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United States Patent Application Publication 20250256819
Kind Code A1
Publication Date August 14, 2025
Inventor(s) Pate; James David et al.

SUBSEA BASKET

Abstract

A subsea basket can include a frame having a base and a side, where the base of the frame comprises a horizontal support segment, and wherein the side of the frame includes a vertical support segment. The subsea basket can also include a basket portion having a bottom wall and a side wall, where the bottom wall and the side wall have apertures that traverse therethrough, where the bottom wall is positioned a distance above the horizontal support segment of the bottom of the frame, and where the bottom wall is coupled to the vertical support segment of the side of the frame.

Inventors: **Pate; James David (Houston, TX), Grimmer; Andrew Michael (Houston, TX)**

Applicant: **Chevron U.S.A. Inc.** (San Ramon, CA)

Family ID: **96661582**

Appl. No.: **18/436318**

Filed: **February 08, 2024**

Publication Classification

Int. Cl.: **B63C11/52** (20060101)

U.S. Cl.:

CPC **B63C11/52** (20130101);

Background/Summary

TECHNICAL FIELD
[0001] The present disclosure relates generally to subsea field operations, and more particularly to

systems, methods, and devices for subsea baskets used in subsea field operations.

BACKGROUND

[0002] In some cases, subsea equipment (e.g., polypacks, metal endcaps, actuators, remotely-operated vehicle (ROV) interface hardware) is lowered to the seabed and subsequently retrieved from the seabed using a basket that is moved with a crane. Oftentimes, this subsea equipment has seals and other components that fail easily when exposed to dirt, sediment, and other solids that may be stirred up on the seabed. When subsea baskets currently available are used, the equipment stored in those baskets are subjected to dirt, sediment, and/or other solids that get stirred up from the seabed. As a result, the equipment may be unusable and/or be subject to premature failures and require service or replacement, costing the operator time and money to get replacement equipment in place for use. Additionally, production will be lost/delayed while the equipment is being replaced. This basket could also be used to retrieve items from subsea to keep the contents that go into the baskets from stirring up the seabed and to keep the ROV at a higher elevation to keep from stirring up the seabed

SUMMARY

[0003] In general, in one aspect, the disclosure relates to a subsea basket that includes a frame comprising a base and a side, where the base of the frame comprises a first support segment, and where the side of the frame includes a second support segment. The subsea basket can also include a basket portion having a bottom wall and a side wall, where the bottom wall and the side wall have apertures that traverse therethrough, where the bottom wall is positioned a distance above the first support segment of the base of the frame, and where the side wall is coupled to the second support segment of the side of the frame.

[0004] These and other aspects, objects, features, and embodiments will be apparent from the following description and the appended claims.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The drawings illustrate only example embodiments and are therefore not to be considered limiting in scope, as the example embodiments may admit to other equally effective embodiments. The elements and features shown in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the example embodiments. Additionally, certain dimensions or positions may be exaggerated to help visually convey such principles. In the drawings, the same reference numerals used in different figures may designate like or corresponding but not necessarily identical elements.

[0006] FIGS. **1**A and **1**B show a block diagram of a side view and a front view, respectively, of an example subsea basket according to certain example embodiments.

[0007] FIGS. **2** through **4** show examples of systems that include an example subsea basket in a subsea environment according to certain example embodiments.

[0008] FIGS. **5**A through **5**F show various views of a subsea basket according to certain example embodiments.

[0009] FIG. **6** shows a frame of the subsea basket of FIGS. **5**A through **5**F according to certain example embodiments.

[0010] FIGS. **7**A through **7**C show various views of a plate of the frame of the subsea basket of FIGS. **5**A through **5**F according to certain example embodiments.

[0011] FIGS. **8** through **11** schematic bottom views of various frames of subsea baskets according to certain example embodiments.

[0012] FIGS. **12**A and **12**B show various views of an alternative frame of an example subsea basket according to certain example embodiments.

DETAILED DESCRIPTION

[0013] In general, example embodiments provide systems, methods, and devices for subsea baskets. Example embodiments can provide a number of benefits. Such benefits can include, but are not limited to, minimal interruption time of a field operation, targeted protection of certain equipment that is offline and stored, ability to store equipment proximate to where they may be used, ease of mobility, keeping stored equipment secured, and compliance with industry standards that apply to subsea field operations. While example embodiments described herein are directed for use in subsea operations, in alternative embodiments, an example subsea basket may be used additionally or alternatively with other types of applications. Also, while example embodiments described herein are directed for use in a subsea wellbore environment, in alternative embodiments, an example subsea basket may be used in any of a number of other environments (whether hazardous or otherwise) in which stored equipment may need protection from the surrounding environment from dirt and other debris.

[0014] As defined herein, a user may be any person that interacts with a subsea equipment and/or subsea field operations. Examples of a user may include, but are not limited to, a drilling engineer, a production engineer, a field engineer, a roughneck, a company representative, a mechanic, an operator, an employee, a consultant, a contractor, and a manufacturer's representative. Example subsea baskets can be made of one or more of a number of suitable materials to allow the subsea baskets to meet certain standards and/or regulations while also maintaining durability in light of the one or more conditions under which the subsea baskets, including components or portions thereof, may be exposed. Examples of such materials can include, but are not limited to, aluminum, stainless steel, fiberglass, glass, plastic (e.g., polytetrafluoroethylene (PTFE), nylon), ceramic, and rubber.

[0015] Example subsea baskets, or portions or components thereof, described herein can be made from a single piece (e.g., from a mold, using injection molding, using a die cast process, using a milling and/or lathing process, using an extrusion process, 3D printing). In addition, or in the alternative, example subsea baskets (including portions or components thereof) can be made from multiple pieces that are mechanically coupled to each other. In such a case, the multiple pieces can be mechanically coupled to each other using one or more of a number of coupling methods, including but not limited to epoxy, welding, fastening devices, compression fittings, mating threads, snap fittings, and slotted fittings. One or more pieces that are mechanically coupled to each other can be coupled to each other in one or more of a number of ways, including but not limited to fixedly, hingedly, removably, slidably, rotatably, and threadably.

[0016] Components and/or features described herein can include elements that are described as coupling, fastening, securing, abutting against, in communication with, or other similar terms. Such terms are merely meant to distinguish various elements and/or features within a component or device and are not meant to limit the capability or function of that particular element and/or feature. For example, a feature described as a “coupling feature” can couple, secure, fasten, abut against, and/or perform other functions aside from merely coupling.

[0017] A coupling feature (including a complementary coupling feature) as described herein can allow one or more components and/or portions of an example subsea basket to become coupled, directly or indirectly, to one or more other components of the subsea basket and/or an external component (e.g., a strap or other securing device, a line for a crane). A coupling feature can include, but is not limited to, a clamp, a portion of a hinge, a channel, an aperture, a recessed area, a protrusion, a hole or other type of aperture, a slot, a tab, a detent, and mating threads. One portion of an example subsea basket can be coupled to another component or feature of the subsea basket and/or to an external component by the direct use of one or more coupling features.

[0018] In addition, or in the alternative, a portion of an example subsea basket can be coupled to another component or feature of the subsea basket and/or to an external component using one or more independent devices that interact with one or more coupling features disposed on a

component or feature of the subsea basket. Examples of such devices can include, but are not limited to, a pin, a hinge, a fastening device (e.g., a bolt, a screw, a rivet), epoxy, glue, adhesive, and a spring. One coupling feature described herein can be the same as, or different than, one or more other coupling features described herein. A complementary coupling feature as described herein can be a coupling feature that mechanically couples, directly or indirectly, with another coupling feature.

[0019] The use of the terms “substantially”, “about”, “approximately”, and similar terms applies to all numeric values, whether or not explicitly indicated. These terms generally refer to a range of numbers that one of ordinary skill in the art would consider as a reasonable amount of deviation to the recited numeric values (i.e., having the equivalent function or result). For example, this term may be construed as including a deviation of ±10 percent of the given numeric value provided such a deviation does not alter the end function or result of the value. Therefore, an angle that is substantially perpendicular may be construed to be within a range from 81° to 99°. Furthermore, a range may be construed to include the start and the end of the range. For example, a range of 10% to 20% (i.e., range of 10%-20%) includes 10% and also includes 20%, and includes percentages in between 10% and 20%, unless explicitly stated otherwise herein. Similarly, a range of between 10% and 20% (i.e., range between 10%-20%) includes 10% and also includes 20%, and includes percentages in between 10% and 20%, unless explicitly stated otherwise herein.

[0020] A “subterranean formation” refers to practically any volume under a surface. For example, it may be practically any volume under a terrestrial surface (e.g., a land surface), practically any volume under a seafloor, etc. Each subsurface volume of interest may have a variety of characteristics, such as petrophysical rock properties, reservoir fluid properties, reservoir conditions, hydrocarbon properties, or any combination thereof. For example, each subsurface volume of interest may be associated with one or more of: temperature, porosity, salinity, permeability, water composition, mineralogy, hydrocarbon type, hydrocarbon quantity, reservoir location, pressure, etc. Those of ordinary skill in the art will appreciate that the characteristics are many, including, but not limited to: shale gas, shale oil, tight gas, tight oil, tight carbonate, carbonate, vuggy carbonate, unconventional (e.g., a permeability of less than 25 millidarcy (mD) such as a permeability of from 0.000001 mD to 25 mD)), diatomite, geothermal, mineral, etc. The terms “formation”, “subsurface formation”, “hydrocarbon-bearing formation”, “reservoir”, “subsurface reservoir”, “subsurface area of interest”, “subsurface region of interest”, “subsurface volume of interest”, and the like may be used synonymously. The term “subterranean formation” is not limited to any description or configuration described herein.

[0021] A “well” or a “wellbore” refers to a single hole, usually cylindrical, that is drilled into a subsurface volume of interest. A well or a wellbore may be drilled in one or more directions. For example, a well or a wellbore may include a vertical well, a horizontal well, a deviated well, and/or other type of well. A well or a wellbore may be drilled in the subterranean formation for exploration and/or recovery of resources. A plurality of wells (e.g., tens to hundreds of wells) or a plurality of wellbores are often used in a field depending on the desired outcome.

[0022] A well or a wellbore may be drilled into a subsurface volume of interest using practically any drilling technique and equipment known in the art, such as geosteering, directional drilling, etc. Drilling the well may include using a tool, such as a drilling tool that includes a drill bit and a drill string. Drilling fluid, such as drilling mud, may be used while drilling in order to cool the drill tool and remove cuttings. Other tools may also be used while drilling or after drilling, such as measurement-while-drilling (MWD) tools, seismic-while-drilling tools, wireline tools, logging-while-drilling (LWD) tools, or other downhole tools. After drilling to a predetermined depth, the drill string and the drill bit may be removed, and then the casing, the tubing, and/or other equipment may be installed according to the design of the well. The equipment to be used in drilling the well may be dependent on the design of the well, the subterranean formation, the hydrocarbons, and/or other factors.

[0023] A well may include a plurality of components, such as, but not limited to, a casing, a liner, a tubing string, a sensor, a packer, a screen, a gravel pack, artificial lift equipment (e.g., an electric submersible pump (ESP)), and/or other components. If a well is drilled offshore, the well may include one or more of the previous components plus other offshore components, such as a riser. A well may also include equipment to control fluid flow into the well, control fluid flow out of the well, or any combination thereof. For example, a well may include a wellhead, a choke, a valve, and/or other control devices. These control devices may be located on the surface (e.g., on the seabed), in the subsurface (e.g., downhole in the well), or any combination thereof. In some embodiments, the same control devices may be used to control fluid flow into and out of the well. In some embodiments, different control devices may be used to control fluid flow into and out of a well. In some embodiments, the rate of flow of fluids through the well may depend on the fluid handling capacities of the surface facility that is in fluidic communication with the well. The equipment to be used in controlling fluid flow into and out of a well may be dependent on the well, the subsurface region, the surface facility, and/or other factors. Moreover, sand control equipment and/or sand monitoring equipment may also be installed (e.g., downhole and/or on the surface). A well can on occasion use wireline services for wellbore evaluation (“logging”), equipment retrieval (“fishing”), conveyance of downhole tools, and the like. A well may also include any completion hardware that is not discussed separately. The term “well” may be used synonymously with the terms “borehole,” “wellbore,” or “well bore.” The term “well” is not limited to any description or configuration described herein.

[0024] It is understood that when combinations, subsets, groups, etc. of elements are disclosed (e.g., combinations of components in a composition, or combinations of steps in a method), that while specific reference of each of the various individual and collective combinations and permutations of these elements may not be explicitly disclosed, each is specifically contemplated and described herein. By way of example, if an item is described herein as including a component of type A, a component of type B, a component of type C, or any combination thereof, it is understood that this phrase describes all of the various individual and collective combinations and permutations of these components. For example, in some embodiments, the item described by this phrase could include only a component of type A. In some embodiments, the item described by this phrase could include only a component of type B. In some embodiments, the item described by this phrase could include only a component of type C. In some embodiments, the item described by this phrase could include a component of type A and a component of type B. In some embodiments, the item described by this phrase could include a component of type A and a component of type C. In some embodiments, the item described by this phrase could include a component of type B and a component of type C. In some embodiments, the item described by this phrase could include a component of type A, a component of type B, and a component of type C. In some embodiments, the item described by this phrase could include two or more components of type A (e.g., A1 and A2). In some embodiments, the item described by this phrase could include two or more components of type B (e.g., B1 and B2). In some embodiments, the item described by this phrase could include two or more components of type C (e.g., C1 and C2). In some embodiments, the item described by this phrase could include two or more of a first component (e.g., two or more components of type A (A1 and A2)), optionally one or more of a second component (e.g., optionally one or more components of type B), and optionally one or more of a third component (e.g., optionally one or more components of type C). In some embodiments, the item described by this phrase could include two or more of a first component (e.g., two or more components of type B (B1 and B2)), optionally one or more of a second component (e.g., optionally one or more components of type A), and optionally one or more of a third component (e.g., optionally one or more components of type C). In some embodiments, the item described by this phrase could include two or more of a first component (e.g., two or more components of type C (C1 and C2)), optionally one or more of a second component (e.g., optionally one or more components of type A),

and optionally one or more of a third component (e.g., optionally one or more components of type B).

[0025] In the foregoing figures showing example embodiments of subsea baskets, one or more of the components shown may be omitted, repeated, and/or substituted. Accordingly, example embodiments of subsea baskets should not be considered limited to the specific arrangements of components shown in any of the figures. For example, features shown in one or more figures or described with respect to one embodiment can be applied to another embodiment associated with a different figure or description.

[0026] In certain example embodiments, subsea field operations that include the use of subsea baskets may be subject to meeting certain standards and/or requirements. Examples of entities that set such standards and/or requirements can include, but are not limited to, the Society of Petroleum Engineers, the American Petroleum Institute (API), the International Standards Organization (ISO), and the Occupational Safety and Health Administration (OSHA). Use of example embodiments described herein meet (and/or allow the subsea field operations to meet) such standards and/or requirements when applicable.

[0027] If a component of a figure is described but not expressly shown or labeled in that figure, the label used for a corresponding component in another figure can be inferred to that component. Conversely, if a component in a figure is labeled but not described with respect to that figure, the description for such component can be substantially the same as the description for a corresponding component in another figure. The numbering scheme for the various components in the figures herein is such that each component is a three-digit number or a four-digit number, and corresponding components in other figures have the identical last two digits.

[0028] In addition, a statement that a particular embodiment (e.g., as shown in a figure herein) does not have a particular feature or component does not mean, unless expressly stated, that such embodiment is not capable of having such feature or component. For example, for purposes of present or future claims herein, a feature or component that is described as not being included in an example embodiment shown in one or more particular drawings is capable of being included in one or more claims that correspond to such one or more particular drawings herein.

[0029] Example embodiments of subsea baskets will be described more fully hereinafter with reference to the accompanying drawings, in which example embodiments of subsea baskets are shown. Subsea baskets may, however, be embodied in many different forms and should not be construed as limited to the example embodiments set forth herein. Rather, these example embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of subsea baskets to those of ordinary skill in the art. Like, but not necessarily the same, elements (also sometimes called components) in the various figures are denoted by like reference numerals for consistency.

[0030] Terms such as “first”, “second”, “above”, “below”, “inner”, “outer”, “distal”, “proximal”, “end”, “top”, “bottom”, “upper”, “lower”, “side”, “left”, “right”, “front”, “rear”, and “within”, when present, are used merely to distinguish one component (or part of a component or state of a component) from another. Such terms are not meant to denote a preference or a particular orientation. Such terms are not meant to limit embodiments of subsea baskets. In the following detailed description of the example embodiments, numerous specific details are set forth in order to provide a more thorough understanding of the invention. However, it will be apparent to one of ordinary skill in the art that the invention may be practiced without these specific details. In other instances, well-known features have not been described in detail to avoid unnecessarily complicating the description.

[0031] FIGS. **1**A and **1**B show a block diagram of a side view and a front view, respectively, of an example subsea basket **100** according to certain example embodiments. The subsea basket **100** of FIGS. **1**A and **1**B includes a frame **120** and a basket portion **140**, where the basket portion **140** is positioned within the frame **120**. The frame **120** of the subsea basket **100** may include a base **124**

and one or more sides **125**. The frame **120** may lack a top potion, allowing for access to the basket portion **140** through the top of the frame **120**. The base **124** of the frame **120** may include one or more support segments **184**. The support segments **184** of the base **124** of the frame **120** may be solid or have a cavity therein. The support segments **184** of the base **124** of the frame **120** may be enclosed or open-ended. The support segments **184** of the base **124** of the frame **120** may be configured (e.g., made of certain material, have a certain cross-sectional shape, have a thickness, have a certain texture or lack of texture along its bottom outer surface) that the support segments **184** of the base **124** of the frame **120** are able to withstand the pressure and corrosive environment at or near the seabed.

[0032] The base **124** of the frame **120** may have an overall length **128** and depth **129**. In certain example embodiments, all of the support segments **184** of the base **124** of the frame **120** are horizontally oriented or situated in a horizontal plane. In some alternative cases, rather than being horizontally oriented or situated in a horizontal plane, one or more of the support segments **184** of the base **124** of the frame **120** may have some other orientation (e.g., vertical, substantially horizontal). Overall, the collection of the support segments **184** of the base **124** of the frame **120** has a horizontal or substantially horizontal configuration. Whatever the configuration of the individual support segments **184** of the base **124** of the frame **120** of the subsea basket **100**, the overall configuration of the support segments **184** of the base **124** of the frame **120** is generally horizontally oriented (or situated in a horizontal plane) and may serve one or more of a number of purposes, including but not limited to providing stability on the seabed and providing a relatively reduced amount of resistance when the subsea basket **100** is being lifted and/or set into place.

[0033] Each side **125** of the frame **120** of the subsea basket **100** may form one or more wall structures or outlies thereof, depending in part on the cross-sectional shape of the subsea basket **100** when viewed from above, as shown in FIGS. **8** through **11** below. Each side **125** of the frame **120** may include one or more support segments **185**. The support segments **185** of a side **125** of the frame **120** may be the same as, or different than, the support segments **184** of the base **124** of the frame **120**. For example, the support segments **185** of a side **125** of the frame **120** may be solid or have a cavity therein. The support segments **185** of a side **125** of the frame **120** may be enclosed or open-ended. The support segments **185** of a side **125** of the frame **120** may be configured (e.g., made of certain material, have a certain cross-sectional shape, have a thickness, have a certain texture or lack of texture along its outward-facing surface) that the support segments **185** of the side **125** of the frame **120** are able to withstand the pressure and corrosive environment at or near the seabed.

[0034] Collectively, the one or more sides **125** of the frame **120** in this case has substantially the same overall length **128** and depth **129** as the base **124** of the frame **120**. In alternative embodiments, the overall length **128** and/or depth **129** of the base **124** of the frame **120** may differ from that of the collective sides **125** of the frame **120**. In certain example embodiments, all of the support segments **185** of a side **125** of the frame **120** are vertically oriented or lie in a vertical plane. In some alternative cases, rather than being vertically oriented or lying in a vertical plane, one or more of the support segments **185** of a side **125** of the frame **120** may have some other orientation (e.g., horizontal, substantially vertical, inclined). Overall, the collection of the support segments **185** of a side **125** of the frame **120** may have a vertical or substantially vertical configuration.

[0035] Whatever the configuration of the individual support segments **185** of a side **125** of the frame **120** of the subsea basket **100**, the overall configuration of the support segments **185** of a side **125** of the frame **120** may be generally vertically oriented and may serve one or more of a number of purposes, including but not limited to providing structural support for the basket portion **140** and providing structural support for the subsea basket **100** when the subsea basket **100** is being lifted from and/or set into place onto the seabed. When there are multiple sides **125** of the frame **120**, the configuration of one side **125** may be the same as, or different than, the configuration of one or

more of the other sides **125** of the frame **120**.
[0036] In some cases, the frame **120** of the subsea basket **100** may also include an optional intermediate platform **123**. In such cases, the intermediate platform **123** of the frame **120** may include one or more support segments **183** located above the base **124** of the frame **120** by a distance **151**. The vertical position of the intermediate platform **123** dictates the amount of the distance **151** and may vary. For example, the distance **151** may be approximately one half the height **127** of the frame **120**. As another example, the distance **151** may be approximately two-thirds the height **127** of the frame **120**. As yet another example, the distance **151** may be approximately three-eighths the height **127** of the frame **120**. In any case, the height **127** of the intermediate platform **123** (and so also the bottom wall of the basket portion **140**) relative to the base **124** of the frame **120** is configured to be high enough that equipment that is positioned within the basket portion **140** is clear or substantially clear of debris and/or other materials that may be stirred up at or near the seabed.
[0037] The support segments **183** of the optional intermediate platform **123** of the frame **120** may be the same as, or different than, the support segments **183** of the base **124** of the frame **120**. For example, the support segments **183** of the optional intermediate platform **123** of the frame **120** may be solid or have a cavity therein. The support segments **183** of the optional intermediate platform **123** of the frame **120** may be enclosed or open-ended. The support segments **183** of the optional intermediate platform **123** of the frame **120** may be configured (e.g., made of certain material, have a certain cross-sectional shape, have a thickness, have a certain texture or lack of texture along its top outer surface) that the support segments **183** of the intermediate platform **123** of the frame **120** are able to withstand the pressure and corrosive environment at or near the seabed.
[0038] The optional intermediate platform **123** of the frame **120** in this case has substantially the same overall length **128** and depth **129** as the base **124** and the side **125** of the frame **120**. In alternative embodiments, the overall length **128** and/or depth **129** as the base **124** of the frame **120** and/or the side **125** of the frame **120** may differ from that of the optional intermediate platform **123** of the frame **120**. In certain example embodiments, all of the support segments **183** of the optional intermediate platform **123** of the frame **120** are horizontally oriented or situated in a horizontal plane. In some alternative cases, rather than being horizontally oriented or situated in a horizontal plane, one or more of the support segments **183** of the optional intermediate platform **123** of the frame **120** may have some other orientation (e.g., vertical, substantially horizontal). Overall, the collection of the support segments **183** of the optional intermediate platform **123** of the frame **120** has a horizontal or substantially horizontal configuration. Whatever the configuration of the individual support segments **183** of the optional intermediate platform **123** of the frame **120** of the subsea basket **100**, the overall configuration of the support segments **183** of the optional intermediate platform **123** of the frame **120** is generally horizontally oriented (or situated in a horizontal plane) and may serve one or more of a number of purposes, including but not limited to providing stability to the basket portion **140**, regardless of whether the subsea basket **100** is resting on the seabed or is being lifted and/or set into place.
[0039] The support segments **184** of the base **124**, the support segments **185** of the one or more sides **125**, and/or the support segments **183** of the optional intermediate platform **123** of the frame **120** may have no other material between them. In some cases, as when the basket portion **140** is integrated with and/or coupled to one or more of the sides **125** and/or the optional intermediate platform **123** of the frame **120**, the support segments **185** of one or more of the sides **125** and/or the support segments **183** of the optional intermediate platform **123** of the frame **120** may have a mesh and/or some other material between them. Such material may exist in places unrelated to the basket portion **140**. For example, as discussed below with respect to FIGS. **5**A through **5**F, one or more plates may fill one or more gaps between adjacent support segments **184** of the base **124** of the frame **120**.
[0040] In certain example embodiments, the frame **120** may include one or more coupling features

121 positioned atop one or more of the sides **125** of the frame **120**. In such cases, each coupling feature **121** may be configured to couple to a coupling feature (e.g., an eye bolt at the end of a line) of a lifting apparatus (e.g., a crane) that is configured to move the frame **120** and the basket portion **140** of the subsea basket **100** simultaneously. Each coupling feature **121** of the frame **120** may have any of a number of configurations. For example, a coupling feature **121** may be or include an extension at the top of a support segment **185** of a side **125** of the frame **120** with an aperture that traverses its thickness. In any case, a coupling feature **121** may be configured to complement a coupling feature of a lifting apparatus. Also, each coupling feature **121** may be configured to maintain its structural integrity and perform its function in light of the conditions (e.g., low temperatures, high pressure, salt water, torque and other stresses) that the coupling feature **121** is subjected to over time.

[0041] In addition, or in the alternative, the frame **120** may include one or more engagement features **170** that are configured to receive an engaging member (e.g., a tyne) of a mobility apparatus (e.g., a forklift, a ROV). Such a mobility apparatus may be configured to lift and move the frame **120** and the basket portion **140** (including any equipment disposed therein) simultaneously. Each engagement feature **170** of the frame **120** may have any of a number of configurations. For example, an engagement feature **170** may be or include a tubular component (e.g., with a rectangular cross-sectional shape) that is welded to the underside of the intermediate platform **123** of the frame **120**. In any case, an engagement feature **170** may be configured to receive or otherwise engage an engaging member of a mobility apparatus. Also, each engagement feature **170** may be configured to maintain its structural integrity and perform its function in light of the conditions (e.g., low temperatures, high pressure, salt water, torque and other stresses) that the engagement feature **170** is subjected to over time.

[0042] The basket portion **140** of the subsea basket **100** includes a bottom wall **144** and one or more side walls **145**. The top of the basket portion **140** is open to allow for placing equipment in the basket portion **140** and for retrieving equipment from the basket portion **140**. In some cases, the top of the basket portion **140** is always open (i.e., has no top wall **143**). In alternative embodiments, the basket portion **140** includes an optional top wall **143** that can be moved (e.g., swung open using a hinge, slidable between an extended position and a retracted position) by a ROV and/or other component of a system. In this way, the top wall **143** of the basket portion **140** can be in place to help secure equipment within the basket portion **140**. The bottom wall **144**, the one or more side walls **145**, and the optional top wall **143** form a cavity **142** into which one or more pieces of equipment may be placed.

[0043] The bottom wall **144** of the basket portion **140** may have apertures that traverse therethrough. For example, the bottom wall **144** may be made of or include a mesh (e.g., a metal mesh) that allows for fluid (e.g., water) to flow therethrough while also providing reliable support for any equipment that is placed in the cavity **142** of the basket portion **140**. The bottom wall **144** of the basket portion **140** may be a single piece or multiple pieces (e.g., panels). The bottom wall **144** of the basket portion **140** may be coupled to one or more of the support segments **195** of one or more of the sides **125** of the frame **120**. In addition, or in the alternative, the bottom wall **144** of the basket portion **140** may be coupled to one or more of the support segments **183** of the optional intermediate platform **123** of the frame **120**. In addition, or in the alternative, the bottom wall **144** of the basket portion **140** may include one or more of its own support segments **194**, which may be substantially similar to the support segments (e.g., support segments **184**) discussed above with respect to the frame **120**. The bottom wall **144** of the basket portion **140** may be positioned a distance **151** above the base **124** of the frame **120**.

[0044] Each side wall **145** of the basket portion **140** may be configured similar to the bottom wall **144** of the basket portion **140**. For example, each side wall **145** may have apertures that traverse therethrough. For example, a side wall **145** may be made of or include a mesh (e.g., a metal mesh) that allows for fluid (e.g., water) to flow therethrough while also providing reliable support for any

equipment that is placed in the cavity **142** of the basket portion **140**. A side wall **145** of the basket portion **140** may be a single piece or multiple pieces (e.g., panels). A side wall **145** of the basket portion **140** may be coupled to one or more of the support segments **185** of one or more of the sides **125** of the frame **120**. In addition, or in the alternative, a side wall **145** of the basket portion **140** may be coupled to one or more of the support segments **183** of the optional intermediate platform **123** of the frame **120**. In addition, or in the alternative, a side wall **145** of the basket portion **140** may include one or more of its own support segments **195**, which may be substantially similar to the support segments (e.g., support segments **185**) discussed above with respect to the frame **120**.
[0045] The optional top wall **143** of the basket portion **140** may be configured similar to the bottom wall **144** and/or a side wall **145** of the basket portion **140**. For example, the optional top wall **143** may have apertures that traverse therethrough. For example, the optional top wall **143** may be made of or include a mesh (e.g., a metal mesh) that allows for fluid (e.g., water) to flow therethrough while also providing reliable retention of any equipment that is placed in the cavity **142** of the basket portion **140**. The optional top wall **143** of the basket portion **140** may be a single piece or multiple pieces (e.g., panels). The optional top wall **143** of the basket portion **140** may be coupled to one or more of the support segments **185** of one or more of the sides **125** of the frame **120**.
[0046] The basket portion **140** of the subsea basket **100**, bounded by the bottom wall **144**, the one or more side walls **145**, and the optional top wall **143**, has a length **148**, a width **149**, and a height **147**. The length **148** of the basket portion **140** may be less than or substantially the same as the length **128** of the frame **120**. The width **149** of the basket portion **140** may less than or substantially the same as the depth **129** of the frame **120**. The height **147** of the basket portion **140** is less than the height **127** of the frame **120**. In certain example embodiments, the distance **151** that separates the base **124** of the frame **120** from the intermediate platform **123** of the frame **120** also represents the distance **151** that separates the bottom wall **144** of the basket portion **140** from the base **124** of the frame **120**.
[0047] In certain example embodiments, the basket portion **140** may include one or more coupling features **159** disposed on a side wall **145** and/or the bottom wall **144** of the basket portion **140**. In such cases, each coupling feature **159** may be configured to couple to a securing device (e.g., a strap, a chain) that is configured to secure equipment within the cavity **142** of the basket portion **140**. Each coupling feature **159** of the basket portion **140** may have any of a number of configurations. For example, a coupling feature **159** may be or include a hook or loop that is welded to a side wall **145** and/or the bottom wall **144** of the basket portion **140**. In any case, a coupling feature **159** may be configured to complement a securing device. Also, each coupling feature **159** may be configured to maintain its structural integrity and perform its function in light of the conditions (e.g., low temperatures, high pressure, salt water, torque and other stresses) that the coupling feature **159** is subjected to over time.
[0048] FIGS. **2** through **4** show examples of systems that include an example subsea basket in a subsea environment according to certain example embodiments. Referring to the description of FIGS. **1**A and **1**B above, FIG. **2** shows a system **299** that includes a subsea basket **200**. In this case, the subsea basket **200** of FIG. **2** is substantially the same as the subsea basket **100** of FIGS. **1**A and **1**B. For example, the subsea basket **200** of FIG. **2** includes a frame **220** and a basket portion **240**. The frame **220** of the subsea basket **200** includes a base **224** having one or more support segments **284**, one or more sides **225** having one or more support segments **285**, and an intermediate platform **223** having one or more support segments **283**. The basket portion **240** includes a bottom wall **244** having one or more support segments **294** and a side wall **245** having one or more support segments **295** to form a cavity **242**. There are multiple coupling features **221** positioned atop one or more of the sides **225** of the frame **220**. The coupling features **221** may be substantially the same as the coupling features **121** discussed above.
[0049] In this case, the subsea basket **200** is positioned on a seabed **205** in a body of water **266**. The seabed **205** borders the top of a subterranean formation **210**. The seabed **205** is uneven (e.g.,

undulating) and somewhat soft. As a result, a portion of the base **224** of the frame **220** is hidden from view in FIG. **2** because it is buried in the seabed **205**. There are three pieces of equipment **219** (equipment **219-1**, equipment **219-2**, and equipment **219-3**) that are positioned within the cavity **242** of the basket portion **240** of the subsea basket **200**. Examples of equipment **219** may include, but are not limited to, a linear actuator override tool (LAOT), a lock open tool (LOT), a linear valve lock-out tool, polypacks, metal endcaps, actuators, remotely-operated vehicle (ROV) interface hardware a tree cap running tool, and a tree handling tool.

[0050] The subsea environment shown in FIG. **2** has natural currents that occur along the seabed **205**, causing debris **215** (e.g., dirt, sand, mud, sediment) to be stirred up in the water **266** just above the seabed **205**. This debris **215** can cause damage to the equipment **219** if the debris **215** becomes lodged in certain parts of the equipment **219**. This would cause the equipment **219** to fail or not function properly when put in operation. As a result, the equipment **219** would need to be replaced. Therefore, keeping as much of the debris **215** away from the equipment **219** is an important objective of the example subsea basket **200**. In this case, the bottom wall **244** (and so the bottom of the basket portion **240**) is substantially coincident with the intermediate platform **223** of the frame **220**. As a result of this configuration of the subsea basket **200**, the equipment **219** is maintained at a minimum distance **252** from the debris **215** that get stirred up by the natural currents in the water **266** near the seabed **205**. The distance **252** is less than the distance **251** between the intermediate platform **223** and the base **220** of the subsea basket **200**.

[0051] FIG. **3** shows a system **399** that includes a subsea basket **300**. In this case, the subsea basket **300** of FIG. **3** is substantially the same as the subsea basket **100** of FIGS. **1**A and **1**B. For example, the subsea basket **300** of FIG. **3** includes a frame **320** and a basket portion **340**. The frame **320** of the subsea basket **300** includes a base **324** having one or more support segments **384**, one or more sides **325** having one or more support segments **385**, and an intermediate platform **323** having one or more support segments **383**. The basket portion **340** includes a bottom wall **344** having one or more support segments **394** and a side wall **345** having one or more support segments **395** to form a cavity **342**. There are multiple coupling features **321** positioned atop one or more of the sides **325** of the frame **320**.

[0052] In this case, the subsea basket **300** is positioned on a seabed **305** in a body of water **366**. The seabed **305** borders the top of a subterranean formation **310**. The seabed **305** is uneven (e.g., undulating) and somewhat soft. As a result, a portion of the base **324** of the frame **320** is hidden from view in FIG. **3** because it is buried in the seabed **305**. There are three pieces of equipment **319** (equipment **319-1**, equipment **319-2**, and equipment **319-3**) that are positioned within the cavity **342** of the basket portion **340** of the subsea basket **300**.

[0053] The subsea environment shown in FIG. **3** has a ROV **332** that is operating near the seabed **305** and the subsea basket **300**. The propulsion and other movement of the ROV **332** causes debris **315** (e.g., dirt, sand, mud, sediment) to be stirred up in the water **366** just above the seabed **305** and around the subsea basket **300**. This debris **315** can cause damage to the equipment **319** if the debris **315** becomes lodged in certain parts of the equipment **319**. This would cause the equipment **319** to fail or not function properly when put in operation. As a result, the equipment **319** would need to be replaced. Therefore, keeping as much of the debris **315** away from the equipment **319** is an important objective of the example subsea basket **300**. In this case, the bottom wall **344** (and so the bottom of the basket portion **340**) is substantially coincident with the intermediate platform **323** of the frame **320**. As a result of this configuration of the subsea basket **300**, the equipment **319** is maintained at a minimum distance **352** from the debris **315** that get stirred up by the ROV **332** in the water **366** near the seabed **305**. The distance **352** is less than the distance **351** between the intermediate platform **323** and the base **320** of the subsea basket **200**.

[0054] FIG. **4** shows a system **499** that includes a subsea basket **400**. In this case, the subsea basket **400** of FIG. **4** is substantially the same as the subsea basket **100** of FIGS. **1**A and **1**B. For example, the subsea basket **400** of FIG. **4** includes a frame **420** and a basket portion **440**. The frame **420** of

the subsea basket **400** includes a base **424** having one or more support segments **484**, one or more sides **425** having one or more support segments **485**, and an intermediate platform **423** having one or more support segments **483**. The basket portion **440** includes a bottom wall **444** having one or more support segments **494** and a side wall **445** having one or more support segments **495** to form a cavity **442**. There are multiple coupling features **421** positioned atop one or more of the sides **425** of the frame **420**.

[0055] In this case, the subsea basket **400** is positioned on a seabed **405** in a body of water **466**. The seabed **405** borders the top of a subterranean formation **410**. The seabed **405** is uneven (e.g., undulating) and somewhat soft. As a result, a portion of the base **424** of the frame **420** is hidden from view in FIG. **4** because it is buried in the seabed **405**. There are three pieces of equipment **419** (equipment **419-1**, equipment **419-2**, and equipment **419-3**) that are positioned within the cavity **442** of the basket portion **440** of the subsea basket **400**.

[0056] The subsea environment shown in FIG. **4** has a crane **406** on a floating structure **403** (e.g., a semi-submersible rig, a drilling ship) that is floating at the water line **493**. The crane **406** has a line **407** that extends into the water **466** and attaches (or otherwise couples) to the coupling features **421** of the subsea basket **400**. When the crane **406** lifts, lowers, and/or otherwise moves the subsea basket **400**, the movement of the subsea basket **400** causes debris **415** (e.g., dirt, sand, mud, sediment) to be stirred up in the water **466** just above the seabed **405** and around the subsea basket **400**. This debris **415** can cause damage to the equipment **419** if the debris **415** becomes lodged in certain parts of the equipment **419**. This would cause the equipment **419** to fail or not function properly when put in operation. As a result, the equipment **419** would need to be replaced. Therefore, keeping as much of the debris **415** away from the equipment **419** is an important objective of the example subsea basket **400**. In this case, the bottom wall **444** (and so the bottom of the basket portion **440**) is substantially coincident with the intermediate platform **423** of the frame **420**. As a result of this configuration of the subsea basket **400**, the equipment **419** is maintained at a minimum distance **452** from the debris **415** that get stirred up by the movement of the subsea basket **400** caused by the crane **406**. The distance **452** is less than the distance **451** between the intermediate platform **423** and the base **420** of the subsea barrel **400**.

[0057] FIGS. **5**A through **5**F show various views of a subsea basket **500** according to certain example embodiments. Specifically, FIG. **5**A shows a top-side perspective view of the subsea basket **500**. FIG. **5**B shows a bottom-side perspective view of the subsea basket **500**. FIG. **5**C shows a top view of the subsea basket **500**. FIG. **5**D shows a bottom view of the subsea basket **500**. FIG. **5**E shows a side view of the subsea basket **500**. FIG. **5**F shows a front view of the subsea basket **500**. FIG. **6** shows the frame **520** of the subsea basket **500** of FIGS. **5**A through **5**F according to certain example embodiments. FIGS. **7**A through **7**C show various views of a plate **550** of the frame **520** of the subsea basket **500** of FIGS. **5**A through **5**F according to certain example embodiments.

[0058] Referring to the description with respect to FIGS. **1**A through **4**, the subsea basket **500** of FIGS. **5**A through **5**F is an example embodiment of the subsea basket **100** discussed above with respect to FIGS. **1**A and **1**B. In this case, the subsea basket **500** includes a frame **520** and a basket portion **540**. The frame **520** has a width **528**, a depth **529**, and a height **527**. The basket portion **540** has a width **548**, a depth **549**, and a height **547**. In this case, the width **528** and the depth **529** of the frame **520** are substantially the same as the width **548** and the depth **549** of the basket portion **540**.

[0059] The frame **520** of the subsea basket **500** includes a base **524** having multiple support segments **584**, four sides **525** with multiple support segments **585**, and an intermediate platform **523** with multiple support segments **583**. Specifically, as detailed in FIG. **6**, the base **524** of the frame **520** is disposed in a substantially horizontal plane and has a substantially rectangular shape. There are three support segments **584** having a substantially equal length, that are substantially parallel with each other, and that are spaced substantially equidistantly from each adjacent support segment **584**. In addition, there are five support segments **584** having a substantially equal length,

that are substantially parallel with each other and substantially perpendicular to the other three support segments **584**, and that are spaced substantially equidistantly from each adjacent support segment **584**.

[0060] In alternative embodiments, the base **524** of the frame **520** may have two sets of five support segments **584** (rather than a single set of five support segments **584**), where the support segments **584** are pairs in series with each other broken by the middle of the three substantially perpendicular support segments **584**. In alternative embodiments, the base **524** of the frame **520** may have any of a number of other overall shapes (e.g., oval, circular, square, octagonal) and/or any other number of support segments **584**. Further, in alternative embodiments, some or all of the support segments **584** may have some other orientation (e.g., not parallel or perpendicular to each other) in the context of the base **524** of the frame **520**.

[0061] Also as detailed in FIG. **6**, each of the sides **525** of the frame **520** is disposed in a substantially vertical plane and has a substantially rectangular shape. Each pair of opposing sides **525** are configured substantially the same as each other, but are configured differently than the other pair of opposing sides **525**. The outer vertical support segments **585** of a side **525** may be shared with (e.g., is concurrent with) the adjacent side **525**. Also, the lowest horizontal support segment **585** of a side **525** is shared with (e.g., is concurrent with) a support segment **584** that makes up part of the outer perimeter of the base **524** of the frame **520**. Further, the intermediate horizontal support segment **585** of each side **525** may be shared with (e.g., is concurrent with) a support segment **584** that makes up part of the outer perimeter of the intermediate platform **523** (discussed below) of the frame **520**.

[0062] For the larger of the pair of opposing sides **525** of the frame **520**, there are three support segments **585** having a substantially equal length, that are substantially horizontally oriented, that are substantially parallel with each other, and that are spaced substantially equidistantly from each adjacent support segment **585**. In addition, there are five support segments **585** that are substantially vertically oriented, that are substantially parallel with each other, that are substantially perpendicular to the three horizontally oriented support segments **584**, and that are spaced substantially equidistantly from each adjacent support segment **585**. The first, third, and fifth support segments **585** span the full height of the side **525**, while the second and fourth support segments **585** only span approximately half the full height of the side **525** along the upper half.

[0063] For the smaller of the pair of opposing sides **525** of the frame **520**, there are three support segments **585** having a substantially equal length, that are substantially horizontally oriented, that are substantially parallel with each other, and that are spaced substantially equidistantly from each adjacent support segment **585**. In addition, there are three support segments **585** that are substantially vertically oriented, that are substantially parallel with each other, that are substantially perpendicular to the three horizontally oriented support segments **584**, and that are spaced substantially equidistantly from each adjacent support segment **585**. The first and third support segments **585** span the full height of the side **525**, while the second (middle) support segment **585** only spans approximately half the full height of the side **525** along the upper half.

[0064] In alternative embodiments, a side **525** of the frame **520** may have two sets of three or five support segments **585** (rather than a single set of three or five support segments **585**), where the support segments **585** are pairs in series with each other broken by the middle of the three substantially horizontal support segments **585**. In alternative embodiments, a side **525** of the frame **520** may have any other number of support segments **585**. Further, in alternative embodiments, some or all of the support segments **585** may have some other orientation (e.g., not parallel or perpendicular to each other) in the context of a side **525** of the frame **520**.

[0065] Further, as detailed in FIG. **6**, the intermediate platform **523** of the frame **520** is disposed in a substantially horizontal plane and has a substantially rectangular shape. There are three support segments **583** having a substantially equal length, that are substantially parallel with each other, and that are spaced substantially equidistantly from each adjacent support segment **583**. In addition,

there are five support segments **583** having a substantially equal length, that are substantially parallel with each other and substantially perpendicular to the other three support segments **583**, and that are spaced substantially equidistantly from each adjacent support segment **583**. In some cases, the support segments **583** along the outer perimeter of the intermediate platform **523** may also be considered support segments **585** of one or more sides **525** of the frame **520**.

[0066] In alternative embodiments, the intermediate platform **523** of the frame **520** may have two sets of five support segments **583** (rather than a single set of five support segments **583**), where the support segments **583** are pairs in series with each other broken by the middle of the three substantially perpendicular support segments **583**. In alternative embodiments, the intermediate platform **523** of the frame **520** may have any of a number of other overall shapes (e.g., oval, circular, square, octagonal) and/or any other number of support segments **583**. Further, in alternative embodiments, some or all of the support segments **583** may have some other orientation (e.g., not parallel or perpendicular to each other) in the context of the intermediate platform **523** of the frame **520**.

[0067] In addition, while the shape, size, and configuration of the intermediate platform **523** in this case is substantially the same as the shape, size, and configuration of the base **524** of the frame **520**, in alternative embodiments, the shape, size, and/or other configuration of the intermediate platform **523** may differ from the shape, size, and/or other configuration of the base **524** of the frame **520**. In addition, or in the alternative, while the intermediate platform **523** in this case is positioned approximately halfway along the height of the full-length support segments **585** of the sides **525** of the frame **520**, in alternative embodiments the intermediate platform **523** may be positioned at any other point (e.g., one quarter from the top, one quarter from the bottom) along the height of the full-length support segments **585** of the sides **525** of the frame **520**. In addition, or in the alternative, while the intermediate platform **523** and the base **524** of the frame **520** are substantially parallel to each other in this case, in alternative embodiments, the intermediate platform **523** and the base **524** of the frame **520** may be antiparallel with respect to each other.

[0068] The basket portion **540** has a bottom wall **544** and one or more side walls **545** that form a cavity **542** with an open top end. The bottom wall **544** includes a number (e.g., one, three, six, eleven, twenty) of panels **594** that may be coupled to different support segments **583** of the intermediate platform **523** of the frame **520**. In this case, the bottom wall **544** of the basket portion **540** includes eight panels **594** that are horizontally oriented. These eight panels **594** are coupled to various support segments **583** of the intermediate platform **523** of the frame **520** and, in some cases, one or more support segments **585** of one or more sides **525** of the frame **520**.

[0069] Each of the panels **594** may be coupled to the support segments **583** of the intermediate platform **523** of the frame **520** and/or one or more support segments **585** of one or more sides **525** of the frame **520** using one or more of any number of coupling means (e.g., directly or indirectly using coupling features, using welding). When the bottom wall **544** of the basket portion **540** includes multiple panels **594**, the configuration (e.g., shape, size, material) of one panel **594** may be the same as, or different than, the configuration of one or more of the other panels **594**.

[0070] The basket portion **540** may have any of a number (e.g., one, three, six) of side walls **545**. In this example the basket portion **540** has four side walls **545**. Each side wall **545** may have any of a number of orientations relative to the bottom wall **544** of the basket portion **540**. In this case, each side wall **545** is vertically oriented, making each side wall **545** perpendicular to the bottom wall **544** of the basket portion **540**. Each side wall **545** may include any of a number (e.g., one, three, six, eleven, twenty) of panels **595** that are coupled to different support segments **585** of one or more of the sides **525** of the frame **520** and, in some cases, one or more support segments **583** of the intermediate platform **523** of the frame **520**. In this case, two of the side walls **545** (in this case, an opposing pair) of the basket portion **540** include two panels **595**, while the other two side walls **545** (also an opposing pair in this case) of the basket portion **540** include four panels **595**.

[0071] Each of the panels **595** of a side wall **545** of the basket portion **540** may be coupled to the

support segments **583** of the intermediate platform **523** of the frame **520** and/or one or more support segments **585** of one or more sides **525** of the frame **520** using one or more of any number of coupling means (e.g., directly or indirectly using coupling features, using welding). When a side wall **545** of the basket portion **540** includes multiple panels **595**, the configuration (e.g., shape, size, material) of one panel **595** may be the same as, or different than, the configuration of one or more of the other panels **595**. Also, in some alternative embodiments, when there are multiple side walls **545** of the basket portion **540**, the configuration (e.g., number of panels **595**, size of each panel **595**) of one side wall **545** may be substantially the same as the configuration of the other side walls **545**.

[0072] In certain example embodiments, there may be no gaps (or no appreciable gaps, aside from the configuration (e.g., a mesh) of a panel **595**) between each panel **595** of a side wall **545** of the basket portion **540** and a support segment (e.g., a support segment **583**, support segment **585**) of the frame **520**. Similarly, there may be no gaps (or no appreciable gaps, aside from the configuration (e.g., a mesh) of a panel **595**) between each panel **594** of the bottom wall **544** of the basket portion **540** and a support segment (e.g., a support segment **583**, support segment **585**) of the frame **520**. The shape and size of each panel **590** may be substantially the same as, or slightly smaller than, the shape and size of each corresponding space formed between adjacent support segments **585** of one or more of the sides **525** and/or support segments **583** of the intermediate platform **523** of the frame **520**.

[0073] In this example, there are four coupling features **521** that are substantially similar to the coupling features **121** discussed above. Each of the coupling features **521** is positioned atop the four corners of the top of the sides **525** of the frame **520**. In this case, each of the coupling features **521** is in the form of an eye bolt that may receive, for example, a hook or a cable. In addition, the subsea basket **500** includes a sacrificial anode **578** that is coupled to (e.g., bolted, welded) to one or more of the support segments **584** of the base **524** of the frame **520**. The anode **578** is used to reduce the amount of corrosion that occurs with respect to the various support segments of the frame **520** and/or the various panels of the basket portion **540** over time. In alternative embodiments, the anode **578** may be coupled to another location with respect to the frame **520**. In addition, or in the alternative, there may be no anodes or multiple anodes **578**. In some cases, another component may be used in place of the anode **578** to reduce corrosive effects on the frame **520** and/or the basket portion **540**.

[0074] Further, the subsea basket **500** includes two engagement features **570** that are substantially similar to the engagement features **170** discussed above. In this case, each of the engagement features **570** is an elongated tubular component with a rectangular cross-sectional shape that is coupled to (e.g., welded to) the underside of one or more support segments **583** of the intermediate platform **523** of the frame **520**. With this configuration, each engagement feature **570** may be configured to receive an engaging member (e.g., a tyne) of a mobility apparatus (e.g., a forklift, a ROV) so that the subsea basket **500** (including any equipment disposed therein) may be lifted and/or otherwise moved. In this case, the two engagement features **570** are configured substantially the same as each other.

[0075] In certain example embodiments, the subsea basket **500** may include one or more of a number of securing features **559** disposed within the cavity **542** of the basket portion **540**. In such a case, each securing feature **559** may be configured to receive a securing device (e.g., a strap, a cable) to secure equipment (e.g., equipment **319**, equipment **419**) within the basket portion **540**. A securing feature **559** may have any of a number of configurations (e.g., a hinged eye ring, a non-hinged eye ring) that allow the securing feature **559** to directly or indirectly couple to a securing device.

[0076] A securing feature **559** may be coupled to an upper surface of a support segment **583** of the intermediate platform **523** of the frame **520**, to an inner surface of a support segment **585** of a side **525** of the frame **520**, and/or to a panel **550** of the basket portion **540** so that the securing feature

559 is disposed in the cavity **542**. As such, a securing feature **559** may include one or more of a number of coupling features (e.g., an aperture, an extension, a slot, mating threads) that allow a securing feature **559** to be directly or indirectly coupled to a support segment **583** of the intermediate platform **523** of the frame **520**, a support segment **585** of a side **525** of the frame **520**, and/or a panel **550** of the basket portion **540**. In certain example embodiments, a support segment **583** of the intermediate platform **523** of the frame **520**, a support segment **585** of a side **525** of the frame **520**, and/or a panel **550** of the basket portion **540** includes a coupling feature that complements a coupling feature of a securing feature **559**.

[0077] There may be any number of securing features **559** arranged in any manner within the cavity **542** of the basket portion **540**. When a subsea basket **500** includes multiple securing feature **559**, the characteristics (e.g., shape, size, type of coupling feature, mechanism for receiving a securing device) of one securing feature **559** may be the same as, or different than, the one or more of the corresponding characteristics of one or more of the other securing features **559**. A securing feature **559** may be considered part of the basket portion **540**, part of the frame **520**, or independent components of the subsea basket **500**.

[0078] In certain example embodiments, as in this example, the subsea basket **500** includes one or more plates **550** that are coupled to and/or otherwise integrated with the base **524** of the frame **520**. The purpose of a plate **550** is to increase the surface area of the base **524** of the frame **520**, thereby providing stability for the frame **520** as the frame **520** is positioned on a seabed (e.g., seabed **205**, seabed **405**). The subsea basket **500** of FIGS. **5**A through **5**F includes **8** plates **550** (plate **550-1**, plate **550-2**, plate **550-3**, plate **550-4**, plate **550-5**, plate **550-6**, plate **550-7**, and plate **550-8**).

[0079] In such cases where the subsea basket **550** includes one or more plates **550**, each plate **550** may have any of a number of configurations. For example, as shown in FIGS. **7**A through **7**C, a plate **550** may include a body **551**, one or more flanges **553** that extend away from the body **551**, and one or more transition portions **552** positioned between a flange **553** and the body **551** of the plate **550**. The body **551** provides most of the surface area coverage for a plate **550**. Plate **550-1** includes body **551-1**, plate **550-2** includes body **551-2**, plate **550-3** includes body **551-3**, plate **550-4** includes body **551-4**, plate **550-5** includes body **551-5**, plate **550-6** includes body **551-6**, plate **550-7** includes body **551-7**, and plate **550-8** includes body **551-8**.

[0080] The body **551** of each plate **550** in this case is substantially planar and has a rectangular shape when viewed from above. In alternative embodiments, the body **551** may be three-dimensional (e.g., dome shaped, pyramid shaped) and/or may have any of a number of other shapes (e.g., circular, oval, square, octagonal) when viewed from above. In certain example embodiments, the shape and size of the body **551** when viewed from above is substantially the same as the shape and substantially the same as or slightly smaller than the size of the opening, formed by the support segments **584** of the base **524** and/or the support segments **585** of one or more sides **525** of the frame **520**, into which the plate **550** is positioned. When a subsea basket **500** includes multiple plates **550**, the characteristics (e.g., cross-sectional shape, thickness, length, width) of the body **551** of one plate **550** may be the same as, or different than, the corresponding characteristics of the body **551** of one or more of the other plates **550** of the subsea basket **500**.

[0081] A flange **553** of a plate **550** may be configured to couple to one or more support segments **584** of the base **524** and/or the support segments **585** of one or more sides **525** of the frame **520**. In such cases, a flange **553** may include one or more coupling features (e.g., apertures, tabs, detents) that allow the flange **553** to directly or indirectly couple to one or more of the support segments **584** of the base **524** and/or to one or more of the support segments **585** of one or more sides **525** of the frame **520**. For example, a flange may overlap with a support segment of the frame **520** and be coupled to the support segment by welding. In some cases, a flange **553** may be continuous (planar) with respect to the body **551**. In alternative embodiments, as in this example, a flange **553** may be parallel to but in a different (e.g., lower) plane relative to the body **551**. In yet other alternative embodiments, a flange **553** may be non-planar and anti-parallel to the body **551** of the

plate **550**.
[0082] In this example, each plate **550** of the subsea basket **500** includes two flanges **553** (flange **553-1** and flange **553-2**) that are located at opposite ends (e.g., the top end and the bottom end, the left side and the right side) of the body **551** of the plate **550**. In this example, one flange **553** of a plate **550** is coupled to an outer support segment **584** among the three parallel support segments **584** of the base **524** of the frame **520**, while the other flange **553** of the plate **550** is coupled to the middle support segment **584** among the three parallel support segments **584** of the base **524** of the frame **520**.
[0083] The flange **553-1** and the flange **553-2** are planar with respect to each other and parallel to but at a lower level with respect to the body **551** of the plate **550**. In other words, the body **551** of a plate **550** is raised in a horizontal plane relative to the flanges **553** of the plate **550**. In this case, the characteristics (e.g., shape, length, width, thickness) of the flanges **553** of each plate **550** are substantially the same. In alternative embodiments, one or more of the characteristics of one flange **553** of a plate **550** may be different than one or more of the corresponding characteristics of one or more of the other flanges **553** of the plate **550**.
[0084] A transition portion **552** may be used to offset the associated flange **553** relative to the plane or volume of the body **551**. In this case, each plate **550** has two transition portions **552**, where transition portion **552-1** is positioned between the flange **553-1** and the body **551**, and where transition portion **552-2** is positioned between the flange **553-2** and the body **551**. In some cases, as in this example, each transition portion **552** of a plate is substantially planar. In alternative embodiments, a transition portion **552** may have some other configuration (e.g., curved, sawtooth-shaped). In this case, the characteristics (e.g., shape, size, curvature) of the transition portions **552** are substantially the same. In alternative embodiments, one or more of the characteristics of one transition portion **552** of a plate **550** may be different than one or more of the characteristics of one or more of the other transition portions **552** of the plate **550**.
[0085] Each plate **550** of the subsea basket **500** has any of a number (e.g., one, four, nine, ten, **25**) of apertures **555** that traverse the thickness of the body **551**. In this case, each plate **550** has four apertures **555** that traverse the thickness of the body **551**. Each aperture **555** in the body **551** of a plate **550** may serve one or more of a number of purposes, including but not limited to allowing for the flow of fluids (e.g., water, gas) and/or solids (e.g., sand, silt) therethrough as the subsea basket **500** is moved. In this way, the apertures **555** of the plates **550** may reduce the amount of drag or resistance that the plates **550** would otherwise cause when the subsea basket **500** is moved. In other words, the apertures **555** of the plates **550** provide a counterbalance to the increased surface area (and so also the increased stability) provided by the plates **550**.
[0086] In this example, the shape and size of each aperture **555** in the body **551** of a plate **550** are substantially circular having the same diameter. In alternative embodiments, the shape and size of one aperture **555** in the body **551** of a plate **550** may differ from the shape and/or size one or more of the other apertures **555** in the body **551** of a plate **550**. Also, the apertures **555** of each plate **550** in this example are spaced equidistantly relative to each other along the body **551** of the plate **550**. In alternative embodiments, the number and/or the orientation of the apertures **555** in the body **551** of one plate **550** may differ from the number and/or the orientation of the apertures **555** in the body **551** of one or more of the other plates **550** of the subsea basket **500**.
[0087] As discussed above, while the cross-sectional shape of the subsea basket **500** of FIGS. **5**A through **5**F when viewed from above is rectangular, other cross-sectional shapes are possible according to example embodiments. FIGS. **8** through **11** show schematic bottom views of various frames of subsea baskets according to certain example embodiments. Referring to the description associated with FIGS. **1**A through **7**C above, FIG. **8** shows a schematic bottom view of a frame **820** that has a cross-sectional shape of an elongated rectangle. In this case, the base **824** of the frame **820** includes three substantially horizontal and equidistantly spaced support segments **884** and **21** substantially vertical and equidistantly spaced support segments **884**.

[0088] FIG. **9** shows a schematic bottom view of a frame **920** that has a cross-sectional shape of a square. In this case, the base **924** of the frame **920** includes three substantially horizontal and equidistantly spaced support segments **984** and three substantially vertical and equidistantly spaced support segments **984**. FIG. **10** shows a schematic bottom view of a frame **1020** that has a cross-sectional shape of a circle. In this case, the base **1024** of the frame **1020** includes one substantially horizontal support segment **1084**, one substantially vertical support segment **1084**, and three substantially circular and concentric support segments **1084**. FIG. **11** shows a schematic bottom view of a frame **1120** that has a cross-sectional shape of an oval. In this case, the base **1124** of the frame **1120** includes one substantially horizontal support segment **1184**, one substantially vertical support segment **1184**, one diagonally-oriented support segment **1184** with a positive slope, one diagonally-oriented support segment **1184** with a negative slope, and two substantially oval and concentric support segments **1184**.

[0089] FIGS. **12**A and **12**B show various views of an alternative frame **1220** of an example subsea basket according to certain example embodiments. Specifically, FIG. **12**A shows a side view of the frame **1220** in a normal position, and FIG. **12**B shows a side view of the frame **1220** in an expanded position. Referring to the description associated with FIGS. **1**A through **11** above, the frame **1220** of FIGS. **12**A and **12**B is substantially the same as the frame **520** in FIGS. **5**A through **6** above, except as discussed below. For example, the frame **1220** includes a base **1224** having one or more support segments **1284**, one or more sides **1225** having one or more support segments **1285**, and an intermediate platform **1223** having one or more support segments **1283**. The frame **1220** in a default or normal position, as shown in FIG. **12**A, has a width **1228** that is substantially the same along the height of the frame **1220**. In other words, the base **1224**, the side **1225**, and the intermediate platform **1223** have substantially the same width **1228** when the frame **1220** is in a normal position, as shown in FIG. **12**A.

[0090] The frame **1220** differs from the frame **520** of FIGS. **5**A through **6** in that the frame **1220** is expandable (e.g., extendable, modular). Specifically, in this case, the base **1224** of the frame **1220** may be converted into an expanded position, as shown in FIG. **12**B. When in the expanded position, the base **1224** of the frame **1220** has a width **1328** that exceeds the widths **1228** of the side **1225** and the intermediate platform **1223**. For this to occur, the base **1224** of the frame **1220** may include one or more of a number (e.g., one, three, four, six) extensions **1275**. In this case, this case, the base **1224** of the frame **1220** includes two extensions **1275** (extension **1275-1** and extension **1275-2**). Each extension **1275** includes one or more support segments **1284**.

[0091] When an extension **1275** is part of the frame **1220** (e.g., is hingedly coupled to the frame **1220**, is extendable from the frame **1200**) when the frame **1220** is in a normal position, each extension **1275** of the base **1224** of the frame **1220** may have a default position (as shown in FIG. **12**A) and an enabled position (as shown in FIG. **12**B). In the default position, an extension **1275** has no impact on the footprint (e.g., on the width **1228**) of the base **1224**. When an extension **1275** is in the default position, the frame **1220** is said to be in a normal position. When in the enabled position, an extension **1275** expands the footprint (e.g., increases the width **1328**) of the base **1224** of the frame **1220**. When an extension **1275** is in the enabled position, the frame **1220** is said to be in an expanded position.

[0092] An extension **1275** may be moved from the default position to the expanded position in one or more of any of a number of ways, depending in part on the configuration of the extension **1275**. For example, if an extension **1275** has an accordion-like configuration, a motorized component internal to the frame **1220** or an external component (e.g., the ROV **332**) may extend and/or retract the extension **1275** between the default position and the expanded position. In such a case, the extension **1275** may be or may be included in one or more support segments **1284** along the outer perimeter of the base **1224** of the frame **1220**.

[0093] As another example, if an extension **1275** is hingedly coupled to one or more support segments **1284** of the base **1224** and/or one or more support segments **1285** of one or more of the

sides **1225**, a motorized component internal to the frame **1220** or an external component (e.g., the ROV **332**) may extend and/or retract the extension **1275** between the default position and the expanded position by forcing the extension **1275** to rotate about the hinge. In certain example embodiments, as with the previous example, an extension **1275** may include one or more coupling features that are configured to complement one or more coupling features disposed on the one or more support segments **1284** of the base **1224** and/or one or more support segments **1285** of one or more of the sides **1225**.

[0094] As yet another example, if an extension **1275** is a separate piece (e.g., a modular design) with coupling features (e.g., slotted grooves) that complement one or more coupling features (e.g., tab extensions) disposed on one or more support segments **1284** of the base **1224** and/or on one or more support segments **1285** of one or more of the sides **1225**, then an external component (e.g., the ROV **332**) may attach the extension **1275** to and/or detach the extension **1275** from the rest of the frame **1220** using the coupling features.

[0095] In some cases, an extension **1275** may be configured to include one or more coupling features that allow the extension **1275** to couple to another extension **1275** (e.g., an additional extension **1275**, an adjacent extension **1275**). The concept of an expandable base **1224** for a frame **1220** for a subsea basket according to example embodiments may be useful in one or more of a number of situations. For example, if the seabed (e.g., seabed **205**, seabed **305**, seabed **405**) is unstable or is a mixture of different materials, a wider base **1224** may be useful to ensure that the subsea basket is stable (or substantially stable) over time. As another example, if the seabed is uneven (e.g., has a number of elevation changes, has a number of undulations), then a wider base **1224** may be useful to ensure that the subsea basket is stable (or substantially stable) over time.

[0096] If the frame **1220** has multiple extensions **1275**, the characteristics (e.g., number of support segments **1284**, orientation of the support segments **1284**, overall length, overall width, cross-sectional shape, method for converting between the default position and the enabled position) of one extension **1275** may be the same as, or different than, the corresponding characteristics of one or more of the other extensions **1275**. In some cases, an extension **1275** may include one or more plates **1250**, where each plate **1250** may be substantially similar (e.g., in terms of configuration, in terms of coupling to one or more support segments **1284** of the base **1224**, in terms of the number and/or location of apertures (e.g., apertures **555**)) to the plates **550** discussed above. Alternatively, a plate **1250** of an extension **1275** may have one or more features that differ from the plates **550** discussed above.

[0097] Example embodiments can be used to safe and secure storage of subsea equipment at or near the seabed. Such equipment may be sensitive to debris and other elements that may get stirred up at the seabed. Example embodiments may be lifted and/or otherwise moved while posing a minimal risk that the sensitive equipment will become contaminated, thereby compromising the effectiveness of the equipment when it is later put in use. Example embodiments can be placed in an expanded position to help maintain stability and security. Example embodiments may be configured for a single use or multiple uses. Example embodiments may comply with applicable industry standards when used during subsea field operations.

[0098] Although embodiments described herein are made with reference to example embodiments, it should be appreciated by those skilled in the art that various modifications are well within the scope and spirit of this disclosure. Those skilled in the art will appreciate that the example embodiments described herein are not limited to any specifically discussed application and that the embodiments described herein are illustrative and not restrictive. From the description of the example embodiments, equivalents of the elements shown therein will suggest themselves to those skilled in the art, and ways of constructing other embodiments using the present disclosure will suggest themselves to practitioners of the art. Therefore, the scope of the example embodiments is not limited herein.

Claims

1. A subsea basket comprising: a frame comprising a base and a side, wherein the base of the frame comprises a first support segment, and wherein the side of the frame comprises a second support segment; and a basket portion comprising a bottom wall and a side wall, wherein the bottom wall and the side wall have apertures that traverse therethrough, wherein the bottom wall is positioned a distance above the first support segment of the base of the frame, and wherein the side wall is coupled to the second support segment of the side of the frame.
2. The subsea basket of claim 1, wherein the frame further comprises a coupling feature positioned atop the second support segment of the side of the frame, and wherein the coupling feature is configured to couple to a lifting apparatus that is configured to move the frame and the basket portion simultaneously.
3. The subsea basket of claim 1, wherein the frame further comprises a plate coupled to the first support segment of the base of the frame.
4. The subsea basket of claim 3, wherein the plate has an aperture that traverses therethrough.
5. The subsea basket of claim 3, wherein the plate comprises a flange along its outer perimeter, wherein the flange is coupled to the first support segment of the base of the frame.
6. The subsea basket of claim 5, wherein the plate further comprises a main portion that is raised in a horizontal plane relative to the flange.
7. The subsea basket of claim 6, wherein the main portion of the plate is substantially parallel to the flange.
8. The subsea basket of claim 7, wherein the plate further comprises a transition portion positioned between the flange and the main portion, and wherein the transition portion is substantially planar.
9. The subsea basket of claim 5, wherein the flange is on a top end and a bottom end of the plate.
10. The subsea basket of claim 3, wherein the plate has a shape when viewed from above that is substantially similar to the shape of the base of the frame when viewed from above.
11. The subsea basket of claim 1, wherein the basket portion and the first support segment of the frame have a substantially rectangular shape when viewed from above.
12. The subsea basket of claim 1, wherein the bottom wall and the side wall of the basket portion are a metal mesh.
13. The subsea basket of claim 1, wherein the second support segment of the frame extends to a top end of the side wall of the basket portion.
14. The subsea basket of claim 1, wherein the distance is at least half the height of the frame.
15. The subsea basket of claim 1, wherein the frame further comprises an extension that has a default position and an enabled position, wherein the extension increases a footprint of the base of the frame when in the enabled position, and wherein the extension has no effect on the footprint of the base of the frame when in the default position.
16. The subsea basket of claim 1, wherein the basket portion further comprises a fastening feature disposed on the side of the frame, and wherein the fastening feature is configured to receive a securing device that is configured to secure equipment within the basket portion.
17. The subsea basket of claim 16, wherein the fastening feature comprises a hinged eye ring, and wherein the securing device comprises a strap.
18. The subsea basket of claim 1, wherein the frame further comprises an engagement feature that is configured to receive an engaging member of a mobility apparatus that is configured to lift and move the frame and the basket portion.
19. The subsea basket of claim 18, wherein the engagement feature comprises an elongated tube, and wherein the engaging member is a tyne of a forklift.
20. The subsea basket of claim 1, wherein the frame further comprises an intermediate platform having a third support segment located above and substantially parallel to the first support segment

of the base of the frame, and wherein the third support segment of the intermediate platform directly supports the bottom wall of the basket portion.