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(54) **SEPTIC SYSTEM**

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(57) **ABSTRACT**

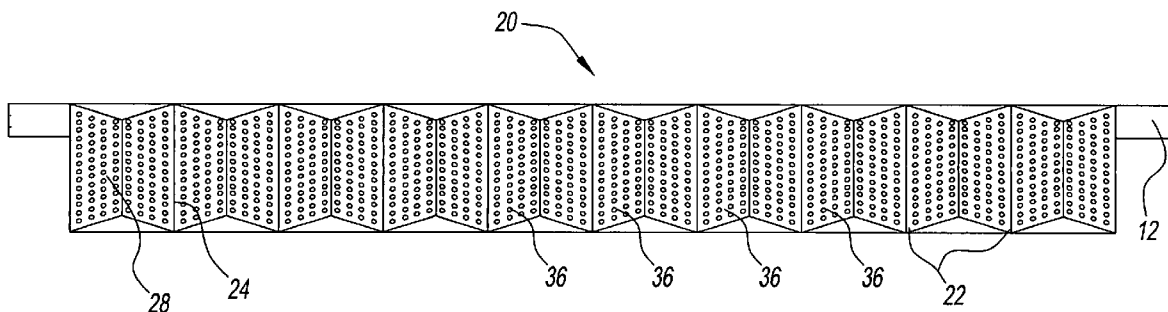
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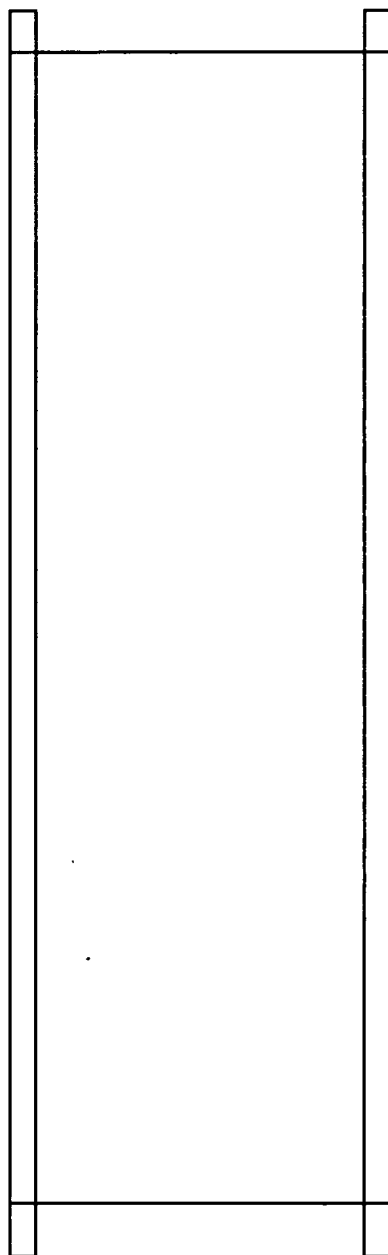
**Related U.S. Application Data**

(63) Continuation-in-part of application No. 11/235,405,  
filed on Sep. 26, 2005.

A modular or integral appendage for a septic gallery or conduit has a first section for connected to a lateral side of the gallery with the first section having a number of apertures thereon. The first section has a first area. The lateral side of the septic gallery has a second area. The first area is greater than the second area for increased drainage and thus adds capacity to the gallery or conduit.



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*Fig. 1*  
*(Prior Art)*

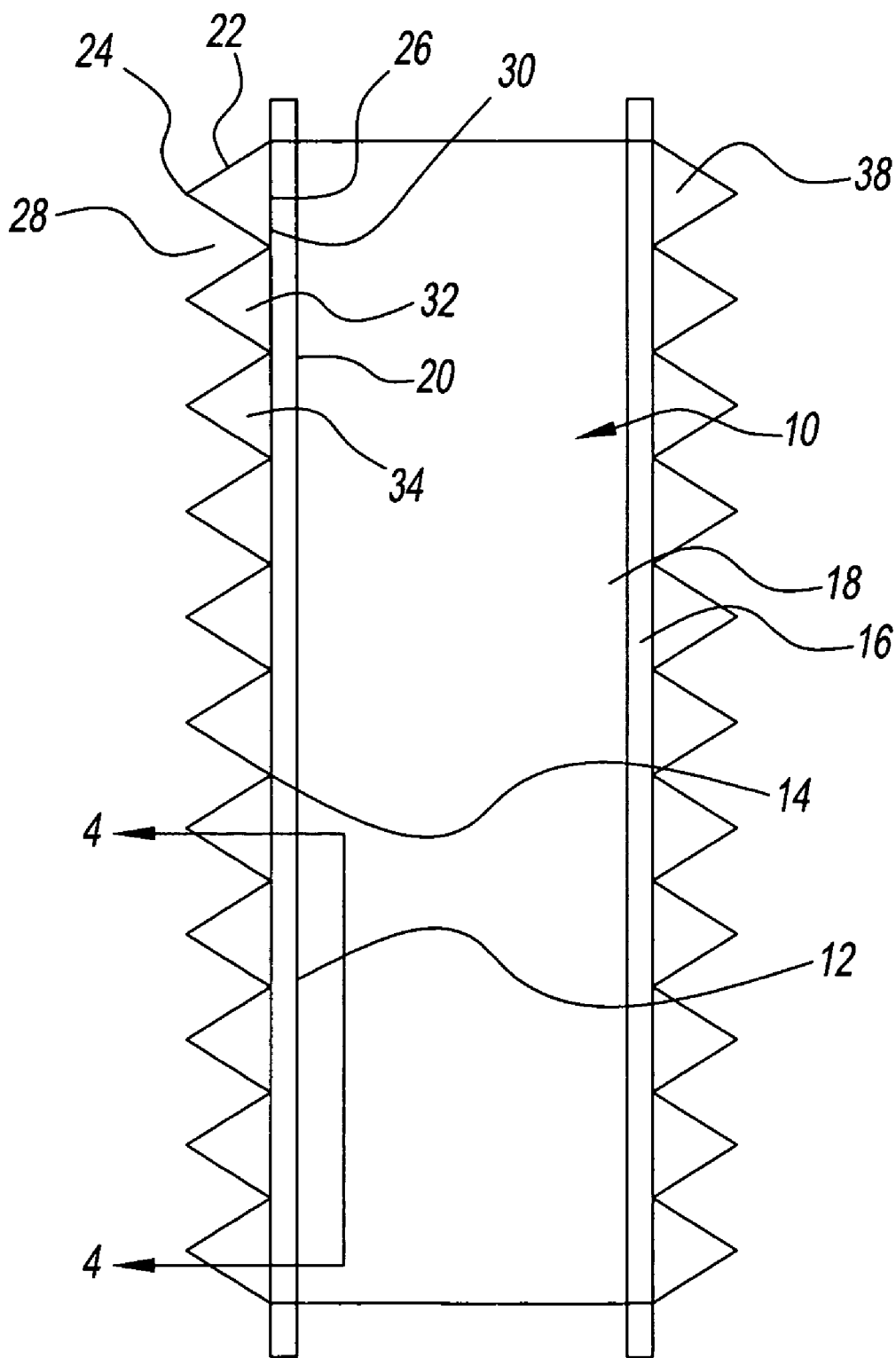


Fig. 2a

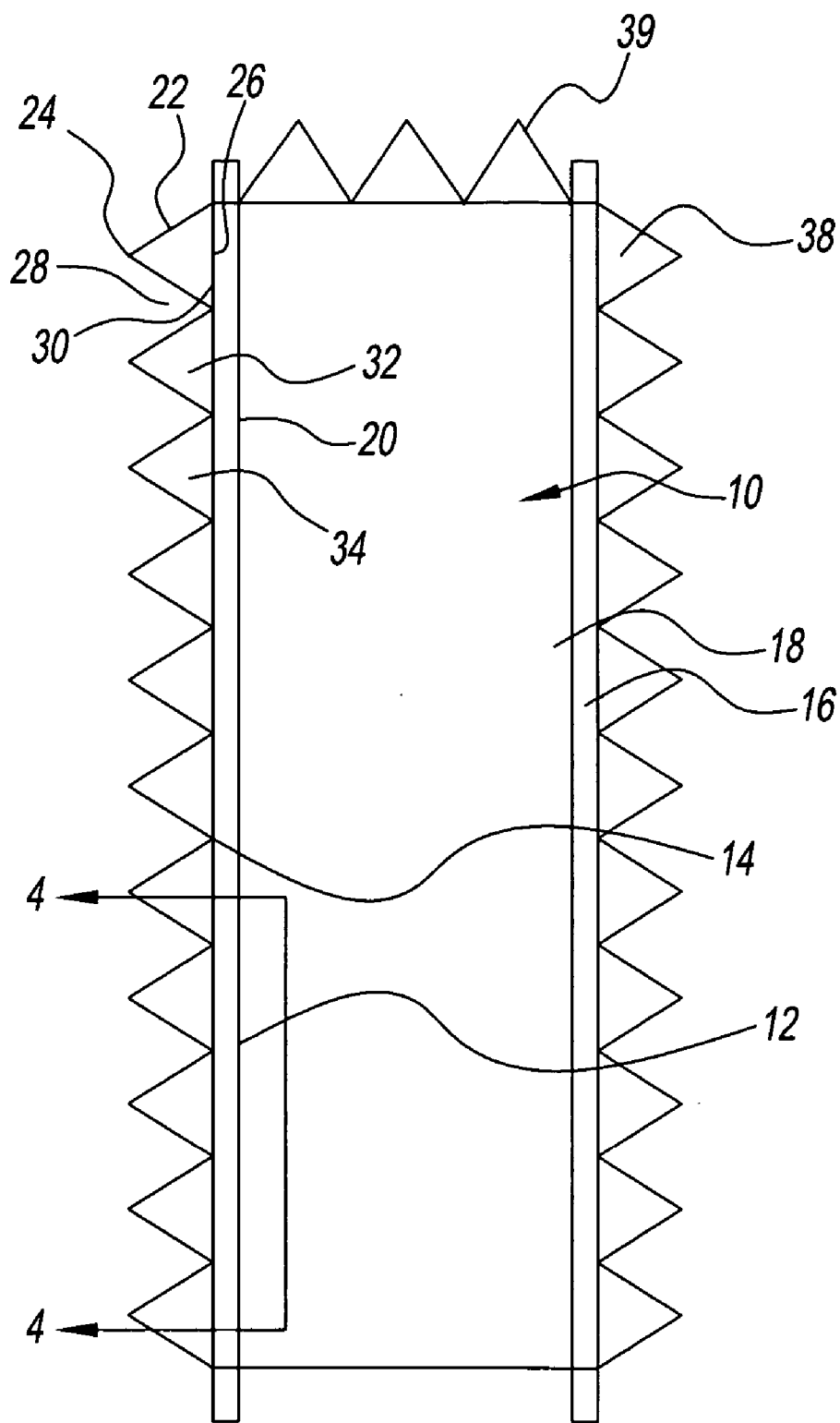


Fig. 2b

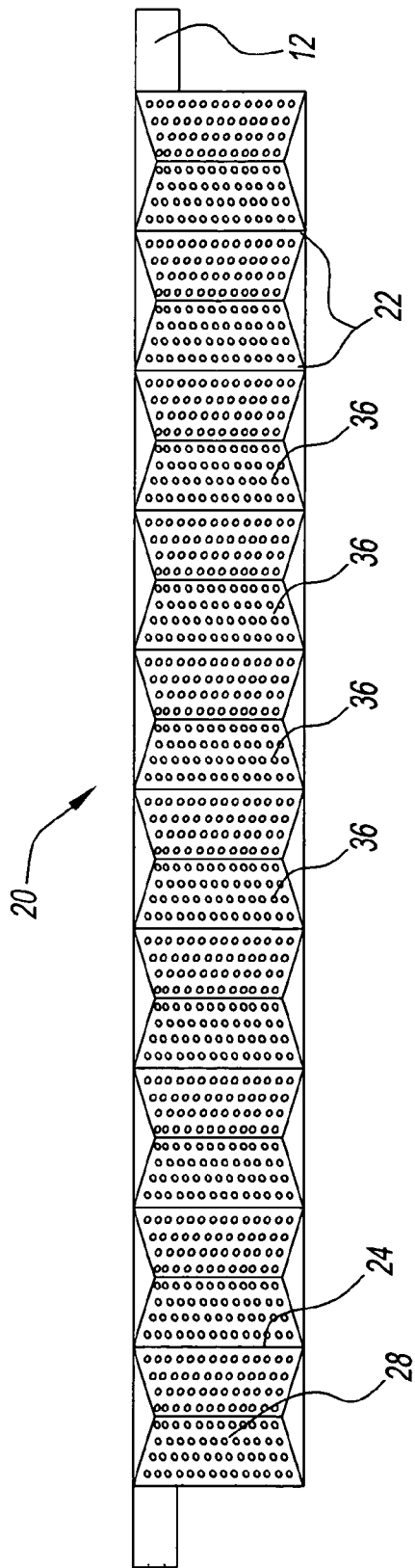


Fig. 3

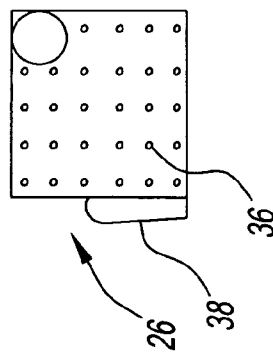


Fig. 4

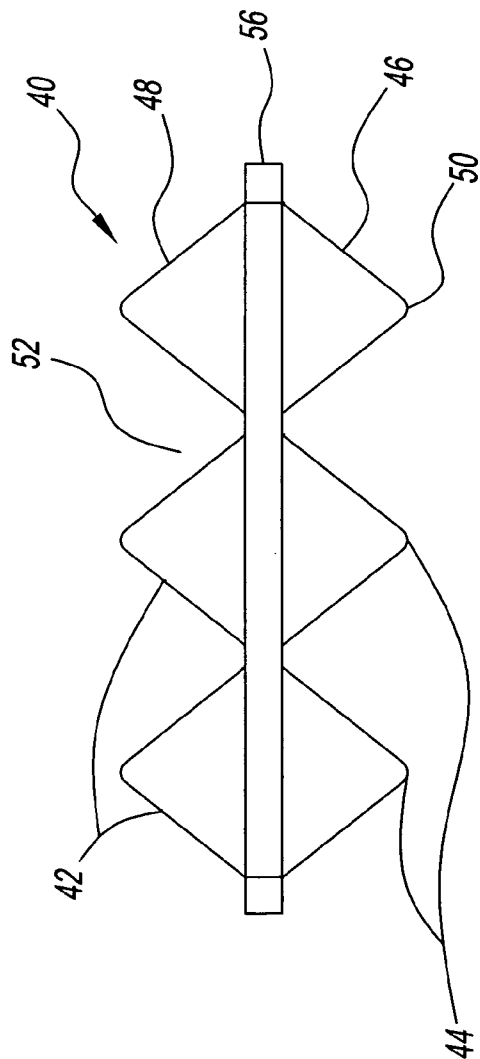


Fig. 5

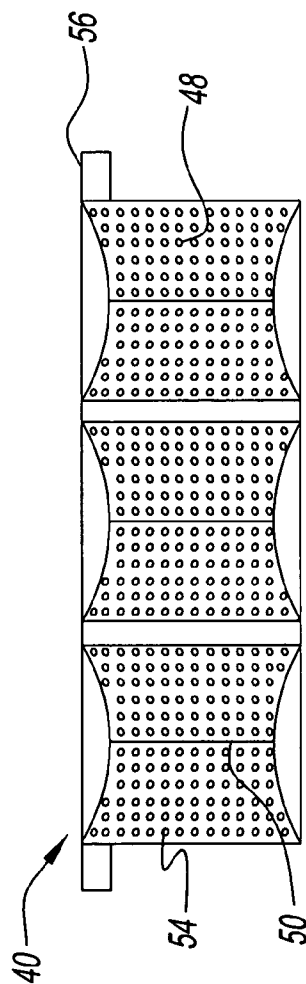


Fig. 6

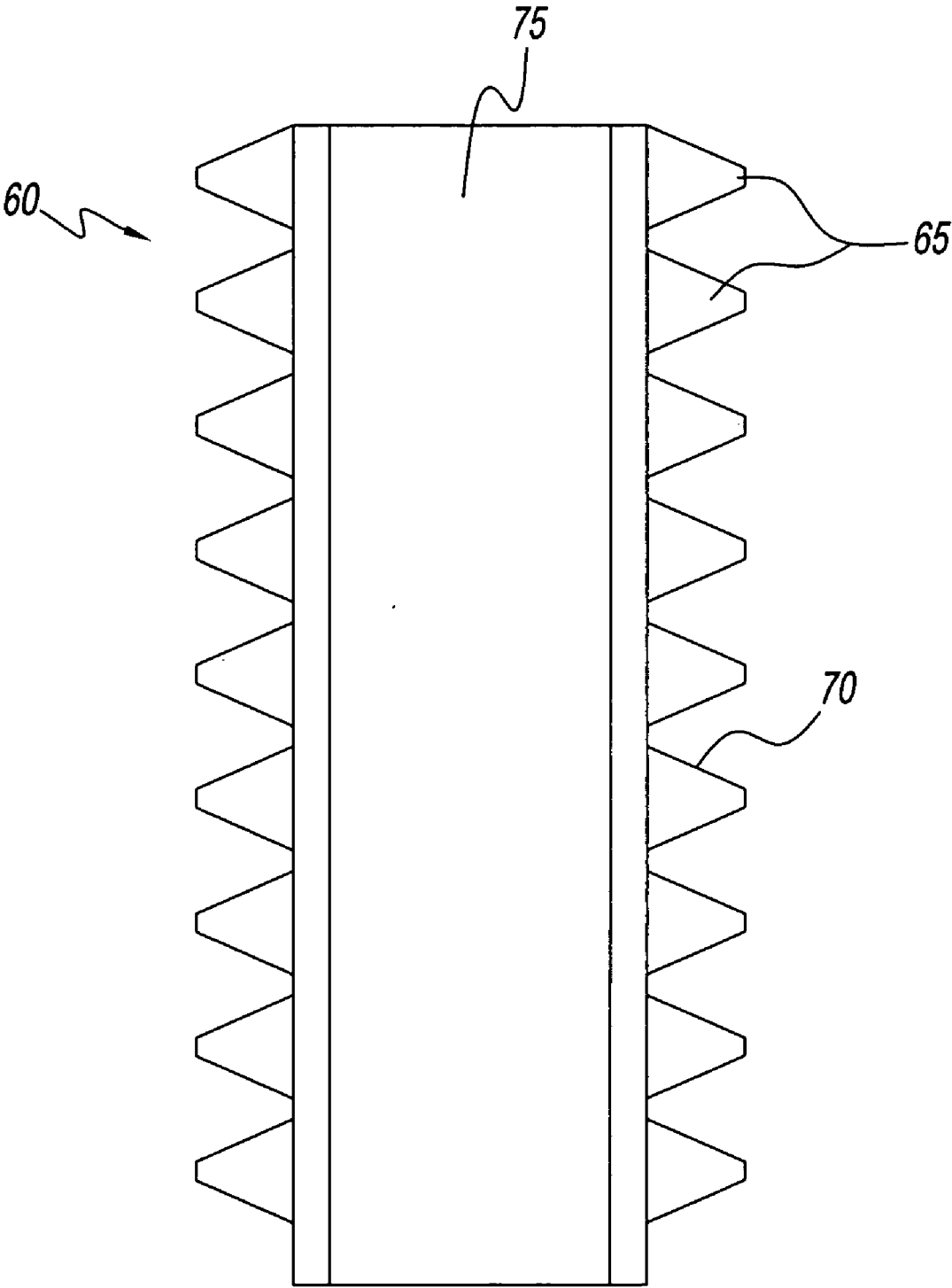


Fig. 7

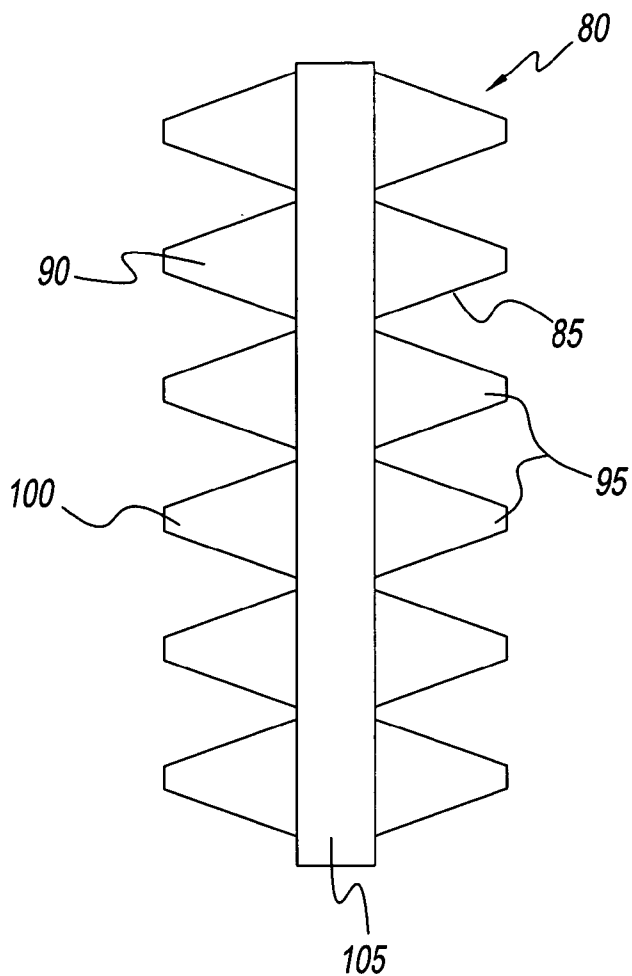


Fig. 8

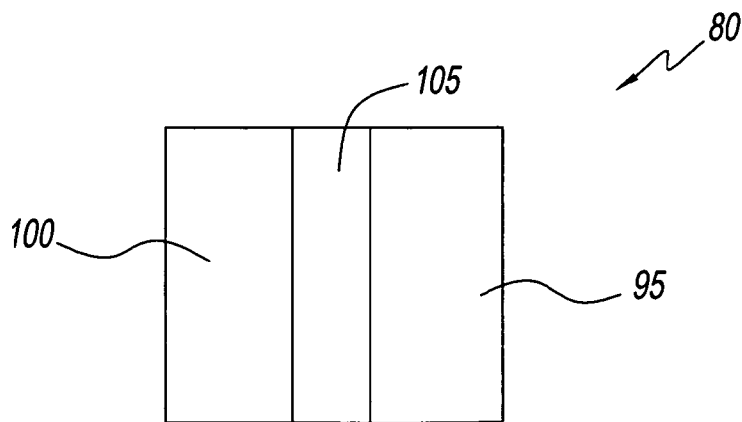


Fig. 9



**SEPTIC SYSTEM**

**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This application is a continuation-in-part of U.S. application Ser. No. 11/235,405 filed on Sep. 26, 2005.

**BACKGROUND OF THE INVENTION**

[0002] 1. Field of the Invention

[0003] The present invention relates to a septic system for handling household waste water. More particularly, the present invention relates to a septic system that can expand the amount of filtering material around or adjacent to a conventional new, existing septic gallery, or provide a new unitary gallery to expand a septic system capacity.

[0004] 2. Description of the Related Art

[0005] Septic systems are well known in the art. One such septic system is disclosed in U.S. Pat. No. 4,759,661 to Nichols, et al. (hereinafter "Nichols"). Nichols discloses a leaching system conduit made from a thermoplastic member having lateral sidewalls with a number of apertures. The thermoplastic member is an arch shaped member in cross section and has the apertures for the passage of liquid therethrough. The lateral sidewalls also have a number of corrugations formed in a rectangular shaped manner.

[0006] Such septic systems are deficient in their operation. First of all, zoning ordinances for certain sized homes require larger septic systems. Such larger septic systems may not fit on the desired building lot. A large number of bedrooms in a new home construction require according to some zoning laws that a certain sized septic system be used or that the certain sized septic system have a predetermined volume. This can be problematic under certain circumstances because the desired septic system may not fit in a certain lot and the new home owner may be limited to only a second sized septic system that is less than desired. With this smaller septic system, the new home builder thus must reduced the size of the new home. Secondly, in other circumstances homeowners may wish to expand the capacity of the septic system in a retrofit manner from a first size to another second size to accommodate a larger home.

[0007] However, a known problem in the art is that the under this arrangement, the second sized larger septic system like Nichols' leaching system will require the homeowner to excavate the leaching system and remove the leaching system. Thereafter, the homeowner will have to remove additional soil and dirt and then insert a new second sized larger septic system. Thereafter, the homeowner may have to perform additional work to the home to accommodate the home with this replacement and further obtain all of the requisite permits and variances to the zoning laws.

[0008] Accordingly, there is a need for a septic system that increases an amount of filtering medium so smaller septic systems may be used with larger homes thus maintaining an amount of effluent entering the septic system. There is also a need for a septic system that does not require replacement of the entire septic system for an upgrade. There is also a need for a septic system that has a more productive filtering. There is a further need for a septic system that has an attachment that can expand a complementary filtering area

of the septic system. There is a further need for a septic system that is entirely unitary and has a smaller foot

[0009] There is also a need for such a system that eliminates one or more of the aforementioned drawbacks and deficiencies of the prior art.

**SUMMARY OF THE INVENTION**

[0010] It is an object of the present invention to provide a septic system for a residential home or commercial building.

[0011] It is another object of the present invention to provide a septic system that can be connected in a modular fashion to an existing septic system.

[0012] It is yet another object of the present invention to provide a septic system that increases a surface area on a lateral side of an existing septic system.

[0013] It is still another object of the present invention to provide a device that adds capacity to an existing septic system.

[0014] It is still yet another object of the present invention to provide a septic system that has a large capacity in a smaller footprint or space underneath ground.

[0015] It is a further object of the present invention to provide a septic system that has a baffling arrangement on a lateral side for an improved interface with ground.

[0016] It is a further object of the present invention to provide a septic system that has a triangular baffling arrangement on a lateral side of an existing system for an improved interface with sand.

[0017] It is a further object of the present invention to provide a septic system that has a trapezoidal baffling arrangement on a lateral side of an existing system for an improved interface with sand.

[0018] It is yet a further object of the present invention to provide a unitary septic system having either a triangular or a trapezoidal baffling arrangement on opposite sides of a narrow pipe.

[0019] These and other objects and advantages of the present invention are achieved by a septic system of the present invention. The system has a modular appendage for a septic gallery and the appendage has a first modular section for connection to a lateral side of the gallery with the first modular section having a apertures thereon. The first modular section has a first area, and the lateral side of the septic gallery has a second area, with the first area greater than the second area of the gallery.

**DESCRIPTION OF THE DRAWINGS**

[0020] FIG. 1 illustrates a prior art septic gallery;

[0021] FIGS. 2a and 2b illustrate a top plan view of the appendages of the present invention connected to a septic gallery;

[0022] FIG. 3 illustrates a front view of the appendage for the septic gallery;

[0023] FIG. 4 illustrates a cross-sectional view of the septic gallery taken along line 3-3 of the gallery of FIG. 1;

[0024] FIG. 5 illustrates a top plan view of two appendages of the present invention connected to each other without a septic gallery;

[0025] FIG. 6 illustrates a front view of the appendages of FIG. 5 of the present invention;

[0026] FIG. 7 illustrates a top view of the appendages of a second embodiment of the present invention having trapezoidal appendages on opposite sides of a gallery;

[0027] FIG. 8 illustrates a top view of the third embodiment of the present invention having a unitary construction and trapezoidal appendages and a central conduit/pipe; and

[0028] FIG. 9 illustrates a top front view of the third embodiment of the present invention of FIG. 8.

#### DETAILED DESCRIPTION OF THE INVENTION

[0029] Referring to FIG. 1, there is shown a septic gallery 5 as is known in the art. The septic gallery 5 is preferably a container that is placed in a leaching field, such as ground or sand, and is utilized for drainage of effluent. Effluent is a term commonly used for waste materials such as liquid and solid industrial refuse or liquid and solid residential sewage that flows out of a source and is discharged into the environment. The effluent is carried from a source such as a bathroom to the septic tank, then to the leaching field for dispersion, diffusion, or percolation, into surrounding soil.

[0030] Known pipes carry the effluent discharge and release the material into a chamber, or vault such as the septic gallery 5. The gallery 5 as is known will have a number of perforation or holes leading from the septic gallery 5. The gallery 5 is usually buried in a trench to facilitate dispersion of the effluent into the soil. All of the solid effluent stays in the septic tank, and only the liquid and liquid effluent diffuses into the sand.

[0031] In some systems, the gallery 5 is defined by a large diameter perforated conduit. In other systems, the gallery 5 is perforated to provide direct dispersion into the sand. The effluent is then dispersed into the soil either through the soil serving as the floor of the gallery 5 or, when effluent accumulates in the gallery, through passages in side walls thereof.

[0032] One known problem in the art is that the interface between the gallery 5 and the ground only allows for a finite flow or dispersion rate of liquid waste from the gallery to the soil or sand on the other side. The inventor of the present invention has recognized this known problem and has solved the problem with the present invention that has a number of unexpected benefits that increase a capacity for liquid waste of the gallery 5, and allows an increased amount of liquid and liquid waste to diffuse into the ground.

[0033] A prior art septic gallery 5 is commonly concrete or formed of plastic resin material and corrugated for strength. This septic gallery 5 is formed in sections that are mated to vary the effective length of the leach field. Sometimes multiple septic galleries 5 are connected to one another to increase the length and capacity of the leaching field, for example a home.

[0034] Referring now to FIG. 2a, there is shown the septic gallery 10 of the present invention buried beneath the

ground. The septic gallery 10 is preferably connected to an effluent source, and has a first conduit 12 or pipe that is connected to a septic tank or pump chamber. In one embodiment, the septic gallery 10 has a four foot width although galleries can be provided in a variety of standard and/or conventional sizes to accommodate homes and or properties of differing sizes. The septic gallery 10 preferably has a first conduit 12 on a first side 14 of the gallery, and a second conduit 16 on a second side 18 of the gallery. The effluent is in a liquid form and preferably enters the gallery 10 from the first conduit 12 and the second conduit 16 to fill the gallery over time to capacity. Capacity is the number of gallons of effluent and depends on the size of the residence or waste source above ground. After a period of time, prior art galleries becomes full with liquid effluent, and must be replaced.

[0035] What is desirable is a device that may increase a capacity of the septic gallery while liquid effluent is not be stored therein. Instead, the liquid effluent is diffused to the surrounding environment to percolate through ground for filtering thereof. Most preferably, the present invention achieves this need in an unexpected manner.

[0036] The gallery 10 has a first appendage 20 on the first lateral side 14 of the gallery 10. Preferably, the first appendage 20 contacts the ground or sand in the ground contacting side, and also communicates with the first conduit 12 on the first side 14 of the gallery opposite the ground contacting side. The surrounding earth or sand presses appendage 20 to gallery 10. Alternatively, the appendage 20 and the gallery 10 may be formed as one integrated structure or as separate discrete pieces. The first appendage 20, in one embodiment, may be permanently connected to the septic gallery 10 by a connector. Alternatively, the first appendage 20 may be a modular member that is removably connected to the septic gallery 10, for easier replacement thereof.

[0037] Preferably, the first appendage 20 has a number of shaped members to permit enhanced diffusion of the effluent into the ground. The first appendage 20 has any acceptable shape to permit diffusion into the ground from the gallery 10 in a rapid manner. Preferably, the first appendage 20 has a number of three-sided or triangular shaped members generally represented by reference numeral 22 with each having an apex 24 and a base portion 26. The three-sided members could have a rounded tip. The triangular shaped members 22 collectively preferably form a baffle. Each member 22 is preferably a triangular member having two equal sides to form a substantially isosceles triangle. However, each member 22 can be a substantially equilateral triangle in which each angle includes approximately 60 degrees. Still further, each member 22 may be any three-sided member. Each member 22 is made from a material capable of withstanding the environment of the septic tank and gallery, such as, for example, a plastic resin material that would include resilient thermoplastic, polycarbonate, polyvinyl chloride (PVC), acrylonitrile-butadiene-styrene (ABS), polyurethane, or acrylic resin.

[0038] In an alternative embodiment, a septic system 60 is shown in FIG. 7. Septic system 60 has a plurality of appendages 65 that each have a flattened tip to form a trapezoid, instead of an apex as shown in the previous embodiment. The plurality of trapezoidal shaped appendages 65 collectively form a baffle 70. Appendages 65 are on

opposite sides of gallery **75** to effect the diffusion of effluent. Appendages **65** each have a pattern of holes therethrough to expedite the passage of the effluent into the surrounding soil. The dimensions of each appendage vary and can be from one foot to two feet long. The width of each appendage at its bases can be approximately 4 inches and taper to approximately 3 inches. Similarly, the length of baffle **70** can vary to meet the necessary septic system capacity.

[0039] In one non-limiting embodiment, the base portion **26** has a width of about one foot. A diffusion space **28** is formed between a first triangular member **30** and a second triangular **32** member of the baffle **22**. The diffusion space **28** is also triangular shaped and is preferably allowed to fill in with an acceptable ground contacting material such as sand, gravel, or any combination thereof, for diffusion. Likewise, a second diffusion space **28** is formed between the second triangular member **32** and a third triangular member **34**. This structure continues along the length of the septic gallery **10**. A similar configuration is possible for the trapezoidal shaped appendages, in which successive trapezoidal shaped appendages have a trapezoidal or triangular space therebetween.

[0040] Referring to FIG. 3, there is shown a frontal view of the baffle with the diffusion spaces **28**. The baffle **22** has a number of apertures **36** thereon. The liquid effluent preferably traverses through the apertures **36** and then diffuses into the soil, sand, gravel, or ground. The baffle **22** preferably increases a surface area of the lateral side of the first appendage **20** of the septic gallery **10** to allow an increased amount of liquid effluent to escape from the first appendage, and traverse through the apertures and for diffusion to the sand, or ground.

[0041] Referring to FIG. 4, there is shown a cross sectional view of the first appendage **20** along line 4-4 of FIG. 2a. The base portion **26** of each triangular member of the baffle **22** has the apertures **36** in a configuration.

[0042] Preferably, the septic gallery **10** also has a second appendage **38** located on a second side **16** of the septic gallery **10** as shown in FIG. 1. Additionally, the first and the second appendages **20**, **38** may form modular members to retrofit to an existing septic gallery **10** to increase a capacity thereof. Appendages **20** and **38** can be fabricated to accommodate existing and new galleries. Spaces between first and second appendages **20** and **38**, respectively, can be filled with mason sand or any such material that can accept the fluid. Referring to FIG. 2b, gallery **10** could also have an additional third appendage **39** affixed to an end thereof to provide diffusion capability on three sides.

[0043] Referring to FIGS. 5 and 6, a second embodiment of an appendage system **40** of the present invention, is shown. System **40** has two appendages **42** and **44** that are abutting each other. Each appendage **42** and **44** can have any number of triangular elements **46** to form a baffle **48**. Each baffle **48** has numerous apertures **54** to allow for passage of effluent into leaching field. Triangular elements **46** can have rounded tips **50** to further increase the surface area of diffusion of liquid into the soil **52** in the leaching field. Baffle **48** preferably increases a surface area of the lateral side of the first appendage **42** and **44** to allow an increased amount of liquid effluent to escape from the appendages and channel **56**, and traverse through the apertures and for diffusion to the sand, or ground.

[0044] In a third embodiment of the present invention shown in FIGS. 8 and 9, septic system **80** has an entirely

unitary structure. System **80** has a first baffle **85** and a second baffle **90**. Each baffle has a plurality of trapezoidal appendages **95** and **100**, respectively, integrally connected thereto to form a unitary trapezoidal configuration. A center channel **105** or conduit extends through the center of baffle **85** and facilitates the flow of effluent from source and through appendages **95** and **100**. Channel **105** has a relatively small diameter relative to the dimensions of the appendages **95**, to maintain a small footprint of the entire system without compromising dispersion capability. Channel **105** has a length of approximately from 6 feet to approximately 8 feet long. The height and width are approximately 1 foot to 3 feet depending upon the required capacity of the system. Appendages **95** and **100** are approximately 1½ feet to 2 feet in length away from channel **105**. The overall width of conduit **105** together with appendages **95** and **100** is preferable from 4 feet to 6 feet. The unitary configuration permits a high capacity septic system with a small footprint thus minimizing the amount of land required for placement beneath or near a residence or building.

[0045] It should be understood that the foregoing description is only illustrative of the present invention. Various alternatives and modifications can be devised by those skilled in the art without departing from the scope of the present invention. Accordingly, the present invention is intended to embrace all such alternatives, modifications and variances.

What is claimed is:

1: A modular appendage for a septic gallery having a lateral side with a second area, the modular appendage comprising:

a first modular section for connection to the lateral side of the gallery, said first modular section having a plurality of apertures thereon, wherein said first modular section has a first area that is greater than said second area of the gallery; said first modular section having a plurality of polygonal members thereon.

2: The modular appendage of claim 1, wherein said first modular section may be stacked horizontally and connected to another second modular section.

3: The modular appendage of claim 1, wherein said first modular section may be stacked vertically and connected to another second modular section.

4: The modular appendage of claim 1, wherein said first modular section forms a plurality of polygonal shaped members with each of said polygonal shaped members having a distal portion and a base portion opposite said distal portion.

5: The modular appendage of claim 4, wherein each of said plurality of polygonal shaped members has said distal portion opposite said second area of the septic gallery, and wherein said base portion is connected to said second area of said septic gallery.

6: The modular appendage of claim 4, wherein said first modular section is made from a plastic resin material selected from the group consisting of resilient thermoplastic, polycarbonate, polyvinyl chloride (PVC), achrlonitride-butadiene-styrene (ABS), polyurethane and acrylic resin, and any combinations thereof.

7: The modular appendage of claim 4, wherein said first modular section has a plurality of polygonal shaped members including a first polygonal shaped member having a first distal end and a second polygonal shaped member

having a second distal end, wherein the first modular section has a space formed between said first distal end and said second distal end, said space being suitable to have earth disposed therein.

**8:** The modular appendage of claim 7, wherein said earth therein is selected from the group consisting of a filtering medium, sand, dirt, rock, gravel, an organic medium, an inorganic medium, an insulating material, and any compositions thereof.

**9:** The modular appendage of claim 1, wherein said polygonal member is one of a triangle or a trapezoid.

**10:** The modular appendage of claim 9, wherein said triangle is one of an equilateral triangle or an isosceles triangle.

**11:** A modular appendage for a septic conduit, said gallery having a first lateral side, a second lateral side being opposite said first lateral side and a third side perpendicular to said first side and said second side, the modular appendage comprising:

a first modular section for connection to the first lateral side of the septic gallery, said first modular section having a plurality of apertures thereon, wherein said first modular section has a plurality of polygonal shaped members; and

a second modular section for connection to the second lateral side of the septic gallery, said second lateral side being opposite said first lateral side, said second modular section having a plurality of apertures thereon, and wherein said second modular section comprises a second plurality of polygonal shaped members, wherein said second plurality of polygonal shaped member forms a plurality of spaces therebetween, said plurality of spaces being suitable to insert a filtering material therein.

**12:** The modular appendage of claim 11, wherein said filtering material is selected from the group consisting of sand, dirt, rocks, gravel, an organic medium, an inorganic medium, an insulating material, and any combinations thereof.

**13:** The modular appendage of claim 11, further comprising third modular section for connection to said and a third side of the gallery, perpendicular to said first side and said second side, said third modular section being sized in a complementary manner to the septic gallery.

**14:** The modular appendage of claim 11, wherein said first modular section further comprises an intermediate member connected to said first lateral side of the septic gallery, said intermediate member having said plurality of apertures thereon, said plurality of apertures extending into both said plurality of polygonal shaped members and the septic gallery.

**15:** The modular appendage of claim 12, wherein said second modular section further comprises a second intermediate member connected to said second lateral side of the

septic gallery, said second intermediate member having said plurality of apertures thereon, said plurality of apertures extending into both said plurality of polygonal shaped members and the septic gallery.

**14:** The modular appendage of claim 9, wherein said first modular section is retrofit to the septic gallery.

**15:** The modular appendage of claim 9, wherein second first modular section is retrofit to the septic gallery.

**16:** The modular appendage of claim 11, wherein said polygonal member is one of a triangle or a trapezoid.

**17:** The modular appendage of claim 11, wherein said triangle is one of an equilateral triangle or an isosceles triangle.

**18:** A septic system for a leaching field comprising:

a conduit having a first surface and a second surface and an interior for transporting an amount of effluent therein, said first surface and said second surface being parallel; and

at least one filtering expansion device having a plurality of apertures and integrally connected to one of said first surface or said second surface, said at least one expansion device for increasing an effective filtering area of said conduit at said first surface.

**19:** The septic system of claim 18, wherein said at least one first filtering expansion device comprises a plurality of trapezoidal shaped members each of said plurality of trapezoidal shaped members having a distal portion disposed opposite and parallel to one of said first surface or said second surface.

**20:** The septic system of claim 19, wherein ones of said plurality of trapezoidal shaped members are spaced from others of said plurality of trapezoidal shaped members forming a space therebetween, said space being suitable for a filtering medium to be in said space.

**21:** The septic system of claim 19, further comprising a second filtering expansion device, said second filtering expansion device being adjacent a surface of said conduit and opposite said first filtering expansion device.

**22:** The septic system of claim 19, wherein said effluent conduit for delivering effluent is disposed between said first filtering expansion device and said second filtering expansion device.

**23:** The septic system of claim 21, wherein said second filtering expansion device comprises a plurality of trapezoidal shaped members each having an distal end disposed opposite said interior.

**24:** The septic system of claim 21, wherein said first surface, said second surface and said first filtering expansion device and said second filtering expansion device are integrally constructed.

**25:** The septic system of claim 19, wherein said conduit is a narrow channel or a pipe.

\* \* \* \* \*