

无需用水冲洗的座便器组件

技术领域

本发明涉及一种座便器,更具体地涉及一种无需用水冲洗的座便器。

背景技术

现有的厕所和座便器大都需要用水冲洗,一旦缺水,即会造成严重污染。因此在无水、缺水或流动作业的条件下,现有的厕所或座便器就不适用了。

为解决这种问题,美国专利 4025969 提出了一种自动清洁的无水厕所,它由盛便体、盛便体之下的传动箱、传动箱之下的处置箱构成,传动箱内设有两个相对转动并起密封作用的下拉引轮,一个筒形塑料薄膜从盛便体上方的坐位之下引入盛便体内腔,并经盛便体下出口、下拉引轮及处置箱入口而进入处置箱。但盛便体上方的坐位不卫生,易引起交叉感染。

发明内容

本发明的目的即是提供一种卫生的无需用水冲洗的座便器组件。

为实现上述目的,本发明的一种不需用水冲洗的座便器组件,包括:一座便器,它具有一上部入口和一下部入口,入口处有一座圈;一长筒形状的塑料袋;一位于座便器下部出口之下的步进拉袋装置;以及一位于拉袋装置下方的具有一入口的处置箱;其特征在于,所述长筒形塑料袋的一端位于座便器外,另一端绕过所述座圈的表面,沿着座便器入口内侧向下经过所述步进拉袋装置而从处置箱入口进入处置箱。

由于本发明中的塑料袋绕过座圈上表面后才进入座便器,当每次使用后步进拉袋装置将塑料袋往下拉一段距离时,总有新的一段塑料袋位于座圈之上,防止了交叉感染。

为了更好地理解本发明的特点及优点,下面将结合附图对本发明的一较佳实施例进行详细描述。

确认本

附图概述

- 图 1 是本发明较佳实施例的剖视图；
图 2 是沿图 1 中 A—A 向的部分剖视图；
图 3 是沿图 1 中 C—C 向的部分剖视图。

本发明的最佳实施方式

请参看图 1, 本发明的无需用水冲洗的座便器组件主要由座便器部分、步进拉袋装置部分和处置箱部分组成。

其中的座便器部分包括一座便器 1, 它具有一上部入口 2 和一下部出口 3, 在上部入口 2 上有一座圈 4, 供使用者坐在其上。

在座便器 1 下面是步进拉袋装置, 它位于一传动箱 5 内。步进拉袋装置包括一对安装于支架 23 上的拉袋轮 6 及其步进驱动装置。传动箱 5 具有一上部入口 8 和一下部出口 9。

在传动箱 5 下面是一处置箱 10, 其上部有入口与传动箱 5 的下部出口 9 相接。

一长筒形降解塑料袋 11 的一端位于座便器 1 外的一护袋筒 12 内, 另一端绕过座圈 4 而经座便器 1 的上部入口 2 进入座便器 1 内腔, 并向下延伸而从下部出口 3 进入传动箱 5, 再经过拉袋轮 6 而从传动箱 5 的下部出口 9 进入处置箱 10。

本实施例中, 拉袋轮 6 为两端大、中间小的腰鼓形状(见图 2), 塑料袋 11 夹在这对拉袋轮 6 的端部之间从而随着拉袋轮 6 的滚动而被向下拉。

由于拉袋轮 6 具有中部渐细的腰鼓形状, 因此, 塑料袋 11 内的粪便可在重力作用下而易于集中在两个拉袋轮 6 的较细的中间部分之间。

参看图 3, 在两个拉袋轮 6 上分别固定有两个夹板 12a、12b, 夹板 12a、12b 的形状与拉袋轮 6 的腰鼓形状互补, 从而具有沿着拉袋轮 6 轴向的外缘 13。两个拉袋轮 6 的各自的一个夹板 12a、12b 的外缘 13 相贴合而夹住了从其间穿过的塑料袋 11。

拉袋轮 6 由步进驱动装置驱动, 在本实施例中, 驱动装置由蜗杆、蜗轮及传动齿轮组成, 在步进电机(未示)的作用下, 可驱动拉袋轮 6 沿相反方向转动半周。开关可设置在适当位置, 比如可设置于座圈 4 下, 每一

次用便之后立起时即接通开关一次。这样,拉袋轮 6 即可将塑料袋 11 拉下一段距离而与其内的粪便一起落入处置箱 10 内。而另一个夹板 12a、12b 在随各自的拉袋轮 6 转动半周后处于相互贴合的位置,以封住塑料袋 11。

夹板 12a、12b 上还可设有加热装置来焊合夹在其间的塑料袋。

当然,每个拉袋轮 6 也可只设一个夹板,这样,每次触动步进驱动装置,使拉袋 6 转动一周,就能完成一次下拉及夹板的夹合动作。

除了电动之外,步进驱动装置也可采用脚踏致动形式。

在传动箱 5 内设有密封挡板 17,以将拉袋轮 6 封装在其内使之与驱动装置隔开。

在处置箱 10 的底部装有轮子 18,便于座便器组件的流动作业。

再请参看图 1,在座圈 4 下方的座便器 1 内还设有一扩张环 14,塑料袋 11 从座便器 1 上部入口 2 进入后从扩张环 14 绕过而向下延伸。扩张环 14 的直径大于入口 2,因此使塑料袋 11 在进入后能张开,不会发生贴合而影响使用。同时,也可以使用较大的塑料袋,以缩短从入口 2 至拉袋轮 6 之间的距离,从而使整个组件的整体高度不会太高。在扩张环 14 上装有很多导轮 15,用来引导塑料袋 11 并有利于塑料袋 11 的向下移动。

权利要求书

1. 一种不需用水冲洗的座便器组件,包括:一座便器,它具有一上部入口和一下部入口,入口处有一座圈;一长筒形状的塑料袋;一位于座便器下部出口之下的步进拉袋装置;以及一位于拉袋装置下方的具有一入口的处置箱;其特征在于,所述长筒形塑料袋的一端位于座便器外,另一端绕过所述座圈的表面,沿着座便器入口内侧向下经过所述步进拉袋装置而从处置箱入口进入处置箱。

2. 如权利要求1所述的座便器组件,其特征在于,所述步进拉袋装置包括一对并列布置的拉袋轮,所述拉袋轮为两端大而中间小的腰鼓形状;还包括驱动拉袋轮动的步进驱动装置;所述塑料袋从这对拉袋轮之间经过并且由拉袋轮两端部夹紧。

3. 如权利要求2所述的座便器组件,其特征在于,所述每个拉袋轮的一侧固定有一夹板,其形状与拉袋轮的腰鼓形状互补而具有一沿轴向延伸的外缘;当拉袋轮停止转动时,两个拉袋轮上的夹板的外缘相互贴合而夹住从其间经过的塑料袋;所述步进驱动装置的每次驱动使这对拉袋轮沿相反方向分别转动一周。

4. 如权利要求2所述的座便器组件,其特征在于,所述每个拉袋轮固定有两个沿径向相反的夹板,每个夹板的形状与拉袋轮腰鼓形状互补而具有一沿轴向延伸的外缘;当拉袋轮停止转动时,一个拉袋轮的一个夹板的外缘与另一个拉袋轮的一个夹板的外缘相贴合而夹住从其间经过的塑料袋;所述步进驱动装置的每次驱动使每个拉袋轮旋转半周。

5. 如权利要求1或2或3所述的座便器组件,其特征在于,它还包括一位于座便器内、座圈之下的扩张环,其直径大于座便器的入口;所述塑料袋经扩张环外周面向拉袋装置延伸。

6. 如权利要求5所述的座便器组件,其特征在于,所述扩张环有多个沿其周边设置的用来引导塑料袋的导轮。

7. 如权利要求3或4所述的座便器组件,其特征在于,所述夹板上设有可焊合塑料袋的加热装置。

8. 如权利要求7所述的座便器组件,其特征在于,还包括一包围着座便器的护袋筒,所述塑料袋在座便器之外的部分位于此护袋筒内。



9. 如权利要求 3 或 4 所述的座便器组件,其特征在于,所述的步进拉袋装置位于一传动箱内,该传动箱有一上部入口和一下部出口,所述上部入口与座便器的下部出口相接,所述下部入口与处置箱的入口相接。

10. 如权利要求 9 所述的座便器组件,其特征在于,所述处置箱的底部设有轮子。

11. 如权利要求 3 或 4 所述的座便器组件,其特征在于,所述的步进驱动机构是电动的。

12. 如权利要求 3 或 4 所述的座便器组件,其特征在于,所述的步进驱动机构是脚踏致动的。



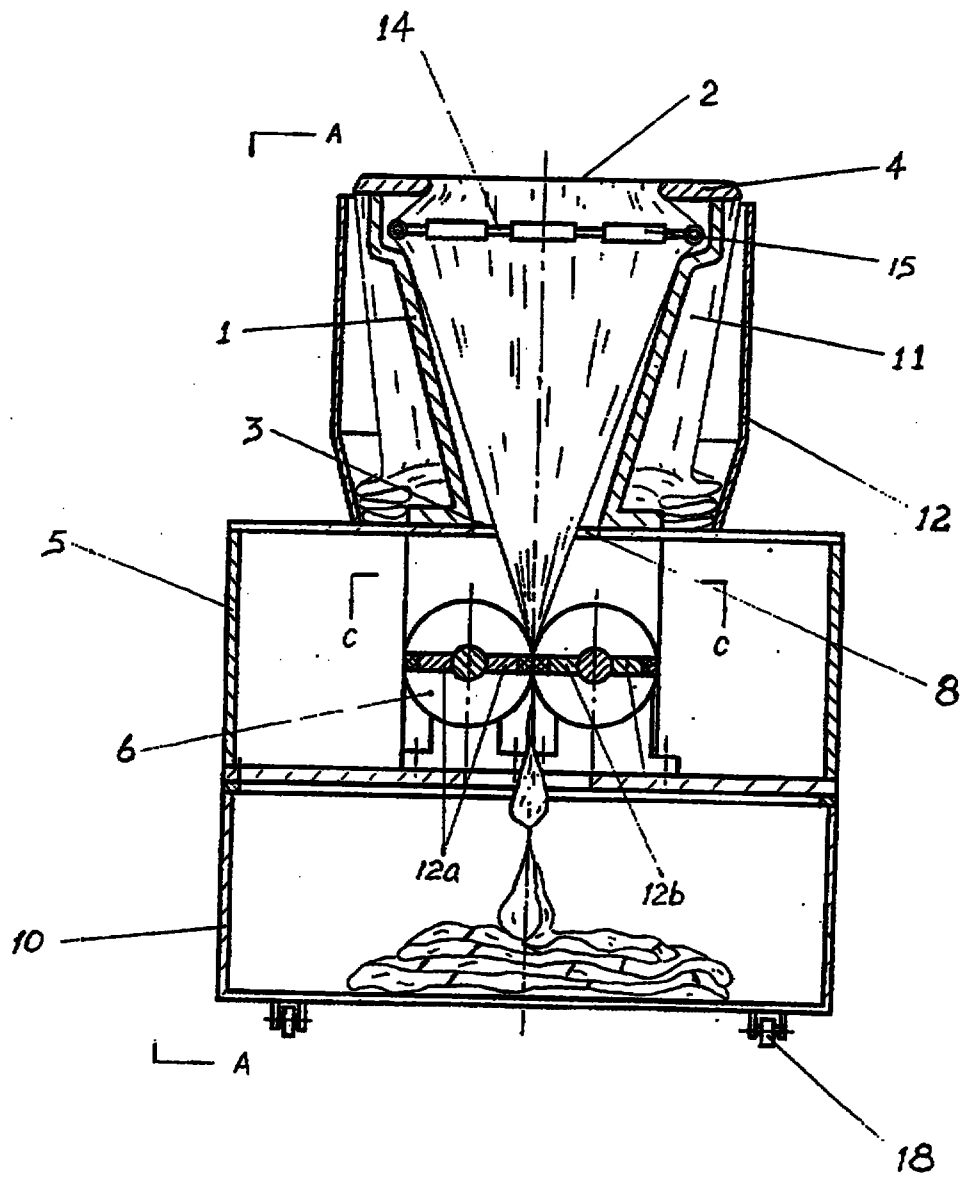


图 1

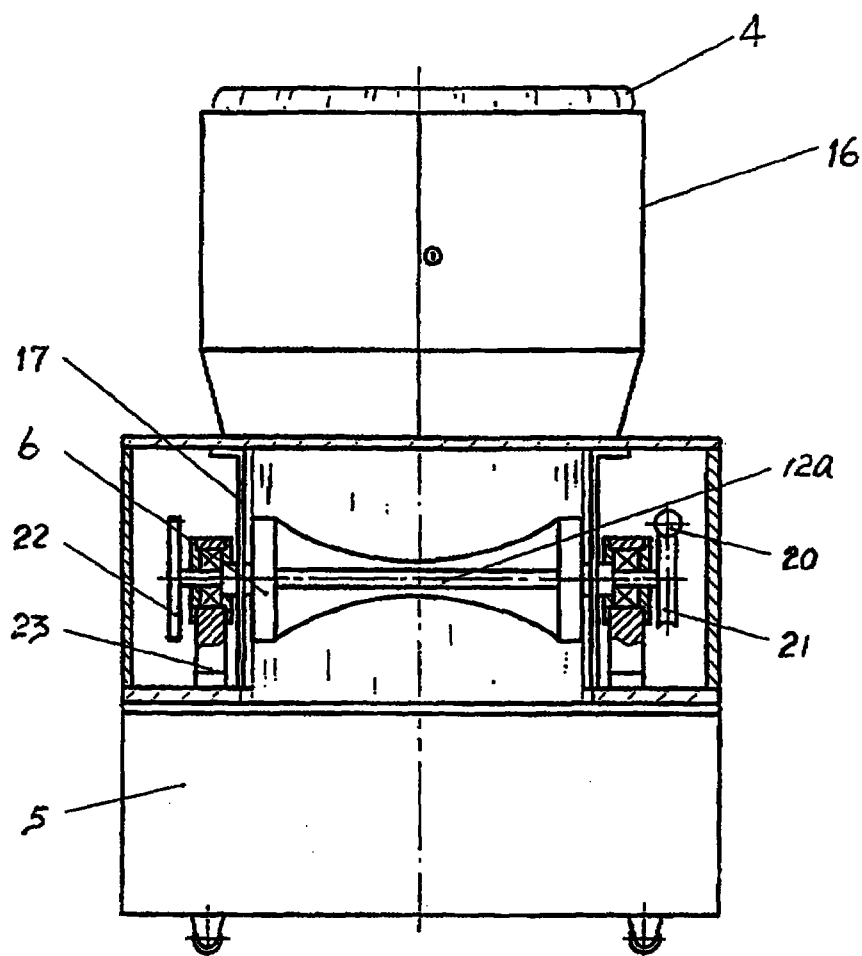


图 2

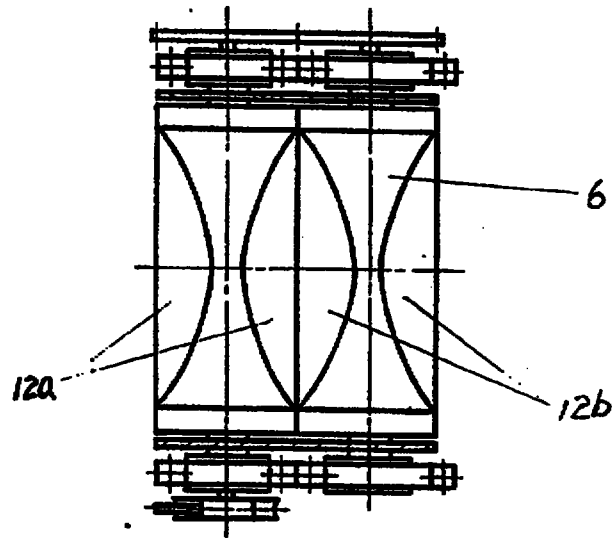


图 3

WATERLESS CLOSET ASSEMBLY

FIELD OF THE INVENTION

The present invention relates to a closet, particularly relates to a waterless closet that does not need water to flush.

BACKGROUND OF THE INVENTION

The prior art toilet and closet need water to flush. Once there is no water or there is no enough water, it will cause serious environmental pollution. Accordingly, the prior art toilet and closet are not suitable for use in a waterless place, in a place lacking water or in a movable toilet.

To improve the prior art closet, US patent No. 4025969 disclosed a sanitary closet that may be cleaned automatically without using water. This closet consists of a closet, a transmission case under the closet and a disposal container. There are two guiding wheels located inside the transmission case, which are used to feed downwards and tightly close a plastic hose, each of the wheel may rotate in opposite direction respectively. A tube-shaped plastic hose goes into the upper entrance of the closet from the bottom of an annular seat fixed on the top of the closet, and then through the guiding wheels and the entrance of the disposal container gets into the disposal container. The drawback of the prior art is that the annular seat can not meet the requirements of sanitation and likely causes cross infection among users.

THE SUMMARY OF THE INVENTION

Therefore, the objective of this invention is to provide a waterless closet assembly that needs no water and can meet the requirements of sanitation.

The waterless closet assembly in accordance with the present invention includes a closet having an upper entrance, a lower exit, an annular seat located on the top of the upper entrance, a long tube-shaped plastic hose, and a step-by-step feeding device. One end of the plastic hose is located outside the closet. The other end of the plastic hose goes over the upper surface of the annular seat, and passes through the inside of the inlet of the closet and the step-by-step feeding device, then is fed into the disposal container from its entrance.

After the closet being used each time, the step-by-step

feeding device feeds the used section of the plastic hose into the disposal container and a new section of the plastic hose is then put on the annular seat to keep the closet clean and to prevent the users from cross infection.

The further merits and details of this invention are given with reference to the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

Figure 1 is a cross-section view of the waterless closet assembly in accordance with this invention;

Figure 2 is a cross-section view cut along A---A;

Figure 3 is a cross-section view cut along C---C.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in Fig 1, the waterless closet assembly mainly comprises a closet, a step-by-step feeding device and a disposal container.

The closet 1 has an upper entrance 2, a lower exit 3 and an annular seat for users fixed on the top of the upper entrance 2.

A step-by-step feeding device feeding downwards a plastic hose is located in a transmission case 5 under the closet 1. The step-by-step feeding device includes a pair of rollers 6 mounted on the support 23 and a step-by-step driving means. The transmission case 5 has an upper entrance 8 and a lower exit 9.

A disposal container 10 having an upper entrance connected with the lower exit 9 of the transmission case 5 is located under the transmission case 5.

One end of a long tube-shaped plastic hose, which can dissolve in nature, is located outside the closet 1 and in a barrel 12 put round the closet 1. The other end of the plastic hose goes over the upper surface of the annular seat 4 and goes into the inside of the closet 1 through the upper entrance 2 of the closet 1; the other end of the plastic hose then goes into the transmission case 5 from the lower exit 3 of the closet 1, and finally goes into the disposal container through the rollers 6 and the lower exit 9 of the transmission case 5.

As shown in Fig 2, each roller in accordance with this invention is bigger at the two ends and thinner in the middle part . The plastic hose is clamped tightly by the two rollers; accordingly, the plastic hose is pulled downwards when the rollers turn.

Because of said shape of the rollers, the excrement in the plastic hose easily gathers between the thinner parts of the two rollers under the gravitational force.

As shown in Fig 3, a clamping plate 12a and a clamping plate 12b are fixed on the two rollers respectively. The shape of the two plates are just the reversed one of the two rollers. The outer edges 13 of the clamping plates 12a and 12b clamp the plastic hose 11 passing through.

The rollers 6 are driven by a step-by-step feeding device. In accordance with this embodiment of the invention, the step-by-step feeding device includes a worm, worm gears and transmission gears and the step-by-step motor (which is not shown in the drawings). The step-by-step motor drives the two rollers 6 to turn half circle in reverse direction respectively each time. The switch may be fixed in a proper place, such as in the place under the annular seat 4. After using the toilet, the user may turn on the switch once. Thus the rollers 6 pull down the plastic hose for a certain length and the section of the plastic hose with excrement will fall into the disposal container, while the clamping plate 12a and the clamping plate 12b turn half circle respectively and meet together to seal the plastic hose 11.

Heating devices can be added and fixed on the clamping plate 12.a and clamping plate 12b to seal the opening of the plastic hose.

Each roller may have one clamping plate, so when the switch of the step-by-step feeding device is turned on, the rollers 6 turn one circle, and complete the action of pulling down and clamping the plastic hose 11.

The step-by-step feeding device may be driven not only by a motor but also by a user's stepping on a pedal of the device.

A sealing plate 17 is fixed in the transmission case 5 so as

to keep the rollers 6 mounted in the case and separates the rollers from the step-by-step feeding device.

Wheels 18 are fixed on the bottom of the disposal container so that the whole closet assembly can be moved easily.

As shown in Fig 1, an expansion ring 14 is located in the closet 1 under the annular seat 4, the plastic hose 11 goes into the closet from its upper entrance and goes downwards passing through the expansion ring 14. The diameter of the expansion ring 14 is bigger than the entrance 2, so the plastic hose 11 can be opened and will not stick together to affect the use of the closet. A bigger plastic hose may be used in order to shorten the distance between the entrance 2 and the rollers 6 so that the closet is not too high. A number of guide wheels 15 can be fixed on the expansion ring 14 to guide the plastic hose 11, which helps the plastic hose go down.

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What is claimed is

1. A waterless closet assembly comprising, a closet with an upper entrance and lower exit, an annular seat on the top of the upper entrance, a long tube-shaped plastic hose, a step-by-step driving device under the lower exit of the closet, a disposal container with an entrance under the step-by-step driving device, and a plastic hose;

wherein, one end of the plastic hose is located outside the closet; the other end of the plastic hose goes over the upper surface of the annular seat, and passes through the inside of the inlet of the closet and the step-by-step feeding device, then is fed into the disposal container from its entrance.

2. A waterless closet assembly as defined in claim 1, wherein, the step-by-step feeding device includes a pair of rollers placed side by side for pulling downwards the plastic hose, each roller is bigger at both ends and thinner in the middle part, and a stepping motor; the plastic hose goes through between the two rollers and the ends of the rollers hold tightly the plastic hose.

3. A waterless closet assembly as defined in claim 2, wherein a clamping plate is fixed on one side of each roller, the shape of the clamping plate is the reversed shape of the roller so that it has an extending outer edge along the axial; when the rollers stop turning, the clamping plates meet together to tightly clamp the plastic hose passing through; the step-by-step feeding device drives the rollers to turn a circle in reverse direction respectively each time.

4. A waterless closet assembly as defined in claim 2, wherein each roller has two clamping plates that are fixed on the opposite sides of the roller, the shape of each clamping plate is reversed shape of each roller so that each clamping plate has an extending outer edge along the axial, and when the rollers stop turning, the outer edges of the two rollers meet with each other tightly and clamp the plastic hose passing through; the step-by-step feeding device drives each roller to turn half circle each time.

5. A waterless closet assembly as defined in claim 1, 2 or 3, wherein, it further comprising an expansion ring under the



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annular seat and in the closet, the diameter of the expansion is bigger than the entrance of the closet; the plastic hose goes to the step-by-step feeding device through outer surface of the expansion ring.

6. A waterless closet assembly as defined in claim 5, wherein a number of guiding wheels that are used to guide the plastic hose are fixed on the expansion ring.

7. A waterless closet assembly as defined in claim 3 or 4, wherein a heating device is fixed on the clamping plates to seal the plastic hose.

8. A waterless closet assembly as defined in claim 7, further comprising a barrel put round the closet, and the part of the plastic hose that is outside the closet is located in the barrel.

9. A waterless closet assembly as defined in claim 3 or 4, wherein, the step-by-step feeding device is located in the transmission case, the transmission case has an upper entrance and a lower exit, the upper entrance is connected with the lower exit of the closet and the lower exit is connected with the entrance of the disposal container.

10. A waterless closet assembly as defined in claim 9, wherein there are wheels fixed on the bottom of the disposal container.

11. A waterless closet assembly as defined in claim 3 or 4, wherein the step-by-step feeding device is powered by an electrical motor.

12. A waterless closet assembly as defined in claim 3 or 4, wherein said step-by-step feeding device is powered by user stepping on the pedal of the device.

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ABSTRACT

A waterless closet assembly comprises a closet having an annular seat, a step-by-step feeding device mounted below the closet, and a disposal container mounted below the step-by-step feeding device. One end of a plastic hose is arranged in the outside of the closet. The other end goes over the upper surface of the annular seat, passes through the inlet of the closet, a ring for extending the plastic hose, and the feeding device, then is fed into the disposal container. The feeding device includes a pair of rollers and a step-by-step driving means. Clamping plates are fixed to the rollers respectively for clamping the plastic hose passing between them and sealing it. After each use, the rollers feed a section of the plastic hose used into the disposal container, and a section of new plastic hose is wound round the annular seat to keep the closet clean and to prevent the users from cross infection.

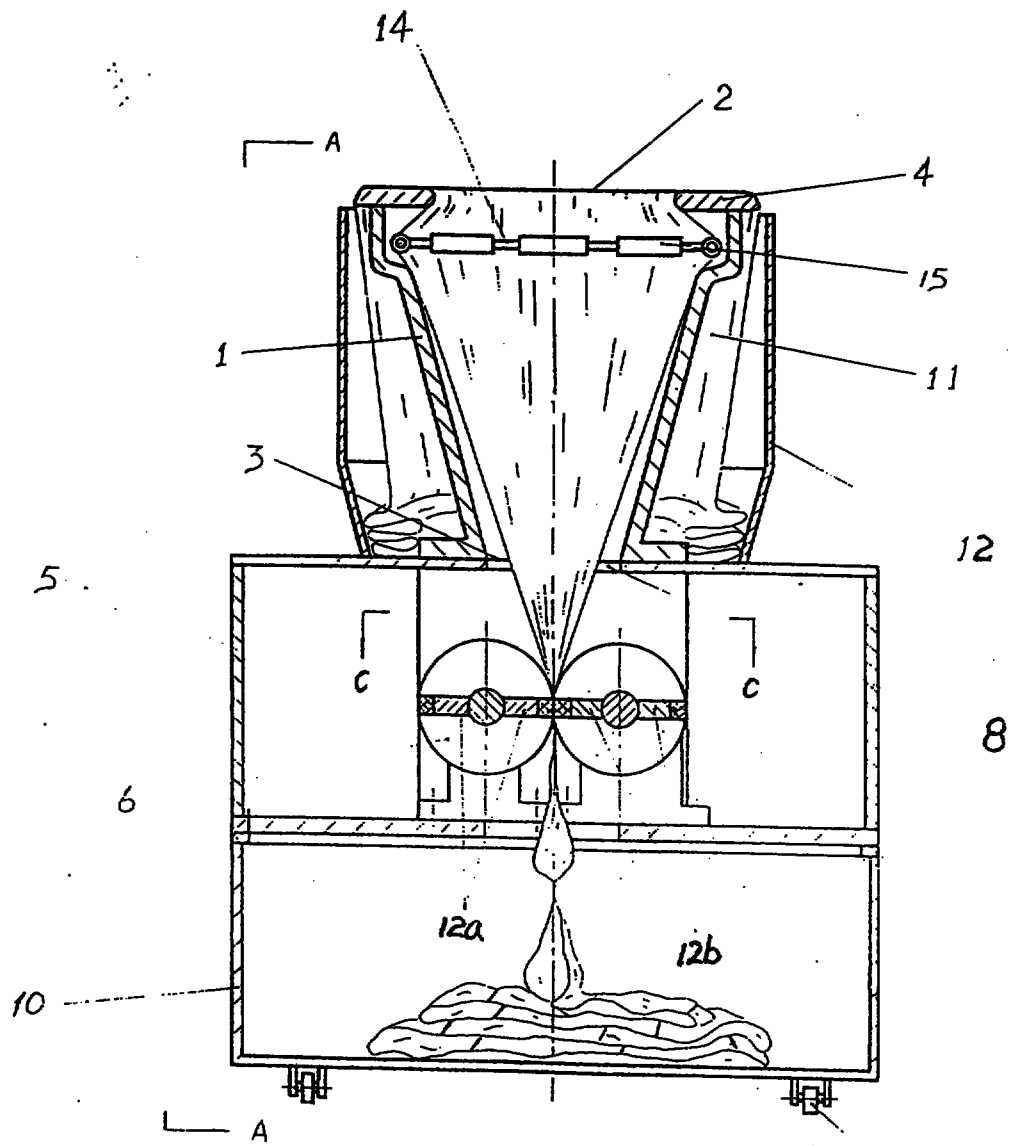


Fig 1

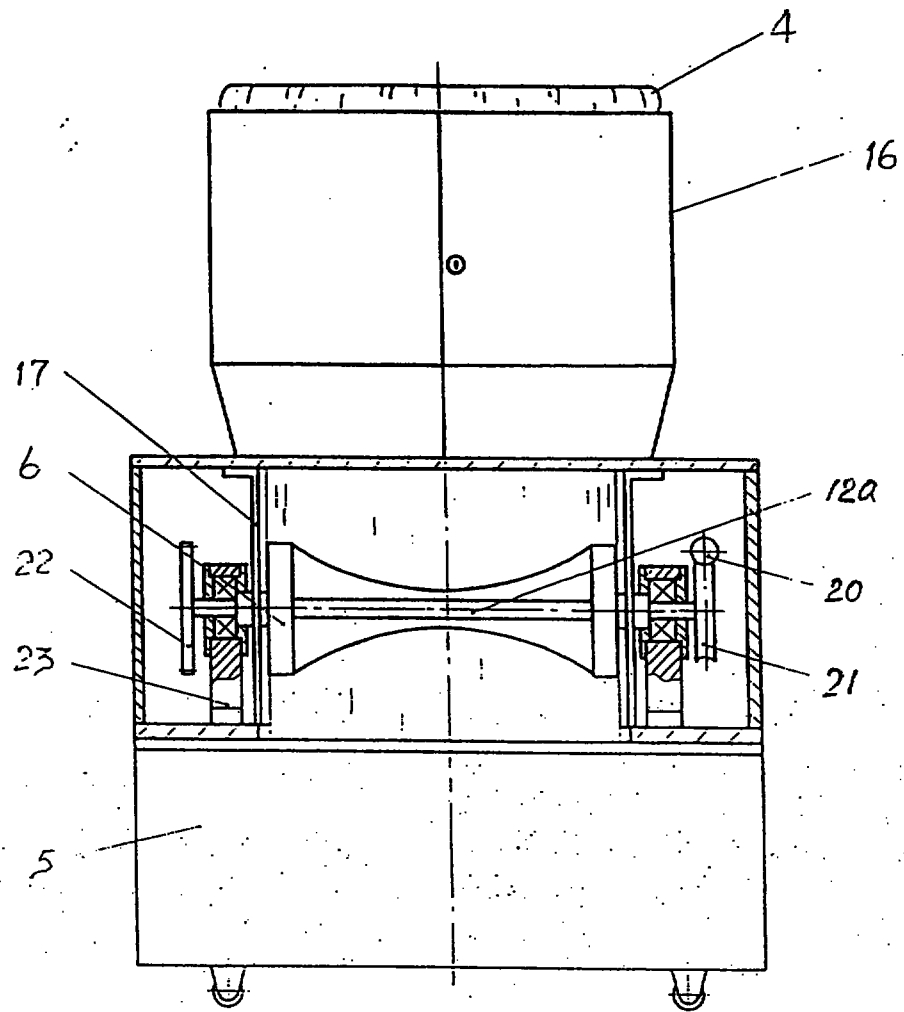


Fig 2

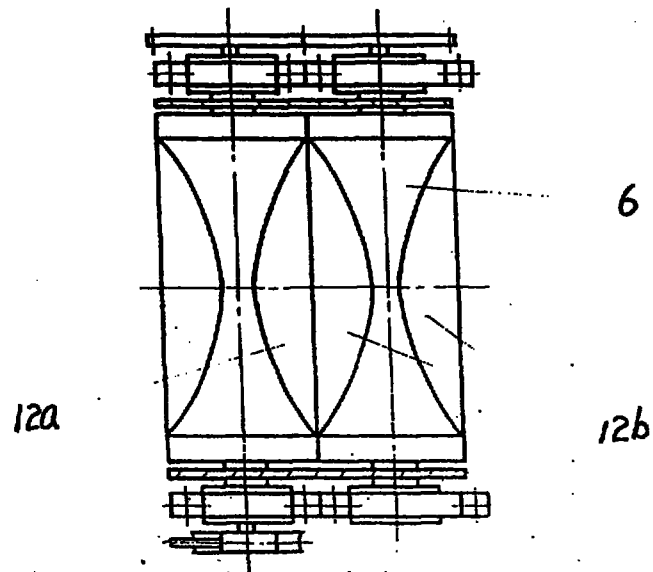


Fig 3

Amended claims as an annex of the International Preliminary Examination Report

What is claimed is

1. A waterless closet assembly comprising, a closet with an upper entrance and lower exit, an annular seat on the top of the upper entrance, a long tube-shaped plastic hose, a step-by-step feeding device under the lower exit of the closet, a disposal container with an entrance under the step-by-step driving device, and a plastic hose;

wherein, one end of the plastic hose is located outside the closet; the other end of the plastic hose goes over the upper surface of the annular seat, and passes through the inside of the inlet of the closet and the step-by-step feeding device, then is fed into the disposal container from its entrance;

the part of said plastic hose unused is located outside the closet, the part of said plastic in use is located in the closet, and the part of said plastic used is located in the disposal container under the closet;

said step-by-step feeding device includes a pair of rollers placed side by side for pulling downwards the plastic hose, each roller is bigger at both ends and thinner in the middle part;

the part of said plastic hose in use passes between the two rollers, is tightly clamped by the ends of the rollers, and is pulled downwards by the rollers, accordingly, a section of the part of said plastic hose unused becomes the new part of said plastic hose in use, this section passes through the annular seat and goes into the closet.

2. A waterless closet assembly as defined in claim 1, wherein, it further includes a step-by-step feeding device

3. A waterless closet assembly as defined in claim 2, wherein a clamping plate is fixed on one side of each roller, the shape of the clamping plate is the reversed shape of the roller so that it has an extending outer edge along the axial; when the rollers stop turning, the edges of the clamping plates meet



together to tightly clamp the plastic hose passing through; each time the step-by-step feeding device is driven, the rollers turn a circle in reverse direction respectively.

4. A waterless closet assembly as defined in claim 2, wherein each roller has two clamping plates that are fixed on the opposite sides of the roller, the shape of each clamping plate is reversed shape of each roller so that each clamping plate has an extending outer edge along the axial, and when the rollers stop turning, the outer edges of the two rollers meet with each other tightly and clamp the plastic hose passing through; the step-by-step feeding device drives each roller to turn half circle each time.

5. A waterless closet assembly as defined in claim 1, 2 or 3, wherein, it further comprising an expansion ring under the annular seat and in the closet, the diameter of the expansion is bigger than the entrance of the closet; the plastic hose goes to the step-by-step feeding device through outer surface of the expansion ring.

6. A waterless closet assembly as defined in claim 5, wherein a number of guiding wheels that are used to guide the plastic hose are fixed on the expansion ring.

7. A waterless closet assembly as defined in claim 3 or 4, wherein a heating device is fixed on the clamping plates to seal the plastic hose.

8. A waterless closet assembly as defined in claim 7, further comprising a barrel put round the closet, and the part of the plastic hose that is outside the closet is located in the barrel.

9. A waterless closet assembly as defined in claim 3 or 4, wherein, the step-by-step feeding device is located in the transmission case, the transmission case has an upper entrance and a lower exit, the upper entrance is connected with the lower exit of the closet and the lower exit is connected with the entrance of the disposal container.

10. A waterless closet assembly as defined in claim 9, wherein there are wheels fixed on the bottom of the disposal container.



11. A waterless closet assembly as defined in claim 3 or 4, wherein the step-by-step feeding device is powered by an electrical motor.

12. A waterless closet assembly as defined in claim 3 or 4, wherein said step-by-step feeding device is powered by user stepping on the pedal of the device.



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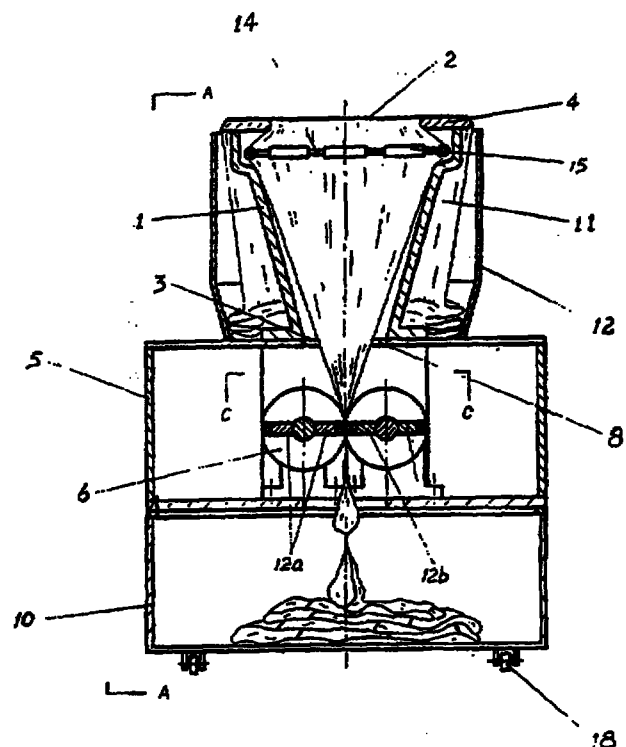
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(21) 国际申请号: PCT/CN96/00009 (22) 国际申请日: 1996年2月2日 (02.02.96) (71) (72) 申请人及发明人: 赫恩龙 (HE, Englong) [CN/CN]; 中国北京市朝阳区安外小关东里10号, 邮政编码: 100029, Beijing (CN). (74) 代理人: 北京市中原信达知识产权代理公司 (CHINA SINDA INTELLECTUAL PROPERTY LTD.); 中国北京市海淀区学院路41号希格玛商务 中心4层, 邮政编码: 100088, Beijing (CN).		(81) 指定国: AL, AM, AT(&UM), AU(PP), AZ, BB, BG, BR, BY, CA, CH, CN, CZ(&UM), DE(&UM), DK(&UM), EE(&UM), ES, FI(&UM), GB, GE, HU(UM), IS, JP(UM), KE, KG, KP, KR(UM), KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG/SI, SK(&UM), TJ, TM, TR, TT, UA, UG, US, UZ, VN(UM), ARIPO专利 (KE, LS, MW, SD, SZ, UG), 欧 亚专利 (AZ, BY, KG, KZ, RU, TJ, TM), 欧洲专利 (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI专利 (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG) PP=小专利; UM=实用新型; &UM=和实用新型; 本国际公布: 包括国际检索报告。

(54) Title: WATERLESS CLOSET ASSEMBLY

(54) 发明名称: 无需用水冲洗的座便器组件

(57) Abstract

A waterless closet assembly comprises a toilet (1) having an annular seat (4), a step-by-step pulling bag means mounted below the toilet (1) and a disposal receptacle (10) mounted below the pulling bag means. One end of a tubular plastic bag (11) is arranged in the outside of the toilet (1), and the other end is wound round the upper surface of the annular seat (4) and passes through the inlet (2) of the toilet (1), a ring (14) for extending the plastic bag (11) and the pulling bag means, then is fed into the disposal receptacle (10). The pulling bag means includes a pair of waist drum-shaped pulling bag discs (6) and their step-by-step actuating means. Holding plates (12a, 12b) are fixed to the pulling bag discs respectively for holding the plastic bag (11) passing between them and sealing it. After closet being used each time, the pulling bag discs (6) feed a section of the plastic bag in which excrements are collected into the disposal receptacle (10), and a section of new plastic bag is wound round the annular seat (4), therefore cross-infection is prevented.



(57) 摘要

一种无需用水冲洗的座便器组件，包括具有座圈的座便器，位于座便器下方的步进拉袋装置和位于拉袋装置下方的处置箱，一筒形塑料袋一端位于座便器外，另一端绕过座圈上表面并经过座便器入口、扩张环、拉袋装置而进入处置箱。拉袋装置包括一对腰鼓形拉袋轮及其步进驱动装置，拉袋轮上分别固定有一夹板，夹住从其间经过的塑料袋而将其封住。每次使用后，拉袋轮将一段塑料袋及粪便拉入处置箱内，并有新的一段塑料袋位于座圈上，防止了交叉感染。

以下内容仅供参考

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