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(54) **METHOD AND SYSTEM FOR FILLING FOOD POUCHES**

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USPC **53/473; 53/235**

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(57) **ABSTRACT**

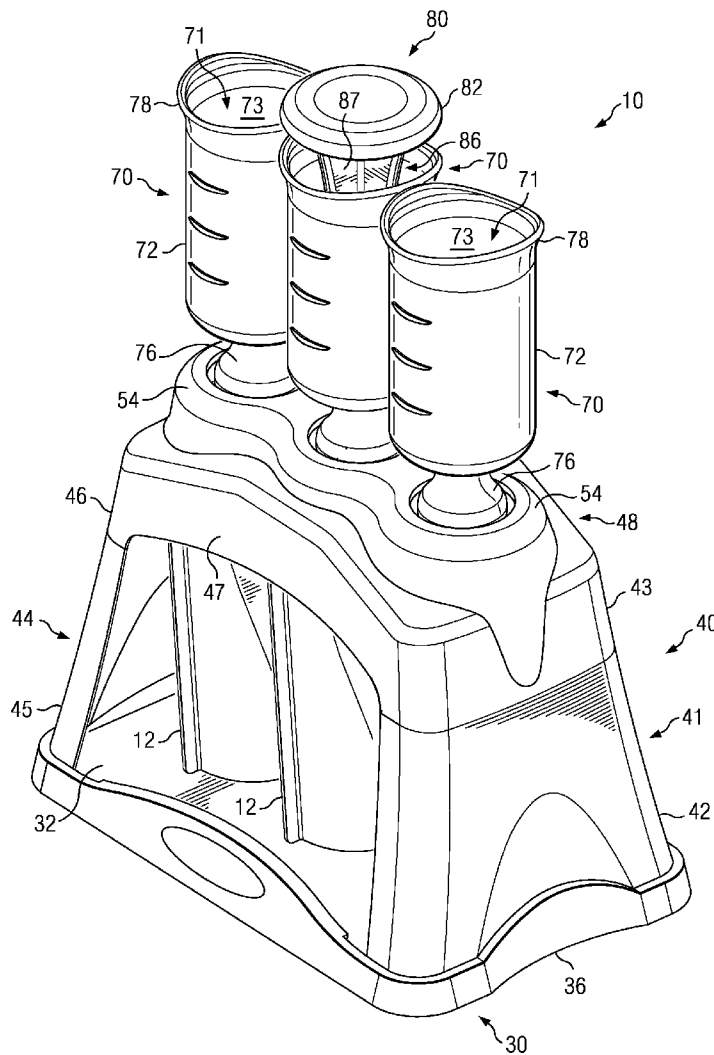
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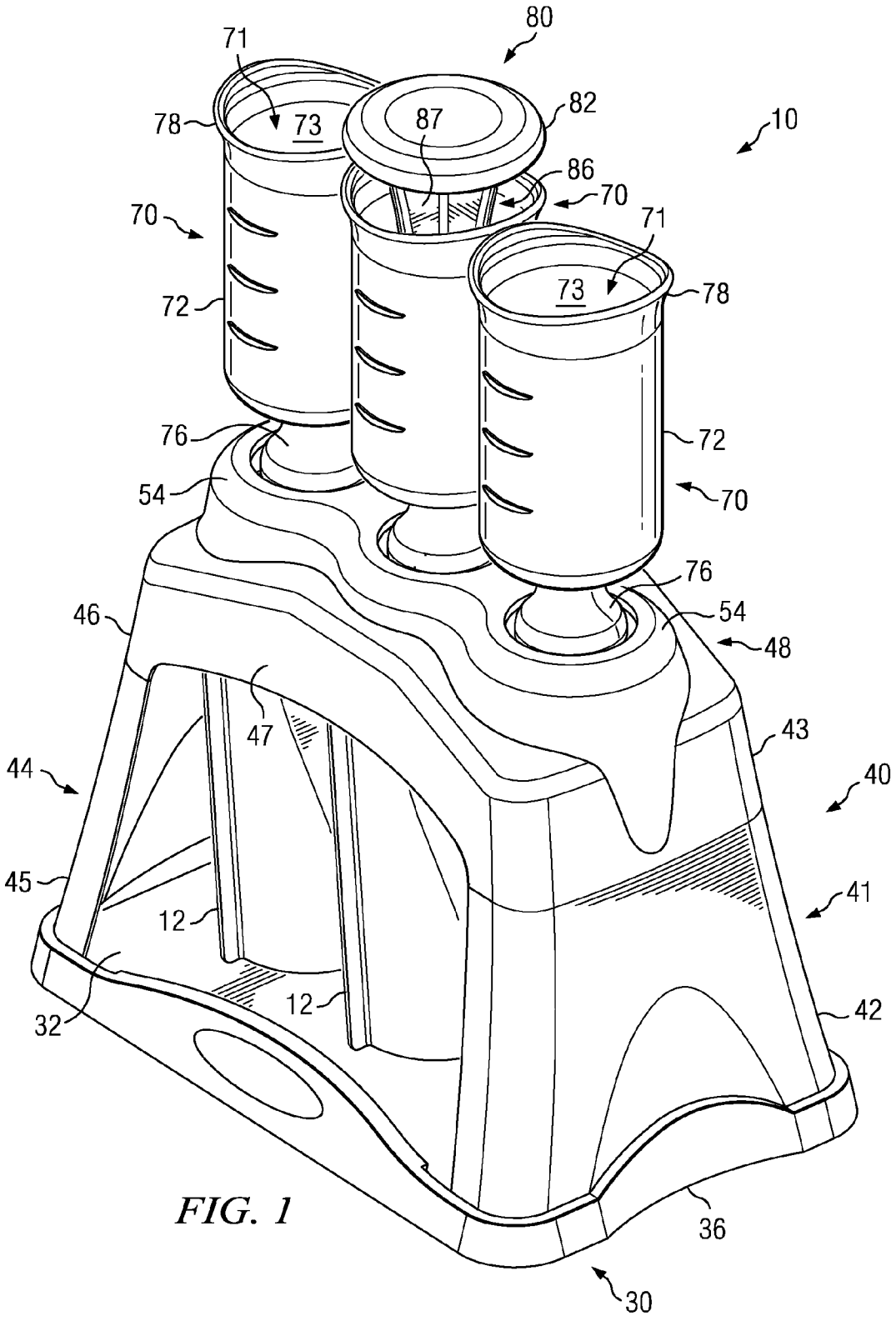
A stand of a system for filling food pouches includes a first side support structure that includes a lower end portion and an upper end portion. The stand also includes a second side support structure that includes a lower end portion and an upper end portion. The stand further includes an upper support structure which extends between the upper end portion of the first side support structure and the upper end portion of the second side support structure. The upper support structure includes at least one mount receptacle that defines an aperture configured to receive a spout of a food pouch, to facilitate suspending a food pouch from the upper support structure. Systems and methods for filling food pouches are also described herein.

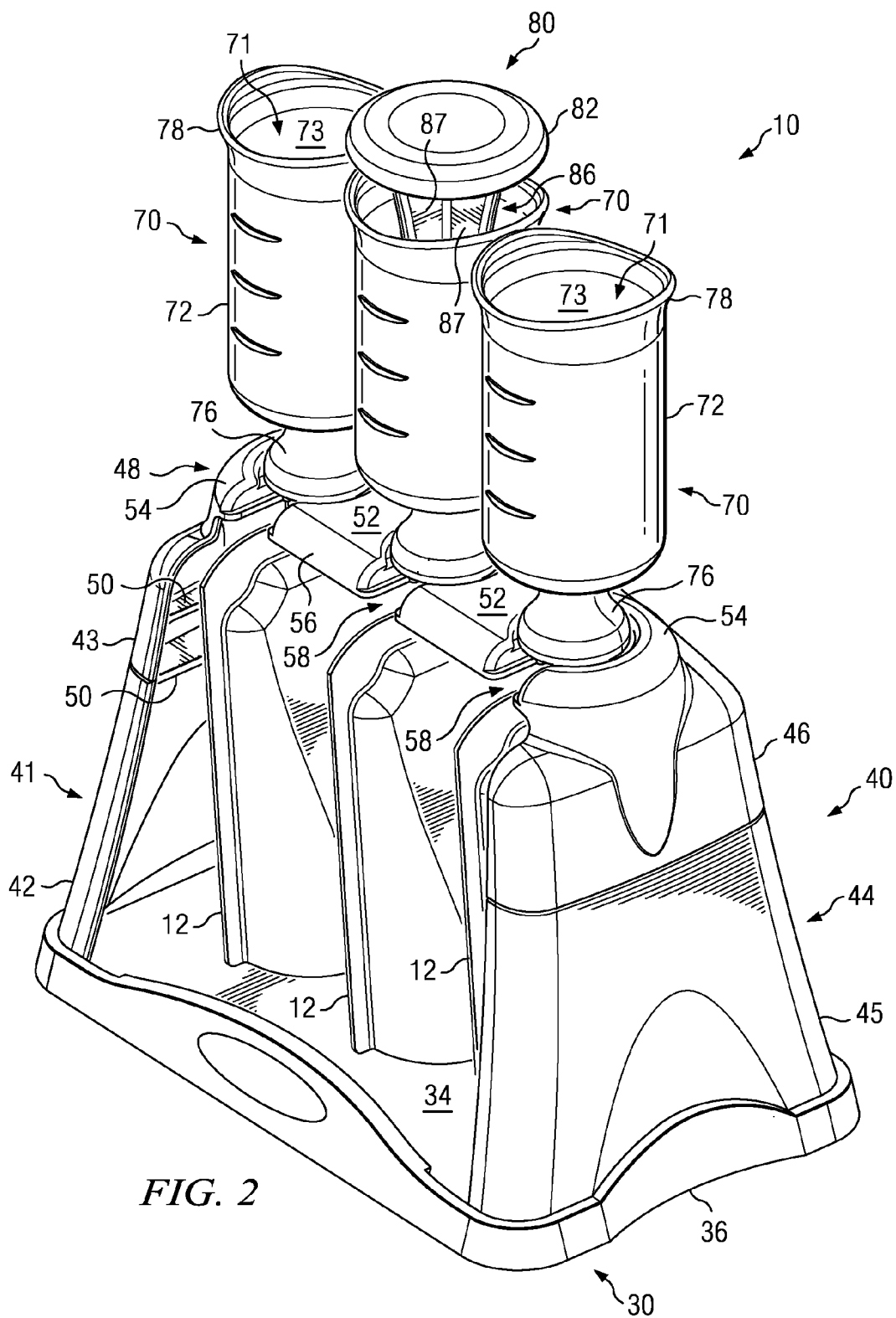
(22) Filed: **Sep. 19, 2012**

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(60) Provisional application No. 61/538,375, filed on Sep. 23, 2011.







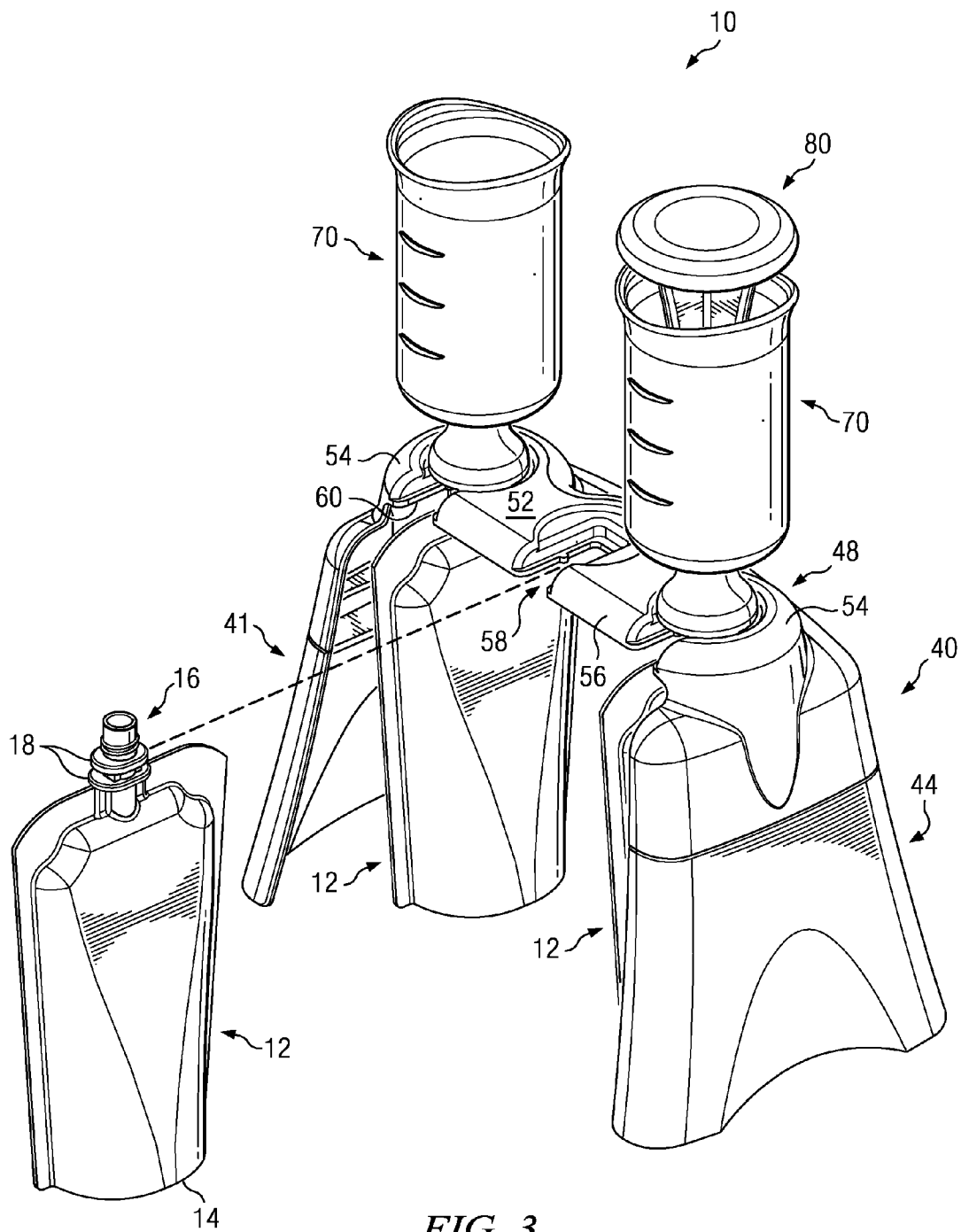


FIG. 3

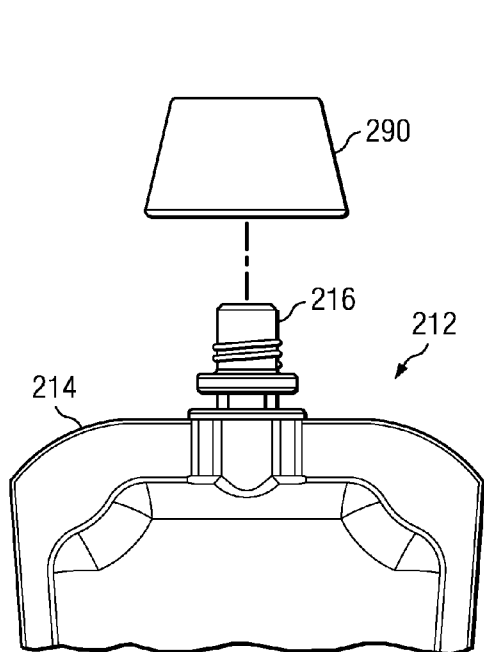
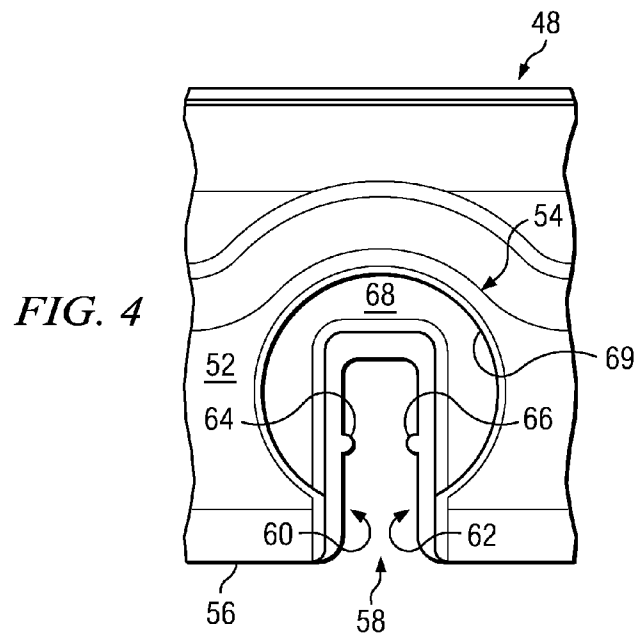


FIG. 5

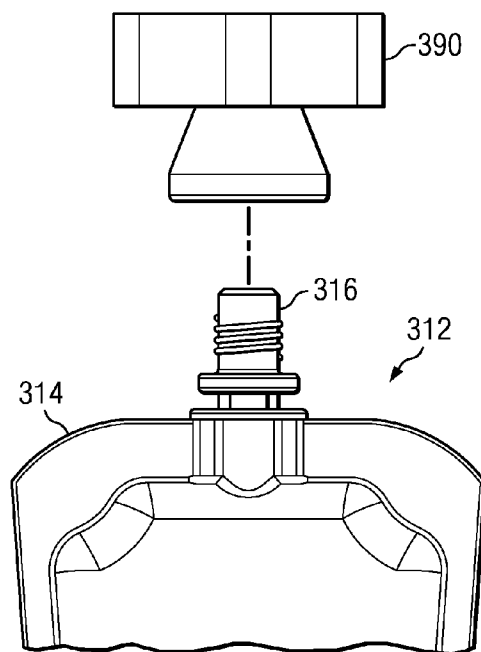


FIG. 6

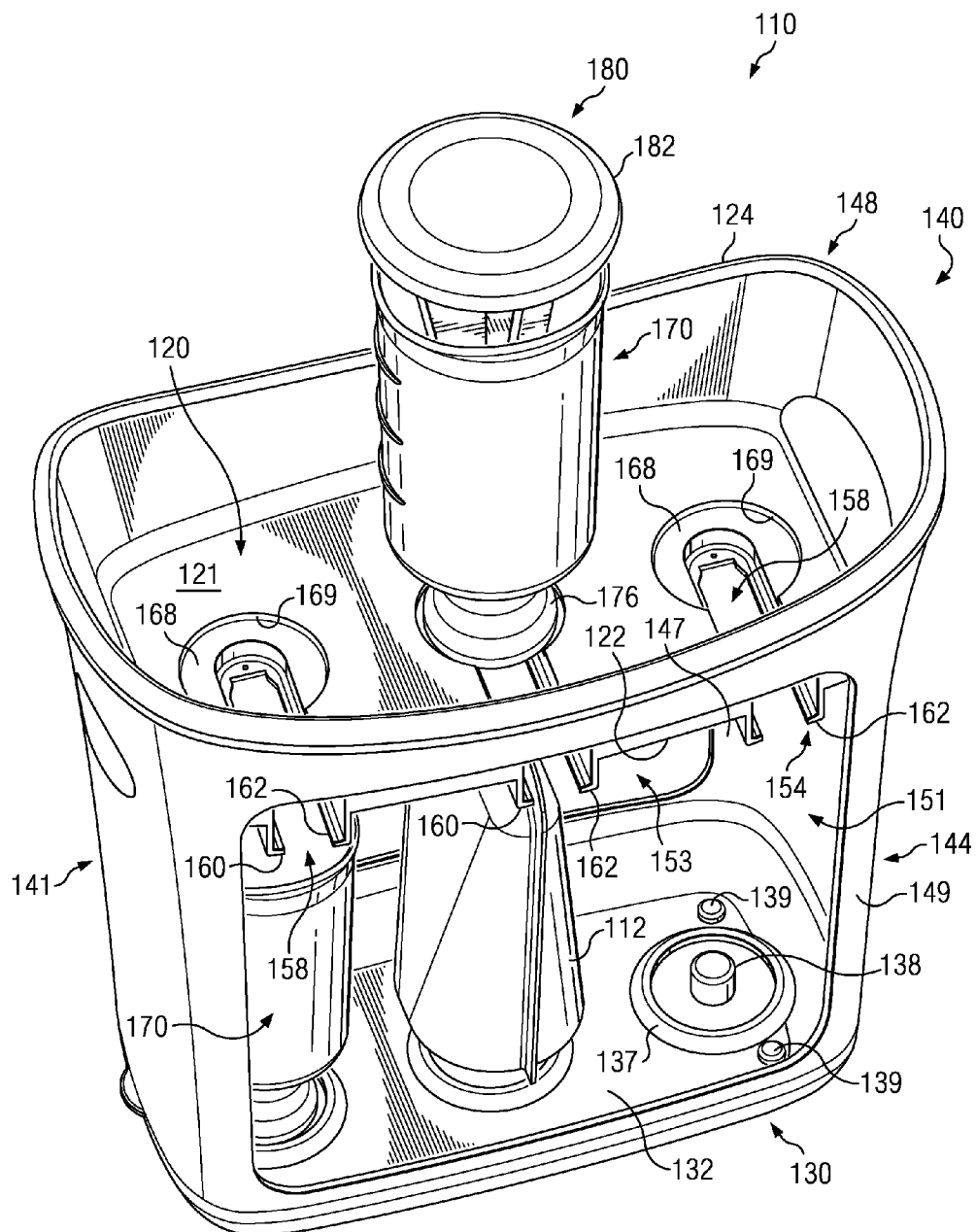
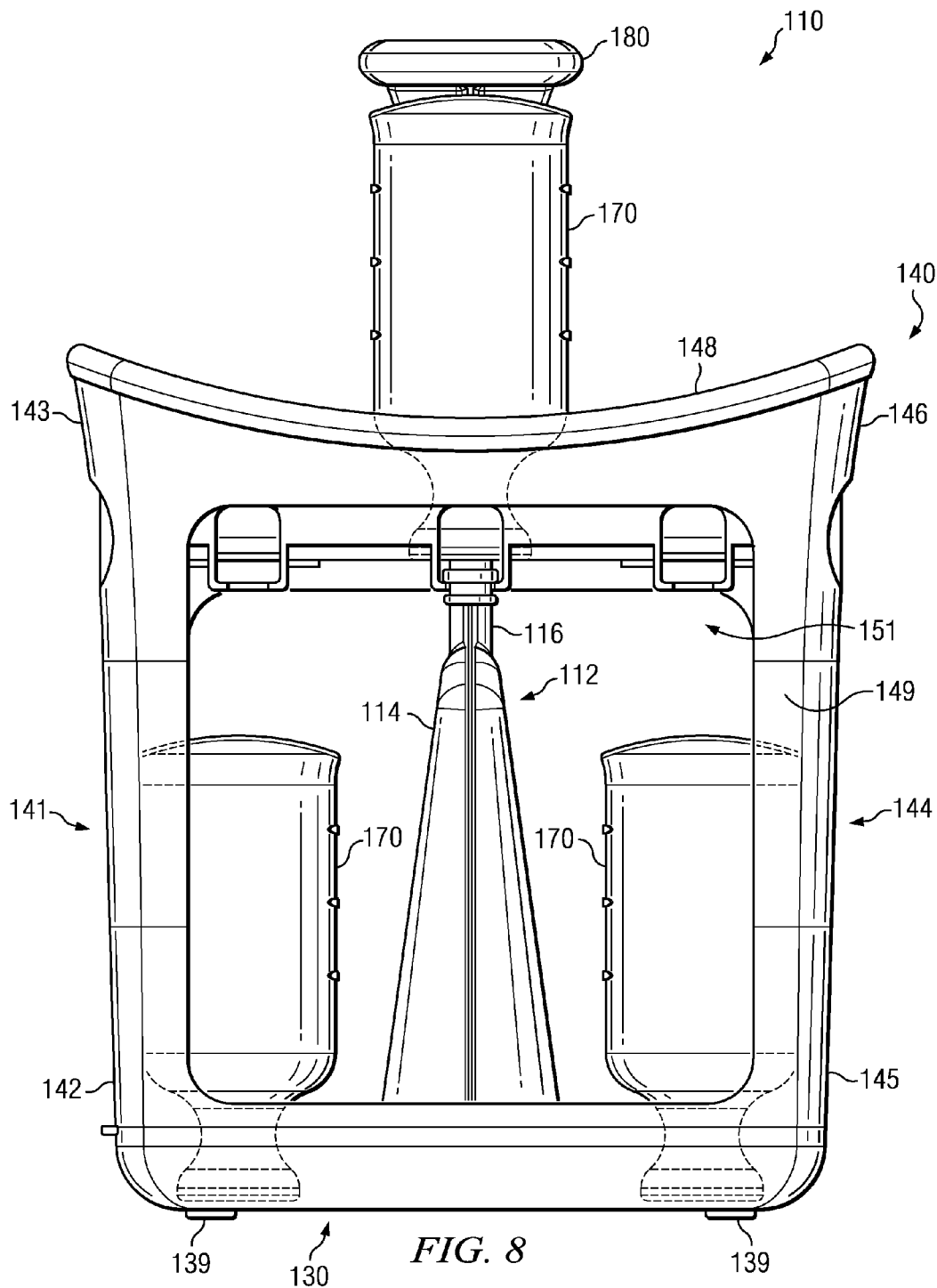


FIG. 7



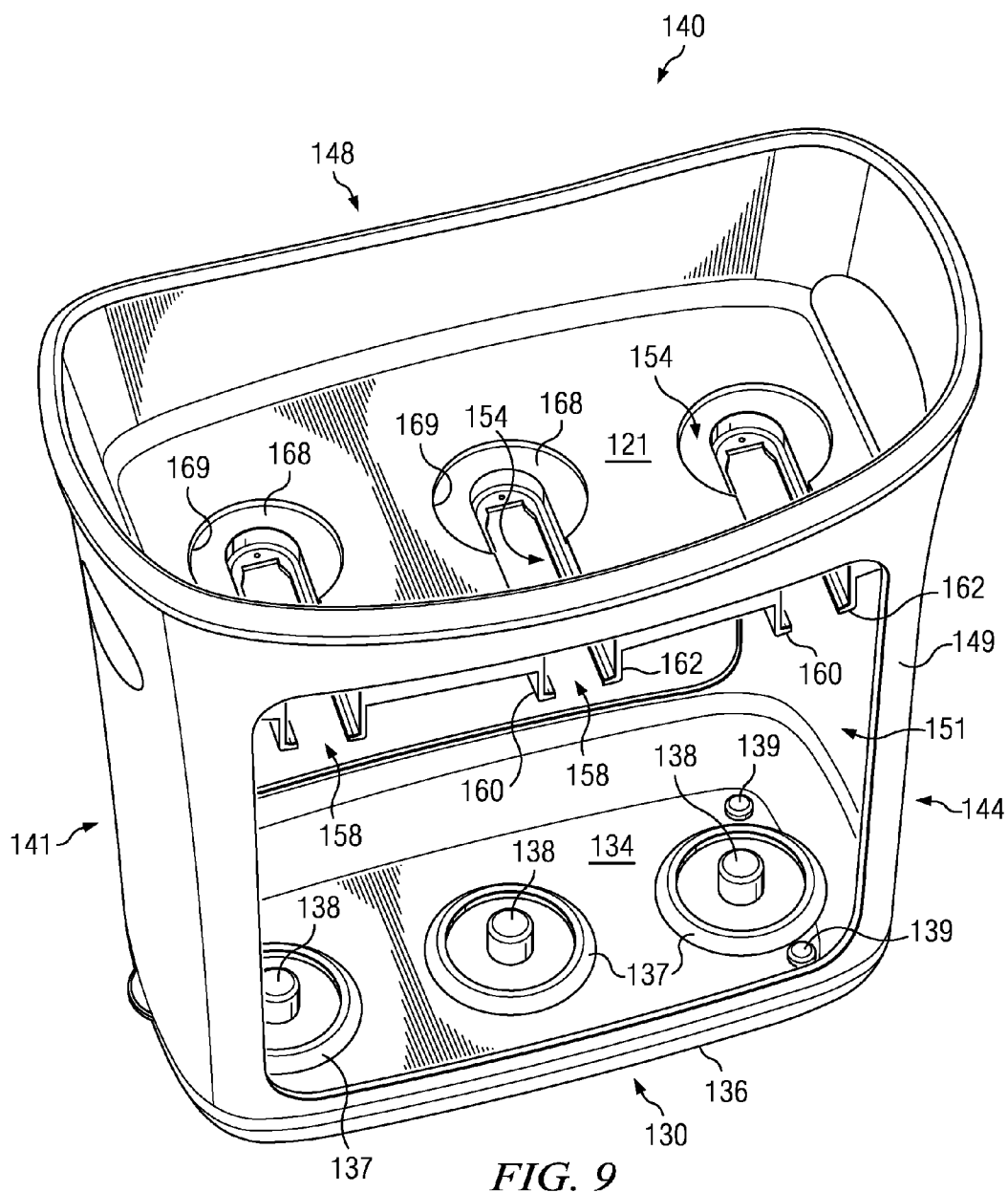


FIG. 9

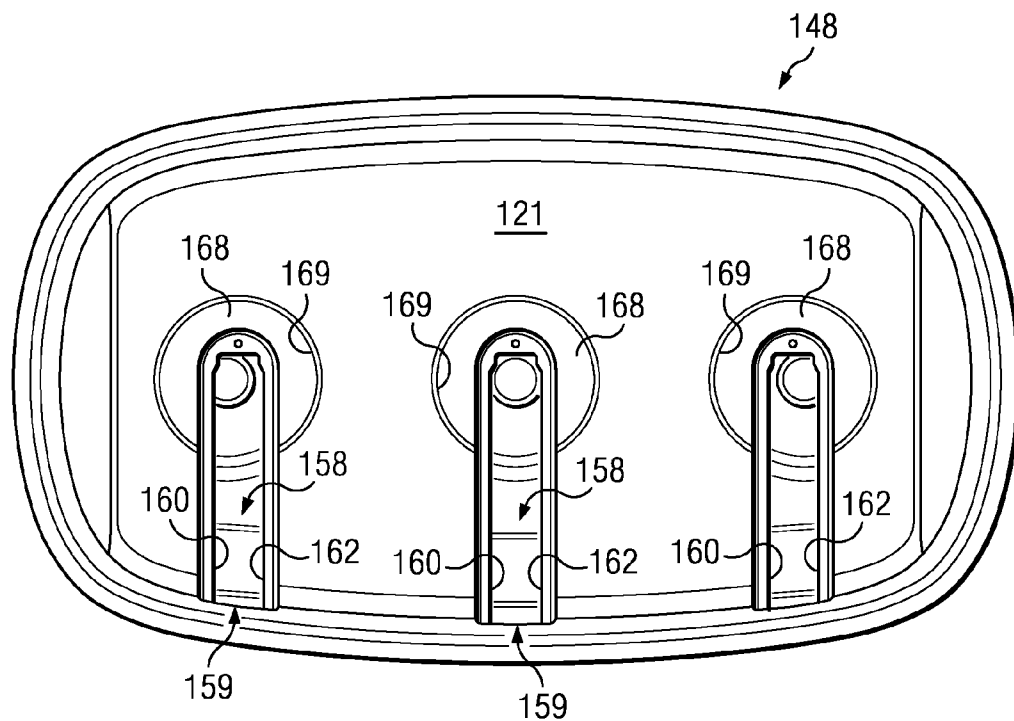


FIG. 10

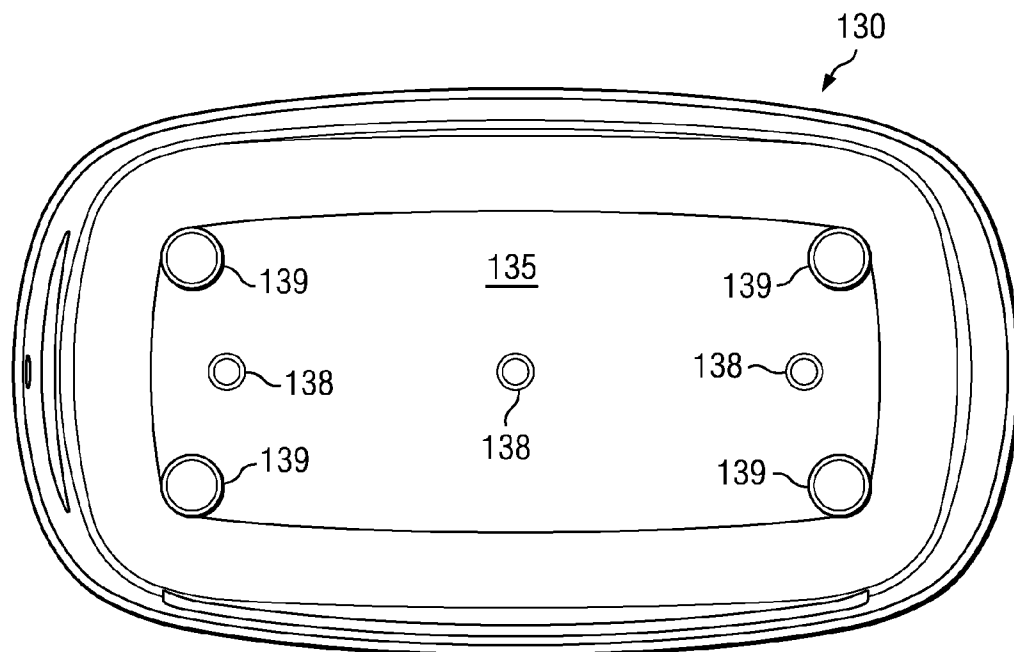


FIG. 11

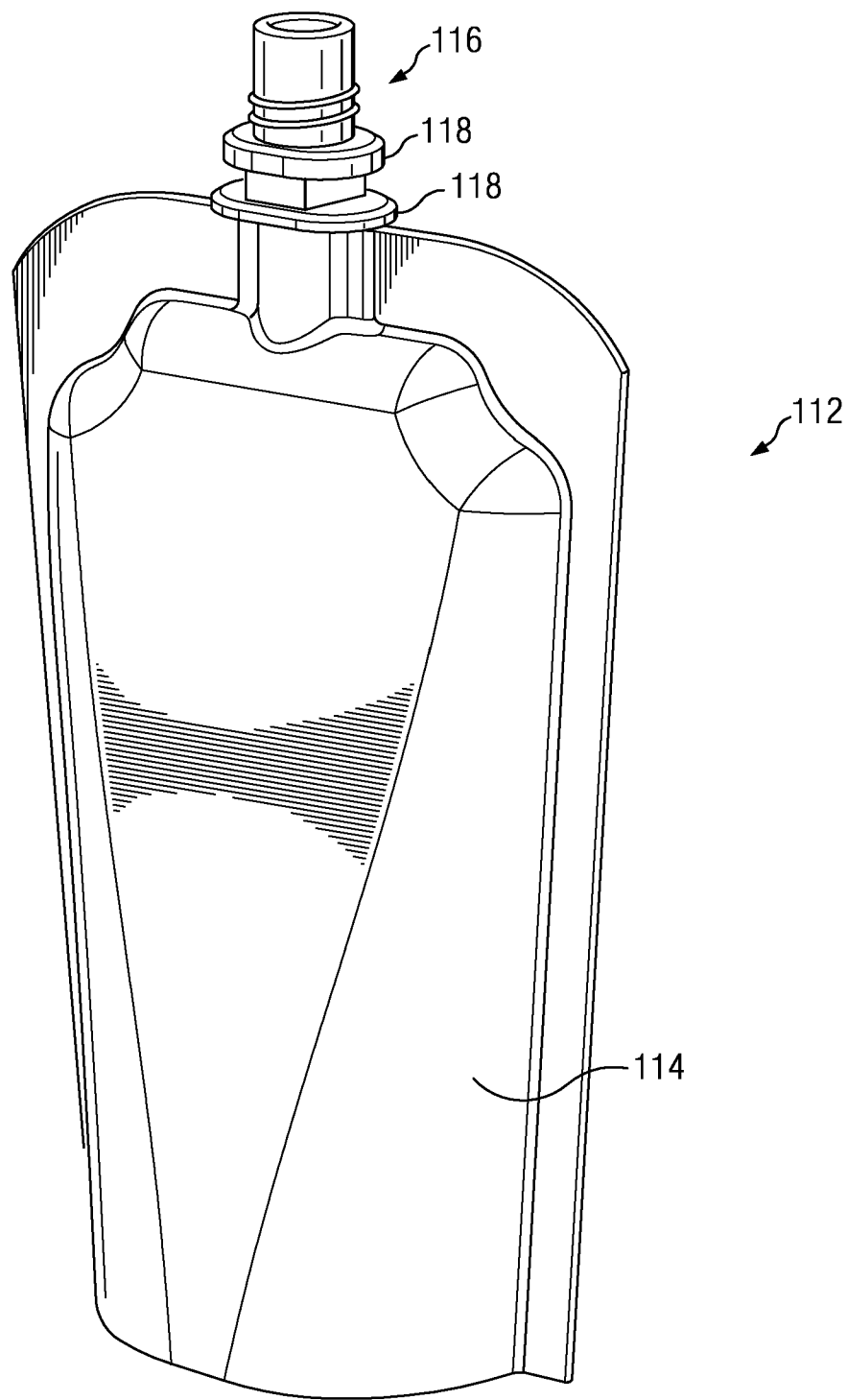


FIG. 12

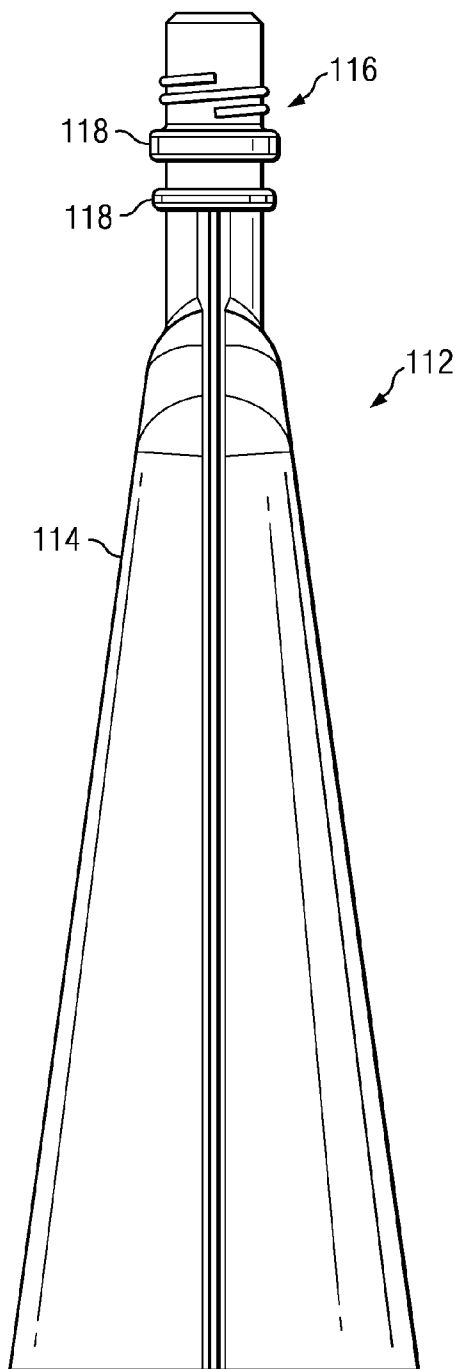


FIG. 13

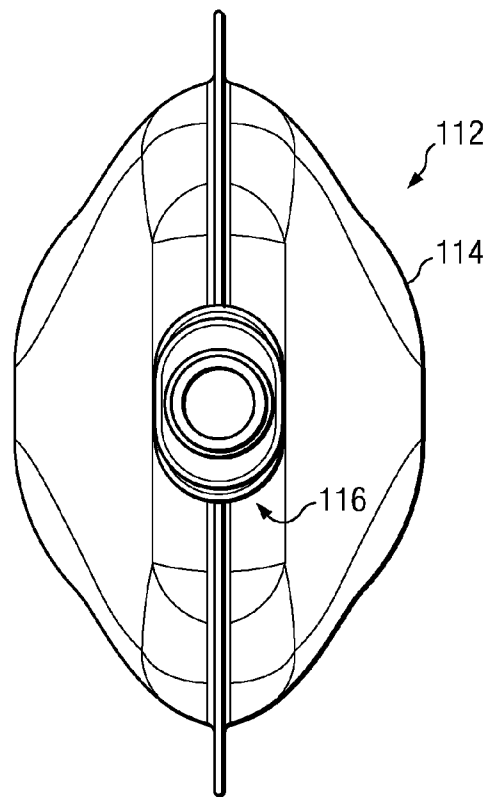


FIG. 14

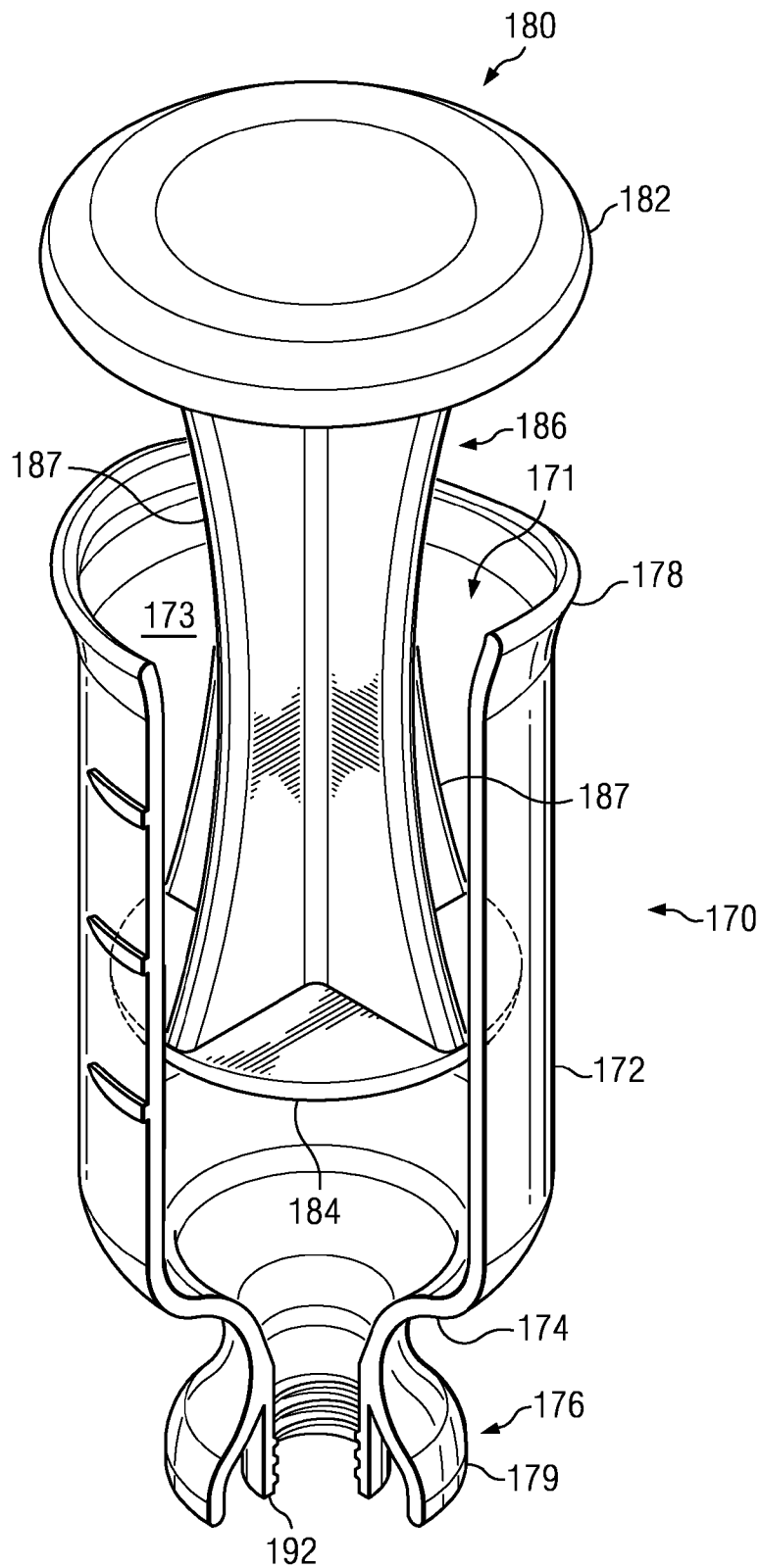


FIG. 15

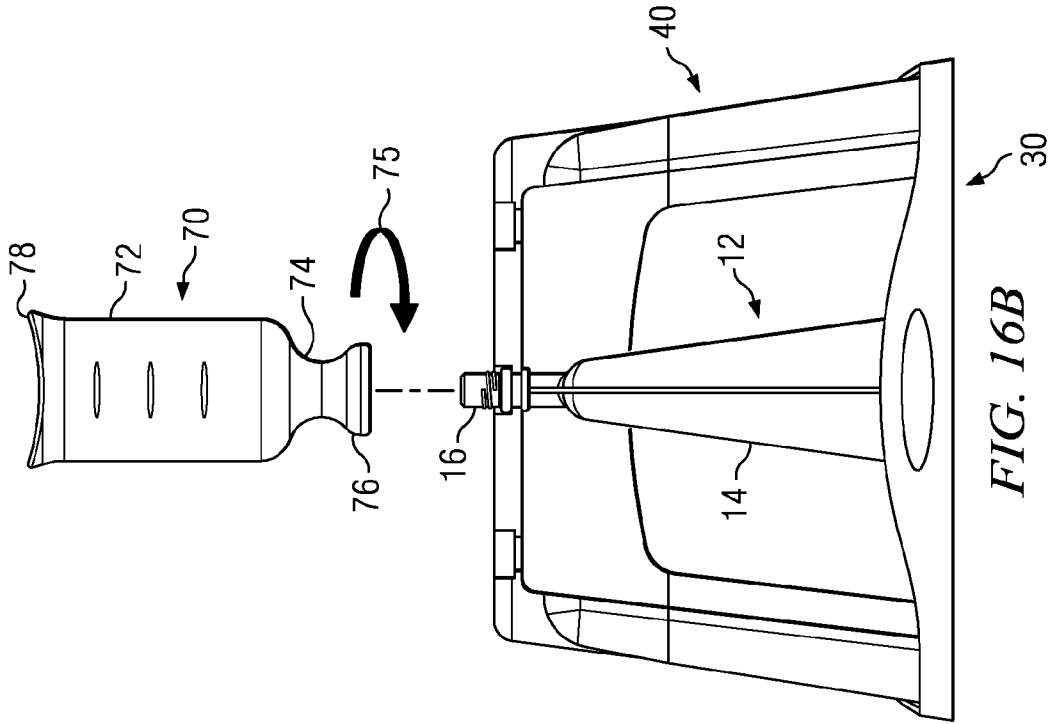


FIG. 16B

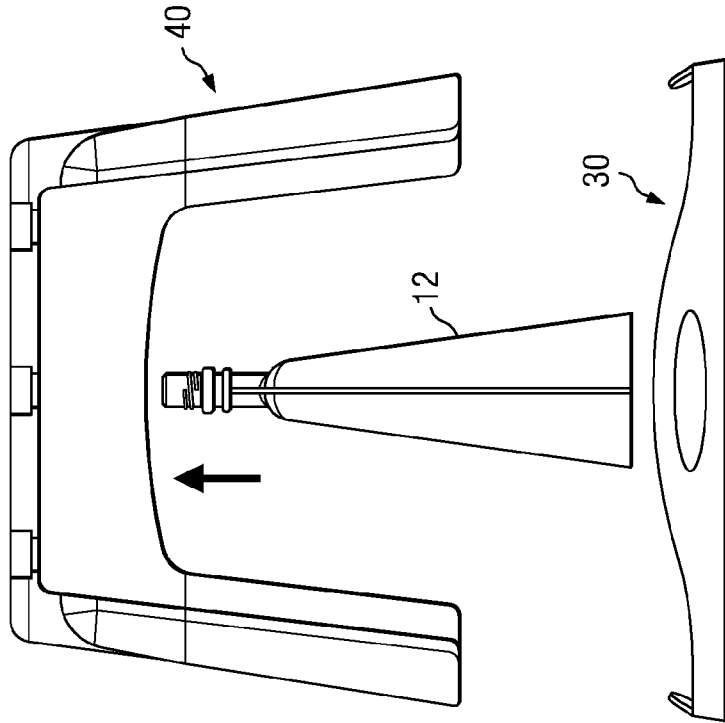


FIG. 16A

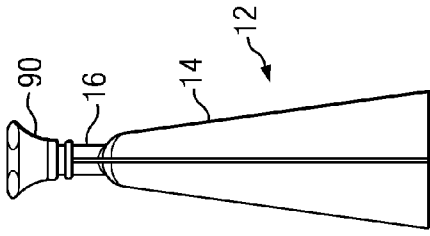


FIG. 16E

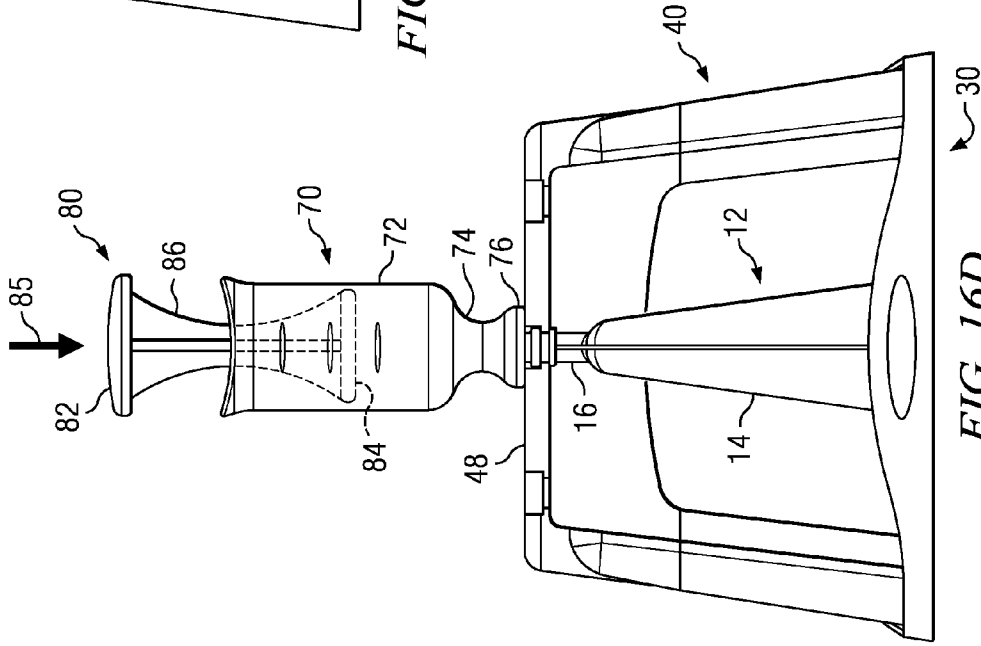


FIG. 16D

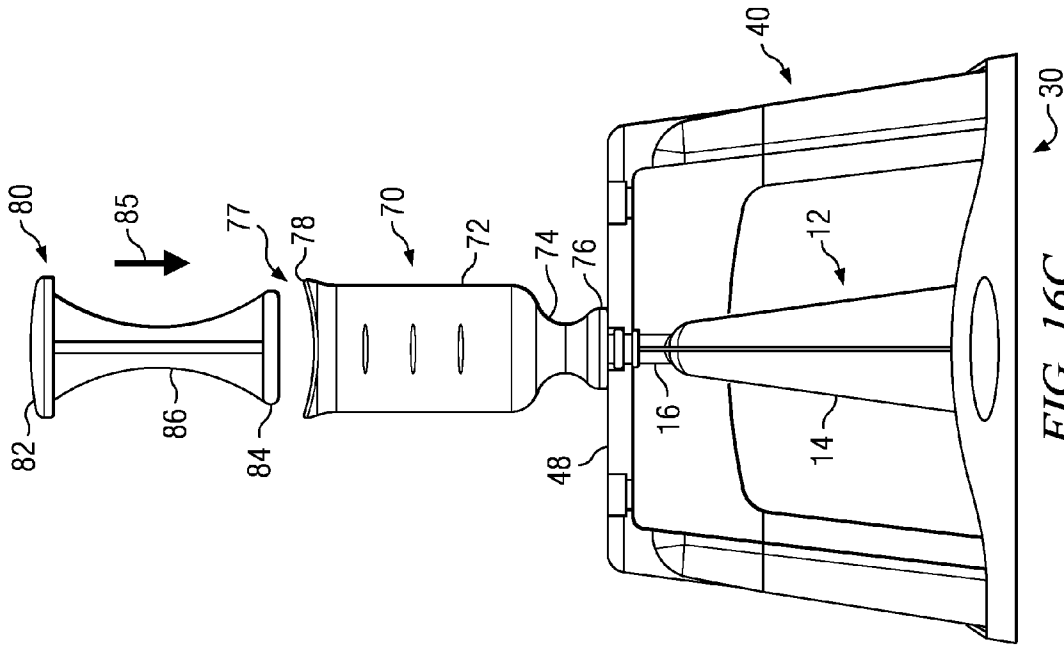


FIG. 16C

METHOD AND SYSTEM FOR FILLING FOOD POUCHES

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority benefit of U.S. Provisional Patent Application Ser. No. 61/538,375, "Method and Apparatus for Filling Food Pouches", filed Sep. 23, 2011, which is hereby expressly incorporated by reference herein in its entirety.

TECHNICAL FIELD

[0002] This application relates generally to methods and apparatus for filling food containers, and more particularly to methods and apparatus for filling food pouches, for example, baby food pouches.

BACKGROUND

[0003] Collapsible and expandable pouches for containing baby food are known.

SUMMARY

[0004] According to one embodiment, a stand of a system for filling food pouches includes a first side support structure, which includes a lower end portion and an upper end portion. The stand also includes a second side support structure that includes a lower end portion and an upper end portion. The stand further includes an upper support structure, which extends between the upper end portion of the first side support structure and the upper end portion of the second side support structure. The upper support structure includes at least one mount receptacle, which defines an aperture configured to receive a spout of a food pouch, to facilitate suspending a food pouch from the upper support structure.

[0005] According to another embodiment, a system for filling food pouches includes a stand that includes a first side support structure, a second side support structure, and an upper support structure. The first side support structure includes a lower end portion and an upper end portion. The second side support structure includes a lower end portion and an upper end portion. The upper support structure extends between the upper end portion of the first side support structure and the upper end portion of the second side support structure. The system also includes at least one funnel configured for selective contacting engagement with the upper support structure of the stand and configured for connection to a food pouch suspended from the stand. Each of the at least one funnel defines an interior chamber configured to receive food. The system also includes a plunger configured for selective, sliding engagement with each of the at least one funnel, within the interior chamber defined by each respective tunnel, to facilitate forcing food out of the interior chamber into a respective food pouch suspended from the upper support structure of the stand.

[0006] According to another embodiment, a method for filling food pouches is provided. The method uses a system that includes a stand and at least one funnel. Each of the at least one funnel defines an interior chamber. The method includes supporting at least one food pouch with the stand of the system and connecting each of the at least one funnel of the system to a respective one of the at least one food pouch. The method further includes filling at least a portion of the interior chamber defined by each of the at least one funnel

with food, and forcing at least a portion of the food out of the interior chamber defined by each of the at least one funnel into a respective one of the at least one food pouch.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Various embodiments will become better understood with regard to the following description, appended claims and accompanying drawings wherein:

[0008] FIG. 1 is a front, top perspective view of a system for filling food pouches according to one embodiment, with portions of two food pouches being shown in association with the system;

[0009] FIG. 2 is a top, rear perspective view of the system of FIG. 1, with portions of three food pouches being shown in association with the system;

[0010] FIG. 3 is a rear perspective view similar to FIG. 2, but with a tray of the system omitted, with one of a plurality of funnels of the system of FIG. 1 being omitted, and with one of the food pouches being depicted spaced apart from the system of FIG. 1;

[0011] FIG. 4 is a top plan view of a portion of an upper support structure of a stand of the system of FIG. 1;

[0012] FIG. 5 is a partially exploded, elevational view depicting a portion of a food pouch, with an associated cap being spaced apart from a spout of the food pouch;

[0013] FIG. 6 is a partially exploded, elevational view depicting a portion of another food pouch, with an associated cap being spaced apart from a spout of the food pouch;

[0014] FIG. 7 is a top, rear perspective view depicting a system for filling food pouches according to another embodiment, with a portion of one food pouch being depicted in association with the system, a first funnel of the system being depicted in a stored position on a lower support structure of a stand of the system, and a second funnel of the system being depicted on an upper support structure of the stand;

[0015] FIG. 8 is a rear elevational view of the system of FIG. 7, depicting the second funnel of the system connected to the food pouch and depicting a third funnel of the system in a stored position on the lower support structure of the stand;

[0016] FIG. 9 is a top, rear perspective view of the stand of the system of FIG. 7;

[0017] FIG. 10 is a top plan view of the stand of the system of FIG. 7;

[0018] FIG. 11 is a bottom plan view of the stand of the system of FIG. 7;

[0019] FIG. 12 is a perspective view of a food pouch according to another embodiment;

[0020] FIG. 13 is a side elevational view of the food pouch of FIG. 12;

[0021] FIG. 14 is a top plan view of the food pouch of FIG. 12;

[0022] FIG. 15 is a perspective, cut-away view depicting one of the funnels of the system of FIG. 7 and depicting a plunger of the system of FIG. 7 positioned partially within the funnel, with the funnel and the plunger being shown apart from the remainder of the system; and

[0023] FIGS. 16A-16E depict a method for filling food pouches according to one embodiment.

DETAILED DESCRIPTION

[0024] FIGS. 1-4 illustrate a system 10 for filling food pouches, for example, food pouches 12 shown in FIGS. 1-3. The system 10 can also be used to fill any of a variety of other

food pouches, for example food pouch 112 (FIGS. 7, 8 and 12-14), food pouch 212 shown in FIG. 5, and food pouch 312 shown in FIG. 6. The system 10 can include a tray 30 and a stand 40 that can be positioned on top of, and supported by, the tray 30. The stand 40 can be configured to receive and support one or more of any of a variety of food pouches, for example, one or more of the food pouches 12, 112, 212 and 312. Stand 40 is shown in FIGS. 2 and 3 to receive and support three (two shown in FIG. 1) of the food pouches 12. However, in other embodiments, stands can be provided that can receive and support a single food pouch, two food pouches, or more than three food pouches.

[0025] The system 10 can also include one or more funnels 70, which can be positioned on top of the stand 40 and can be threaded onto respective ones of the food pouches 12. System 10 can also include at least one plunger 80 that can be used in association with the funnels 70, as subsequently described, to force food through the funnels 70 into respective ones of the food pouches 12. The system 10 can also include a plurality of caps 90 (one shown in FIG. 16E), which can be used to close respective ones of the food pouches 12 after at least partially filling the food pouches 12 with food. In another embodiment, the tray 30 may be omitted, with stand 40 being placed directly on top of a support surface, such as an upper surface of a countertop or a table. The components of system 10, i.e. tray 30, stand 40, funnel 70, plunger 80 and cap 90 can be packaged as a kit of parts, either with or without one or more food pouches, for example one or more of the food pouches 12, 112, 212 and 312.

[0026] Food pouch 12 can include a bag 14 (FIG. 3) that defines a chamber (not shown), and can at least partially collapse when empty. The bag 14 can expand to a predetermined volume to accommodate food being forced into the chamber defined by the bag 14. The food pouch 12 can also include a spout 16 (FIG. 3), which can define a passage that communicates with the chamber defined by the bag 14. The spout 16 can be attached to bag 14 prior to filling bag 14, and can include an upper threaded portion having external, male threads. The spout 16 can also include one or more mount members that can engage the stand 40 such that food pouch 12 can be supported by, and suspended from, the stand 40. In one embodiment, as shown in FIG. 3, the spout 16 can include a pair of axially spaced flanges 18, which can slidably engage the base 40 as subsequently described. In one embodiment, the spout 16 may or may not include a check valve to prevent food from entering the food pouch after initially filling the food pouch.

[0027] The tray 30 can include a base 32 (FIG. 1), or lower support structure, which can include an upper surface 34 (FIG. 2) and a lower surface (not shown). The tray 30 can also include a flange 36 that can extend around a perimeter of the tray 30. The flange 36 can be integral with base 32 and can extend upwardly above the upper surface 34 of the base 32. Flange 36 can have a variety of configurations. For example, the flange 36 can be contoured to achieve an aesthetically pleasing appearance, as shown in FIGS. 1 and 2. In one embodiment, the flange 36 can cooperate with one or more other parts of the tray 30 (e.g., base 32) to retain food that might be spilled during the subsequently described filling process.

[0028] As shown in FIGS. 1-3, the stand 40 can include a left side support structure 41, which can include a lower end portion 42 and an upper end portion 43, and a right side support structure 44, which can include a lower end portion

45 and an upper end portion 46. The stand 40 can also include an upper support structure 48 that can extend between, and can be integral with, the upper end portion 43 of the left side support structure 41 and the upper end portion 46 of the right side support structure 44. The stand 40 can also include a front wall 47, which can include a decorative portion (not shown) formed thereon. The front wall 47 can be integral with at least the upper support structure 48. The stand 40 can be substantially open at a rear end, as shown in FIGS. 2 and 3, to facilitate slidably engaging the food pouches 12 with stand 40. The stand 40 can also be substantially open at a front end, as shown in FIG. 1. The stand 40 can also include various reinforcement members, such as ribs 50 (FIG. 2) secured to the left side support structure 41 and similar ribs (not shown) secured to the right side support structure 44. In other embodiments, stands can be provided that do not include ribs.

[0029] The upper support structure 48 can include an upper surface 52, a plurality of mount receptacles 54, and a perimeter 56 (FIGS. 2-4). As shown in FIG. 4 for one of the mount receptacles 54, each mount receptacle 54 can define an aperture 58, which can be configured to receive the spout 16 of a respective one of the food pouches 12 and can extend through the perimeter 56 of the upper support structure 48. In one embodiment, each aperture 58 can be open at a rear end. Each mount receptacle 54 can include a first rail 60, which can be adjacent to one side of the respective aperture 58, and can further include a second rail 62, which can be laterally spaced from the first rail 60 and can be adjacent to an opposite side of the respective aperture 58. The first rail 60 and the second rail 62 can extend in a generally rearward to forward direction and can cooperate to at least partially define the aperture 58. The first rail 60 can include at least one tab 64, or protrusion, which can extend inwardly into the respective aperture 58. Similarly, the second rail 62 can include at least one tab 66, or protrusion, which can extend inwardly into the respective aperture 58. Each of the mount receptacles 54 can also include a recessed surface 68, which can be planar and can be vertically spaced from the upper surface 52 of the upper support structure 48. Each mount receptacle 54 can also include an upwardly extending wall 69, which can extend in a generally circular arc and can surround the recessed surface 68, and can extend upwardly from the recessed surface 68 to the upper surface 52 of the upper support structure 48.

[0030] Each of the food pouches 12 can slidably engage, and can be supported by, the stand 40. The spout 16 of each food pouch 12 can be aligned with a respective aperture 58 and the respective food pouch 12 can be moved forwardly such that at least one of the flanges 18 of spout 16 can slidably engage the first rail 60 and the second rail 62. For example, in one embodiment, each of the first rail 60 and the second rail 62 can be positioned vertically between the two flanges 18, such that an upper one of the flanges 18 can slide along an upper surface of each of the first rail 60 and the second rail 62 as the spout 16 is moved within the aperture 58. The lower one of the flanges 18 can be spaced from and below the first rail 60 and the second rail 62, or alternatively, can slide along a lower surface of each of the first rail 60 and the second rail 62. Aperture 58, tab 64, tab 66, and spout 16 can be sized such that spout 16 can engage the upper support structure 48 in a snap fit as it slides into a portion of the aperture 58 forward of tabs 64 and 66. In other embodiments, food pouches can be provided with spouts having different configurations that can engage and be supported by stands having the same or different configurations as stand 40 to

achieve a variety of mount or support configurations. The upper support structure **48** can be positioned such that, for each of the food pouches **12**, a bottom of bag **14** is suspended above, or alternatively contacts, the tray **30**, or any of a variety of suitable support surfaces if tray **30** is not used.

[0031] Each of the components of system **10**, i.e., tray **30** (if used), stand **40**, funnel **70**, plunger **80** and cap **90**, can be manufactured from any suitable material. In one embodiment, each of the components can be made of any suitable plastic material, and can be formed using any suitable molding process. In one embodiment, the upper support structure **48** can be integrally formed with the upper end portion **43** of the left side support structure **41**, the upper end portion **46** of the right side support structure **44**, and the front wall **47**, for ease of manufacturing. In this embodiment, the lower end portion **42** of the left side support structure **41** and the lower end portion **45** of the right side support structure **44** can be formed separately. Alternatively, the stand **40** can be formed as a unitary structure.

[0032] The funnel **70** can define an interior chamber **71** which is suitable for receiving food. The funnel **70** can include a housing **72**, which can be generally cylindrically shaped and can define at least a portion of the interior chamber **71**. In other embodiments, funnels can be provided that include housings having other shapes, e.g., frusto-conical shapes, generally pyramidal shapes, rectangular or square tubular shapes, or any other suitable shape. In such embodiments, plungers can be provided that can have different shapes than the shape of plunger **80**, and plungers can be provided that can change shape as they are used to force food downward through an associated housing having a variable cross-section, e.g., a sponge that can change shape to conform to the shape of a variable cross-section housing. The housing **72** can include an inner surface **73**. The funnel **70** can further include a neck **74** (FIGS. **16B-16D**) that can be integral with the housing **72** and can be tapered inwardly, such that the neck **74** can include a minimum inside diameter which can be smaller than an inside diameter of the housing **72** of funnel **70**, which can facilitate forcing food out of the funnel **70**. The funnel **70** can also include a connector **76** that can be integral with the neck **74** and can include internal or female threads, which can be configured to threadedly engage the external, or male threads of the spout **16** of food pouch **12**. When the connector **76** is threadedly engaged with the spout **16**, the chamber defined by the bag **14** of the food pouch **12** can communicate with the interior chamber **71** defined by the funnel **70**, via the passage defined by the spout **16**. The funnel **70** can also include an upper lip **78** (FIG. **1**) that can be integral with an upper end of the housing **72** and can be contoured as desired to achieve an aesthetically pleasing appearance and to guide entry of plunger **80** into the interior chamber **71** defined by funnel **70**.

[0033] Referring to FIGS. **1-3**, **16C** and **16D**, the plunger **80** can include a first end member **82**, a second end member **84** and a connecting member **86** extending between the first end member **82** and the second end member **84** (FIGS. **16C** and **16D**). The first end member **82** can be configured to facilitate grasping the plunger **80** by a hand of a user. In one embodiment, the first end member **82** can be generally disk-shaped, as shown in FIGS. **1-3**, **16C** and **16D**. However, the first end member **82** can have any of a variety of suitable alternative configurations. The connecting member **86** is shown to include a plurality of circumferentially spaced and contoured ribs **87**, but can have any of a variety of suitable alternative

configurations. The second end member **84** can also be generally disk-shaped, as shown in FIGS. **16C-16D**, and can include an outside diameter that can be substantially the same as, or slightly smaller than, the inside diameter of the housing **72** of funnel **70**, such that the second end member **84** can slidably engage the inner surface **73** of the housing **72** of funnel **70**, or can be radially spaced from the inner surface **73** by a relatively small distance. The configuration of end member **84** can facilitate forcing food downward through the housing **72** into and through the neck **74** of funnel **70** and into the food pouch **12**, as a result of pushing downward on the first end member **82**, while preventing or at least substantially preventing food from leaking between a radially outer surface of the second end member **84** and the inner surface **73** of the housing **72** of funnel **70**.

[0034] FIGS. **7-11** illustrate a system **110** for filling food pouches, for example, food pouches **112** (one shown in FIGS. **7**, **8** and **12-14**). The system **110** can also be used to fill any of a variety of other food pouches, for example, food pouch **12** (FIGS. **1-3**), food pouch **212** shown in FIG. **5**, and food pouch **312** shown in FIG. **6**. The system **110** can include a stand **140**, which can be configured to receive and support one or more of any of a variety of food pouches, for example, one or more of the food pouches **12**, **112**, **212** and **312**. Stand **140** is shown in FIGS. **7-9** to be configured to receive and support three food pouches, with one of the food pouches **112** being shown in FIGS. **7** and **8**. However, in other embodiments, stands can be provided that can receive a support a single food pouch, two food pouches, or more than three pouches, but can otherwise be configured the same as, or similar to, stand **140**.

[0035] The system **110** can also include one or more funnels **170**, which can be positioned on top of stand **140** and can be threaded onto a respective food pouch, e.g., food pouch **112**. The system **110** can also include at least one plunger **180**, which can be used in association with the funnels **170**, as subsequently described, to force food through the funnels **170** into respective food pouches, e.g., food pouches **112**. The system **110** can also include any of a variety of caps, such as caps **90** of system **10**, which can be used to close respective food pouches, e.g., food pouches **112**, after at least partially filling the food pouches. The components of system **110**, i.e. stand **140**, funnels **170**, plunger **180** and caps **90** can be packaged as a kit of parts, either with or without one or more food pouches, for example, one or more of the food pouches **12**, **112**, **212** and **312**. Similar to food pouch **12**, the food pouch **112** can include a bag **114** (FIGS. **12-14**) that defines a chamber (not shown) and can at least partially collapse when empty, and can expand to a predetermined volume to accommodate food being forced into the chamber defined by the bag **114**. Food pouch **112** can also include a spout **116**, which can define a passage that communicates with the chamber defined by the bag **114**. The spout **116** can include a pair of axially spaced flanges **118**, which can slidably engage the base **140** as subsequently described. The spout **116** can include an upper threaded portion having external, male threads, which can be threadedly engaged with a funnel **170** during the process of filling, or partially filling, food pouch **112**, and can threadedly engage a cap (e.g., cap **90**) to close pouch **112** after completion of the filling process. Similar to spout **16**, the spout **116** may or may not include a check valve.

[0036] Referring to FIGS. **7-9**, the stand **140** can include a left side support structure **141**, which can include a lower end portion **142** and an upper end portion **143**, and a right side support structure **144**, which can include a lower end portion

145 and an upper end portion **146**. The stand **140** can also include an upper support structure **148** that can extend between the upper end portion **143** of the left side support structure **141** and the upper end portion **146** of the right side support structure **144**. The stand **140** can be substantially open at a rear end, as shown in FIGS. 7-9, to facilitate slidably engaging food pouches (e.g., food pouches **112**) with stand **140**. For example, in one embodiment, the stand **140** can include a rear wall **149**, which can define an opening **151** (FIGS. 7 and 9), which can facilitate slidably engaging food pouches (e.g., food pouches **112**) with stand **140**. The stand **140** can include a front wall **147**, which can define an opening **153** (FIG. 7), such that the stand **140** can also be substantially open at a front end. In one embodiment, the rear wall **149** and the front wall **147** can be integrally formed, using any suitable molding process, with the left side support structure **141** and the right side support structure **144**.

[0037] The stand **140** can also include a lower support structure **130**, which can extend between the lower end portion **142** of the left side support structure **141** and the lower end portion **145** of the right side support structure **144**. The lower support structure **130** can include a base **132**, which can include an upper surface **134** (FIG. 9) and a lower surface **135** (FIG. 11). The base **130** can also include a flange **136** (FIG. 9) that can extend around a perimeter of the base **130**. The lower support structure **130** can also include at least one circular wall **137** extending upwardly from the upper surface **134** of the base **132**, and at least one post **138** extending upwardly from the upper surface **134** of the base **132** and surrounded by a respective circular wall **137** of the lower support structure **130**. The stand **140** can also include a plurality of feet **139**, which can be secured to the base **132** of the lower support structure **130**, and can extend below the lower surface **135** of the base **132**. The configurations of the circular walls **137** and posts **138** can facilitate storing funnels **170** on the base **130**, when not in use, as shown in FIG. 7 for one of the funnels **170**, and as subsequently described.

[0038] The upper support structure **148** can include a floor **120**, which can include an upper surface **121** and a lower surface **122**, as shown in FIG. 7. The upper support structure **148** can also include at least one mount receptacle **154** (FIG. 9). Each mount receptacle **154** can define an aperture **158** (FIGS. 9-10), which can be configured to receive a spout of a food pouch (e.g., spout **116** of food pouch **112**) to facilitate suspending the food pouch (e.g., food pouch **112**) from the stand **140**. In one embodiment, aperture **158** can have an open end **159** (FIG. 10), to facilitate receiving a spout of a food pouch (e.g., spout **116** of food pouch **112**). The upper support structure **148** can include a rim **124** extending upwardly from the floor **120** and around a perimeter of the upper support structure **148**, as shown in FIG. 7.

[0039] Each mount receptacle **154** can include a first rail **160**, which can be adjacent to one side of the respective aperture **158**, and can further include a second rail **162**, which can be laterally spaced from the first rail **160**, and can be adjacent to an opposite side of the respective aperture **158**. The first rail **160** and the second rail **162** can be integral with the floor **120**, and can extend in a generally rearward to forward direction and can cooperate to at least partially define the aperture **158**. In one embodiment, the first rail **160** can include at least one tab (not shown), or protrusion, which can extend inwardly into the respective aperture **158**. Similarly, in one embodiment, the second rail **162** can include at least one tab (not shown), or protrusion, which can extend inwardly

into the respective aperture **158**. In such embodiments, the tabs of rails **160** and **162**, aperture **158**, and the spout of a food pouch (e.g., spout **116** of the food pouch **112**) can be sized and configured such that the spout of the food pouch (e.g., spout **116** of the food pouch **112**) can engage the upper support structure **148** of stand **140** in a snap fit.

[0040] Each of the mount receptacles **154** can also include a recessed surface **168**, which can be planar and can be vertically spaced from the upper surface **121** of the floor **120** of the upper support structure **148**. Each mount receptacle **154** can also include an upwardly extending wall **169**, which can extend in a generally circular arc and can surround the recessed surface **168**. The upwardly extending wall **169** can extend upwardly from the recessed surface **168** to the upper surface **121** of the floor **120** of the upper support structure **148**.

[0041] Each of the components of system **110**, e.g., stand **140**, funnel **170**, plunger **180** and cap **90**, can be manufactured from any suitable material. In one embodiment, each of the components can be made of any suitable plastic material, and can be formed using any suitable molding process. The upper support structure **148** and the lower support structure **130** can be made separately from one another, and separately from the remaining components of stand **140**.

[0042] The funnel **170** and the plunger **180** can be configured similar to, or the same as, funnel **70** and plunger **80** of system **10**, respectively, and can be associated with one another and with stand **140**, in the same or a similar manner as the funnel **70** and plunger **80** are associated with one another and with stand **40** of system **10**. As shown in FIG. 15, the funnel **170** can define an interior chamber **171**, which is suitable for receiving food, and can include a housing **172**, which can be generally cylindrically-shaped and can define at least a portion of the interior chamber **171**. In other embodiments, funnels can be provided that include housings having other shapes, e.g., frusto-conical shapes, generally pyramidal shapes, rectangular or square tubular shapes, or any other suitable shape. In such embodiments, plungers can be provided that can have different shapes than the shape of plunger **180**, and plungers can be provided that can change shape as they are used to force food downward through an associated housing having a variable cross-section, e.g., a sponge that can change shape to conform to the shape of a variable cross-section housing.

[0043] The funnel **170** can further include a neck **174** that can be integral with the housing **172** and can define a portion of the interior chamber **171**. The neck **174** can be tapered inwardly, such that the neck **174** can include a minimum inside diameter which can be smaller than an inside diameter of the housing **172** of funnel **170**, which can facilitate forcing food out of the funnel **170**. The funnel **170** can also include a connector **176** that can be integral with the neck **174** and can be configured to engage the external thread, or threads, of a spout of a food pouch (e.g., spout **116** of food pouch **112**). In one embodiment, the connector **176** can include an outer shell **179** and an inner attachment portion **192**, which can be integral with the outer shell **179** and can include an internal thread, or threads, which can be configured to engage the external thread, or threads, of a spout of a food pouch (e.g., spout **116** of food pouch **112**). When the inner attachment portion **192** is threadedly engaged with a spout of a food pouch (e.g., spout **116** of food pouch **112**), the chamber defined by the bag of the food pouch (e.g., the chamber defined by the bag **114** of food pouch **112**), can communicate

with the interior chamber 171 defined by funnel 170, via the passage defined by the spout of the food pouch (e.g., the passage defined by spout 116 of food pouch 112). The funnel 170 can also include an upper lip 178, which can be integral with an upper end of the housing 172 and can be contoured as desired to achieve an aesthetically pleasing appearance and to guide entry of plunger 180 into the interior chamber 171 defined by funnel 170. When desired, one or more of the funnels 170 can be stored, when not in use, by aligning each funnel to be stored with one of the posts 138 and placing the funnel 170 on top of the base 132 of the lower support structure 130 such that the post 138 can extend into the attachment portion 192 of the connector 176 of the funnel 170, and the outer shell 179 of the connector 176 can rest on the upper surface 134 of the base 132, surrounded by one of the circular walls 137.

[0044] As shown in FIG. 15, the plunger 180 can include a first end member 182, a second end member 184 and a connecting member 186 extending between the first end member 182 and the second end member 184. The first end member 182 can be configured to facilitate grasping the plunger 180 by a hand of a user. In one embodiment, the first end member 182 can be generally disk-shaped. However, the first end member 182 can have any of a variety of suitable alternative configurations. The connecting member 186 is shown to include a plurality of circumferentially spaced and contoured ribs 187, but can have any of a variety of suitable alternative configurations. The second end member 184 can also be generally disk-shaped, as shown in FIG. 15, or can have any other suitable alternative configuration. The second end member 184 can include an outside diameter that can be substantially the same as, or slightly smaller than, an inside diameter of the housing 172 of funnel 170, such that the second end member 184 can slidably engage an inner surface 173 of the housing 172 of funnel 170, or can be radially spaced from the inner surface 173 by a relatively small distance. The configuration of the second end member 184 can facilitate forcing food downward through the housing 172 into and through the neck 174 of funnel 170 and into a food pouch (e.g., food pouch 112), as a result of pushing downward on the first end member 182, while preventing or at least substantially preventing food from leaking between a radially outer surface of the second end member 184 and the inner surface 173 of the housing 172 of funnel 170.

[0045] FIGS. 16A-16E illustrate a method for filling food pouches according to one embodiment, with the method being illustrated with the system 10 and a single food pouch 12. FIG. 16A illustrates tray 30, food pouch 12 and stand 40 in an exploded view, spaced from one another. The stand 40 can be positioned on top of, and supported by, tray 30 as shown in FIG. 16B, with the tray 30 being positioned on any suitable support surface (not shown), for example, an upper surface of a countertop or a table. In other embodiments, the tray 30 can be omitted, and the stand 40 can be positioned directly on any suitable support surface, for example, an upper surface of a countertop or a table. The food pouch 12 can be slidably engaged with, and supported by, the stand 40 as shown in FIG. 16B. The funnel 70 can be positioned on top of the stand 40 and threaded onto the food pouch 12, as illustrated generally in FIGS. 16B and 16C. For example, the connector 76 of the funnel 70 can be threaded onto the spout 16 of the food pouch 12, as indicated generally by arrow 75 in FIG. 16B, with the female threads (not shown) of the connector 76 engaging the male threads of the spout 16 of the food

pouch 12. When the connector 76 is threaded onto spout 16, the connector 76 can engage, or contact, the recessed surface 68 (not shown in FIGS. 16A-16D) of the respective mount receptacle 54. Various food products, which can have a consistency that permits the food product to be poured from one container into another, can be prepared and/or initially contained within a pitcher, blender, or other suitable container, which can have significantly larger volume than food pouch 12, with a portion of the food then being poured into the funnel 70, as indicated generally by the arrow 77 in FIG. 16C. The food, which can be a wide variety of foods, for example applesauce, pudding, custard, or any other food of the type that is typically available in baby food jars, can at least partially fill the interior chamber 71 of the funnel 70.

[0046] The plunger 80 can then be inserted into the funnel 70 and pushed downwardly, as indicated generally by arrow 85 in FIGS. 16C and 16D, to force the food out of the funnel 70 and into the food pouch 12. After the food pouch 12 has been filled to a desired level, the funnel 70 can be disconnected, or unscrewed, from the spout 16 of food pouch 12, and the food pouch 12 can be removed from the stand 40. Then the cap 90 can be threaded onto the food pouch 12, as shown in FIG. 16E, to close the food pouch 12. In one embodiment, the male threads of spout 16 and the mating female threads of cap 90 can be configured such that the cap can be tightened or removed in less than one revolution. In other embodiments, one or more revolutions may be required. Also, in other embodiments, caps can be provided for closing food pouch 12, which can have any of a variety of suitable external configurations that can be different than the external configuration of cap 90 shown in FIG. 16E. This process can be repeated with other food pouches, for example food pouches 12, 112, 212, 312 or food pouches having any other suitable configuration.

[0047] Referring to FIGS. 5 and 6, food pouches 212 and 312 can include bags 214 and 314, respectively, spouts 216 and 316, respectively, and can be closed by caps 290 and 390, respectively. The stand 140 of system 110 can be positioned directly on any suitable support surface, for example, an upper surface of a countertop or a table, rather than on a tray such as tray 30. A method of filling food pouches according to another embodiment, using system 110, can otherwise be similar to, or the same as, the method illustrated in FIGS. 16A-16E and described above, using system 10.

[0048] Use of the systems 10, 110 to fill food pouches, for example food pouches 12, 112, 212, and 312 with various food products, for example baby food, can result in various advantages. For example, a caretaker such as a parent or guardian, can prepare a food product of his or her choice, such as may be selected for reasons of nutrition, diet, economy and activity, i.e., location where the food is to be consumed, for instance by preparing the food using a blender. A relatively large volume of the food product can be prepared in this manner and a relatively smaller amount of the food product, for example an amount that is suitable for a child's meal or snack, can be dispensed into one of the food pouches 12, 112, 212 and 312. The closed, self-contained food pouches 12, 112, 212, 312 can be conveniently taken on walks, errands, or longer trips, or frozen for use later. When desired, the cap (e.g., 90) can be removed from the food pouch (e.g., 12) and food can be forced out of the food pouch (e.g., 12) by squeezing the respective bag (e.g., 14), for consumption, for example by a child. The use of the stands 40, 140 to support the food pouches 12, 112, 212, 312 during filling can simplify

this process and can avoid what could otherwise be an awkward and difficult filling process due to the necessity to hold multiple parts during the filling process. Systems **10**, **110** can each include only one, or multiple, funnels (e.g., **70**, **170**) for use in filling multiple food pouches (e.g., **12**, **112**, **212**, and **312**). Also, systems **10**, **110** can each include only one, or multiple, plungers (e.g., **80**, **180**) for use with multiple funnels (e.g., **70**, **170**).

[0049] While various embodiments of a stand of a system for filling food pouches, a system for filling food pouches, and a method for filling food pouches, have been illustrated by the foregoing description and have been described in considerable detail, it is not intended to restrict or in any way limit the scope of the appended claims to such detail. Additional modifications will be readily apparent to those skilled in the art.

What is claimed is:

1. A stand of a system for filling food pouches, the stand comprising:

a first side support structure comprising a lower end portion and an upper end portion;

a second side support structure comprising a lower end portion and an upper end portion; and

an upper support structure, the upper support structure extending between the upper end portion of the first side support structure and the upper end portion of the second side support structure; wherein

the upper support structure comprises at least one mount receptacle, the at least one mount receptacle defining an aperture configured to receive a spout of a food pouch, to facilitate suspending a food pouch from the upper support structure.

2. The stand of claim **1**, wherein:

the at least one mount receptacle comprises a first rail and a second rail laterally spaced from the first rail, the first rail and the second rail cooperating to at least partially define the aperture, the first rail and the second rail being configured to engage a spout of a food pouch.

3. The stand of claim **2**, wherein:

the upper support structure comprises an upper surface; and

the at least one mount receptacle further comprises a recessed surface vertically spaced from the upper surface of the upper support structure, and a wall surrounding the recessed surface and extending upwardly from the recessed surface to the upper surface of the upper support structure.

4. The stand of claim **3**, wherein:

the upper support structure comprises a perimeter; the aperture defined by the at least one mount receptacle extends through the perimeter; and

each of the first rail and the second rail comprises at least one tab extending inwardly into the aperture defined by the at least one mount receptacle.

5. The stand of claim **2**, wherein:

the upper support structure further comprises a floor, the floor comprising an upper surface and a lower surface; and

the at least one mount receptacle further comprises a recessed surface vertically spaced from the upper surface of the floor, and a wall surrounding the recessed surface and extending upwardly from the recessed surface to the upper surface of the floor.

6. The stand of claim **5**, wherein:

the aperture defined by the at least one mount structure comprises an open end; and each of the first rail and the second rail is integral with the floor.

7. The stand of claim **6**, wherein:

the upper support structure further comprises a perimeter and a rim extending upwardly from the floor of the upper support structure and around the perimeter of the upper support structure.

8. The stand of claim **5**, further comprising:

a lower support structure integral with each of the lower end portion of the first side support structure and the lower end portion of the second side support structure, the lower support structure comprising a base, the base comprising an upper surface and a lower surface; wherein

the lower support structure further comprises at least one circular wall extending upwardly from the upper surface of the base and at least one post extending upwardly from the upper surface of the base and surrounded by a respective one of the at least one circular wall.

9. The stand of claim **2**, wherein:

the at least one mount receptacle comprises a plurality of the mount receptacles.

10. A system for filling food pouches, the system comprising:

a stand comprising a first side support structure, a second side support structure, and an upper support structure, the first side support structure comprising a lower end portion and an upper end portion, the second side support structure comprising a lower end portion and an upper end portion, the upper support structure extending between the upper end portion of the first side support structure and the upper end portion of the second side support structure;

at least one funnel configured for selective contacting engagement with the upper support structure of the stand and configured for connection to a food pouch suspended from the stand, each of the at least one funnel defining an interior chamber configured to receive food; and

a plunger configured for selective, sliding engagement with each of the at least one funnel, within the interior chamber defined by each respective funnel, to facilitate forcing food out of the interior chamber into a respective food pouch suspended from the upper support structure of the stand.

11. The system of claim **10**, wherein:

the upper support structure comprises at least one mount receptacle, the at least one mount receptacle defining an aperture configured to receive a spout of a respective food pouch suspended from the stand.

12. The system of claim **11**, wherein:

the at least one mount receptacle comprises a first rail and a second rail laterally spaced from the first rail, the first rail and the second rail cooperating to at least partially define the aperture.

13. The system of claim **12**, wherein:

the upper support structure of the stand comprises an upper surface; and

the at least one mount receptacle further comprises a recessed surface vertically spaced from the upper surface of the upper support structure, and a wall surround-

ing the recessed surface and extending upwardly from the recessed surface to the upper surface of the upper support structure.

14. The stand of claim **13**, wherein:

the upper support structure comprises a perimeter; and the aperture defined by the at least one mount receptacle extends through the perimeter.

15. The system of claim **10**, wherein:

the at least one mount receptacle comprises a plurality of the mount receptacles and the at least one funnel comprises a plurality of the funnels, each of the funnels being in selective contacting engagement with a respective one of the mount receptacles.

16. The system of claim **12**, wherein:

the upper support structure comprises a floor, the floor comprising an upper surface and a lower surface; and the at least one mount receptacle further comprises a recessed surface vertically spaced from the upper surface of the floor, and a wall surrounding the recessed surface and extending upwardly from the recessed surface to the upper surface of the floor.

17. The system of claim **16**, wherein:

the aperture defined by the at least one mount structure comprises an open end; and each of the first rail and the second rail is integral with the floor.

18. The system of claim **17**, wherein:

the upper support structure further comprises a perimeter and a rim extending upwardly from the floor of the upper support structure and around the perimeter of the upper support structure.

19. The system of claim **12**, further comprising:

a lower support structure integral with each of the lower end portion of the first side support structure and the lower end portion of the second side support structure, the lower support structure comprising a base, the base comprising an upper surface and a lower surface; and the lower support structure further comprises at least one circular wall extending upwardly from the upward surface of the base, and at least one post extending upwardly from the upper surface of the base and surrounded by a respective one of the at least one circular wall.

20. The system of claim **10**, wherein:

for each of the at least one funnel, the funnel comprises a housing comprising an inner surface and the funnel further comprises a neck that is integral with the housing, and a connector that is integral with the neck, the connector being configured to threadedly engage a spout of a food pouch.

21. The system of claim **20**, wherein:

the plunger comprises a first end member, a second end member and a connecting member extending between the first end member and the second end member, the first end member being configured to facilitate grasping the plunger by a hand of a user, and the second end member being configured to slidably engage the inner surface of the housing of the funnel.

22. The system of claim **21**, wherein:

each of the first end member and the second end member of the plunger is generally disk-shaped.

23. A method for filling food pouches using a system comprising a stand and at least one funnel, each of the at least one funnel defining an interior chamber, the method comprising:

supporting at least one food pouch with the stand of the system;

connecting each of the at least one funnel of the system to a respective one of the at least one food pouch;

filling at least a portion of the interior chamber defined by each of the at least one funnel with food; and

forcing at least a portion of the food out of the interior chamber defined by each of the at least one funnel into a respective one of the at least one food pouch.

24. The method of claim **23**, wherein the system further comprises a plunger, and wherein:

forcing comprises selectively inserting the plunger into the interior chamber defined by each of the at least one funnel, and pushing the plunger downwardly to force at least a portion of the food within the respective interior chamber into a respective one of the at least one food pouch.

25. The method of claim **24**, wherein the stand of the system comprises an upper support structure, and wherein:

supporting comprises suspending each of the at least one food pouch from the upper support structure of the stand of the system.

26. The method of claim **25**, wherein:

suspending comprises slidably engaging each of the at least one food pouch with the upper support structure of the stand of the system.

27. The method of claim **26**, wherein:

connecting comprises threading each of the at least one funnel of the system onto a spout of a respective one of the at least one food pouch.

28. The method of claim **27**, wherein the system further comprises at least one cap, and wherein the method further comprises:

removing each of the at least one food pouch from the stand; and

closing each of the at least one food pouch with a respective one of the at least one cap.

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