US005513780A

United States Patent [19]

Buono

[11] **Patent Number: 5,513,780**

[45] **Date of Patent: May 7, 1996**

[54] **UNITARY NOZZLE AND HANDLE COMBINATION**

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[21] Appl. No.: **253,666**

[22] Filed: **Jun. 3, 1994**

[51] **Int. Cl.**[6] **A47G 19/00**

[52] **U.S. Cl.** **222/468**; 222/475

[58] **Field of Search** 222/468, 475, 222/481, 481.5, 545, 562, 551

[56] **References Cited**

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653,944	7/1900	Bultez .
1,130,967	3/1915	Boé .
3,159,320	12/1964	Scholtz .
3,181,733	5/1965	Marler .
3,231,138	1/1966	Serafini .
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1050613	12/1966	United Kingdom .

Primary Examiner—Gregory L. Huson

Attorney, Agent, or Firm—Cohen, Pontani, Lieberman, Pavane

[57] **ABSTRACT**

A pressure insertable unitary nozzle and handle combination for interlocking insertion into a pair of spaced openings in the top of a container. Each opening is provided with an inwardly directed annular flange for securing the unitary nozzle and handle to the container. Accordingly, the unitary nozzle and handle is adapted to snap tightly over the spaced openings so as to provide a fluid-tight seal at these contact regions.

23 Claims, 6 Drawing Sheets

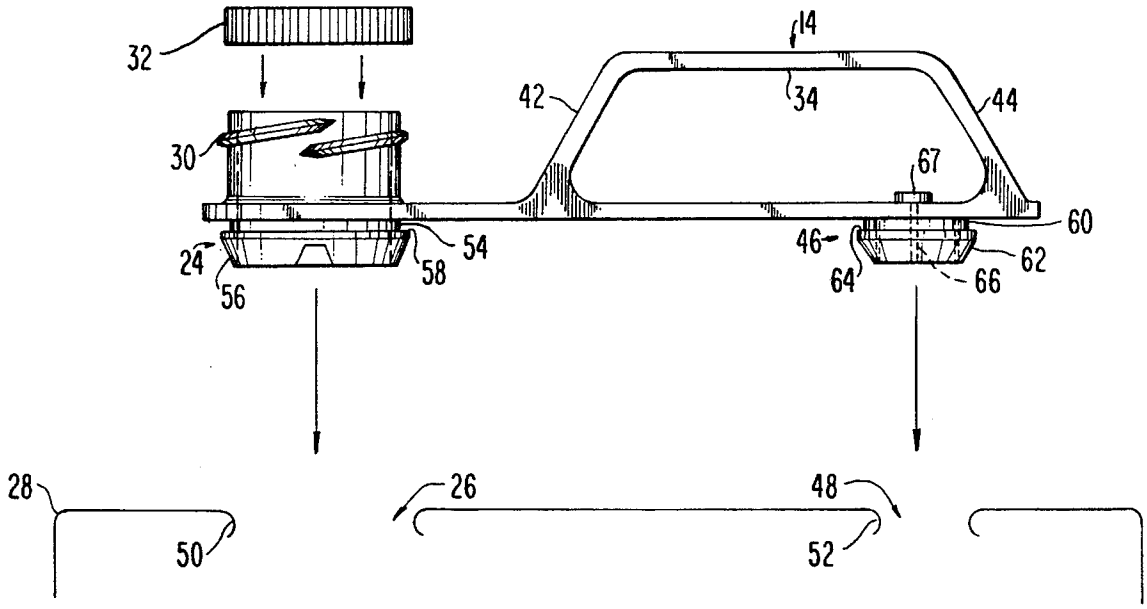
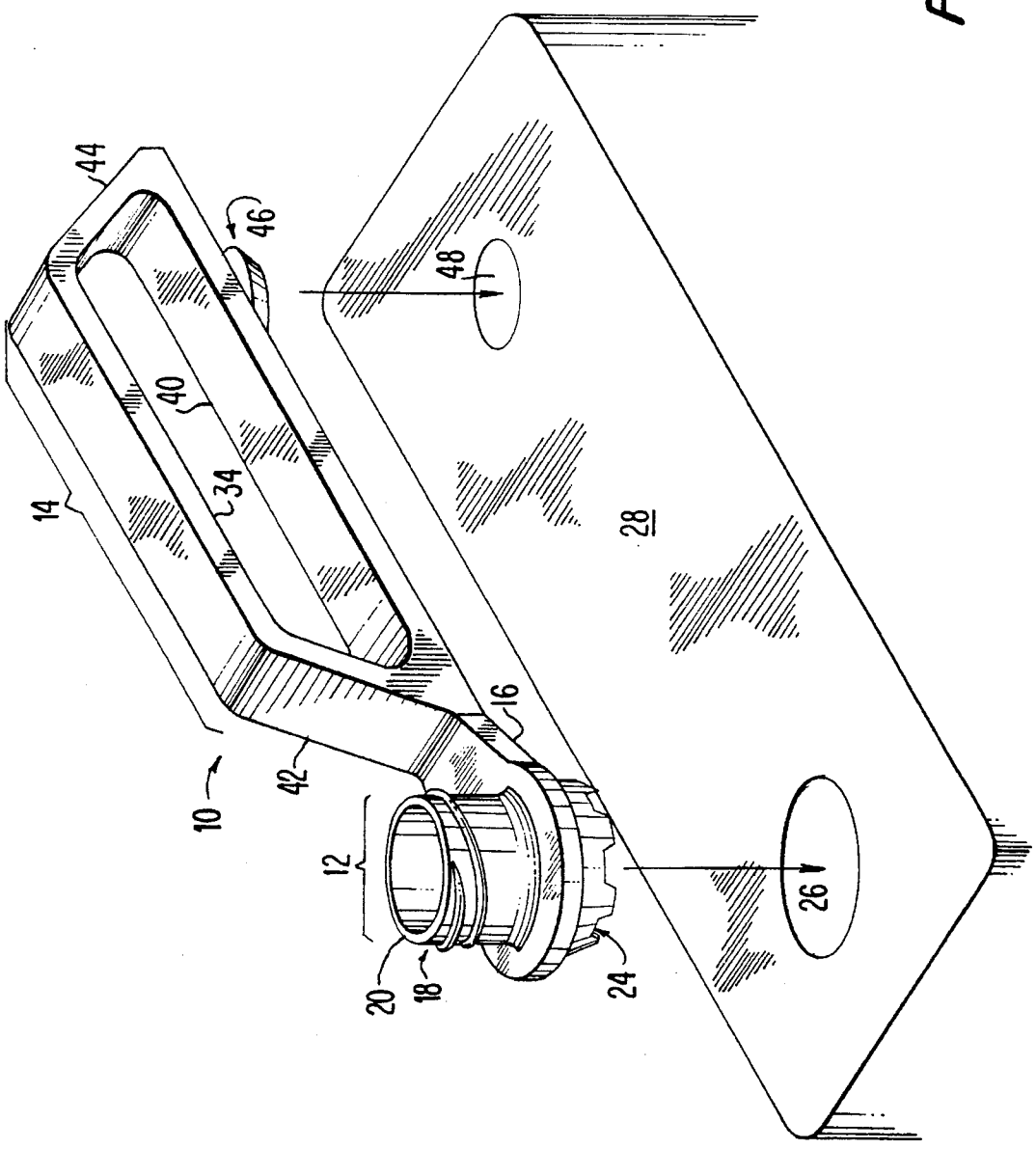


FIG. 1



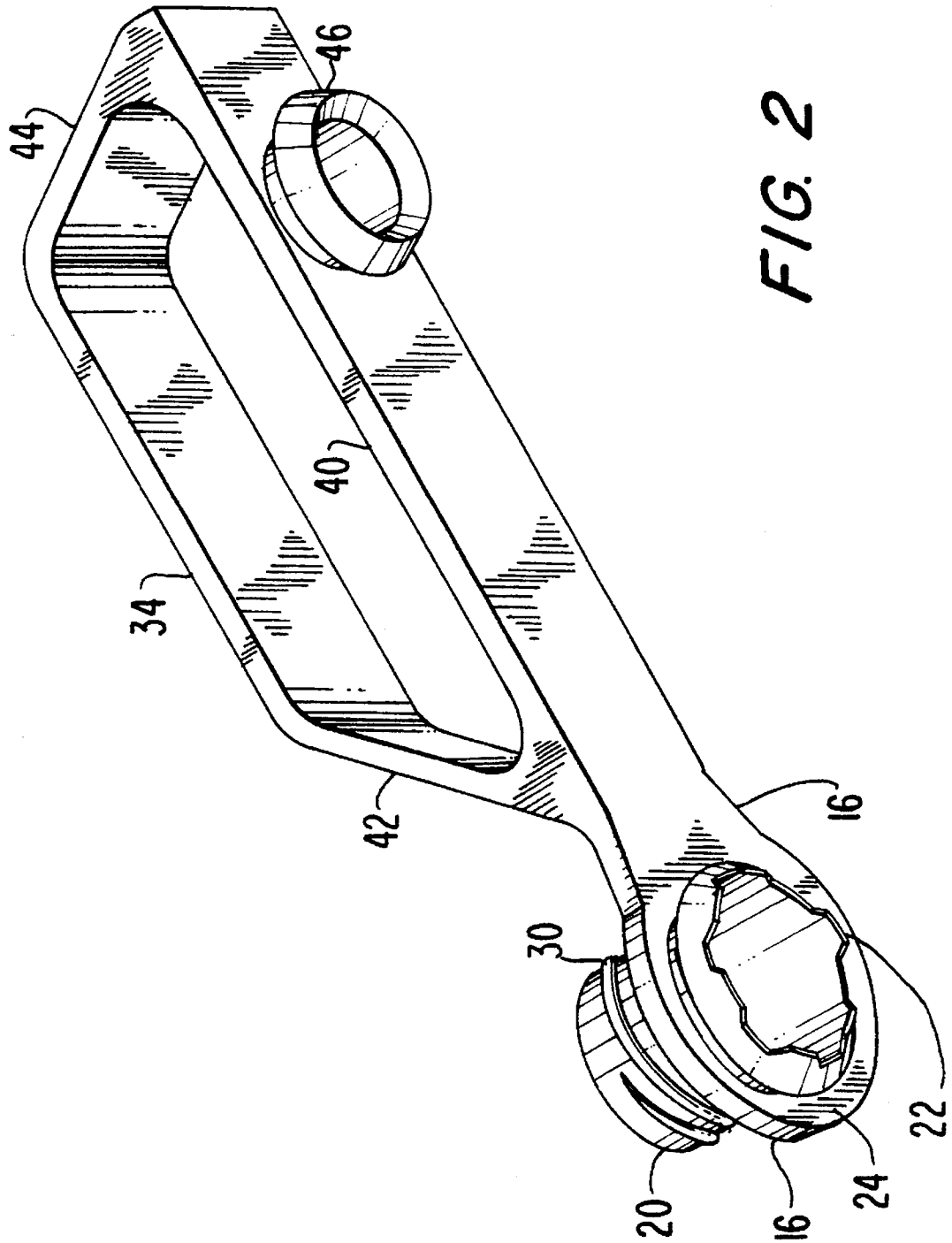


FIG. 2

FIG. 3

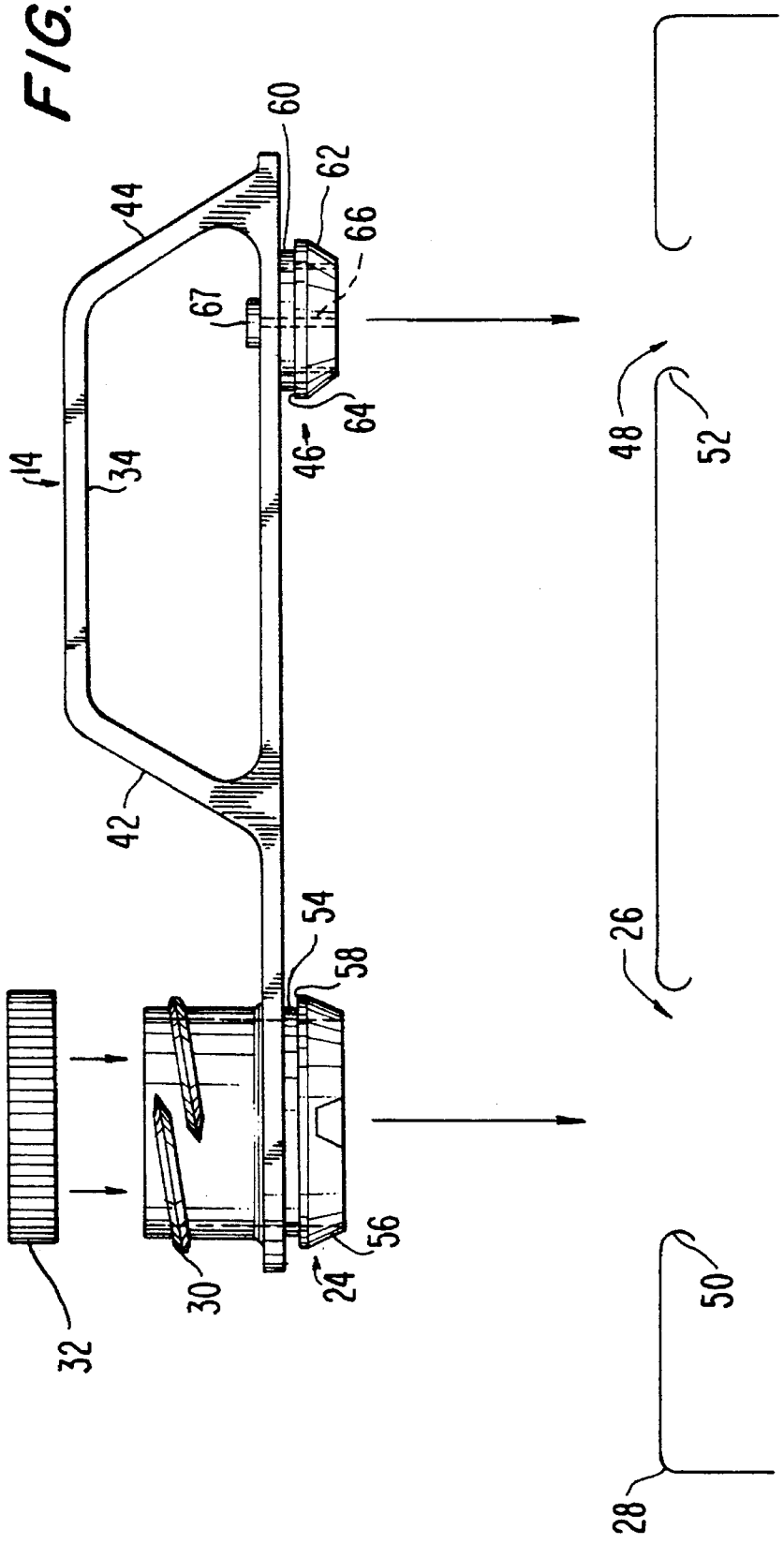


FIG. 4

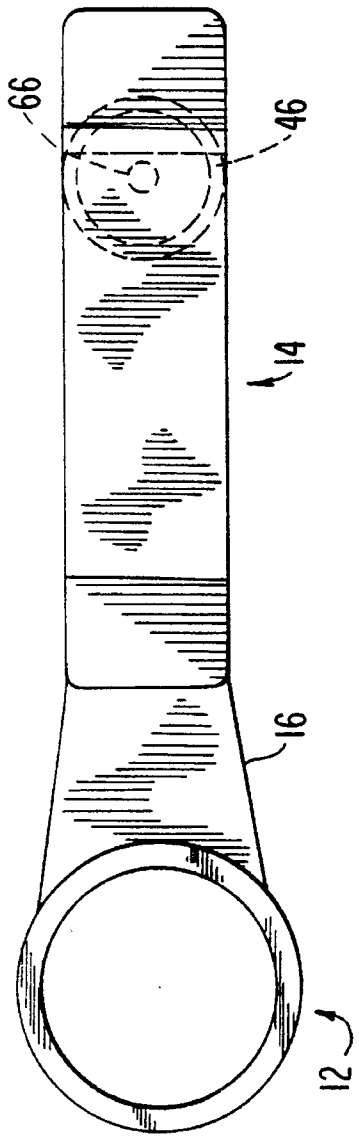
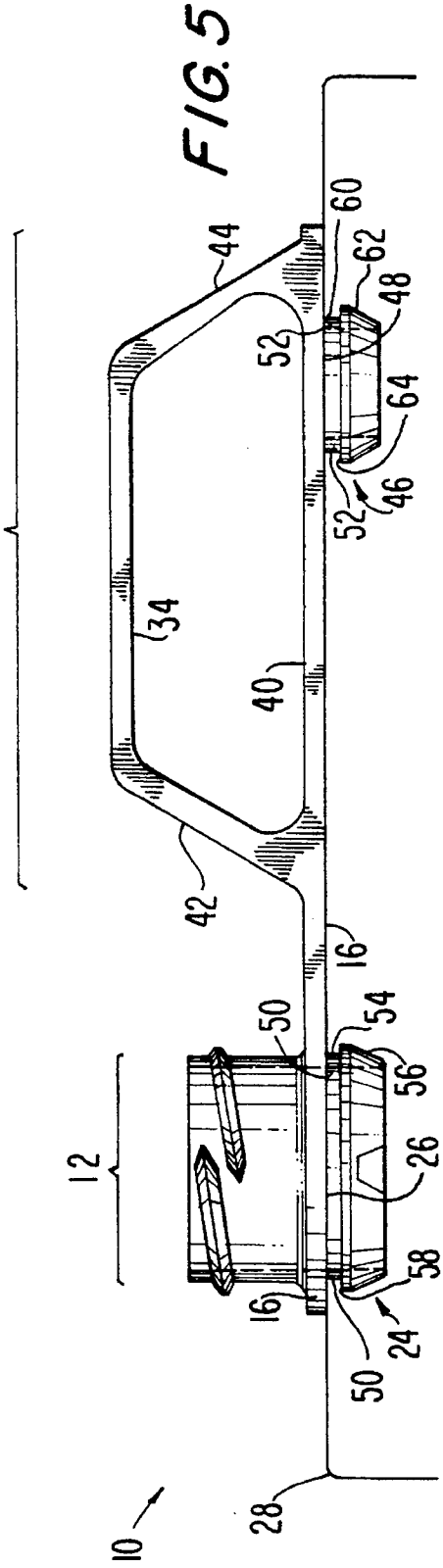

66
46
14
16
12

FIG. 5


14
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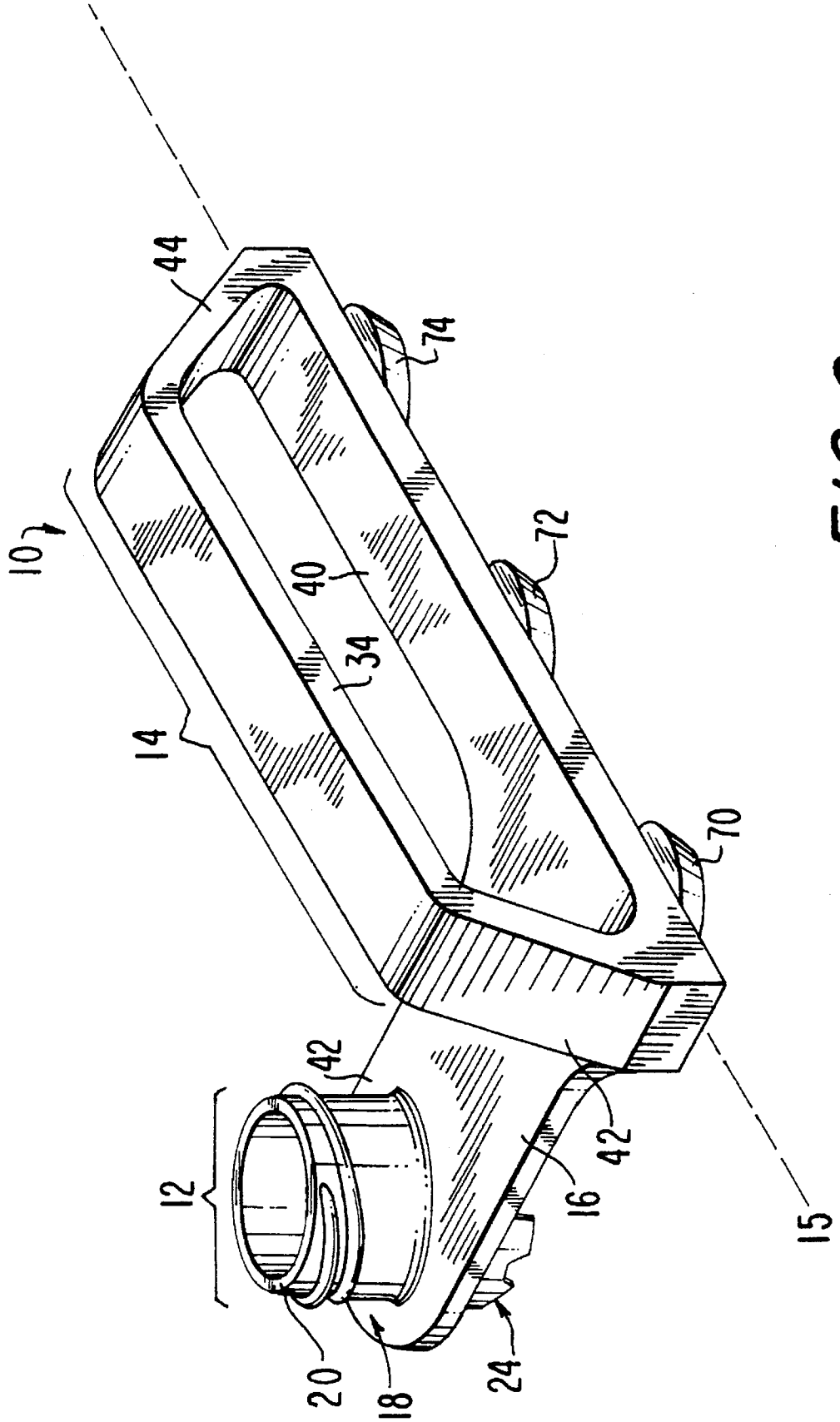

FIG. 6

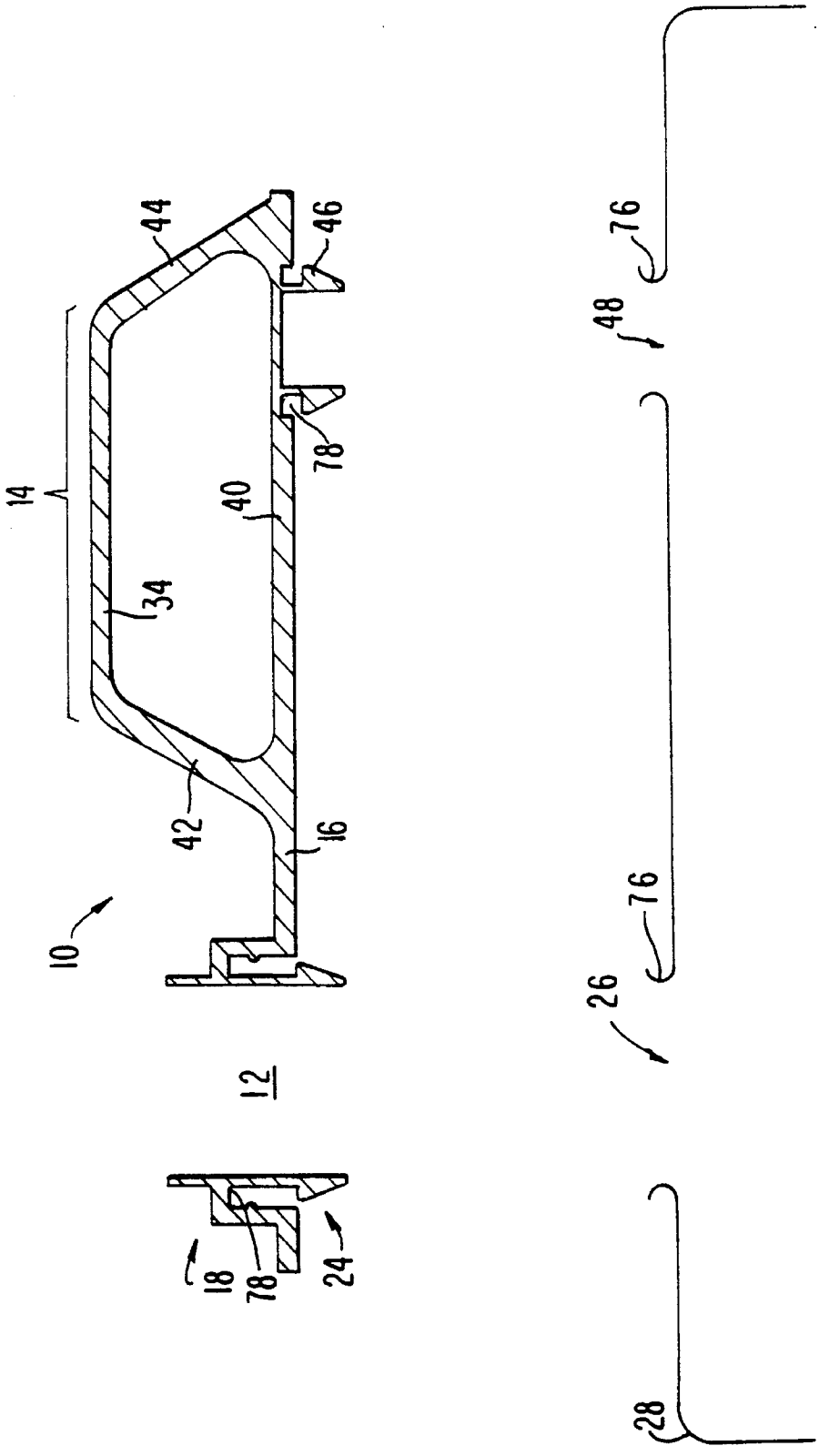

FIG. 7

UNITARY NOZZLE AND HANDLE COMBINATION

FIELD OF THE INVENTION

This invention relates to a pressure insertable nozzle and handle combination formed of a single piece of material for interlocking insertion into a container.

BACKGROUND OF THE INVENTION

Pressure insertable plastic nozzle devices for openings in metallic containers and the like are known. Generally, the nozzle device is manufactured as a component separate from the handle and is force fitted into an opening in the container whereby a seal is effected by the radial sealing force exerted by the nozzle device against the edge of the opening in the container. However, prior art nozzle devices have suffered from a variety of drawbacks and deficiencies.

For example, U. K. Patent document 1,050,613 to Robinson discloses a nozzle that is inserted and locked into an opening in a container.

U.S. Pat. No. 653,944 to Bultez discloses a tap or nozzle fixed to the top of a receptacle by any suitable means, such as by screwing or soldering. The tap consists of a tubular body, a lateral orifice, a rotatable sleeve over the orifice, a spout projecting from the sleeve and a threaded portion for receiving a screw-type cap. To admit air into the receptacle through a perforation provided in the cap, a hollow air conduit extends from the tap at one end of the receptacle to the interior of the receptacle at the other end. The air conduit also serves as a handle for the container.

U.S. Pat. No. 3,159,320 to Scholtz discloses a container having two plugs, a nozzle and a vent plug mounted into the top of the container and connected by a metal handle. The ends of the handle are secured to the top of the container by the plugs. However, because this design employs a number of separate components which must be individually mounted onto the container, the design does not offer the advantages of simplicity, convenience and economies provided by the unitary structure of the present invention.

OBJECTS AND SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide a pressure insertable interlocking unitary nozzle and handle combination that provides an effective seal to prevent leakage of fluids which may otherwise cause rust and/or corrosion of the metal container.

Another object of the invention is to provide a pressure insertable interlocking unitary nozzle and handle combination which sealingly engages a pair of openings in the top of a container when inserted into the openings.

A further object of the invention is to provide such an interlocking unitary nozzle and handle combination having engagement means for securing the unitary structure to the container for preventing rotation of the structure relative to the container.

Still another object of the invention is to provide a nozzle and handle combination with simple structure made of a single component so that its production and assembly are minimized.

Yet another object of the invention is to provide a simple one-piece nozzle and handle combination which does not need to be welded to the metal container.

The present invention is thus directed to a unitary or one-piece pressure insertable interlocking nozzle and handle combination which can be mounted into spaced openings in the top of a typically metallic container. The nozzle and handle combination is mounted to the container in at least two places thereby providing a superior seal between the nozzle and handle structure and the container. Additionally, by providing a multiple engagement means between the container and the nozzle and handle assembly, torsional rotation of the structure relative to the container is prevented. Accordingly, leakage, rust and/or corrosion, as well as torsional rotation of the nozzle and handle structure relative to the container are minimized.

Specifically, the unitary structure of the present invention is suitable for use with a metallic container having openings with inwardly or outwardly directed annular flanges, although any type container having such inwardly or outwardly directed annular flange may be utilized. The unitary structure is provided with a nozzle portion, a handle portion and a flange member connecting the two. The nozzle is provided with a tubular neck body having a dispensing end and an opposed container end, the container end comprising a first engagement means for engagement with a corresponding opening in the container. The handle is provided with a grasping portion shaped as to be suitable for grasping by a user, a base portion, and a second engagement means extending outwardly from the base for engagement with a corresponding opening in the container. The length of the base portion may extend beyond the grasping potion. A flange member is disposed between the dispensing and container ends of the tubular neck body of the nozzle, thereby forming the unitary structure. The openings in the container are preferably formed so that they each have annular flanges circumscribing the opening.

The first engagement means further comprises a first collar that has an upper surface disposed so that when the nozzle portion is inserted into a corresponding opening in the container, the annular flange in the container's opening interlocks with the upper surface of the ridge member or collar to form a substantially fluid-tight seal between the container opening and the nozzle.

The second engagement means also comprises a second collar that has an upper surface disposed so that when the handle portion is inserted into the securement opening of the container, the annular flange interlocks with the upper surface of the second collar member to form a substantially fluid-tight seal between the container opening and the handle. Additionally, by providing this second engagement means, torsional rotation of the unitary structure relative to the container is prevented.

Assembly of the pressure insertable interlocking nozzle and handle structure into the openings of the container is simple. The unitary nozzle and handle structure, which is proportioned to fit snugly in the container openings, is oriented above the container openings and is press-fit inserted into the openings. As the nozzle and handle structure is inserted into the container openings, the engagement means lock or snap onto the annular flanges of the openings in the container. An efficient fluid tight seal between the container openings and the unitary structure is thereby assured in a simple and efficient assembly process.

Examples of suitable caps for engagement with the inventive nozzle and handle structure are screw-on type caps or bayonet lug-type caps. The pressure insertable interlocking nozzle and handle structure of the present invention may be formed of a plastic material, and the container—including

the integral annular flanges—may be fabricated of a metallic material such as aluminum, stainless steel or galvanized metal.

These and other objects and features of the present invention will become apparent from the following detailed description considered in conjunction with the accompanying drawings. It is to be understood, however, that the drawings are designed solely for purposes of illustration and not as a definition of the limits of the invention, for which reference should be made to the appended claims.

DETAILED DESCRIPTION OF THE DRAWINGS

In the drawings, wherein like reference numerals identify similar elements throughout the several views;

FIG. **1** is a perspective top view of the pressure insertable interlocking unitary nozzle and handle combination of the present invention;

FIG. **2** is a perspective bottom view of the pressure insertable interlocking nozzle and handle combination of the present invention;

FIG. **3** is a side view of the pressure insertable interlocking nozzle and handle combination of the present invention shown proximate to the cross-sectional view of the container top with appropriately positioned openings;

FIG. **4** is a bottom plan view of the pressure insertable interlocking nozzle and handle combination of the present invention;

FIG. **5** is a side view of the pressure insertable interlocking unitary nozzle and handle combination of the present invention mounted onto a container;

FIG. **6** is a perspective top view of another embodiment of the pressure insertable interlocking unitary nozzle and handle combination of the invention; and

FIG. **7** is a cross-sectional side view of the pressure insertable interlocking nozzle and handle combination showing upwardly extending, annular flanges on the container.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. **1–5** of the drawings, the pressure insertable interlocking nozzle and handle combination or unitary structure **10** of the present invention is provided with a nozzle portion **12**, a handle portion **14** and an outwardly extending flange member **16** connecting portions **12** and **14**. The nozzle portion **12** is provided with a tubular neck body **18** having a dispensing end **20** and a container end **22** which comprises a first engagement means **24** for engagement with a corresponding nozzle opening **26** in a container **28**. The nozzle portion **12** is also provided with a threaded neck portion **30** at the dispensing end **20** for threaded engagement with a conventional threaded screw-type cap **32** or other suitable closing means known in the art.

The handle portion **14** is provided with a grasping portion **34** with two legs **42**, **44** at opposite ends thereof, a base portion **40** connecting the legs **42**, **44** and a second engagement means **46** which extends downwardly from the base **40** for engagement with a corresponding securement opening **48** in container **28**. In this embodiment, the axis of the handle portion **14** is aligned with the nozzle portion **12**.

The flange member **16** is connected to the tubular neck body **18** between the dispensing and container ends **20**, **22**, and connects the tubular neck body **18** to the base portion **40** of handle **14** thereby uniting the nozzle and handle portions **12**, **14** to form a unitary structure.

The container **28**, which is may be made of any material including a metallic material such as aluminum or galvanized steel, is provided with a pair of spaced openings **26**, **48** which have inwardly extending annular flanges **50**, **52** as shown in FIGS. **3** and **5**. As well, the container may be provided with outwardly extending annular flanges **76** as shown in FIG. **7**.

As shown in FIGS. **1**, **2**, **3** and **5**, the first engagement means **24** comprises a downwardly projecting neck **54** integral with a first collar **56**. This first collar **56** has an upper surface **58** disposed so that when the nozzle portion **12** is inserted into the corresponding nozzle opening **26** of the container **28**, the annular flange **50** of the container **28** interlocks with the upper surface **58** of the collar **56** to form a substantially fluid-tight seal between the container opening **26** and the nozzle portion **12**.

The second engagement means **46** also comprises a downwardly extending neck **60** and a collar **62**. This second collar **62** has an upper surface **64** disposed so that when the handle portion **14** is inserted into the securement opening **48** of the container **28**, the annular flange **52** interlocks with the tipper surface **64** of the second collar **62** to form a substantially fluid-tight seal between the container opening **48** and the handle portion **14**. In the embodiment of the present invention shown in FIGS. **1**, **2** and **5**, second engagement means **46** acts as a plug to securement opening **48**. Additionally, by providing this second engagement means **46**, torsional rotation of the unitary structure **10** relative to the container **28** is prevented. Although the unitary structure **10** is shown in FIGS. **1** to **5** as having only one second engagement means **46** that attaches the handle portion **14** to the container **28**, the unitary structure **10** may alternatively include additional second engagement means **70**, **72** and **74** as shown in FIG. **6**, which is discussed in detail below.

The unitary structure **10**, which may be formed of plastic or any suitably resilient or compressible material, is proportioned to fit snugly in the container openings **26**, **48**. As shown in FIGS. **1** and **3**, mounting of the unitary structure **10** onto a container **14** is accomplished by orienting the unitary structure **10** above the container openings **26**, **48** and is then push-fit inserted into the openings **26**, **48**. As the unitary structure **10** is inserted into the container openings **26**, **48**, the annular flanges **50**, **52** of the openings **26**, **48** ride along the collars **56**, **62** of the unitary structure **10** until the annular flanges **50**, **52** lock or snap into abutment with the upper surfaces **58**, **64** of the inwardly extending ridge members **56**, **62** as shown in FIG. **5**. In this manner, the annular flanges **50**, **52** of the container openings **26**, **48** are compressed against the necks **54**, **60** of the engagement means **24**, **46** and the upper surfaces **58**, **64** of the collars **56**, **62** to form a fluid tight, snug seal at the interface of the container **28** and unitary structure **10**. To improve the fluid tightness of the seal between container **28** and unitary structure **10**, resilient gaskets may be mounted oil the engagement means **24**, **46** between the uniting structure **10** and the openings **26**,**48** in the container **28**. These resilient gaskets may be a rubber or rubber like material or may be applied in liquid form as a caulking compound.

By attaching the unitary structure **10** to the container **28** in two places, loosening or tightening of the cap **32** will not cause the unitary structure **10** to rotate relative to the container **28**, thereby and, in addition, the fluid-tight sealing engagement of the unitary structure **10** and container **28** is further enhanced.

In the embodiment of the present invention shown in FIG. **3**, the base portion **40** of the handle **14** contains an aperture **66** which passes through the second engagement means **46** for admitting air into the container **28** to dissipate any vacuum therein and aid in the flow of fluid out of the container **28**. In this embodiment, a cap **67** is preferably utilized to effectively seal the aperture **66**. Alternatively, a one way valve may be substituted for the cap **67**. The valve is mounted so that air can pass through the valve into the container but air and fluid cannot pass out of the container through the valve.

In the alternate embodiment of the unitary structure **10** of the present invention shown in FIG. **6**, the handle portion **14** of the unitary structure **10** is not aligned with the nozzle portion **12** so that the unitary structure **10** is substantially L-shaped. The outwardly extending flange member **16** is substantially 90° relative to the axis of the handle portion **14**. Alternatively, the nozzle portion **12** may be any other angle relative to the axis **15** of the handle portion **14**. Additionally, the nozzle portion **12** may be connected proximate to the center of the handle portion **14** so as to form a T-shaped unitary structure. Similar to the embodiment shown in FIG. **1**, the nozzle portion **12** is provided with a tubular neck body **18** having a dispensing end **20** and a container end **22** which comprises a first engagement means **24** for engagement with a corresponding nozzle opening **26** in a container **28**. The handle portion **14** is provided with a grasping portion **34** with two legs **42, 44** at opposite ends thereof and a base portion **40** connecting the legs **42, 44**. To securely mount the handle portion **14** to the container **28**, three engagement means **70, 72, 74** are also provided which extend downwardly from the base **40** for engagement with corresponding securement openings (not shown) in the container **28**. As is evident, any number of engagement means may be employed to facilitate securement of the unitary structure **10** to the container **28**.

As shown in FIG. **7**, the container **28** may be provided with annular flanges **76** which are integral with the container **28** and are outwardly extending. Similar to the embodiment described in FIG. **1**, when the handle portion **14** is inserted into the securement openings **26, 48** of the container **28**, the annular flange **76** interlocks with lower surfaces **78** of the collars **24, 46** to form a substantially fluid-tight seal between the container openings **26, 48** and the unitary structure **10**.

It should be understood that the preferred embodiments and examples described are for illustrative purposes only and are not to be construed as limiting the scope of the present invention which is properly delineated only in the appended claims.

What is claimed is:

1. A combined nozzle and handle structure for insertion into a plurality of spaced openings in the top of a container comprising:

a nozzle having a fluid passageway therethrough and a first engagement means for interlocking and sealing engagement of said nozzle with said container top within a first of the plurality of openings in said top;

a handle having a grasping portion shaped for grasping by a user, a base portion fixedly attached to said grasping portion and disposed directly beneath said grasping portion, and a second engagement means extending from said base portion for interlocking and sealing engagement of said base portion with said container top within a second of the plurality of openings in the container; and

a flange member connecting said nozzle and handle;

said nozzle, handle and flange member being formed from a single piece of material.

2. The nozzle and handle structure of claim **1**, wherein said first and second engagement means comprise first and second collars, respectively, for engaging with the first and second openings, respectively, in the container.

3. The nozzle and handle structure of claim **1**, wherein said nozzle further comprises a threaded neck portion at a dispensing end thereof for threaded engagement with a threaded screw-type cap.

4. The nozzle and handle structure of claim **1**, wherein said structure is formed of a plastic material.

5. The nozzle and handle structure of claim **1**, wherein the base of the handle further comprises an aperture extending through said second engagement means for the passage of air into the container.

6. The nozzle and handle structure of claim **1**, wherein said handle is aligned with said nozzle and spout.

7. The nozzle and handle structure of claim **1**, wherein said handle further comprises a third engagement means extending from said base portion for interlocking and sealing engagement of said base portion within a third of the plurality of openings in the container.

8. The nozzle and handle structure of claim **1**, wherein said handle further comprises a fourth engagement means extending from said base portion for interlocking and sealing engagement of said base portion within a fourth of the plurality of openings in the container.

9. The nozzle and handle structure of claim **1**, wherein said handle is not aligned with said nozzle and spout.

10. The nozzle and handle structure of claim **9**, wherein said handle further comprises a third engagement means extending from said base portion for interlocking and sealing engagement of said base portion within a third of the plurality of openings in the container.

11. The nozzle and handle structure of claim **10**, wherein said handle further comprises a fourth engagement means extending from said base portion for interlocking and sealing engagement of said base portion within a fourth of the plurality of openings in the container.

12. A container for fluids comprising:

a fluid tight vessel having a top wall with at least two openings therein, said openings being spaced apart from one another; and

a combined nozzle and handle structure fixedly mounted on the outer surface of said top wall of said vessel, said combined nozzle and handle structure comprising:

a nozzle having a fluid passageway therethrough, a first engagement means interlockingly and sealingly engaged with said top wall within a first of the openings in the top wall of the vessel;

a handle having a grasping portion shaped for grasping by a user, a base portion fixedly attached to said grasping portion and disposed directly beneath said grasping portion, and a second engagement means extending from said base portion for interlocking and sealing engagement with a second of the openings in the top wall of the vessel; and

a flange member connecting said nozzle and handle;

said nozzle, handle and flange member being integrally formed from a single piece of material.

13. The container of claim **12**, wherein said first and second engagement means comprise first and second collars, respectively, for engaging with the first and second openings, respectively, in said vessel.

14. The container of claim **12**, wherein said nozzle further comprises a threaded neck portion at a dispensing end

thereof for threaded engagement with a threaded screw-type cap.

15. The container of claim **12**, wherein said combined nozzle and handle structure is formed of a plastic material.

16. The container of claim **12**, wherein the base of said handle further comprises an aperture extending through said second engagement means for the passage of air into the vessel.

17. The container of claim **12**, wherein said handle is aligned with said nozzle and spout.

18. The container of claim **12**, wherein said vessel has three openings and said handle further comprises a third engagement means extending from said base portion interlockingly and sealingly engaged within said third opening in the vessel.

19. The container of claim **18**, wherein said vessel has a fourth opening and said handle further comprises a fourth engagement means extending from said base portion interlockingly and sealingly engaged within said fourth opening in said vessel.

20. The container of claim **12**, wherein said handle is not aligned with said nozzle and spout.

21. The container of claim **20**, wherein said vessel has three openings and said handle further comprises a third engagement means extending from said base portion interlockingly and sealingly engaged within said third opening in said vessel.

22. The container of claim **21**, wherein said vessel has a fourth openings and said handle further comprises a fourth engagement means extending from said base portion interlockingly and sealingly engaged within said fourth opening in said vessel.

23. The container of claim **12**, wherein said openings in said vessel have annular flanges.

* * * * *