A drain cover is fabricated with a plurality of apertures in patterns of varying shapes. The cover is formed as a plate, suitable for installation proximate to a drain, and capable of bearing sufficient weight, the latter a function of the plate's size and intended use. The construction and arrangement of the plate, particularly the apertures, is such that the cover is operative to protect the drain from clogging, protect an individual near the drain from slips and falls, and still effectively and efficiently pass fluids.
SHOWER AREA SAFETY DRAIN COVER

FIELD OF THE INVENTION

[0001] This invention relates to the field of shower area drain covers and more particularly, to shower/bathing area safety drain covers.

BACKGROUND OF THE INVENTION

[0002] Facilities for people with special needs must accommodate a variety of ergonomic and safety requirements which are vital to their beneficial use. Wet environments, in particular, must be adapted to a variety of needs, while promoting a higher degree of safety. Circumstances which present mild or minimal risk to some individuals represent a higher level of risk to others.

[0003] In the field of shower or bathing facilities for special needs, a variety of appurtenances are well known, including grab bars, seats, low level access ramps, appropriately placed controls, and non-slip flooring. The drain, similarly, plays an important role within a safe and effective facility.

[0004] Prior art drain covers, such as is shown in U.S. Pat. No. 4,998,387, commonly comprise a series of elongated slots defining a circle. Such covers suffer from a variety of deficiencies which have the potential to adversely affect those with special needs. In particular, the longitudinal grooves are well adapted to trap wheelchair wheels. Further, they present, at least in a direction parallel to the grooves, a smooth linear surface upon which a foot, cane, or walker may slip.

[0005] It is additionally important to reduce the possibility of hair, digits, or other small objects being drawn into, or trapped within the cover apertures, particularly while rapid drainage is taking place. Covers relating to these problems are disclosed in U.S. Pat. No. 6,615,417 B1 and U.S. Patent Application 2002/0078496 A1. The ’496 application discloses a raised domed cover which disperses suction pressure through a series of openings provided with a backing mesh. The ’417 patent discloses a raised flat cover that is substantially larger than an underlying drain, wherein fluid enters at the side, and flows under the cover.

[0006] Neither reference, however, discloses a safety drain that is well adapted to special needs requirements. In particular, each requires a raised portion, as well as an enlargement of the drain area, presenting difficulties for people who may be unsteady on their feet, or who have reduced eyesight, as well as obstructing the passage of wheels or walking assistance devices.

[0007] Thus, there exists a need for an improved safety drain cover.

SUMMARY OF THE INVENTION

[0008] In accordance with the present invention, a drain cover is fabricated with a plurality of apertures in patterns of varying shapes. In a preferred embodiment, the cover is formed as a plate, suitable for installation in a floor, and capable of bearing sufficient weight, the latter a function of the plate’s size and intended use.

[0009] The pattern of apertures presents a supporting structure which allows sufficient fluids to pass there through to support the highest anticipated volume to be drained. Ideally, the apertures are elongated arcuate shapes. As such, they are resistant to clogging, and are easily cleaned. The edges of the apertures may be advantageously formed with an angular or curved bevel along their periphery, particularly on the upper face of the plate. This further facilitates cleaning, further reduces clogging, and forms a more comfortable surface.

[0010] The apertures are spaced apart or separated from each other, in order to form a solid supporting structure. In a preferred embodiment, a pattern comprises five apertures of varying lengths, together operative to meet the criteria described above.

[0011] The cover of the present invention may be formed from a variety of materials of suitable strength and resistance to damage from moisture, mold, and other factors concomitant with covering drains. Preferred materials include metals, plastics, or ceramics, with stainless steel, vinyl, and ABS (acrylonitrile butadiene styrene) being particularly suitable. Preferably, the material is of sufficient thickness to provide the requisite strength, yet is sufficiently thin to allow the cover to lie at substantially the same height as the floor when the cover is installed.

[0012] The cover may be fastened to either the drain, the supporting surface of the drain, such as the floor, or both, by any suitable means, including adhesives or screws.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a plan view of a cover in accordance with the present invention;

[0014] FIG. 2 is a plan view of a cover in accordance with the present invention, illustrating beveled apertures; and,

[0015] FIG. 3 illustrates a series of four of an aperture pattern in accordance with the present invention.

[0016] FIG. 4 illustrates a drain cover in accordance with the invention, installed upon a gravity waste device;

[0017] FIG. 5 illustrates a drain cover in accordance with the invention, being installed in a floor.

DETAILED DESCRIPTION OF THE INVENTION

[0018] In accordance with the present invention, and with reference to the figures, a shower area drain cover 10 is fabricated with a plurality of a pattern of varying apertures 12a-c, which are either unique, or are oriented differently, with respect to each other. For brevity, the term “shower area” is intended herein to mean a shower stall or room, open shower area, bathtub, or bathing area or room, generally. In a preferred embodiment, the cover is formed as a plate, suitable for installation in a floor, and capable of bearing sufficient weight, the latter a function of the plate’s size and intended use. Typically, the cover shape is square, to best integrate with square shaped flooring members. However, the cover shape may be in the form of a rectangle, square, circle, oval, polygon, or other shape, as desired or required.

[0019] The pattern of apertures presents a supporting structure, without the smooth extended linear surfaces inherent in a pattern of repeating, non-varying shapes, which allows sufficient fluids to pass there through to support the highest anticipated volume. Ideally, the apertures are elongated arcuate shapes. As such, they are resistant to clogging, and are easily cleaned. With reference to FIG. 2, the edges of the apertures may be advantageously formed with an angular or curved bevel 14 along their periphery, particularly on the upper face of the plate. This further facilitates cleaning, further reduces clogging, and forms a more comfortable surface.

[0020] Avoiding a pattern containing repeating shapes reduces elongated and smooth extended surfaces, such as the
gridlines of a grate, or the bridging members of concentric circles. A foot, cane, or walker may slide along a smooth uninterrupted surface, and thus fail to provide adequate support. Moreover, extended linear apertures may operate to trap a wheelchair wheel, or alternatively, impede the directional change of a wheel, hampering safe passage over the cover. In contrast, the present invention provides curved apertures which are presented in varying shapes, thus avoiding these potential pitfalls.

[0021] With reference to FIG. 3, in a preferred embodiment, the apertures are spaced apart or separated from each other, preferably by a distance about as wide as the width of the apertures, in order to form a solid supporting structure. In a preferred embodiment, a pattern comprises five apertures 12a-e of varying lengths, together operative to meet the criteria described above, while disposed in an array, in the embodiment shown, of about one fourth of the surface of a cover. Accordingly, a quartet 18a-d of such a pattern is used in a complete square cover. Vortex formation is diminished by the shape of the apertures, as well as by placing each pattern away from the center of the cover.

[0022] The preferred embodiment shown in the figures has a distinct arrangement of apertures which best meets the criteria described herein. Specifically, there is a quartet of a preferred pattern which occupies a square shaped cover. The patterns are spaced away from the center of the plate, and comprise arcuate shaped apertures. Each pattern includes two longer bow shaped apertures extending from a corner towards the center, one bow closer to the corner, and the other closer to the center, whose endpoints face each other, thus forming the shape of parentheses. Occupying the space within the parentheses shape is a sinusoid shaped aperture. Adjacent to the parentheses shape is a curved aperture that extends substantially along the edge of the cover. Finally, a tear drop shaped aperture is located between the aperture extending along the edge, and the adjacent bow of the parentheses.

[0023] The cover of the present invention may be formed from a variety of materials of suitable strength and resistance to damage from moisture, mold, and other actors concomitant with covering drains. Preferred materials include metals, plastics, or ceramics, with stainless steel, vinyl, and ABS (acrylonitrile butadiene styrene) being particularly suitable. Preferably, the material is of sufficient thickness to provide the requisite strength, yet is sufficiently thin to allow the cover to lie at substantially the same height as the floor when the cover is installed.

[0024] The cover may be fastened to either the drain, the supporting drainage surface of the drain, such as the floor, or both, by any suitable means, including adhesives or screws 20. When screws are used, it is preferable that the screw heads are countersunk, to maintain a flat and comfortable upper surface.

[0025] In the embodiment shown in FIG. 4, a cover 10 in accordance with the invention is installed in a gravity waste structure 30. It should be understood that cover 10 may be used with a wide variety of drain related structures and devices. In this embodiment, cover 10 is press fit, or frictionally engaged within a frame 32. In FIG. 5, the assembly of FIG. 4 is shown being installed within a floor 42, wherein structures below or at the floor level are not illustrated. A collar 34 permits adjustment of the finished height of frame 32 and cover 10. Grout 38 or functionally similar sealant is applied, as by trowel 40, in order to seal the interstices between frame 32 and neighboring tiles 36.

[0026] Thus, there are many different features to the invention. It is contemplated that these features may be used either alone or in combination. It should be understood by those familiar with the art that numerous modifications and equivalent features may be substituted without departing from the spirit and scope of the invention. The scope of the invention is not to be restricted, therefore, to the specific embodiments described, and that equivalent applications, modifications, and embodiments within the scope of the invention are contemplated.

What is claimed:
1. A shower area drain cover comprising:
a plate having a pattern of varying shapes of elongated arcuate apertures;
wherein said pattern comprises at least five members, separated from each other;
and, wherein said plate is operative to cover a drain, bear weight, and pass fluids through said apertures.
2. The drain cover of claim 1, wherein said plate is fabricated from a material selected from a group consisting of metal, plastic, and ceramic.
3. The drain cover of claim 1, wherein said plate is fabricated from a material selected from a group consisting of stainless steel, vinyl, and ABS.
4. The drain cover of claim 1, wherein said apertures have a perimeter formed with a bevel.
5. The drain cover of claim 4, wherein said drain cover has a lower face proximate said drain, and an upper face, and wherein said bevel is formed in said upper face.
6. The drain cover of claim 1, wherein said drain is in a floor, and wherein said cover lies substantially at the same height as said floor when installed.
7. The drain cover of claim 1, wherein said apertures are separated from each other by a distance about as wide as the width of said apertures.
8. The drain cover of claim 7, wherein said cover shape is selected from the group consisting of rectangle, square, oval, circle, polygon.
9. A method of fabricating a shower area drain cover, comprising the steps of:
forming a plate;
creating a pattern of varying shapes of elongated arcuate apertures in said plate, said pattern comprising at least five members, separated from each other; and,
wherein said plate is operative to cover a drain, bear weight, and pass fluids through said apertures.
10. The method of claim 9, further comprising the step of fastening said cover in proximity to said drain, using a fastening method selected from the group consisting of screwing, adhering, frictionally engaging.
11. The method of claim 10, wherein said plate is formed from a material selected from a group consisting of metal, plastic, and ceramic.
12. The method of claim 10, wherein said apertures are created with a perimeter formed with a bevel.
13. The method of claim 10, wherein said drain is in a floor, and wherein said cover is formed to lie substantially at the same height as said floor when installed.
14. The method of claim 10, wherein said drain is in a floor, further comprising the step of fastening said cover proximate to said floor.
15. The method of claim 10, wherein said drain is in a floor, further comprising the step of fastening said cover in operative engagement with said drain.
16. The method of claim 10, wherein said pattern of shapes are separated from each other by a distance about as wide as the width of said apertures.

17. The method of claim 10, wherein said plate is formed in a shape selected from the group consisting of rectangle, square, oval, circle, polygon.

18. A shower area drain cover comprising:
   a plate, sized to cover a drain, including
   quartets of a pattern of apertures spaced apart from the center of the plate, each pattern including:
   five arcuate apertures, including
   a first bow shaped aperture extending substantially from a first corner of said plate towards the center of said plate;
   a second bow shaped aperture extending substantially from said first corner towards the center of said plate.
   wherein said first and second apertures each have endpoints, and wherein said endpoints face each other;
   a third aperture forming a sinuous shape, extending between said first and second apertures;
   a fourth aperture adjacent to said second arcuate aperture, extending substantially from said first corner and extending substantially parallel to an adjacent edge of said plate;
   a fifth aperture, disposed between said fourth aperture and said second aperture; and,
   means for supporting said drain cover in operative engagement with a drain and a drainage surface;
   wherein said plate is operative to cover a drain, bear weight, and pass fluids through said apertures.

19. The drain cover of claim 18, wherein said apertures have a perimeter formed with a bevel.

20. The drain cover of claim 18, wherein said drain is in a floor, and wherein said cover lies substantially at the same height as said floor when installed.

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