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(54) **Title:** MALE EXTERNAL CATHETER

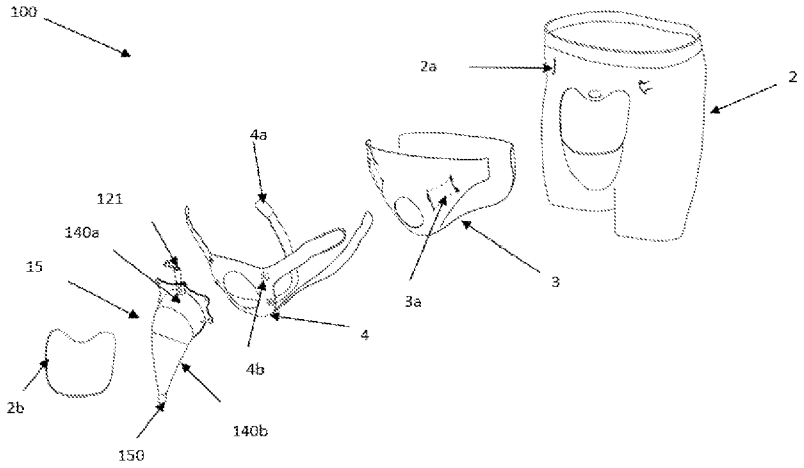

Figure 1

(57) **Abstract:** A reusable, non-adhesive, non-invasive male external catheter (100) and a male catheter system for management of urinary incontinence in a male subject. The male catheter system comprises a male catheter and a support system (1) for said male catheter. The male catheter comprises an isolation chamber (15) having a proximate end (140a), a distal end (140b). The proximate end has an upper proximate body (140c) and a lower proximate body (140d), where the upper proximate body of the proximate end of the isolation chamber has a plurality of fixing means (141); an inlet (10) for genital comprising a retractable non-adhesive sheath (11) to receive and hold the genital while in use; an inlet (121) for fluid; a spraying apparatus (161) comprising a channel for fluid and a plurality of nozzles (170, 180). The distal end has a drainage outlet (150) comprising a drainage opening (132).

[Continued on next page]

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MALE EXTERNAL CATHETER

FIELD OF THE INVENTION

The present invention relates to a reusable, non-adhesive, non-invasive male external catheter and a male catheter system for management of urinary incontinence in a male subject. More particularly, it relates to a wearable and comfortable urinary external catheter made of a bio-compatible and skin friendly material to fit the contour of male genitalia.

BACKGROUND OF THE INVENTION

Urinary incontinence is a disease condition that can affect both men and women at any age, but largely affects geriatric patients due to change in functionality of internal organs. The internal organs may behave abnormally due to many reasons like degeneration of tissues, hormonal changes, metabolism and/or any surgical intervention. Urinary incontinence is a specific condition where involuntary muscles of the urinary bladder lose strength and sphincter muscles lose control resulting in continuous leakage of urine from the bladder. It is known in the state of the art that between 15 and 35% of the old age population particularly ages over 60 years old are more prone to this condition. With advancement of the age, the prevalence of disease increases. Male urinary incontinence is becoming increasingly prevalent and its management has become a subject of increased interest for urologists and for other healthcare providers due to the rising elderly population and the risk factors associated as bladder outlet obstruction, neurological disease, cognitive impairment, increase of surgical interventions in cases of prostate cancer, and other urological ailment including but not limited to enuresis, urge incontinence, stress urinary incontinence, functional incontinence amongst others.

While it is not a life-threatening condition, it can significantly impact daily life of an individual affecting mental health and creating an impact on quality of life. The effects of incontinence are many, including severe embarrassment, restriction in daily

activities and social life as well as limiting the ability to work and travel. At times, this may also create fear, rage, and shame and sleep disorders due to uncontrollable continuous urinary loss.

US20050101924 A1 discloses male urinary incontinence sheath system including conformable silicone gel and elastic securement tape. A male urinary incontinence device comprises a cylindrical sheath with an open first end to receive the penis and a tubular connector at a second end for discharge of collected urine. A viscous gel strip is applied to the penis of a user and then to the upper inner circumference of the sheath as the sheath is applied to the penis. An elastic strap is applied to the upper outer circumference of the sheath, the gel strip and strap acting cooperatively to retain the sheath on the penis and to render the sheath leak proof in use. The sheath also includes a connector assembly for attachment of tubing and a urine collection vessel.

EP298634 describes an external male catheter. A method of making a tubular elastic sheath (10) having an adhesive-coated inner surface and particularly suitable for use as an external male catheter in a urine-collection system. In such a method, the sheath (10) is supported upon a mandrel (17) and a flexible laminated tape (20), composed of first and second adhesive layers (21 and 22) separated by an elastomeric layer (23), is placed in adhesive contact with the inner surface of the sheath (10), or alternatively, with its outer surface. Thereafter, the cylindrical body of the sheath (10) is rolled upon the mandrel (17) so that the tape (20) is interposed between successive turns of the sheath (10), with the first adhesive layer (21) in engagement with the sheath's inner surface and the second adhesive layer (22) of the tape in contact with the sheath's outer surface. The tape's elastomeric core layer (23) has a greater affinity for the second adhesive layer (22) than for the first adhesive layer (21), and the first adhesive layer (21) has less affinity for the elastomeric layer (23) than for the contiguous surface of the sheath (10), so that unrolling of the sheath (10) during application results in a delaminating of the tape (20) with the first adhesive layer (21) adhering to the sheath's inner surface for securing the sheath (10) to the wearer and with the second adhesive layer (22), along with the elastomeric layer (23), remaining

on the sheath's outer surface. There is also disclosed a sheath, suitable for use as a male external catheter.

US4759753 describes an external male catheter having an elastic sheath section and a receiving section connected together when the device is used as an external catheter but constructed to permit detachment of the receiving section, while retaining the sheath section in adhesive attachment to the wearer, to permit direct access to the urethral meatus for intermittent internal catherization. The invention lies in providing an external catheter composed of two main sections- an elastic sheath section and a urine-receiving section that are connected together when the device is in use but may be readily separated when internal catherization is required. Since the two sections are coupled together in close proximity to the urethral meatus, detachment of the urine-receiving section exposes the meatus for internal catheterization. Because only the urine-receiving section needs to be removed, the sheath section and its adhesive attachment to the penile shaft may remain undisturbed.

Therefore, there is a need to provide a concept of penis half elastic sheath inside a urinary bag of male catheter which is adhesive free proven to be good for skin. There is a need of catheter which is non adhesive, remains in a desired position, and has provision of cleaning and drying the penis to obviate infections and other associated discomforts.

OBJECT OF THE INVENTION

The main object of the present invention is to provide a reusable, non-invasive male external catheter and a male catheter system for management of urinary incontinence in a male subject.

Another object of the present invention is to provide a comfortable and wearable male external catheter made of a bio-compatible and skin friendly material which allows the urine to pass down to the urine collection device without any obstruction.

Yet another object of the present invention is to provide a reusable male external catheter and a male catheter system designed to comfortably fit the contours of male genitalia.

Yet another object of the present invention is to provide a reusable male external catheter designed to be completely discreet while in use.

Yet another object of the present invention is to provide a reusable male external catheter and a male catheter system secured in desired position respective to the body without any adhesives.

Yet another object of the present invention is to provide a reusable male external catheter having a spraying apparatus for hygienically cleaning the genitals and internal walls of the catheter to limit the microbial growth.

Still another object of the present invention is to provide an easy wearable male external catheter and male catheter system for non-urine incontinence patients and ordinary users who have limited toilet options or limited time such as drivers, road travelers, miners, soldiers, security guards, surgeons, pilots, critical site workers, handicapped, special needs and pilgrims to increase their productivity and mobility.

SUMMARY OF THE INVENTION

The present invention relates to a reusable, non-invasive external catheter and a male catheter system for management of urinary incontinence in a male subject. More particularly, it relates to a wearable and comfortable external catheter made of bio-compatible and skin friendly material such as medical grade silicone, bio-based polymers, copolymers, etc. to fit the contour of male genitalia.

In a preferred embodiment of the present invention is provided a male catheter system comprising a male catheter and a support system for said male catheter. The male catheter comprises an isolation chamber having a proximate end, a distal end. The proximate end has an upper proximate body and a lower proximate body, where the upper proximate body of the proximate end of the isolation chamber has a plurality of

fixing means; an inlet for genital comprising a retractable non adhesive sheath to receive and hold the genital while in use; an inlet for fluid; a spraying apparatus comprising a channel for fluid and a plurality of nozzles. The distal end has a drainage outlet comprising a drainage opening. The support system comprises a fore region, an aft region, a top region and a bottom region. The support system holds the catheter in such a manner that it remains at its place around the genitalia allowing the user to engage in various regular activities without getting any fluid leaked out of the catheter. The catheter is highly flexible at proximate end avoiding any discomfort to the user.

In another embodiment of the present invention is provided a support system comprising a supporting wear having a front side and a rear side with a plurality of eyelets for securing the position of catheter; and a wearable attachment; an optional bottom wear having a plurality of eyelets and a flap; said male catheter is attached on wearable attachment at the fore region of said support system through a plurality of attachment means.

In yet another embodiment of the present invention is provided a male catheter comprising an isolation chamber; an inlet for genital comprising a retractable non-adhesive sheath to receive and hold genital while in use; an inlet for fluid; a spraying apparatus comprising a channel for fluid and a plurality of nozzles; and a drainage outlet comprising a drainage opening. The isolation chamber has a proximate end and a distal end, said proximate end further comprises an upper proximate body and a lower proximate body, said upper proximate body of the proximate end of the isolation chamber having a plurality of fixing means, the upper proximate body of said isolation chamber is positioned such that said inlet for genital is surrounded by said isolation chamber. The inlet for fluid is positioned preferably on upper proximate body, said inlet for fluid being connected to the spraying apparatus forming a continued channel to direct a fluid to pass through the inlet towards spraying apparatus and to enter said isolation chamber. The inlet for fluid is optionally connected to a portable bidet and said bidet provides pressurized fluid. The spraying apparatus is positioned, inside and around the proximate end of the isolation chamber. The drainage outlet is positioned at distal end of said isolation chamber such that the

drainage opening of said outlet faces isolation chamber, and said drainage opening protrudes allowing fluid collected in isolation chamber to be drained out.

In an additional embodiment of the present invention is provided an external male catheter comprising a holding, an isolation chamber, an inlet for genital, an inlet for fluid, a spraying apparatus and a drainage outlet. The holding has a distal portion, a proximate portion, an upper portion and a lower portion, a scrotum supporting means, a plurality of loop connectors at said upper and said lower portions of said holding. The isolation chamber comprises a proximal end and a distal end. The inlet for genital comprises a retractable, elastic, non-adhesive sheath having a fixed end to receive the genital and a protruding end to hold genital till upper half length of genital while in use. The inlet for genital is positioned at upper-proximate portion of said holding such that said inlet for genital allows genital to be inserted into said inlet for genital; the proximal end of said isolation chamber is connected to the upper-proximate portion of said holding such that said inlet for genital is surrounded by said isolation chamber. The inlet for fluid is positioned preferably towards upper portion of said holding, said inlet for fluid being connected to the spraying apparatus forming a continued channel to direct a fluid to pass through the inlet towards spraying apparatus and to enter into said isolation chamber. The inlet for fluid is optionally connected to a portable bidet and said bidet provides pressurized fluid. The spraying apparatus comprises a channel for fluid and a plurality of nozzles. The spraying apparatus is positioned, inside and around the proximal end of the isolation chamber. The drainage outlet comprises a receiving opening and a drainage opening. Said drainage outlet being positioned at distal-lower portion of said isolation chamber such that the receiving opening of said outlet faces inner isolation chamber, and said drainage opening protrudes out of said holding allowing fluid collected in isolation chamber to be drained out.

In a preferred embodiment of the present invention is provided a male catheter system comprising a male catheter and a support system for the male catheter, wherein, said male catheter comprises an isolation chamber comprising a proximate end, a distal end and said proximate end further comprises an upper proximate body and a lower proximate body, said upper proximate body of the proximate end of the isolation

chamber having a plurality of fixing means; an inlet for genital comprising a retractable non adhesive sheath to receive and hold the genital while in use; an inlet for fluid; a spraying apparatus comprising a channel for fluid and a plurality of nozzles; and a drainage outlet comprising a drainage opening; said support system has a fore region, an aft region, a top region and a bottom region.

In another embodiment of the present invention is provided a support system comprising a supporting wear having a front side and a rear side with a plurality of eyelets for securing the position of catheter; and a wearable attachment; an optional bottom wear having a plurality of eyelets and a flap; said male catheter is attached on wearable attachment at the fore region of said support system through a plurality of attachment means.

In yet another embodiment of the present invention is provided a male catheter comprising an isolation chamber comprising a proximate end and a distal end, said proximate end further comprises an upper proximate body and a lower proximate body, said upper proximate body of the proximate end of the isolation chamber having a plurality of fixing means; an inlet for genital comprising a retractable non adhesive sheath to receive and hold genital while in use; an inlet for fluid; a spraying apparatus comprising a channel for fluid and a plurality of nozzles; and a drainage outlet comprising a drainage opening; wherein; the upper proximate body of said isolation chamber is positioned such that said inlet for genital is surrounded by said isolation chamber; the inlet for fluid is positioned preferably on upper proximate body, said inlet for fluid being connected to the spraying apparatus forming a continued channel to direct a fluid to pass through the inlet towards spraying apparatus and to enter into said isolation chamber; the spraying apparatus is positioned, inside and around the proximate end of the isolation chamber; and said drainage outlet being positioned at distal end of said isolation chamber such that the drainage opening of said outlet faces isolation chamber, and said drainage opening protrudes allowing fluid collected in isolation chamber to be drained out; the inlet for fluid is optionally connected to a portable bidet and said bidet provides pressurized fluid.

In an embodiment the male external catheter is connected to an external bidet through the inlet for fluid. The external catheter thus provides a convenience of washing the genital and cleaning the chamber. The bidet includes but is not limited to an automatic bidet, a manual bidet, a fluid container or similar structures known in the art.

BRIEF DESCRIPTION OF THE DRAWING

An understanding of the device and method of the present invention may be obtained by reference to the following non limiting drawings:

Fig. 1 shows an exploded view of male catheter system in accordance with an embodiment of the present invention.

Fig. 2(a) shows the perspective view of male catheter system in accordance with an embodiment of the present invention.

Fig. 2(b) shows the arrangement of male catheter system in accordance with an embodiment of the present invention.

Fig. 2(c) shows the rear side of the bottom wear of the support system of male catheter system in accordance with an embodiment of the present invention.

Fig. 3(a) and 3(b) shows an exploded view of isolation chamber of male catheter in accordance with an embodiment of the present invention.

Fig. 4(a) and 4(b) shows the perspective and front view of supporting wear of male catheter system in accordance with an embodiment of the present invention.

Fig. 5 shows the perspective view of wearable attachment of male catheter system in accordance with an embodiment of the present invention.

Fig. 6(a) and 6(b) shows the perspective view and sectional view of spraying apparatus in accordance with an embodiment of the present invention.

Fig. 7(a), 7(b) and 7(c) shows the front view, perspective view of the isolation chamber and sectional view of drainage outlet of male catheter in accordance with an embodiment of the present invention.

Fig. 8(a) is a perspective view of a male catheter and male catheter system in accordance with an embodiment of the present invention.

Fig. 8(b) and 8(c) show the front view of supporting wear of male catheter in accordance with an embodiment of the present invention.

Fig. 9(a) is an exploded perspective side view of an external male catheter in accordance with an additional embodiment of the present invention.

Fig. 9(b) is an exploded perspective side view of an external male catheter in accordance with additional embodiment of the present invention.

Fig 10(a) is a rear view of the external male catheter in accordance with an additional embodiment of the present invention.

Fig 10(b) is a front view of the external male catheter in accordance with an additional embodiment of the present invention.

Fig 10(c) and 10(d) depict a front view of the external male catheter in accordance with an additional embodiment of the present invention.

Fig 11(a) is a front view of spraying apparatus of the male catheter in accordance with an additional embodiment of the present invention.

Fig 11(b) is a top perspective view of spraying apparatus of the male catheter in accordance with an additional embodiment of the present invention.

Fig 11(c) is a sectional view of spraying apparatus of the male catheter in accordance with an additional embodiment of the present invention.

Fig. 11(d) and 11(e) show spraying apparatus of the male catheter in accordance with an additional embodiment of the present invention.

Fig 12 is a perspective view of retractable, non-adhesive sheath of the male catheter in accordance with an additional embodiment of the present invention.

Fig 13(a) is a perspective view of isolation chamber of the male catheter in accordance with an additional embodiment of the present invention.

Fig 13(b) is a perspective view of isolation chamber of the male catheter in accordance with additional embodiment of the present invention.

Fig 14(a) is a front perspective view of holding of the male catheter in accordance with an embodiment of the present invention.

Fig 14(b) is a front perspective view of holding of the male catheter in accordance with additional embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Many aspects of the invention can be better understood with references made to the drawings below. The components in the drawings are not necessarily drawn to scale. Instead, emphasis is placed upon clearly illustrating the components of the present invention. Moreover, like reference numerals designate corresponding parts through the several views in the drawings. Before explaining at least one embodiment of the invention, it is to be understood that the embodiments of the invention are not limited in their application to the details of construction and to the arrangement of the components set forth in the following description or illustrated in the drawings. The embodiments of the invention are capable of being practiced and carried out in various ways. In addition, the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

In a preferred embodiment of the present invention is provided a male catheter system comprising a male catheter and a support system for the male catheter, wherein, said male catheter comprises an isolation chamber comprising a proximate end, a distal end and said proximate end further comprises an upper proximate body and a lower proximate body, said upper proximate body of the proximate end of the isolation chamber having a plurality of fixing means; an inlet for genital comprising a retractable non adhesive sheath to receive and hold the genital while in use; an inlet for fluid; a spraying apparatus comprising a channel for fluid and a plurality of nozzles; and a

drainage outlet comprising a drainage opening; said support system comprises a holding having a fore region, an aft region, a top region and a bottom region.

In another embodiment of the present invention is provided a support system **1** comprising a supporting wear having a front side and a rear side with a plurality of eyelets for securing the position of catheter; and a wearable attachment; an optional bottom wear having a plurality of eyelets and a flap; said male catheter is attached on wearable attachment at the fore region of said support system through a plurality of attachment means.

In yet another embodiment of the present invention is provided a male catheter comprising an isolation chamber comprising a proximate end and a distal end, said proximate end further comprises an upper proximate body and a lower proximate body, said upper proximate body of the proximate end of the isolation chamber having a plurality of fixing means; an inlet for genital comprising a retractable non adhesive sheath to receive and hold genital while in use; an inlet for fluid; a spraying apparatus comprising a channel for fluid and a plurality of nozzles; and a drainage outlet comprising a drainage opening; wherein; the upper proximate body of said isolation chamber is positioned such that said inlet for genital is surrounded by said isolation chamber; the inlet for fluid is positioned preferably on upper proximate body, said inlet for fluid being connected to the spraying apparatus forming a continued channel to direct a fluid to pass through the inlet towards spraying apparatus and to enter into said isolation chamber; the spraying apparatus is positioned, inside and around the proximate end of the isolation chamber; and said drainage outlet being positioned at distal end of said isolation chamber such that opening of said drainage outlet faces isolation chamber, and said drainage outlet protrudes allowing fluid collected in isolation chamber to be drained out; the inlet for fluid is optionally connected to a portable bidet and said bidet provides pressurized fluid.

In an additional embodiment of the present invention is provided a male external catheter comprising a holding, an isolation chamber, an inlet for genital, an inlet for fluid, a spraying apparatus and a drainage outlet. The holding comprises a distal portion, a proximate portion, an upper portion and a lower portion, and a scrotum

supporting means for securing scrotum in position, a plurality of loop connectors at upper and lower portions of said holding. The proximate portion of the holding has slightly curved plain to adjust to the contour of the male user. The inlet for genital is positioned at upper-proximate portion of said holding such that said inlet for genital allows genital to be inserted into said inlet. The inlet for genital comprises a retractable, non-adhesive sheath having a fixed end to receive the genital and a protruding end to hold the genital till upper half length of the genital while in use. The isolation chamber comprises a proximal end and a distal end. The proximal end of said isolation chamber is connected to the upper-proximate portion of said holding such that said inlet for genital is surrounded by said isolation chamber. The proximal end portion of isolation chamber has a flexible body, while the distal end portion of the isolation chamber has a rigid body. More particularly, the flexibility decreases while moving downwards the isolation chamber, such that the proximate end is highly flexible, middle section being moderately flexible and the distal end being rigid. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber. The inlet for fluid is positioned preferably towards upper portion of said holding, said inlet for fluid being connected to the spraying apparatus forming a continued channel to direct a fluid to pass through the inlet towards spraying apparatus and to enter into said isolation chamber. The fluid may be water, air or douche. The spraying apparatus is positioned, inside and around the proximal end of the isolation chamber. The drainage outlet comprises a receiving opening and a drainage opening, said drainage outlet being positioned at distal-lower portion of said isolation chamber such that the receiving opening of said outlet faces inner isolation chamber, and said drainage opening protrudes out of said holding allowing fluid collected in isolation chamber to be drained out. The scrotum supporting means secures scrotum in comfortable position. The scrotum supporting means comprises of two open flexible straps with holders. The straps are made of bio-compatible material such as medical grade silicone, bio-based polymers, copolymers, etc. Alternately, said scrotum supporting means may be in the form of a scrotum ring of a bio-compatible material like silicone, bio-based polymers, copolymers, etc.

In another embodiment the male external catheter is connected to an external bidet through the inlet for fluid. The external catheter thus provides a convenience of washing the genital and cleaning the chamber. The bidet includes but is not limited to an automatic bidet, a manual bidet, a fluid container or similar structures known in the art.

In yet another embodiment, the present invention provides a reusable external male catheter having an isolation chamber. The isolation chamber has an internal space enough to allow the body fluid like urine to come inside it while minimizing the body fluid/urine to come into the contact of penis, while completely disallowing it to come into the contact of scrotum, thus avoiding the microbial infection. The body fluid/urine enters the isolation chamber and gets drained into a fluid/urine collection device though a drainage outlet.

In yet another embodiment, the present invention provides an external male catheter having an isolation chamber, a rigid/semi-rigid spraying apparatus, said spraying apparatus having a plurality of nozzles. The nozzles are either present randomly, or in a single row, or in multiple rows spread on surface of the spraying apparatus. The nozzles are preferably positioned at outward and inward periphery of spraying apparatus, respective to its center to give a shower effect. A bidet having douche or water or air is optionally connected to the inlet for fluid for cleaning and drying the genital, elastic sheath and inner walls of chambers. The outwardly positioned nozzles throw water at an angle ranging from 90 to 45 degrees with respect to wall of spraying apparatus and inwardly positioned nozzles throw water straight to the genital hence maximizing the coverage for cleaning the genital, sheath, and inner walls of chamber. The spraying apparatus has ring like geometry including but not limited to circular, polygonal, semi-circular, semi-polygonal shape.

In yet another embodiment of the present invention, the inlet tube has a water proof vent for air to come in, said vent restricts the water and odor to come out from the isolation chamber and also has a bound cover plugged into the inlet tube to make sure that odor does not come out when the bidet is not connected to it.

In yet another embodiment of the present invention, the distal end of the drainage outlet of the catheter is connected to a fluid collection means that includes but is not limited to a fluid bag, a disposable bag, a multi-chambered fluid receiving/holding bag or similar means know in the art.

In yet another embodiment of the present invention, the external catheter further comprises utility means like sensors for sensing plurality of physio-chemical parameters like frequency and amount of urine passed, sensors for sensing biological parameters like presence of blood cells or pus or any other bio-indicators.

Referring to Fig. 1, an exploded view of the present invention provides the male catheter **100** and male catheter system. The male catheter system comprises a catheter **100** and a support system **1**. The male catheter **100** comprises of an isolation chamber **15**, an inlet **10** for genital, an inlet **151** for fluid, a spraying apparatus **161** and a drainage outlet **150**. The support system **1** has a fore region **1a**, an aft region **1b**, a top region and a bottom region. Said support system **1** comprises of a bottom wear **2** with a flap **2b** on the front region and a plurality of eyelets **2a** on front as well as rear region and a supporting wear **3** having a front side **3c** and a rear side **3d** with a plurality of eyelets **3a** for securing the position of genital, a wearable attachment **4** made of a semi-rigid body with a plurality of straps **4a** and a plurality of attachment means **4b**. The supporting wear **3** is secured to the bottom wear **2** through a securing means. At least two straps **4a** of the wearable attachment **4** are inserted through the plurality of eyelets **3a** on the front side of the supporting wear **3** and subsequently through the eyelets **2a** on the front portion of the bottom wear **2** and at least two straps **4a** are taken out from the rear portion of the bottom wear **2** through the rear side of the supporting wear **3** and secured to the rear side of said bottom wear **2** by various joining means. The straps **4a** penetrate from the fore region **1a** of the support system **1** and exit from the rear region **1b** of the support system **1**. The inlet **121** for fluid is positioned towards the upper region of said support system **1**. Said inlet **121** for fluid is connected to the spraying apparatus **161** forming a continued channel to direct a fluid to pass through the inlet **121** towards spraying apparatus **161** to enter said isolation chamber **15**. The fluid includes but is not limited to water, air and douche. The isolation chamber **15**

comprises a proximate end **140a** and a distal end **140b** . The proximate end **140a** further comprises of an upper proximate body **140c** and a lower proximate body **140d** . The upper proximate body **140c** of the proximate end **140a** of said isolation chamber **15** has a plurality of fixing means **141** and is connected to the fore region **1a** of said support system **1** such that said inlet **10** for genital is surrounded by said isolation chamber **15**. The upper proximate body **140c** of isolation chamber **15** is a soft flexible body, the lower proximate body **140d** is a semi-rigid body and the distal end **140b** of isolation chamber **15** is a rigid body. This helps the catheter to function non-disruptively while user is wearing layer of clothes adding force on isolation chamber **15**. The distal end **140b** of said isolation chamber **15** has a drainage outlet **150** comprising a drainage opening **132** and said drainage outlet **150** allows fluid collected in isolation chamber **15** to be drained out. The fixing means **141** on the upper proximate body **140c** of the proximate end **140a** of the isolation chamber **15** is affixed to the attachment means **4b** of the wearable attachment **4** and said wearable attachment **4** is attached to the supporting wear **3** and the bottom wear **2** through the plurality of straps **4a** thus completing the arrangement of the male catheter **100**. The bottom wear **2** comprises of a plurality of eyelets **2a** and a flap **2b** act as covering of the support system. The fixing means **141** and attachment means **4b** include but are not limited to buttons with eyelets, hooks, snap fasteners, press buttons. The flap **2b** is fixed to the bottom wear **2** either through stitching or through a fastening means. The fastening means include but is not limited to buttons with eyelets. The proximal end **140a** of isolation chamber **15** has a flexible body, while the distal end **140b** of the isolation chamber **15** has a rigid body. More particularly, the flexibility decreases while moving downwards the isolation chamber **15**, such that the proximate end is highly flexible, middle section being moderately flexible and the distal end being rigid. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber.

Now referring to Fig. 2(a), the present invention provides the perspective view of male catheter system. The catheter system comprises of a catheter **100** and a support system **1** with its fore region **1a**, aft region **1b**, upper region **1c**, a lower region **1d**, an isolation

chamber **15**. The isolation chamber **15** has a proximate end and a distal end **140b** with a plurality of fixing means **141**, an inlet **121** for fluid and a drainage outlet **150**. The proximate end further comprises of an upper proximate body **140c** and a lower proximate body **140d**. The inlet **121** for fluid is positioned at the upper region of the support system **1** and is attached to a bidet [not shown] for spraying the genital. Catheter is attached to the support system **1** through the fixing means **141** and attachment means **4b.** The fixing means **141** and attachment means **4b** include but not limited to button with eyelets, hook. The proximal end portion of isolation chamber has a flexible body, while the distal end portion of the isolation chamber has a rigid body. More particularly, the flexibility decreases while moving downwards the isolation chamber, such that the proximate end is highly flexible, middle section being moderately flexible and the distal end being rigid. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber. Now referring to Fig. 2(b), the present invention shows the arrangement of male catheter system. The male catheter system comprising male catheter 100 and a support system. The male catheter **100** having an inlet **121** for fluid is attached to the bidet **200** for spraying the genital and the drainage outlet **150** of said male catheter **100** is attached to urine collection device **300** for draining the urine out of the isolation chamber.

Now referring to Fig. 2(c), the present invention shows the rear side of the bottom wear **2**. The bottom wear **2** has a plurality of attaching means **2c** to attach the plurality of straps **4a** of the wearable attachment to said bottom wear **2**. The attaching means **2c** include but is not limited to Velcro.

Now referring to Fig. 3(a), the present invention provides an exploded view of male catheter **100**. The catheter **100** comprises of an isolation chamber **15**, a spraying apparatus **161**, a drainage outlet **150**, an inlet **121** for fluid, and an inlet **10** for genital. The inlet **10** for genital comprises a non-adhesive sheath **11** to receive the genital and to hold the genital while in use. The isolation chamber **15** comprises a proximate end and a distal end **140b**. The proximate end further comprises of an upper proximate body **140c** and a lower proximate body **140d**. The upper proximate body **140c** of the

proximate end of said isolation chamber **15** has a plurality of fixing means **141** and is connected to the fore region of said support system such that said inlet **10** for genital is surrounded by said isolation chamber **15**. A scrotum supporting wall **131** is positioned below the inlet **10** for genital for providing a comfortable zone that does not put any pressure on the scrotum while tying up the catheter **100** .The upper proximate body **140c** of isolation chamber **15** is a soft flexible body, the lower proximate body **140d** is a semi-rigid body and the distal end **140b** of isolation chamber **15** is a rigid body. This helps the catheter **100** to function non-disruptively while user is wearing layer of clothes adding force on isolation chamber **15**. The inlet **121** for fluid is positioned towards the upper region of said support system. Said inlet **121** for fluid is connected to the spraying apparatus **161** forming a continued channel to direct a fluid to pass through the inlet **121** towards spraying apparatus **161** to enter said isolation chamber **15**. The fluid includes but is not limited to water, air and douche. The spraying apparatus **161** is positioned inside and around the proximate end of the isolation chamber **15**. The distal end **140b** of said isolation chamber **15** has a drainage outlet **150** comprising a drainage opening **132** and said drainage outlet **150** allows fluid collected in isolation chamber **15** to be drained out. The fixing means **141** on the upper proximate body **140c** of the proximate end of the isolation chamber **15** is affixed to the attachment means of the wearable attachment and said wearable attachment is attached to the supporting wear and the bottom wear through the plurality of straps thus completing the arrangement of the male catheter **100**. The fixing means **141** and attachment means including but is not limited to buttons with eyelets, hooks, snap fasteners, press buttons, loop buttons, Velcro.

Now referring to Fig. 3(b), a perspective view of the present invention provides an exploded view of male catheter **100**. The catheter **100** comprises of an inlet **10** for genital, an inlet **121** for fluid, an isolation chamber **15**, a spraying apparatus **161**, a drainage outlet **150** and a scrotum supporting wall **131** positioned below the inlet **10** for genital for providing a comfortable zone that does not put any pressure on the scrotum while tying up the catheter **100**. The isolation chamber **15** has a proximate end **140a** and a distal end **140b**. The proximate end **140a** further comprises of an upper

proximate body **140c** and a lower proximate body **140d**. The inlet **10** for genital comprises of a non-adhesive sheath **11** to hold the genital while in use. The spraying apparatus **161** is provided with outwardly positioned nozzles **180** and inwardly positioned nozzles **170** to make a shower effect through an inlet **121** for fluid.

Now referring to Fig. 4(a) and 4(b), the front side **3c** and the back side **3d** of supporting wear **3** is shown respectively. The supporting wear **3** has a plurality of eyelets **3a** on its front side and back side for inserting the plurality of straps from the fore region of the support system 1 to the aft region of the support system. The supporting wear has an inlet for genital **3b** to insert the genital from the fore region through the aft region of the support system. The leg openings of the supporting wear are sewed with elastic bands to conform with the leg of user.

Fig. 5, the perspective view of the present invention is provided depicting wearable attachment **4**. The wearable attachment **4** has a plurality of attachment means **4b** with a plurality of straps **4a** and an inlet **4c** for genital. The straps **4a** are inserted into the eyelets of the bottom wear through the eyelets of the supporting wear and thus completing the arrangement of the support system. The plurality of straps **4a** of the wearable attachment **4** are inserted through the plurality of eyelets on the front side of the supporting wear and subsequently through the eyelets on the front region of the bottom wear and secured on the front region of the bottom wear and said plurality of straps **4a** traverse through the rear side of the bottom wear through the rear side of the supporting wear and secured to the rear side of said bottom wear by a joining means. The plurality of straps **4a** penetrates from the fore region of the support system and exits from the aft region of the support system.

Now referring to Fig. 6(a) and 6(b), the present invention is depicted through the perspective and sectional view of the spraying apparatus **161** respectively. The spraying apparatus **161** has an inlet **121** for fluid with an inlet tube **151** thus forming a continued channel, a cap **18** to close the inlet **121** when not in use, an air vent **110** to expel the air and odor from the isolation chamber. The spraying apparatus **161** has a plurality of outward positioned nozzles **180** and inward positioned nozzles **170** to

make a shower effect through the inlet **121**. The inlet **121** is attached to the bidet for spraying the genital. The inlet tube **151** is made up of chambers that lock the inlet pipe of the bidet.

Now referring to Fig. 7(a) and 7(b), the present invention is depicted by the front view and the perspective view of isolation chamber **15** respectively. The isolation chamber **15** comprises of a proximate end **140a**, a distal end **140b**, an inlet **121** for fluid with an inlet tube **151** and a cap **18**, a plurality of fixing means **141** and a drainage outlet **150**. The proximate end **140a** further comprises of an upper proximate body **140c** and a lower proximate body **140d**. The isolation chamber **15** surrounds the genital. The isolation chamber **15** gets attached to the support system through the plurality of fixing means **141**. The upper proximate body **140c** is a soft material body following the lower proximate body **140d** made of a semi-rigid body and finally the distal end **140b** is a rigid body thus allowing urine not to come into contact of genital thus preventing bacterial infection. The cap **18** closes the inlet **121** of the fluid when not in use. The drainage outlet **150** is attached to a urine collection device for draining the urine out from the isolation chamber **15**.

Now referring to Fig. 7(c), the drainage outlet **150** of the isolation chamber **15** is shown according to the present invention. The drainage outlet **150** has a drainage opening **132** for attaching the drainage outlet **150** to the isolation chamber **15**.

In an aspect of the present invention, a method of managing urine collection in a male subject is also provided. The method comprises steps of:

a) wearing an external male catheter, said catheter comprising a holding, an isolation chamber, an inlet for genital comprising a retractable, elastic, non-adhesive sheath, an inlet for fluid, a spraying apparatus comprising a channel for fluid and a plurality of nozzles and a drainage outlet comprising a drainage opening;

b) the catheter is worn by putting male genital in the inlet for genital followed by inserting the genital into the isolation chamber till a comfort fit is achieved while the sheath covers and holds the genital;
c) securing the position of the holding by connecting said plurality of eyelets to either a plurality of external straps or a plurality of ropes;
d) collecting the urine in isolation chamber, washing the urine through the inlet for fluid and spraying apparatus;
e) draining the urine and wash water out through drainage outlet; and
f) drying the genital through the inlet for fluid and spraying apparatus.

The catheter is optionally connected to an external portable bidet through the inlet for fluid. The proximal end portion of isolation chamber has a flexible body, while the distal end portion of the isolation chamber has a rigid body. More particularly, the flexibility decreases while moving downwards the isolation chamber, such that the proximate end is highly flexible, middle section being moderately flexible and the distal end being rigid. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber.

Fig. 8(a)-(c) depict the perspective view of support system **1** with its fore region, aft region, upper region, a lower region, and a flap **2b**. The catheter is attached to the support system **1** through the fixing means on catheter and attachment means **4b** on support system **1**. The fixing means and attachment means include but are not limited to button with eyelets, hook. The wearable attachment **4** with an inlet **4c** for genital has a plurality of attachment means **4b** with a plurality of ropes **4d** and a plurality of holes **4e** for channeling the plurality of ropes **4d**. The plurality of ropes are looped around the wearable attachment **4** through the holes **4e** and run around each thigh of user and come out from the plurality of eyelets **2a** [not visible] on the rear side of the bottom wear **2** through the plurality of eyelets **3a** [not shown] on the rear side **3d** [not visible] of the supporting wear **3**. In a preferred embodiment the plurality of holes 4e overlap the plurality of attachment means 4b as shown in Fig. 8(c).

Fig. 9(a) shows an alternate embodiment of the present invention. A side view of reusable male catheter **100** is provided with a retractable sheath **11** having a fixed end **10** and a protruding end **13**, said protruding end having sheath handle **12**. The sheath receives and holds the genital and is 100-500% elastic to conform the different sizes of penis. The sheath handle **12** is provided to hold the sheath **11**. The body fluid/urine enters the isolation chamber **15**. The isolation chamber **15** is flexible in nature and has enough space thus not allowing the genital to be in contact with bodily fluid/urine thereby avoiding the microbial infection. The external catheter further comprises a rigid/semi-rigid spraying apparatus **161** having a plurality of nozzles. The spraying apparatus **161** makes a shower effect to clean and dry the genital, sheath, inner walls and surroundings of the isolation chamber **15**. The inlet tube **151** is connected to bidet (not shown) having douche or water or air to clean and dry the genitals thus limiting the bacterial growth. The inlet tube **151** has a waterproof vent **110** for air to come in and restricts the water and odor to come out from the isolation chamber **15**. The bound cover/cap **18** is plugged in the connector of inlet tube **151** to make sure that the odor does not come out when bidet is not connected. A fitting strap **17** attached to the loop **16** provides a tightening mechanism to get the external catheter well attached to the body. The external catheter further comprises of scrotum supporting means **130** surrounding the scrotum made up of skin friendly and elastic material such as biomedical silicon, bio-based polymers, copolymers, etc. and a loop **16** for correct positioning of genital so to get well attached to the genital. The whole external catheter assembly is comfortable and wearable with an underwear strap **120** which allows the urine to pass down to the urine collection device without any obstructed flow.

The external male catheter may further comprises a half cut condom made of an elastic sheath that surrounds the genital, said sheath having elasticity in range of 100-500% to accommodate different sizes of genital, capable of securing the position respective to the genital without any adhesives.

Fig. 9(b) depicts an exploded perspective side view of an external male catheter in accordance with another embodiment of the present invention. A side view of reusable male catheter **100** is provided with a retractable sheath **11**. The isolation chamber **15** is

flexible in nature and has enough space thus not allowing the genital to be in contact with bodily fluid/urine thereby avoiding the bacterial infection. More particularly, the proximal end portion of isolation chamber has a flexible body, while the distal end portion of the isolation chamber has a semi-rigid body. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber. A fitting strap attached to the loop **16** provides a tightening mechanism to get the external catheter well attached to the body. The external catheter further comprises of scrotum supporting means in the form of lateral straps and a curvature at lower portion of holding unit thus surrounding the scrotum. The scrotum supporting means is made up of skin friendly and elastic material such as biomedical silicone, bio-based polymers, copolymers, etc. and a loop **16** for correct positioning of genital so to get well attached to the genital. The whole external catheter assembly is comfortable and wearable with an underwear strap which allows the urine to pass down to the urine collection device without any obstructed flow.

Now referring to Fig. 10(a), in an embodiment of the present invention, a back view of the external catheter **100** is provided with a sheath **11** having a fixed end **10** and a protruding end, said protruding end having sheath handle. The sheath **11** receives the genital from fixed end **10** and hold the genital and is 100-500% elastic to conform to different sizes of penis. It has a rigid/semi-rigid spraying apparatus **161** having a plurality of nozzles. The spraying apparatus **161** makes a shower effect to clean and dry the genital. The inlet tube**151** is connected from the top of a bidet (not shown) having douche or water or air for cleaning and drying the genitals, elastic sheath and inner walls of chambers thus limiting the bacterial growth. The outwardly positioned nozzles **180** throw water at an angle ranging from 90 to 45 degrees with respect to wall of spraying apparatus and inwardly positioned nozzles **170** throw water straight to the genital hence maximizing the coverage for cleaning the genital, sheath, and inner walls of chamber. The inlet tube **151** has a water proof vent **110** for air to come in and restricts the water and odor to come out from the isolation chamber and also has a bound cover/cap **18** plugged into the tube **151** connected through a connector **181** to make sure that odor does not come out when bidet is not connected. The catheter

further comprises of scrotum supporting means **130**, surrounding the scrotum made up of skin friendly and elastic material such as biomedical silicone bio-based polymers, copolymers, etc. and a loop or holder **16** for correct positioning of genital so to get well attached to the genital.

Fig. 10(b), in an embodiment of the present invention, a front view of external catheter is provided with a sheath having a fixed end **10** and a protruding end, said protruding end having sheath handle **12**. The sheath receives the genital from fixed end **10** and hold the genital and is 100-500% elastic to conform the different sizes of penis. It has a rigid/semi- rigid spraying apparatus **161** with a plurality of nozzles to make a shower effect to clean and dry the genital. The inlet **121** is connected from the top of a bidet (not shown) having douche or water or air for cleaning and drying the genitals, elastic sheath and inner walls of chambers. The outwardly positioned nozzles **180** throw water at an angle ranging from 90 to 45 degrees with respect to wall of spraying apparatus and inwardly positioned nozzles **170** throw water straight to the genital hence maximizing the coverage for cleaning the genital, sheath, and inner walls of chamber. The inlet **121** has a water proof vent **110** for air to come in and restricts the fluid and odor to come out from the isolation chamber, a bound cover/cap plugged into the inlet tube to make sure that odor does not come out. The external catheter further comprises of scrotum supporting means **130** surrounding the scrotum made up of skin friendly and elastic material such as biomedical silicone, bio-based polymers, copolymers, etc. and a loop **16** for correct positioning of genital so to get well attached to the genital.

Fig. 10(c) depicts a front view of external catheter according to an alternate embodiment of the present invention. Fig. 10(d) depicts a front sectional view of external catheter with partial internal view of isolation chamber. The proximal end portion of isolation chamber has a flexible body, while the distal end portion of the isolation chamber has a semi-rigid body. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber. A fitting strap attached to the loop **16** provides a tightening mechanism to get the external catheter well attached to the body. The external catheter further

comprises of scrotum supporting means in the form of lateral straps and a curvature at lower portion of holding unit thus surrounding the scrotum. The scrotum supporting means is made up of skin friendly and elastic material such as biomedical silicone, bio-based polymers, copolymers, etc. and a loop **16** for correct positioning of genital so to get well attached to the genital. The whole external catheter assembly is comfortable and wearable with an underwear strap which allows the urine to pass down to the urine collection device without any obstructed flow. The proximal end portion of isolation chamber has a flexible body, while the distal end portion of the isolation chamber has a rigid body. More particularly, the flexibility decreases while moving downwards the isolation chamber, such that the proximate end is highly flexible, middle section being moderately flexible and the distal end being rigid. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber.

Now referring to Fig. 11(a), 11(b) and 11(c), in an embodiment of the present invention, a front view of the spraying apparatus **161** is provided with outwardly positioned nozzles **180** and inwardly positioned nozzles **170** to make a shower effect with an inlet tube **151** connected from the top of a bidet (not shown) having douche or water or air for cleaning the genitals, elastic sheath and inner walls of chambers. The outwardly positioned nozzles **180** throw water at an angle ranging from 90 to 45 degrees with respect to wall of spraying apparatus and inwardly positioned nozzles **170** throw water straight to the genital hence maximizing the coverage for cleaning the genital, sheath, and inner walls of chamber. The inlet tube **151** has a water proof vent **110** for air to come in and restricts the water and odor to come out from the isolation chamber.

Now referring to Fig. 11(d), in an alternate embodiment of the present invention, a front view of the spraying apparatus **161** has a semi-circular configuration and is provided with outwardly positioned nozzles **180** and inwardly positioned nozzles **170** to make a shower effect with an inlet tube **151** connected from the top of a bidet (not shown) having douche or water or air for cleaning the genitals, elastic sheath and inner walls of chambers. A different configuration of spraying apparatus is shown in Fig.

11(e) where a polygonal spraying apparatus **161** is provided with outwardly positioned nozzles **180** and inwardly positioned nozzles **170** to make a shower effect with an inlet tube **151**.

Now referring to Fig. 12, in an embodiment of the present invention, different views of retractable, non-adhesive sheath **11** having fixed end **10** and protruding end **13** with sheath handles **12**.

Now referring to Fig.13(a), in an embodiment of the present invention, different views of isolation chamber **15** show a distal end **140b** and proximal end **140a** and a drainage outlet **150** connected to said distal end **140b**, said drainage outlet **150** comprising a receiving opening **133** and a drainage opening **132**. The receiving opening **133** faces internal space **156** and drainage opening protrudes out of distal end **140b**.

Now referring to Fig. 13(b), in an embodiment of the present invention, different views of isolation chamber **15** shows a rigid distal end **140b** and a flexible proximal end **140a** and a drainage outlet **150** connected to said distal end **140b**. The proximal end portion of isolation chamber has a flexible body, while the distal end portion of the isolation chamber has a rigid body. More particularly, the flexibility decreases while moving downwards the isolation chamber, such that the proximate end is highly flexible, middle section being moderately flexible and the distal end being rigid. This helps the catheter to function non-disruptively while the user is wearing layers of cloths adding force on isolation chamber.

Now referring to Fig. 14(a), in an embodiment of the present invention, a front perspective view of holding **190** having a distal portion **192**, a proximate portion **193**, an upper portion **194** and a lower portion **195**, and a scrotum support means **130** for securing scrotum in position, a plurality of loop connectors **16** at upper and lower portions of said holding **190**.

Now referring to Fig. 14(b), in an embodiment of the present invention, a front perspective view of holding **190** having a distal portion **192**, a proximate portion **193**,

an upper portion **194** and a lower portion **195**, and a scrotum support means **130** for securing scrotum in position, a plurality of loop connectors **16** at upper and lower portions of said holding. The holding means further comprises of scrotum supporting means **130** in the form of lateral straps and a curvature at lower portion of holding unit thus surrounding the scrotum. The scrotum supporting means is made up of skin friendly and elastic material such as biomedical silicone, bio-based polymers, copolymers, etc. and a loop or holder **16** for correct positioning of genital so to get well attached to the genital.

While wearing, the device includes pulling the sheath out of isolation chamber such that the sheath is inverted, the distal end is opened by pulling apart the handles, and putting the genital in said inverted sheath and pushing the genital along with the sheath in the isolation chamber while forming the sheath a half sleeve like structure on genital.

The catheter in accordance with the present invention provides significant advantages over those known in the art. The catheter of present invention prevents and obviates concerns like bad odor and other associated disadvantages of diapers including but not limited to skin rashes, infection, wet feeling etc. The catheter of present invention is so designed to provide as underwear like feeling and comfort to a user. An important aspect of the present catheter is its utility to provide and easy catheterization option for hospital admitted non- urine incontinence patients which is easy for patients and less costly for hospitals.

List of reference numerals

1: Support system

1(a): Fore region of support system

1(b): Aft region of support system

1(c): Upper region of support system

1d: Lower region of support system

2: Bottom wear

2a: Eyelets in bottom wear

2b: Flap in bottom wear

2c: Attaching means in bottom wear

3: Supporting wear

3(a): Eyelets in supporting wear

3(b): Inlet in supporting wear

3(c): Front side of supporting wear

3(d): Rear side of supporting wear

4: Wearable attachment

4(a): Straps of wearable attachment

4(b): Attachment means of wearable attachment

4(c): Inlet in wearable attachment

4(d): Ropes for wearable attachment

4(e): Holes in wearable attachment

10: Fixed end of Sheath/Inlet of genital

11: Sheath

12: Sheath handle

13: Protruding end of Sheath

15: Isolation chamber

16: Loop

17: Straps

18: Bound cover/Cap

100: Catheter

110: Air vent

120: Underwear Strap

121: Inlet for fluid

130: Scrotum means

131: Scrotum supporting wall

132: Drainage opening

133: Receiving opening for drainage

140(a): Proximate end of Isolation chamber

140(b): Distal end of Isolation chamber

140(c): Upper proximate body of Isolation chamber

140(d): Lower proximate body of Isolation chamber

141: Fixing means of isolation chamber

150: Drainage Outlet

151: Inlet tube

156: Internal space

161: Spraying apparatus

170: Inward nozzle of Spraying apparatus

180: Outward nozzle of Spraying apparatus

181: Connector

190: Holding

192: Distal end of holding

193: Proximate end of holding

194: Upper portion of holding

195: Lower portion of holding

200: Bidet

300: Urine collection device

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CLAIMS

We claim:

1. A male catheter system comprising a male catheter (100) and a support system (1) for the male catheter (100);

wherein,

said male catheter (100) comprises:

i. an isolation chamber (15) comprising a proximate end (140a), a distal end (140b), said proximate end (140a) further comprises an upper proximate body (140c) and a lower proximate body (140d), said upper proximate body (140c) having a plurality of fixing means (141);

ii. an inlet (10) for genital comprising a retractable non adhesive sheath (11) to receive and hold genital while in use;

iii. an inlet (121) for fluid;

iv. a spraying apparatus (161) comprising a channel for fluid and a plurality of nozzles (170, 180); and

v. a drainage outlet (150) comprising a drainage opening (132);

said support system (1) having a fore region (1a), an aft region (1b), a top region (1c) and a bottom region (1d), wherein said support system (1) includes:

i. a supporting wear (3) having a front side (3c) and a rear side (3d) with a plurality of eyelets (3a);

ii. a wearable attachment (4); and

iii. an optional bottom wear (2) having a plurality of eyelets (2a) and a flap (2b);

said male catheter (100) is attached on wearable attachment (4) at the fore region (1a) of said support system through a plurality of attachment means (4b); and

said wearable attachment (4) is attached to supporting wear (3).

2. The male catheter system as claimed in claim 1, wherein, the supporting wear (3) comprises of a plurality of eyelets (3a) and an inlet (3b) for genital.

3. The male catheter system as claimed in claim 1, wherein, the bottom wear (2) comprises of a plurality of eyelets (2a) and a flap (2b) act as a covering of the support system.

4. The male catheter system as claimed in claim 1, wherein, the wearable attachment (4) further comprises a plurality of tightening means and optionally a plurality of holes (4e) for channeling the tightening means.

5. The male catheter system as claimed in claim 4, wherein, the tightening means include but is not limited to a plurality of straps (4a), a plurality of ropes (4d).

6. The male catheter system as claimed in claim 5, wherein, the plurality of straps (4a) of the wearable attachment (4) are inserted through the plurality of eyelets (3a) on the front side (3c) of the supporting wear (3) and subsequently through the eyelets (2a) on front of the bottom wear (2) and secured on front of the bottom wear (2) and said plurality of straps (4a) traverse through rear side of the bottom wear (2) through the rear side (3d) of the supporting wear (3) and secured to rear side of said bottom wear (2) by a joining means.

7. The male catheter system as claimed in claim 5, wherein , the plurality of ropes (4d) are looped around the wearable attachment (4) and run around each thigh of user and come out from the plurality of eyelets (2a) on rear side of the bottom

wear (2) through the plurality of eyelets (3a) on the rear side (3d) of the supporting wear (3).

8. The male catheter system as claimed in claim 5, wherein, the plurality of straps (4a) penetrates from the fore region (1a) of the support system (1) and exits from the aft region (1b) of the support system (1).

9. The male catheter system as claimed in claim1, wherein, the fixing means (141) on the upper proximate body (140c) of the proximate end (140a) of the isolation chamber (15) is affixed to the attachment means (4b) of the wearable attachment (4), said wearable attachment (4) is attached to the supporting wear (3) and the bottom wear (2) through a plurality of tightening means thus completing the arrangement of the male catheter (100).

10. The male catheter system as claimed in claim 1, wherein, the fixing means (141) and attachment means (4b) include but not limited to buttons with eyelets, hooks, snap fasteners, press buttons, loop buttons.

11. The catheter system as claimed in claim 1, wherein the catheter is devoid of any adhesive.

12. A male catheter (100) comprising:

a) an isolation chamber (15) comprising a proximate end (140a) and a distal end (140b), said proximate end (140a) further comprises an upper proximate body (140c) and a lower proximate body (140d), said upper proximate body (140c) having a plurality of fixing means (141);

b) an inlet (10) for genital comprising a retractable non adhesive sheath (11) to receive and hold genital while in use;

c) an inlet (121) for fluid;

d) a spraying apparatus (161) comprising a channel for fluid and a plurality of nozzles (170, 180); and

e) a drainage outlet (150) comprising a drainage opening (132);

wherein;

the upper proximate body (140c) of said isolation chamber (15) is positioned such that said inlet (10) for genital is surrounded by said isolation chamber (15);

the inlet(121) for fluid is positioned preferably on upper proximate body (140c), said inlet (121) for fluid being connected to the spraying apparatus (161) forming a continued channel to direct a fluid to pass through the inlet (121) towards spraying apparatus (161) and to enter said isolation chamber (15);

the spraying apparatus (161) is positioned, inside and around the proximate end (140a) of the isolation chamber (15);

said drainage outlet (150) being positioned at distal end (140b) of said isolation chamber (15) such that the drainage opening (132) of said outlet (150) faces isolation chamber (15), and said drainage opening (132) protrudes allowing fluid collected in isolation chamber (15) to be drained out; and

the inlet (121) for fluid is optionally connected to a bidet (200) and said bidet provides pressurized fluid.

13. The catheter (100) as claimed in claim 12, wherein, the fluid includes water, air or douche.

14. The catheter (100) as claimed in claim 12, wherein, the bidet includes but is not limited to an automatic bidet, a manual bidet, a fluid container or similar structures known in the art.

15. The catheter (100) as claimed in claim 12, wherein, the upper proximate body (140c) of isolation chamber (15) is a soft flexible body, the lower proximate body (140d) is a semi-rigid body and the distal end (140b) of isolation chamber is a rigid body.

16. The catheter (100) as claimed in claim 12, wherein the catheter (100) collects fluid in the isolation chamber (15) allowing swift drainage of fluid thus avoiding contact of fluid with genital while in position.

17. The catheter (100) as claimed in claim 12, wherein, the catheter (100) allows for cleaning and/or washing of genital without removing the catheter (100) through spraying apparatus (161).

18. An external male catheter (100) comprising:
    a) a holding (190) comprising a distal portion (192), a proximate portion (193), an upper portion (194) and a lower portion (195), a scrotum supporting means (130), a plurality of loop connectors (16) at said upper and said lower portions of said holding (190);
    b) an isolation chamber (15) comprising a proximal end (140a) and a distal end (140b);
    c) an inlet (10) for genital comprising a retractable, elastic, non-adhesive sheath (11) having a fixed end to receive the genital and a protruding end (13) to hold genital till upper half length of genital while in use;

d) an inlet (121) for fluid;

e) a spraying apparatus (161) comprising a channel for fluid and a plurality of nozzles (170,180); and

f) a drainage outlet (150) comprising a receiving opening (133) and a drainage opening (132);

wherein,

the inlet (10) for genital is positioned towards upper and proximate portions (194, 193) of said holding (190) such that said inlet for genital allows genital to be inserted into said inlet (10);

the proximal end (140a) of said isolation chamber (15) is connected to the upper and proximate portions (194, 193) of said holding such that said inlet (10) for genital is surrounded by said isolation chamber (15);

the inlet(121) for fluid is positioned preferably towards upper portion (194) of said holding, said inlet (121) for fluid being connected to the spraying apparatus (161) forming a continued channel to direct a fluid to pass through the inlet (121) towards spraying apparatus (161) and to enter into said isolation chamber (15);

the spraying apparatus (161) is positioned, inside and around the proximal end (140a) of the isolation chamber (15);

said drainage outlet (150) being positioned at distal portion (140b) of said isolation chamber (15) such that the receiving opening (133) of said outlet faces inner isolation chamber (15), and said drainage opening (132) protrudes out of said holding allowing fluid collected in isolation chamber (15) to be drained out; and

said inlet (121) for fluid is optionally connected to a bidet (200) and said bidet provides pressurized fluid.

19. The catheter (100) as claimed in claim 18, wherein, the fluid includes water, air or douche.

20. The catheter (100) as claimed in claim 18, wherein, the bidet includes but is not limited to an automatic bidet, a manual bidet, a fluid container or similar structures known in the art.

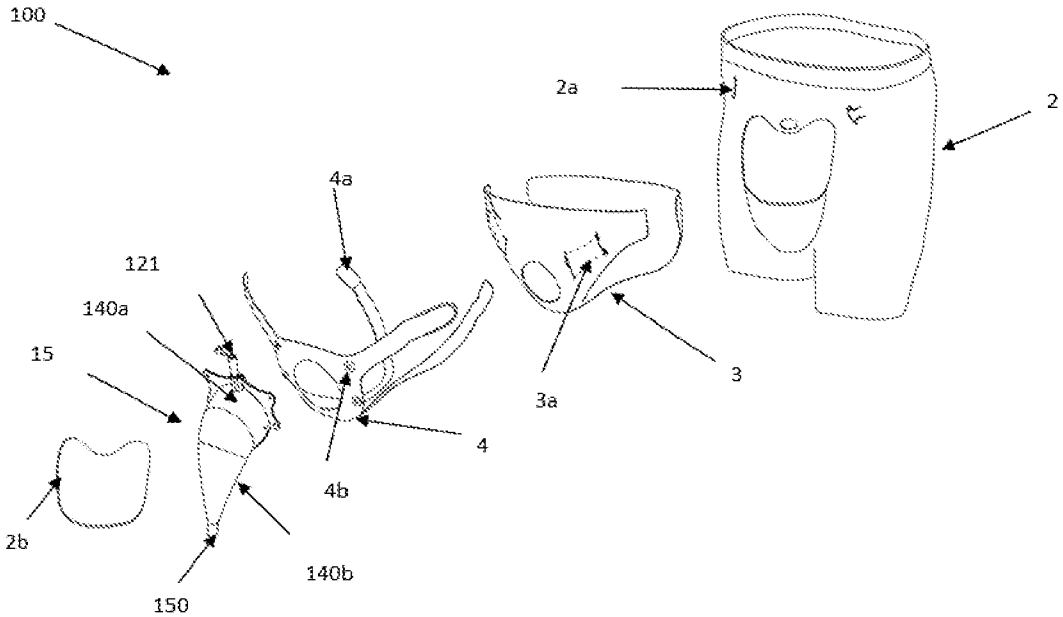

Figure 1

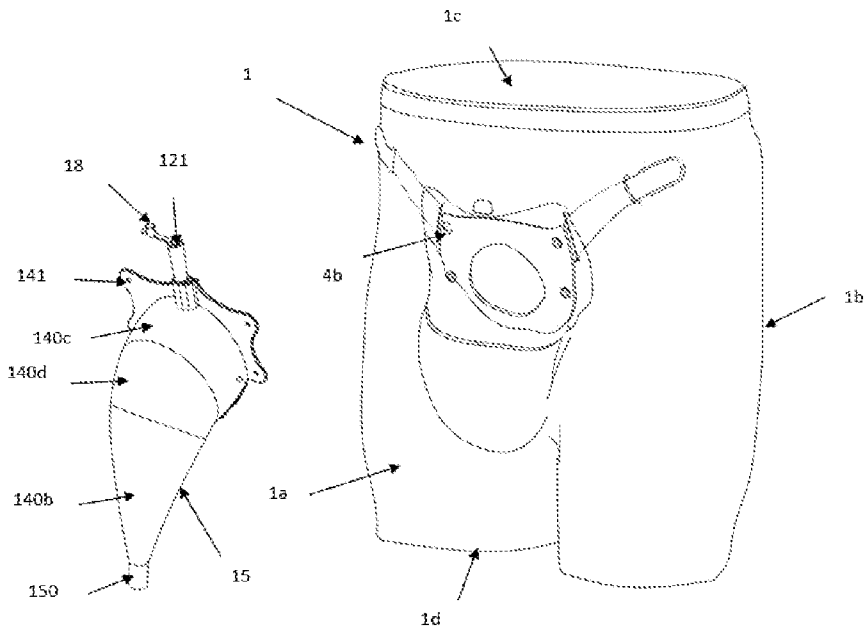

Figure 2(a)

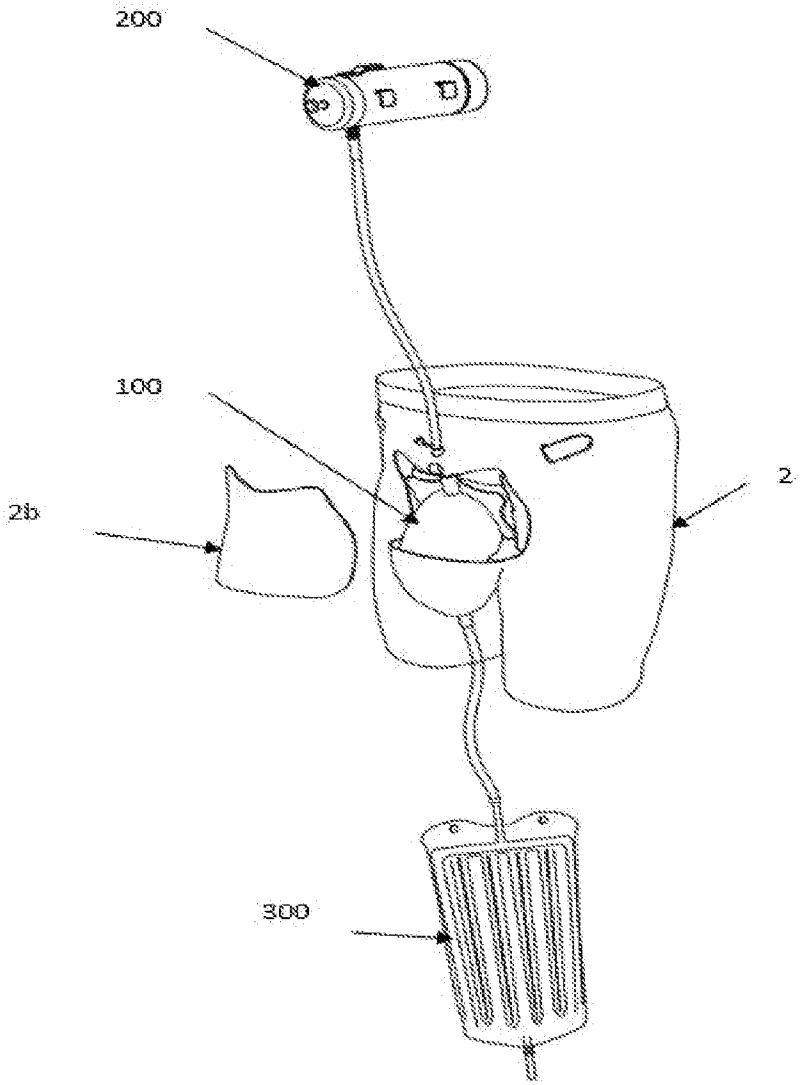

Figure 2(b)

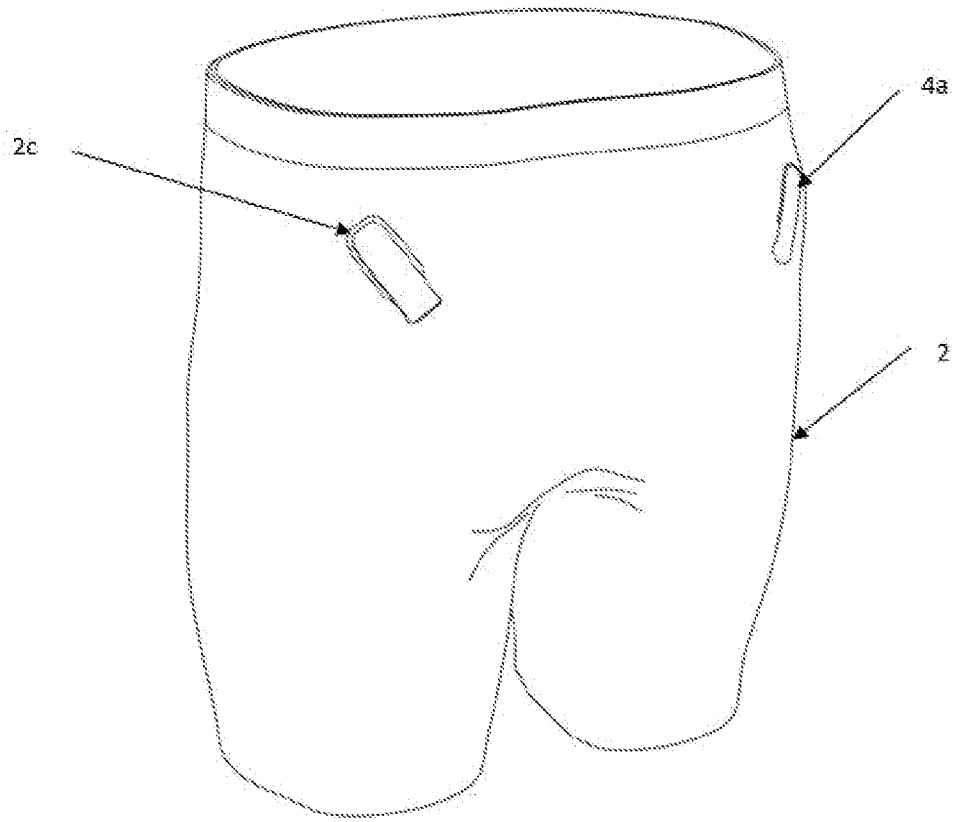

Figure 2(c)

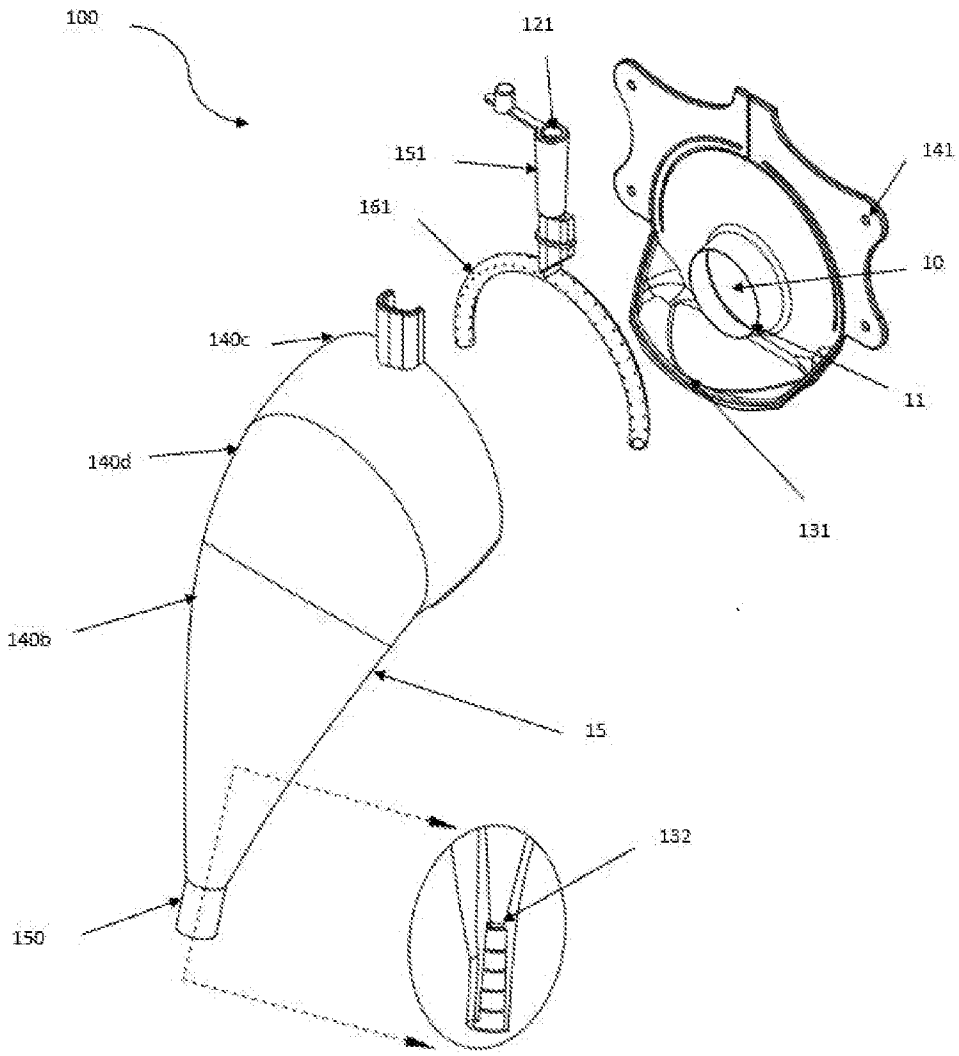

Figure 3(a)

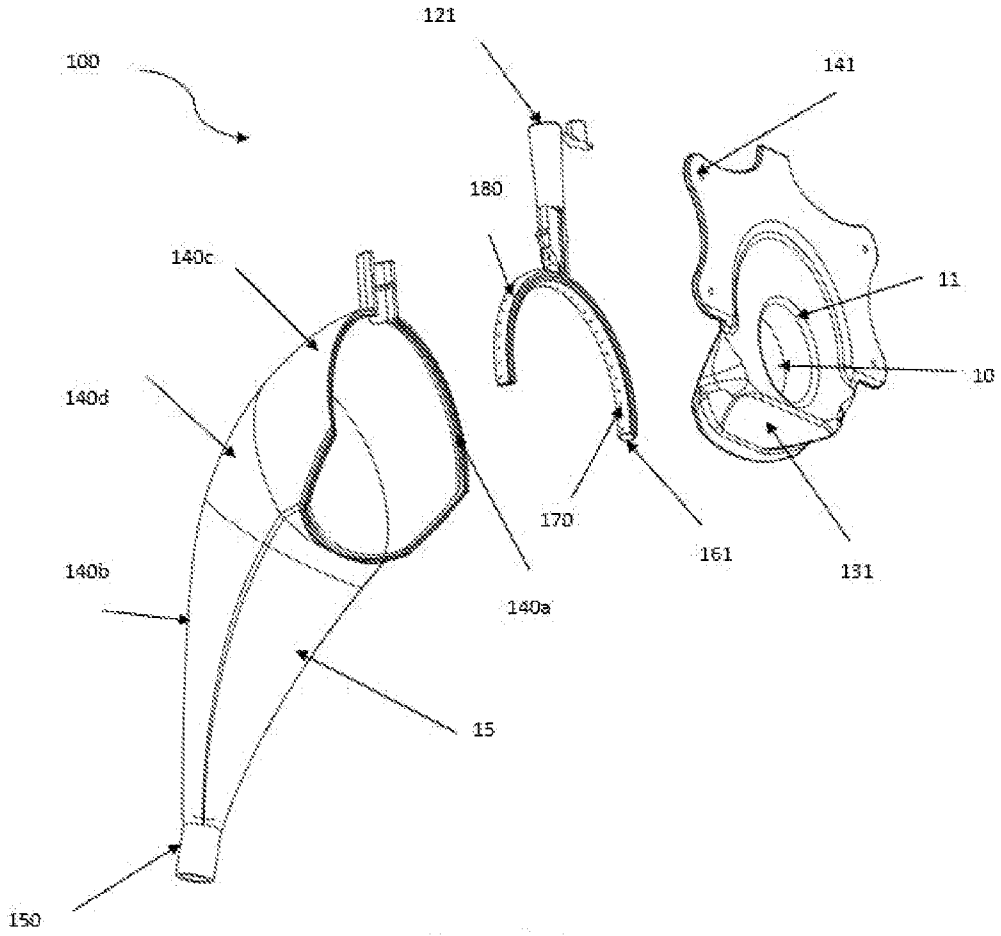

Figure 3(b)

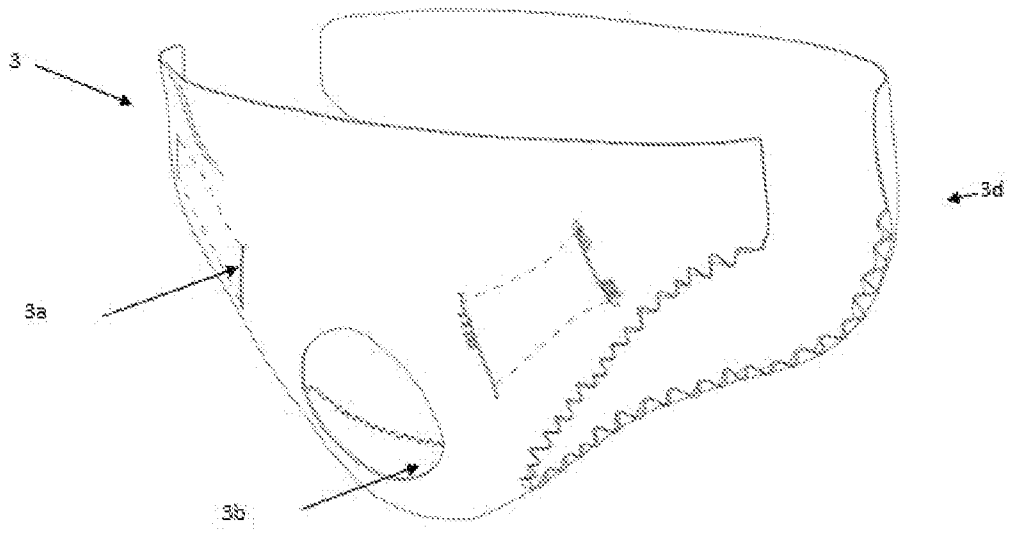

Figure 4(a)

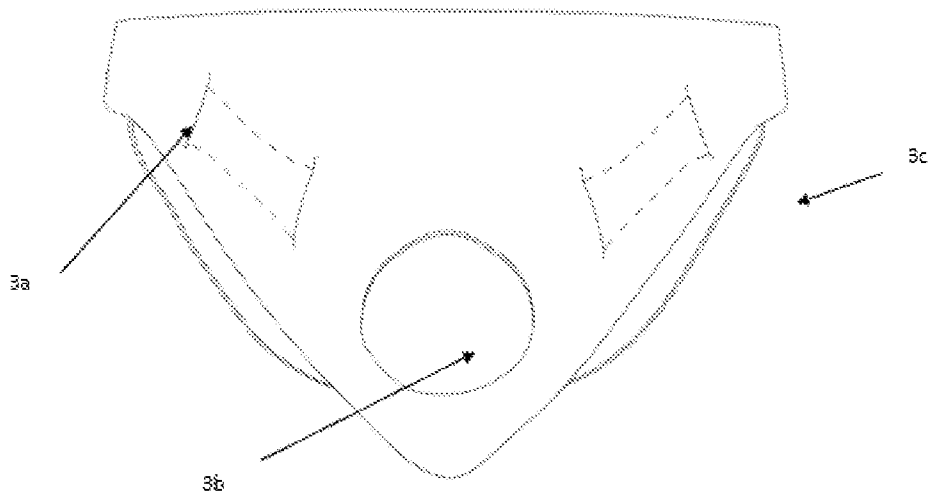

Figure 4(b)

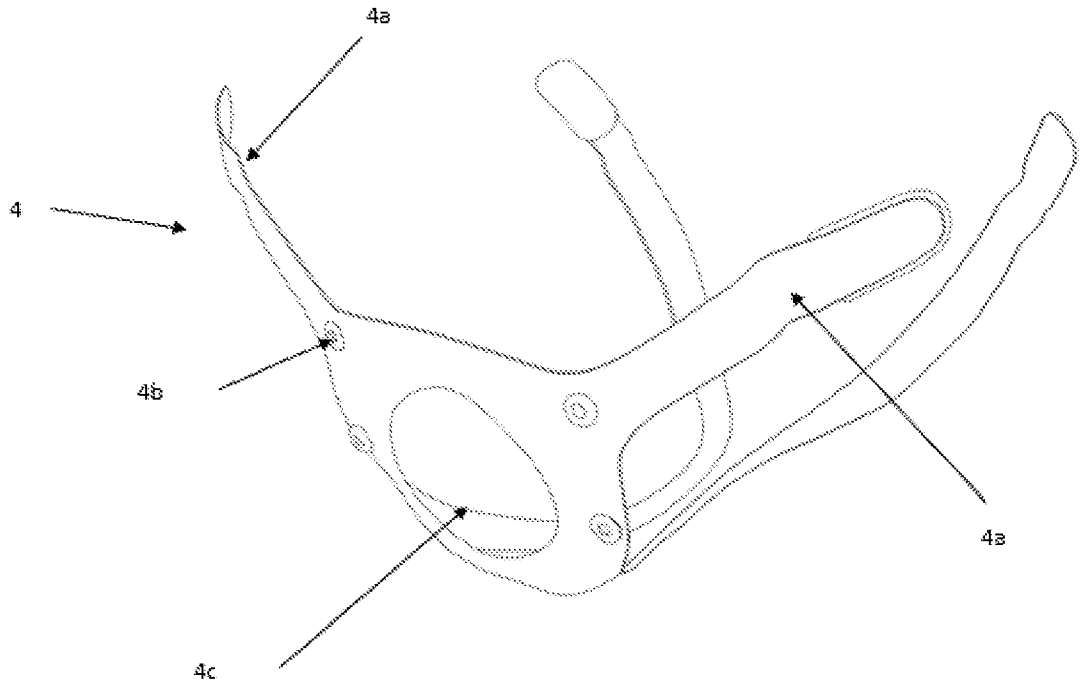

Figure 5

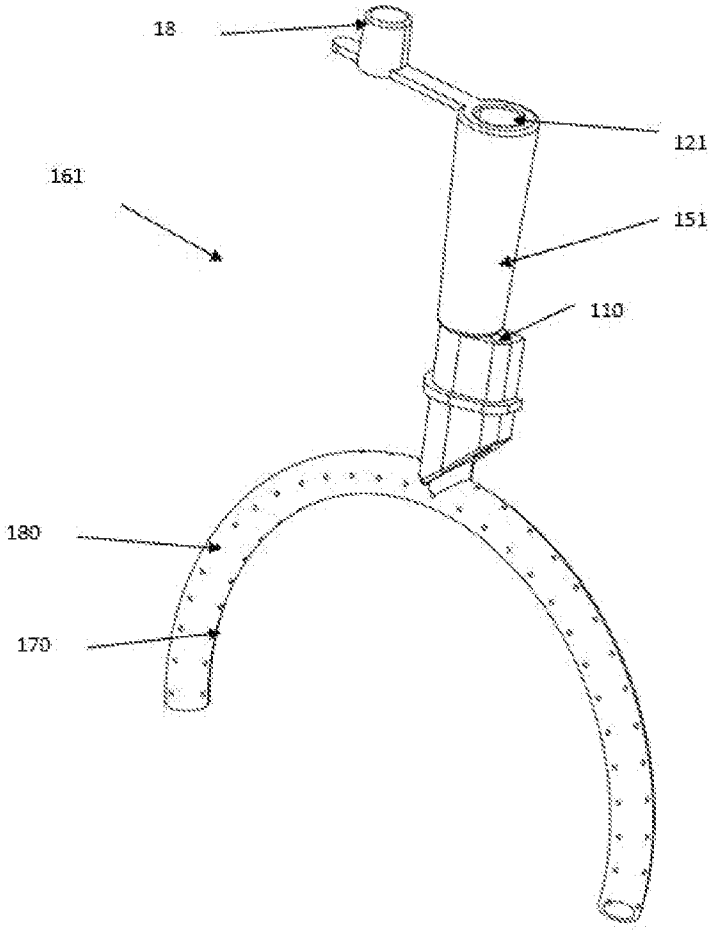

Figure 6(a)

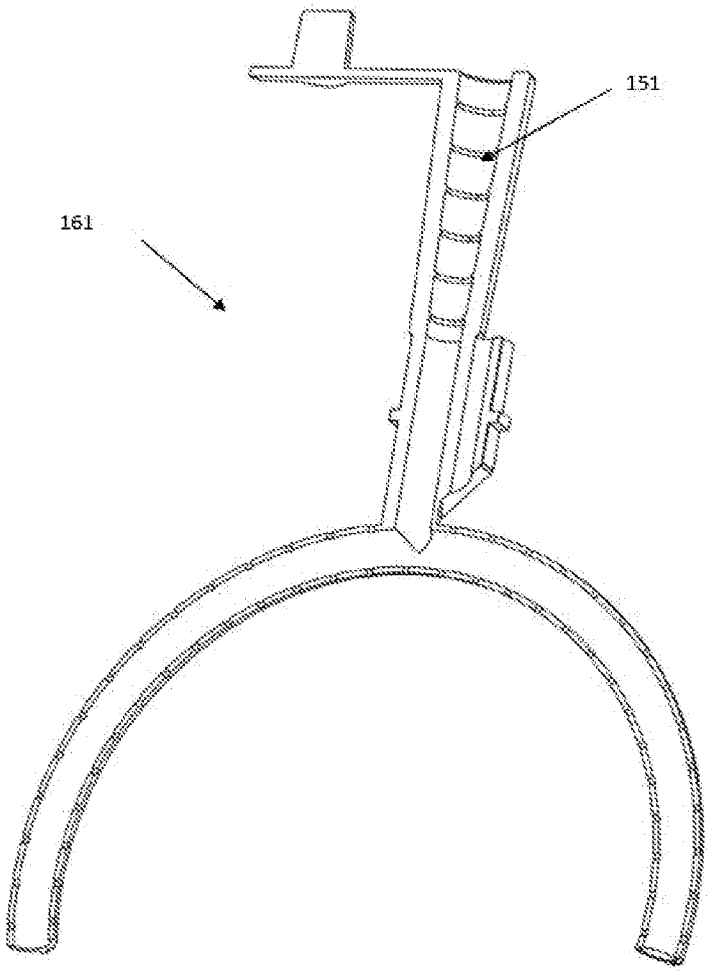

Figure 6(b)

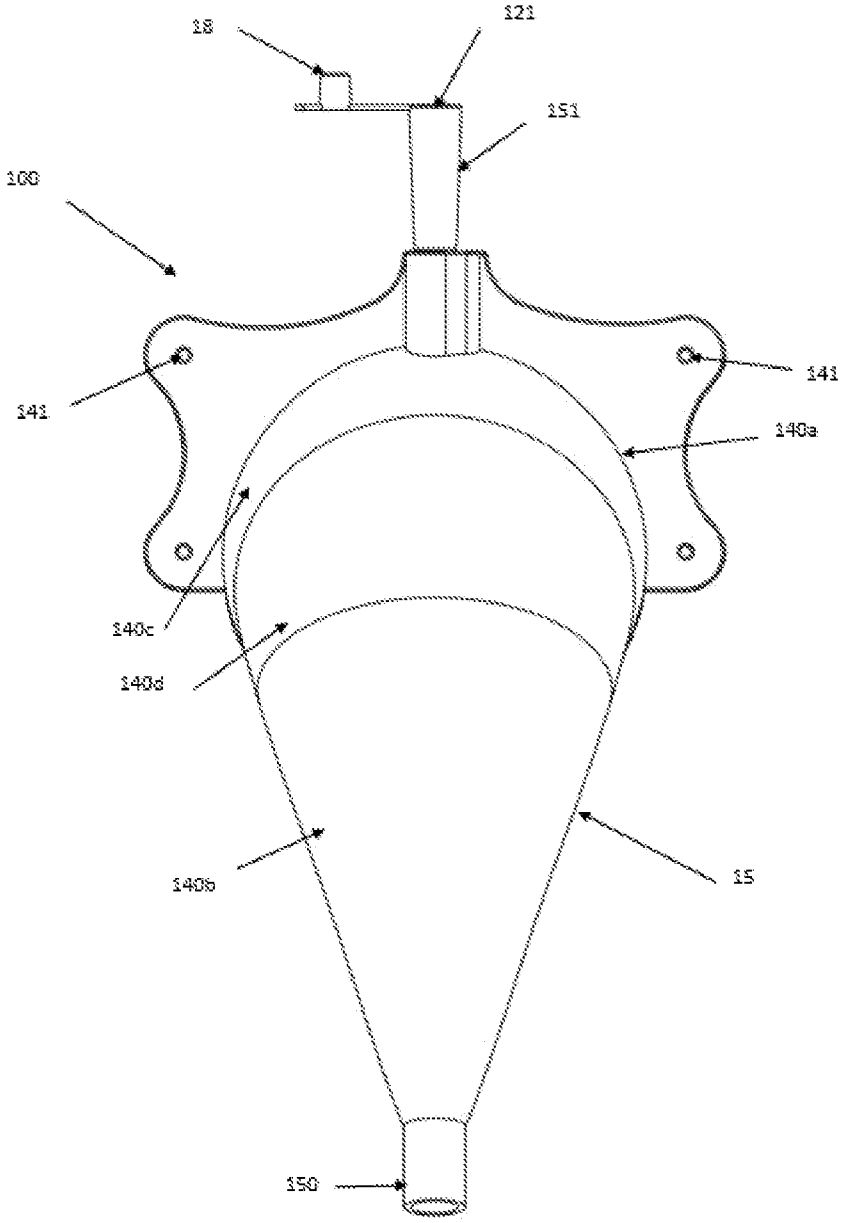

Figure 7(a)

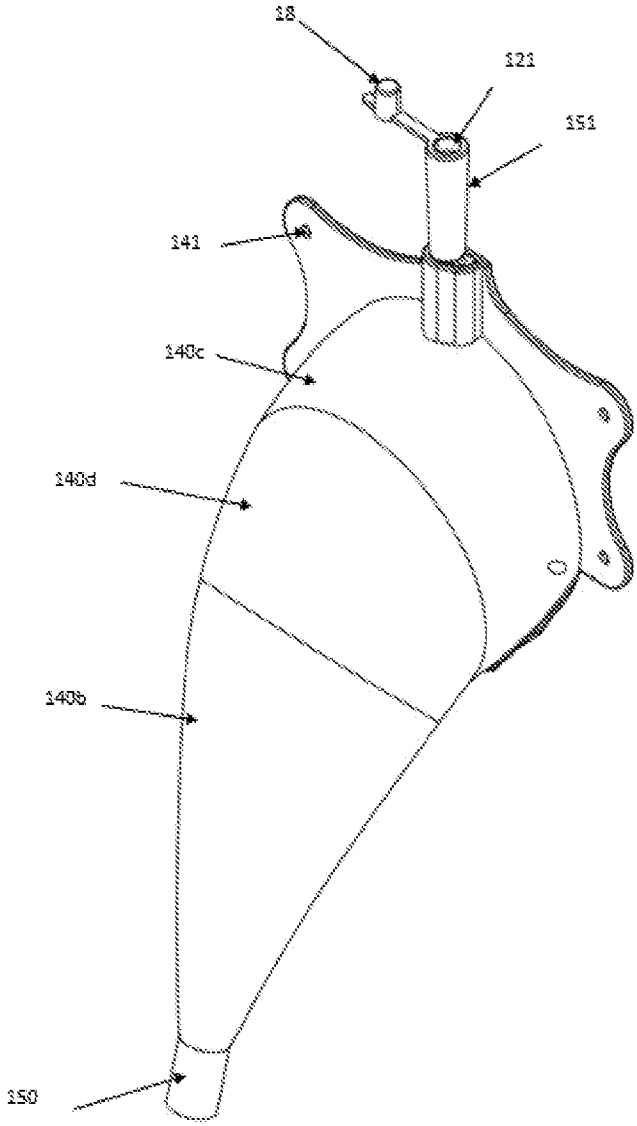

Figure 7(b)

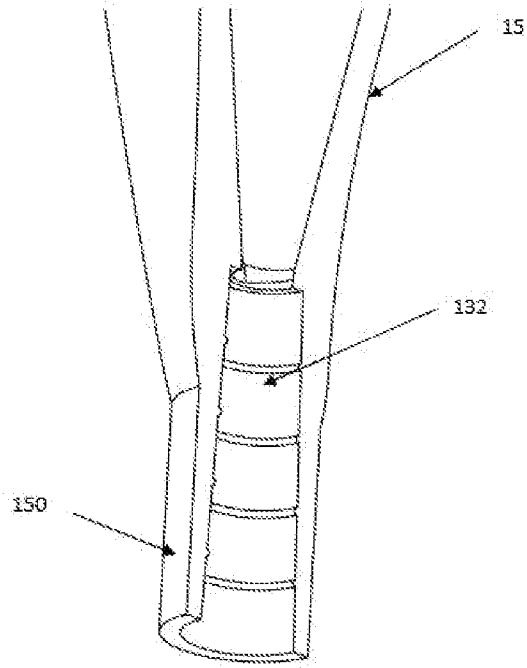

Figure 7(c)

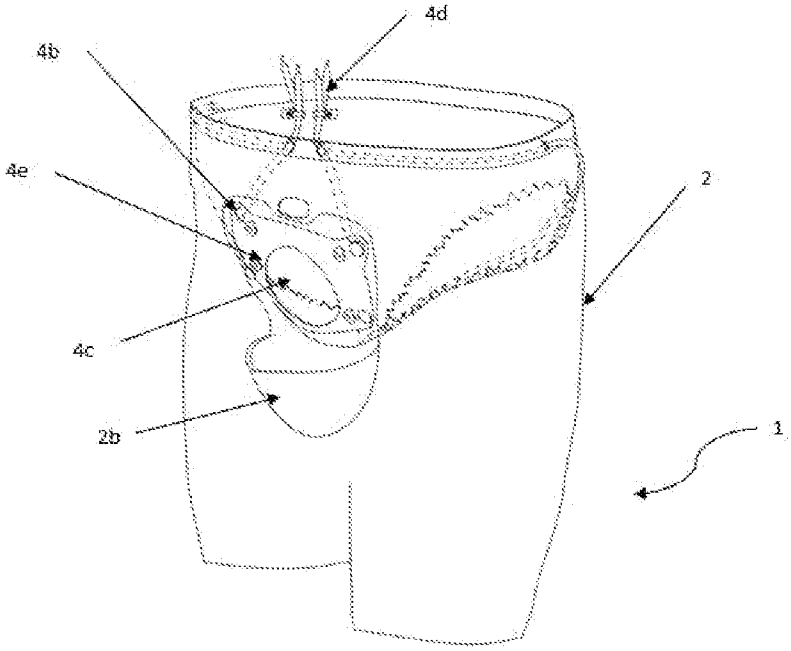

Figure 8(a)

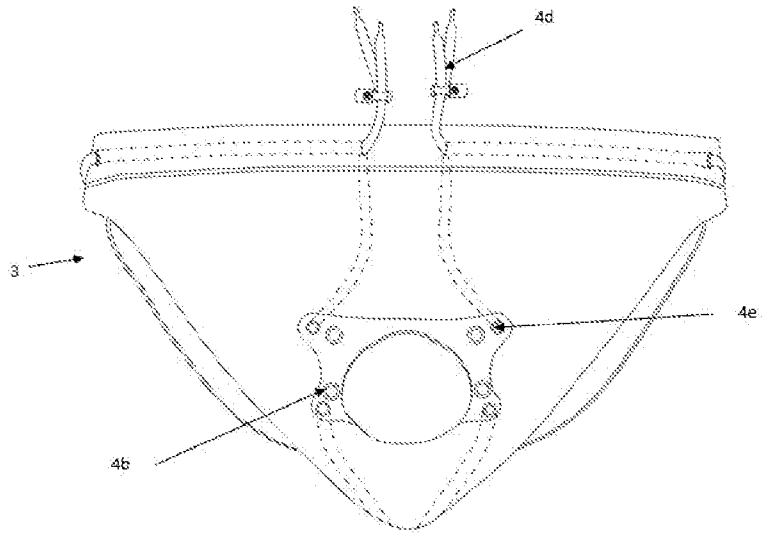

Figure 8(b)

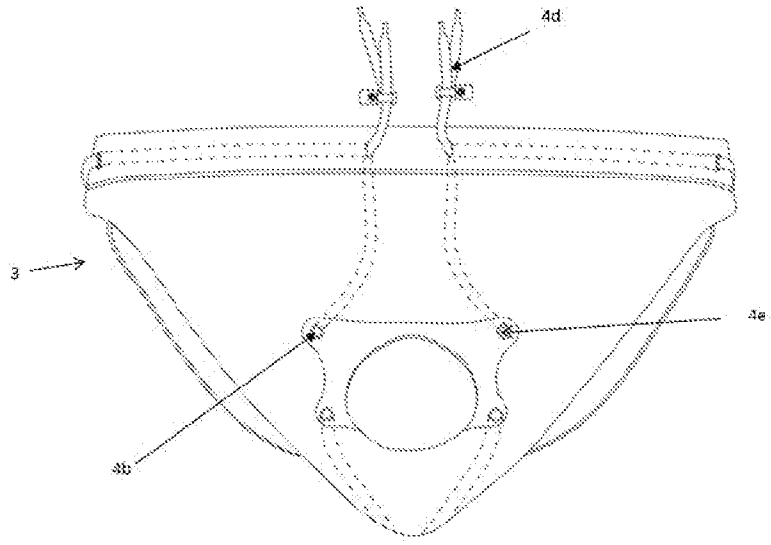

Figure 8(c)

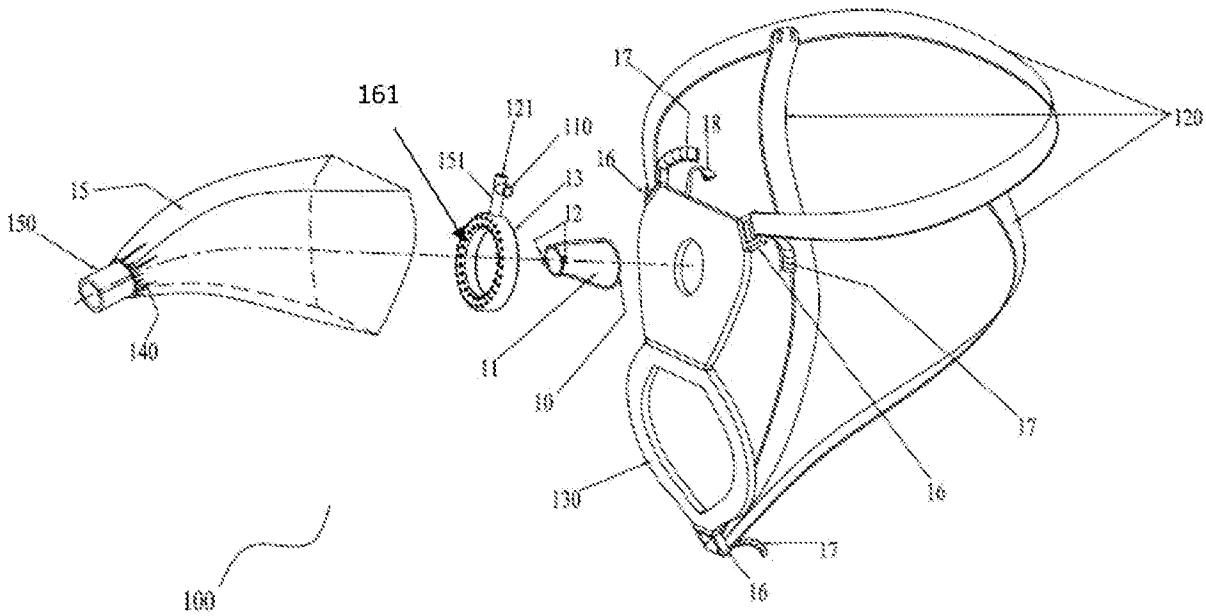

Figure 9a

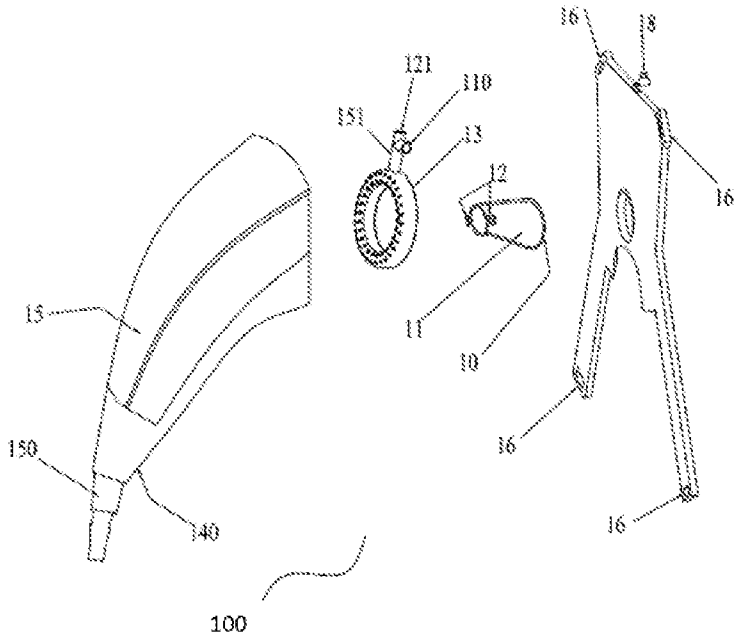

Figure 9b

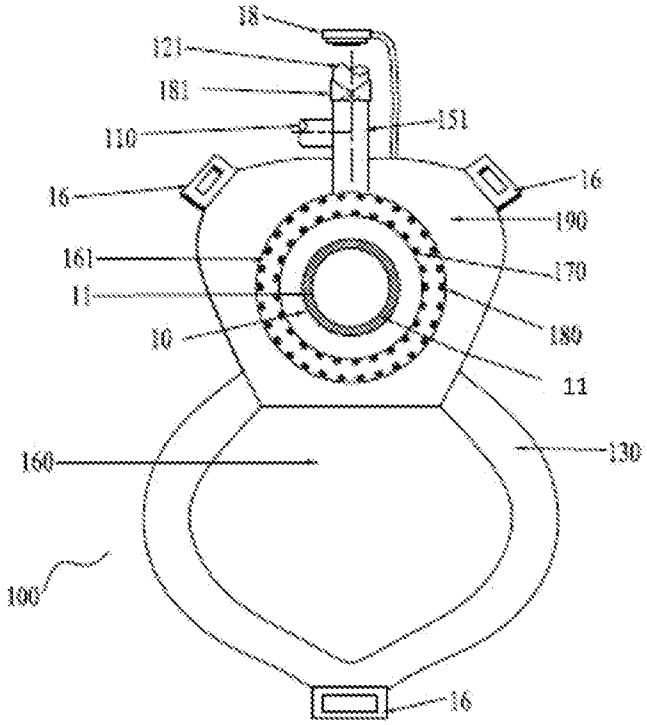

Figure 10a

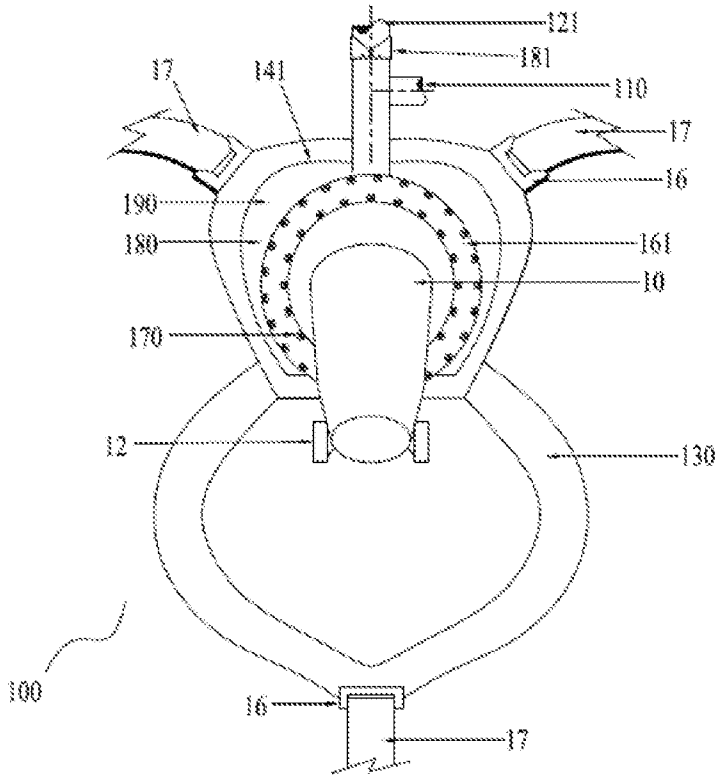

Figure 10b

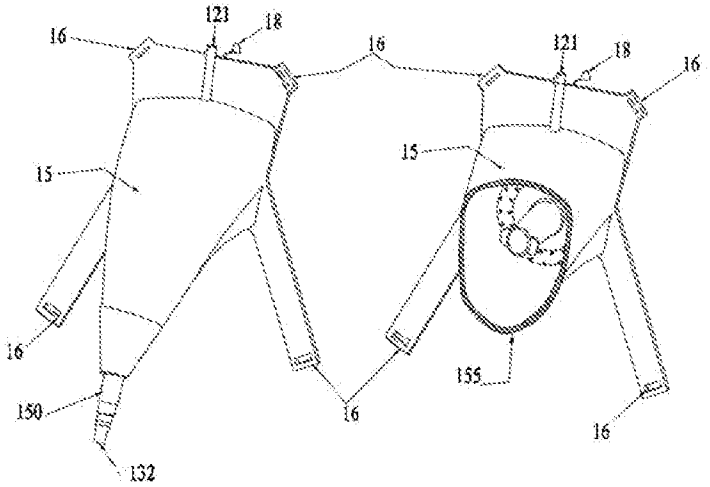

Figure 10c

Figure 10d

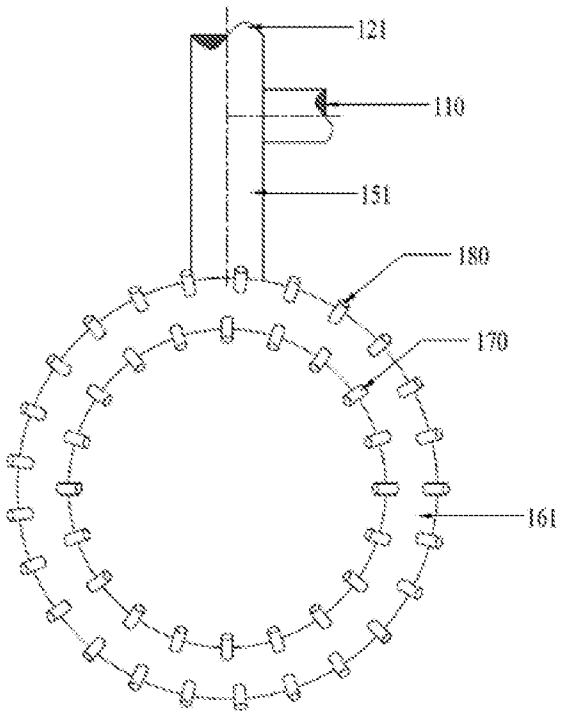

Figure 11a

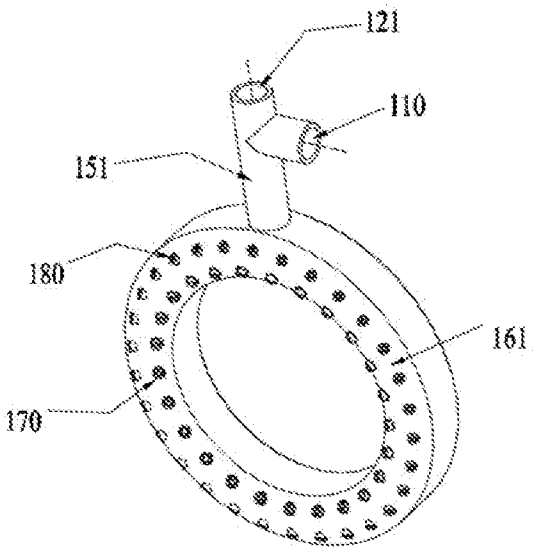

Figure 11b

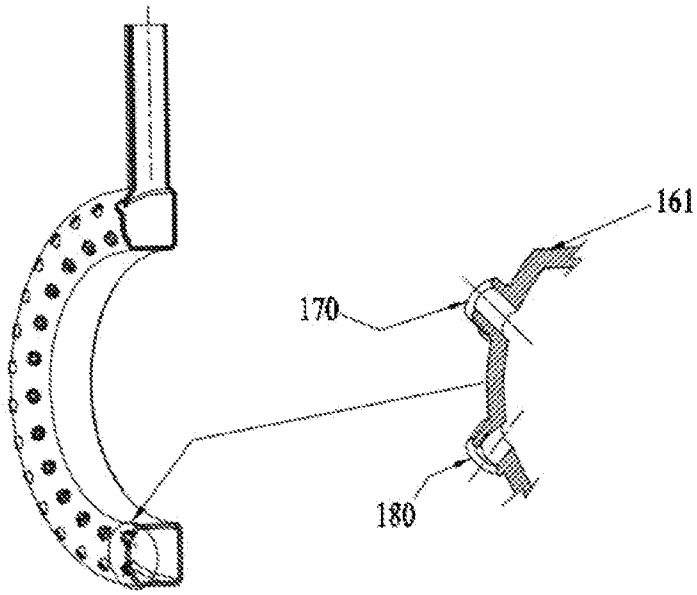

Figure 11c

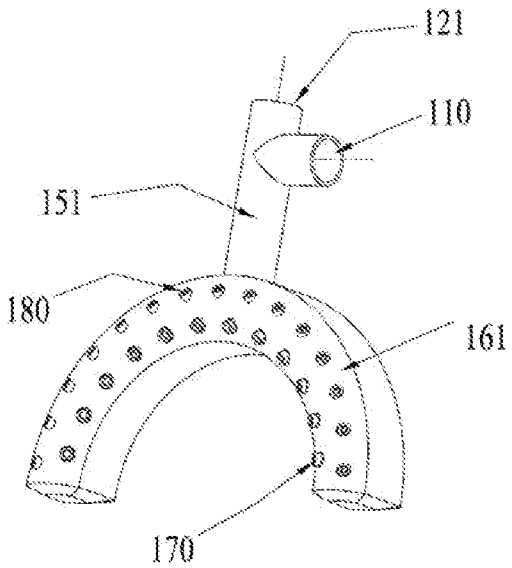

Figure 11d

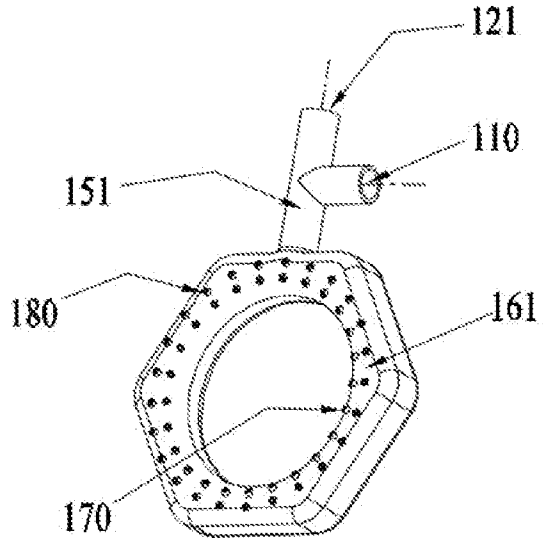

Figure 11e

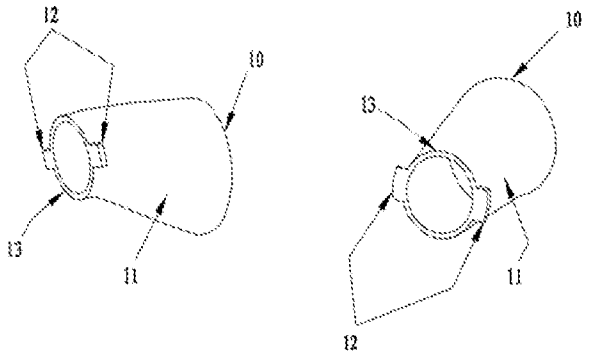

Figure 12

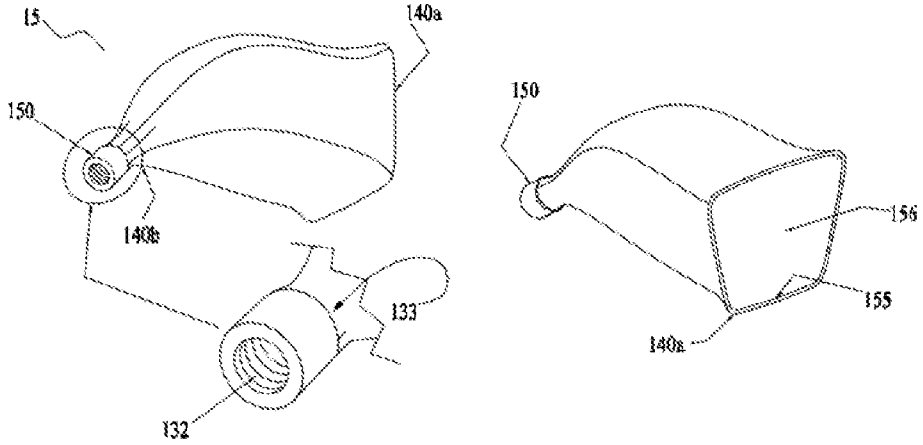

Figure 13a

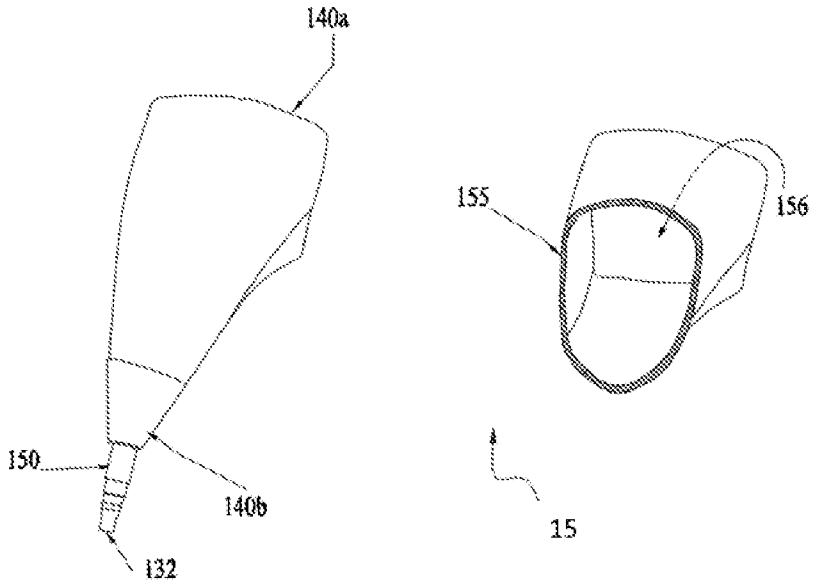

Figure 13b

20/20

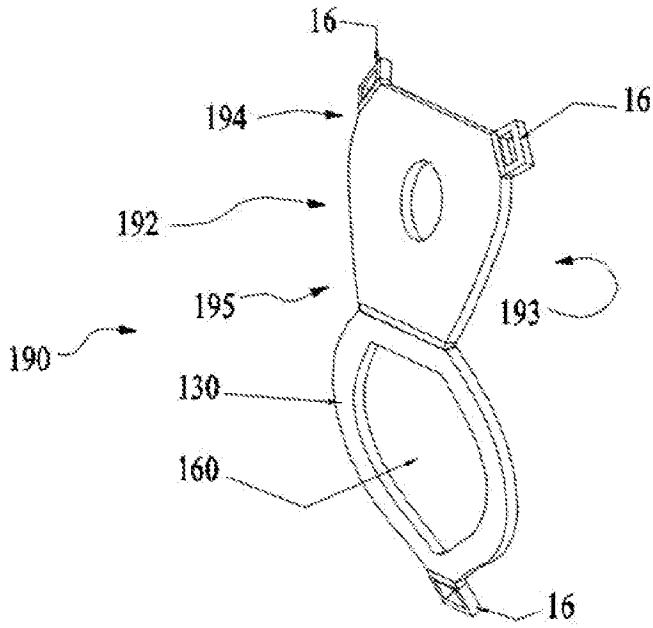

Figure 14a

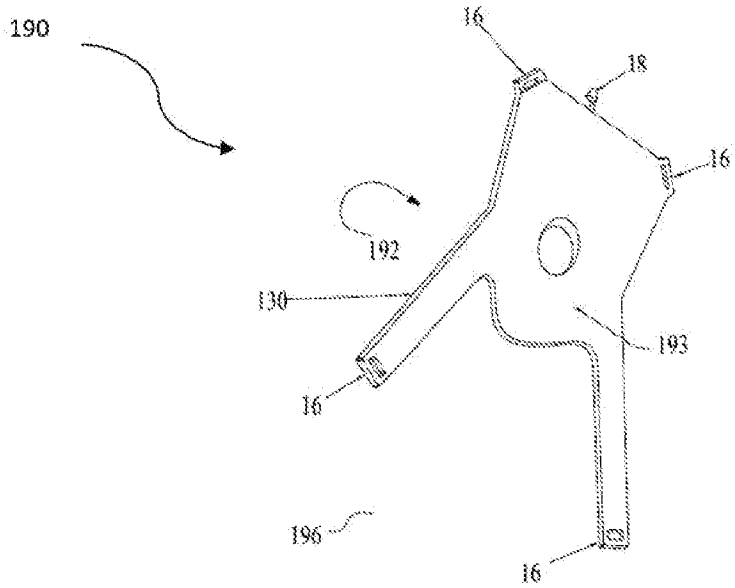

Figure 14b

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2020/050434

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61F5/44 A61F5/442 A61F5/453
ADD.

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)
A61F

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 207 575 255 U (2ND AFFILIATED HOSPITAL NANCHANG UNIV) 6 July 2018 (2018-07-06) the whole document	1-11
Y	US 2004/176746 A1 (FORRAL ARTHUR ESGUERRA [US]) 9 September 2004 (2004-09-09) paragraph [0033] - paragraph [0035]; figures 1,3	1-11
Y	EP 3 254 659 A1 (LEE HOONSANG [KR]) 13 December 2017 (2017-12-13) paragraph [0057]	1-11
Y	US 4 713 066 A (KOMIS GLENNA [US]) 15 December 1987 (1987-12-15)	2
A	column 2, line 23 - line 46; figures 1,2	1

-/--

[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
6 May 2020	07/07/2020

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Arjona López, G

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Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2020/050434

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2017/196726 A1 (SANANTONIO JACQUELINE R [US]) 13 July 2017 (2017-07-13) paragraph [0029] - paragraph [0042]; figures -----	1,10,11

1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2020/050434

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11

A male catheter system comprising a male catheter and a support system for the male catheter, said support system having a fore region, an aft region, a top region and a bottom region, wherein said support system includes a supporting wear having a front side and a rear side with a plurality of eyelets, a wearable attachment, and an optional bottom wear having a plurality of eyelets and a flap, said male catheter being attached on wearable attachment at the fore region of said support system through a plurality of attachment means and said wearable attachment is attached to supporting wear.

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2. claims: 12-17

A male catheter comprising an isolation chamber comprising a proximate end and a distal end, said proximate end further comprises an upper proximate body and a lower proximate body, an inlet for genital, an inlet for fluid, a spraying apparatus comprising a channel for fluid, and a drainage outlet comprising a drainage opening (132), wherein the upper proximate body of said isolation chamber is positioned such that said inlet for genital is surrounded by said isolation chamber, the inlet for fluid is positioned preferably on upper proximate body, said inlet for fluid being connected to the spraying apparatus forming a continued channel to direct a fluid to pass through the inlet towards spraying apparatus and to enter said isolation chamber,
the spraying apparatus is positioned, inside and around the proximate end of the isolation chamber, said drainage outlet being positioned at distal end of said isolation chamber such that the drainage opening of said outlet faces isolation chamber, and said drainage opening protrudes allowing fluid collected in isolation chamber to be drained out.

---

3. claims: 18-20

An external male catheter comprising a holding comprising a distal portion, a proximate portion, an upper portion and a lower portion, a scrotum supporting means, a plurality of loop connectors at said upper and said lower portions of said holding, an isolation chamber comprising a proximal end and a distal end, an inlet for genital comprising a retractable, elastic, non-adhesive sheath having a fixed end to receive the genital and a protruding end to hold genital till upper half length of genital while in use, an inlet for fluid, a spraying apparatus comprising a channel for fluid,

and a drainage outlet comprising a receiving opening and a drainage opening, wherein the inlet for genital is positioned towards upper and proximate portions of said holding such that said inlet for genital allows genital to be inserted into said inlet, the proximal end of said isolation chamber is connected to the upper and proximate portions of said holding such that said inlet for genital is surrounded by said isolation chamber, the inlet for fluid is positioned preferably towards upper portion of said holding, said inlet for fluid being connected to the spraying apparatus forming a continued channel to direct a fluid to pass through the inlet towards spraying apparatus and to enter into said isolation chamber, the spraying apparatus is positioned, inside and around the proximal end of the isolation chamber, said drainage outlet being positioned at distal portion of said isolation chamber such that the receiving opening of said outlet faces inner isolation chamber, and said drainage opening protrudes out of said holding allowing fluid collected in isolation chamber to be drained out.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2020/050434

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 207575255 U	06-07-2018	NONE	
US 2004176746 A1	09-09-2004	NONE	
EP 3254659 A1	13-12-2017	CN 107205874 A	26-09-2017
		EP 3254659 A1	13-12-2017
		JP 6681411 B2	15-04-2020
		JP 2018503494 A	08-02-2018
		US 2018021196 A1	25-01-2018
		WO 2016125925 A1	11-08-2016
US 4713066 A	15-12-1987	NONE	
US 2017196726 A1	13-07-2017	NONE	