APPARATUS FOR DISLODGING A PLUMBING SYSTEM AND METHOD OF USE

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ABSTRACT

An apparatus for dislodging a blocked plumbing system and method of use are disclosed. In one form, an apparatus for dislodging a plumbing system via a drain receptacle includes a substrate shaped to cover a portion of a drain receptacle. The substrate includes an exterior edge having a shape substantially similar to the drain receptacle and a top portion and a bottom portion and a hole extending through the substrate. A gasket is coupled to the exterior edge of the substrate and operable to create a substantially airtight seal between the drain receptacle and the substrate. The apparatus includes a valve extending through a portion of the hole and coupled to the top portion of the substrate and the valve selectively is operable to provide an open state and a closed state. The closed state provides a substantially airtight seal between a void volume and a vacuum source and the open state enabling a fluid communication path between the vacuum source and the void volume. The apparatus further includes an elongated pipe including a first end coupled to a portion of the valve and a second end and a curved pipe having a first curved pipe end and a second curved pipe end, the first curved pipe end coupled to the second elongated pipe end and the second curved pipe end operable to be connected to a vacuum source.
APPARATUS FOR DISLODGING A PLUMBING SYSTEM AND METHOD OF USE

FIELD OF THE DISCLOSURE

[0001] The invention relates to plumbing systems, and more particularly to an apparatus for dislodging a plumbing system and method of use.

BACKGROUND

[0002] Three common methods of unclogging plumbing systems include plunging a plumbing line, adding chemicals to a plumbing line or augering a plumbing line. For example, a conventional plumbing system that connects a commode, toilet, or sink having a plumbing drain trap that is open at the top and includes a bend to hold water within a drain trap to prevent the intrusion of sewer gasses or undesired odors from entering a house or commercial building. One drawback to such a configuration is the drain is typically below the toilet, commode or sink and includes a straight plumbing line void of any traps. From time to time, a blockage or clog exists between a bend and along the straight line. For example, a toilet that is clogged may include blockage that is located below toilet bowl and above the bathroom floor. A plunger may be used to remove the blockage by forcing water through the toilet bowl and into the drain pipe. Chemicals are also available to dissolve a blockage are usually designed to decompose hair and/or dissolve grease. Such chemicals often do not work because of the various compositions of materials that clog plumbing systems. Sewer augers may also be used to dislodge a plumbing system by inserting an elongated cable with a metallic end piece physically penetrating or dislodging the blockage. Most augers allow for a rotating action of the cable and end piece through the plumbing lines. However, the plumbing system may be easily damaged

[0003] Each of these conventional methods include forcing a type of material into a partially clogged drain pipe which from may cause the plumbing system to become clogged further along the plumbing system. As such, an affordable alternative for removing blockage from a plumbing system is needed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Other advantages, features and characteristics of the invention, as well as methods, operation and functions of related elements of structure, and the combinations of parts and economies of manufacture, will become apparent upon consideration of the following description and claims with reference to the accompanying drawings, all of which form a part of the specification, wherein like reference numerals designate corresponding parts in the various figures, and wherein:

[0005] FIG. 1 illustrates a block diagram of an apparatus for dislodging a plumbing system according to one embodiment of the invention;

[0006] FIG. 2 illustrates an apparatus for dislodging a plumbing system according to one embodiment of the invention;

[0007] FIG. 3 illustrates a side perspective view of an apparatus for dislodging a plumbing system having a commode according to one embodiment of the invention; and

[0008] FIG. 4 illustrates a side perspective view of a plumbing valve for use with an apparatus for dislodging a plumbing system according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE FIGURES

[0009] An apparatus for dislodging a blocked plumbing system and method of use are disclosed. In one form, an apparatus for dislodging a plumbing system via a drain receptacle includes a substrate shaped to cover a portion of a drain receptacle. The substrate includes an exterior edge having a shape substantially similar to the drain receptacle and includes a top portion and a bottom portion and a hole extending through the substrate. A gasket is coupled to the exterior edge of the substrate and operable to create a substantially airtight seal between the drain receptacle and the substrate. The apparatus includes a valve extending through a portion of the hole and coupled to the top portion of the substrate and the valve selectively operable to provide an open state and a closed state. The closed state provides a substantially airtight seal between a void volume and a vacuum source and the open state enables a fluid communication path between the vacuum source and the void volume. A substantially elongated pipe including a first end coupled to a portion of the valve and a second end is also provided. The apparatus further includes a curved pipe having a first curved pipe end and a second curved pipe end. The first curved pipe end is coupled to the second elongated pipe end and the second curved pipe end operable to be connected to a vacuum source.

[0010] A method of dislodging a blockage from a plumbing system is also provided. The method includes providing a vacuum enabled unclogging device having a substrate shaped to cover a portion of a drain receptacle. The substrate includes an exterior edge having a shape substantially similar to the drain receptacle. The substrate further includes a top portion and a bottom portion and a hole extending through the substrate. A gasket is coupled to the substrate and is operable to create a substantially airtight seal between the drain receptacle and the substrate. A valve extends through a portion of the hole and is coupled to the top portion of the substrate and is selectively operable to provide an open state and a closed state. The closed state providing a substantially airtight seal between a void volume and a vacuum source and the open state enables a fluid communication path between the vacuum source and the void volume. The apparatus further includes a substantially elongated pipe including a first end coupled to a portion of the valve and a second end operable to be coupled to the vacuum source. The method further includes covering the drain receptacle using the vacuum enabled unclogging device and coupling the vacuum source to the second end. The valve is opened to provide the open state and the vacuum source is enabled to dislodge the blockage.

[0011] In a particularized form, an apparatus for dislodging a blocked plumbing system includes a substrate shaped to cover a toilet bowl's top surface. The substrate includes an exterior edge having a shape substantially similar to the top surface of a rim of a toilet bowl. The substrate further includes a top portion and a bottom portion and a four inch diameter hole through the top portion and the bottom portion. The hole is approximately centered relative to the exterior edges. A gasket is coupled to the substrate and is
operable to create a substantially airtight seal between the rim and the substrate. A valve extending through a portion of the hole is coupled to the top portion of the substrate. The valve is selectively operable to provide an open state and a closed state. The closed state provides a substantially airtight seal between a void volume and a vacuum source and the open state creates a fluid communication path between the vacuum source and the void volume. The apparatus further includes a substantially elongated pipe having a length of approximately twelve inches and a diameter of approximately four inches. The elongated pipe includes a first end removably coupled to a portion of the valve and a second end. A curved pipe formed at a ninety degree angle is provided and has a first curved pipe end and a second curved pipe end. The first curved pipe end is coupled to the second elongated pipe end and the second curved pipe end is operable to be connected to the vacuum source.

[F0012] FIG. 1 illustrates a block diagram of an apparatus for dislodging a plumbing system according to one embodiment of the invention. Dislodging apparatus 10 may be coupled to plumbing system 11 using drain receptacle interface 12 operable to be coupled to a vacuum source 13. Plumbing system 11 may be any type of conventional wastewater plumbing system capable of transporting waste water to a septic system and the like. Some conventional wastewater systems include sinks, bathtubs, showers, etc. having various sized drain or drain receptacles and associated plumbing for connecting to a septic or waste water system (not expressly shown). Other conventional wastewater systems also include toilets, urinals, and the like and may be provided having various sizes and plumbing configurations. Dislodging apparatus 10 may be coupled to a plumbing system 12 using drain receptacle interface 12 to create a substantially airtight seal when vacuum source 13 is enabled.

[F0013] During use, drain receptacle interface 12 may be coupled to plumbing system 11. Vacuum source 13 is coupled to a portion of drain receptacle interface 12 and enabling vacuum source 13 a vacuum between a portion of plumbing system 11 and vacuum source 13 resulting in dislodging of materials and/or wastewater within plumbing system 11. In one embodiment, as wastewater and/or a material is removed, a user may detect removal through observing a material via a portion of drain receptacle interface 12 feeling the vacuum source’s hoses for increased weight within a portion of vacuum source 13 when a material is removed. Upon dislodging or removing a material, vacuum source 13 may be disabled and rain receptacle interface 12 may be removed from plumbing system 11 to test plumbing system 11 for additional blockage. A user may then repeat the process of coupling drain receptacle interface 12 to plumbing system 11 and evacuating a portion of plumbing system 11 to dislodge or clear a passage within plumbing system 11.

[F0014] In one embodiment, drain receptacle interface 12 may be placed over a portion of a drain for a sink (not expressly shown) such that when vacuum source 13 is enabled a substantially airtight seal or vacuum is created between drain receptacle interface 12 and plumbing system 11 resulting in a removal or dislodging of a blockage within plumbing system 11. In another embodiment, drain receptacle interface 12 may be sized to fit over a portion of a sink’s basin to create a vacuum within the sink basin (not expressly shown) resulting in a dislodging of materials, waste water, etc. that may be present within plumbing system 11 including a basin. For example, a sink may be partially filled with wastewater or some other liquid, material, debris, etc. and a drain for a sink or basin may not be accessible to couple drain receptacle interface 12 to a drain. As such, drain receptacle interface 12 may be placed over a portion of the sink, such as along an upper perimeter of the sink to create a vacuum seal to allow for extraction of liquid and other debris that may be within plumbing system 11. In this manner, plumbing system 11 that may include a blockage that may not be viewable or easy to excise from a drain need only be dislodged of material without fully extracting a material thereby enabling passage of wastewater during subsequent use.

[F0015] In another embodiment, drain receptacle interface 12 may be configured to be placed over the top edge or upper rim of a commode or toilet bowl (not expressly shown). Drain receptacle interface 12 may be coupled to a vacuum source 13 and when enabled or turned on, a substantially airtight seal is created between drain receptacle interface 12 and a commode creating a vacuum within a portion of plumbing system 11 resulting in dislodging or removal of a blockage.

[F0016] In a further embodiment, drain receptacle interface 12 may be placed over portion of a drain receptacle provided in association with a bathtub (not expressly shown). For example, drain receptacle interface 12 may be placed over a bathtub drain and vacuum source 13 may be coupled to a portion of drain receptacle interface 12 such that when vacuum source 13 is enabled a substantially airtight seal may be created between drain receptacle interface 12 and a bathtub drain creating a vacuum and dislodging an obstacle within plumbing system 11.

[F0017] Vacuum source 13 may include a wet/dry vacuum, a manual or electric pump, a truck mounted vacuum source, or various other types of vacuum sources such as those used to pump septic systems, provided with commercial carpet cleaner systems, or any other type vacuum source capable of safely vacuuming or evacuating liquid from plumbing system 11. For example, vacuum source 13 may include an electric or hydraulic pump operable to drain liquid from plumbing system 11 and expel liquid including the obstruction into a container that could be safely disposed. In another embodiment, vacuum source 13 may include a wet/dry vacuum having a disposable liner inside the vacuum to allow for sanitary disposal of materials removed from plumbing system 11.

[F0018] FIG. 2 illustrates an apparatus for dislodging a plumbing system according to one embodiment of the invention. Dislodging apparatus 1 includes a substrate 20 and a gasket 3 coupled to a bottom portion of substrate 20 having a thickness ranging from less than one inch to approximately two inches. Dislodging apparatus 1 further includes a valve 4 extending through a hole (not expressly shown) within substrate 20 and a substantially elongated pipe 5 having a first end 6 and a second end 7 and a length of approximately twelve (12) inches. Valve 4 is coupled to elongated pipe 5 which is further coupled elongated pipe 5 and a curved pipe 19 having a first curved pipe end 8 and a second curved pipe end 9 forming a ninety (90) degree angle and operable to be operable to be connected to a vacuum source (not expressly shown).
Dislodging apparatus 1 further includes a substrate 20 with an exterior edge including a gasket 3 and having a shape substantially similar to a drain receptacle (not expressly shown) and sized and shaped to cover a portion of a drain receptacle. Substrate 20 may be formed of one or more types of materials such as clear plastic, solid plastic, thermoplastic, metal, fiberglass, polyethylene, polypropylene, or other material having sufficient strength and durability such that a vacuum may be provided sufficient to dislodge a plumbing system of a blockage (not expressly shown). In one embodiment, substrate 20 is formed with clear plastic enabling the user to see materials such as water, waste, trash, etc when removed, expelled, or dislodged from a plumbing system.

Gasket 3 is coupled along the edges of substrate 20 and is operable to create a substantially airtight seal between a plumbing system (not expressly shown) and substrate 20 when a vacuum source is coupled to dislodging apparatus 1. Gasket may be formed from one or more types of materials such as rubber, synthetic rubber, synthetic rubber with inserted cloth material, Teflon, cork, silicon, or other gasket materials. In one embodiment, gasket 3 may cover the entire bottom portion of substrate 20 (not expressly shown) and may include a pliable or flexible material to allow for a more efficient vacuum to be established when placed along a portion of a plumbing system.

In one embodiment, a vacuum source is coupled directly to a coupled to elongated pipe second end 7 or valve 4.

During use, substrate 20 including gasket 3 is placed along a top side, upper rim, or along a top edge of a plumbing system's drain, basin, bowl, etc. A vacuum source is coupled to curved pipe second end 9 (not expressly shown) and valve 4 is placed in a closed position, creating a void volume. A vacuum source (not expressly shown) is then enabled, and valve 4 is placed in an open position allowing materials to be evacuated from a plumbing system. Removal of an appendage or obstruction may be detected through visually observing the material when passing along substrate 20 or by feeling a vacuum source's hose (not expressly shown) for increased weight when dense materials are extracted. For example, a material may be expelled into a vacuum source with very little water being withdrawn until an obstruction traverses through valve 4, along elongated pipe 5 and into a vacuum source. Dislodging apparatus 1 may then return to extracting primarily liquids or water. Upon a blockage being removed vacuum source may be placed in an off or disabled position and dislodging apparatus 1 may be removed from a plumbing system.

In one embodiment, other types or combinations of dislodging techniques may be used in association with dislodging apparatus 1 to assist with dislodging or unblocking a plumbing system. For example, an auger operable to break-up or fragment a blockage, one or more types of dissolving liquids or chemicals for dissolving a blockage before, during or after use of dislodging apparatus 1.

FIG. 3 illustrates a side perspective view of an apparatus for dislodging a plumbing system having a commode according to one embodiment of the invention. Commode dislodging apparatus 14 is coupled to a commode 15 along a rim 17 of commode 15. Commode dislodging apparatus 14 includes a gasket 18 and a curved pipe 25 coupled to an elongated pipe 26 and operable to form a substantially airtight seal when coupled to a vacuum source (not expressly shown) is coupled to curved pipe 16. During use, commode dislodging apparatus 14 is placed over the top edge or rim 17 of commode 15 and a vacuum source (not expressly shown) is coupled to exposed end of curved pipe 16. Vacuum source is enabled or activated and a substantially airtight seal is formed between gasket 18 and top edge of a commode's bowl 17 creating a vacuum within commode 17 resulting in a dislodging or removal of a blockage within a portion of commode 17 and/or associated plumbing system. FIG. 4 illustrates a side perspective view of a plumbing valve for use with an apparatus for dislodging a plumbing system according to one embodiment of the invention. Valve 19 includes a valve release 21 operable to provide an open state when valve release 21 is in a vertical position and a closed state when valve release 21 is in a horizontal position. The closed state provides a substantially airtight seal between a void volume, such as between vacuum source and a plumbing system (not expressly shown) and the open state creates a fluid communication path between the vacuum source (not expressly shown) and the void volume or a portion of a plumbing system. Valve 19 further includes a gasket 20 provided in association with valve 19 and operable to be coupled to a substrate of a dislodging apparatus (not expressly shown). elongated pipe 22 is coupled to valve 19 and may further be coupled to a vacuum source during use (not expressly shown).
During use, valve 14 may be provided in association with an apparatus for dislodging or unclogging a plumbing system (not expressly shown) and may be placed over a portion of a drain provided in association with a plumbing system. A vacuum source (not expressly shown) may be coupled to a portion of elongated pipe 22 with valve release 21 placed in a horizontal position to provide for a closed state. Vacuum source may then be enabled and valve release 21 may then be placed in a vertical position to allow for providing a substantially airtight seal between apparatus for dislodging or unclogging a plumbing system (not expressly shown). Upon dislodging of a blockage, the vacuum source may be deactivated and valve release may be returned to a horizontal position.

Note that although an embodiment of the invention has been shown and described in detail herein, along with certain variations thereof, many other varied embodiments that incorporate the teachings of the invention may be easily constructed by those skilled in the art. Benefits, other advantages, and solutions to problems have been described above with regard to specific embodiments. However, the benefits, advantages, solutions to problems, and any element(s) that may cause any benefit, advantage, or solution to occur or become more pronounced are not to be construed as a critical, required, or essential feature or element of any or all the claims. Accordingly, the invention is not intended to be limited to the specific form set forth herein, but on the contrary, is intended to cover such alternatives, modifications, and equivalents, as can be reasonably included within the spirit and scope of the invention.

What is claimed is:

1. An apparatus for dislodging a plumbing system via a drain receptacle comprising:
   - a substrate shaped to cover a portion of a drain receptacle, the substrate including an exterior edge having a shape substantially similar to the drain receptacle, the substrate further including a top portion and a bottom portion and a hole through extending through the substrate;
   - a gasket coupled to the exterior edge of the substrate and operable to create a substantially airtight seal between the drain receptacle and the substrate;
   - a valve extending through a portion of the hole and coupled to the top portion of the substrate, the valve selectively operable to provide an open state and a closed state, the closed state providing a substantially airtight seal between a void volume and a vacuum source, the open state enabling a fluid communication path between the vacuum source and the void volume;
   - an elongated pipe including a first end coupled to a portion of the valve and a second end; and
   - a curved pipe having a first curved pipe end and a second curved pipe end, the first curved pipe end coupled to the second elongated pipe end and the second curved pipe end operable to be connected to a vacuum source.

2. The apparatus of claim 1 wherein the substrate comprises a thickness of approximately two (2) inches or less.

3. The apparatus of claim 1 wherein the hole comprises a diameter of approximately four (4) inches.

4. The apparatus of claim 3 further comprising the hole approximately centered relative to the exterior edge of the substrate.

5. The apparatus of claim 1 wherein the elongated pipe comprises a length of approximately twelve (12) inches.

6. The apparatus of claim 5 wherein the elongated pipe comprises polyvinyl chloride compound (PVC).

7. The apparatus of claim 1 wherein the curved pipe comprises an angle of at least ninety (90) degrees.

8. The apparatus of claim 1 wherein the elongated pipe includes a first end removably coupled to the valve.

9. The apparatus of claim 16 wherein the gasket comprises a rubber material.

10. The apparatus of claim 1 further comprising the first curved pipe end removably coupled to the second elongated pipe end.

11. A method of dislodging a blockage from a plumbing system comprising:
   - providing a vacuum enabled plumbing system dislodging apparatus including:
     - a substrate shaped to cover a portion of a drain receptacle, the substrate including an exterior edge having a shape substantially similar to the drain receptacle, the substrate further including a top portion and a bottom portion and a hole extending through the substrate;
     - a gasket coupled to the substrate and operable to create a substantially airtight seal between the drain receptacle and the substrate;
     - a valve extending through a portion of the hole and coupled to the top portion of the substrate, the valve selectively operable to provide an open state and a closed state, the closed state providing a substantially airtight seal between a void volume and a vacuum source, the open state enabling a fluid communication path between the vacuum source and the void volume;
     - an elongated pipe including a first end coupled to a portion of the valve and a second end operable to be coupled to the vacuum source; and
   - coupling the vacuum source to the second end;
   - opening the valve to provide the open state; and
   - enabling the vacuum source to dislodge the blockage.

12. The method of claim 11 further comprising coupling the substrate to a toilet bowl surface.

13. The method of claim 11 further comprising:
   - providing the valve in the closed state; and
   - coupling a second pipe to the valve.

14. The method of claim 11 further comprising:
   - detecting a dislodging of the blockage; and
   - disabling the vacuum source.

15. The method of claim 14 further comprising:
   - providing the valve in the closed state; and
   - decoupling the vacuum source.
16. An apparatus for unclogging a toilet comprising:
a substrate having a thickness of approximately two (2) inches or less and shaped to cover a top surface of a rim of a toilet bowl, the substrate including an exterior edge having a shape substantially similar to the rim, the substrate further includes a top portion and a bottom portion and a four (4) inch diameter hole approximately centered relative to the exterior edge;
a gasket coupled to the substrate and operable to create a substantially airtight seal between the toilet bowl and the substrate;
a valve coupled to the four (4) inch diameter hole and the top portion of the substrate, the valve selectively operable to provide an open state and a closed state, the closed state providing a substantially airtight seal between a void volume and a vacuum source, the open state enabling a fluid communication path between the vacuum source and the void volume; a elongated pipe having a length of approximately twelve (12) inches and a diameter of approximately four (4) inches, the pipe including a first end removably coupled to a portion of the valve and a second end; and a curved pipe formed at a ninety (90) degree angle and having a first curved pipe end and a second curved pipe end, the first curved pipe end coupled to the second elongated pipe end and the second curved pipe end operable to be connected to a vacuum source.
17. The apparatus of claim 16 wherein the vacuum source is a wet/dry vacuum cleaner.
18. The apparatus of claim 16 wherein the substrate is clear plastic.
19. The apparatus of claim 16 wherein the curved pipe comprises polyvinyl chloride compound (PVC).
20. The apparatus of claim 19 wherein the gasket comprises rubber.

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