ABSTRACT

Improvements in a urinal drip pan. The drip pan has pivotal arm, a collection tray and a pouring spout to empty the collection tray. The collection tray provides an enlarged area outside of a urinal to collect any drippings that coming from the person urinating that does not remain within the urinal. The pivotal arms provide a controlled rotational path for the collection tray to be emptied in the urinal. The arm locking positions are elongated slots that reduce a potential for the collection tray to tip when kicked or if a person steps on a corner or side of the collection tray. The collection tray has elevated ribs to keep feet or shoes out of fluid that can be present in the bottom of the collection tray.
URINAL DRIP PAN WITH PIVOTING ARM

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of Provisional Application Ser. No. 62/040,250 filed Aug. 21, 2014 the entire contents of which is hereby expressly incorporated by reference herein.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not Applicable

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC

[0004] Not Applicable

BACKGROUND OF THE INVENTION

[0005] 1. Field of the Invention

[0006] This invention relates to improvements in a urinal drip pan. More particularly, the present improvement in a urinal drip pan includes side arms that both lock the drip pan on the ground and provide a controlled path to empty the drip pan into a urinal.


[0008] Nearly all bathrooms for men have at least one urinal. Due to the nature of using a stand-up urinal some fluid either drips, sprays or splatters from using the urinal. In most situations everything that does not make it into a urinal and everything that comes out of a urinal will fall on the ground and can flow into a drain if there is a drain near the urinal. Without a method or system to collect any fluid, the area under and around the urinal is cleaned by washing the area with a mop or similar method. This method typically smears the fluids around the floor. Another problem is tracking fluids from under and around the urinal to other areas in a bathroom and into areas outside of the bathroom.

[0009] A number of patents and or publications have been made to address these issues to collect dripped or splattered fluid and to reduce or prevent movement of fluids that spread from the urinal. Other devices are disclosed that provide easier handling of fluids that spread outside of the urinal. Exemplary examples of patents and or publication that try to address this/these problem(s) are identified and discussed below.

[0010] U.S. Pat. No. 6,199,222 issued Mar. 13, 2001 and U.S. Pat. No. 5,500,960 that issued on Mar. 26, 1996, both to Richard Leach Tagg discloses a Portable combination Toilet and Waste Holding Tank. These patents both are for complete toilet units where drippings from the urinal are collected within the toilet and can drain into the waste holding tank. While these patents can collect drippings, the floor is an integral part of the unit and is not movable to pour drippings into the toilet or the holding tank.

[0011] U.S. Pat. No. 7,584,727 issued on Sep. 8, 2009 to Tobi Skowron et al., discloses a Portable Toilet. The portable toilet allows for collection of urination or defecation to drain into the bottom of the toilet where the collected material is held in a reservoir and can be later emptied in an acceptable sewer system. While this patent discloses a collection means the collection means does not collect splattered material or dripping that go outside of the portable toilet. The portable toilet further does not provide for a space to stand that is away from the portable toilet.

[0012] U.S. Pat. No. 6,913,166 issued Jul. 5, 2005 to Elliot W. Lee discloses a Vehicle Drip Tray and Pet Waste Pan. The drip pan has a hinged cover where the cover provides a back wall that can catch back splatter and the back splatter can drain down into the collection pan. While an animal can walk onto the waste pan to urinate or defecate the animal essentially stands on the same platform where they urinate or defecate.

[0013] What is needed is a urinal collection tray that operates with an existing urinal to collect any fluid that does not get into the urinal or splatters out of the urinal. The ideal device should be lockable on the floor and in position in the urinal. The collection tray should also provide an elevated platform and a pouring spout. The proposed solution is disclosed in this document.

BRIEF SUMMARY OF THE INVENTION

[0014] It is an object of the urinal drip pan with a pivotal arm to have a collection tray. The collection tray provides an enlarged area outside of the urinal. The enlarged area not only covers the area around the urinal, but also provides an area under and around the person using the urinal. The collection tray includes elevated sides that collect any drippings from the person urinating that does not collect or remain within the urinal.

[0015] It is an object of the urinal drip pan with a pivotal arm to have a pouring spout. The pouring spout allows a custodian to pour any collected material in the collection reservoir into the urinal. The pouring spout exists at the front center of the collection tray, and if cleaning solvents or fluid is used in the collection reservoir the contents and cleaning solution can be poured into the urinal.

[0016] It is another object of the urinal drip pan with a pivotal arm that allows the tray to rotate from a collection position to an empty position. The arm locking positions are elongated slots that reduce a potential for the collection tray to tip when kicked or if a person steps on a corner or side of the collection tray. The arms can also be slotted to allow the collection pan to be locked in a vertical position where the collection tray essentially blocks use of the urinal.

[0017] It is still another object of the urinal drip pan with a pivotal arm to have an elevated standing support. The elevated standing platform provides a plurality of ribs where a person can stand on the elevated ribs to keep feet or shoes out of fluid that can be present in the bottom of the collection tray. The ribs can simulate the shape of a foot or shoe to indicate a preferred location for standing or can provide an indicator that there is an elevated location for a person to stand above any liquid that exists in the bottom of the collection tray.

[0018] Various objects, features, aspects, and advantages of the present invention will become more apparent from the following detailed description of preferred embodiments of the invention, along with the accompanying drawings in which like numerals represent components.
BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0019] FIG. 1 shows a urinal drip pan with a pivotal arm.
[0020] FIG. 2 shows a detail view of the drip pan.
[0021] FIG. 3 shows a detail view of the support arm.
[0022] FIG. 4 shows a view of the locking end of the support arm shown in FIG. 3.
[0023] FIG. 5 shows a view of the locking end of the support arm with securing hardware.
[0024] FIG. 6 shows the latch that retains the pan.
[0025] FIG. 7 shows a side view of the urinal drip pan with a pivotal arm in the collection orientation.
[0026] FIG. 8 shows a side view of the urinal drip pan with a pivotal arm partially raised.
[0027] FIG. 9 shows a side view of the urinal drip pan with a pivotal arm in an empty orientation.

DETAILED DESCRIPTION OF THE INVENTION

[0028] FIG. 1 shows a urinal drip pan with a pivotal arm installed onto a urinal. The urinal is shown with an internal surface 12 where a stream of urine would be aimed and flow down this surface 12 of the urinal and then into the bottom of the urinal. The urinal has sides 11 and 13 that provide some side protection from splatter of the urine. The urinal is shown with a castor wheel 27, but could be mounted to a floor surface 10. A portable urinal can be wheeled into nearly any location over dirt, grass, cement or other hard or soft surface. The urinal drip pan is secured to the urinal with a pivoting arm that connects to the sides 11 and 13 of the urinal with fasteners 60-63.

[0029] Fasteners 60-63 are secured to the side walls 11 and 13 of the urinal with securing bolts and nuts 60, 61, 62, 63, 64 and 65. The pivot and lock area is area of the bracket and the arm is shown as an open slot 45. The pivotal arms 43 and 44 are connected with a cross support 42 and extend 40 and 41 to shoulder bolts 38 and 39 that connect to the collection tray. The pivotal arm structure is shown and described in more detail in FIGS. 3 and 4.

[0030] The collection tray has a bottom surface 20 where urine that splatters or drips can pool. The bottom surface 20 has elevated ribs 23 and 24 that elevate foot or shoe placement above the bottom surface to keep shoes out of any collected urine that can pool in the bottom 20 of the collection tray or reservoir. Around the bottom 20 of the collection reservoir is an elevated lip 21 that prevents collected urine from flowing outside of the reservoir. The front of the bottom surface has elevated walls 25, 26 and 29. These elevated walls block splatter from any drips that fall on the bottom surface and further provide a wall when any collected urine that is being poured out of the drip pan. A pouring spout 28 allows any collected fluid to pour from a single location into the urinal where the fluid can flow down the drain 14 of the urinal.

[0031] A handle 22 is connected to the drip pan that allows a person to lift the drip pan without touching the bottom 20 of the collection surface or the floor 10 where the drip pan rests. If the drip pan is cleaned, the cleaning solvent is collected in the bottom 20 of the drip pan and can be poured out at the same time. The drip pan is shown and described in more detail in FIG. 2 that shows the drip pan without connecting hardware. A latch 19 retains the collection tray in a stored position with the tray arranged vertically.

[0032] FIG. 2 shows a detail view of the drip pan. The collection pan is essentially a square pan with an elongated front surface that has a pouring spout 28. The collection tray has an essentially flat bottom surface 20 where urine that splatters or drips can pool. While the bottom of the pan is essentially flat, it can be contoured to allow the fluid to pool in a particular area of the bottom 20 surface. The drip pan is formed from plastic in a molding operation but can be fabricated with other materials or fabrication process. Regardless of the material or the fabrication process the drip pan is essentially a pan that collects and holds fluid until the fluid is emptied. The bottom surface 20 has elevated ribs 23 and 24 that elevate foot or shoe placement above the bottom surface to keep shoes out of any collected urine that can pool in the bottom 20 of the collection tray or reservoir.

[0033] The bottom 20 of the collection reservoir has a lip 21 that surrounds the bottom and prevents collected urine from flowing outside of the reservoir. The front of the bottom surface has elevated walls 25, 26 and 29. These elevated walls block splatter from any drips that fall on the bottom surface and further provide a wall with any collected urine is poured out of the drip pan. To empty fluid that has accumulated in the collection reservoir, a pouring spout 28 allows any collect fluid to pour from a single location into the urinal where the fluid can flow down the drain 14 of the urinal for storage and later disposal into the sewer.

[0034] An arm structure connects to the collection pan through pivots 32 and 33. The structure of the connecting arm provides some controlled motion of the collection pan. The connecting arm is shown and described in FIGS. 3 and 4.

[0035] FIG. 3 shows a detail view of the support arm and FIG. 4 shows a view of the locking end of the support arm shown in FIG. 3. The pan is connected to the arm through holes 38 and 39 at the bottom of the pivot and lock arm to create a pivoting axis. The pivot and lock arms are connected through a cross member 42. The pivot and lock arms then extend to an upper end 43 and 44. Complementary connection features are found on the upper end of each arm. The pivot and lock area of the bracket and the arm is shown as an open slot 45 and 46. FIG. 4 shows an enlarged view of this part of the arm.

[0036] There are two essentially elliptical slots 47, 45 and 46. 48 that allow the arm to move up and down to an upper end position 49 and a lower end position 50. The elliptical slot is described as an upper stop 49, the orientation of the arm can change the direction description without altering the function of the arm or the slot. The pivotal arms 43 and 44 are secured with shoulder bolts 64 and 65 shown in FIGS. 5 and 6.

[0037] FIG. 5 shows a view of the locking end of the support arm with securing hardware. From FIG. 5 the slots 45 and 47 with bolt 64 going through the top slot 47 and passing into the bottom slot 45. From FIG. 5 the slots 45 and 47 with bolt 64 going through the top slot 47 and passing into the bottom slot 45. This figure shows that the arm 41 can only move in a vertical direction 90 and can pass out of the opening in the bottom slot 45. Once the arm 43 is rotated so the hardware on the pivot can clear the open slot, the arm can rotate with the drip pan to empty the drip pan. This operation is shown and described in FIGS. 7-9.

[0038] FIG. 6 shows the latch 19 that retains the front edge 21 pan in a vertical stored orientation. The body 18 is flexible to allow the end of the hook to lift thereby allowing the hook to retain and release the front edge 21 of the pan. While the hook or latch 19 is shown holding the front edge 21, it could also retain the handle 22 or other part of the collection pan.

[0039] FIG. 7 shows a side view of the urinal drip pan 80 with a pivotal arm 81 in the collection orientation. To move the drip pan 80 a person will lift the handle 22 that will lift the
arm 81 until the pin or bolt disengages from slot 45 (as shown in FIG. 5). As the drip pan 80 is lifted, the drip pan 80 will follow an arc 91 as shown in FIG. 7.

**0040** FIG. 8 shows a side view of the urinal drip pan with a pivotal arm partially raised. As the user continues to lift 92 the drip pan 80, the arm 81 forces the drip pan 80 to rotate as shown in FIG. 10.

**0041** FIG. 9 shows a side view of the urinal drip pan 80 with a pivotal arm 80 in an empty orientation where any fluids with the drip pan 80 will pour out the spout 28 and into the urinal.

**0042** Thus, specific embodiments of a urinal drip pan with a pivotal arm have been disclosed. It should be apparent, however, to those skilled in the art that many more modifications besides those described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be restricted except in the spirit of the appended claims.

**SEQUENCE LISTING**

**0043** Not Applicable.

1. A urinal drip pan comprising:
   - an open tray;
   - said open tray having elevated sides;
   - said open tray is connected through a pivoting axis located above said open tray to a support arm wherein said open tray is essentially connected to said support arm at opposing sides of said open tray;
   - said pivoting arm is secured to a urinal, and said open tray further has a pouring spout that allows said open tray to pour fluid collected in said open tray.
2. The urinal drip pan according to claim 1 wherein said pivoting arm provides restrained travel of said open tray.
3. The urinal drip pan according to claim 1 wherein said pivoting arm is further secured through hardware to said urinal.
4. The urinal drip pan according to claim 3 wherein said brackets have at least one lock pin.
5. The urinal drip pan according to claim 1 further includes a latch.
6. The urinal drip pan according to claim 5 wherein said latch retains said urinal drip pan in a vertical orientation.
7. The urinal drip pan according to claim 5 wherein said latch is flexible.
8. The urinal drip pan according to claim 1 wherein said open tray further includes elevated foot pads.
9. The urinal drip pan according to claim 1 wherein said elevated foot pads further has a plurality of depressed surfaces.
10. The urinal drip pan according to claim 1 further includes a handle.
11. The urinal drip pan according to claim 10 wherein said handle exists outside of said open tray.
12. The urinal drip pan according to claim 1 further includes a front splatter wall.
13. The urinal drip pan according to claim 12 wherein said front splatter wall is elevated from said elevated sides.
14. The urinal drip pan according to claim 1 wherein said pivoting arm includes two pivoting arms.
15. The urinal drip pan according to claim 14 wherein said two pivoting arms maintain said urinal drip pan in a parallel relationship with said urinal.
16. The urinal drip pan according to claim 15 wherein said securing arms allow said urinal drip pan to rotate from a horizontal to a vertical orientation.
17. The urinal drip pan according to claim 1 wherein said urinal drip pan is made from plastic or metal.
18. The urinal drip pan according to claim 1 wherein said pivot is with at least one shoulder bolt.
19. The urinal drip pan according to claim 1 wherein said support arm further includes a vertical slot whereby said urinal drip pan is vertically displaced prior to rotating said urinal drip pan.
20. The urinal drip pan according to claim 1 wherein said urinal drip pan is removable from said urinal.

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