

Description

Technical Field

This invention relates to a collecting bin for the collection and storage of waste material, in particular waste material that is contaminated with blood or other body fluid.

Background Art

The collection and short-term storage of catamenial tampons, sanitary towels, soiled nappies and the like body fluid-contaminated waste material poses problems in public toilet facilities, since such waste material is health hazardous and a potential source of odour if not stored under antiseptic conditions.

Proposals have been made for depositing the waste material in a bag-lined bin containing a volume of odour-combatting liquid but this arrangement suffers from the disadvantage that the entire supply of liquid can be absorbed by the early deposited material leaving no liquid available for the later deposited material. To avoid this possibility it has been proposed, in for example GB-A-1598482, GB-A-1515266, GB-A-1105706 and GB-A-1180478, to spray liquid onto the waste material and in certain embodiments, to mount the spray means in or on a lid of the collecting bin so that spraying of liquid can become a coordinated action with removing the lid to deposit waste material in the bin. One embodiment described in GB-A-1180478 has a bottle of liquid mounted above a waste material inlet to the bin with a length of flexible tubing partially obstructing the inlet so that displacement of the tubing by inserted waste material will cause a few drops to be dispensed into the bin.

US-A-2281630 discloses a sanitary receptacle in which a pivoted cover is linked by a spring to a plane baffle plate which temporarily adopts an inclined position below an atomizer of disinfectant when the cover is open but moves to flank a side of the receptacle as the cover is closed.

This invention is concerned with a waste material collecting bin in which improved means is provided to automatically moisten each article of waste material as it is supported adjacent to the inlet and prior to its falling into the collecting bin.

According to one aspect of the invention a waste material collecting bin comprises a storage container, an inlet to the storage container, a reservoir of a fluent material-treating substance, means to add fluent substance from the reservoir to waste material added to the container, and a member which temporarily supports waste material added to the bin, and is characterised in that the support member temporarily supports the waste material while it is contacted by the fluent substance from the reservoir and in that the support member is of part cylindrical shape.

Conveniently, the support member is part of a valve turnably mounted in an upper part of the bin. Suitably the valve is pedal operated. Desirably, as the valve turns into its open position, it exposes an opening through which the waste material can pass and at the same time exposes a part-cylindrical platform on which the material can temporarily lodge, and as the valve turns back into its closed position, spray means is actuated to add substance from the reservoir to the waste material before the platform is completely removed from below the waste material allowing the latter to drop suitably treated by the substance (e.g. moistened) into the storage container.

Suitably the closed position of the valve is a position of minimum-stored energy, the opening of the valve being accompanied by a stressing of a spring or a working against the urging of gravity.

Conveniently, the means to add fluent material-treating substance to the waste material includes a spray nozzle communicating with a pump containing the fluent substance drawn from the reservoir. Expulsion of the fluent substance from the pump can be effected by spring means which act to return the valve to the closed position.

In a preferred arrangement a rotary valve is used which is linked to a foot pedal and a liquid pump whereby depressing the foot pedal opens a valve adjacent to the inlet, fills the pump with treating liquid and primes a spring. Release of the foot pedal then allows the spring to empty the pump of liquid (via spray nozzles adjacent to the inlet) as the valve returns to its closed position.

Brief Description of the Drawings

One embodiment of collecting bin in accordance with the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows component parts of the bin, and Figures 2 to 5 show the manner of operation of the bin shown in Figure 1.

Description of Preferred Embodiment

The collection bin shown in Figure 1 is a device typically having a capacity of 20 or more litres which is adapted to be mounted on a wall or partition. Typical dimensions for A and B in Figure 2 would be 895 mm and 170 mm, the width of the unit being some 350 mm.

The bin comprises a U-shaped back plate 10 screwed to the wall or partition 11 and supporting a pedal assembly 12. The assembly 12 includes a foot pedal 13 pivotally mounted on a rod 14 and a vertically-extending operating plate 15 which is adapted to push against a cross bar bracket 16 which provides a pair of ears 16a (only one pair of which can be seen in Figure 1). As the pedal 13 is depressed the plate 15

and bracket 16 are lifted.

A reservoir bottle 19 containing waste material-treating liquid is located on the back plate 10 at the top end thereof and a piston-in-cylinder pump 36 is located part-way down the base plate 10. The bottle 19 is linked by a pipe 21 to the inlet of the cylinder in the pump 36 and the outlet from the cylinder of the pump 36 is linked to an array of spray openings 20 via a second pipe (not shown). When the plate 15 is lifted, against the urging of a spring 36a, the piston in the cylinder of the pump 36 makes a stroke which draws liquid from the bottle 19 into the cylinder of the pump 36. Lifting of the plate 15 also turns a part-cylindrical valve plate 22, turnably mounted by stub-axes 22a, in a valve unit 23. The valve unit 23 is removably clipped onto the open upper end of a storage container 24 and by means of a liner frame 26 the perimeter of a disposable plastic bag (not shown) is supported within the container 24. A boss 22b on each side of the valve plate 22 engages in the ears 16a of the bracket 16 so that upward movement of the plate 15 causes turning of the valve plate 22 about its stub axes 22a towards its open position (shown in Figures 1 and 3).

A decorative cover 27 hides, *inter alia*, the plate 15, the reservoir bottle 19 and the circular ends of the valve plate 22 and is clipped onto the upper end of the container 24 by means of a pair of clips 25 pivotally mounted on spindles 25a and a tongue 27a which passes through the valve unit 23 and engages in a recess 24a in the container 24. The clips 25 engage one in each of two openings 25b in the upper part of the container 24.

The complete collection bin unit is locked onto the partition or wall 11 by a centrally mounted lock 28 which engages with a locking plate 17 on the reservoir bottle 19.

To prevent users seeing into the interior of the plastic bag lining the container 24 during a dispensing operation, a pivotally mounted shielding flap 18 can be provided which normally depends freely down into the container 24 but which turns upwardly as the valve plate 22 opens and returns to the downwardly depending position as the valve plate 22 recloses. The movement of the flap 18 can be caused by providing a cam surface on one circular end of the valve plate 22 which moves the flap as the valve plate turns.

Figures 2 and 5 show the valve plate 22 fully closed, the flap 18 vertical and the pedal 13 in its uppermost position.

Figure 3 shows the valve plate 22 fully open and Figure 4 shows the valve plate 22 closing, in both cases with the flap 18 partly obstructing the entrance to the container 24.

Method of Use

Figures 2 to 5 show how the unit is used in a series of sequential cross-sectional views. The liquid in

the reservoir bottle 19 (e.g. a disinfectant and/or perfume mixture) is shown at 29 and a sanitary towel at 30. Previously added towels are shown at 31. The spray 32 shown in Figure 4 is generated by the pedal-induced pressure transmitted via the ears 16a and spring 36a and lasts long enough to moisten the towel 30 while it lies on the valve plate 22 prior to falling into the container 24.

Although primarily intended for the collection of sanitary towels - the units described (or smaller and/or free standing versions) can be used in veterinary, dentists or general practitioners surgeries, or in hospital wards. In surgeries or wards, the unit can be used to collect a wide range of different sorts of waste material that because they may be contaminated with blood, need to be disposed of carefully.

Claims

1. A waste material collecting bin comprising a storage container (24), an inlet to the storage container, a reservoir (19) of a fluent material-treating substance, means (36, 21) to add fluent substance from the reservoir to waste material (30) added to the container, and a member (22) which temporarily supports waste material added to the bin before releasing it to the container (24), characterised in that the support member (22) temporarily supports the waste material (30) while it is contacted by the fluent substance from the reservoir, and in that the support member (22) is of part-cylindrical shape.
2. A collecting bin as claimed in claim 1, characterised in that the support member is part of a valve closing the inlet and turnably mounted in an upper part of the bin.
3. A collecting bin as claimed in claim 2, characterised in that valve (22) is pedal operated (via 13).
4. A collecting bin as claimed in claim 2 or claim 3, characterised in that as the valve (22) turns into its open position, it exposes an opening through which the waste material (30) can pass and at the same time exposes part-cylindrical platform on which the waste material can temporarily lodge, whereby as the valve turns back into its closed position, spray means (20) is actuated to add substance from the reservoir (19) to the waste material (30) before the platform (22) is completely removed from below the waste material allowing the latter to drop suitably treated by the sprayed substance (32) into the storage container (24).
5. A collecting bin as claimed in any one of claims 2 to 4, characterised in that the closed position of

and bracket 16 are lifted.

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The complete collection bin unit is locked onto the partition or wall 11 by a centrally mounted lock 28 which engages with a locking plate 17 on the reservoir bottle 19.

To prevent users seeing into the interior of the plastic bag lining the container 24 during a dispensing operation, a pivotally mounted shielding flap 18 can be provided which normally depends freely down into the container 24 but which turns upwardly as the valve plate 22 opens and returns to the downwardly depending position as the valve plate 22 recloses. The movement of the flap 18 can be caused by providing a cam surface on one circular end of the valve plate 22 which moves the flap as the valve plate turns.

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2. A collecting bin as claimed in claim 1, characterised in that the support member is part of a valve closing the inlet and turnably mounted in an upper part of the bin.
3. A collecting bin as claimed in claim 2, characterised in that valve (22) is pedal operated (via 13).
4. A collecting bin as claimed in claim 2 or claim 3, characterised in that as the valve (22) turns into its open position, it exposes an opening through which the waste material (30) can pass and at the same time exposes part-cylindrical platform on which the waste material can temporarily lodge, whereby as the valve turns back into its closed position, spray means (20) is actuated to add substance from the reservoir (19) to the waste material (30) before the platform (22) is completely removed from below the waste material allowing the latter to drop suitably treated by the sprayed substance (32) into the storage container (24).
5. A collecting bin as claimed in any one of claims 2 to 4, characterised in that the closed position of



the valve (22) is a position of minimum-stored energy, the opening of the valve being accompanied by a stressing of a spring (36a) which effects addition of the fluent material as it returns to its unstressed condition during closing of the valve.

6. A collecting bin as claimed in any one preceding claim, characterised in that the means to add fluent material-treating substance to the waste material includes a spray nozzle (20) communicating with a pump (36) containing fluent substance drawn from the reservoir (19).

7. A collecting bin as claimed in claim 6, characterised in that expulsion of the fluent substance from the pump (36) is effected by spring means (36a) which act to return the valve to the closed position.

8. A collecting bin as claimed in claim 1, characterised in that a rotary valve is used to close the inlet, this valve being linked to a foot pedal (13) and a liquid pump (36) whereby depressing the foot pedal opens the rotary valve adjacent to the inlet, fills the pump with treating liquid and primes a spring, release of the foot pedal then allowing the spring to empty the pump of liquid, via spray nozzles (20) adjacent to the inlet, as the valve returns to its closed position.

Patentansprüche

1. Abfallmaterialsammelbehälter, der einen Speicherbehälter (24), einen Einlaß zu dem Speicherbehälter, ein Reservoir (19) einer flüssigen Materialbehandlungssubstanz, Mittel (36, 21) für die Zugabe der flüssigen Substanz aus dem Reservoir zu in den Behälter gegebenem Abfallmaterial (30) und ein Element (22) umfaßt, daß in den Abfallbehälter gegebenes Abfallmaterial zeitweilig trägt, bevor es in den Behälter (24) abgegeben wird, dadurch gekennzeichnet, daß das Trägerelement (22) das Abfallmaterial (30) zeitweilig trägt, während es mit der flüssigen Substanz aus dem Reservoir kontaktiert wird, und daß das Trägerelement (22) teilzylindrische Gestalt aufweist.

2. Sammelbehälter nach Anspruch 1, dadurch gekennzeichnet, daß das Trägerelement Teil einer Klappe ist, die den Einlaß verschließt und in einem oberen Teil des Behälters drehbar angebracht ist.

3. Sammelbehälter nach Anspruch 2, dadurch gekennzeichnet, daß die Klappe (22) per Pedal betätigt wird (via 13).

4. Sammelbehälter nach Anspruch 2 oder Anspruch 3, dadurch gekennzeichnet, daß die Klappe (22) eine Öffnung freigibt, durch die das Abfallmaterial (30) passieren kann, wenn sie sich in ihre offene Position bewegt, und gleichzeitig eine teilzylindrische Plattform freigibt, auf der das Abfallmaterial zeitweilig lagern kann, wobei bei der Zurückbewegung der Klappe in ihre geschlossene Position Sprühmittel (20) betätigt werden, um Substanz aus dem Reservoir (19) zu dem Abfallmaterial (30) zu geben, bevor die Plattform (22) unterhalb des Abfallmaterials vollständig entfernt worden ist, wodurch letzteres, geeigneterweise durch die aufgesprühte Substanz (32) behandelt, in den Speicherbehälter (24) fallen kann.

5. Sammelbehälter nach einem der Ansprüche 2 bis 4, dadurch gekennzeichnet, daß die geschlossene Position der Klappe (22) eine Position mit minimaler gespeicherter Energie ist, die Öffnung der Klappe von der Anspannung einer Feder (36a) begleitet wird, die die Zugabe des flüssigen Materials bewirkt, wenn sie während des Schließens der Klappe in ihren ungespannten Zustand zurückkehrt.

6. Sammelbehälter nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Mittel zur Zugabe der flüssigen Materialbehandlungssubstanz zu dem Abfallmaterial eine Sprühdüse (20) einschließen, die mit einer Pumpe (36) in Verbindung steht, die aus dem Reservoir (19) abgezogene flüssige Substanz enthält.

7. Sammelbehälter nach Anspruch 6, dadurch gekennzeichnet, daß der Ausstoß der flüssigen Substanz aus der Pumpe (36) durch Federmittel (36a) bewirkt wird, die so arbeiten, daß sich die Klappe in die geschlossene Position zurückbewegt.

8. Sammelbehälter nach Anspruch 1, dadurch gekennzeichnet, daß eine Drehklappe verwendet wird, um den Einlaß zu verschließen, und diese Klappe mit einem Fußpedal (13) und einer Flüssigkeitspumpe (36) verbunden ist, wobei Herunterdrücken des Fußpedals die dem Einlaß benachbarte Drehklappe öffnet, die Pumpe mit der Behandlungsflüssigkeit füllt und eine Feder spannt, während ein Freigeben des Fußpedals es der Feder anschließend erlaubt, die Flüssigkeit aus der Pumpe über die dem Einlaß benachbarten Sprühdüsen (20) zu entleeren, wenn sich die Klappe in ihre geschlossene Position zurückbewegt.



Revendications

1. Un bac de collecte de déchets comprenant un récipient de stockage (24), une entrée vers le récipient de stockage, un réservoir (19) d'une substance fluide de traitement des déchets, des moyens (36, 21) pour projeter de la substance fluide du réservoir sur les déchets (30) jetés dans le récipient, et un élément (22) qui retient temporairement les déchets jetés dans le bac avant de les déverser dans le récipient (24), caractérisé en ce que l'élément de retenue (22) retient temporairement les déchets (30) pendant qu'ils sont mis en contact avec la substance fluide provenant du réservoir, et en ce que l'élément de retenue (22) est de forme partiellement cylindrique. 5
2. Un bac de collecte selon la revendication 1, caractérisée en ce que l'élément de retenue fait partie d'un sas qui ferme l'entrée et qui est monté de manière tournante dans la partie supérieure du bac. 10
3. Un bac de collecte selon la revendication 2, caractérisé en ce que le sas (22) est actionné par une pédale (par l'intermédiaire de 13). 15
4. Un bac de collecte selon la revendication 2 ou 3, caractérisé en ce que, lorsque le sas (22) passe en position ouverte, il découvre une ouverture à travers laquelle les déchets (30) peuvent passer et, simultanément, il découvre une plate-forme partiellement cylindrique sur laquelle les déchets peuvent séjourner temporairement, lorsque le sas revient en position fermée un moyen de pulvérisation (20) étant actionné pour projeter de la substance du réservoir (19) sur les déchets (30) avant que la plate-forme (22) ne soit complètement retirée de dessous les déchets pour permettre à ces derniers de tomber, après avoir été correctement traités avec la substance pulvérisée (32), dans le récipient de stockage (24). 20
5. Un bac de collecte selon l'une quelconque des revendications 2 à 4, caractérisé en ce que la position fermée du sas (22) est une position correspondant à un stockage d'énergie minimum, l'ouverture du sas étant accompagnée d'une tension d'un ressort (36a) qui provoque une projection du produit fluide lorsqu'il revient à l'état relâché lors de la fermeture du sas. 25
6. Un bac de collecte selon l'une quelconque des revendications précédentes, caractérisé en ce que le moyen pour projeter de la substance fluide de traitement des déchets sur les déchets comprend une buse de pulvérisation (20) communiquant avec une pompe (36) contenant de la substance fluide prélevée sur le réservoir (19). 30
7. Un bac de collecte selon la revendication 6, caractérisé en ce que l'expulsion de la substance fluide hors de la pompe (36) est effectuée par un moyen élastique (36a) qui agit pour rappeler le sas en position fermée. 35
8. Un bac de collecte selon la revendication 1, caractérisé en ce qu'un sas rotatif est utilisé pour fermer l'entrée, ce sas étant relié à une pédale (13) et à une pompe de liquide (36), l'actionnement de la pédale ouvrant le sas rotatif adjacent à l'entrée, remplissant la pompe avec du liquide de traitement et tendant un ressort, le relâchement de la pédale permettant ensuite au ressort de vider la pompe de liquide, par l'intermédiaire des buses de pulvérisation (20) voisines de l'entrée, lorsque le sas revient en position fermée. 40

