



US 20040020890A1

(19) **United States**

(12) **Patent Application Publication**

Tan et al.

(10) **Pub. No.: US 2004/0020890 A1**

(43) **Pub. Date: Feb. 5, 2004**

(54) **INTERCONNECTABLE BOTTLE**

(52) **U.S. Cl. 215/356**

(76) Inventors: **Ko-Cheng Tan, Kaohsiung (TW);
Chia-Fen Lu, Kaohsiung (TW)**

(57) **ABSTRACT**

Correspondence Address:

**Bacon & Thomas
4th Floor
625 Slaters Lane
Alexandria, VA 22314 (US)**

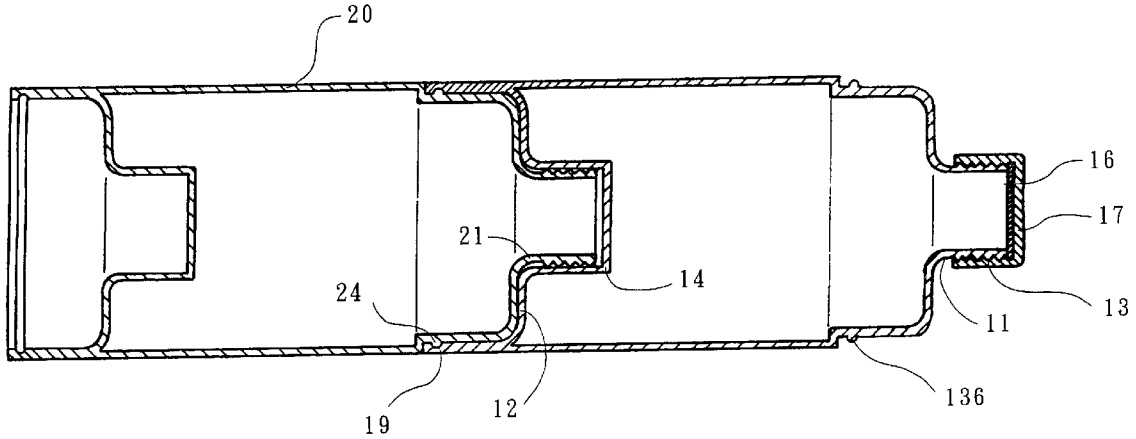
A bottle includes a bottom having a recessed engaging portion for engaging with another similarly constructed bottle without the need of additional connecting members. The recessed engaging portion of the bottom of the bottle includes an inner threading for threading engagement with an outer threading of a mouth of another similarly constructed bottle. In another embodiment, the recessed engaging portion of the bottom of the bottle includes an annular groove or inner threading for engaging with an annular ridge or outer threading formed on a shoulder of another similarly constructed bottle.

(21) Appl. No.: **10/207,888**

(22) Filed: **Jul. 31, 2002**

Publication Classification

(51) **Int. Cl.⁷ B65D 39/08**



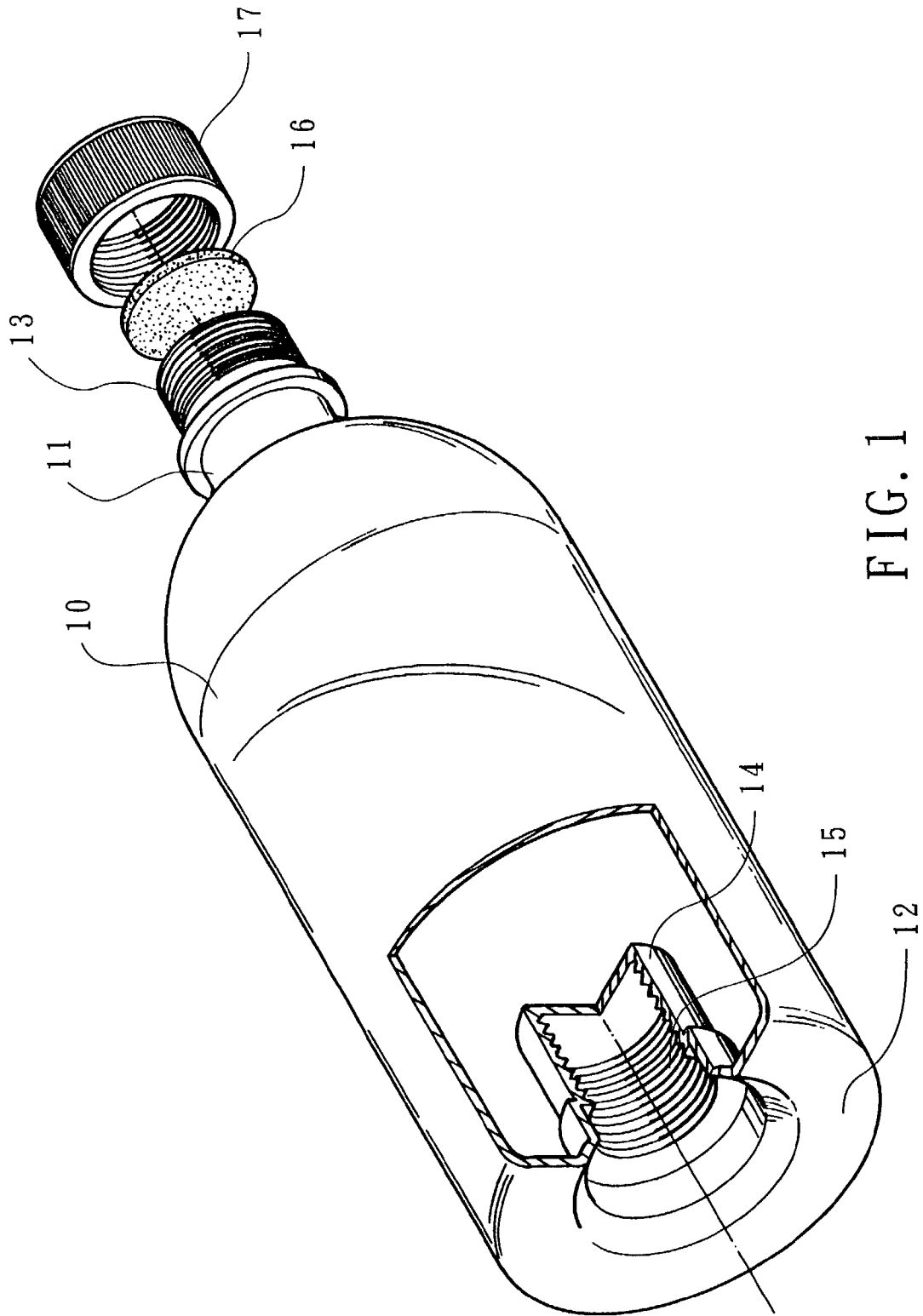


FIG. 1

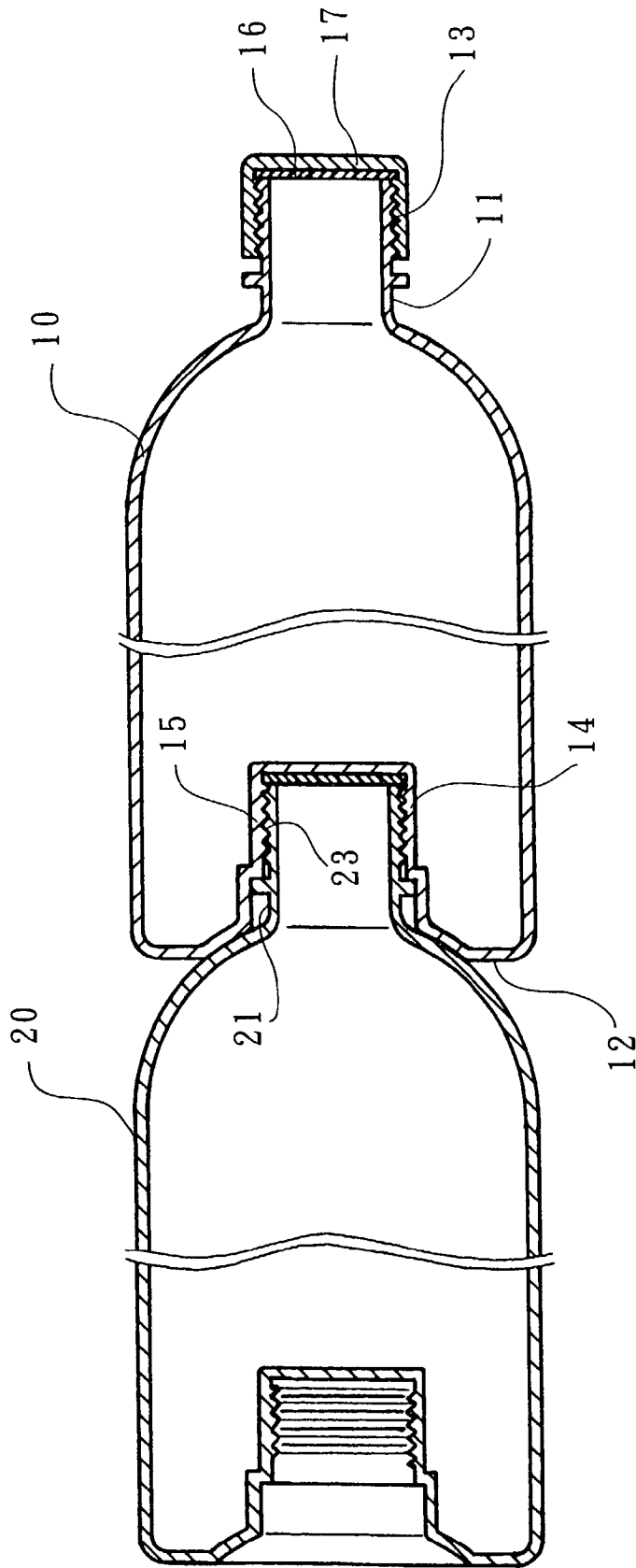


FIG. 2

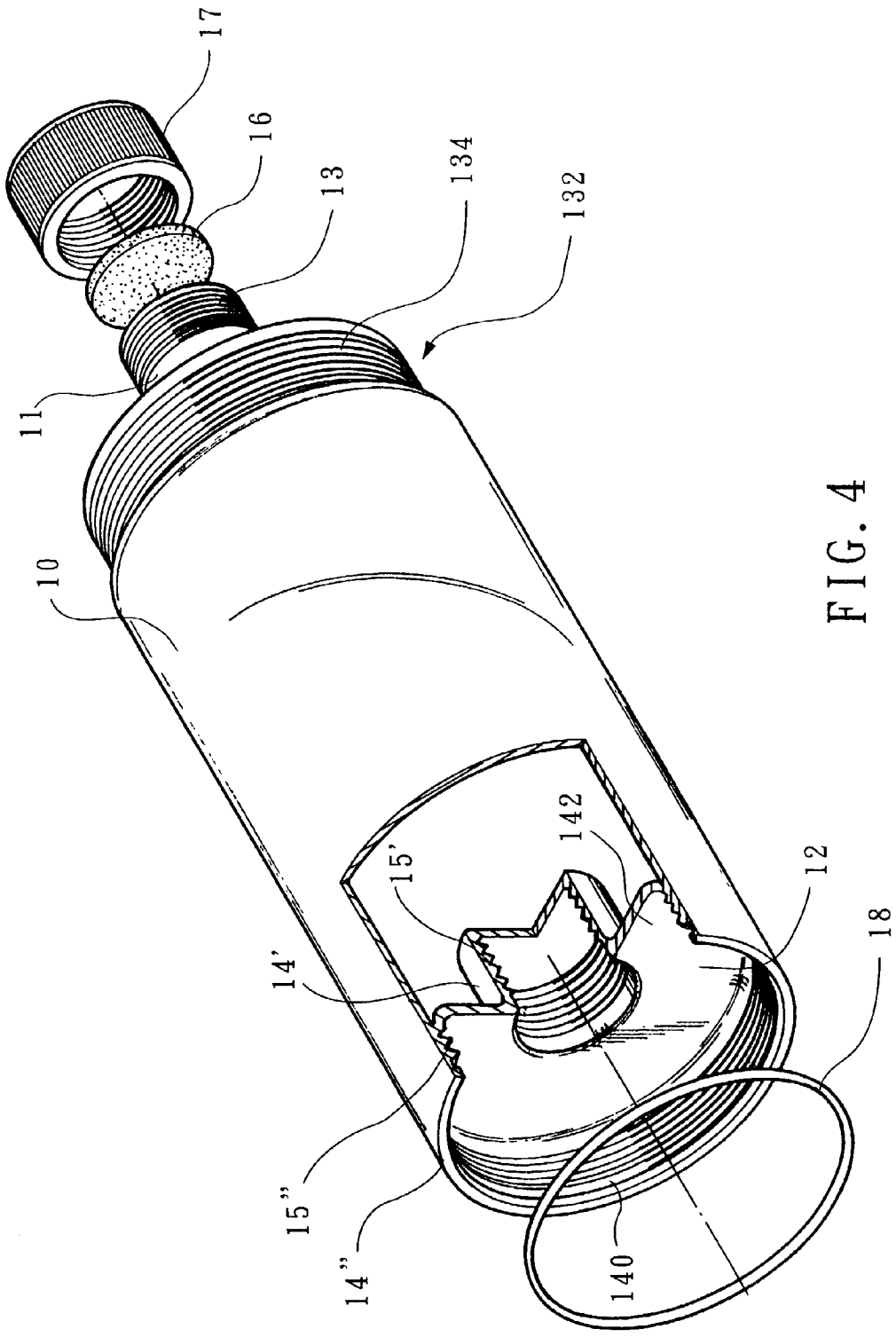


FIG. 4

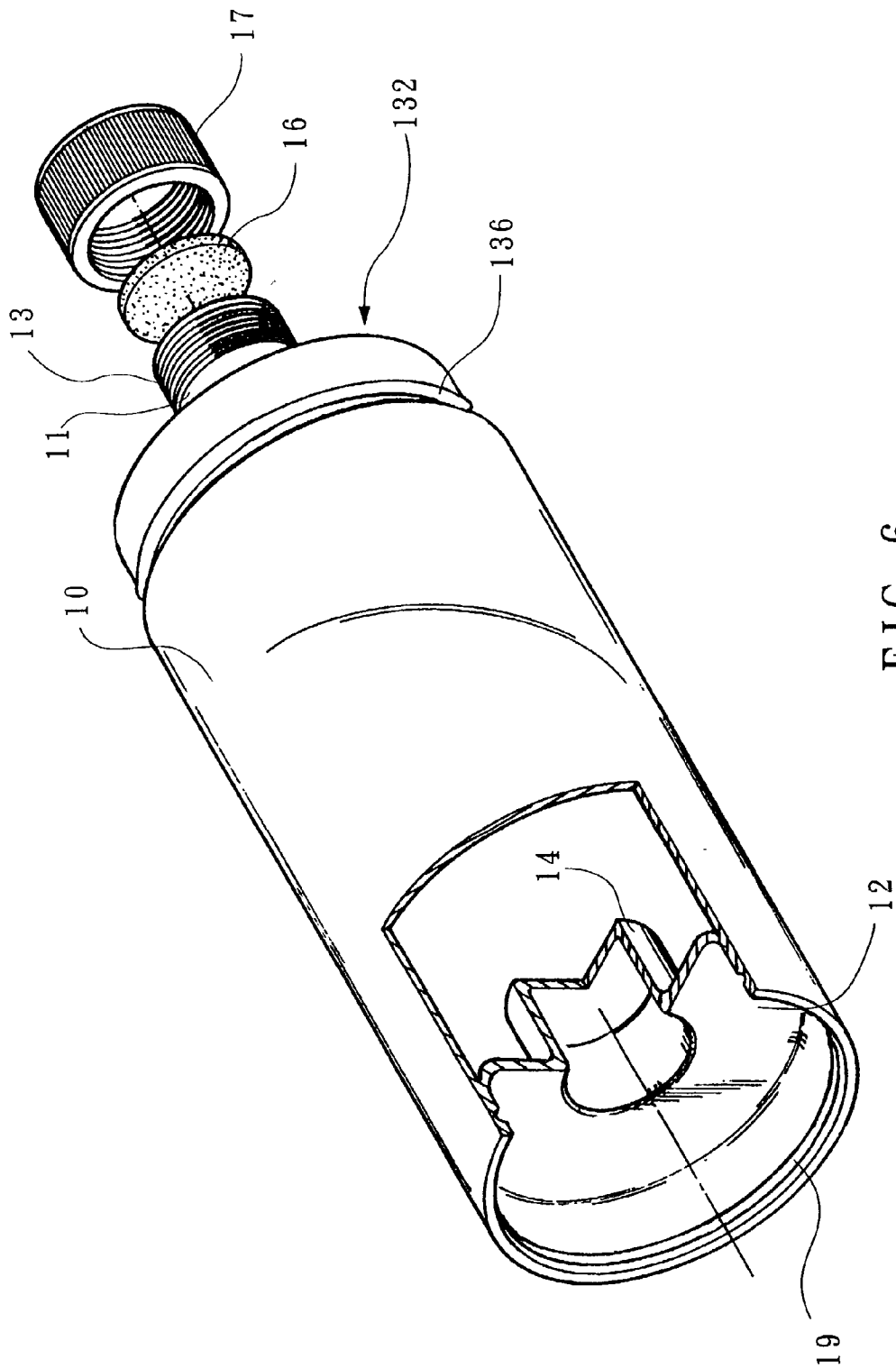


FIG. 6

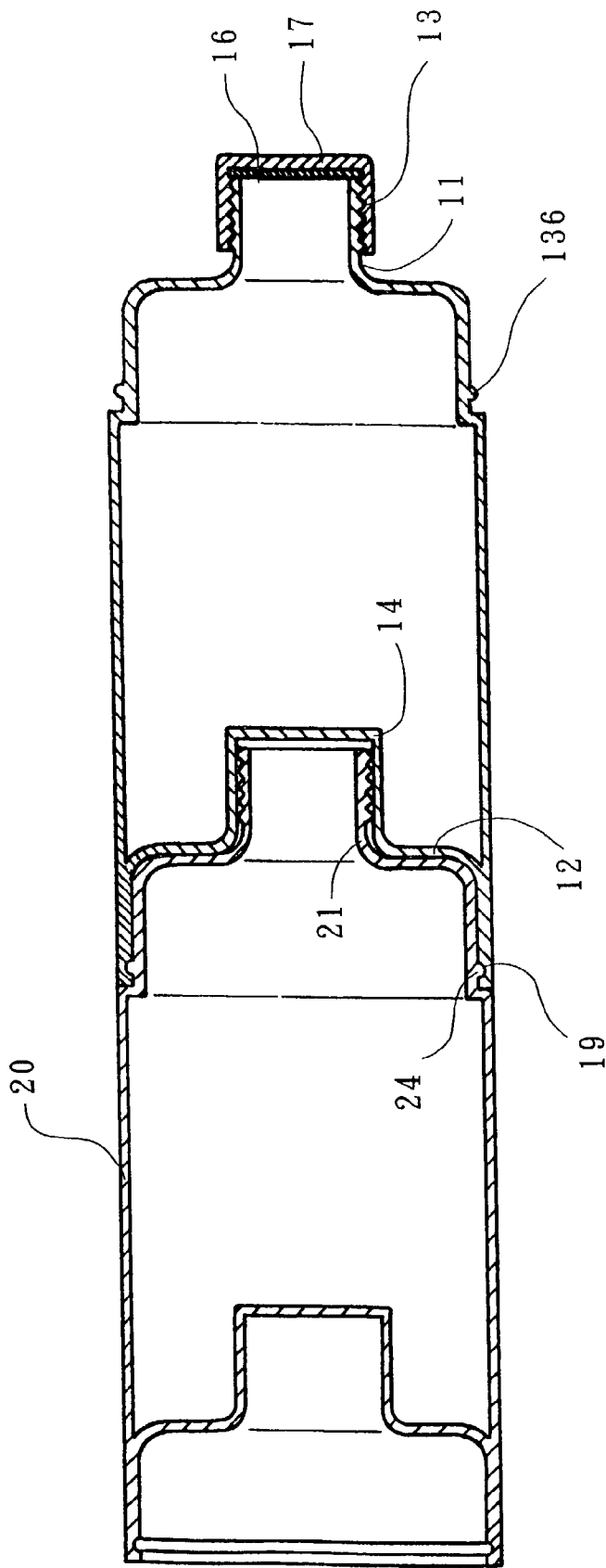


FIG. 7

INTERCONNECTABLE BOTTLE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an interconnectable bottle that may be connected in series to another similarly constructed bottle when required. In particular, the present invention relates to a bottle that includes a bottom having a recessed engaging portion for engaging with another similarly constructed bottle.

[0003] 2. Description of the Related Art

[0004] Empty bottles are a problem if not recycled. Taiwan Patent Publication No. 441574 entitled "CONNECTING STRUCTURE FOR A PLASTIC BOTTLE" discloses a way for connecting two plastic bottles in series. A bottom of one of the bottles is drilled to provide a hole through which a hollow metal screw extends. A washer and a rubber plug are mounted on the screw and located on the head side of the screw. The washer and rubber plug are placed into a mouth of the other bottle, and another washer and a nut are engaged to the screw at an end portion of the screw shank. By means of tightening the nut, the rubber plug is squeezed and thus expands outward, thereby securely engaging with the inner periphery of the mouth of the other bottle. However, several elements are required, and the connecting procedure is troublesome.

SUMMARY OF THE INVENTION

[0005] It is the primary object of the present invention to provide a bottle that includes a bottom having a recessed engaging portion for engaging with another similarly constructed bottle without the need of additional connecting members.

[0006] In an embodiment of the invention, the recessed engaging portion of the bottom of the bottle includes an inner threading for threading engagement with an outer threading of a mouth of another similarly constructed bottle.

[0007] In another embodiment of the invention, the recessed engaging portion of the bottom of the bottle includes an annular groove for engaging with an annular ridge formed on a shoulder of another similarly constructed bottle.

[0008] In a further embodiment of the invention, the recessed engaging portion of the bottom of the bottle includes an inner threading for threading engagement with an outer threading of a shoulder of another similarly constructed bottle.

[0009] Other objects, specific advantages, and novel features of the invention will become more apparent from the following detailed description and preferable embodiments when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is an exploded perspective view, partly cutaway, of a first embodiment of an interconnectable bottle in accordance with the present invention.

[0011] FIG. 2 is a sectional view illustrating connection between two interconnectable bottles in accordance with the first embodiment.

[0012] FIG. 3 is a sectional view illustrating communication of the two bottles in FIG. 2.

[0013] FIG. 4 is an exploded perspective view, partly cutaway, of a second embodiment of the interconnectable bottle in accordance with the present invention.

[0014] FIG. 5 is a sectional view illustrating connection between two interconnectable bottles in accordance with the second embodiment.

[0015] FIG. 6 is an exploded perspective view, partly cutaway, of a third embodiment of the interconnectable bottle in accordance with the present invention.

[0016] FIG. 7 is a sectional view illustrating connection between two interconnectable bottles in accordance with the third embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] Preferred embodiments in accordance with the present invention will now be described with reference to the accompanying drawings.

[0018] Referring to FIGS. 1 and 2, a first embodiment of an interconnectable bottle 10 in accordance with the present invention generally includes a mouth 11 having an outer threading 13. A cap 17 is provided to close the mouth 11 of the bottle 10, and a gasket 16 is mounted between the cap 17 and the mouth 11. The bottle 10 may be made of metal, plastics, glass, composite materials, etc.

[0019] The bottle 10 further includes a bottom 12 having a recessed engaging portion 14. In this embodiment, the recessed engaging portion 14 has an inner threading 15 for threadedly engaging with an outer threading 23 of a mouth 21 of another similarly constructed bottle 20. Thus, the bottle 10 and the bottle 20 are connected in series, best shown in FIG. 2. Of course, the procedure may be repeated for connecting as many as bottles as required. The serially connected bottles can be used as a water rocket, a raft, a fence, a post, etc.

[0020] Referring to FIG. 3, a gasket 26 is mounted between the mouth 21 of the bottle 20 and a bottom wall 141 of the recessed engaging portion 14 of the bottle 10. A through-hole 260 is defined in the gasket 26, and a through-hole 143 is defined in the bottom wall 141 of the recessed engaging portion 14 of the bottle 10. Thus, an interior of the bottle 20 is communicated with an interior of the bottle 10 for accommodating more air and water, which is suitable for a water rocket.

[0021] FIGS. 4 and 5 illustrate a second embodiment of the interconnectable bottle in accordance with the present invention. In this embodiment, the bottle 10 includes a mouth 11 having an outer threading 13, a shoulder 132, and a bottom 12. The shoulder 132 includes an outer threading 134. The bottom 12 includes a first recessed engaging portion 14" and a second recessed engaging portion 14'. The second recessed engaging portion 14' is a recess in a bottom wall 142 of the first recessed engaging portion 14". The first recessed engaging portion 14" includes an inner threading 15" for threadedly engaging with an outer threading 23" of a shoulder (not labeled) of another similarly constructed bottle 20. The second recessed engaging portion 14' includes

an inner threading 15' for threadedly engaging with an outer threading 23' of a mouth 21 of another similarly constructed bottle 20.

[0022] As illustrated in FIG. 5, the shoulder 132 of the bottle 10 is of a reduced diameter so as to be received in the first recessed engaging portion 14". It is noted that the inner threading 15' of the second recessed engaging portion 14' can be omitted. Further, the shape of the first recessed engaging portion 14" and the second recessed engaging portion 14' can be constructed in a different manner. Namely, the bottom 12 of the bottle 10 may include a single recessed engaging portion (or the first recessed engaging portion 14" and the second recessed engaging portion 14' can be deemed as a single recessed engaging portion 14) for receiving the shoulder and the mouth 21 of the bottle 20.

[0023] The first recessed engaging portion 14" of the bottle 10 may further include an annular groove 140 (FIG. 5) in a peripheral wall thereof. An O-ring 18 is mounted in the annular groove 140 and located between the first recessed engaging portion 14" of the bottle 10 and the shoulder (not labeled) of the bottle 20, providing an anti-leak effect.

[0024] FIGS. 6 and 7 illustrate a third embodiment of the interconnectable bottle in accordance with the present invention. In this embodiment, the bottle 10 includes a mouth 11 having an outer threading 13, a shoulder 132, and a bottom 12. The shoulder 132 includes an annular ridge 136 on an outer periphery thereof. The bottom 12 includes a recessed engaging portion 14, an annular groove 19 being defined in a peripheral wall of the recessed engaging portion 14. As illustrated in FIG. 7, the shoulder 132 of the bottle 10 is of a reduced diameter so as to be received in the recessed engaging portion 14. The recessed engaging portion 14 of the bottle 10 is configured to receive the shoulder and the mouth 21 of another similarly constructed bottle 20 with an annular ridge 24 of the bottle 20 being fitted into the annular groove 19 of the bottle 10, best shown in FIG. 7.

[0025] The bottles in accordance with the present invention may be integrally formed during manufacture without incurring an increase in the cost. Nevertheless, the bottles in accordance with the present invention can be connected with one another for forming any suitable device such as a water rocket, a fence, a raft, a post, etc. The cost for recycling is reduced, which causes fewer problems to environment. Further, interconnection between the bottles in accordance with the present invention can be easily achieved without the aid of any tools or members, and the bottles after connection provide a strong structure when compared with the conventional design.

[0026] Although the invention has been explained in relation to its preferred embodiment as mentioned above, it is to be understood that many other possible modifications and variations can be made without departing from the scope of the invention. It is, therefore, contemplated that the appended claims will cover such modifications and variations that fall within the true scope of the invention.

What is claimed is:

1. A bottle comprising a bottom and a mouth having an outer threading, said bottom including a recessed engaging portion having an inner threading for threadedly engaging

with an outer threading of a mouth of another similarly constructed bottle such that said bottle and said another similarly constructed bottle are connected in series.

2. The bottle as claimed in claim 1, further comprising a cap for closing said mouth of said bottle.

3. The bottle as claimed in claim 2, further comprising a gasket between said cap and said mouth of said bottle.

4. A bottle comprising a bottom, a shoulder, and a mouth, said bottom including a recessed engaging portion for receiving a shoulder and a mouth of another similarly constructed bottle, said recessed engaging portion of said bottom of said bottle including means for releasably engaging with said shoulder of said another similarly constructed bottle such that said bottle and said another similarly constructed bottle are connected in series.

5. The bottle as claimed in claim 4, wherein said shoulder of said bottle includes an outer threading, said recessed engaging portion of said bottom of said bottle including an inner threading, for threadedly engaging with an outer threading of said shoulder of said another similarly constructed bottle.

6. The bottle as claimed in claim 5, further comprising an O-ring mounted between said recessed engaging portion of said bottom of said bottle and said shoulder of said another similarly constructed bottle.

7. The bottle as claimed in claim 4, wherein said shoulder of said bottle includes an annular ridge, said recessed engaging portion of said bottom of said bottle including an annular groove for securely receiving an annular ridge of said shoulder of said another similarly constructed bottle.

8. A bottle comprising a bottom, a shoulder, and a mouth, said bottom including a first recessed engaging portion having a bottom wall, a second recessed engaging portion being defined in the bottom wall of said first recessed engaging portion, said first recessed engaging portion receiving a shoulder of another similarly constructed bottle, said second recessed engaging portion receiving a mouth of said another similarly constructed bottle, said first recessed engaging portion of said bottom of said bottle including means for releasably engaging with said shoulder of said another similarly constructed bottle such that said bottle and said another similarly constructed bottle are connected in series.

9. The bottle as claimed in claim 8, wherein said shoulder of said bottle includes an outer threading, said first recessed engaging portion of said bottom of said bottle including an inner threading, for threadedly engaging with an outer threading of said shoulder of said another similarly constructed bottle.

10. The bottle as claimed in claim 9, further comprising an O-ring mounted between said first recessed engaging portion of said bottom of said bottle and said shoulder of said another similarly constructed bottle.

11. The bottle as claimed in claim 8, wherein said second recessed portion of said bottom of said bottle includes an inner threading for threadedly engaging with an outer threading of a mouth of said another similarly constructed bottle.

12. The bottle as claimed in claim 8, wherein said shoulder of said bottle includes an annular ridge, said recessed engaging portion of said bottom of said bottle including an annular groove for securely receiving an annular ridge of said shoulder of said another similarly constructed bottle.

* * * * *