquid B (referred to in Method 2):

Synthetic urine containing the following substances: KH_2PO_4 , $(\text{NH}_4)_2\text{HPO}_4$,
 15 1g/l 0.1 % Triton X-100. The pH in the composition was adjusted to 5.9 by the addition of HCl .

TABLE 1: First acquisition time

	Body fluid test arrangement dimensions		
	Length (mm)	Width (mm)	
Ex.1	62	62	8.84
Ex.2	75	49	9.21
Ex.3	75	75	13.53
Ex.4	106	44	9.84
Ex.5	106	62	13.62, 12.92, 16.78, 12.40, 21.02
Comp. Ex 6	106	80	49.79
Comp. Ex. 7	137	49	8.67
Comp. Ex. 8	137	75	30.01
Comp. Ex. 9	150	62	12.92

Comp. Ex. 10	150	80	29.92
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Note that the average acquisition times for the dimensions of body fluid test arrangements covered by this disclosure are roughly half those of the larger dimensions. The results for the dimensions in the body fluid test

- 5 arrangements of the present disclosure also exhibit considerably less variability.

The results in terms of the Rewet weights for the Tena Flex briefs of the Examples and those for Comparative Examples are shown in the following

10 Table 2.

TABLE 2: Rewet

	Body fluid test arrangement dimensions		
	Length (mm)	Width (mm)	Rewet on filter paper (g)
Ex.1	62	62	1.11
Ex.2	75	49	1
Ex.3	75	75	1.42
Ex.4	106	44	1.68
Ex.5	106	62	1.69, 1.77, 1.79, 1.47, 1.61
Comp. Ex 6	106	80	2.09
Comp. Ex. 7	137	49	4.62
Comp. Ex. 8	137	75	2.5
Comp. Ex. 9	150	62	2.5
Comp. Ex. 10	150	80	4.52

Note that the average rewet weights for those body fluid test arrangement dimensions disclosed herein are roughly twice those for the larger dimensions. The rewet weights disclosed herein also exhibit considerably less variability.

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It should also be noted that the diagnostic performance of the U-test were tested for all examples for which the support sheet of the U-test had a width between about 25 mm and about 75 mm and said length between about 55 mm and about 106 mm. In all of those examples seen above, the diagnostic performance of the U-test card functioned correctly, meaning that no false colors were produced with the two fluids used. Also there were no pink or purple colors since the nitrite and leucocyte esterase were, of course, not present. Moreover, the validity colorimetric indicators did indeed change colors as they should have in all cases i.e., from green to bright orange, which is the color change to be expected with the entry of these two fluids into the U-Test body fluid test arrangement.

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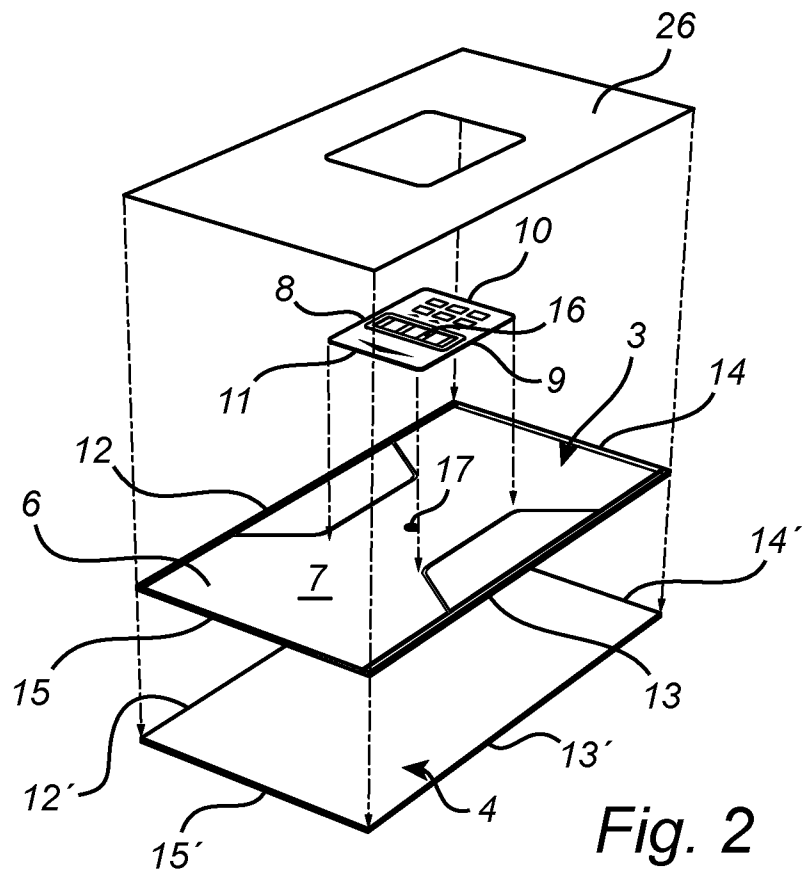
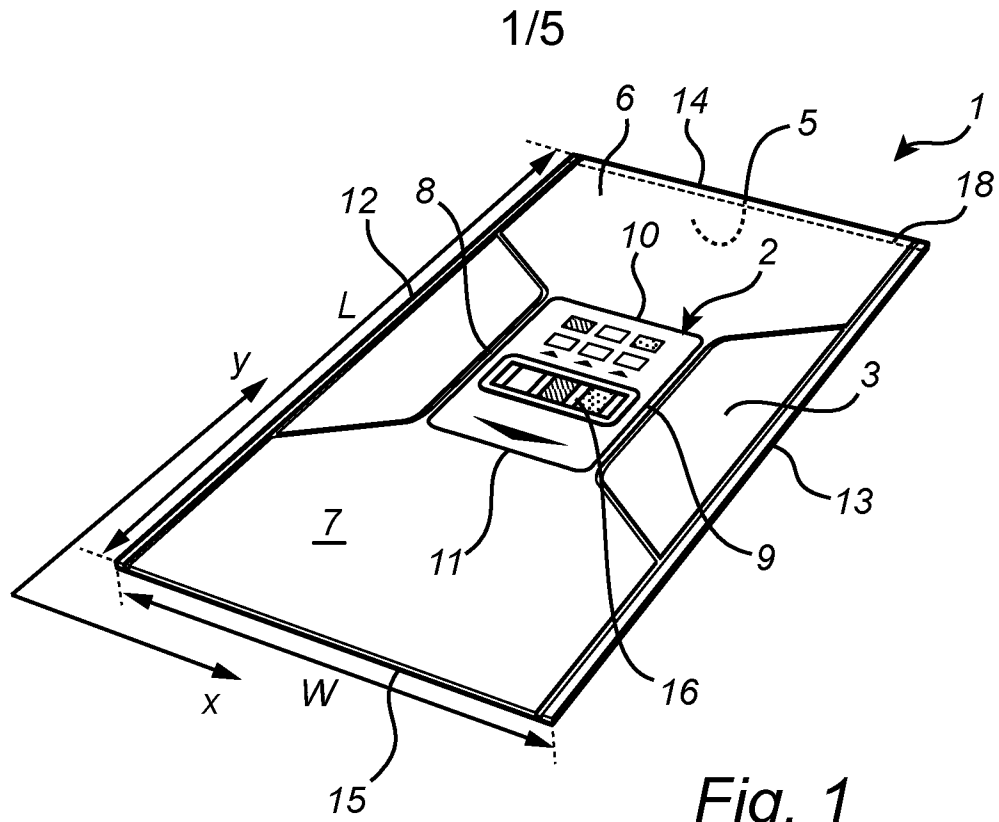
It may thus be concluded that if a particular percentage of the body fluid test arrangements is removed, a much better performing absorbent article is obtained, both in terms of fluid acquisition and rewet, which together lead to both a reduced leakage, greater dryness and thus improvement in skin health. Furthermore has this improved absorbency performance been achieved without compromising the diagnostic performance of the body fluid test arrangement.

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CLAIMS

1. A body fluid test arrangement (1) for an absorbent article (19) comprising a topsheet (23), wherein the body fluid test arrangement
5 (1) comprises a body fluid test device (2) for receiving and examining voided body fluid and a support sheet (3) having one wearer-facing side (5) and one fastener side (6) on which fastening means (7) is arranged for a releasable attachment to said topsheet, each of said support sheet (3) and said body fluid device (2) having a length (L) in
10 a longitudinal direction (y) and a width (w) in a transverse direction (x), each of said body fluid test device (2) and said support sheet (3) further comprises a first lateral edge (8,12) respectively and a second lateral edge (9,13) respectively extending in said longitudinal direction (y), a first transverse edge (10,14) and a second transverse edge
15 (11,15) extending in said transverse direction (x), **characterized in that** said width (w) of said support sheet (3) is between 25 and 75 mm and said length (L) of said support sheet (3) is between 55 and 106 mm.
- 20 2. The body fluid test arrangement (1) according to claim 1, wherein the body fluid test device (2) is arranged on said fastener side (6) and is in fluid communication with said wearer-facing side (5) of said support sheet (3).
- 25 3. The body fluid test arrangement (1) according to claim 1 or 2, wherein the width (w) of said support sheet (3) is between 40 and 60 mm and said length (L) of said support sheet (3) is between 70 and 90 mm.
- 30 4. The body fluid test arrangement (1) according to any of the preceding claims, wherein said width (w) of said body fluid device is between 20 and 35 mm and said length (L) of said body fluid device (2) is between 40 and 60 mm

5. The body fluid test arrangement (1) according to any of the preceding claims, wherein said width (w) and said length (L) of said support sheet (3) is at least 10 mm greater than said width (w) and said length (L) respectively of said body fluid test device (2).
- 5 6. The body fluid test arrangement (1) according to any of the preceding claims, wherein said fastening means (7) covers at least 75 % of the total surface area of said fastener side (6) of said support sheet (3).
- 10 7. The body fluid test arrangement (1) according to any of the preceding claims, wherein said fastening means (7) is an adhesive or a hook material.
8. The body fluid test arrangement (1) according to claim 7, wherein the
15 adhesive is a pressure sensitive adhesive.
9. The body fluid test arrangement (1) according to any of the preceding claims, wherein the support sheet (3) comprises a liquid permeable sheet, preferably of a fiber material such as a nonwoven fiber material.
- 20 10. The body fluid test arrangement (1) according to any of the claims 6 to 8, wherein the support sheet (3) comprises a finger grip portion (18) along at least one of said transverse edges (14,15) on said fastener side (6) said finger grip portion (18) being free from said fastening
25 means (7).
11. The body fluid test arrangement (1) according to any one of the preceding claims, wherein the body fluid test device (2) is a device for detecting and/or determining a developing or existing pathogen
30 infection, preferably a urinary tract infection.



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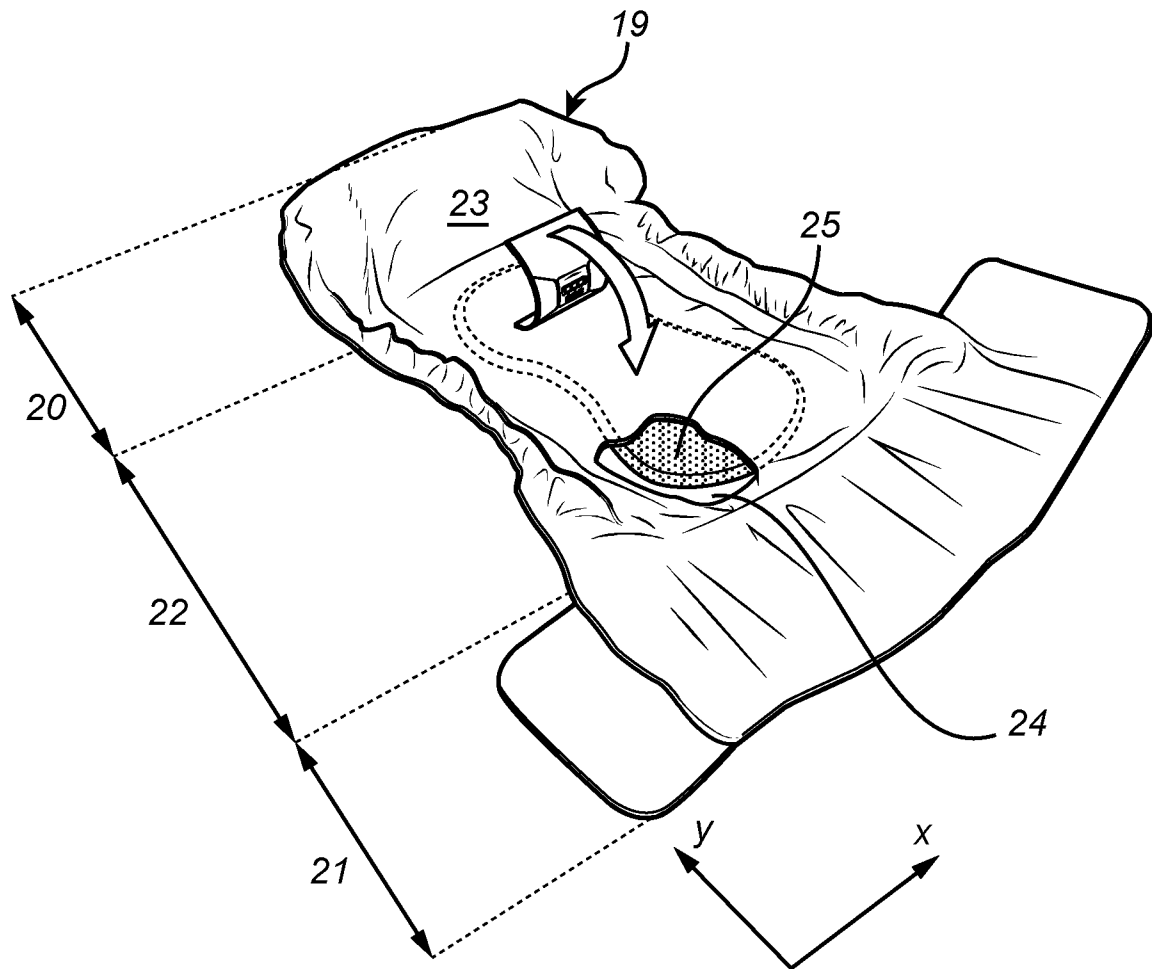


Fig. 3a

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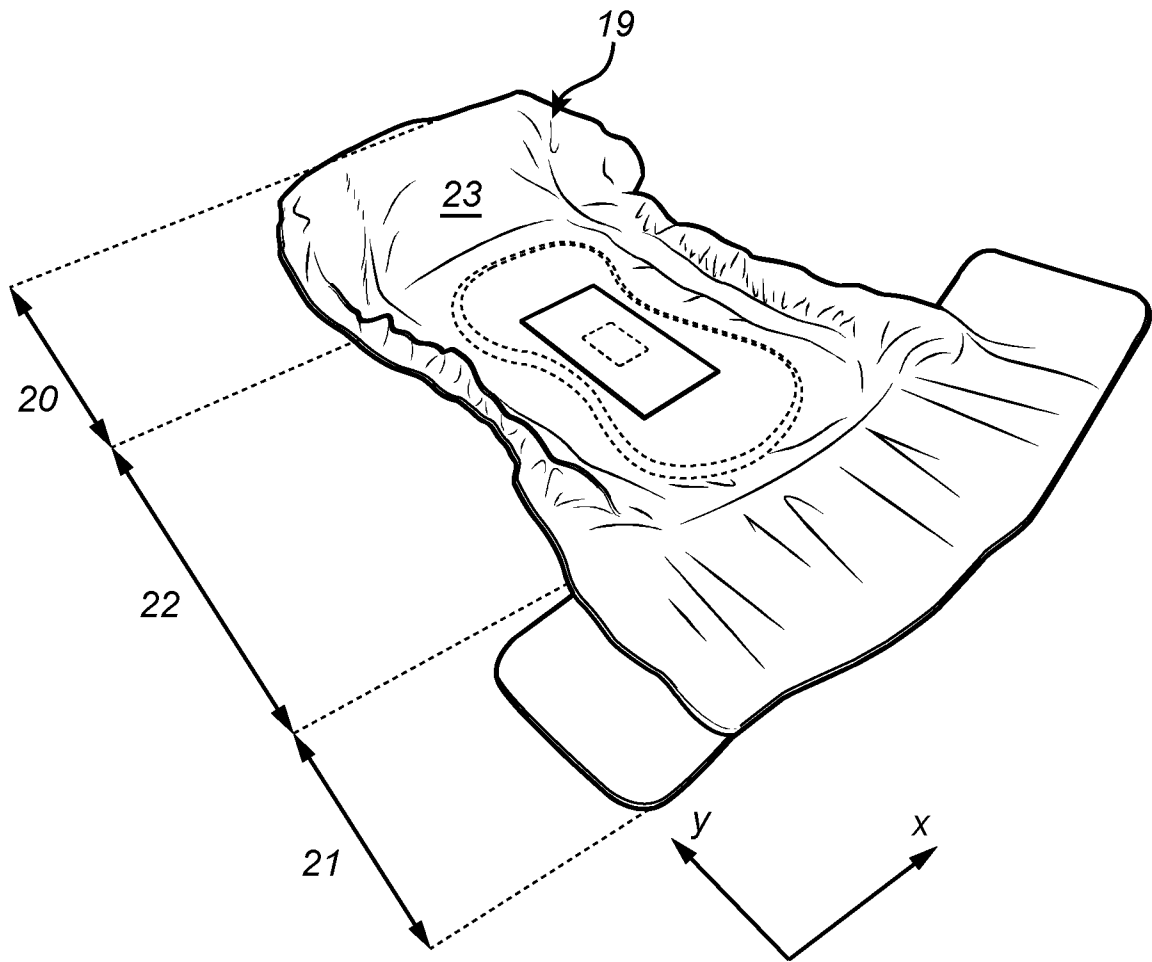
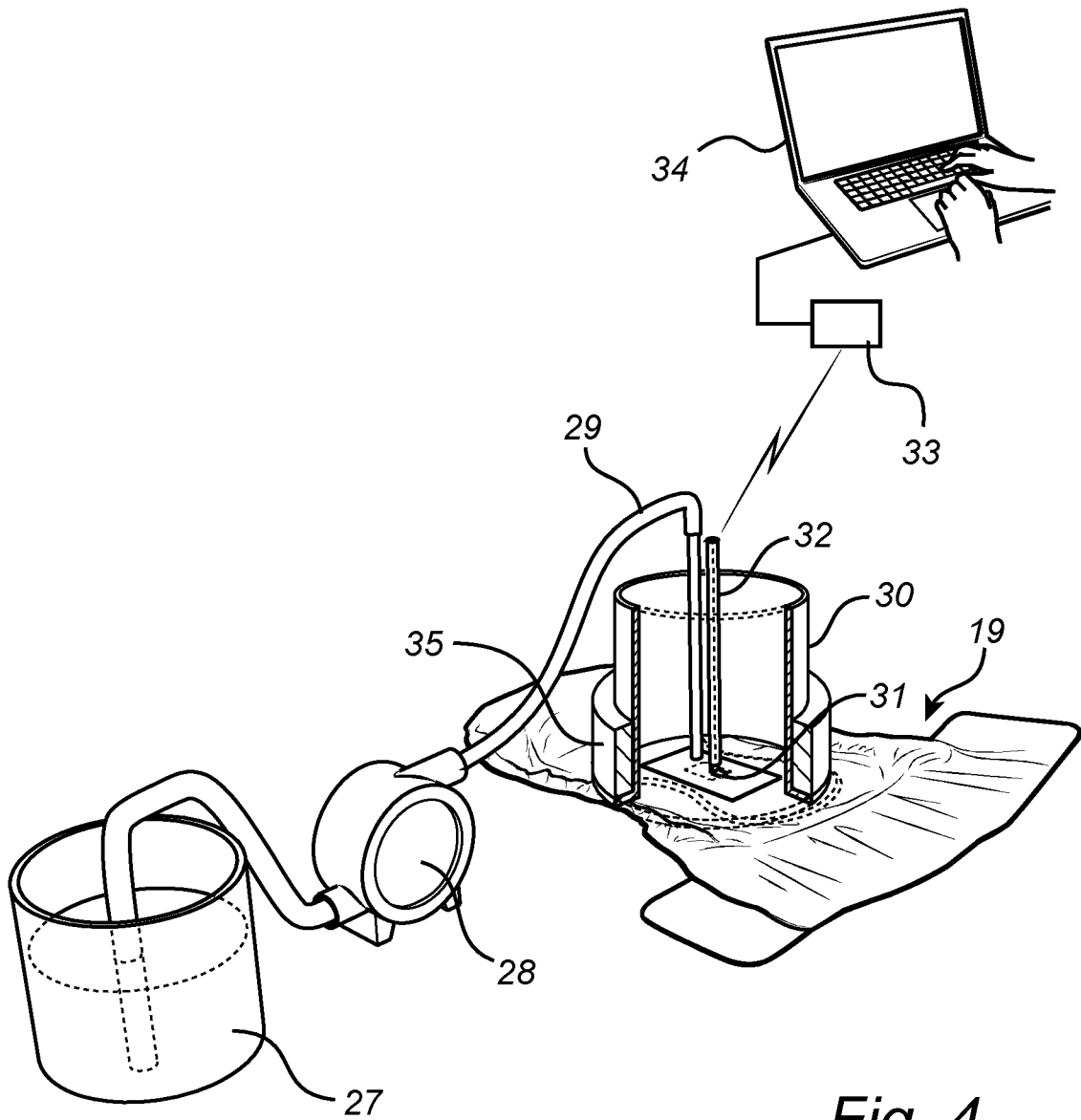


Fig. 3b

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*Fig. 4*

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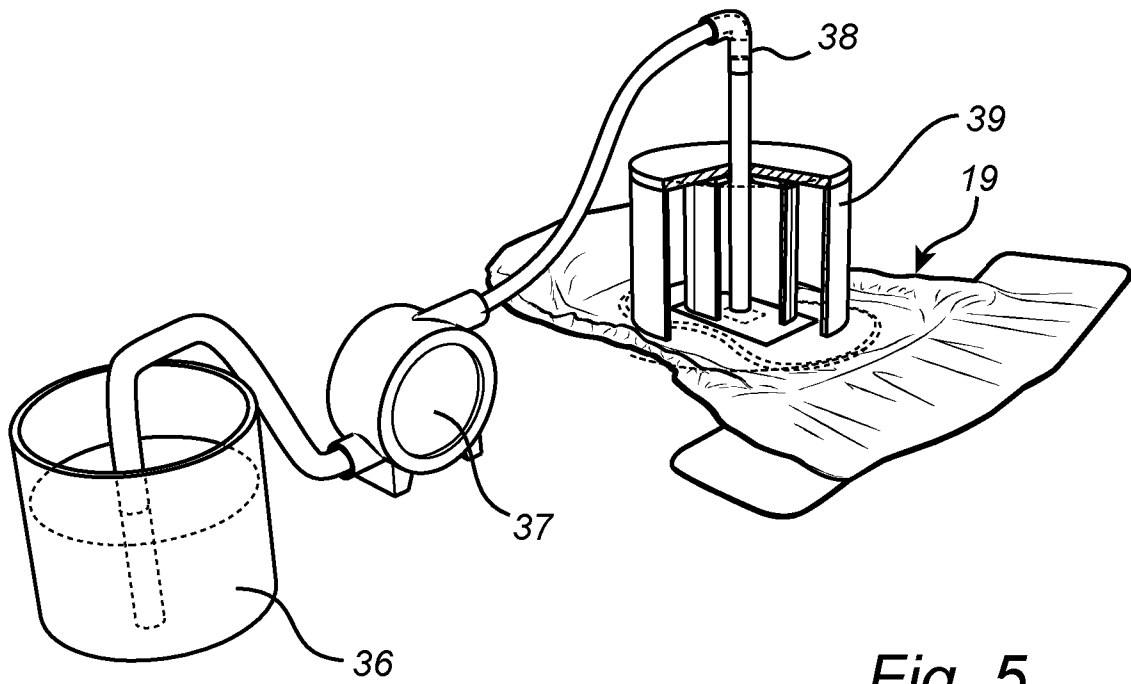


Fig. 5

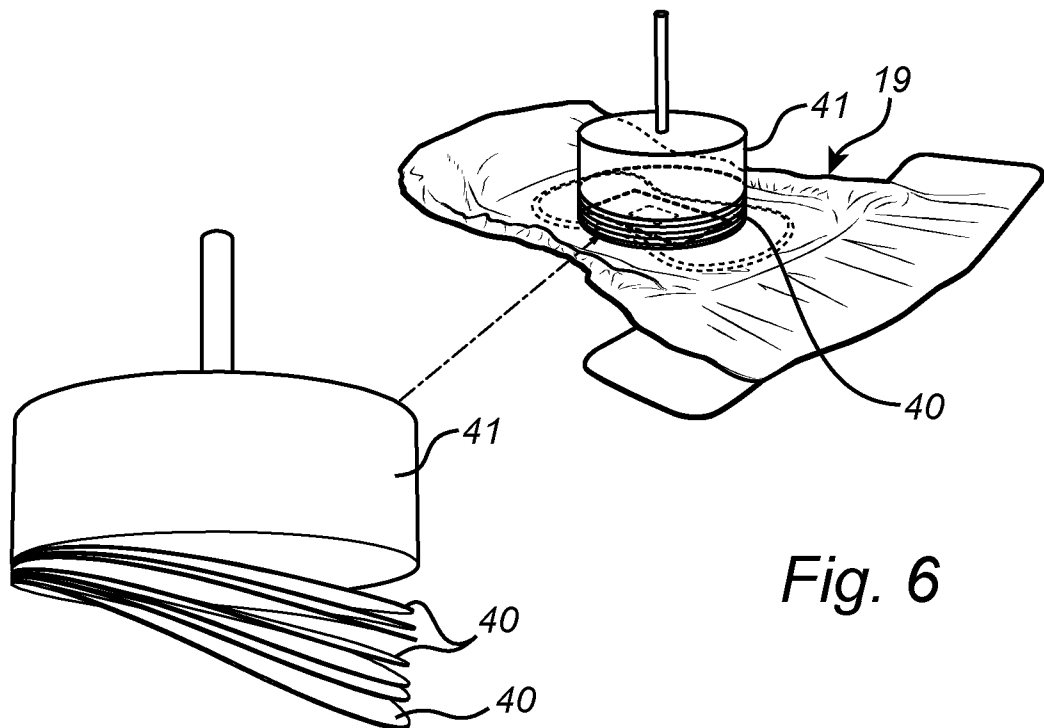


Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2014/050680

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: A61B, A61F, G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ, WPI data, BIOSIS, COMPENDEX, EMBASE, INSPEC, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 202007005962 U1 (SWISS MEDICAL SOLUTION AG), 6 September 2007 (2007-09-06); paragraphs [0001], [0015]-[0016], [0020]; figures 1-2; claim 2 --	1-11
X	US 20080269707 A1 (SONG XUEDONG), 30 October 2008 (2008-10-30); paragraphs [0005]-[0006], [0022], [0047]-[0049], [0070]-[0074]; figures 5-6	1, 3-11
A	--	2

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

“E” earlier application or patent but published on or after the international filing date

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

06-03-2015

Date of mailing of the international search report

09-03-2015

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2014/050680

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2013147662 A1 (SCA HYGIENE PROD AB ET AL), 3 October 2013 (2013-10-03); page 1, line 21 - line 28; page 6, line 27 - page 7, line 1; page 8, line 15 - page 9, line 4; page 9, line 17 - line 18; figures 8-12 --	1-11
A	WO 9424557 A1 (US ARMY), 27 October 1994 (1994-10-27); page 3, line 3 - line 29; page 6, line 3 - line 19; figure 1 --	1-11
A	US 3918433 A (FUISZ RICHARD C), 11 November 1975 (1975-11-11); abstract --	1-11
A	DE 102007019572 A1 (SWISS MEDICAL SOLUTION AG), 30 October 2008 (2008-10-30); abstract -- -----	1-11

Continuation of: second sheet**International Patent Classification (IPC)*****A61B 5/20*** (2006.01)*A61F 13/505* (2006.01)*G01N 33/493* (2006.01)*G01N 33/50* (2006.01)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE2014/050680

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				EP	2142101	B1 31/12/2014
				KR	20100015988	A 12/02/2010
				US	20150025347	A1 22/01/2015
				WO	2008132620	A2 06/11/2008
WO	2013147662	A1	03/10/2013	AU	2012375452	A1 16/10/2014
				CN	104203116	A 10/12/2014
				EP	2833794	A1 11/02/2015
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