



- (51) International Patent Classification:
A47K 17/02 (2006.01)
- (21) International Application Number:
PCT/IB2016/053526
- (22) International Filing Date:
15 June 2016 (15.06.2016)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
201641012892 12 April 2016 (12.04.2016) IN
- (72) Inventors; and
- (71) Applicants : MURALIDHARAREDDY, Kalimi [IN/IN]; H.No:50/760/A-113-3, Opposite to Gayatri Towers, Gayatri Estate, Kurnool, Andhra Pradesh 518001 (IN). NAGARAJA, Chiyedu [IN/IN]; Department of Instrumentation, Sri Krishnadevaraya University, Anatapuramu, Andhra Pradesh 515001 (IN).
- (74) Agent: KHURANA & KHURANA, ADVOCATES & IP ATTORNEYS; E-13, UPSIDC, Site-IV, Behind-Grand Venice, Kasna Road, Greater Noida, National Capital Region, Uttar Pradesh 201310 (IN).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:
— with international search report (Art. 21(3))

(54) Title: A SITTING TOILET ASSEMBLY TO ASSIST USER TO ACHIEVE NATURAL SQUATTING POSITION WITHOUT FLEXING THE KNEES

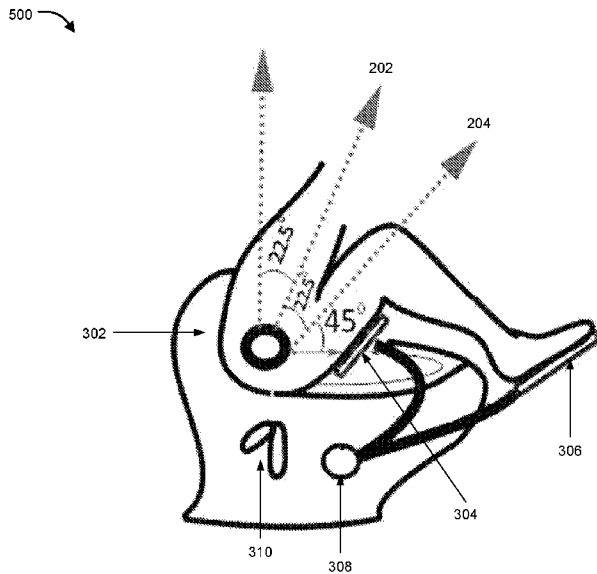


FIG. 5

(57) Abstract: An aspect of the present disclosure provides a toilet assembly including: a toilet bowl means having an upper opening and defining a longitudinal axis and a horizontal plane; at least one hip flexing means; at least one foot supporting means operatively coupled to said at least one hip flexing means; and an actuation means to lay said at least one hip flexing means at a predetermined angular relationship with respect to said horizontal plane defined by said toilet bowl upon actuation; wherein, a user on taking a sitting position on said toilet assembly with thighs of said user rested on said at least one hip flexing means and feet of said user rested on said at least one foot supporting means, and upon actuation of said actuation means, allows said user to achieve a squatting position without flexing knees.

A SITTING TOILET ASSEMBLY TO ASSIST USER TO ACHIEVE NATURAL SQUATTING POSITION WITHOUT FLEXING THE KNEES

TECHNICAL FIELD

[0001] The disclosure generally relates to toilet assemblies. In particular, it pertains to a toilet assembly that can enable a user to achieve squatting position from a sitting position without flexing the knees.

BACKGROUND

[0002] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0003] Man has always used the squatting posture for resting, working, and performing bodily functions. This is the way the human body is designed to function. In squatting position the anal canal (ac) is vertically aligned with rectum (re) so that the passage resistance is minimized and the gravity pull on the faeces is maximized. Further, this position allows for flexing of hips that pulls the anal canal open. This makes defecation faster, easier and more complete. Squatting position relaxes the puborectalis muscle (pm) which normally chokes the rectum in order to maintain continence. In squatting position, the right thigh squeezes the cecum (the second most common site for colon cancer) from its base and hence, its contents are thoroughly expelled into the ascending colon, where peristalsis carries them away. The force is all directed upwards, so the appendix stays clean and the ileocecal valve stays closed. The sigmoid colon (the most common site for colon cancer) needs the support of left thigh for complete evacuation. Hence, this posture generates the pressure automatically for the evacuation of the colon. This helps prevent "faecal stagnation" a prime factor in colon cancer, appendicitis and inflammatory bowel disease. The thigh support also securely seals the ileocecal valve, between the colon and the small intestine to avoid leaking in to the small intestine during evacuation. When the thighs are pressed against the abdominal muscles in this position, the pressure within the abdomen is greatly increased, so that the rectum is more completely emptied and prevents straining. But with the advent of indoor plumbing, throne like water closet (modern toilet/sitting toilet) was invented. Squatting was abandoned and sitting on toilet seats has become conventional in developed countries.

[0004] In the sitting position, the anal canal is bent at right angle to the rectum at rest and increases during defecation due to the relaxation of puborectalis muscle. At this junction, the puborectalis muscle creates a kink to passage of bowel contents. Hence to empty the bowel, strain should be applied frequently. Chronic straining on the toilet can cause hernias, diverticulosis and pelvic organ prolapse. As there is no support for thighs, evacuation of the colon is incomplete and stool hardens. It further increases the stool transit time that can increase the risk of colon cancer as the toxins common in the stool are in contact with the colon for longer times. Another problem with sitting position is hemorrhoids. Hemorrhoids result from continual aggravation and injury due to excessive straining in the sitting position. Hence, sitting toilets are physiologically unnatural and not suitable for defecation.

[0005] Even though physiologically squatting position is the optimum position for defecation, the sitting toilet has replaced the squatting toilet in most of the countries due to obesity, knee problems and old age. Obesity and knee problems are rapidly growing due to food habits and life style changes. The vast majority of people living in the Western World are used to conventional sitting toilet bowls and lack the flexibility and required strength to adopt the full squat position for any length of time unaided. In the past, numerous attempts have been made to prevent the above health problems by inventing various toilet seats, squat supporters, and foot supporters.

[0006] US patent number 5,809,583 discloses a toilet seat that can help user to achieve the squatting position. However, the squatting position achievable with the disclosed toilet seat is not satisfactory to serve its intended purpose as this position cannot provide the user with optimum torso bending and optimum hip flexing. Hence, the advantages of natural squatting position including vertical alignment of the rectum and anal canal and support to the colon cannot be achieved with the disclosed toilet seat and associated mechanisms. Further, the toilet seat is inclined with reference to the upper horizontal opening of the toilet bowl such as to slope forwardly downwards. When sitting on this forwardly inclined toilet bowl the stability of the user decreases limiting its practical utility.

[0007] US patent number 6,148,448 discloses a squat supporter that can help a user to achieve a squat angle of approximately 30 degrees between torso and femurs. However, in the position achievable with the disclosed squat supporter, the anal canal is not in vertical alignment to the rectum and hence, the gravity effect on the faeces is reduced. Hence, the defecation is not easy and straining is needed. In addition, the hips are not flexed to the optimum position to support the colon. Further, requirement of knee bending makes this

squat supporter practically non-viable for older and/or debilitated users and users suffering from knee joint problems.

[0008] After careful scrutinization of prior arts, a person skilled in the art would immediately realize that none of the prior art disclosed toilet assemblies can enable a user to achieve natural squatting position from a normal sitting position without flexing the knees.

[0009] There is therefore an immediate need in the art for a toilet assembly that can enable a user to achieve natural squatting position from a sitting position without flexing the knees and hence, can enjoy the wide-spread practical utility for all users including older, obese, debilitated and knee joint patients.

OBJECTS OF THE INVENTION

[0010] An object of the present disclosure is to overcome one or more disadvantages associated with conventional toilet assemblies.

[0011] Another object of the present disclosure is to provide a toilet assembly that can enable a user to achieve natural squatting position from a sitting position without flexing the knees.

[0012] Another object of the present disclosure is to provide a toilet assembly that can find practical utility for all users including older, obese, debilitated and knee joint patients.

[0013] Various objects, features, aspects and advantages of the present invention will become more apparent from the detailed description of the invention herein below along with the accompanying drawing figures in which like numerals represent like components.

SUMMARY

[0014] The disclosure generally relates to toilet assemblies. In particular, it pertains to a toilet assembly that can enable a user to achieve natural squatting position from a normal sitting position without flexing the knees.

[0015] In an aspect, the present disclosure provides a toilet assembly including: a toilet bowl means having an upper opening and defining a longitudinal axis and a horizontal plane; at least one hip flexing means; at least one foot supporting means operatively coupled to said at least one hip flexing means; and an actuation means to lay said at least one hip flexing means at a predetermined angular relationship with respect to said horizontal plane defined by said toilet bowl upon actuation; wherein, a user on taking a sitting position on said toilet assembly with thighs of said user rested on said at least one hip flexing means and feet of said user rested on said at least one foot supporting means, and upon actuation of said actuation

means, allows said user to achieve a squatting position without flexing knees. In an embodiment, the toilet assembly further comprises a back support. In an embodiment, the back support is provided at an angle of between 20° and 25° with respect to a vertical plane. In an embodiment, the actuation means comprises any or a combination of an automatic, a semi-automatic and a manual actuation means. In an embodiment, actuation means comprises a manual actuation means comprising a handle assembly. In an embodiment, manual actuation means further includes a locking means to effect locking of said at least one hip flexing means at said predetermined angular relationship. In an embodiment, the predetermined angular relationship can be an angle of between 15° and 50°. In an embodiment, longitudinal axis of said at least one hip flexing means defines an angle of between 10° and 35° with said longitudinal axis of said upper opening. In an embodiment, longitudinal axis of said at least foot supporting means defines an angle of between 10° and 35° with said longitudinal axis of said upper opening.

[0016] Another aspect of the present disclosure provides a toilet assembly including: a toilet bowl means having an upper opening and defining a horizontal plane; a pair of hip flexing means; a pair of foot supporting means operatively coupled to said pair of hip flexing means; and an actuation means to lay said pair of hip flexing means at an angle of between 15° and 50° with respect to said horizontal plane defined by said toilet bowl upon actuation; wherein, a user on taking a sitting position on said toilet assembly with thighs of said user rested on said pair of hip flexing means and feet of said user rested on said pair of foot supporting means, and upon actuation of said actuation means, allows said user to achieve a squatting position without flexing knees.

[0017] Various objects, features, aspects and advantages of the inventive subject matter will become more apparent from the following detailed description of preferred embodiments, along with the accompanying drawing figures in which like numerals represent like components.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The accompanying drawings are included to provide a further understanding of the present disclosure, and are incorporated in and constitute a part of this specification. The drawings illustrate exemplary embodiments of the present disclosure and, together with the description, serve to explain the principles of the present disclosure.

[0019] FIG. 1A illustrates an exemplary view depicting positioning of rectum, anal canal and puborectalis muscle in the squatting position.

[0020] FIG. 1B illustrates an exemplary view depicting positioning of rectum, anal canal and puborectalis muscle in the sitting position.

[0021] FIG. 2 illustrates an exemplary view depicting angular relationship between torso and femur in the squatting position.

[0022] FIG. 3 illustrates an exemplary perspective view of a toilet assembly in accordance with embodiments of the present disclosure.

[0023] FIG. 4 illustrates an exemplary view depicting a user in the sitting position over the toilet assembly in accordance with embodiments of the present disclosure.

[0024] FIG. 5 illustrates an exemplary view depicting a user achieving the squatting position from the sitting position in accordance with embodiments of the present disclosure.

[0025] FIG. 6 illustrates an exemplary top view of the seat cover in accordance with embodiments of the present disclosure.

DETAILED DESCRIPTION

[0026] The following is a detailed description of embodiments of the disclosure depicted in the accompanying drawings. The embodiments are in such detail as to clearly communicate the disclosure. However, the amount of detail offered is not intended to limit the anticipated variations of embodiments; on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the present disclosure as defined by the appended claims.

[0027] Each of the appended claims defines a separate invention, which for infringement purposes is recognized as including equivalents to the various elements or limitations specified in the claims. Depending on the context, all references below to the “invention” may in some cases refer to certain specific embodiments only. In other cases it will be recognized that references to the “invention” will refer to subject matter recited in one or more, but not necessarily all, of the claims.

[0028] As used in the description herein and throughout the claims that follow, the meaning of “a,” “an,” and “the” includes plural reference unless the context clearly dictates otherwise. Also, as used in the description herein, the meaning of “in” includes “in” and “on” unless the context clearly dictates otherwise.

[0029] All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g. “such as”) provided with respect to certain embodiments herein is intended merely to better illuminate the invention and does not pose a

limitation on the scope of the invention otherwise claimed. No language in the specification should be construed as indicating any non-claimed element essential to the practice of the invention.

[0030] Various terms as used herein are shown below. To the extent a term used in a claim is not defined below, it should be given the broadest definition persons in the pertinent art have given that term as reflected in printed publications and issued patents at the time of filing.

[0031] The disclosure generally relates to toilet assemblies. In particular, it pertains to a toilet assembly that can assist a user to achieve natural squatting position from a normal sitting position without flexing the knees.

[0032] In an aspect, the present disclosure provides a toilet assembly including: a toilet bowl means having an upper opening and defining a longitudinal axis and a horizontal plane; at least one hip flexing means; at least one foot supporting means operatively coupled to said at least one hip flexing means so that both can rotate simultaneously in the same direction and by the same amount of rotation upon actuation thus flexing hips without flexing the knees; and an actuation means to lay said at least one hip flexing means at a predetermined angular relationship with respect to said horizontal plane defined by said toilet bowl upon actuation; wherein, a user on taking a sitting position on said toilet assembly with thighs of said user rested on said at least one hip flexing means and feet of said user rested on said at least one foot supporting means, and upon actuation of said actuation means, allows said user to achieve a squatting position without flexing knees. In an embodiment, the toilet assembly further includes a back support. In an embodiment, the back support can be provided at an angle of between 20° and 25° with respect to a vertical plane. In an embodiment, the actuation means can include any or a combination of an automatic, a semi-automatic and a manual actuation means. In an embodiment, actuation means can include a manual actuation means including a handle assembly. In an embodiment, manual actuation means can further include a locking means to effect locking of said at least one hip flexing means at said predetermined angular relationship. In an embodiment, the predetermined angular relationship can be an angle of between 15° and 50°. In an embodiment, longitudinal axis of said at least one hip flexing means can define an angle of between 10° and 35° with said longitudinal axis of said upper opening. In an embodiment, longitudinal axis of said at least one foot supporting means defines an angle of between 10° and 35° with said longitudinal axis of said upper opening.

[0033] Another aspect of the present disclosure provides a toilet assembly including: a toilet bowl means having an upper opening and defining a horizontal plane; a pair of hip flexing means; a pair of foot supporting means operatively coupled to said pair of hip flexing means; and an actuation means to lay said pair of hip flexing means at an angle of between 15° and 50° with respect to said horizontal plane defined by said toilet bowl upon actuation; wherein, a user on taking a sitting position on said toilet assembly with thighs of said user rested on said pair of hip flexing means and feet of said user rested on said pair of foot supporting means, and upon actuation of said actuation means, allows said user to achieve a squatting position without flexing knees.

[0034] Figure 1A illustrates an exemplary view depicting positioning of rectum, anal canal and puborectalis muscle in the squatting position. As can be seen from the figure, in the squatting position, the anal canal (ac) 106 is vertically aligned with rectum (re) 102 so that the passage resistance is minimized and the gravity pull on the faeces is maximized. Further, this position allows for flexing of hips that pulls the anal canal open in anterior and posterior directions. This makes defecation faster, easier and more complete. Further, squatting position relaxes the puborectalis muscle (pm) 104 which normally chokes the rectum in order to maintain continence.

[0035] Figure 1B illustrates an exemplary view depicting positioning of rectum, anal canal and puborectalis muscle in the sitting position. As can be seen from the figure, in the sitting position, the anal canal 106 is bent at right angle to the rectum 102 at rest and increases during defecation due to the relaxation of puborectalis muscle 104. At this junction, the puborectalis muscle 104 creates a kink to passage of bowel contents. Hence to empty the bowel, strain should be applied frequently.

[0036] Figure 2 illustrates an exemplary view depicting angular relationship between torso and femur in the natural squatting position. As can be seen from the figure, in the squatting position, the hips are flexed by 45° as shown by 204 with respect to the horizontal plane and the torso (tr) is bent by 22.5° with respect to the vertical axis, as shown by 202.

[0037] Figure 3 illustrates an exemplary perspective view of a toilet assembly in accordance with embodiments of the present disclosure. In an embodiment, the toilet assembly can include a toilet bowl means 312 having an upper opening and defining a longitudinal axis and a horizontal plane, at least one hip flexing means 304, at least one foot supporting means 306 operatively coupled to said at least one hip flexing means 304, and an

actuation means 310 to lay said at least one hip flexing means 304 at a predetermined angular relationship with respect to said horizontal plane defined by said toilet bowl upon actuation.

[0038] In an embodiment, a seat means can be provided as an integral part of the toilet bowl means 312. The seat means can include any sitting arrangement known to a person skilled in the art. In an embodiment, the seating means can be provided with two equal convex oval shaped bowls to provide support for the buttocks in squatting position. In another embodiment, the toilet bowl means 312 can include a seat means operatively coupled with said toilet bowl means. In an embodiment, the toilet assembly can be provided with a pair of hip flexing means 304. In an embodiment, the toilet assembly can be provided with a pair of foot supporting means 306. In an embodiment, the hip flexing means 304 can be detachably coupled to the foot supporting means 306 so as to maintain a fixed angular relationship between them. In an embodiment, the hip flexing means 304 and the foot supporting means 306 can be detachably coupled to the toilet assembly at a point, shown as 308, by any fastener means (e.g. a pin, dowel, screw or any other fastener means known to a person skilled in the art) such that said point 308 can act as a pivot point for the hip flexing means 304 and the foot supporting means 306.

[0039] In an embodiment, the toilet assembly can be provided with a back support 302. In an embodiment, the back support 302 can be provided at an angle of between 20° and 25°, preferably between 21° and 23°, and most preferably 22.5° with respect to the vertical plane. In an embodiment, the toilet assembly can be provided with an actuation means 310 (e.g. a handle assembly) to effect rotation of the hip flexing means 304 and the foot supporting means 306 about the pivot point 308. In another embodiment, said actuation means can include any or a combination of automatic, semi-automatic or manual actuation means, known to a person skilled in the art, to serve its intended purpose of effecting rotation of the hip flexing means 304 and/or the foot supporting means 306 about the pivot point 308.

[0040] In an embodiment, manual actuation means can further include a locking means to effect locking of said hip flexing means at a predetermined angular relationship with respect to the horizontal plane defined by the toilet bowl means and/or the seat means. In an embodiment, the predetermined angular relationship can be an angle of between 15° and 50°, preferably between 15° and 45° and most preferably 45° so that hips can be flexed to an optimum position with respect to the plane of the toilet bowl (or seat means).

[0041] In an embodiment, longitudinal axis of said at least one hip flexing means 304 can define an angle of between 10° and 35° with said longitudinal axis of said upper opening. Preferably, longitudinal axis of said at least one hip flexing means 304 can define an angle of

between 20° and 35° with said longitudinal axis of said upper opening. Most preferably, longitudinal axis of said at least one hip flexing means 304 can define an angle of approximately 30° with said longitudinal axis of said upper opening. In an embodiment, longitudinal axis of said at least one foot supporting means 306 defines an angle of between 10° and 35° with said longitudinal axis of said upper opening. Preferably, longitudinal axis of said at least one foot supporting means 306 can define an angle of between 20° and 35° with said longitudinal axis of said upper opening. Most preferably, longitudinal axis of said at least one foot supporting means 306 can define an angle of approximately 30° with said longitudinal axis of said upper opening.

[0042] Figure 4 illustrates an exemplary view depicting a user in the sitting position over the toilet assembly realized in accordance with embodiments of the present disclosure. As can be seen from the figure, when user takes a sitting position over the toilet assembly with thighs rested on the hip flexing means 304 and feet rested on the foot supporting means 306, (s)he adjusts torso to take support from the back support 302, which is provided at an angle of 22.5° with respect to the vertical plane and hence, the user need to leans forward at an angle of 22.5°. In this way, torso of the user is maintained at an angle of 22.5°, shown as 202, with respect to the vertical plane. Further, while in the sitting position, thighs of the user lie in a plane parallel to the horizontal plane.

[0043] Figure 5 illustrates an exemplary view depicting a user achieving the squatting position from the sitting position in accordance with embodiments of the present disclosure. As can be seen from the figure, when user actuates the actuating means 310, the hip flexing means 304 and foot supporting means 306 starts rotating about the pivot point 308 to lay them at an angular relationship with respect to the horizontal plane. Preferably, the rotation can be limited up to an angle of 45°. Most preferably, the rotation can be effected to an extent such that the hips of the user can be at maintained an angle of 45° with respect to the horizontal plane. Due to rotation of both the hip flexing means 304 and foot supporting means 306 around the pivot point 308 by the same amount, only hips are flexed and knees are not flexed. In this position, position of the hip flexing means 304 and foot supporting means 306 can be locked by the locking means.

[0044] Figure 6 illustrates an exemplary top view of the toilet bowl assembly in accordance with embodiments of the present disclosure. As can be seen from the figure, longitudinal axis of the foot supporting means, shown as 604, defines an angle of approximately 30° with said longitudinal axis of said upper opening 602. Hence, when the

user achieves the squatting position, the hips are abducted at an angle of 60° opening the anal canal in lateral direction.

[0045] In operation, the user first takes a sitting position on the toilet assembly with thighs resting on the hip flexing means 304 and feet resting on the foot supporting means 306, as illustrated in Figure 4, and then adjusts torso in the back support. Hence, the torso will be leaned forward by 22.5° . Then, user can actuate the handle assembly (in case of provision of a manual actuation means) to rotate the hip flexing means 304 and foot supporting means 306 around the pivot point 308. Due to rotation of both the hip flexing means 304 and foot supporting means 306 around the pivot point 308 by the same amount, only hips are flexed and knees are not flexed. Upon reaching at an optimum angle, rotation of the hip flexing means 304 and foot supporting means 306 is stopped and the position of the hip flexing means 304 and foot supporting means 306 can be locked by the locking means. At this position, hips of the user are maintained at an angle of 45° with respect to the horizontal plane. By way of the angular relationship between longitudinal axis defined by toilet bowl means and longitudinal axis of the hip flexing means 304 and foot supporting means 306, the hips of the user are abducted at an angle of 60° . In this position (squatting position), as the torso is leaned forward (22.5° with respect to the vertical plane), the rectum, which is anchored by its fascia to the sacrum and coccyx also follows the same path. Apparently, the rectum assumes vertical direction. As the hips are flexed, anal canal also follows the same path. This is caused by the forward movement of the perineal skin and fascia through which the anal canal passes. At this hips flexing position with respect to the horizontal plane, anal canal reaches to vertical position i.e. in the above position (torso leaned forward by 22.5° with respect to the vertical plane and hips are flexed by 45° with respect to the horizontal plane) both rectum and the anal canal are vertically aligned which is the optimum position for defecation where the passage resistance is minimum and the gravity effect on the feces is maximum. Flexing the hips pulls the anal canal open in anterior and posterior directions. A strong band of fascia attaches the external anal sphincter to the tip of coccyx and this becomes taught as the anal canal is drawn forward. Once this happened, further forward movement of the surrounding soft tissue will tend to pull apart the anterior and posterior walls of the anal canal. Abduction of the hips at an angle of 60° opens the anal canal in lateral direction. In this way, the anal canal is opened both in anterior, posterior directions and in lateral directions so that faeces passage becomes easy.

[0046] While the foregoing describes various embodiments of the invention, other and further embodiments of the invention may be devised without departing from the basic scope thereof. The scope of the invention is determined by the claims that follow. The invention is not limited to the described embodiments, versions or examples, which are included to enable a person having ordinary skill in the art to make and use the invention when combined with information and knowledge available to the person having ordinary skill in the art.

ADVANTAGES OF THE INVENTION

[0047] The present disclosure provides a toilet assembly that overcomes one or more disadvantages associated with conventional toilet assemblies.

[0048] The present disclosure provides a sitting toilet assembly that can enable a user to achieve squatting position from a sitting position without flexing the knees.

[0049] The present disclosure provides a toilet assembly that can find practical utility for all users including older, obese, debilitated and knee joint patients.

We Claim –

1. A toilet assembly comprising:
 - a toilet bowl means having an upper opening and defining a longitudinal axis and a horizontal plane;
 - at least one hip flexing means;
 - at least one foot supporting means operatively coupled to said at least one hip flexing means; and
 - an actuation means to lay said at least one hip flexing means at a predetermined angular relationship with respect to said horizontal plane defined by said toilet bowl upon actuation;wherein, a user on taking a sitting position on said toilet assembly with thighs of said user rested on said at least one hip flexing means and feet of said user rested on said at least one foot supporting means, and upon actuation of said actuation means, allows said user to achieve a squatting position without flexing knees.
2. The toilet assembly of claim 1, wherein said toilet assembly further comprises a back support.
3. The toilet assembly of claim 2, wherein said back support is provided at an angle of between 20° and 25° with respect to a vertical plane.
4. The toilet assembly of claim 1, wherein said actuation means comprises any or a combination of an automatic, a semi-automatic and a manual actuation means.
5. The toilet assembly of claim 1, wherein said actuation means comprises a manual actuation means comprising a handle assembly.
6. The toilet assembly of claim 5, wherein said manual actuation means further comprises a locking means to effect locking of said at least one hip flexing means at said predetermined angular relationship.
7. The toilet assembly of claim 1, wherein said predetermined angular relationship comprises an angle of between 15° and 50°.

8. The toilet assembly of claim 1, wherein longitudinal axis of said at least one hips supporting means defines an angle of between 10° and 35° with said longitudinal axis of said upper opening.
9. The toilet assembly of claim 1, wherein longitudinal axis of said at least foot supporting means defines an angle of between 10° and 35° with said longitudinal axis of said upper opening.
10. A toilet assembly comprising:
 - a toilet bowl means having an upper opening and defining a horizontal plane;
 - a pair of hip flexing means;
 - a pair of foot supporting means operatively coupled to said pair of hip flexing means; and
 - an actuation means to lay said pair of hip flexing means at an angle of between 15° and 50° with respect to said horizontal plane defined by said toilet bowl upon actuation;wherein, a user on taking a sitting position on said toilet assembly with thighs of said user rested on said pair of hip flexing means and feet of said user rested on said pair of foot supporting means, and upon actuation of said actuation means, allows said user to achieve a squatting position without flexing knees.

100 →

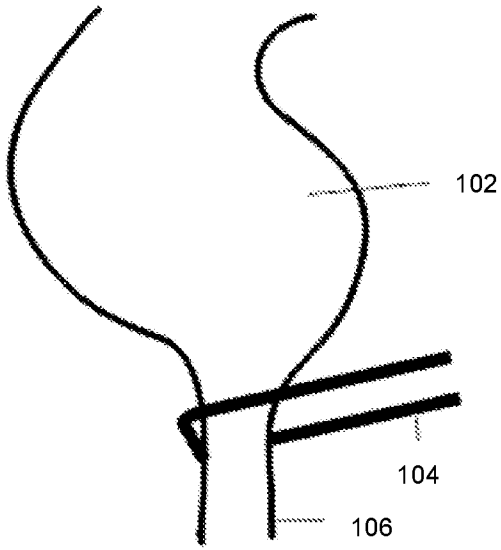


FIG. 1A

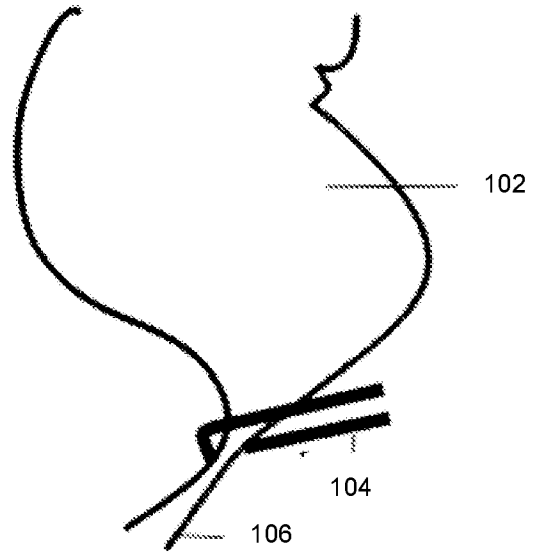


FIG. 1B

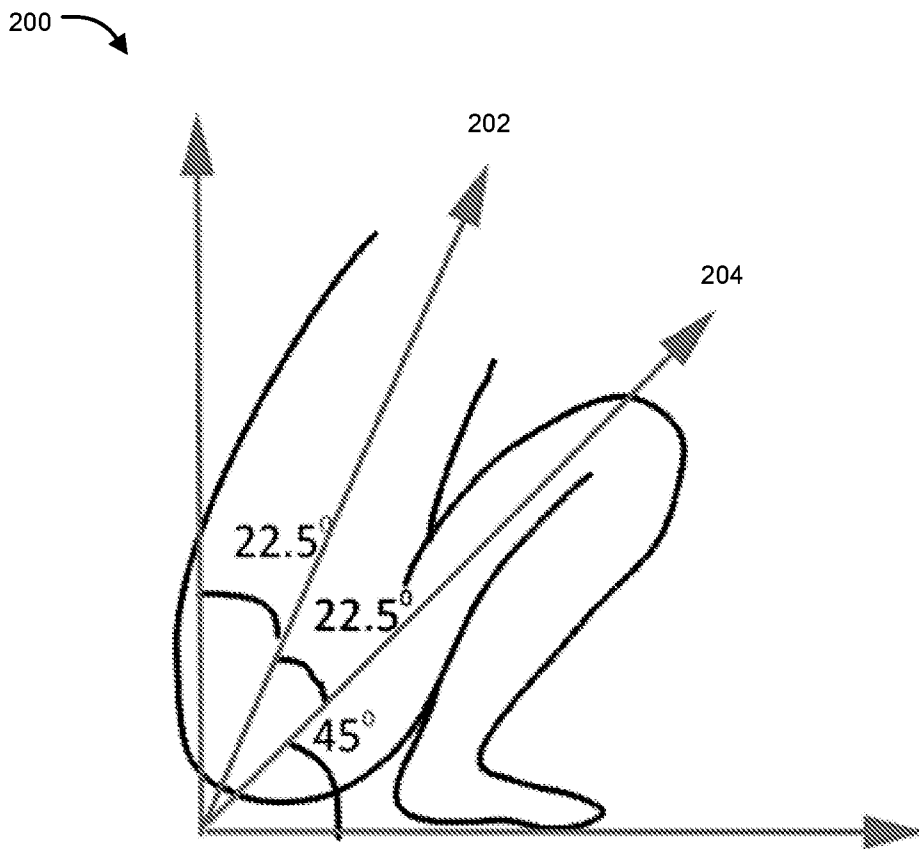


FIG. 2

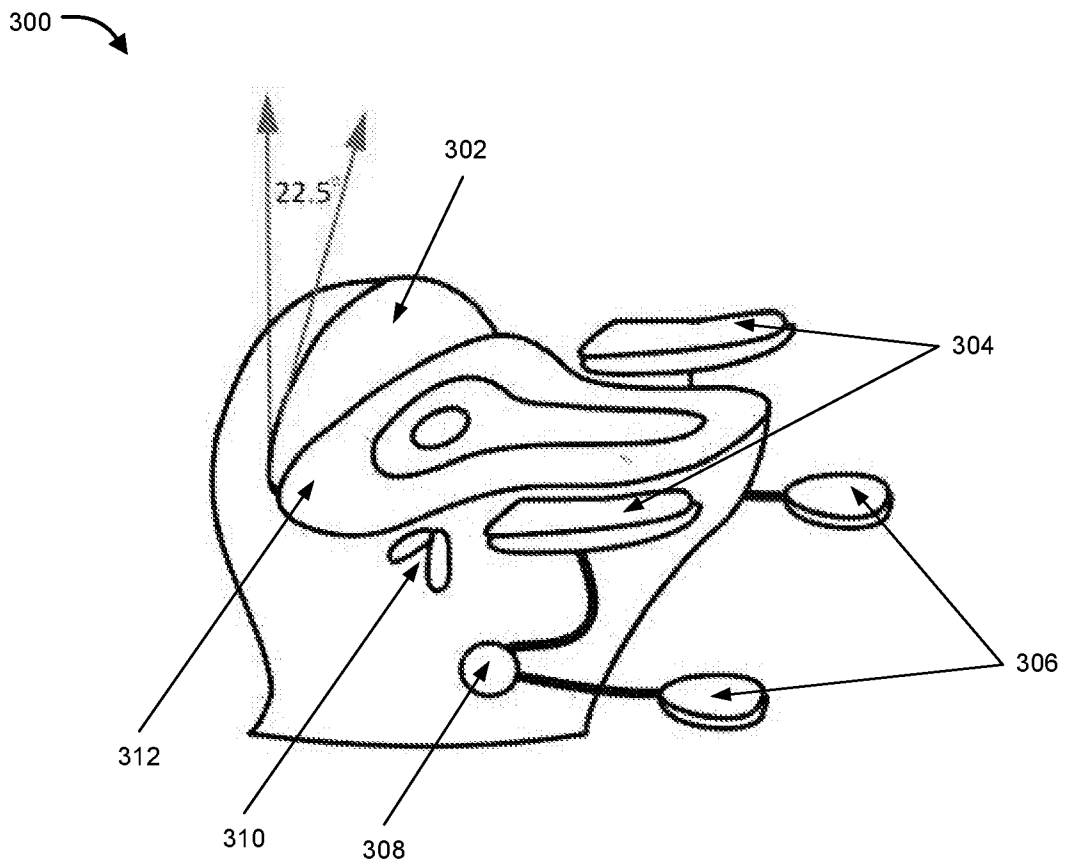


FIG. 3

400 ↗

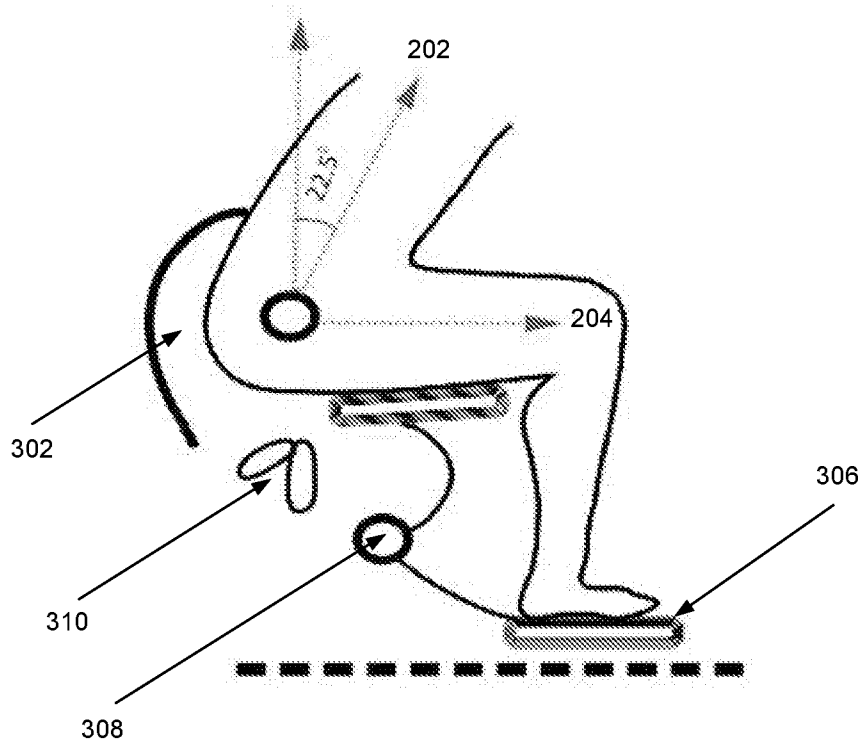


FIG. 4

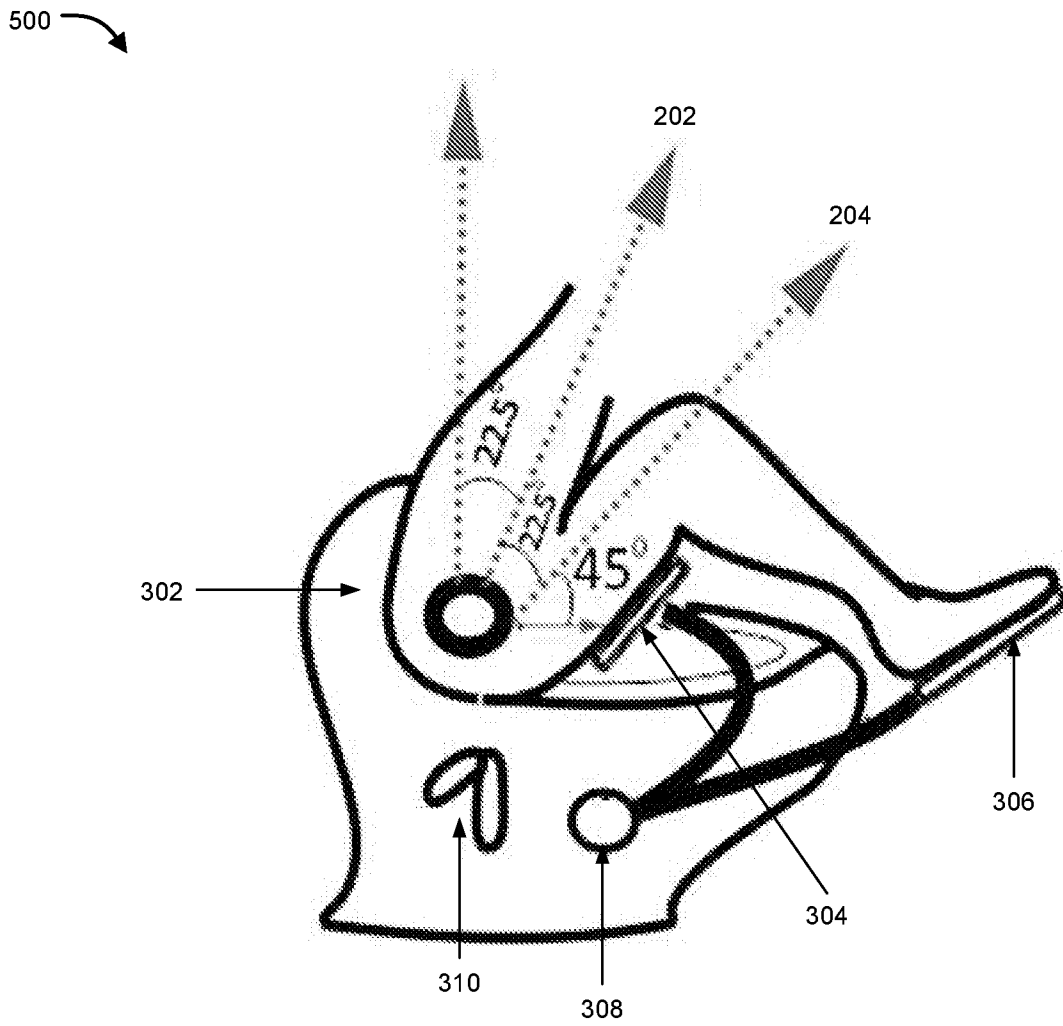


FIG. 5

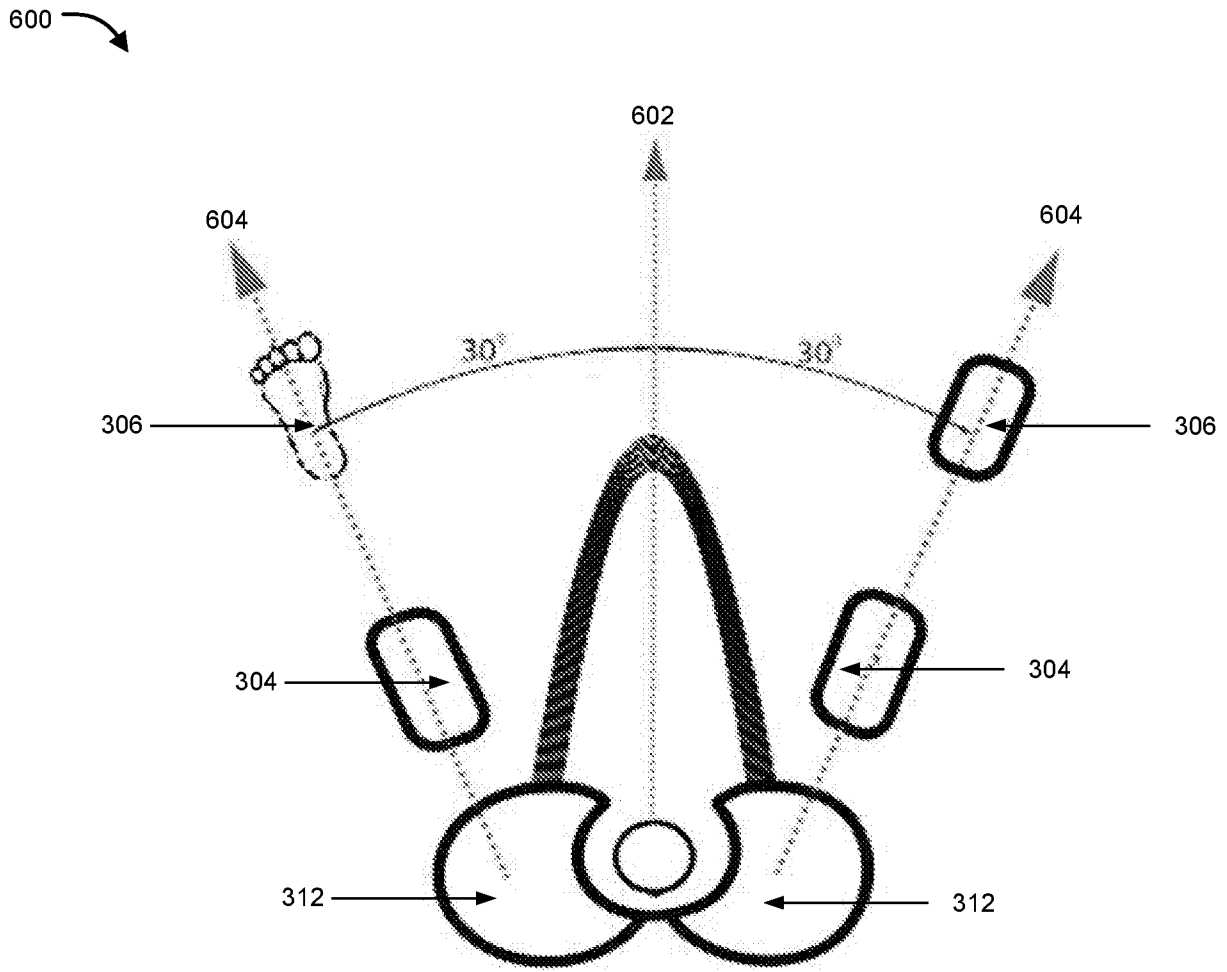


FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2016/053526

<p>A. CLASSIFICATION OF SUBJECT MATTER A47K17/02 Version=2016.01</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>												
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) A47K</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Patseer, IPO Internal Database.</p>												
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X</td> <td>US 5809583 A (PUCCIANI FILIPPO) 22 September 1998 see claims and abstract.</td> <td>1-10</td> </tr> <tr> <td>X</td> <td>US 20130174337 A1 (FAGRE ENTPR LLC.) 11 July 2013 see claims and abstract.</td> <td>1-10</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X	US 5809583 A (PUCCIANI FILIPPO) 22 September 1998 see claims and abstract.	1-10	X	US 20130174337 A1 (FAGRE ENTPR LLC.) 11 July 2013 see claims and abstract.	1-10	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X	US 5809583 A (PUCCIANI FILIPPO) 22 September 1998 see claims and abstract.	1-10										
X	US 20130174337 A1 (FAGRE ENTPR LLC.) 11 July 2013 see claims and abstract.	1-10										
<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.</p>												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>“A” document defining the general state of the art which is not considered to be of particular relevance</td> <td>“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</td> </tr> <tr> <td>“E” earlier application or patent but published on or after the international filing date</td> <td>“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</td> </tr> <tr> <td>“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)</td> <td>“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</td> </tr> <tr> <td>“O” document referring to an oral disclosure, use, exhibition or other means</td> <td>“&” document member of the same patent family</td> </tr> <tr> <td>“P” document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			“A” document defining the general state of the art which is not considered to be of particular relevance	“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	“E” earlier application or patent but published on or after the international filing date	“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	“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)	“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	“O” document referring to an oral disclosure, use, exhibition or other means	“&” document member of the same patent family	“P” document published prior to the international filing date but later than the priority date claimed	
“A” document defining the general state of the art which is not considered to be of particular relevance	“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											
“E” earlier application or patent but published on or after the international filing date	“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											
“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)	“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											
“O” document referring to an oral disclosure, use, exhibition or other means	“&” document member of the same patent family											
“P” document published prior to the international filing date but later than the priority date claimed												
<p>Date of the actual completion of the international search 21-10-2016</p>		<p>Date of mailing of the international search report 21-10-2016</p>										
<p>Name and mailing address of the ISA/ Indian Patent Office Plot No.32, Sector 14, Dwarka, New Delhi-110075 Facsimile No.</p>		<p>Authorized officer Ashfaque Ahemad Telephone No. +91-1125300200</p>										

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IB2016/053526

Citation	Pub.Date	Family	Pub.Date
US 5809583 A	22-09-1998	EP 0750875 A1	02-01-1997
		CA 2179073 A1	27-12-1996
US 20130174337 A1	11-07-2013	WO 2013106299 A1	18-07-2013