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(54) **SINKS WITH CONCEALABLE INTERNALS AND SPACES USING THE SAME**

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(57) **ABSTRACT**

Sinks have a basin and associated lid to open and close the basin based on desired function. The lid is useable as a counter space and concealer for sink internals. The lid can be moved in a variety of ways based on desired function, potentially without need for external attachment, structure, and/or volume for lid function. The lid may be configured to match surrounding surfaces both functionally and aesthetically. Sinks are useable with drains, hinges and other attaching joints, faucets or other water sources, countertops alongside the sink, holes and other drains in lids to permit wetbar and counter usage in a closed position, etc.

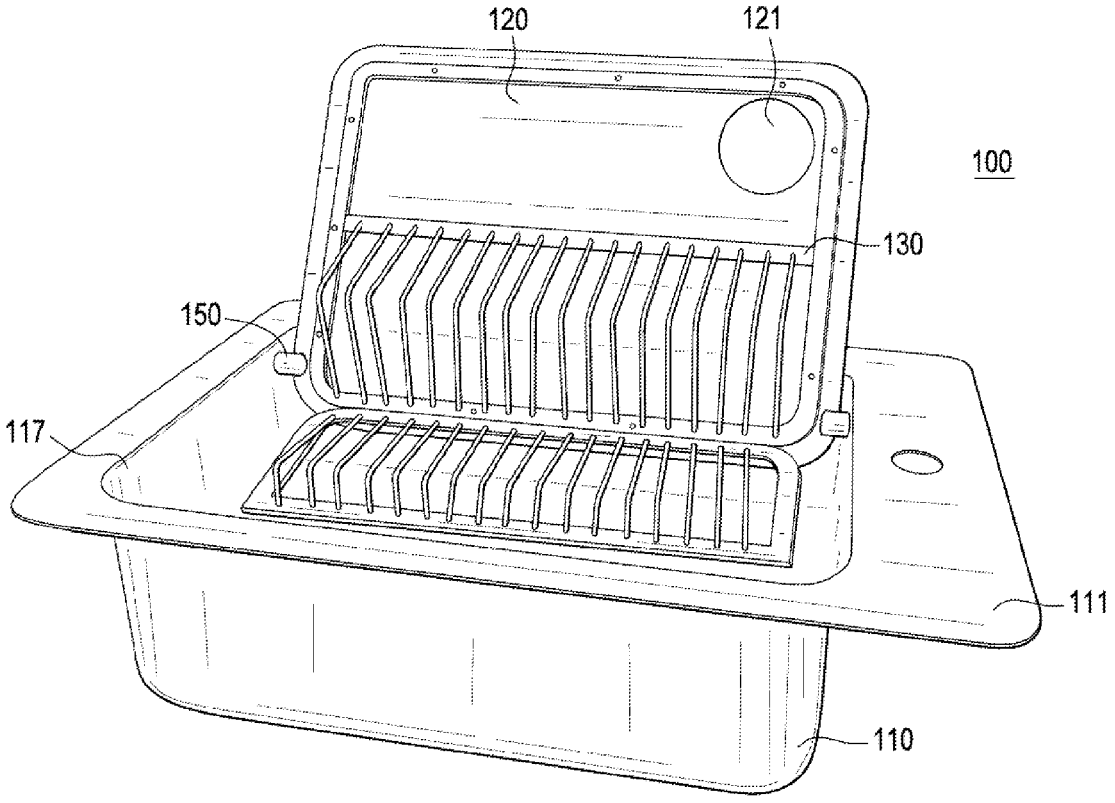


FIG. 1

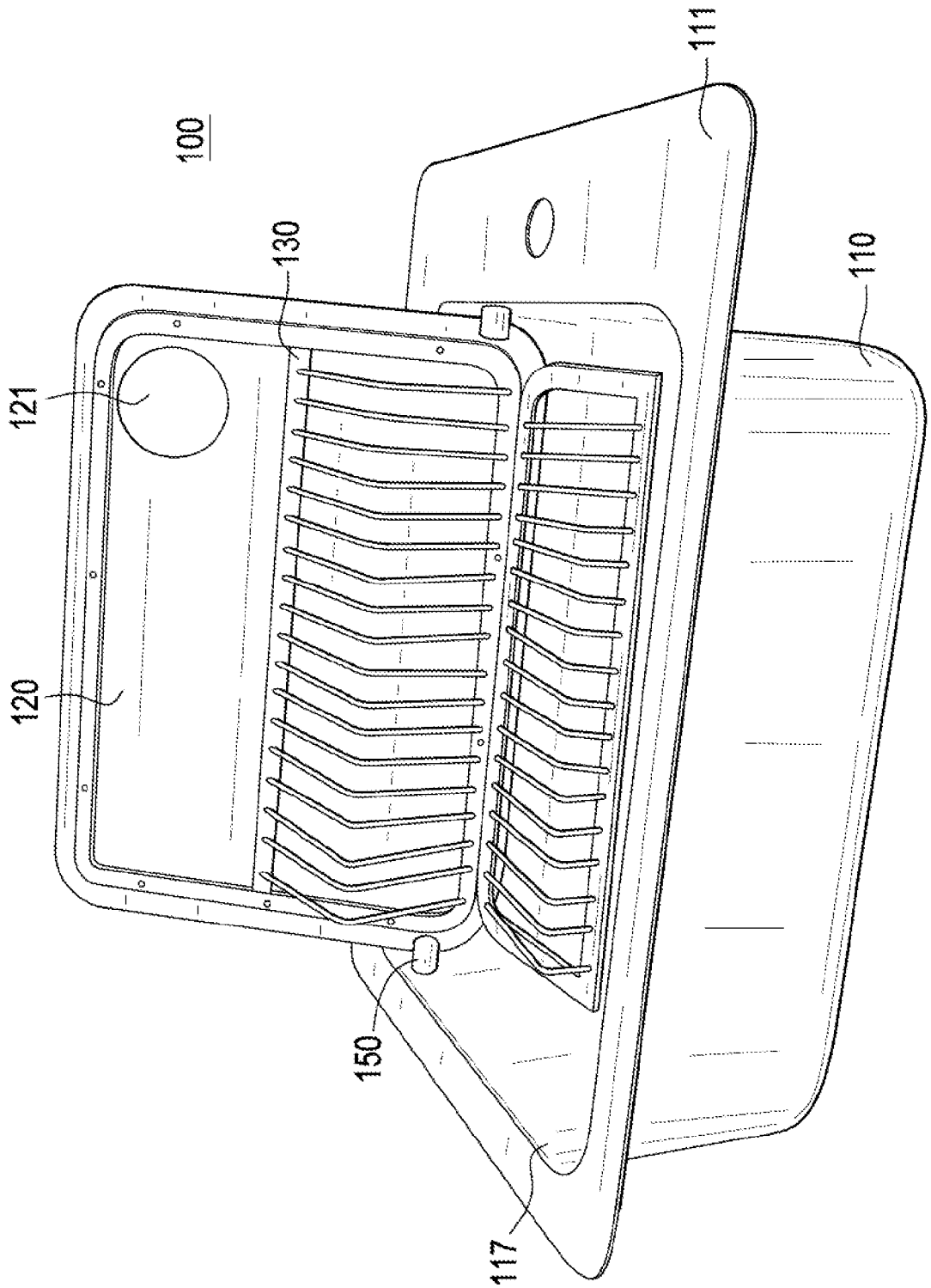


FIG. 2

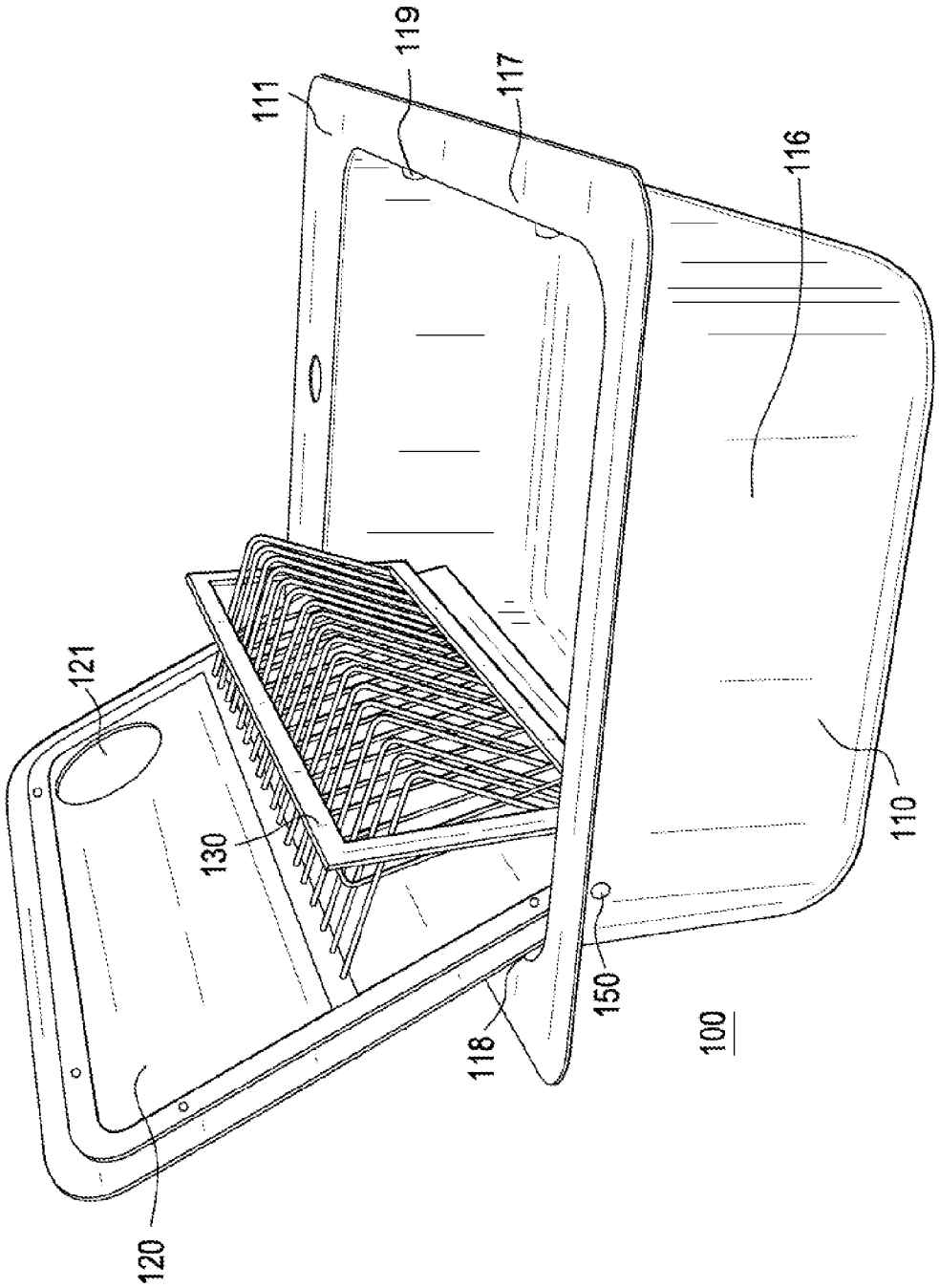
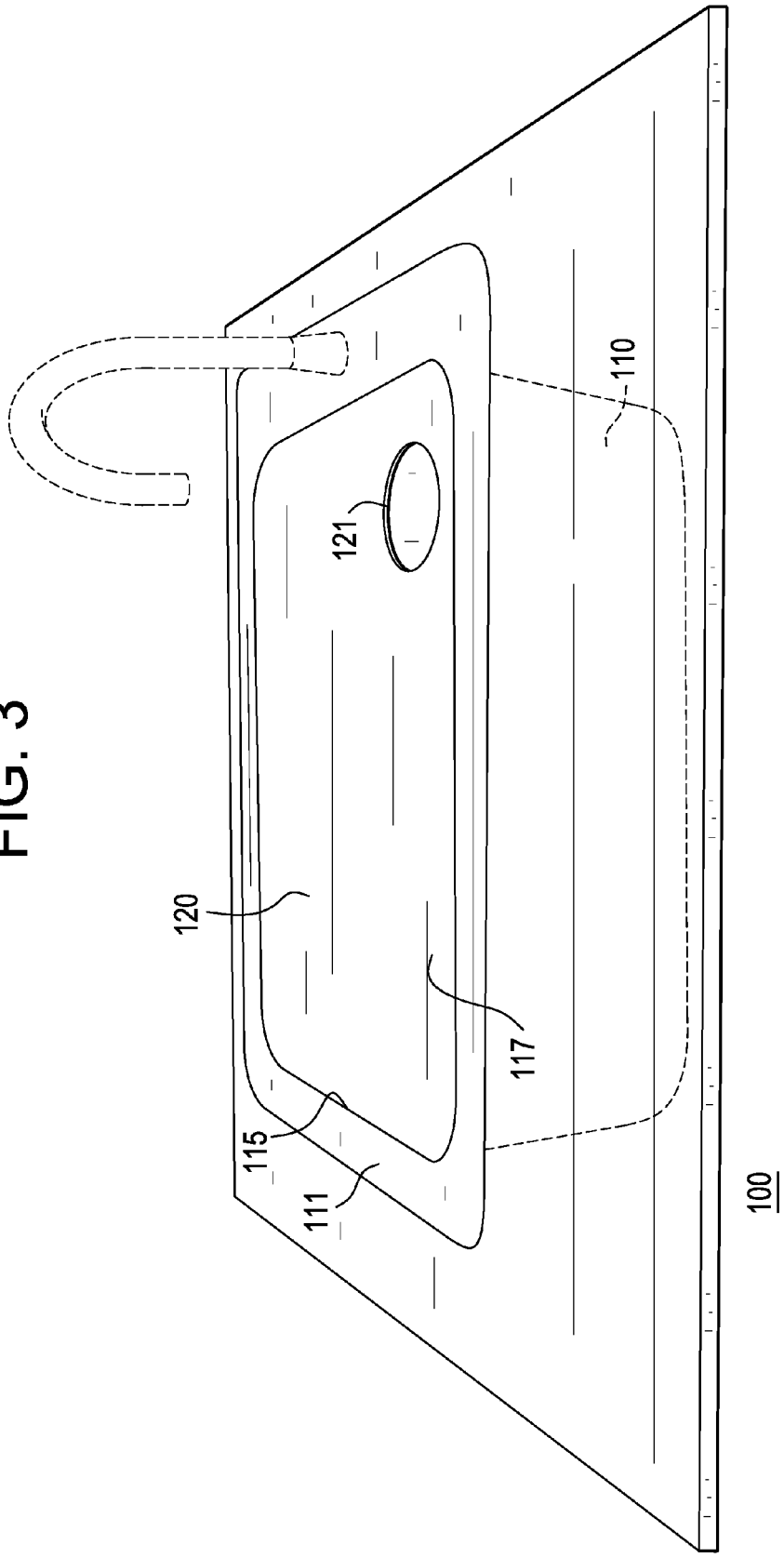


FIG. 3



SINKS WITH CONCEALABLE INTERNALS AND SPACES USING THE SAME

BACKGROUND

[0001] Wash basins, sinks, tubs, and other retaining and draining structures are often necessary for human use of any space to provide liquid an refuse disposal as well as allowing for washing or soaking of dishes, hands, laundry, etc. For example, restrooms, kitchens, changing rooms, wetbars, locker rooms, utility rooms, laundromats, plane and train lavatories, etc. all conventionally include sinks with plumbing to supply water and rinse refuse through sinks.

[0002] Sinks usually include a large open top and one or more continuous basins housing a drain at a lowest point. Conventionally, a faucet resides outside, typically above, the sink to provide water for washing, rinsing, and/or flushing away refuse. The basin is typically large and deep enough to house dishes, laundry, or other materials to be washed and hold water for washing and/or soaking the same. As such, larger, deeper basins with greater open volume and top area have typically been more desired because they hold more washing materials and/or dispose of more refuse.

SUMMARY

[0003] Example embodiments include sinks with a tub and cover that are installable together as a sink unit in an area where a sink is desired. An example embodiment sink may use one or more basins and lids attached thereto, and the lids are moveable to open the basins for access and use or close the same for concealment. The basins and lids can thus be adjusted for a variety of sink- or counter-requiring tasks. Example embodiments can include a variety of different features, such as a drain in basins of the sink for refuse or sewage disposal, hinges and other attachment structures to provide desired movement between lids and basins, a variety of different types and numbers of faucets or other water sources, internal structures such as drying racks, countertops alongside the sink, holes and other drains in lids to permit wetbar and counter usage in a closed position, etc.

BRIEF DESCRIPTIONS OF THE DRAWINGS

[0004] Example embodiments will become more apparent by describing, in detail, the attached drawings, wherein like elements are represented by like reference numerals, which are given by way of illustration only and thus do not limit the example embodiments herein.

[0005] FIG. **1** is an illustration of an example embodiment sink with opened lid.

[0006] FIG. **2** is an illustration of an example embodiment sink with opened lid.

[0007] FIG. **3** is an illustration of an example embodiment sink with closed lid.

DETAILED DESCRIPTION

[0008] This is a patent document, and general broad rules of construction should be applied when reading it. Everything described and shown in this document is an example of subject matter falling within the scope of the claims, appended below. Any specific structural and functional details disclosed herein are merely for purposes of describing how to make and use example embodiments. Several different embodiments not specifically disclosed herein may fall within the claim scope; as such, the claims may be embodied in many alternate forms and should not be construed as limited to only example embodiments set forth herein.

[0009] It will be understood that, although the terms first, second, etc. may be used herein to describe various elements, these elements should not be limited by these terms. These terms are only used to distinguish one element from another. For example, a first element could be termed a second element, and, similarly, a second element could be termed a first element, without departing from the scope of example embodiments. As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items.

[0010] It will be understood that when element(s) are referred to in relation to one another, such as being "connected," "coupled," "mated," "attached," or "fixed" to another element(s), the relationship can be direct or with other intervening elements. In contrast, when an element is referred to as being "directly connected" or "directly coupled" to another element, there are no intervening elements present. Other words used to describe the relationship between elements should be interpreted in a like fashion (e.g., "between" versus "directly between," "adjacent" versus "directly adjacent," etc.). Similarly, a term such as "connected" for communications purposes includes all variations of information exchange routes between two devices, including intermediary devices, networks, etc., connected wirelessly or not.

[0011] As used herein, the singular forms "a", "an," and "the" are intended to include both the singular and plural forms, unless the language explicitly indicates otherwise with terms like "only a single element." It will be further understood that the terms "comprises," "comprising," "includes," and/or "including," when used herein, specify the presence of stated features, values, steps, operations, elements, and/or components, but do not themselves preclude the presence or addition of one or more other features, values, steps, operations, elements, components, and/or groups thereof.

[0012] It should also be noted that the structures and operations discussed below may occur out of the order described and/or noted in the figures. For example, two operations and/or figures shown in succession may in fact be executed concurrently or may be executed in the reverse order, depending upon the functionality/acts involved. Similarly, individual operations within example methods may be executed repetitively, individually or sequentially, so as to provide looping or other series of operations. It should be presumed that any embodiment having features and functionality described below, in any workable combination, falls within the scope of example embodiments.

[0013] The inventors have recognized that existing basin and drain structures are difficult to conceal due to a large open top, and existing basin and drain structures are difficult to cover and use as counter space. Particularly in small spaces with limited counter space, and where sink refuse or appearance may be particularly distracting, there is a need to easily and fully reclaim counter space consumed by the basin while aesthetically concealing the sink. Further, the inventors have recognized that placing a board or other flat surface over the sink may be cumbersome and the board itself may consume space that is limited in small areas when not in use, that the covering structure may become lost or may be easily separated from the basin, and/or that the covering structure may protrude above or below, or otherwise not aesthetically or functionally match, counter space adjacent to the sink. On the

other hand, the inventors have recognized that using a flexible or fully collapsible surface over the sink may not present a continuous or aesthetically-pleasing match to surrounding counter space, that liquids or refuse may not easily drain into the sink off of such surfaces, and/or a lack of rigidity in the surface may preclude attaching functional pieces to the surface. Example embodiments discussed below enable unique solutions to these issues and other issues newly identified by the inventors.

[0014] The present invention is a sink and/or sink installed in a surrounding space with a lid that provides functional and aesthetic closure of the sink and a degree of concealment of the sink interior. The present invention is useable in any area where a conventional sink would otherwise be used, including small areas where space is limited. Example embodiments discussed below illustrate just a couple of the variety of different configurations that can be used in connection with the present invention.

[0015] FIG. **1** is an illustration of an example embodiment sink **100**. As shown in FIG. **1**, example embodiment sink includes a basin **110** into which liquids, refuse, or washable items may be placed for washing or disposal. Basin **110** may include a sealable drain (not shown) or other exit connected to a disposal unit or sewage pipe, for example. Example embodiment sink may include a flange **111** to assist in positioning or mounting sink **100**. For example, flange **111** may extend about a top **117** that is an open portion of basin **110** and include one or more attachment points to secure sink **100** to surrounding counter or other structure. Flange **111** may include one or more fasteners, mounting holes, etc. to facilitate securing example embodiment sink **100** to any type of housing or structure. Flange **111** may be reduced or altogether removed in some configurations.

[0016] Basin **110** and/or flange **111** are liquid impermeable and may be composite or unitary. For example, basin **110** may be formed of a single piece of sculpted, molded, or cast material such as plastic, ceramic, metal, stone, etc. Flange **111** may be similarly formed from the same piece of material as basin **110**. Basin **110** and/or flange **111** may be fabricated of a desired size, including depth, based on application. For example, in small spaces with limited counter space, basin **110** may be deeper to accommodate more volume with a small counter profile about top **117**, such as somewhat less than a foot long and wide but over a foot deep.

[0017] As shown in FIG. **1**, example embodiment sink **100** includes a closeable lid **120** moveably joined to basin **110** and/or flange **111**. Closeable lid **120** may be joined to basin **110** in a variety of ways. For example a hinge **150** may be mounted directly between basin **110** and an underside of lid **120** to permit rotation of lid **120** between an open and closed position. A second hinge **150** may be opposite the first to support the axis of rotation of lid **120** at both ends. Or, for example, a moveable joint, cantilever, complex lever, and/or track may allow more complex movement of lid **120** between an open and closed position. If closeable lid **120** is joined to basin **110** in a manner internal to basin **110**, no external hinge, joint, etc. may consume space outside of example embodiment sink **100**. A lack of any external joining mechanism may allow sink **100** to better accommodate small spaces in a seamless, functional, and aesthetic manner.

[0018] Closeable lid **120** may further be joined to basin **110** in a manner that permits lid **120** to be easily opened and closed and in a manner that permits lid **120** to consume less external space when opened and avoid contact with any faucet while opening or closing. For example, as shown in FIG. **2**, if hinge **150** connects to basin **110** at an internal position within a side **116** of, and away from a top **117** and back **118** of, basin **110**, a portion of lid **120** may be rotated down into basin **110** when open. Further, as shown in FIG. **2**, lid **120** may be rotatable to a lower angle, permitting lid **120** to "rest" against back **118** of basin **120**. Such a configuration may permit lid **120** to be easily rotated and lodged in an open position while consuming less space outside of basin **110**. Further, if placed within basin **110**, such as hinge **150** is placed, any connection structure between lid **120** and basin **110** may consume little or no external space. While the space-saving and naturally-reclining configuration of FIG. **2** is achieved via hinge **150** spaced from back **118** and top **117**, it is understood that other structures, including a moveable joint or joints, an internal track permitting inward-to-basin sliding of opened lid **120**, a collapsible structure for lid **120**, extension/telescoping arms permitting outward-from-basin movement of lid **120** so as to completely open basin **110**, etc. are equally useable in example embodiments to secure an openable and closeable lid to a basin.

[0019] FIG. **3** is an illustration of example embodiment sink **100** in a closed position. As shown in FIG. **3**, lid **120** may be fully seated to top **117** of basin **110**. Lid **120** may be substantially co-planar with flange **111** and/or a surrounding countertop into which sink **100** is installed, so as to provide a continuous counter space for work or placement of objects. Any seam **115** created between a closing of lid **120** and basin **110** and/or flange **111** may be relatively small to preserve continuity. Further, a seal, such as a flexible gasket, felt, adhesive, etc., may be placed in seam **115** to enhance continuity between a closed lid **120** and surrounding structures. Such a seal may be attached to lid **120** and/or basin **110** at appropriate locations to fill seam **115**.

[0020] Any connecting device, such as hinge **150** (FIGS. **1** and **2**), may be internal to basin **110** and closed lid **120** so as to be invisible and/or non-space-consuming when lid **120** is closed, further contributing to continuousness between lid **120** and any surrounding surfaces. The fashion by which lid **120** is joined and moveable with respect to basin **110** may permit easy opening and closing of lid **120**. For example, in FIG. **3**, a user may simply press on an area of lid **120** behind hinge **150** (FIGS. **1** and **2**) to cause lid **120** to rotate down into basin **110** and into the open position. In this example, no additional external latch or other obtrusive opening mechanism may be required, although external handles, latches, self-concealing holes, etc., as well at automated or spring or magnetic opening devices can be used on lid **120** to facilitate opening and closing. Further, in this way, any liquid or refuse on lid **120** may naturally fall into basin **110** for disposal when opening lid **120**.

[0021] Lid **120** may be fabricated of a material matching basin **110** and/or flange **111** in order to preserve aesthetic and functional continuity when closed. For example, if basin **110** and flange **111** are formed of a continuous hammered copper, lid **120** may similarly be formed of a continuous hammered copper to match, providing rigidity necessary for counter space and surface/material properties throughout sink **100** without any discontinuity or joint. Alternatively, lid **120** may be fabricated of a material and/or include a veneer that matches surrounding counter appearance. Thus, when closed, lid **120** is useable as additional work/functional space alongside any continuous countertop, potentially minimizing any lost counter space or disrupting structures that an open sink in

a small area might cause. Additionally, when closed, lid **120** may conceal any refuse or dirty dishware or cutlery being stored in basin **110** of example embodiment sink **100**.

[0022] Lid **120** may include a hole **121** that passes into basin **110** when lid **120** is closed. Hole **121** may be sealable, such as with a moveable cover matching the remainder of lid **120**, or remain open. Hole **121** may be positioned vertically in-line with a faucet and/or drain (not shown) used with example embodiment sink **100**. Hole **121** may allow liquid spilled or placed on closed lid **120**, or water flowing from a faucet associated with a position of hole **121**, for example, to pass into basin **110** even when lid **120** is closed. Hole **121** may further facilitate liquid and refuse flow directly into a drain and potentially into a garbage disposal or sewage line by being positioned over such a drain in basin **110**. In this way, a user may still dispose of liquid or other waste material down example embodiment sink **100** even when closed and being used as a surface, such as a surface for serving drinks, for example. Hole **121** may be relatively small, such as a 4-inch diameter or less, while still permitting these functions.

[0023] As shown in FIGS. **1** and **2**, a variety of internal structures are useable in basin **110**. For example, a collapsible drying rack **130** may be attached to lid **120** and fit within basin **110** when closed. Drying rack **130** may include several opposing tines or other retaining surfaces for holding a variety of dishes, cookware, and/or utensils to drip/air dry in basin **110**. As shown in FIG. **1**, lid **120** and drying rack **130** attached thereto may be positioned such that a bottom of drying rack **130** when fully opened is above a bottom of basin **110**, allowing any drying materials in rack **130** to avoid a liquid level or any refuse in basin **110**. As shown in FIG. **2**, drying rack **130** can collapse into a smaller structure that permits closing of lid **120** while fitting drying rack **130** entirely in basin **110** when lid **120** is closed. In this way, collapsible drying rack **130** may provide additional storage and drying space for kitchenware within a small basin **110** while permitting closure of lid **120** and concealment of any contents of basin **110**.

[0024] Although example embodiment sink **100** is shown with a collapsible drying rack **130** attached to closeable lid **120**, it is understood that other internal structures are useable in sink **100**, including dividing walls, air freshener strips, lighting that activates only when open, etc. Further, stops or locks may be placed within or attached to basin **110** to stop and/or secure lid **120** in a closed position with a desired degree of continuity with surrounding structures.

[0025] Example embodiments thus being described, it will be appreciated by one skilled in the art that example embodiments may be varied through routine experimentation and without further inventive activity. For example, although a single-piece rotating lid is shown in example embodiments, a multi-piece lid with multiple associated hinge points is equally useable in example embodiments. Variations are not to be regarded as departure from the spirit and scope of the exemplary embodiments, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

1. A modular sink comprising:
a basin having an open top; and
a lid secured to the basin, wherein the lid is configured to move relative to the basin between a closed position and an open position, wherein the lid in the closed position and the basin define a sink space, and wherein the lid in the open position extends down into the basin at least one-third of the depth of the basin.

2. The sink of claim **1**, wherein the open top is completely defined by top edges of the basin, wherein the top edges are coplanar, wherein the lid in the closed position is coplanar with the top edges, and wherein the lid in the open position directly contacts a back edge of the top edges.

3. The sink of claim **1**, wherein the sink space opens to outside the modular sink in the closed position only through a drain and a seam between a perimeter of the lid and the basin.

4. The sink of claim **1**, wherein the lid is moveably connected to the basin such that the lid is substantially coplanar with the open top in the closed position.

5. The sink of claim **1**, further comprising:
a hinge directly between an interior of the basin and the lid, wherein the hinge permits the moveable connection as a rotation of the lid, and wherein the axis of the rotation is not intersected by the lid.

6. The sink of claim **1**, further comprising:
a hinge is mounted to a lower surface of the lid, wherein the lower surface defines the sink space in the closed position.

7. The sink of claim **1**, wherein the lid includes a hole that is positioned to align with an external faucet and a drain in the basin in the closed position.

8. The sink of claim **1**, further comprising:
a collapsible drying rack attached to the lid, wherein the rack includes,
an upper rack having a plurality of upper tines, and
a lower rack having a plurality of lower tines, wherein the upper and the lower tines are offset to fit between each other in a collapsed position and hold articles in a non-collapsed position, and wherein the rack is sized to fit entirely inside the basin when the lid is in the closed position.

9. The sink of claim **8**, further comprising:
a plurality of stops interior to the basin, wherein the stops are positioned to prevent rotation of the lid in the closed position into the basin; and
a hinge directly between an interior of the basin and a bottom exterior surface of the lid, wherein,
the hinge permits the moveable connection as a rotation of the lid,
the open top of the basin is completely defined by top edges of the basin,
the top edges are coplanar,
the lid in the open position directly contacts a top edge of the top edges
the rack in the non-collapsed position is positioned on the lid in the open position so that the lower rack and lower tines are completely below the open top and above a bottom of the basin, and
the rack in the non-collapsed position is positioned on the lid in the open position so that the upper rack and upper tines extend from within the basin below the open top to above the open top when the lid is in the open position.

10. A modular sink comprising:
a basin having an open top; and
a lid rotatably attached to an interior of the basin between a closed position at the open top and an open position where the lid rests on the basin at the open top, wherein the lid is rotatably attached to the basin at a position that permits the lid to be opened from the closed position to the open position with a human's press to a back of a top of the lid.

11. The sink of claim **10**, wherein the lid is rotatable relative to the basin such that the lid extends downward into the basin in an open position, and wherein the lid includes no external handling structure.

12. The sink of claim **10**, further comprising:

a drying rack attached to an underside of the lid at the back so that the rack rotates further downward into the basin when the lid is moved from the closed to the open position, wherein the lid includes a hole above the drying rack and aligned with a drain in the basin to allow disposal through the sink in the closed position without interfering with the drying rack.

13. The sink of claim **10**, further comprising:

two hinges on opposite ends of the lid that connect to interior sides of the basin, wherein the hinges are spaced away from the top and a back of the basin at a distance that permits the opening by pressing on the back of the top of the lid.

14. The sink of claim **13**, wherein the lid is joined to the two hinges at a bottommost surface of the lid.

15. The sink of claim **13**, further comprising:

at least one stop attached to an interior of the basin at a position to stop further rotation of the lid beyond the closed position where the lid is substantially coplanar with the open top of the basin, wherein the open top of the basin is configured to stop further rotation of the lid beyond the open position.

16. The sink of claim **15**, further comprising:

a flange positioned about the open top, wherein the flange is coplanar with the open top and the lid in the closed position, wherein the lid is configured to be further coplanar with countertop surrounding the sink in the closed position, and wherein the lid is fabricated of a material that that is the same as a material of at least one of the flange and surrounding countertop.

17. A multi-purpose space comprising:

a counter; and

a sink secured adjacent to the counter, wherein the sink includes,

a basin completely terminating at a top edge fully in a plane with the counter, and

a lid moveably secured to the basin such that the lid is coplanar with the counter in a closed position and extends into the basin below the counter in an open position.

18. The space of claim **17**, wherein the lid is fabricated from the same material as the counter and wherein there is substantially no space between the lid and the counter so that the lid and the counter appear continuous.

19. The space of claim **17**, wherein the lid is rotatable with respect to the basin and counter, between the closed position and greater than 90-degrees beyond the closed position.

20. The space of claim **17**, wherein the sink further includes a collapsible drying rack attached to the lid, wherein the rack fits entirely inside the basin when the lid is in the closed position, and wherein the rack is positioned on the lid so that a lowest point of the rack is above a bottom of the basin in an open position.

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