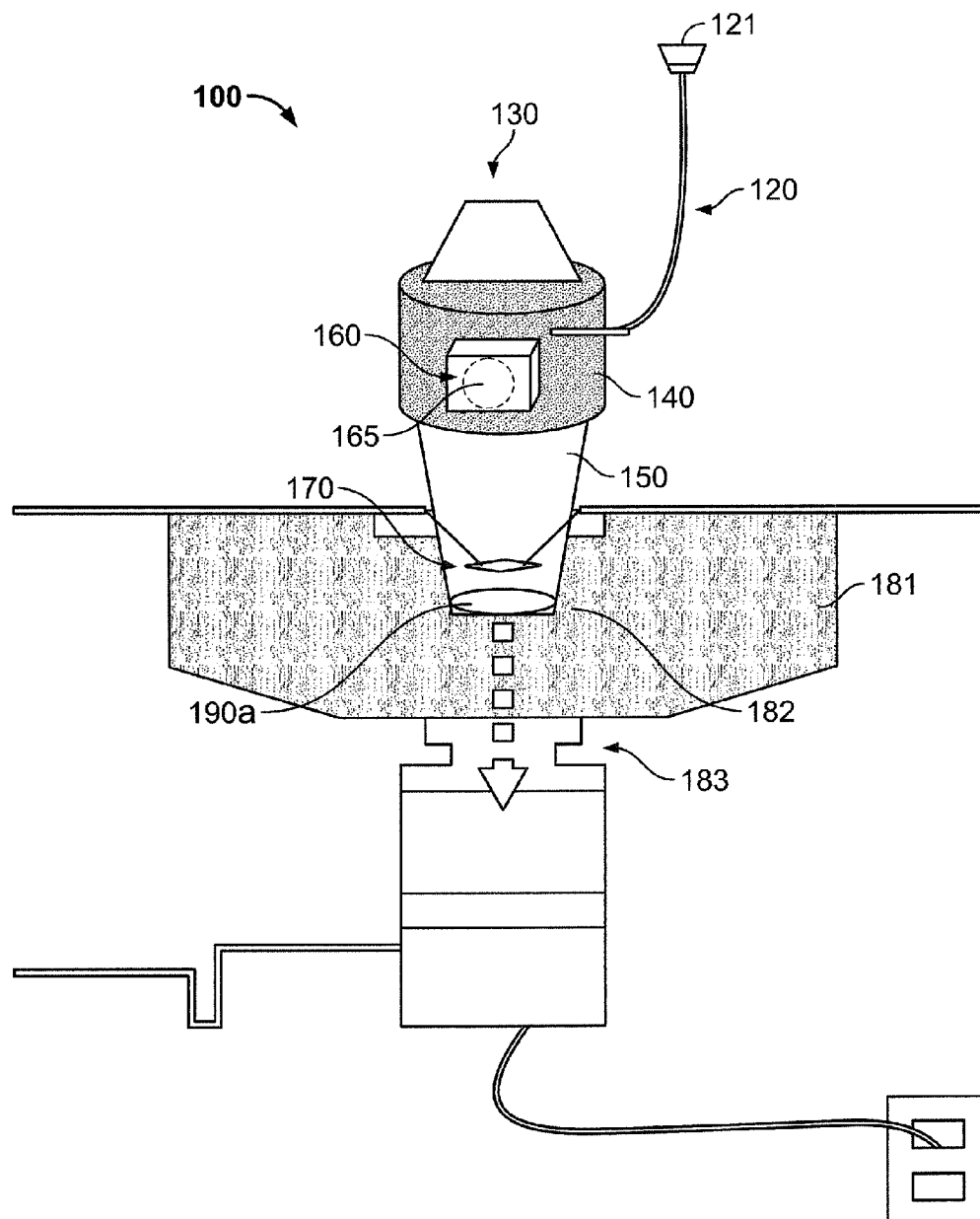




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(19) **United States**(12) **Patent Application Publication**
Murphy(10) **Pub. No.: US 2007/0294858 A1**(43) **Pub. Date: Dec. 27, 2007**(54) **PORTABLE VACUUM CANISTER AND
METHOD OF WASTE DISPOSAL
THEREFROM****Publication Classification**(51) **Int. Cl.**
A47L 9/16 (2006.01)(52) **U.S. Cl.** **15/353; 15/393; 134/21**(76) **Inventor: Jerry A. Murphy, Mesa, AZ (US)**Correspondence Address:
ROSENBAUM & ASSOCIATES, P.C.
650 DUNDEE ROAD, SUITE #380
NORTHBROOK, IL 60062(57) **ABSTRACT**

A portable vacuum canister is disclosed for vacuuming debris by a hand-held suction hose and for transferring the debris down through the vacuum canister and into an existing garbage disposal for grinding, where it is then washed down the drain. The vacuum canister adapts and slides into an existing disposal opening.

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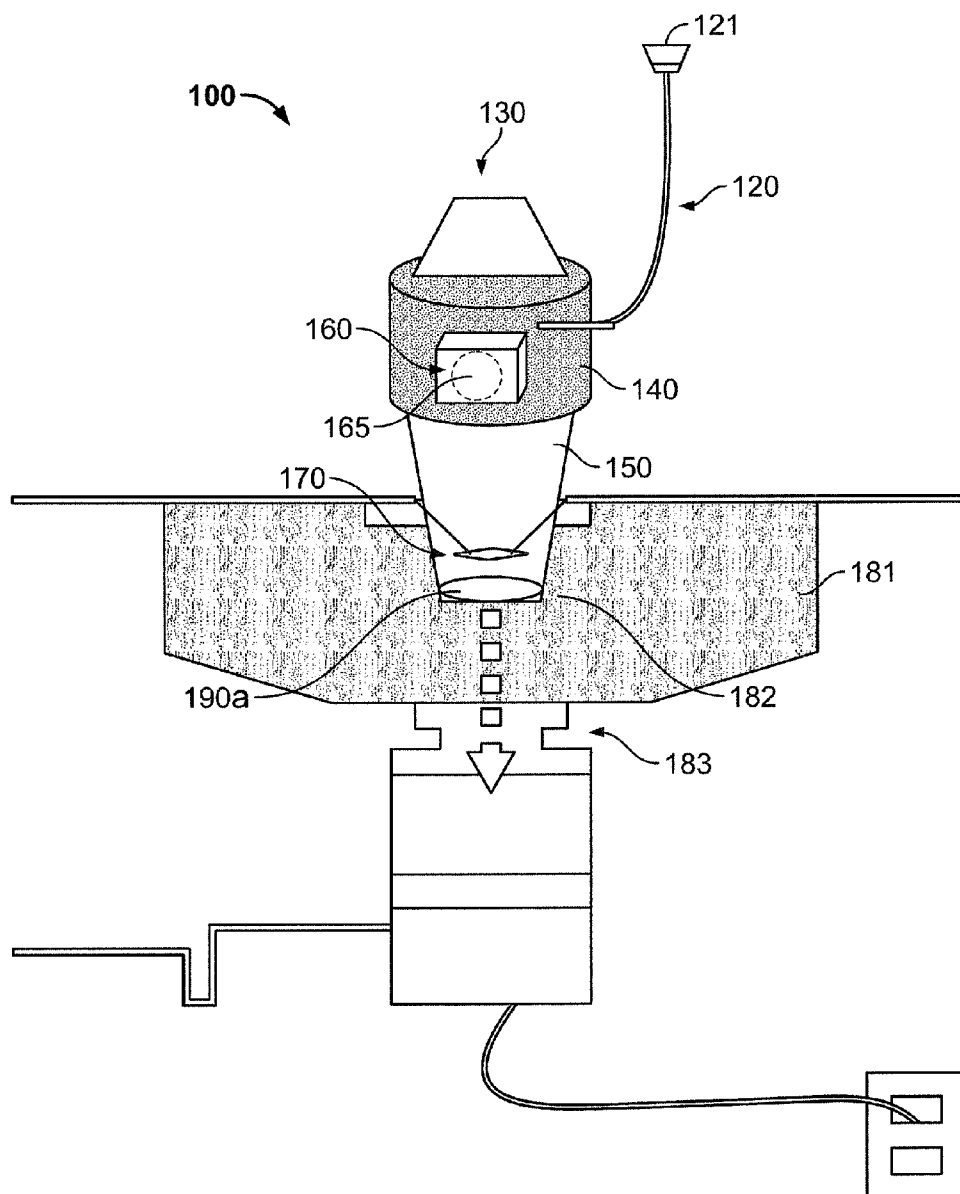


FIG. 1A

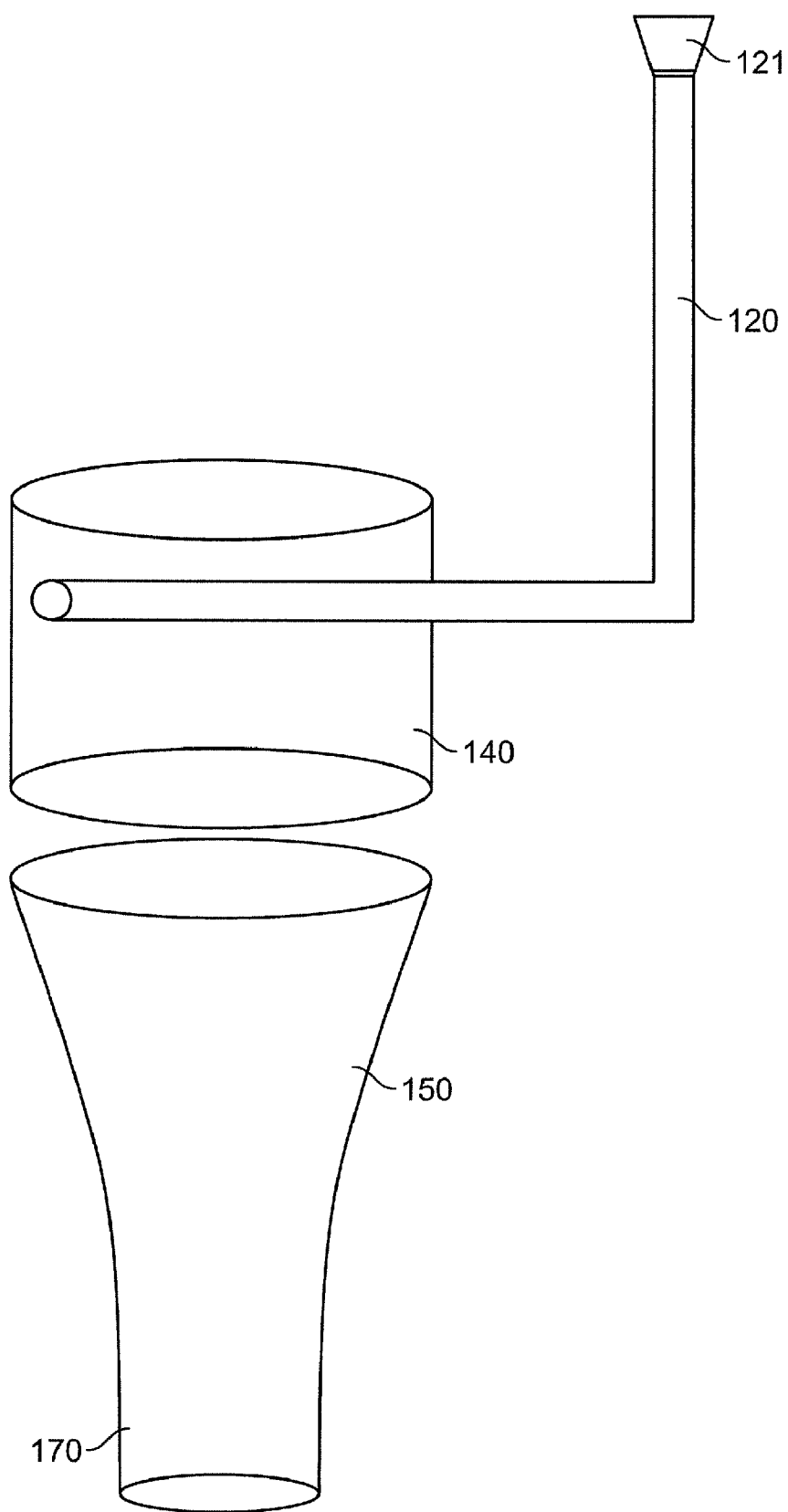


FIG. 1B

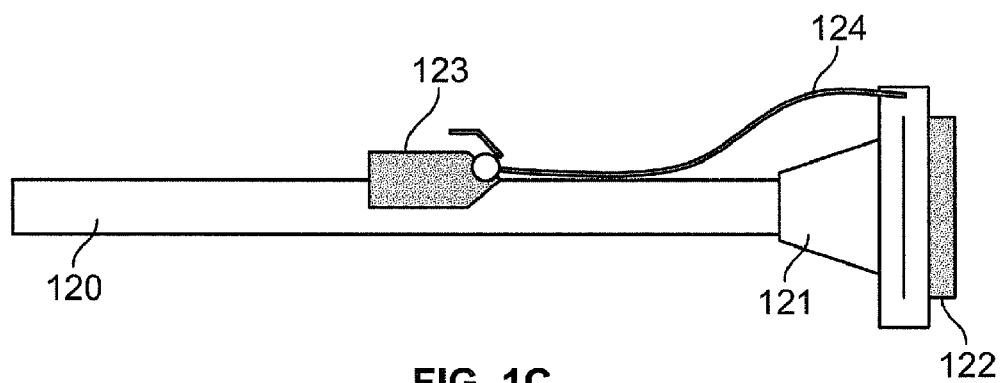


FIG. 1C

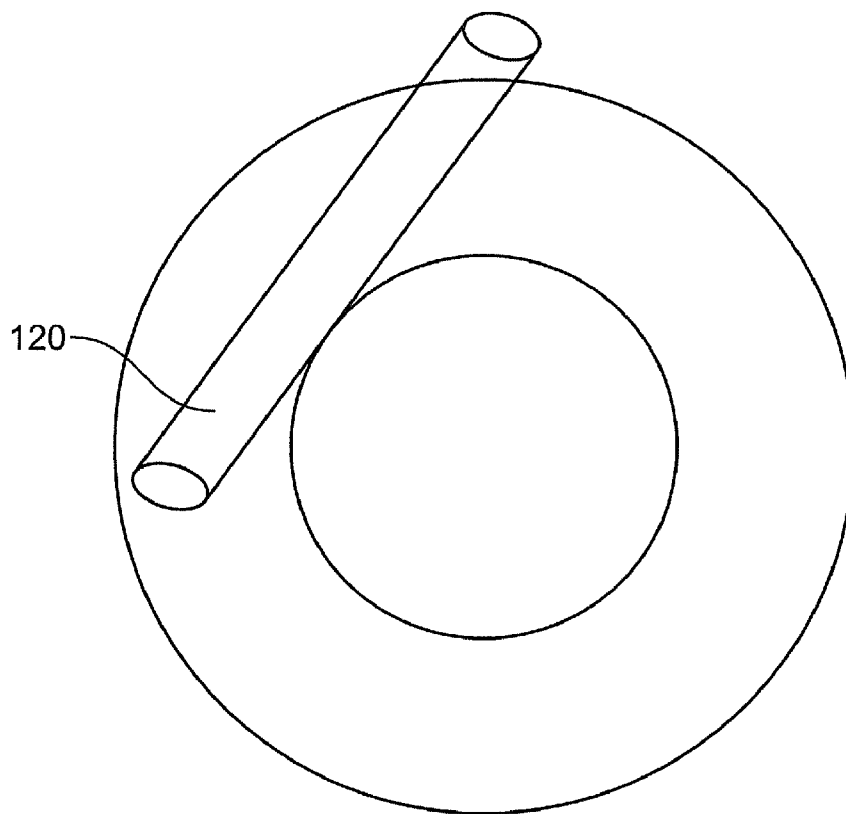


FIG. 1E

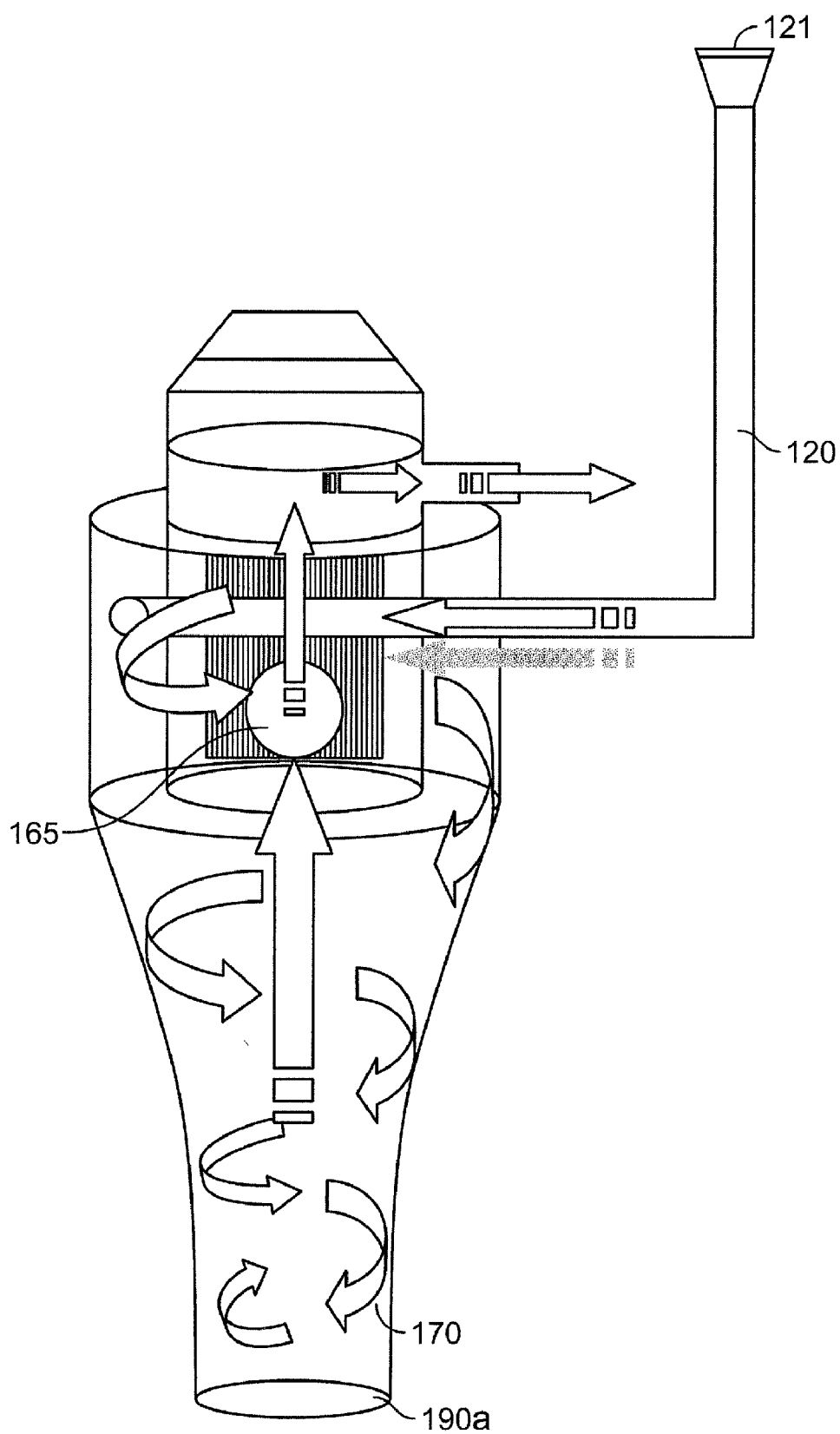


FIG. 1D

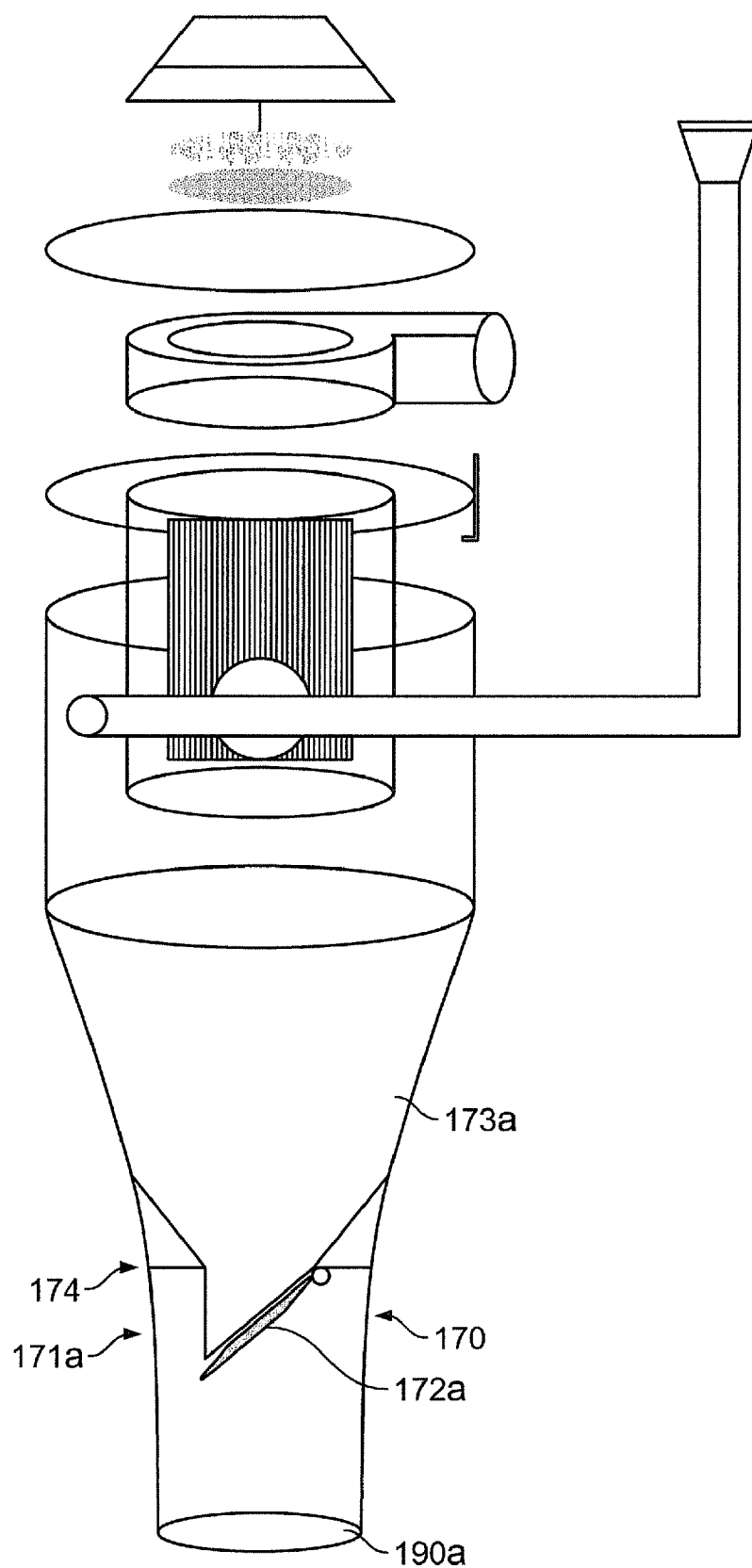


FIG. 2A

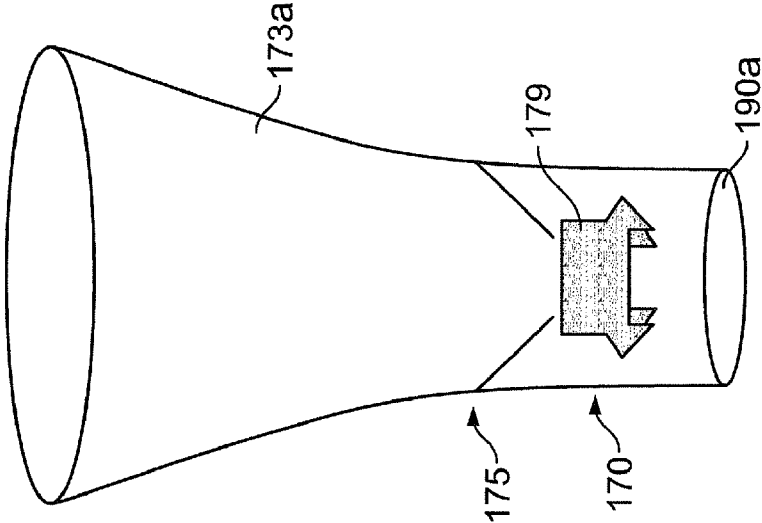


FIG. 2D

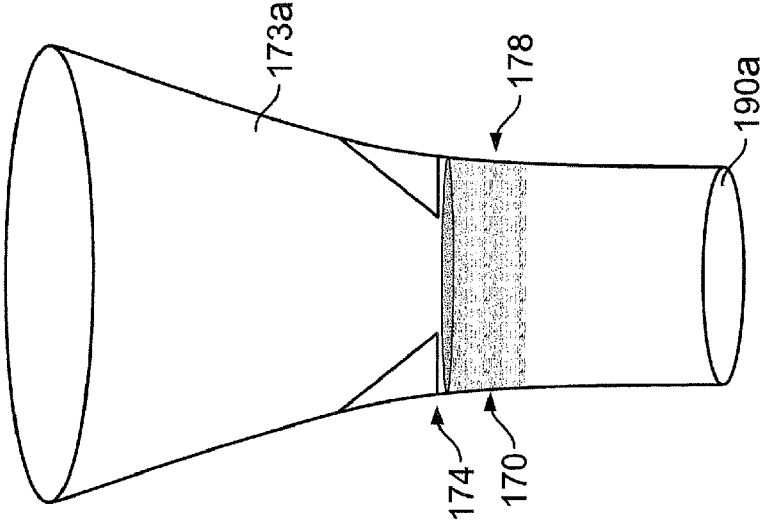


FIG. 2C

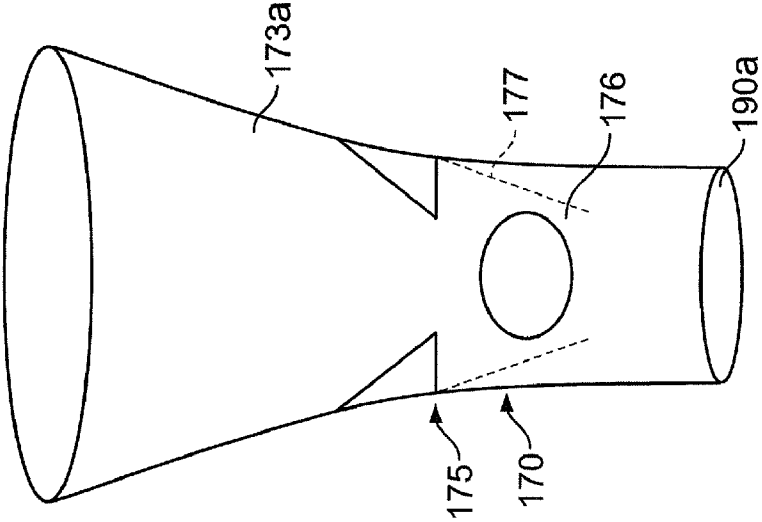


FIG. 2B

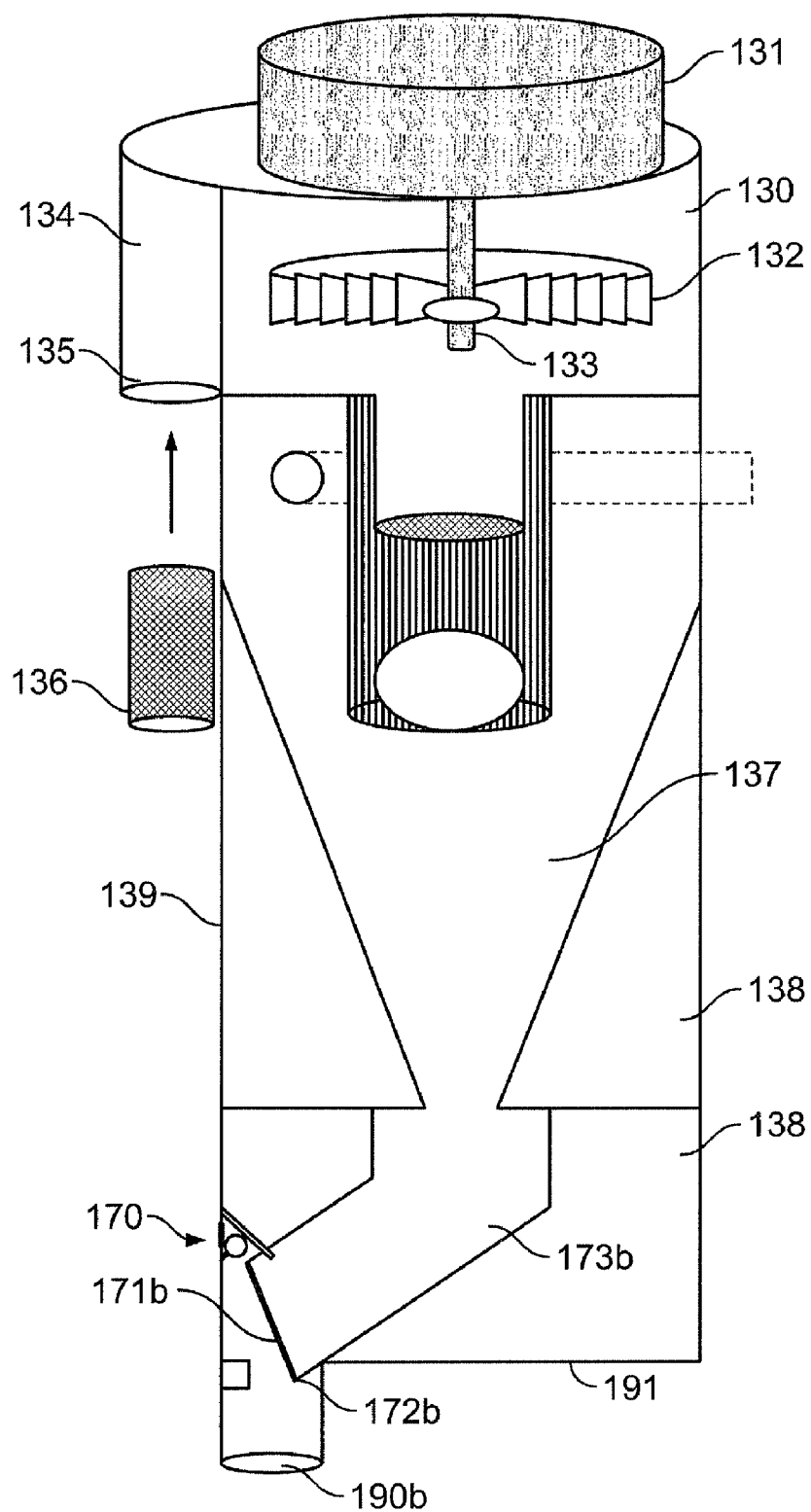


FIG. 3A

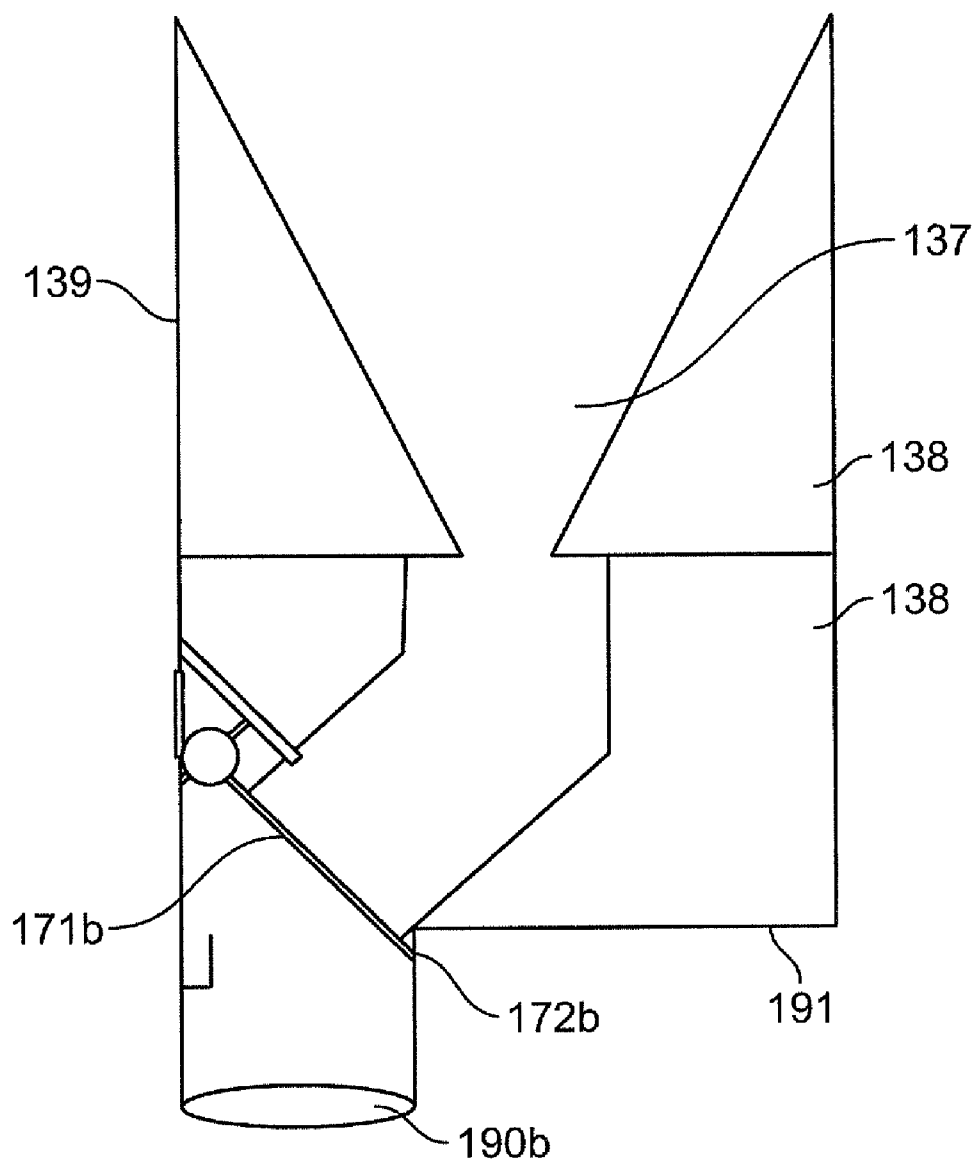


FIG. 3B

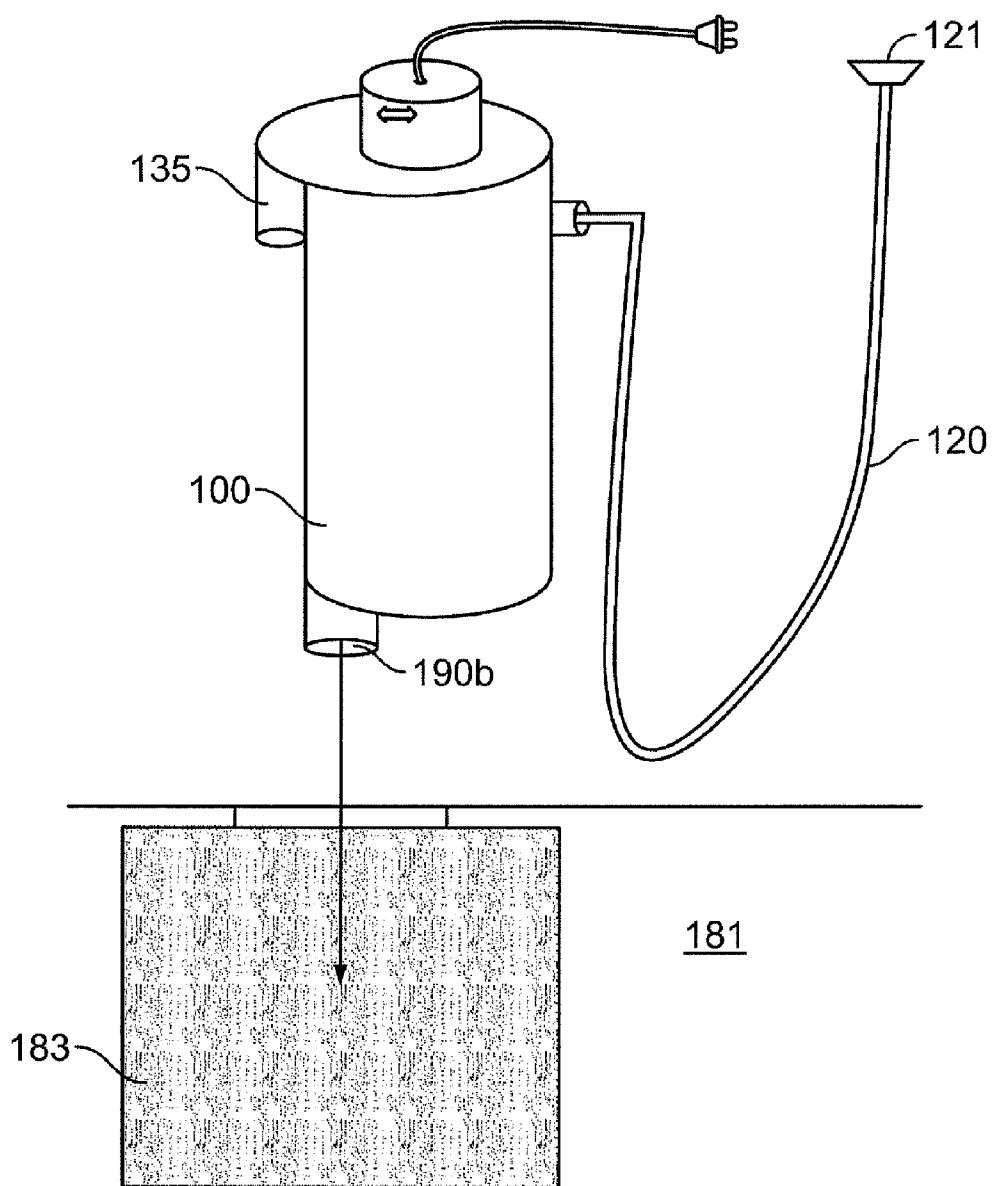


FIG. 3C

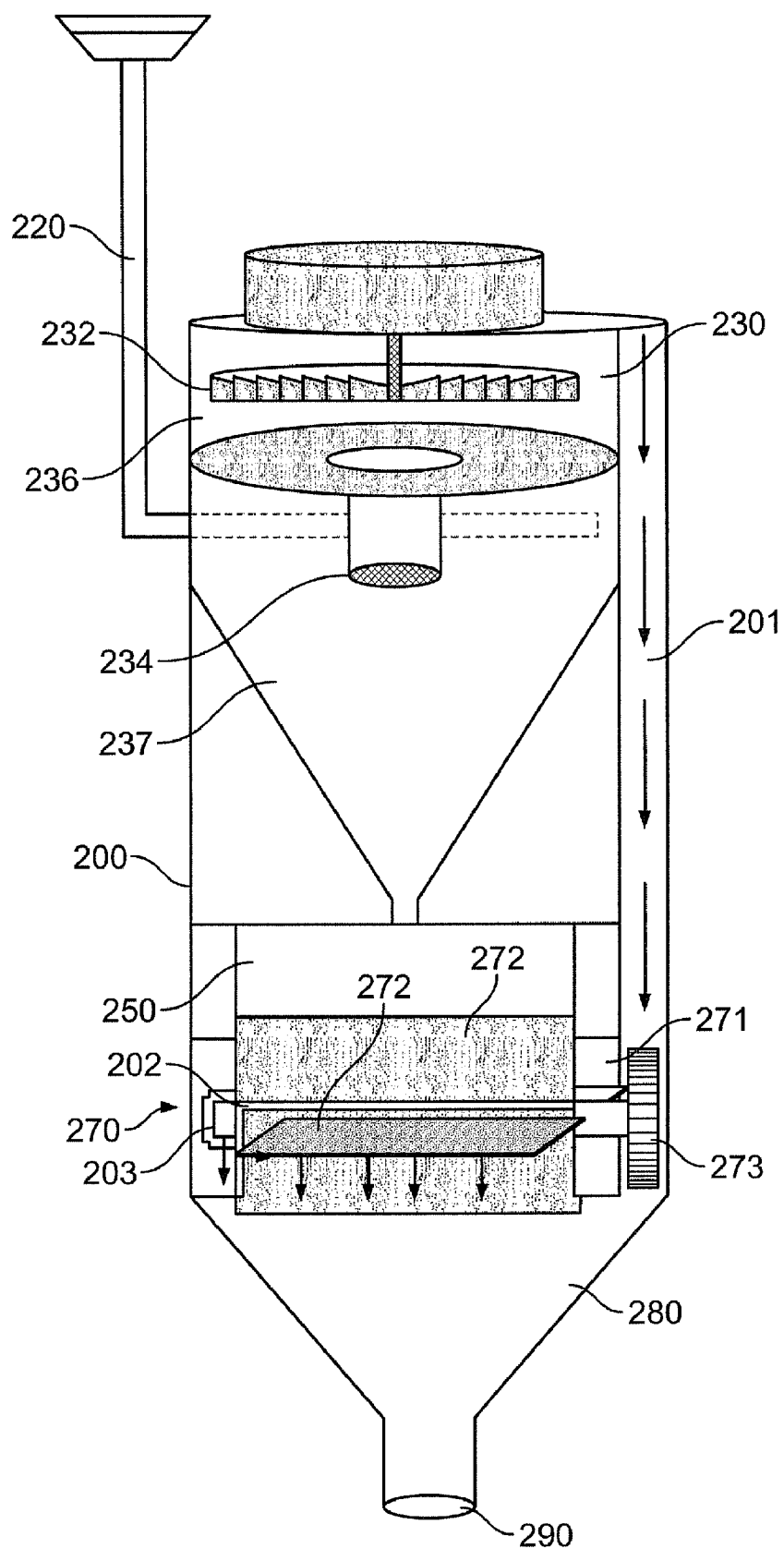


FIG. 4A

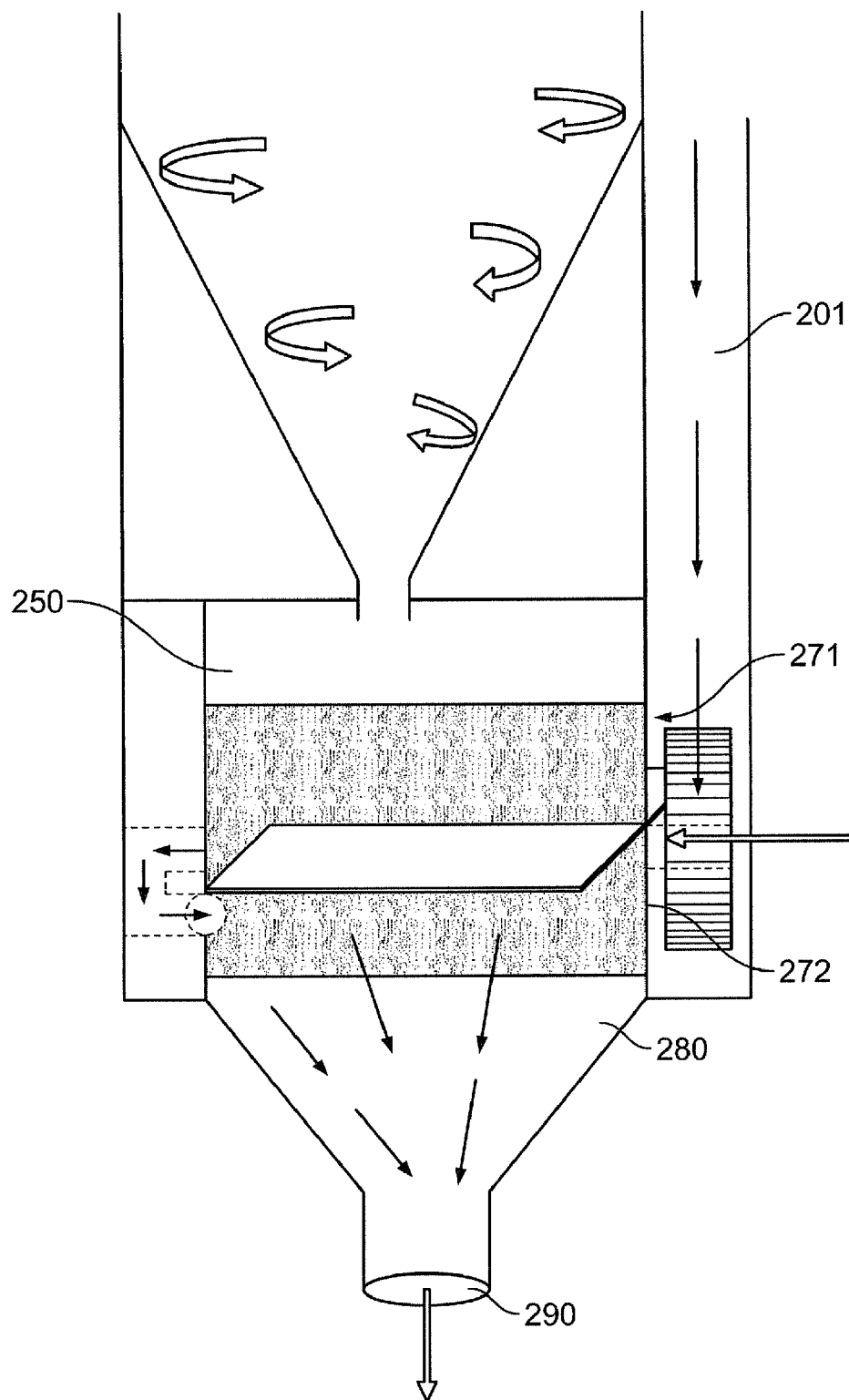


FIG. 4B

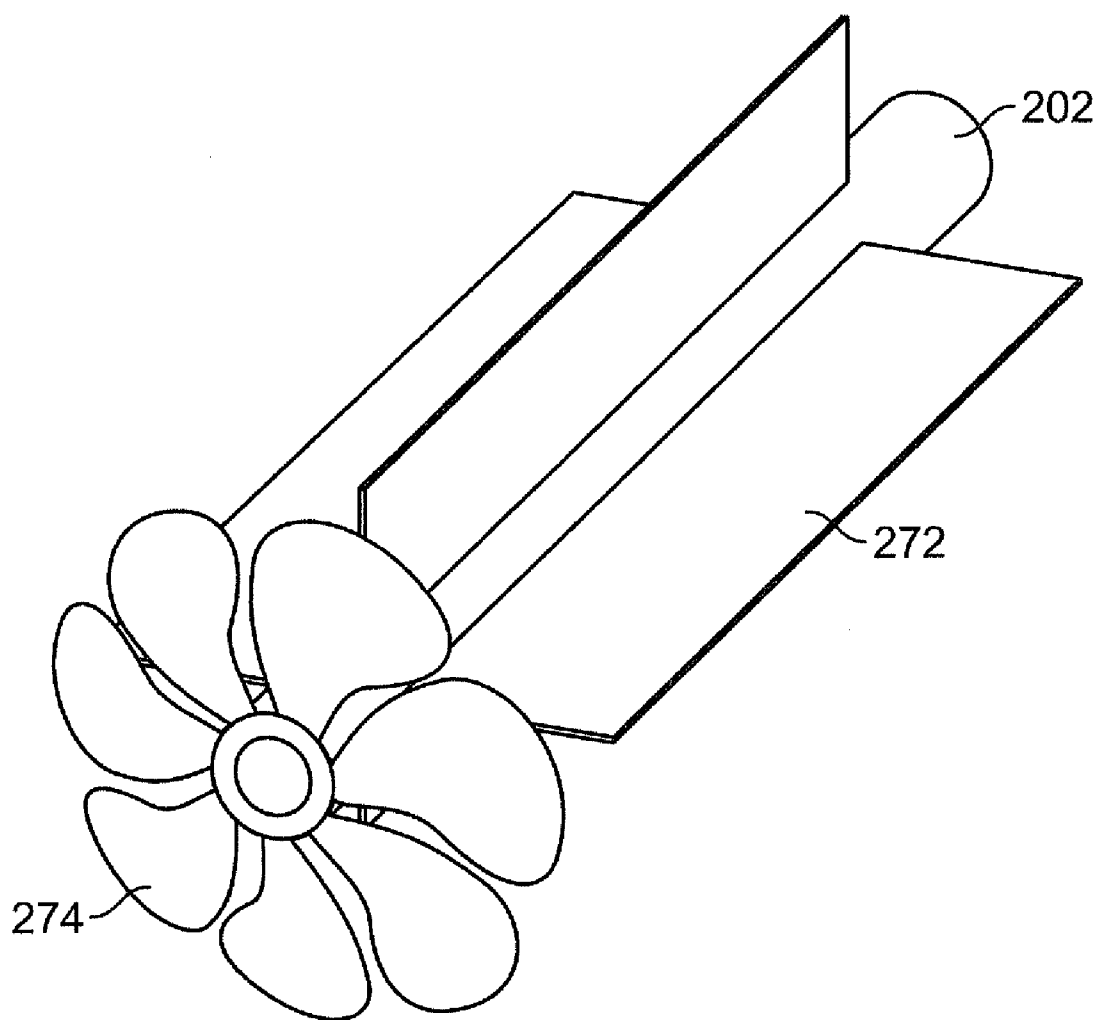


FIG. 4C

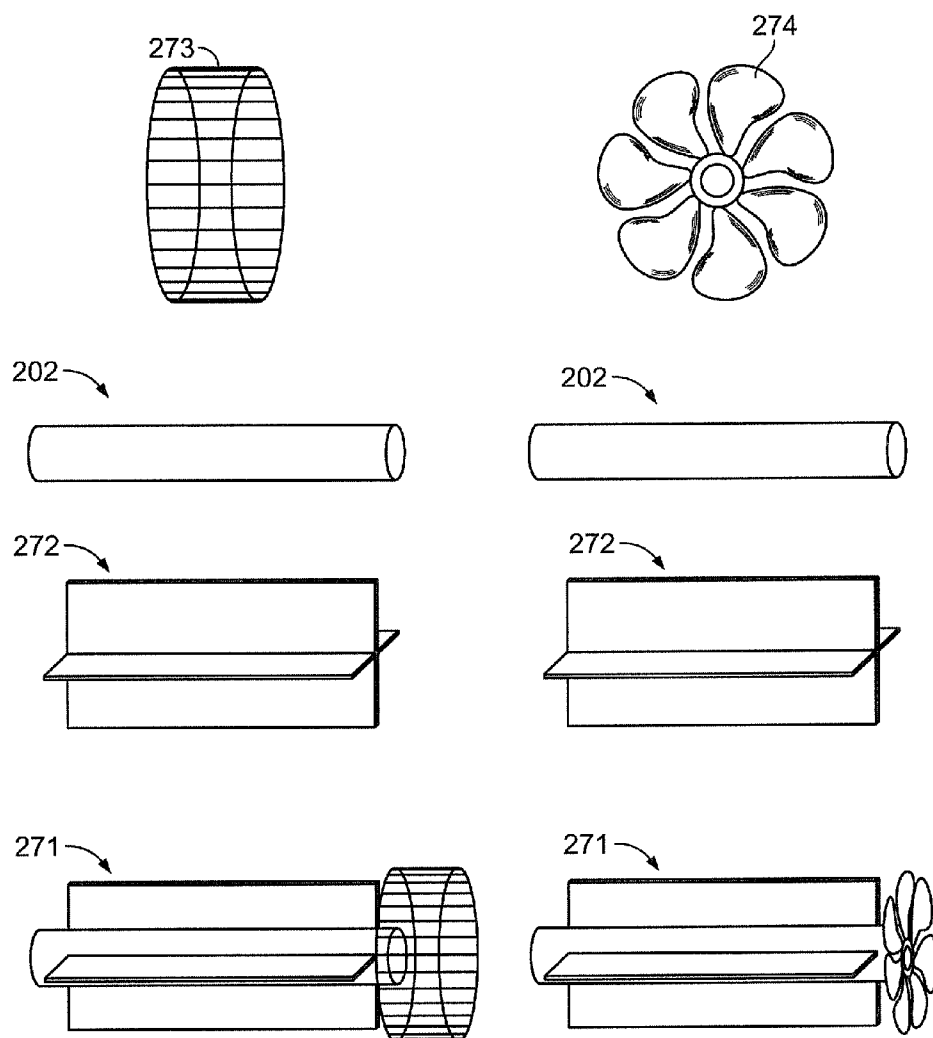


FIG. 4D

FIG. 4E

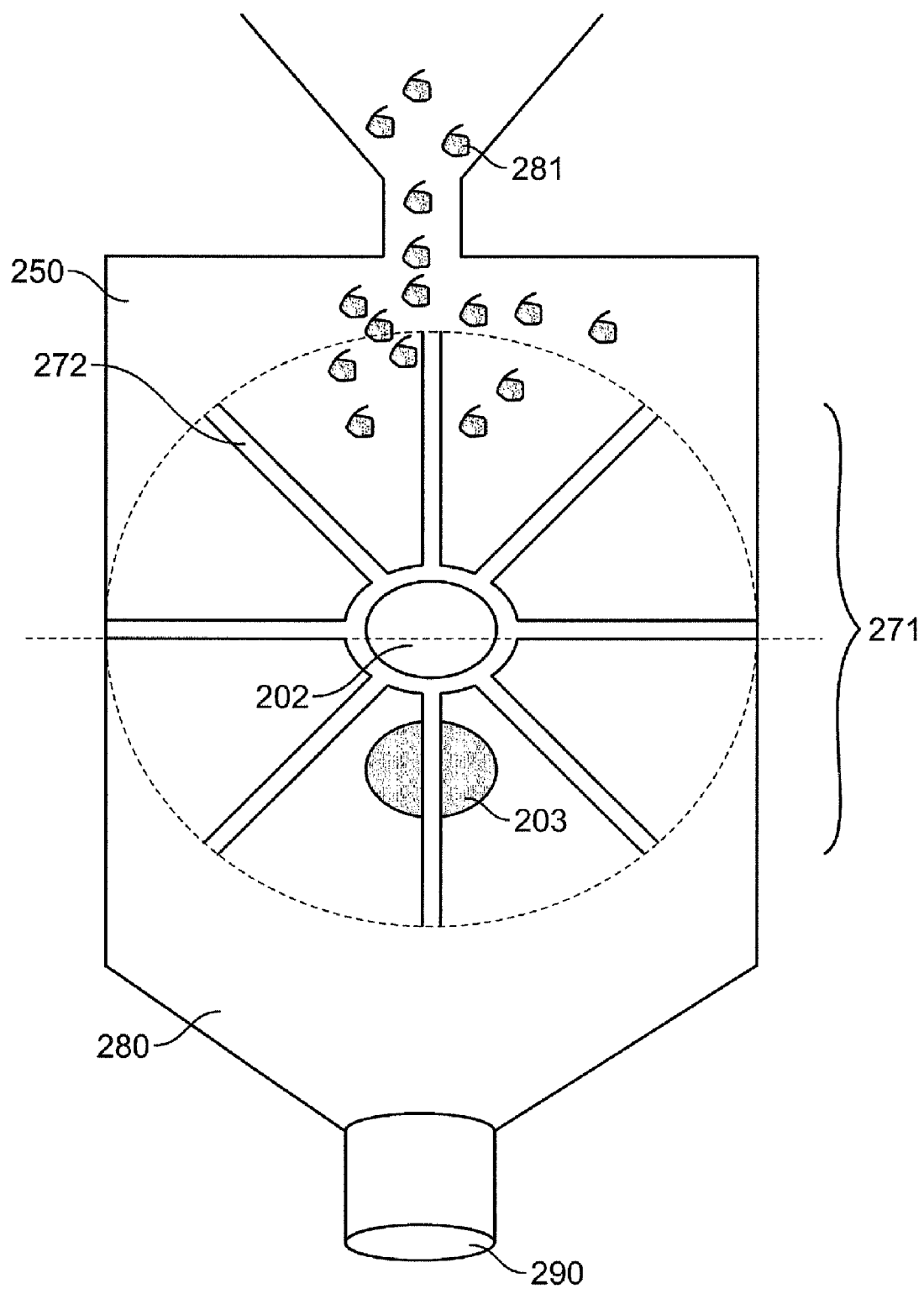


FIG. 4F

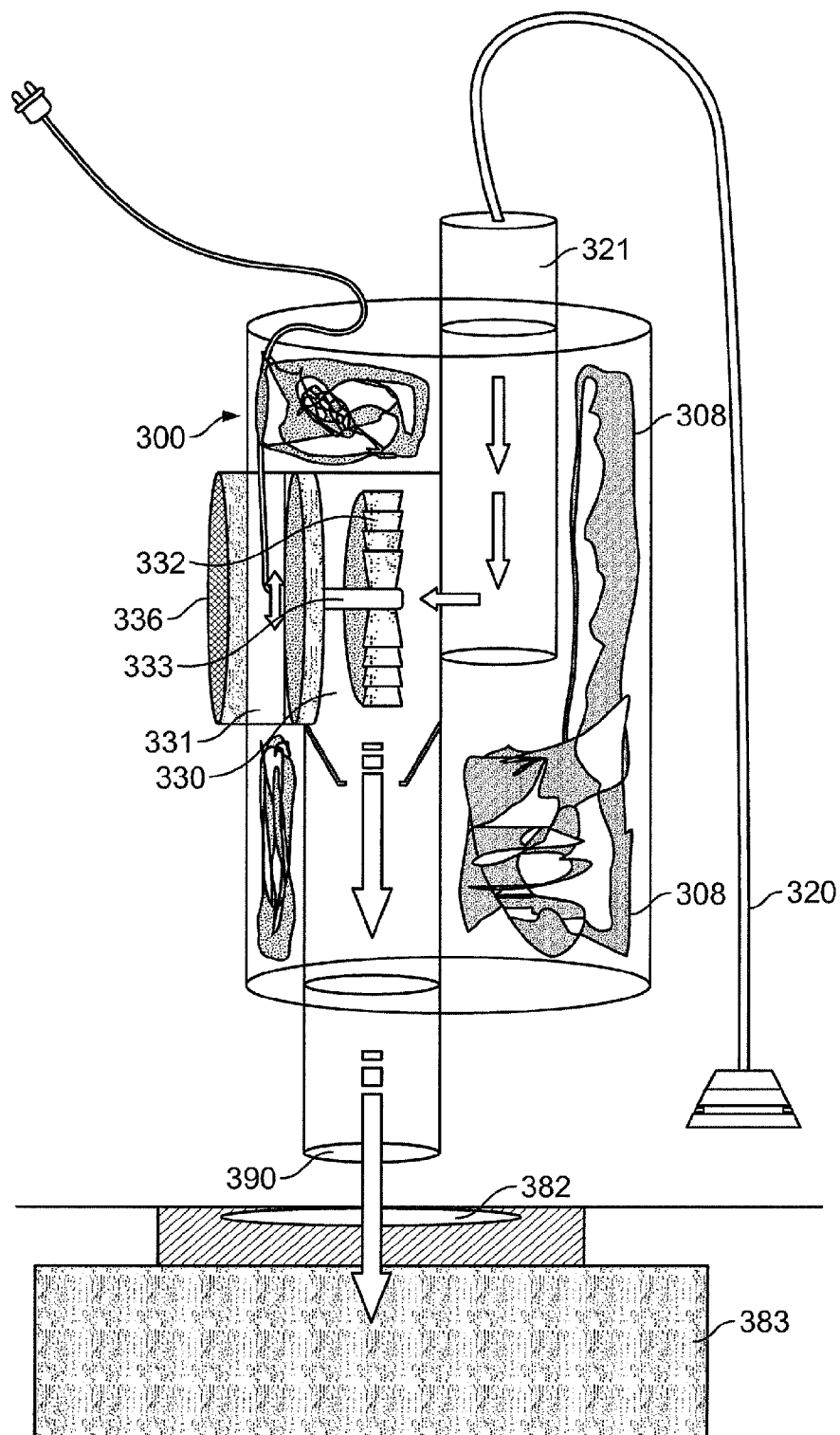


FIG. 5

PORTABLE VACUUM CANISTER AND METHOD OF WASTE DISPOSAL THEREFROM

TECHNICAL FIELD OF THE INVENTION

[0001] This invention relates generally to a portable vacuum canister capable of interconnection with and deployment of waste into a sink drain having a waste grinder in direct communication with the sink drain flange covering a sink drain opening. The portable vacuum canister is used for vacuuming debris and dumping the debris into a garbage disposal or waste grinder associated with the sink for grinding of the debris, flushing and release into a municipal waste stream or septic system.

BACKGROUND OF THE INVENTION

[0002] Vacuum cleaning devices are designed by and large to operate by suctioning dust or debris from a surface. The general theory underlying the concept behind conventional vacuum cleaning devices is well-known. Typically, vacuum cleaning devices use some form of an electromechanical mechanism to create a partial vacuum to suction various kinds of particles into the vacuum cleaning device. Air pumps function by transferring air load from an inlet port to an outlet port (exhaust). The transfer of air load creates a region of lower pressure. The pressure gradient between this region of lower pressure and the ambient pressure creates suction, whereby particles are propelled toward the lower pressure region. The greater the pressure difference between the region of lower pressure and the region of ambient pressure, the greater the suction.

[0003] From this fundamental principle of fluid dynamics, various prior vacuum cleaning devices have been developed to suction particles, with a large majority of these vacuum cleaning devices designed to suction debris from floors and carpets. Generally, the most popular current vacuum cleaning devices fall into one of several design categories: upright vacuum cleaners, hand-held vacuum cleaners, canister vacuum cleaners, backpack vacuum cleaners, and central vacuum systems, wherein a central location in a building provide vacuum inlets at strategic places throughout a building.

[0004] In the specialized field encompassing vacuum devices designed specifically for suctioning debris from kitchen countertops, stoves, sinks and the like, and thereafter discharging the debris into a garbage disposal, the scope of the prior art is limited and includes especially few references. U.S. Pat. No. 6,434,783 to Arnold teaches of a vacuum system that employs a hose to suction waste materials from a sink. The waste materials are then transferred to a waste container. Similarly, U.S. Pat. No. 6,691,939 to Grimes teaches of a hose that sucks materials via a vacuum generator into a grinder/garbage disposal. Another reference, U.S. Pat. No. 4,641,392 to Huisma, teaches of a central vacuum system, wherein a vacuum tool is employed to suction debris from the kitchen sink area to the sewage system via conduits and a separator.

[0005] The prior art described above suffers various deficiencies in its application of vacuuming debris from sinks and thereafter discharging the debris to a garbage disposal in a sink drain. Specifically, the prior art does not teach of a portable vacuum canister with an open bottom that is specially designed to adapt and slide into an existing sink

drain flange in communication with a grinder or garbage disposal opening, such that debris, vacuumed by a hand-held hose, is directed into a disposal, ground up, and sent and washed down the drain. Accordingly, there is a need for a relatively simple, inexpensive and portable vacuum canister that can vacuum and dispose of debris into a garbage disposal in an efficient and non-labor intensive manner.

SUMMARY OF INVENTION

[0006] In accordance with the invention, there is provided a portable vacuum canister specially designed to correspondingly engage the opening of a sink drain flange covering a sink drain opening which is interconnected with a garbage disposal. The vacuum canister employs a suction hose for vacuuming debris; an airblower for generating vacuum; optionally a float cage with a float ball for permitting wet vacuum; a cyclone-shaped funnel for achieving constant suction, better dust separation and increased suction power; and an internal discharge control for selectively controlling discharge from the bottom of the vacuum canister during vacuum operation.

[0007] The vacuum canister invention has many practical applications. The vacuum canister can be used for fast cleaning. In particular, the vacuum canister can be used to pick up and quickly dispose of biodegradable food, water and drinks that are on kitchen sinks, counter tops, toasters, cook tops, cook top hoods, ovens, cabinets, drawers, floors, high chairs, and any other conceivable object that would reside near a sink.

[0008] The scope of the invention is indicated in the appended claims. It is intended that all changes or modifications within the meaning and range of equivalents are embraced by the claims.

[0009] The foregoing and other features and advantages of the invention are apparent from the following detailed description of exemplary embodiments, read in conjunction with the accompanying drawings. The detailed description and drawings are merely illustrative of the invention rather than limiting, the scope of the invention being defined by the appended claims and equivalents thereof.

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0010] The foregoing summary, as well as the following detailed description of preferred embodiments of the invention, will be understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, there is shown in the drawings embodiments which are presently preferred. It should be understood, however, that the invention is not limited to the precise arrangements and configurations shown.

[0011] FIG. 1A depicts an overall diagrammatic view of the inventive vacuum canister in operable connection with a sink drain flange and garbage disposal associated therewith.

[0012] FIG. 1B provides an exploded view of the exterior housing for the inventive vacuum canister.

[0013] FIG. 1C is a side elevational view illustrating a vacuum hose with attachments and accessories operable with the vacuum canister of the present invention.

[0014] FIG. 1D is a perspective view illustrating airflow and debris movement within the inventive vacuum canister.

[0015] FIG. 1E is a top elevational view, partial fragmentary view of an upper portion of the inventive vacuum canister.

[0016] FIG. 2A is a perspective partially exploded view of an embodiment of the inventive vacuum canister having a backflow-flap-controlled discharge opening.

[0017] FIG. 2B is a perspective view of an alternative embodiment of the inventive vacuum canister having a float-ball-valved discharge opening.

[0018] FIG. 2C is a perspective view of another alternative embodiment of the inventive vacuum canister having a rotating cam valved discharge opening.

[0019] FIG. 2D is a perspective view of yet another alternative embodiment of the inventive vacuum canister having a mechanical-dump-basket-controlled discharge opening.

[0020] FIG. 3A is a perspective view illustrating yet another embodiment of the inventive vacuum canister having a backflow-flap-controlled discharge offset from center.

[0021] FIG. 3B is a closer perspective view of the vacuum canister embodiment illustrated in FIG. 3A.

[0022] FIG. 3C provides an overall diagrammatic view of the vacuum canister embodiment of FIG. 3A in operable connection with a drink drain flange and garbage disposal associated therewith.

[0023] FIG. 4A is a perspective view illustrating yet another embodiment of the inventive vacuum canister having a paddle impeller for controlling discharge.

[0024] FIG. 4B is a closer perspective view of the discharge control employed by the vacuum canister embodiment of FIG. 4A.

[0025] FIG. 4C is a perspective view of an impeller of the inventive vacuum canister embodiment of FIG. 4A.

[0026] FIG. 4D is an exploded view of the impeller system of the vacuum canister embodiment of FIG. 4A incorporating a fan cage.

[0027] FIG. 4E is an exploded view of the impeller system of the vacuum canister embodiment of FIG. 4A incorporating fan blades.

[0028] FIG. 4F is a side view of the impeller system illustrated in FIG. 4E.

[0029] FIG. 5 is a perspective view illustrating yet another embodiment of the inventive vacuum canister having an airblower mechanism.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0030] The invention is directed to a vacuum canister designed for vacuuming materials, such as particulates and/or fluids, from surfaces and transporting the materials to a sink drain having a grinder or garbage disposal mechanism coupled to the sink drain flange, releasing the materials through the sink drain flange and drain opening and into the grinder or garbage disposal mechanism for grinding an disposal into a municipal waste stream or septic system. FIG. 1A illustrates one preferred embodiment of the invention. The vacuum canister device 100 has two chambers, an upper first chamber 140 that is formed at an upper section of the vacuum canister 100 and a lower second chamber 150 that is formed at a lower section of the vacuum canister 100. The upper first chamber 140 possesses a substantially cylindrical shape, while the lower second chamber 150 possesses a substantially frustoconical shape. A top region of the upper first chamber 140 is occupied by a vacuum generating element 130. This vacuum generating element 130 can be an airblower or any other electromechanical mechanism that generates vacuum inside the canister device 100. A standard

airblower can include a motor powered fan or impeller enclosed in a blower housing. Inside the upper chamber 140, it is desirable to provide a removable filter housing 160 with a float ball 165 is provided to allow for wet vacuuming.

[0031] FIG. 11B provides an exploded view of the canister's casing. Suction hose 120 is interconnected with the upper first chamber 140. Preferably, the suction hose 120 is formed of a lightweight and flexible material, such as polyvinyl chloride, rubber or any material widely known in the vacuum hose art, to allow for easy handling. Naturally, a person skilled in the art could also select another material not described above (such as soft flexible metal) which has been associated with vacuum hoses. Although not shown, the vacuum hose 120 can also be corrugated, so that it is shaped to have folds, ridges or grooves. As shown on FIG. 1C, the suction hose 120 is provided a vacuum head 121, designed to possess a large surface area for vacuuming even large pieces of debris. Additionally, various attachments can be appended to the suction hose 120 and/or vacuum head 121 to provide for additional cleaning options. For example, the vacuum head 121 can be fastened with a scouring pad/sponge 122, formed of tough fibers and abrasives, for scouring pots and pans. Likewise, a cleaning fluid dispenser 123 can also be employed for dispensing cleaning fluid to the vacuum head 121 via a fluid carrying hose 124. Additionally, an on/off switch can be designed to be on the end of the suction hose 120 near the vacuum head 121, instead of on the vacuum canister 100 itself, so that a user can effortlessly turn on/off vacuuming. Although not shown in the drawings, the suction hose 120 can also be designed to be retractable to the vacuum canister 100, thereby providing easier use to the user.

[0032] Referring back to FIG. 1A, the lower second chamber 150 possesses a substantially conical shape. Near the bottom of the lower second chamber 150, a discharge control 170 is provided to close shut what would otherwise be a bottomless canister. When the discharge control 170 is in an open state, particles, suctioned through suction hose 120 and transferred down the vacuum canister 100, pass through a flange 190a and are discharged into a drain 182 of a kitchen sink 181. Therefrom, the particles descend to a garbage disposal 183, installed under the kitchen sink 181, where the particles are ground up and shredded into small pieces, so they can be passed through plumbing without clogging.

[0033] FIG. 1D provides a closer view of the above-described embodiment of the invention. Additionally, FIG. 1D illustrates the air pathway taken by particles and fluids suctioned from a vacuum head 121 on suction hose 120. Initially, the particles enter through a vacuum head 121 of the suction hose 120. Thereafter, the particles pass through the length of the suction hose and enter the first upper chamber 140 of the vacuum canister device 100. FIG. 1E provides a top view of the upper first chamber 140. Immediately upon entering the upper first chamber 140, the incoming particles crash hard against a wall of upper first chamber 140 and into the air already being evacuated through the spinning downward spiral action inside the cyclone. The resulting crash in turbulence breaks the heavier and lighter particles apart, and the spinning air throws the heavy particles outward against the cyclone walls. Air flow at the cyclone walls is slowed by friction. As a result, heavier particles get trapped in the slower moving air. Slowly, gravitational forces pull these heavier particles down. The

cone-shaped bottom of the cyclone-shaped vacuum canister is designed to be angled at a proper degree to keep the air speed constant. This design keeps the heavier particles pressed tightly to the cyclone walls of the lower second chamber 150. As a result, the heavier particles slide downward and along the cyclone walls of the lower second chamber 150. Eventually, these heavier particles fall and become trapped at the bottom of the vacuum canister 100. Near the bottom of the cone is an area called a reversal point where the spinning air without the heavier particles reverses direction. This clean air then spirals up through the center of the cyclone and then exits through the cyclone outlet through the exhaust.

[0034] At the bottom of the lower second chamber 150, a discharge control 170 is employed for controlling the opening and closing of the vacuum canister 100. A flange 190a is provided for discharging particles and fluids from the vacuum canister 100. The flange 190a is designed to fittingly and sealingly engage the drain 182 of a sink 181 and is thereby interconnected to a garbage disposal 183.

[0035] In one embodiment, the bottom of the vacuum canister 100 is closed during vacuum operation and opened when vacuum operation is off. In this particular embodiment, closing shut the bottom of the vacuum canister 100 during operation helps the vacuum canister 100 sustain the pressure gradient needed to generate suction. After operation, when the pressure gradient is no longer necessary, the discharge control 170 opens the bottom of the vacuum canister 100 to permit dumping of debris into the drain 182 and subsequently into the garbage disposal 183.

[0036] Various possible discharge controls 170 are available. In the embodiment of FIG. 2A, a backflow valve 171a is used to control flow of debris coming out of the vacuum canister 100. Essentially, the backflow valve 171a prevents fluids from flowing in a direction opposite that of intended flow. Thus, the backflow valve 171a allows fluids to flow in only one direction, namely in the direction of discharge. To achieve this control, the backflow valve 171a uses a backflow flap 172a, capable of two possible positions, an opened position and a closed position. The backflow flap 172a is fastened to a hinged spring. In the embodiment of FIG. 2A, the opening and closing of the backflow flap 172a is controlled by suction. During vacuum operation, suction causes the backflow flap 172a to be lifted into a closed position. This action temporarily causes a vacuum trap. The closing of the discharge control 170 of the vacuum canister 100 allows for particles to be collected on a collection bin 173a with a flap dam 174 located at the lower portion of the collection bin 173a. When vacuum operation shuts down, natural gravitational forces and the lack of suction causes the backflow flap 172a to slide down and descend into an opened position. Accordingly, particles accumulated in the collection bin 173a falls downwards through the backflow valve 171a and into the drain 182.

[0037] Referring to FIGS. 2B-2D, alternative discharge controls 170 are shown, wherein the same or similar reference numbers refer to the same or similar structure.

[0038] In the alternative discharge control 170 embodiment of FIG. 2B, a float ball 176 is enclosed inside a float ball cage 177. The float ball cage 177 extends upwards and borders a float ball dam 175. During vacuum operation, the float ball 176 is suctioned upwards thereby closing shut the discharge control 170 and thus the bottom of the vacuum canister 100. When vacuum operation shuts down, natural

gravitational forces and the lack of suction causes the float ball 176 to descend into a lower position, thereby allowing particles accumulated on the collection bin 173a to fall downwards through the float ball dam 175 into the drain 182.

[0039] FIG. 2C illustrates another possible discharge control 170. In this embodiment, a rotating cam 178 or slide gate valve is used to open or close the bottom of the vacuum canister. A user could open and close the bottom of the vacuum canister 100 by manually turning the rotating cam. Similarly, in the discharge control 170 illustrated in FIG. 2D, a mechanical dump basket 179 is used to close shut the bottom of the vacuum canister 100. After vacuum operation is over, a user could take out the mechanical dump basket 179 to manually dump the collected debris into a drain 182.

[0040] In the preferred embodiment illustrated in FIG. 3A, the vacuum canister 100 is designed to have an overall cylindrical shape. In contrast to the above-mentioned embodiments previously described, wherein the upper portion of the vacuum canister is formed in a cylindrical shape while the lower portion of the vacuum canister is formed in a conical-cyclonic shape, the entire vacuum canister 100 embodied in FIG. 3A, from top to bottom, is formed exteriorly in a substantially cylindrical shape. This cylindrical-shape feature enhances stability of the vacuum canister 100 by lowering the vacuum canister's center of gravity. Accordingly, the vacuum canister 100 is less likely to rock back and forth during operation. In this preferred embodiment, vacuum generating element 130 is situated at the top of the vacuum canister 100. The vacuum generating element 130 creates vacuum through a motor 131 connected to an impeller/airblower 132 by a rod 133. An exhaust outlet 134 is provided for releasing air. The exhaust outlet 134 interconnects a filter receiver 135, which is sized to slidably receive a filter 136. Similar to the above-mentioned embodiments, a cone-shaped funnel 137 is employed to generate the cyclone action that is effective for achieving constant suction, better dust separation, and increased suction power. Dead spaces 138 are incorporated into the vacuum canister 100 to provide the vacuum canister 100 with an exterior cylindrical shape. These dead spaces 138 are positioned between the cone-shaped funnel 137 and the shell outward wall 139. The dead spaces can be left empty with air, or they can be filled with sound reducing materials to drown out noise generated during operation of the vacuum canister 100.

[0041] Just like the embodiments described above, the bottom of the vacuum canister 100 embodiment of FIG. 3A includes a discharge control 170. Similar to the embodiment of FIG. 2A, a backflow valve 171b with backflow flap 172b is adopted for controlling the discharging of particles and fluids. The backflow flap 172b is capable of two possible positions, an opened position and a closed position. The backflow flap 172b is fastened to a hinged spring. In this preferred embodiment, the opening and closing of the backflow flap 172b is controlled by vacuum suction. During vacuum operation, vacuum suction causes the backflow flap 172b to be lifted into a closed position. This action temporarily causes a vacuum trap. The closing of the discharge control 170 allows for particles to be collected on a chute 173b, which is positioned below the cone-shaped funnel 137. When vacuum operation shuts down, natural gravitational forces and the lack of suction will cause the backflow flap 172b to slide down and descend into an opened position.

Accordingly, particles and fluids accumulated in the discharge chute **173b** fall down through the backflow valve **171b** and into the drain **182**. A flange **190b** is provided for discharging particles and fluids from the vacuum canister **100**. The flange **190b** is designed to fittingly and sealingly engage the drain **182** of a sink **181** and is thereby interconnected to a garbage disposal **183**. In the embodiment shown in FIG. 3A, the flange **190b** is designed to be offset from the center of the vacuum canister bottom **191**. This design makes it easier for a user to place and fit the vacuum canister over the drain **182**. A closer inside view of the vacuum canister embodiment of FIG. 3A is provided in FIG. 3B. FIG. 3C provides an exterior view of the vacuum canister embodiment illustrated in FIG. 3A.

[0042] FIG. 4A illustrates another embodiment of the invention. The vacuum canister device **200** retains a substantially cylindrical shape, except for the portion near the bottom of the vacuum canister. The top portion of the vacuum canister is occupied by a vacuum generating element **230**. As described above, the vacuum generating element **230** can be an airblower or any other contraption that generates vacuum inside the canister **200**. The standard airblower can include a motor powered fan or impeller **232** enclosed in a blower housing. The suction hose **220** is interconnected with the upper portion of the vacuum canister **200**. The pathway shown in FIG. 1E and previously described is also applicable to the embodiment of FIG. 4A. As the particles and fluids enter the cyclone section **237** of the vacuum canister **200**, the particles and fluids are separated in a manner similar to that described above for other embodiments. The exhaust air travel upwards and pass through a screen **234** and into a chamber **236**. From there, the exhaust air enters a channel tube **201**. In contrast, the heavier particles fall downwards in a spiraling manner and exits the cyclone section **237** into a collection chamber **250**.

[0043] The embodiment of FIG. 4A differs from the previously described embodiments in the discharge control **270** employed for discharging particles and fluids. The embodiment of FIG. 4A uses a paddle impeller **271** situated at the bottom portion of the vacuum canister **200**. The paddle impeller **271** is formed with a plurality of paddles **272** that revolves in a spinning manner. As illustrated in FIG. 4F, with each rotation, the paddles collect particles **281** and fluids from a collection chamber **250** when in an upward-facing state and empty particles **281** and fluids when in a downward-facing state. The discharged particles and fluids pass through a discharge chamber **280** before exiting the vacuum canister through a flange **290**. The paddle impeller **271** can be designed to rotate in a clockwise direction or in a counterclockwise direction. As illustrated in FIG. 4A, the exhausted air generated by the vacuum generating element **230** is captured and sent down a channel tube **201**. This exhaust air blows on the fan cage **273** of the paddle impeller **271** thus powers the paddle impeller **271**. Thereafter, exhausted air continues through inner carry tube **202** and passes through a connecting tube **203** before exiting into the direction of the rotating paddles **272**. As it exits the connecting tube **203**, the exhaust air blows trapped particles off the rotating paddles **272**, thereby cleaning the rotating paddles **272**.

[0044] FIG. 4B gives a closer view of the discharge control **270** employed by the vacuum canister **200** embodiment of FIG. 4A. A person of ordinary skill in the art would recognize that various types of fan contraptions could be

used to capture the energy from the exhaust air and transfer this energy into rotational movement of the paddle impeller **271**. For instance, fan blades **274** can be used in lieu of a fan cage **273** for capturing the energy necessary to power the paddle impeller **271**. FIG. 4C presents a perspective view of the paddle impeller **271** comprising of fan blades **274** joined to the inner carry tube **202** that is connected to a plurality of paddles **272**. FIG. 4D provides an exploded view of the paddle impeller **271**. The paddle impeller **271** is comprised of the fan cage **273**, the carry tube **202**, and paddles **272**. Alternatively, as shown in FIG. 4E, when fan blades are **274** are used, the paddle impeller **271** would comprise of fan blades **274**, the carry tube **202**, and paddles **272**.

[0045] FIG. 5 illustrates another inventive embodiment of the vacuum canister **300**. As shown in FIG. 5, the vacuum canister device **300** possesses a substantially cylindrical shape. A vacuum generating element **330** is used to create vacuum. This vacuum generating element **330** can be an airblower or any other contraption that suctions particles into the vacuum canister **300** via a suction hose **320** and a suction inlet **321** interconnected to the vacuum canister **300** and simultaneously blows these particles out of the vacuum canister **300** through a flange **390**. The standard airblower can include a motor **331** powering an impeller **332** or fan rotating via a rod **333**. The airblower is enclosed in a blower housing. The exhaust air vent out to the side through a filter **336**. Additionally, insulation **308** can be provided to lessen the noise stemming from the motor during operation.

[0046] Essentially, the invention embodied in FIG. 5 operates by having a motor **331** spin an impeller **332** or fan, thereby creating suction and pulling all air, particles, and fluids into the vacuum canister **300** through the impeller **332** or fan. Simultaneously, the motor creates a blowing action, whereby air, particles, and particles are blown out of the vacuum canister **300** into the sink drain **382** and eventually into the garbage disposal **383**. Unlike previous inventive embodiments, the vacuumed particles and fluids are not held or stored inside the vacuum canister **300**. Thus, a discharge control, like those in the previous embodiments, may not be necessary.

[0047] The above-described vacuum canisters and methods are example implementations. The implementations illustrate possible approaches for removing debris from a sink area and discharging the debris into a vacuum canister designed to fittingly and sealingly engage a sink drain. The actual implementation may vary from the configurations discussed. Moreover, various other improvements and modifications to this invention may occur to those skilled in the art, and those improvements and modifications will fall within the scope of this invention as set forth in the claims below.

[0048] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. Therefore, the scope of the invention is not limited to the specific exemplary embodiment described above. All changes or modifications within the meaning and range of equivalents are intended to be embraced herein.

[0049] As used in this application, the articles "a" and "an" refer to one or more than one (i.e., to at least one) of the grammatical objects of the article. By way of example, "an element" means one element or more than one element.

What is claimed is:

1. A portable vacuum device comprising:
 - a vacuum hose; and
 - a cyclone vacuum canister interconnected to the vacuum hose, the vacuum canister comprising:
 - a vacuum generator; and
 - a discharge opening positioned adjacent a bottom region of the cyclone vacuum canister, for selectively discharging matter into a sink drain, the discharge opening comprising a flange dimensioned to engage with and couple to the sink drain opening.
2. The vacuum device of claim 1, wherein the discharge control further comprises a suction backflow flap.
3. The vacuum device of claim 2, further comprising a screened cage disposed inside an upper portion of the cyclone vacuum canister, the cage containing a float ball.
4. The vacuum device of claim 3, wherein the float ball travels upward when suctioned liquid fluids flood the cage, thereby shutting off the airblower and triggering the back flow flap to open and permitting particles to fall out of the canister.
5. The vacuum device of claim 2, wherein the suction backflow flap opens and closes the flange opening depending on the airblower being turned on or off.
6. The vacuum device of claim 1, wherein the discharge control further comprises a paddle impeller having paddles that collect matter from a collection chamber when in an upward-facing state and empty matter when in a downward-facing state.
7. The vacuum device of claim 6, wherein the paddle impeller is powered by exhaust air generated by the vacuum generator.
8. The vacuum device of claim 6, wherein the flange is off-centered from the bottom of the vacuum canister.
9. The vacuum device of claim 1, further comprising a screened cage disposed inside an upper portion of the cyclone vacuum canister, the cage containing a float ball.
10. The vacuum device of claim 1, wherein a sponge or scouring pad is attached to a vacuum head of the vacuum hose.
11. The vacuum device of claim 1, wherein a nozzle head for dispensing cleaning fluid is attached to a vacuum head of the suction hose.
12. The vacuum device of claim 1, wherein a handle is formed on an outer surface of the canister to allow for simple handling of the canister.
13. The vacuum device of claim 1, wherein the vacuum canister further comprises a collection bin for holding collected particles.
14. The vacuum device of claim 1, wherein the flange is off-centered from the bottom of the vacuum canister.
15. The vacuum device of claim 1, wherein the discharge control further comprises a rotating cam.
16. A portable vacuum device comprising:
 - a suction conduit interconnected to a suction inlet of a vacuum canister; and
 - a vacuum generator positioned between the suction inlet of the vacuum canister and a flanged outlet of the vacuum canister, the flanged outlet being capable of removably coupling with a sink drain flange.
17. The vacuum device of claim 16, wherein the discharge control further comprises a suction backflow flap.
18. The vacuum device of claim 17, wherein the suction backflow flap opens and closes the flanged outlet depending on the airblower being turned on or off.
19. A method for vacuum cleaning comprising the steps of:
 - a. generating vacuum in a cyclonic vacuum canister;
 - b. suctioning matter into the cyclonic vacuum canister through a suction hose;
 - c. holding the suctioned matter in the cyclonic vacuum canister; and
 - d. selectively controlling the discharge of particles from the cyclonic vacuum canister into a garbage disposal.
20. The method of claim 19, wherein the selectively controlling step is achieved through a backflow flap that selectively opens and closes depending on the operational state of the cyclonic vacuum canister.
21. A material disposal system, comprising in combination:
 - a. a vacuum canister having a vacuum generator coupled thereto for generating a vacuum within the vacuum canister and a discharge opening to discharge material from the vacuum canister;
 - b. a sink drain having a sink drain flange associated a sink drain opening; and
 - c. a grinder having an opening in direct fluid flow communication with the sink drain flange; whereby the vacuum canister is removably couplable with the sink drain flange such that the discharge opening is capable of discharging material from the vacuum canister, through the sink drain flange and sink drain opening and into the grinder.

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