US 20150218786A1

(19) **United States**

(12) **Patent Application Publication**

CULLEN

(10) **Pub. No.: US 2015/0218786 A1**

(43) **Pub. Date: Aug. 6, 2015**

(54) **SINK INSERT WITH CLEANING SURFACE**

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(21) Appl. No.: **14/592,688**

(22) Filed: **Jan. 8, 2015**

Related U.S. Application Data

(60) Provisional application No. 61/925,147, filed on Jan. 8, 2014.

Publication Classification

(51) **Int. Cl.**

E03C 1/26 (2006.01)

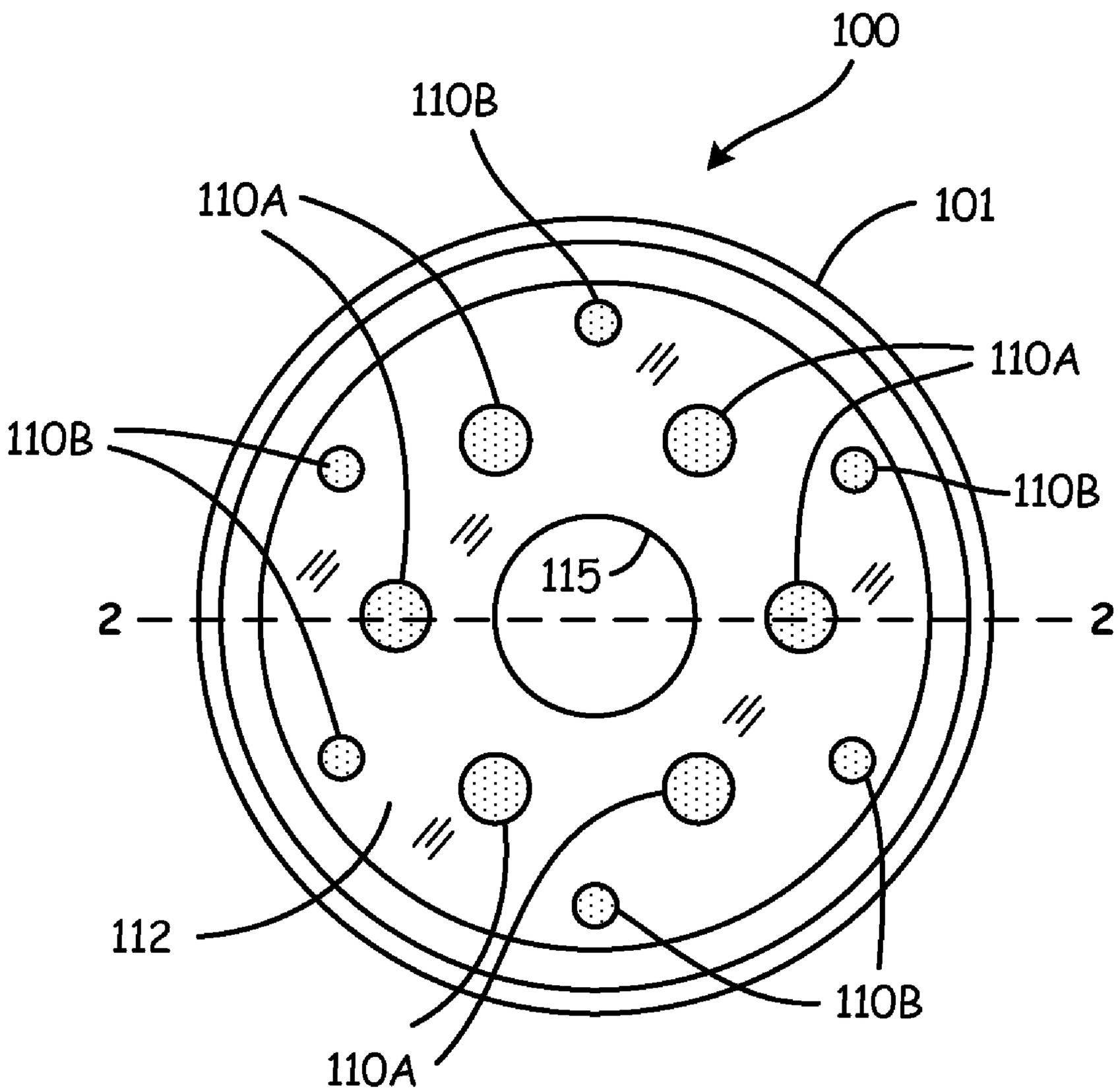
A46B 15/00 (2006.01)

(52) **U.S. Cl.**

CPC .. ***E03C 1/26*** (2013.01); ***A46B 15/00*** (2013.01)

(57) **ABSTRACT**

Methods and systems for a sink insert are described. The sink insert is comprised of an outer wall, a bottom portion and a cleaning surface. The outer wall is positioned to engage a sink at its drain. The bottom portion is fixed to the outer wall and extends radially inwardly from the outer wall toward a centerline of the drain, wherein the bottom portion defines an aperture through which fluids and, if present, solids flow from a sink basin to the sink drain. A cleaning surface is affixed to a top surface of the bottom portion such that the cleaning surface faces upwardly toward the sink basin.



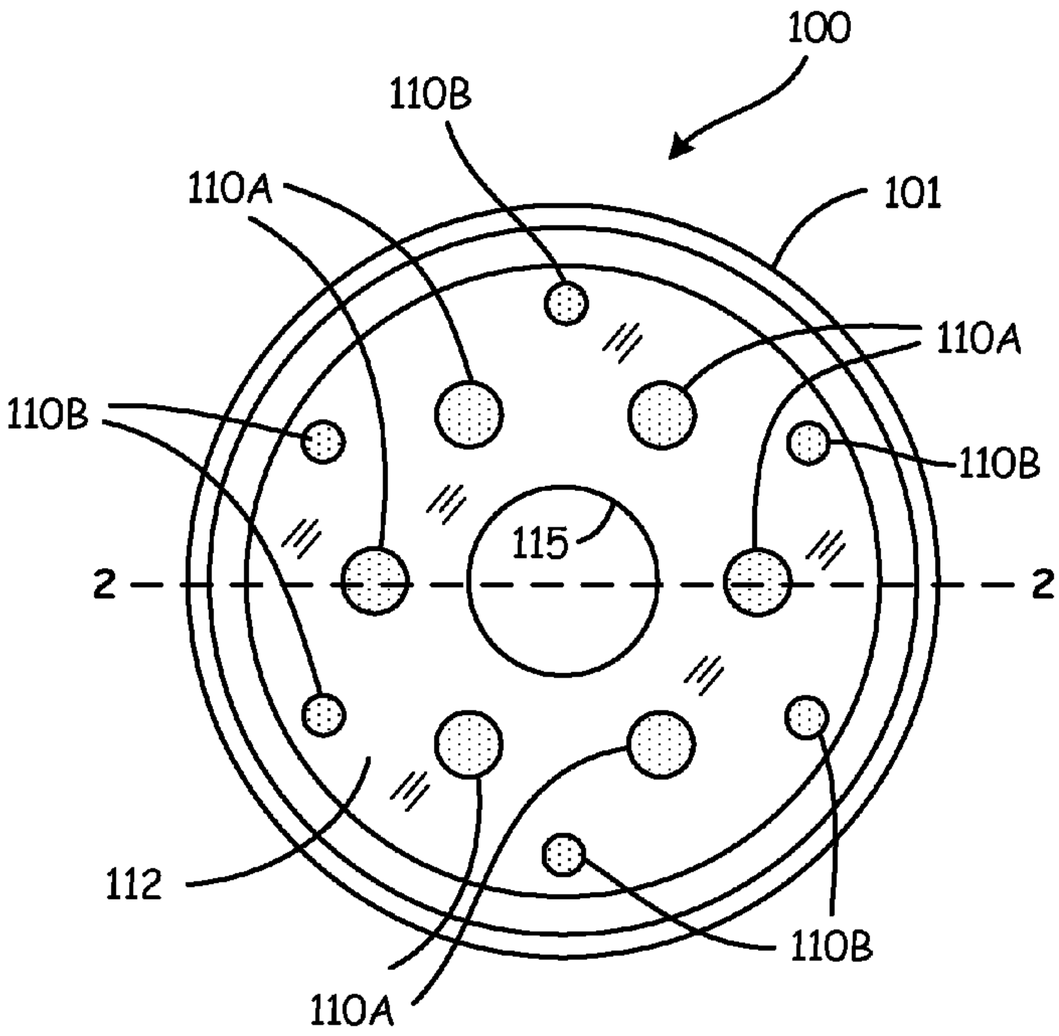


Fig. 1

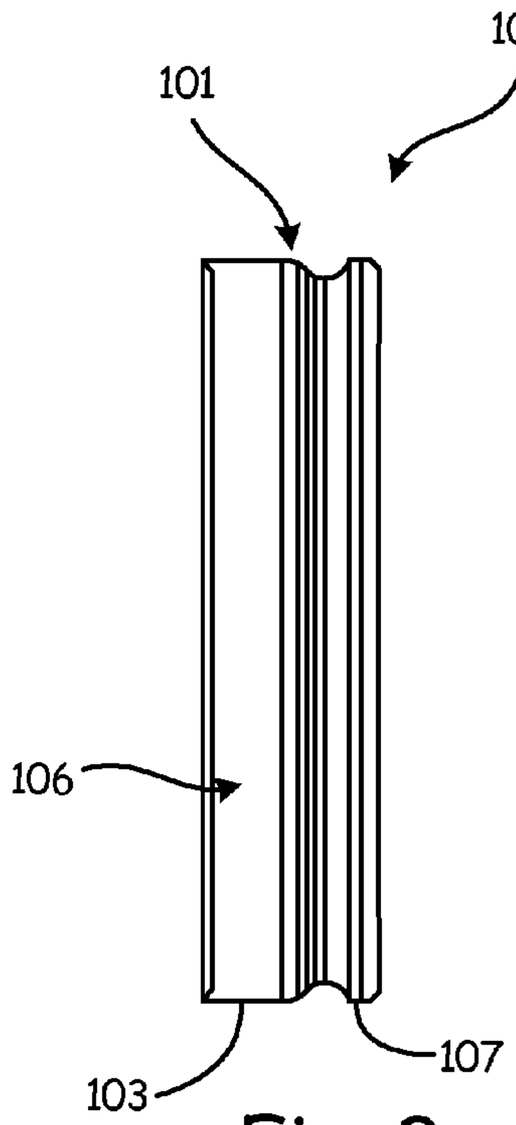


Fig. 3

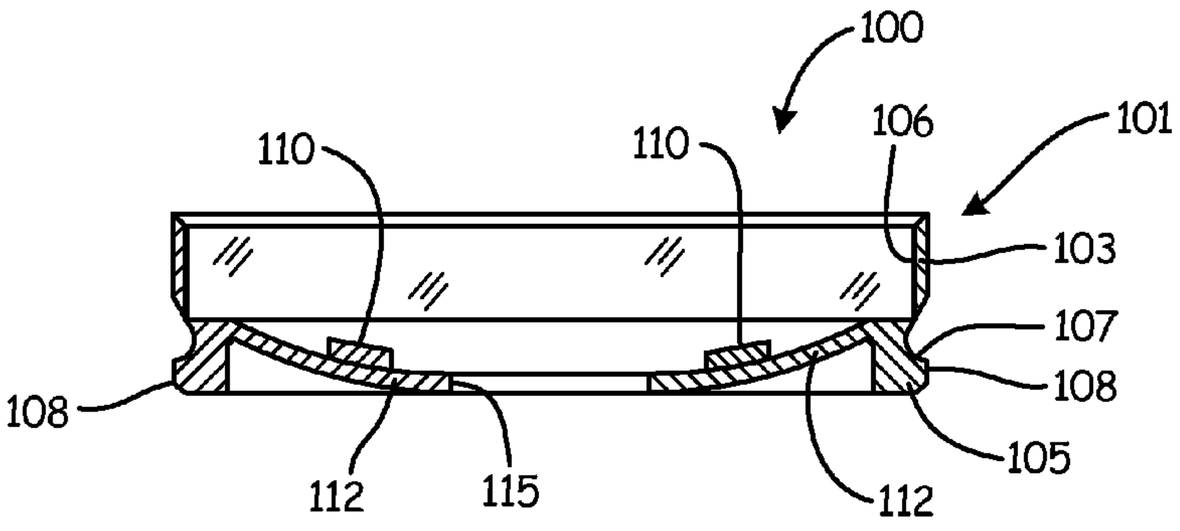


Fig. 2

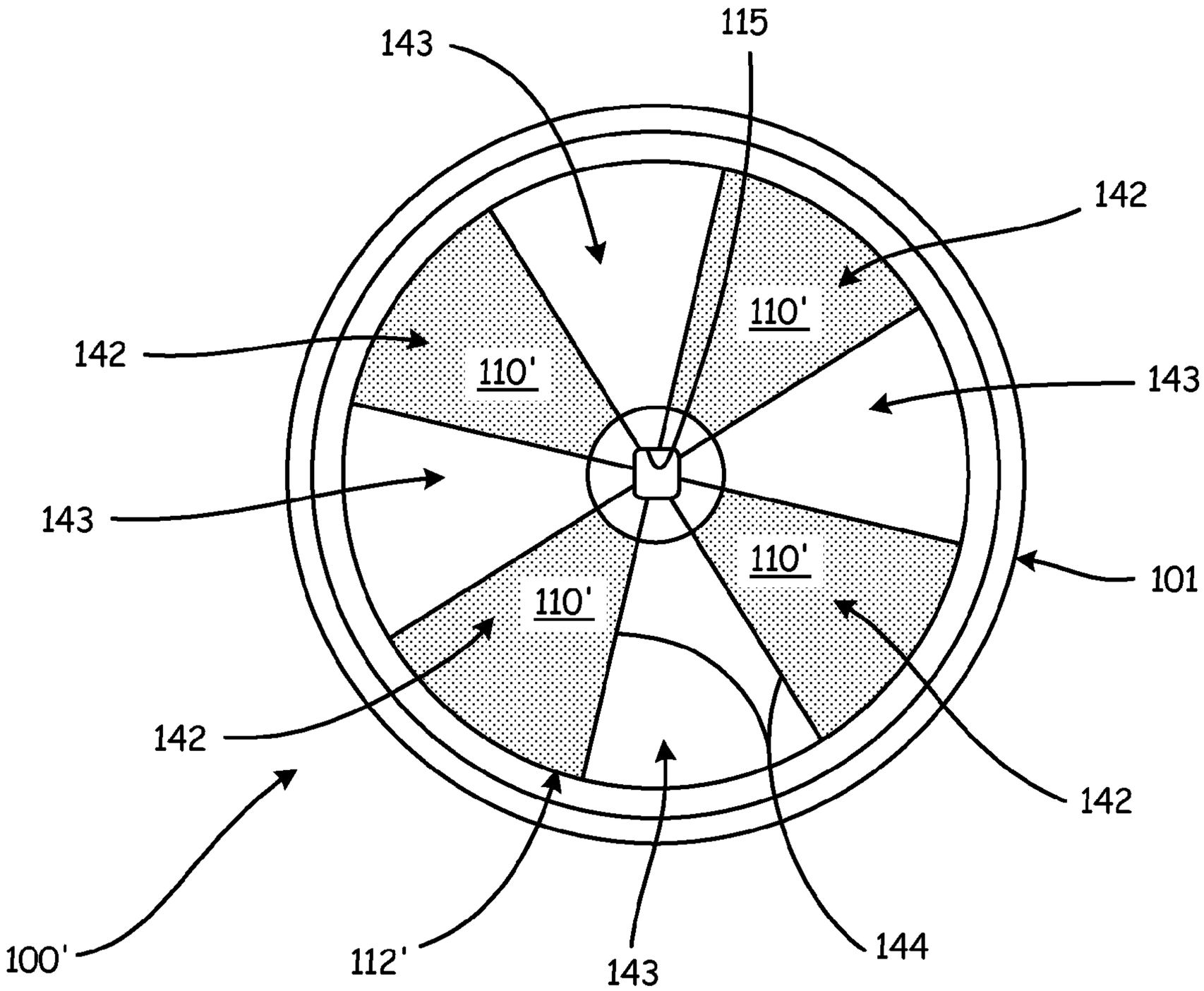

143
115
142
142
110'
110'
143
143
110'
110'
101
142
142
100'
112'
143
144

Fig. 4

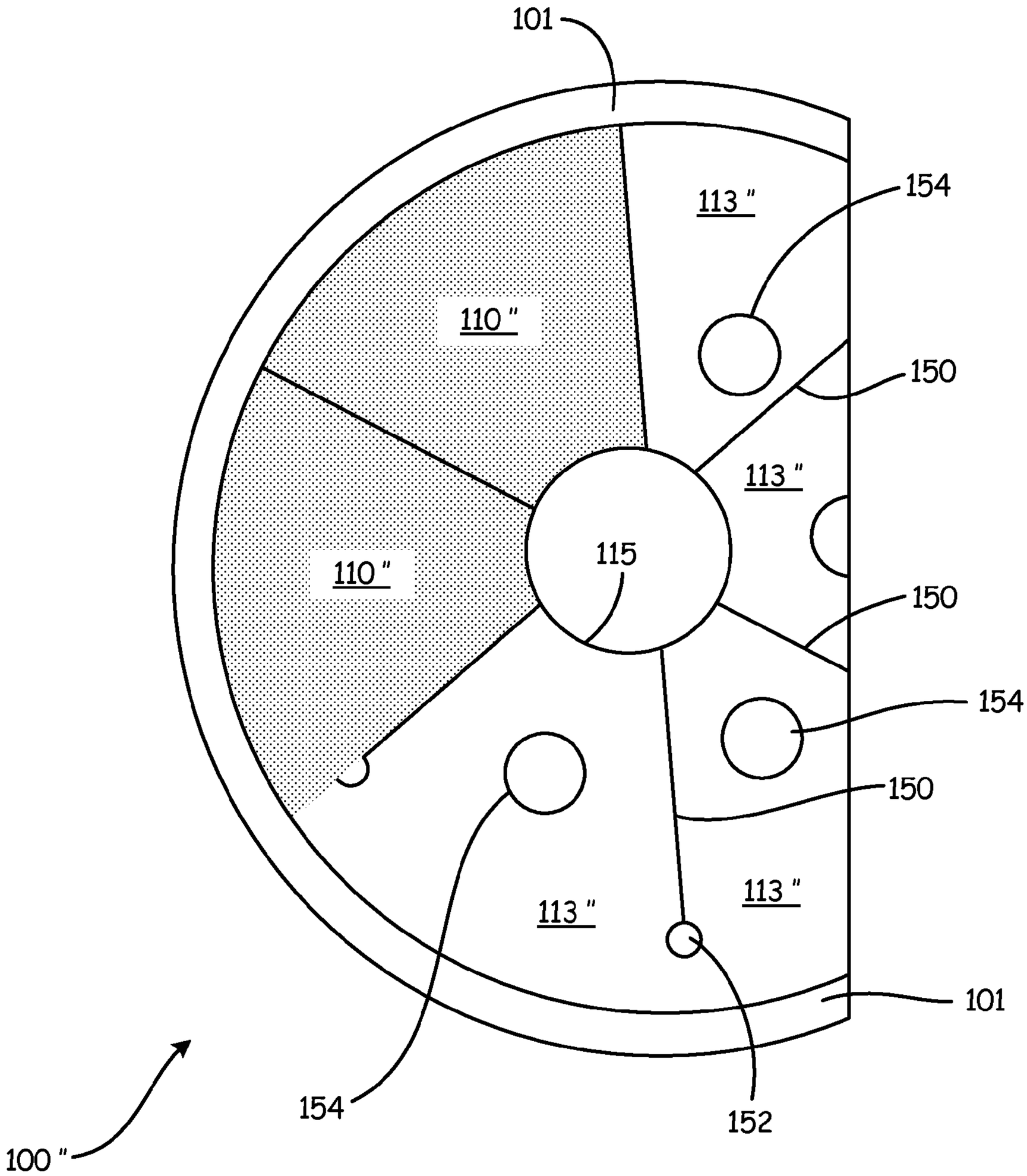

101
154
113 "
110 "
150
113 "
115
110 "
150
154
150
113 "
113 "
101
154
152
100 "

Fig. 5

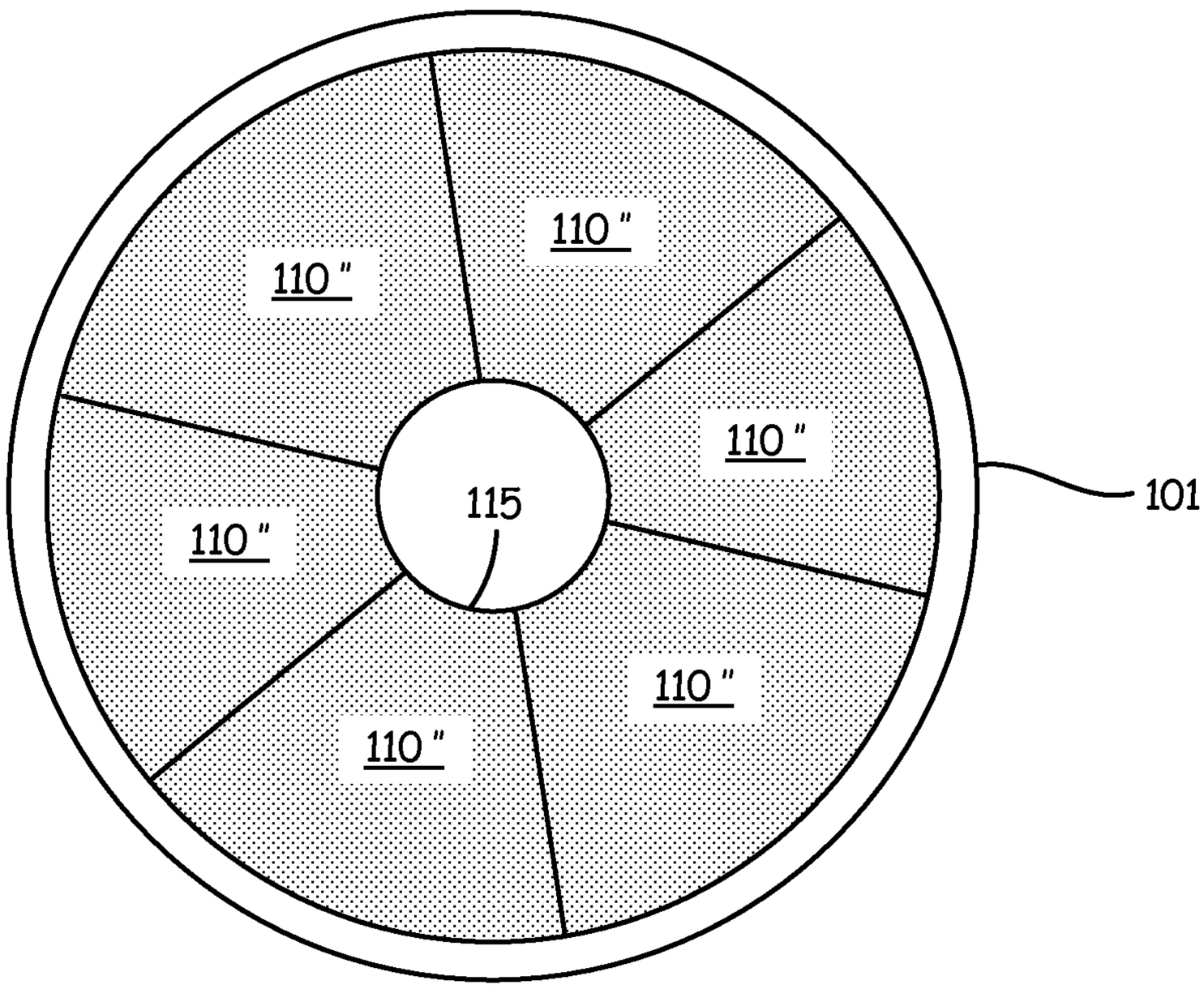


Fig. 6

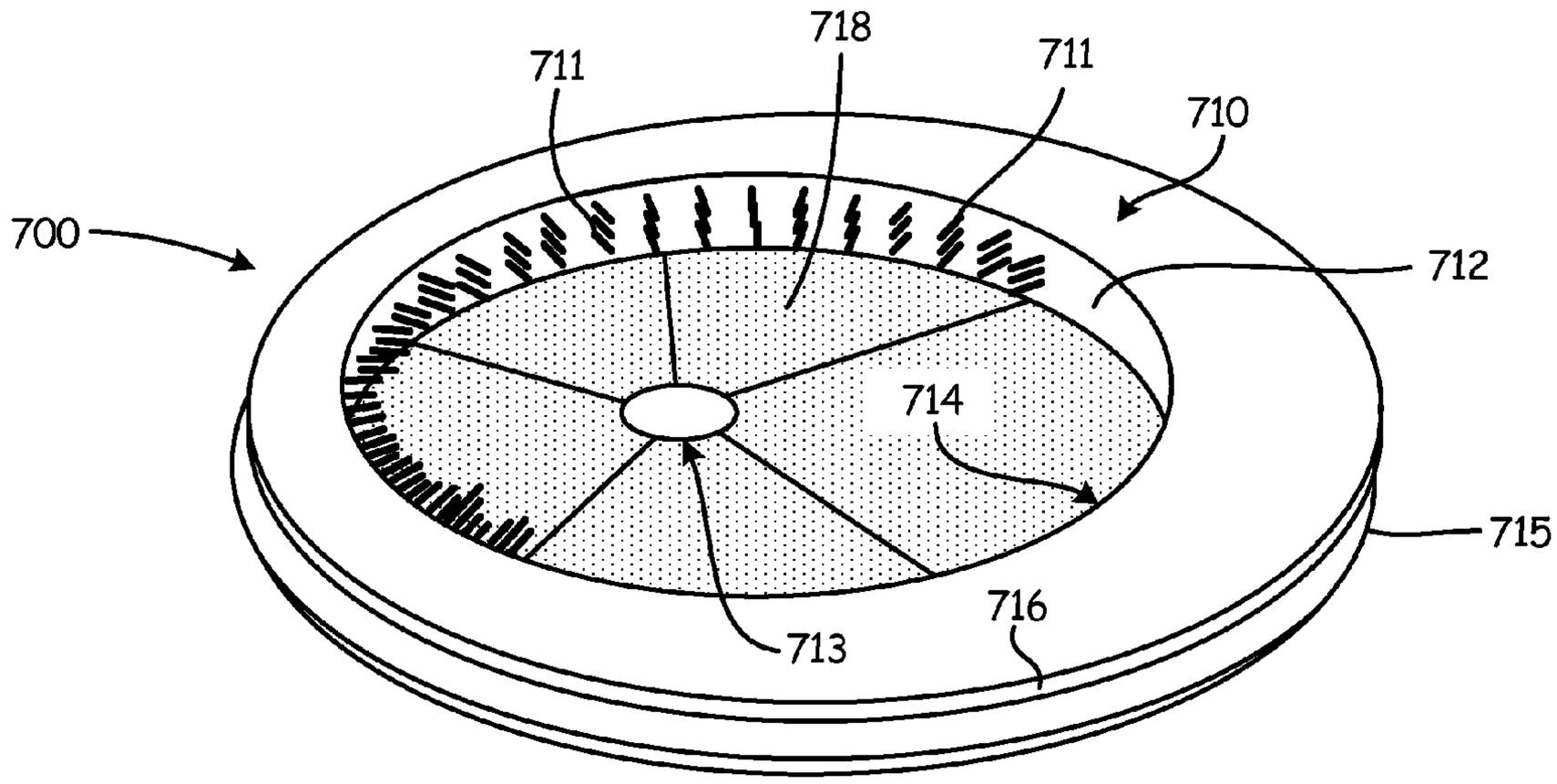

718
711
711
710
700
712
714
715
716
713

Fig. 7

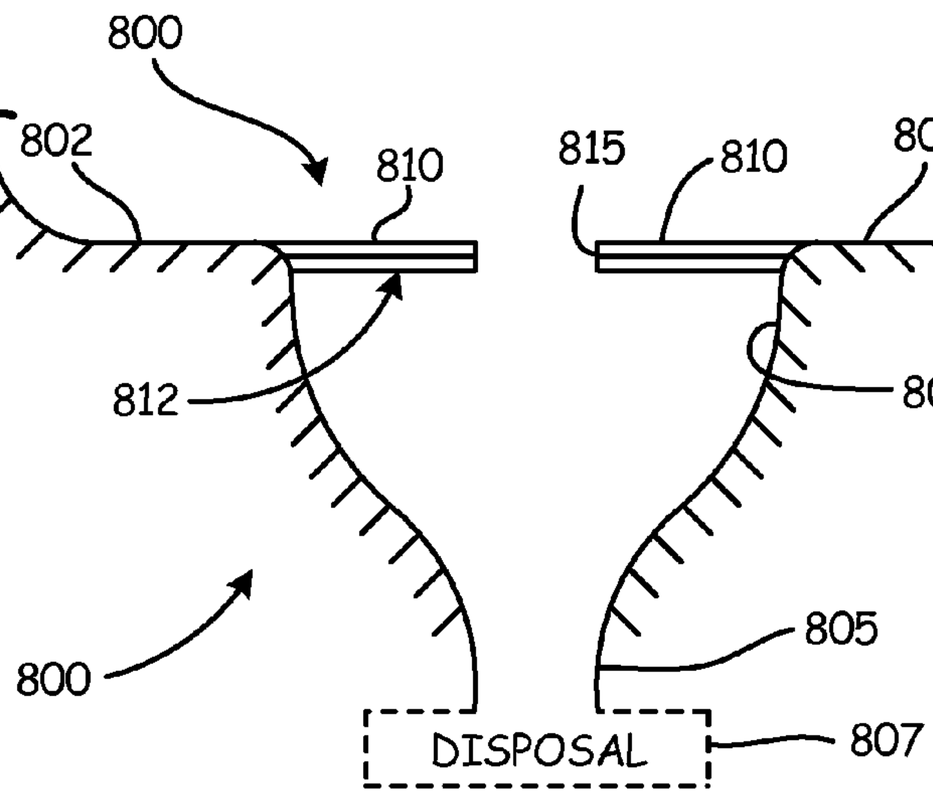

800
802
810
815
810
801
812
803
805
800
DISPOSAL
807

Fig. 8

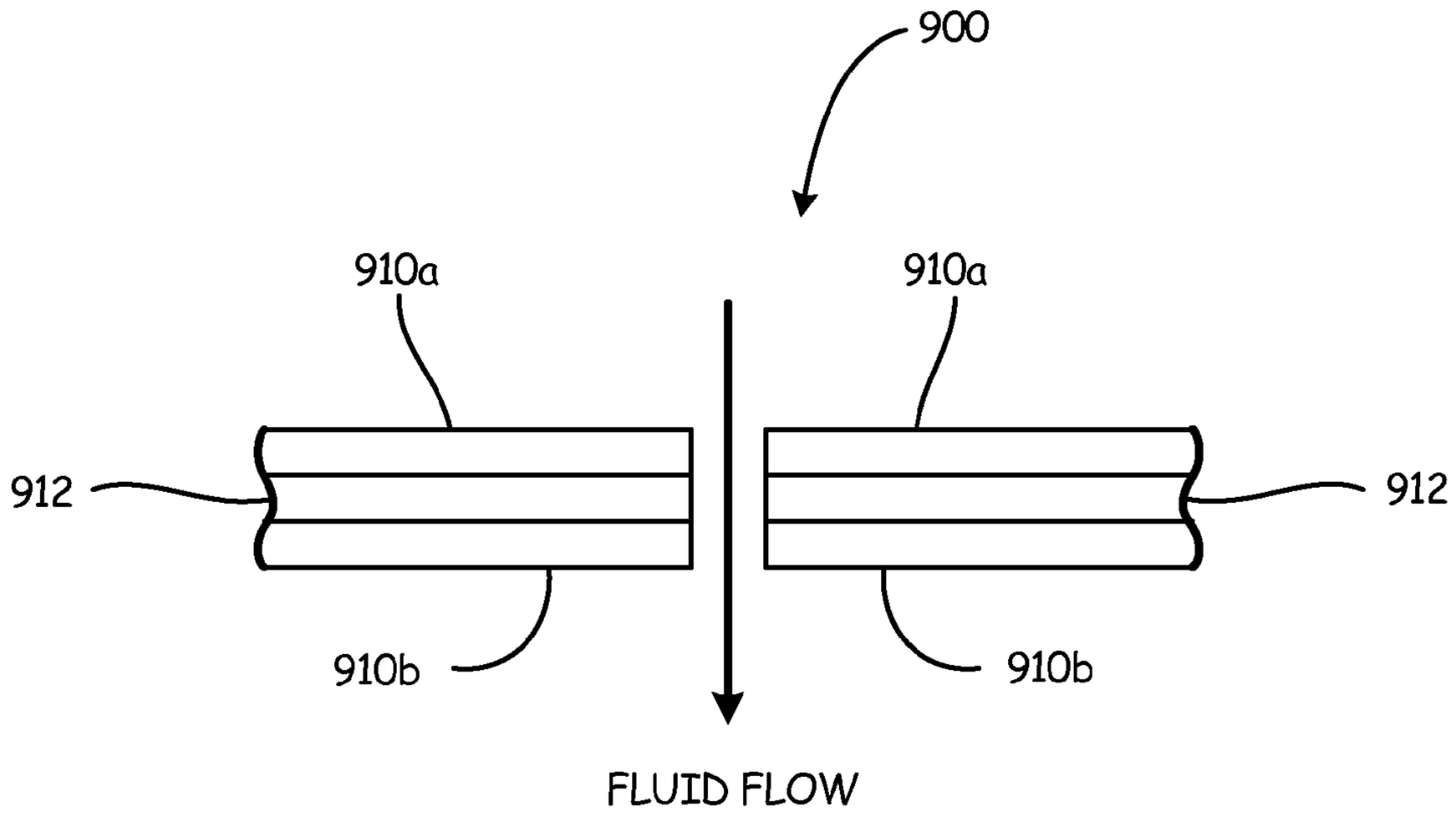


Fig. 9

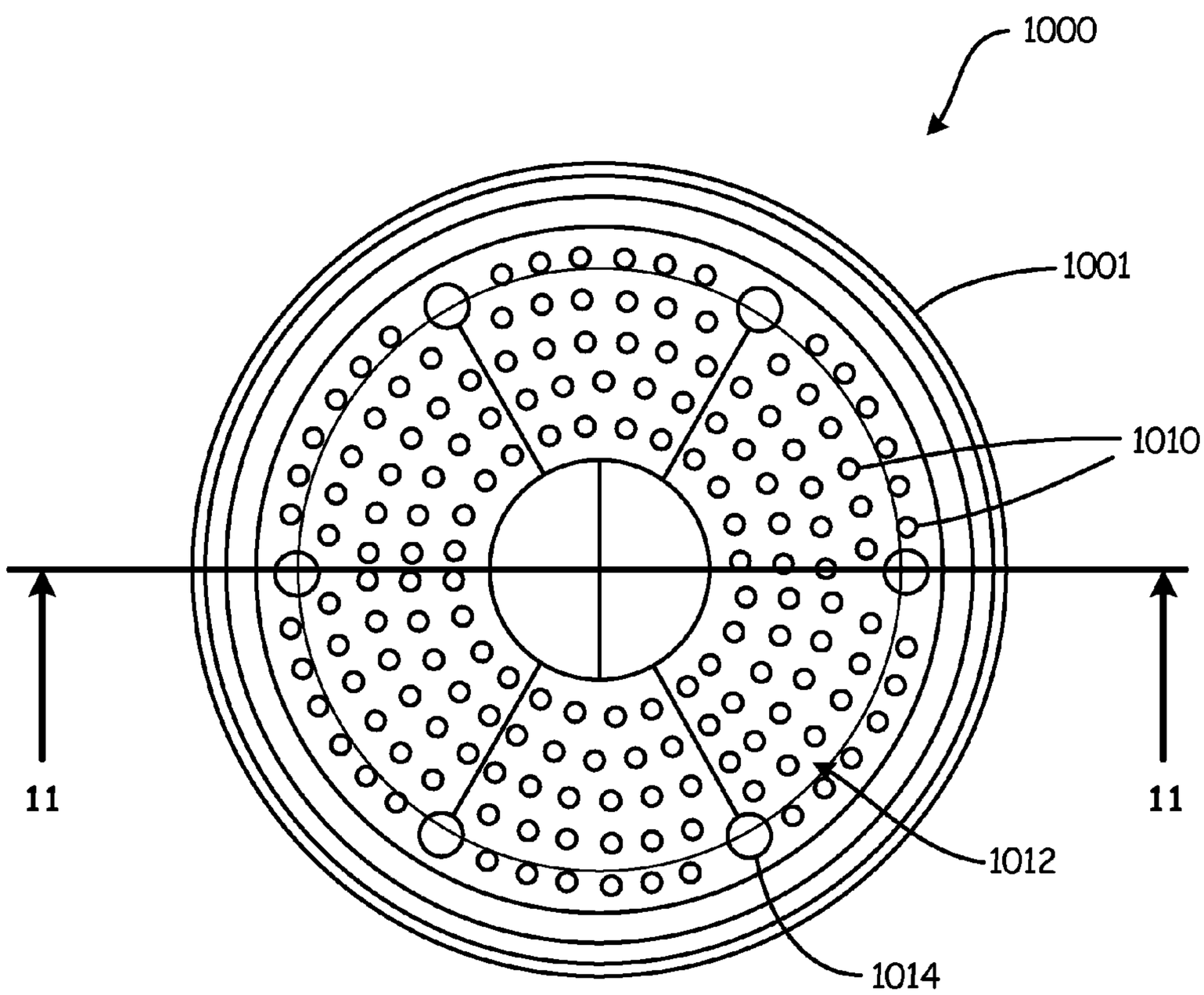


Fig. 10

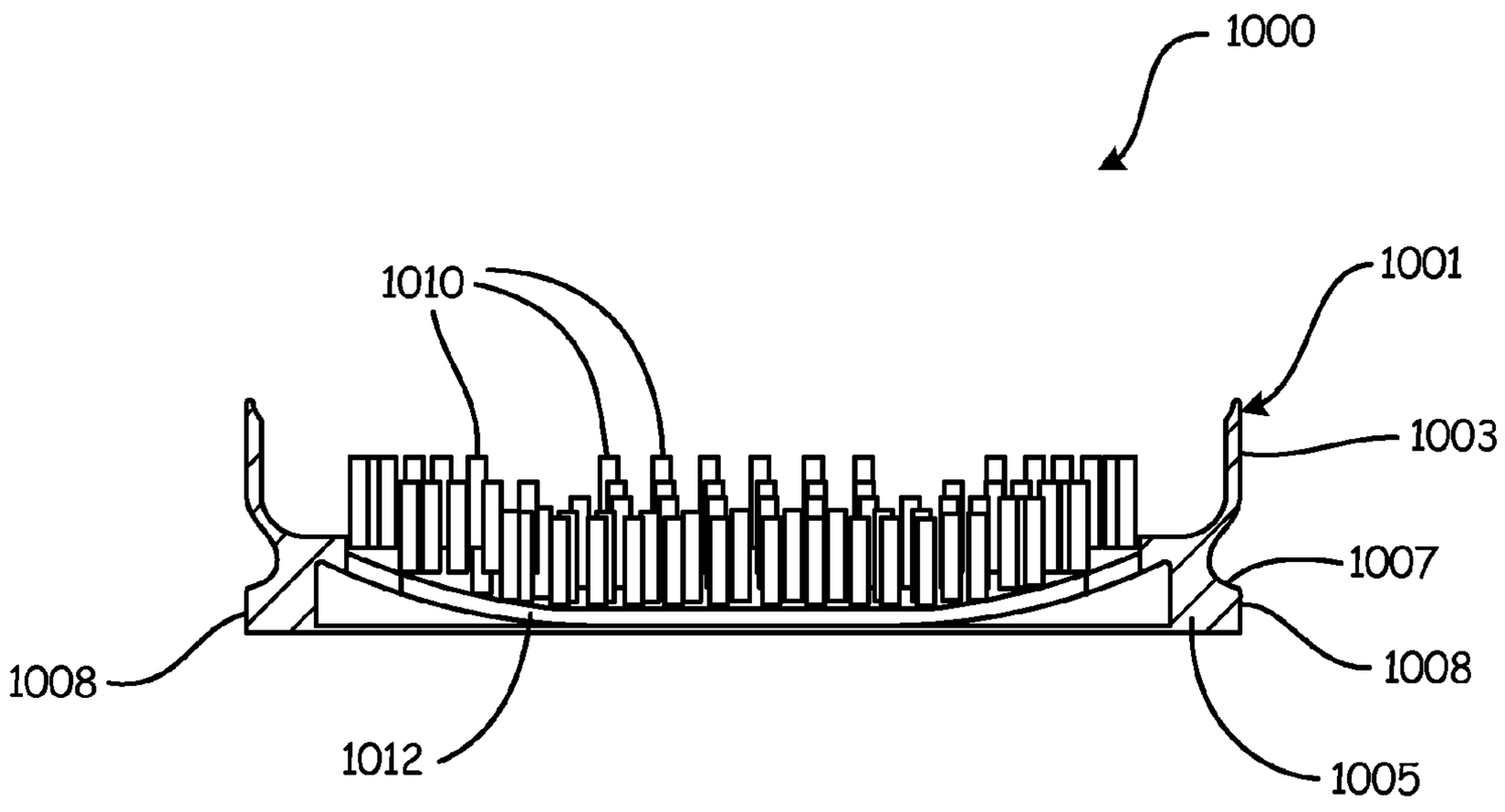


Fig. 11

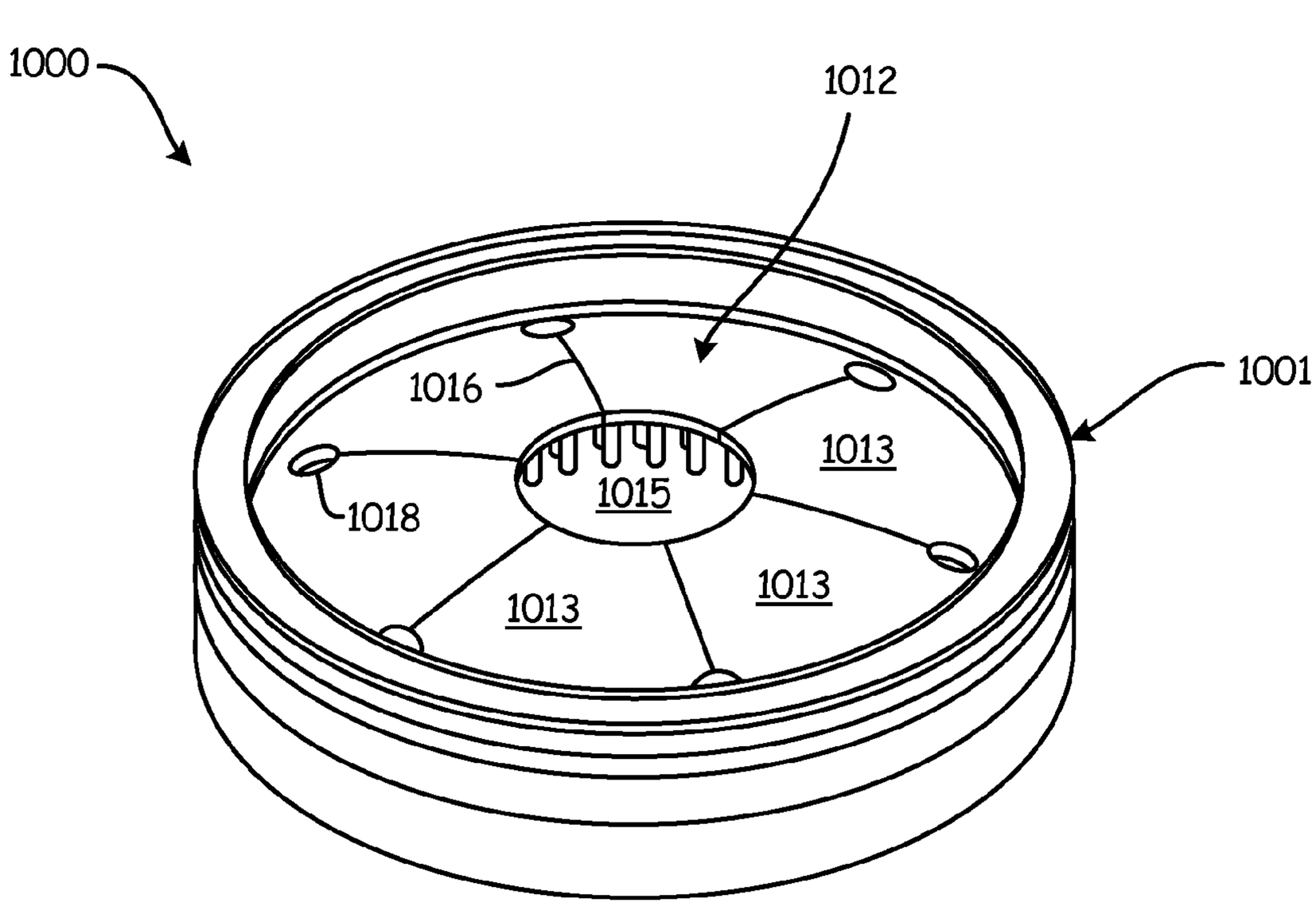


Fig. 12

SINK INSERT WITH CLEANING SURFACE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Provisional Patent Application No. 61/925,147, filed on 8 Jan. 2014, titled "SINK INSERT WITH CLEANING SURFACE", which is hereby incorporated by reference in its entirety.

FIELD

[0002] This application relates to an insert for a sink that includes a cleaning surface, for example, a splash guard with a cleaning surface or a drain insert with a cleaning surface.

BACKGROUND

[0003] Inserts are placed in sinks to either prevent back splashes from the trap or a garbage disposal or to prevent large particles from going down the drain. These inserts have smooth surfaces to allow the ready flow of liquid thereon.

[0004] U.S. Pat. No. 7,774,890 describes a sink drain insert for use with a sink equipped with a powered garbage disposal unit. This insert consists of a cylindrical base having debris dislodging means which may be one of brushes, a scraper or some combination thereof, wherein food debris that are adhered to utensils may be scrubbed or scraped to dislodged the debris, allowing the debris to fall into the garbage disposal. The outer wall of the sink drain insert further comprises a circular sealing member for affixing and restraining the insert into the sink drain at the user's discretion.

[0005] U.S. Patent Application No. 2009/0126091 describes a utensil scrubber apparatus for use with a sink drain comprises an insert sized to tightly fit within a sink drain and having first and second portions. The first portion provides a circular peripheral flange and a medial opening for allowing both liquids and solids to pass down through the insert and into the sink drain. The second portion is axially concentric with the first portion and extends downwardly, providing a tapered circular outer surface for tightly fitting within the sink drain. A plurality of resilient bristles upwardly extend from the top surface of the first portion in a position adjacent to the opening. The bristles are sized and arranged in such a way as to allow for a relatively easy means of dislodging food from a utensil. In the preferred embodiment, the insert contains a scenting agent for masking potentially unpleasant odors emanating from the sink drain.

[0006] U.S. Pat. No. 5,377,362 describes a combined sink strainer and scrub brush unit with or without a sink stopper disc which seats into a garbage disposal inlet depending from a sink bottom. A horizontal strainer base has a series of drain apertures therein and a series of spaced brush elements either molded with the base or attached to the base and depending from the base. A handle is attached to the base for manual removal of the unit from the disposal inlet and for hand-manipulating the unit to scrape/scrub foodstuff and other debris from dish plates, cooking pots, and sink surfaces into the sink and disposal inlet. A rubber stopper disc is mounted on top of base for rotational and sliding movement thereon. Radial drain holes in the disc are alignable with the base drain apertures in a drain "open" position and are offset therefrom in a drain "closed" sealing position.

SUMMARY

[0007] This summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

[0008] In an example, an insert can include a body, which extends into a sink drain, and a cleaning part on the body. The cleaning part can be engaged by a user through the sink at a top surface of the body.

[0009] In an example, a sink insert includes an outer flange to engage a sink at its drain; an inwardly extending part fixed to the outer member and extending inwardly from the outer member toward a centerline of the drain, the inwardly extending part defining an aperture through which fluids and, if present, solids flow from a sink basin to the sink drain; and a scrubber surface affixed to the inwardly extending part such that the scrubber surface faces upwardly toward the sink basin.

[0010] In an example, the scrubber surface includes a plurality of scrubber surfaces positioned on inwardly extending part. In an example, the inwardly extending part is a flexible, resilient polymer. In an example, the inwardly extending part includes a first level and a second level, with the first level being above the second level, and wherein the scrubber surface is on the first level. In an example, the scrubber surface is on the second level. In an example, the second level is connected to the first level by a wall extending downwardly, and wherein the wall is resilient and flexible.

[0011] In an example, the inwardly extending part includes a concave base, and wherein a group of the plurality of scrubber surfaces are discrete and positioned around the concave base. In an example, the group of scrubber surfaces are spaced substantially uniformly on the base. In an example, the scrubber surfaces includes a second group of scrubber surfaces that are of a different dimension relative to the first-mentioned group of scrubber surfaces.

[0012] In an example, the outer member of the sink insert includes a vertical wall to engage an inner diameter of a sink drain. In an example, the vertical wall includes a lower portion that extends the height of the inwardly extending part and includes a recess in an outer surface thereof. In an example, the vertical wall comprises an upper portion that extends above the inwardly extending part and is cyclindrical.

[0013] In conjunction with any other example, the scrubber surface includes an abrasive layer. The scrubber surface can be a woven pad. The scrubber surface can include a non-woven pad. The scrubber surface can be a non-woven pad.

[0014] In conjunction with any example herein, the sink insert can be part of a sink assembly. A sink assembly can include a basin with a drain hole; a sink insert (as described herein) secured in the drain hole or basin; and a drain pipe. In some examples, a disposal is fixed to the sink after the sink insert. A disposal is a device fitted to the waste pipe of a sink for grinding up solids being disposed of from the sink. Typically, a disposal is mounted to a kitchen sink to grind up food from the sink or dish washer. In an example, the scrubber surface includes a non-woven pad that completely covers the inwardly extending part. In an example, the scrubber surface is a layer with a uniform thickness extending above the inwardly extending part.

[0015] In further examples, the body of the insert is a flexible polymer, rubber or other yieldable material.

BRIEF DESCRIPTION OF DRAWINGS

[0016] Embodiments are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which:

[0017] FIG. **1** is a top view of an insert according to an example embodiment;

[0018] FIG. **2** is a cross sectional view of the insert according to an example embodiment;

[0019] FIG. **3** is a side view of the insert according to an example embodiment;

[0020] FIG. **4** is a top view of an insert according to an example embodiment;

[0021] FIG. **5** is a view of the insert according to an example embodiment;

[0022] FIG. **6** is a view of an insert according to an example embodiment;

[0023] FIG. **7** is a perspective view of an insert according to an example embodiment;

[0024] FIG. **8** is a sink assembly with an insert according to an example embodiment;

[0025] FIG. **9** is a partial, cross sectional view of the insert according to an example embodiment;

[0026] FIG. **10** is a top view of an insert according to an example embodiment;

[0027] FIG. **11** is a cross sectional view of the insert according to an example embodiment; and

[0028] FIG. **12** is a perspective view of the insert according to an example embodiment.

DETAILED DESCRIPTION

[0029] Example methods and systems for sink inserts are described. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of example embodiments. It will be evident, however, to one skilled in the art after review of this disclosure that the present invention may be practiced without these specific details.

[0030] In some example embodiments, sink inserts include cleaning surfaces, e.g., scrubbing surfaces, abrasive surfaces, roughened surfaces, that can aid in the removal, debris, grime, foodstuffs and the like from the surfaces of utensils and cookware.

[0031] FIGS. **1-3** illustrate sink insert **100** according to an embodiment of the present invention. FIG. **1** shows a top, plan view of the sink insert **100**, FIG. **2** illustrates a cross-sectional view of the insert **100** taken generally along line **2-2** of FIG. **1**, and FIG. **3** illustrates a side view of sink insert **100** according to embodiments of the present invention.

[0032] In the embodiment shown in FIGS. **1-3**, sink insert **100** includes outer wall **101**, cleaning surfaces **110** and bottom portion **112**. In the embodiment shown in FIGS. **1-2**, wall **101** is annular, such that an outer surface of outer wall **101** is adapted to engage an inner diameter of a drain hole or aperture of a sink. In one example, outer wall **101** is made of a resilient, water proof material, e.g., rubber, plastic or other polymer. In addition, outer wall **101** may be deformable to allow sink insert **100** to be placed into the sink drain hole with some force. The resilient properties of the outer wall **101** will force itself against the drain hole and secure itself in the sink drain hole. In other embodiments, the shape of outer wall **101** may be modified to accommodate various drain hole aperture shapes and sizes.

[0033] In the embodiment shown in FIG. **2**, outer wall **101** is comprised of upper wall portion **103** and lower wall portion **105**. The upper wall portion **103** is annular, thereby defining an open interior **106** (e.g., hollow cylinder) through which water, solids and utensils may move. The water and solids can flow out of the sink and into subsequent plumbing. The lower wall portion **105** is located adjacent the upper wall portion, and may be formed integrally with upper wall portion **103**. Lower wall portion is similarly annular, but instead of being hollow supports bottom portion **112**, which extends radially inward from lower wall portion **105**. In the embodiment shown in FIG. **2**, to support splashguard **112**, lower wall portion **105** is thicker than upper wall portion **103**. However, in the embodiment shown in FIG. **2**, both upper wall portion **103** and lower wall portion **105** have the same or similar circumferences, such that both portions may engage the inner diameter of the sink drain or other structure in the sink drain to secure the sink insert **100** within the drain.

[0034] In the embodiment shown in FIG. **2**, a recess **107** is positioned in the lower wall **105** and extends around the outer circumference of the lower wall **105**. The recess **107** assists in securing the insert **100** in a sink drain. The recess **107** defines a gradually, inwardly sloping top surface and a more abrupt, bottom outwardly extending surface. Inwardly and outwardly are determined when looking at FIG. **2** from top to bottom. The bottom surface of lower wall **105** defines a foot portion **108** that securely grips an inner part of a sink drain or sink assembly. In one embodiment, foot portion **108** extends radially outward beyond the upper wall **103**. Due to the dimensions of foot portion **108** and the resiliency of the wall material, the foot portion **108** provides the most radially outward force at the installation point. In the embodiment shown in FIG. **2**, foot portion **108** is annular, extending circumferentially around the sink insert **100**.

[0035] In the embodiment shown in FIGS. **1-3**, a bottom of sink insert **100** is defined by a portion that extends radially inward from lower wall portion **105** toward a center-point of sink insert **100**. The bottom portion **112** may sometimes be referred to as "splash guard", because it acts to prevent material that has exited the sink from returning to the sink. Bottom portion **112** can be integrally formed with the wall **101** (and in particular, with lower wall portion **105**) in an example. Accordingly, the bottom portion **112** can be reliantly deformable with the remainder of sink insert **100**. In the illustrated example, the outer circumferential edge of bottom portion **112** is fixed to the top of bottom wall portion **105**, and extends inwardly from the bottom wall **105** and defines a medial aperture **115**. Medial aperture **115** is the hole through which liquids and solids, if present, can travel from the sink's interior to the subsequent plumbing. In an example, the aperture **115** is co-axial with the drain of the sink and immediately subsequent plumbing. In one example, the aperture **115** has a dimension, e.g., diameter, that is 1/3 or less than a dimension, e.g., diameter, of the outer wall **101** or the dimension or the sink drain hole. In the illustrated example, the bottom portion **112** has a concave shape when viewed from the sink. However, in other embodiments it may be desirable that the bottom portion have a convex shape in which case bottom portion **112** would extend upward into the open interior **106** defined by upper wall portion **103**. Bottom portion **112** includes a top, outer periphery at the top of the bottom wall portion **105** and an inner, free, lower edge (which defines the aperture **115**) that is essentially at the bottom of bottom wall **105**. In one

example, the bottom portion **112** has an inner edge that is below the bottom of bottom wall **105**.

[0036] In the embodiment shown in FIGS. **1-3**, cleaning surface **110** is positioned on the top surface of bottom portion **112**. Cleaning surface **110** can include a non-uniform scrubbing surface. Various nodules can be upstanding from other areas of the surface. In an example, the cleaning layer includes non-woven fibers that are hydrophobic. In one example, the cleaning layer includes woven fibers that are hydrophobic. In another example, a plurality of grains is embedded in the surface. Cleaning surface **110** can include a plurality of discrete areas located on a top surface of bottom portion **112**. In the embodiment shown in FIG. **1**, a first group of cleaning surfaces **110**A are provided adjacent the aperture **115**, and a second group of cleaning surfaces **110**B are positioned outwardly of the first group of cleaning areas **110**A. The groups of cleaning areas can have different dimensions, as shown in FIG. **1**, and may be comprised of different materials. In the embodiment shown in FIG. **1**, first group of cleaning areas **110**A have a larger diameter than the second group of cleaning areas **110**B. However, the smaller cleaning areas **110**B are more numerous than the larger cleaning areas **110**A. In other embodiments, cleaning surfaces **110** are positioned on only one part of bottom portion **112**, e.g., 1/3 of the top surface of the bottom portion **112** or ½ of the top surface of the bottom portion **112**. While cleaning surfaces **110** are shown as cylindrical, it will be recognized that other shapes or volumes may be used for the cleaning layer. It will also be noted that the cleaning locations of the plurality of cleaning surfaces **110** extend upwardly toward or into the interior **116** of the insert **100**. The cleaning layer **110** does not extend into the aperture **115** defined by the inner diameter of the body **112**.

[0037] FIG. **4** illustrates a top view of a sink insert **100'** that includes outer wall **101**, bottom portion **112'** extending radially inward from outer wall **101**, and a plurality of cleaning surfaces **110'** located on a top surface of bottom portion **112'** according to another embodiment of the present invention.

[0038] In the embodiment shown in FIG. **4**, bottom portion **112'** include a first, upper level **142**, and a second, lower level **143** joined together by vertical walls **144**. The upper and lower levels alternate around the bottom portion **112'**. In the embodiment shown in FIG. **4**, each upper and lower level **142**, **143** is triangular or frustum shaped. This structure allows bottom portion **112'** to provide a smaller aperture **115** while allowing larger materials to flow through the bottom portion when the bottom portion is deformed by pressing downward on the bottom portion **112'**. In the embodiment shown in FIG. **4**, cleaning surfaces **110'** are positioned on one or more (here, shown as the two top parts) of the upper level portions **142** of bottom portion **112'**. It is within the scope of the present invention to position the cleaning surfaces **110'** on each of the upper level portions **142**. In the embodiment shown in FIG. **4**, the cleaning surfaces **110'** cover the entire surface of select upper level portions **142**, but in other embodiments may cover only a portion of the surface of upper level portions **142**. In one example, cleaning surfaces **110'** include a plurality of discrete cleaning pads positioned on the upper level portions **142**, e.g., one or more than one to each level **142**. In another embodiment, cleaning surfaces **110'** are also positioned on the lower level portions **143** in addition to placement on upper level portions **142**.

[0039] FIG. **5** illustrates a top view of sink insert **100"** having a first plurality of cleaning surfaces **110"** affixed to the top surface of bottom portion **112"**. FIG. **6** illustrates a top view of sink insert **100"** having additional cleaning surfaces **110"** affixed to the top surface of bottom portion **112"**. Once again, sink insert **100"** is comprised of an outer wall **101"**, a bottom portion **112"** extending radially inward from outer wall **101"**, and a plurality of cleaning surfaces **110"** affixed to the top surface or surfaces of bottom portion **112"**. In contrast with the embodiment described with respect to FIGS. **1-3**, the bottom portion **112"** includes a plurality of boundaries or cuts **150** extending radially outward from aperture **115**, such that bottom portion **112"** is divided into a plurality of components **113"** separated from adjacent components by boundaries **150**. The embodiment shown in FIG. **5** removes several of the plurality of cleaning surfaces **110"** affixed to bottom portion **112"** in order to better illustrate the plurality of components **113"** making up the bottom portion. FIG. **6** illustrates sink insert **100"** when all cleaning surfaces **110"** have been affixed to a top surface of the plurality of components **113"**.

[0040] In the embodiment illustrated in FIG. **5**, boundaries **150** extend from aperture **115** to a point **152** radially inward of outer wall **101"**. The location of point **152** may be located at any radius between aperture **115** and outer wall **101"**, and in one embodiment may be located to allow boundaries **150** to extend all the way to outer wall **101"**. The addition of boundaries **150** between components **113"** of bottom portion **112"** allows the components to move or "flex" relative to one another. In addition, in the embodiment shown in FIG. **5**, each component **113"** includes a drain hole **154** that provides an additional path for water and or particles to flow to sink drain.

[0041] In the embodiment shown in FIGS. **5** and **6**, cleaning surfaces **110"** have a hollow cylindrical shape such that it extends from outer wall **101"** to the aperture **115** and completely covers the top surfaces of the plurality of components **113"** making up bottom portion **112"**. However, in other embodiments the cleaning surfaces **110"** may include a plurality of discrete parts that have an outline that matches the geometry of each individual component **113"** from outer wall **101** to aperture **115**. For example, in one embodiment the cleaning surface **110"** includes slits that match the length of the boundaries located between individual components **113"** making up bottom portion **112"**.

[0042] FIG. **7** illustrates a perspective view of a sink insert **700** that includes locating cleaning surfaces on the top surface of bottom portion **702** as well as on inner surface **712** of outer wall **714**. The insert may once again be a sink-drain insert.

[0043] In the embodiment shown in FIG. **7**, sink insert **700** includes an annular outer wall **710**, which is adapted to fit into a sink drain outlet (not shown in FIG. **7**). Outer wall **710** has an inner surface **712**, an edge **714** and an outer surface **716**. The bottom portion **718** extends radially inward from the inner surface **712** of outer flange **710**, and defines a drain aperture **713**, by which solid debris and liquid may pass there through.

[0044] In the embodiment shown in FIG. **7**, outer wall **710** further includes cleaning surfaces **711** located on the inner surface **712** of outer wall **710**. Although cleaning surfaces **711** may utilize the same material/shape, etc. associated with cleaning surfaces located on the top surface of bottom portion **718**, in the embodiment shown in FIG. **7** cleaning surfaces **711** utilize different material/shape combinations to provide a different function from that of cleaning surfaces located on bottom portion **718**. For example, cleaning surfaces **711** may include brushes, scrapers, etc., or a combination thereof to assist in dislodging/removing food, debris, dirt, grime, and

the like from utensils or cookware. The plurality of cleaning surfaces structures **711** are fixedly attached to a first portion of inner surface **712**, and extend perpendicularly away from inner surface **712**. In the embodiment shown in FIG. **7**, cleaning surfaces **711** are sufficiently stiff so as to brush and scrub food debris from utensils. Cleaning surfaces **711** may comprise a series of brush tufts of one-piece construction having a first connecting end fixed to the inner surface **712** and a distal end having a series of resilient fingers for scrubbing utensils or other cookware. The brush elements can be metal strands, e.g., copper, or polymer strands. The art of attaching brush elements to a base is already known in the art and is discussed generally in Jackson, U.S. Pat. No. 5,377,362, which is incorporated herein for any purpose. However, if the disclosure of U.S. Pat. No. 5,377,362 conflicts with the present, explicit disclosure the present disclosure controls interpretation.

[0045] A scraper may also be incorporated into sink insert **700** by extending a sloping/scraper surface from edge **714**. The scraping edge may be formed annularly along the entire length of edge **714**, wherein a utensil can be scraped along the portion to dislodge debris. The scraping edge is adapted to be sufficiently rigid to dislodge debris adhered on utensils while being sufficiently resilient to resist breaking during the scraping action. In another embodiment, the scraping edge extends along only half of the circumferential length of edge **714**. The scraping edge may be utilized independently or in conjunction with cleaning surfaces **711** shown in FIG. **7**.

[0046] In the embodiment shown in FIG. **7**, sink insert **700** is restrained within a sink drain outlet by an annular sealing member **715** that is affixed and restrained to outer wall **716**. Annular sealing member **715** may be constructed from any durable elastomer or rubber. A common example would be O-rings or resilient washers. Annular sealing member **715** restrains sink insert **700** within the drain outlet, but is sufficiently resilient to allow the user to install and remove insert **700** at will.

[0047] FIG. **8** is a cross-sectional view illustrating placement of sink insert **100** within a sink assembly **800** according to an embodiment of the present invention. Sink assembly **800** includes a sink wall **801** that defines a basin **802** to hold, capture or drain liquids. At the bottom of the basin **802** is a sink drain **803**. A sink insert **100**, **100'**, **100"** or **700** can be positioned in or at the sink drain **803**. The sink insert can include a bottom portion **812**, which acts to support and provide the radial force necessary to hold sink insert in place, and on which a cleaning surface **810** (or additional cleaning surfaces) may be located. In the embodiment shown in FIG. **8**, cleaning surface **810** extends toward the aperture **815** and faces upwardly toward the sink basin **802**. In an example, the cleaning surface **810** is free from upstanding bristles or filaments. Additional plumbing **805** is downstream of the sink drain **803** and the sink insert. A disposal **807** may be positioned downstream of the sink drain **803** and the sink insert. Plumbing **805** can extend subsequent (downstream) from the disposal **807**.

[0048] FIG. **9** illustrates a partial, cross sectional view of sink insert **900** according to an embodiment of the present invention. The same reference numbers may be used as described elsewhere to designate similar elements and structures. A bottom portion **912** extends radially inwardly toward the centerline of the drain. A first, upstream cleaning surface **910***a* is located on a top surface of bottom portion **112**. Cleaning surface **910***a* would be visible to a user when looking into the sink. A second, downstream cleaning surface **910***b* is located on a bottom surface of bottom portion **912**, and as a result would not be visible by a user when looking down into the sink as cleaning surface **910***b* faces the drain or disposal, if present. In one example, the cleaning surface **910***b* may be visible from above by the user if the bottom portion **112** can flex or bend enough, for example, 90 degrees or more. In one embodiment, a benefit of cleaning surface **910***b* is that sink insert **900** may be removed from the drain and utilized by a user to manually scrub utensils and/or other items.

[0049] FIGS. **10-12** illustrate sink insert **1000** according to an embodiment of the present invention. FIG. **10** shows a top, plan view of the sink insert **1000**, FIG. **11** illustrates a cross-sectional view of the insert **1000** taken generally along line **11-11** of FIG. **10**, and FIG. **12** illustrates a perspective view of sink insert **1000** according to embodiments of the present invention.

[0050] As compared with embodiments described with respect to FIGS. **1-3**, the embodiment shown in FIGS. **10-12** is similar in many respects. The sink insert **1000** includes outer wall **1001**, bottom portion **1012**, and cleaning surfaces **1010**. As illustrated in FIG. **11**, outer wall **1001** includes upper wall portion **1003** and lower wall portion **1005**, which further includes recess portion **1007** and foot portion **1008**.

[0051] In contrast, the embodiment shown in FIGS. **10-12** cleaning surfaces **1010** comprised of long bristles/cylinders extending away from bottom portion **1012**. In the embodiment shown in FIG. **11**, the distal end of cleaning surface **1010** extend nearly to the top of upper wall portion **1003**. In other embodiments, the distal end of cleaning surface **1010** may extend beyond the upper wall portion **1003**.

[0052] In addition, as illustrated in the perspective view of sink insert **1000** shown in FIG. **12**, bottom portion **1012** includes a plurality of components **1013** each separated by boundaries or gaps **1016** extending radially outward from aperture **1015**. In the view shown in FIG. **12**, the length of each of the plurality of cleaning surfaces **1010** can be appreciated

[0053] While described herein as a sink insert that may clean utensils, it will be understood that other structures that can be moved into contact with the scrubber sink insert as described herein are within the scope of the present disclosure. Examples of other structures include cooking device, cooking utensils, forks, knives, spoons, spatulas, brushes, rods, rollers, and the like.

[0054] It will be understood that the use of prime designations (e.g., ' or ") on reference numbers indicates that the element so designated is substantially similar to those described elsewhere with the same reference number but have some difference in the embodiment being presently described.

[0055] It will also be understood to be in the scope of the present disclosure to place a scrubbing surface on the bottom of the sink insert. For example, the downstream side of the flexible body extending into the drain aperture may have a scrubbing surface thereon. This second scrubbing surface faces the drain and the disposal, if present.

[0056] The sink insert can also include a biasing member, a coil spring or c-ring, or combinations thereof, to provide a force sufficient to hold the sink insert in place within the drain hole of a sink while in use. In an example, the biasing member is positioned in the wall **101** to force the wall into contact with the drain hole. The biasing member may provide a force of a few pounds or more, five pounds or more, or ten pounds or

more to secure the sink insert **100** in the sink. In an example, the biasing member may be co-formed in the wall **101** of the sink insert **100**. In another example, the biasing member can be adhered to the wall **101**. In another example, the biasing member can be threaded into the wall after forming the wall. In other examples, an adhesive, preferably, water insoluble, can fix the wall **101** to the sink drain hole. Such structures to hold the sink insert in the drain hole while a user contacts the insert with a utensil or other helps keep the insert in place in the drain.

[0057] The sink insert can also include a removal means such as a string, chain, handle, tab, or the like for the purpose of removing the sink insert from a sink drain hole.

[0058] The present disclosure uses the phrase "scrubber surface" that, in some embodiments, represents a surface structure with more surface features than other areas or parts of the sink insert. The scrubber surface may be designed to engage and dislodge particles from utensils or other structures at the sink insert while allowing fluid flow therethrough, there around or thereover.

[0059] The Abstract of the Disclosure is provided to comply with 37 C.F.R. §1.72(b), requiring an abstract that will allow the reader to quickly ascertain the nature of the technical disclosure. It is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims. In addition, in the foregoing Detailed Description, it can be seen that various features are grouped together in a single embodiment for the purpose of streamlining the disclosure. This method of disclosure is not to be interpreted as reflecting an intention that the claimed embodiments require more features than are expressly recited in each claim. Rather, as the following claims reflect, inventive subject matter lies in less than all features of a single disclosed embodiment. Thus the following claims are hereby incorporated into the Detailed Description, with each claim standing on its own as a separate embodiment.

What is claimed is:

1. A sink insert comprising:

an outer wall to engage a sink at its drain;

a bottom portion fixed to the outer wall and extending radially inwardly from the outer wall toward a centerline of the drain, the bottom portion defining an aperture through which fluids and, if present, solids flow from a sink basin to the sink drain; and

a cleaning surface affixed to a top surface of the bottom portion such that the cleaning surface faces upwardly toward the sink basin.

2. The sink insert of claim **1**, wherein the cleaning surface includes a plurality of cleaning surfaces positioned on a top surface of the bottom portion.

3. The sink insert of claim **2**, wherein the bottom portion is a flexible, resilient polymer.

4. The sink insert of claim **3**, wherein the bottom portion includes a first level and a second level, with the first level being above the second level, and wherein the cleaning surface is affixed to a top surface of the first level.

5. The sink insert of claim **4**, wherein the cleaning surface is affixed to a top surface of the second level.

6. The sink insert of claim **5**, wherein the second level is connected to the first level by a wall extending therebetween, and wherein the wall is resilient and flexible.

7. The sink insert of claim **3**, wherein the bottom portion includes a concave base, and wherein a first group of cleaning surfaces is discrete and positioned around the concave base.

8. The sink insert of claim **7**, wherein the first group of cleaning surfaces are spaced substantially uniformly around the top surface of the bottom portion.

9. The sink insert of claim **8**, wherein the cleaning surfaces include a second group of cleaning surfaces that are of a different dimension relative to the first group of cleaning surfaces.

10. The sink insert of claim **7**, where the outer wall includes a lower portion that extends the height of the bottom portion and includes a recess in an outer surface thereof.

11. The sink insert of claim **10**, where the outer wall includes an upper portion that extends above the bottom portion and is cyclindrical.

12. The sink insert of claim **1**, wherein the cleaning surface includes an abrasive layer.

13. The sink insert of claim **1**, wherein the cleaning surface includes a woven pad.

14. The sink insert of claim **1**, wherein the cleaning surface includes a non-woven pad.

15. A sink assembly comprising:

a basin with a drain hole;

a sink insert secured in the drain hole;

a drain pipe connected to the drain hole; and

wherein the sink insert includes:

an outer wall to engage the basin at the drain hole;

a bottom portion fixed to the outer wall and extending inwardly from the outer wall toward a centerline of the drain hole, the bottom portion defining an aperture through which fluids and, if present, solids flow from the basin to the drain pipe; and

a cleaning surface affixed to the bottom portion such that the scrubber surface faces upwardly toward the basin.

16. The sink assembly of claim **15**, wherein the cleaning surface includes a non-woven pad that completely covers the bottom portion.

17. The sink assembly of claim **15**, wherein the cleaning surface is a layer with a uniform thickness extending above the bottom portion.

18. The sink assembly of claim **15**, wherein the bottom portion is divided into a plurality of portions separated from adjacent portions by boundaries that extend radially outward from the aperture defined in the bottom portion.

19. The sink assembly of claim **18**, wherein apertures are formed in one or more of the plurality of portions making up the bottom portion.

20. The sink assembly of claim **18**, wherein separate cleaning surfaces are affixed to each of the plurality of portions making up the bottom portion.

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