two components. In some configurations, the docking station slide has a handle accessible from the exterior of the docking station. A user may grasp the handle and translate the docking station slide thereby causing the slidable closure on the reservoir to translate through the mechanical linkage formed by the complementary connection features between the docking station slide and the slidable closure on the reservoir.

[0009] During use, an unopened reservoir containing chemical to be dispensed may be inserted into the docking station and opened by engaging the docking station slide. Some or all of the contents of the reservoir may dispense into an intended discharge reservoir, such as a product dispenser that receives concentrated chemical and prepares a target solution from the concentrated chemical. In this manner, the chemical product to be dispensed may be stored, shipped, and transferred out of the reservoir in which it is held without the user needing to directly contact or interact with the chemical contained in the reservoir.

[0010] In one aspect, a chemical dispensing system is described that includes a reservoir, a docking flange, and a docking station. The reservoir is configured to contain a chemical to be dispensed. The reservoir has a closed top end, a bottom end defining an opening through which the chemical is dispensed, and at least one sidewall connecting the top end to the bottom end. The docking flange extends from the bottom end of the reservoir. The docking flange contains a slidable closure configured to slide from a position in which the slidable closure closes the opening of the reservoir to prevent the chemical from discharging through the opening to a position in which the slidable closure is offset from the opening and the chemical is allowed to discharge past the slidable closure through the opening. The docking station has a discharge aperture and a docking station slide. the docking station is configured to receive and hold the docking flange by inserting the docking station flange into the receiving cavity and rotating the docking flange relative to the docking station. The docking station is configured to receive and hold the docking flange extending from the bottom end of the reservoir with the opening of the reservoir aligned with the discharge aperture of the docking station. The example specifies that the slidable closure and the docking station slide have corresponding mating features that cause the slidable closure to engage with the docking station slide, when the docking flange extending from the bottom end of the reservoir is inserted into the docking station, such that the slidable closure is configured to move with the docking station slide.

[0011] In another example, a chemical dispensing reservoir is described that includes a reservoir configured to contain a chemical to be dispensed. The reservoir has a closed top end, a bottom end defining an opening through which the chemical is dispensed, and at least one sidewall connecting the top end to the bottom end. The chemical dispensing reservoir also includes a docking flange extending from the bottom end of the reservoir. The docking

flange contains a slidable closure configured to slide from a position in which the slidable closure closes the opening of the reservoir to prevent the chemical from discharging through the opening to a position in which the slidable closure is offset from the opening and the chemical is allowed to discharge past the slidable closure through the opening. The example specifies that a bottom surface of the slidable closure includes one of a projection and a protrusion configured to mate with a corresponding protrusion or projection a docking station slide.

[0012] In another aspect, a method of dispensing chemical is described. The method includes inserting a reservoir containing chemical that is held in the reservoir by a slidable closure into a docking station, the docking station having a docking station slide closing a discharge aperture extending through the docking station, wherein inserting the reservoir into the docking station comprises inserting a flange extending from the bottom end of the reservoir into a receiving cavity of the docking station and rotating the reservoir to position the flange under a ledge extending over a portion of the receiving cavity. The method also includes engaging the slidable closure on the reservoir with the docking station slide. The method further includes sliding the docking station slide and thereby simultaneously sliding the slidable closure on the reservoir engaged therewith, causing an opening through a bottom end of the reservoir to open simultaneously with the discharge aperture.

[0013] The details of one or more examples are set forth in the accompanying drawings and the description below. Other features, objects, and advantages will be apparent from the description and drawings, and from the claims.

BRIEF DESCRIPTION OF DRAWINGS

[0014] FIG. 1 is a perspective view of an example chemical dispensing system.

[0015] FIGS. 2A and 2B are bottom perspective views of an example configuration of a docking flange showing an example slidable closure.

[0016] FIGS. 3A and 3B are top and bottom perspective views, respectively, illustrating an example docking station configuration that can be used in the system of FIG. 1.

[0017] FIGS. 4A and 4B are side views of the example docking station configuration from FIG. 1 showing different example sized complementary connection features.

[0018] FIGS. 5A and 5B are side views of the example docking station configurations shown in FIGS. 4A and 5B showing the incompatibility of the complementary mating features between the two example embodiments.

[0019] FIGS. 6A and 6B are perspective views illustrating example insertion positions by which a docking flange may be inserted into a docking station in the example of FIG. 1.

[0020] FIG. 7 is a side view of the chemical dispensing system from FIG. 1 showing an example arrangement of components.

CLAIMS:

1. A chemical dispensing system comprising:

a reservoir configured to contain a chemical to be dispensed, the reservoir having a closed top end, a bottom end defining an opening through which the chemical is dispensed, and at least one sidewall connecting the top end to the bottom end;

a docking flange adjacent the bottom end of the reservoir, the docking flange containing a slidable closure configured to slide from a position in which the slidable closure closes the opening of the reservoir to prevent the chemical from discharging through the opening to a position in which the slidable closure is offset from the opening and the chemical is allowed to discharge past the slidable closure through the opening;

a docking station having a discharge aperture and a docking station slide, the docking station being configured to receive and hold the docking flange extending from the bottom end of the reservoir with the opening of the reservoir aligned with the discharge aperture of the docking station,

wherein the docking station is configured to receive and hold the docking flange by inserting the docking station flange into the receiving cavity and rotating the docking flange relative to the docking station, and

wherein the slidable closure and the docking station slide have corresponding mating features that cause the slidable closure to engage with the docking station slide, when the docking flange extending from the bottom end of the reservoir is inserted into the docking station, such that the slidable closure is configured to move with the docking station slide.

2. The system of claim 1, wherein the corresponding mating features comprises one of a projection and a protrusion on a bottom surface of the slidable closure and the other of the projection and the protrusion on a top surface of the docking station slide.

3. The system of either of claims 1 and 2, wherein the docking station comprises a housing having a reservoir receiving portion and a docking station slide retaining portion offset laterally from the reservoir receiving portion, the reservoir receiving portion defining a receiving cavity through which the discharge aperture extends and into which the docking flange is configured to be inserted.

4. The system of claim 3, wherein the reservoir receiving portion is shape-indexed to the docking flange.

5. The system of either of claims 3 and 4, wherein the reservoir slide portion includes a reservoir slide opening through which the reservoir slide is configured to travel and a slidable closure opening vertically above the reservoir slide opening through which the slidable closure is configured to slide.

6. The system of claim 1, wherein

the docking flange extends outwardly from the bottom end of the reservoir;

the housing of the docking station has a ledge extending over a portion of the receiving cavity, and

the docking flange is configured to be inserted into the receiving cavity and rotated until at least a portion of the docking flange is positioned under the ledge.

7. The system of any one of claims 1–6, wherein the docking flange is substantially circular with at least one chamfered edge.

8. The system of any one of claims 1–7, wherein the reservoir defines a vertically elongated body having a cross-sectional size substantially equal to a cross-sectional size of both the opening and the discharge aperture.

9. The system of any one of claims 1–8, wherein the docking station slide is configured to slide from a position in which the docking station slide closes the discharge aperture to a position in which the docking station slide is offset from the discharge aperture.

10. The system of any one of claims 1–9, wherein the docking flange defines a pair of channels into which opposed sides of the slidable closure are inserted and along which the slidable closure slides.

11. The system of any one of claims 1–10, wherein the reservoir contains the chemical, and the chemical is one of a solid bock, solid pucks, and solid granules.

12. A method of dispensing chemical comprising:

inserting a reservoir containing chemical that is held in the reservoir by a slidable closure into a docking station, the docking station having a docking station slide closing a discharge aperture extending through the docking station , wherein inserting the reservoir into the docking
station comprises inserting a flange extending from the bottom end of the reservoir into a receiving cavity of the docking station and rotating the reservoir to position the flange under a ledge extending over a portion of the receiving cavity;

engaging the slidable closure on the reservoir with the docking station slide; and

sliding the docking station slide and thereby simultaneously sliding the slidable closure on the reservoir engaged therewith, causing an opening through a bottom end of the reservoir to open simultaneously with the discharge aperture.

13. The method of claim 12, wherein engaging the slidable closure on the reservoir with the docking station slide comprises inserting one of a projection and a protrusion on a bottom surface of the slidable closure into the other of the projection and the protrusion on a top surface of the docking station slide.

14. The method of either of claim 12 or 13, further comprising dispensing the chemical under a force of gravity through the opening the opening through the bottom end of the reservoir and the discharge aperture.