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Liquid Dispensing Container

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Abstract

A container for the storage, transport and dispensing of low viscosity liquids; said container provided with at least one raised feature on a first surface of said container and at least one corresponding indented feature on a second opposite surface of said container; said at least one raised feature and said at least one indented feature adapted to the interlocked stacking of said containers; said container further provided with an outwardly projecting liquid dispensing means; said dispensing means projecting from a recessed portion of an end surface of said container; and wherein the depth of said recessed portion and extent of said outwardly projecting liquid dispenser are arranged so that said liquid dispenser does not project beyond a plane defined by a portion of said one end of said container extending upwardly from said recess to said uppermost surface.

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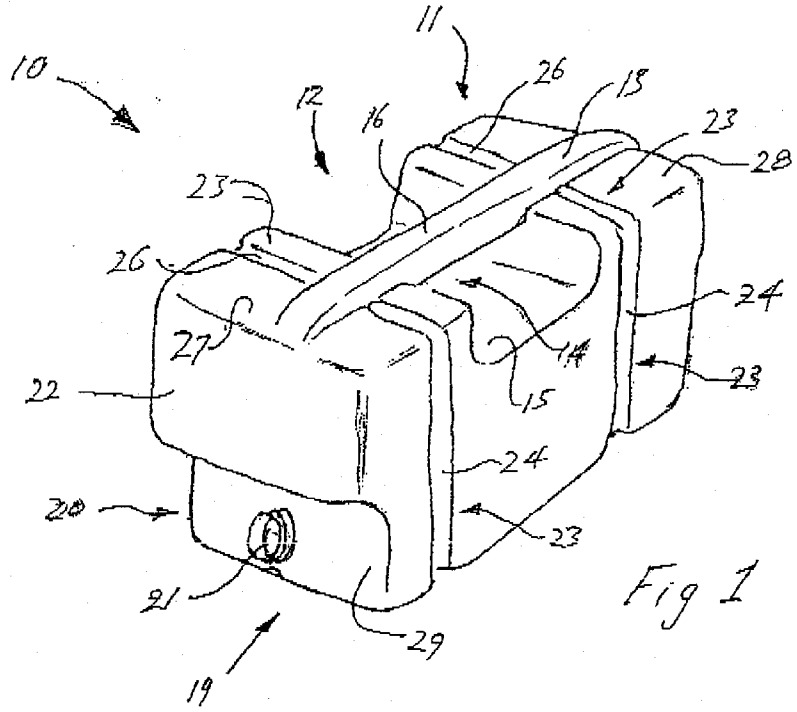

Fig 1

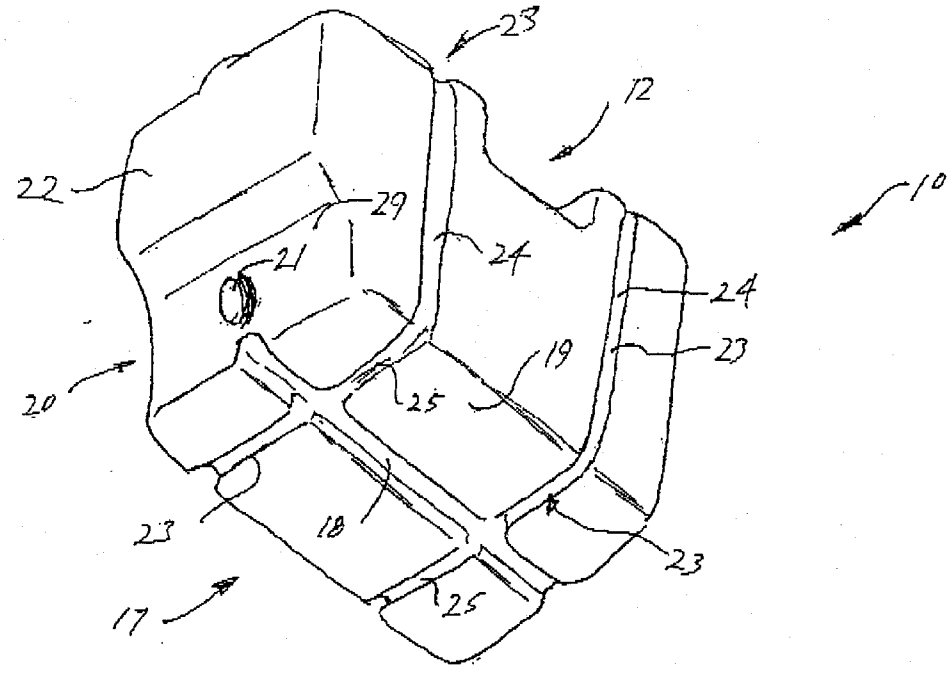

Fig. 2

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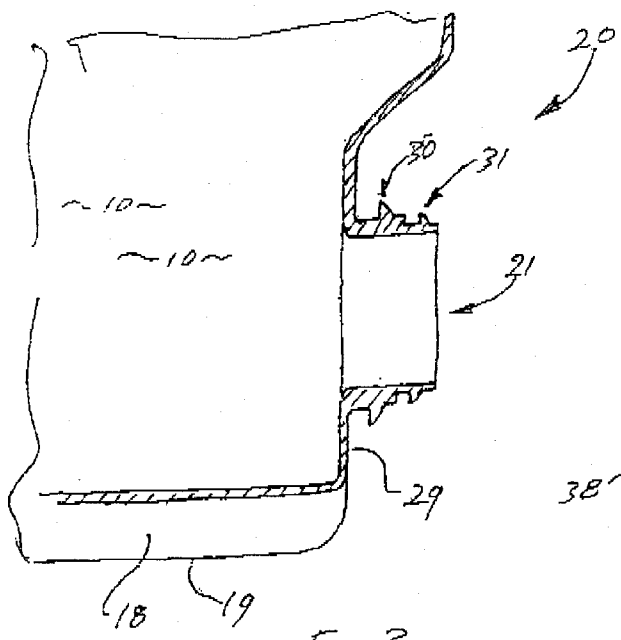

Fig 3

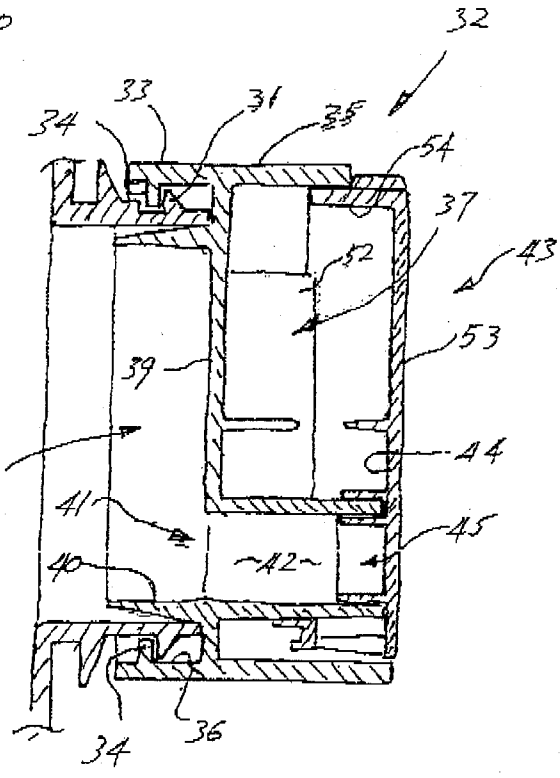

Fig 3A

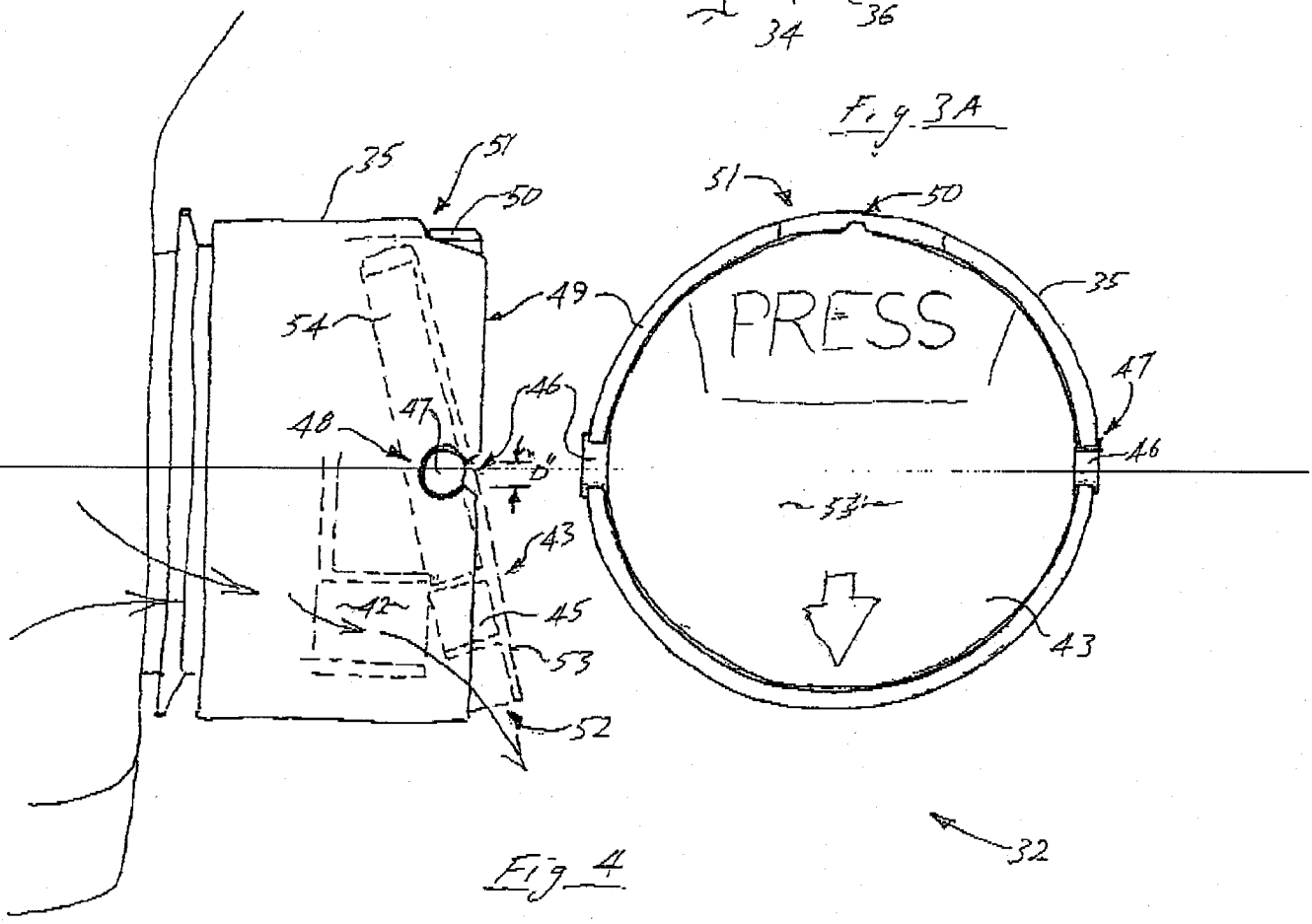

Fig 4

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AUSTRALIA

Patents Act 1990

COMPLETE SPECIFICATION
for an Innovation Patent

Invention Title:

Liquid Dispensing Container

The invention is described in the following statement together with the best method of performing it known to us:

Our Ref: 036011

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LIQUID DISPENSING INTERLOCKING CONTAINER

The present invention relates to containers provided with dispensing means and, more particularly to containers for low viscosity liquids adapted to interlocked stacking.

BACKGROUND

Containers for liquids come in a multitude of configurations and sizes and for a multitude of purposes. The growth in the use of "natural" and "spring" waters has for example seen the development of a range of containers ranging from small bottles for personal use to large containers intended for use with dispensing equipment.

The transport of the larger sizes of containers, their manipulation for use and the means of accessing their contents are all associated with problems. Large round necked containers generally require transport in specially equipped vehicles for example and are inefficient in their use of space. The need for special dispensing equipment is a disincentive to their use, adding costs and complication. In addition, low viscosity liquids such as water do not readily lend themselves to simple dispensing attachments.

It is an object of the present invention to address or ameliorate at least some of the abovementioned disadvantages.

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BRIEF DESCRIPTION OF INVENTION

Accordingly, in a first broad form of the invention there is provided a container for the storage, transport and dispensing of low viscosity liquids; said container provided with at least one raised feature on a first surface of said container and at least one corresponding indented feature on a second opposite surface of said container; said at least one raised feature and said at least one indented feature adapted to the interlocked stacking of said containers; said container further provided with an outwardly projecting liquid dispensing means; said dispensing means projecting from a recessed portion of an end surface of said container; and wherein the depth of said recessed portion and extent of said outwardly projecting liquid dispenser are arranged so that said liquid dispenser does not project beyond a plane defined by a portion of said one end of said container extending upwardly from said recess to said uppermost surface.

Preferably, said at least one raised feature projects upwardly from an uppermost surface of said container and wherein said at least one corresponding indented feature is indented into a lowermost surface of said container.

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Preferably, said at least one raised feature includes an upwardly projecting ridge and wherein said at least one corresponding indented feature includes an indented groove.

Preferably, a said at least one raised feature of a first lower container is adapted to enter as a light press fit into a said indented feature of a second upper container such that said uppermost surface of said lower container and said lowermost surface of said upper container are abutting.

Preferably, said uppermost surface is interrupted by a centrally located depressed section extending across the width of said container; said centrally located depressed section being bridged by a bridging portion; said bridging portion forming a handle for carrying said container.

BRIEF DESCRIPTION OF DRAWINGS

Embodiments of the present invention will now be described with reference to the accompanying drawings wherein:

Figure 1 is a perspective view of a container according to a preferred embodiment of the invention.

Figure 2 is a further perspective view of the embodiment of figure 1.

Figure 3 is a sectioned part side elevation view of the embodiment of figure 1 showing an outlet spigot.

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Figure 3A is an enlarged sectioned view of the outlet spigot of figure 3 with a liquid dispenser according to a preferred embodiment located on the spigot.

Figure 4 is a side elevation and front elevation view of the liquid dispenser of figure 3A.

Figure 5 is a front view of two of the containers of figures 1 and 2 stacked one on the other.

Figure 6 is a perspective view of a pallet stacked with a number of the containers of figures 1 and 2.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

With reference to figure 1 a first preferred embodiment of a container 10 is of generally rectangular prismatic form. Container 10 may be made of any suitable polymer adapted for blow moulding processes such as for example high density polyethylene.

Formed into the central portion of upper surface 11 of container 10 is depressed section 12 extending approximately a third of the length of container 11 and fully across its width. Raised above the upper surface 11 is ridge structure 13 running the full length of container 10 and positioned at the mid point of the width of container 10. Ridge portion 13 forms a bridge across depressed section 12 leaving an opening 14 between the bridging portion and the surface 15 of depressed section 12

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so as to effectively provide a handle 16 for the carrying of container 10.

As may best be seen in figure 2 the base 17 of container 10 is provided with a groove 18 running the full length of the base 17 and positioned at the midpoint of the width of container 10. The depth of groove 18 relative to the surface 19 of the base, that is the depth of intrusion of the groove into the body of the container, is at least equal to the height of the ridge 16 above upper surface 11. The width of groove 18 is such as to form a light press fit with the width of ridge 16 when one container is stacked upon another and groove 18 is aligned with ridge 16 as can be seen in figure 5.

Dispenser end 20 of container 10 is provided with a recess 20 extending upwardly from the base 17 approximately halfway of the height of container 10 and across the width of container 10. The depth of recess 20, that is its intrusion into the body of the container is sufficient to prevent the projection of liquid dispenser 32 (see figures 3 and 3A) mounted on spigot 21 beyond the projected surface of the upper portion 22 of the dispenser end 29 of container 10.

In at least one preferred embodiment of the invention, container 10 is provided with a number of strengthening elements 23. Thus by way of illustrative example in figures 1 and 2 vertical grooves 24 intruding into the body of

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container 10 act as vertical strengthening ribs. Similarly grooves 25 across the base 17 of container 10 provide strengthening ribs for the base, and the grooves 23 across the upper surface 11 extending from each side of container 10 and ending at central ridge 16, assist in strengthening upper surface portions 27 and 28.

It will be seen that the only feature of container 10 to project beyond its generally rectangular prismatic form is that of ridge 16. By this means, as shown in figures 5 and 6, horizontal and vertical arrays of containers may be arranged within a minimum volume of space. Furthermore the stability of multiple layers of side by side rows of containers will be greatly increased by the interlocking of ridges 16 and grooves 18. This compactness of stacking and interlocking greatly facilitates the handling and transportation of containers on a palet 30 for example by requiring little if any restraining means during transport.

Turning again to figures 1 and 2, lower portion 29 of dispenser end 20 of container 10 is provided with a spigot 21. As may be seen in the sectioned view of figure 3, in a first preferred embodiment, spigot 21 is provided with a first annular projection 31 adjacent to the outer end of spigot 21. Spigot 21 and first annular projection 31 are adapted to accept as a snap-fit the body 35 of liquid dispenser 32 as shown in figure 3A. In at least one preferred embodiment of the invention liquid dispenser is

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covered by a security cap (not shown) which attaches as a snap-fit to second annular projection 30 to prevent inadvertent opening of liquid dispenser 32. A tamper indicating sealing wrap around the end of the security cap may further be provided.

Still with reference to figure 3A the inner surface 36 of outer shell portion 33 is provided with a plurality of inwardly projecting lugs 34. Spigot 21 is sufficiently deformable to allow these lugs to snap over annular projection 31.

In at least one alternative preferred embodiment spigot 21 is provided with an external thread adapted to accept a matching internal thread on the inner surface of outer shell portion 33. To ensure that liquid dispenser 32 attains and remains in the correct orientation when screwed onto spigot 21, the thread on spigot 21 is provided with a stop and recess at the thread run-out with a mating projection provided at the appropriate position on the thread run-out of liquid dispenser 32. The recess and projection are adapted to snap together so as to secure dispenser 32 in the correct position when screwed onto the spigot.

The body 35 of liquid dispenser 32 is divided into a forward outlet end 37 and a rearward inlet end 38 by dividing wall member 39. Projecting rearwardly from dividing wall member 39 is annular sealing ring 40. As can

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be seen in figure 3A, sealing ring 40 is tapered in section so that its outer diameter increases towards dividing wall member 39. The taper of sealing ring 40 is so arranged that the taper forms an interference fit with the opening of spigot 21 when projecting lugs 34 snap into position behind annular projection 31, thus forming a seal between spigot 21 and dispenser body 35.

Dividing wall member 39 is pierced by outlet opening 41 communicating with outlet spout 42. A dispenser lid member 43 is shown in figure 3A in its closed, sealing position. Dispenser lid member 43 is in the form of a disc portion 53 provided at its periphery with a rearwardly projecting rim 54. Disc portion 53 and rim 54 are adapted to fit inside outer shell portion 33 as a close sliding fit. Projecting from the inside surface 44 of lid member 43 is sealing ring structure 45 which, when lid member 43 is in its closed position, provides a press-fit insert into outlet spout 42 thereby sealing the end of outlet spout 42. As may be seen in figure 4, lid member 43 is provided with hinge bosses 46 diametrically opposed on either side of the disc and projecting from rim 54. Hinge bosses 46 are held captive in apertures 48 in the rim 49 of dispenser body 35.

Apertures 48 are formed with tapering openings 46 communicating with the outer edge of rim 49 and of dimension "D" at the intersection with apertures 48, where "D" is significantly smaller than the diameter of bosses

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47. The diameter of bosses 47 and the size "D" of the openings 46 are adapted to allow for the bosses to be snap-fitted into apertures 48 yet provide sufficient retaining force of the bosses to withstand the considerable hydrostatic pressure at the outlet spout 42. Lid member 43 is further prevented from inadvertent opening by catch projection 50 at the top of lid member 43 which abuts against a rim recess 51. To open liquid dispenser 32 pressure is exerted by a user in the upper area of lid member 42 (in the area marked "PRESS" in the illustrative example of figure 4). This overcomes the resistance of catch projection 50 against rim recess 51 and causes lid member 43 to assume the tilted position as indicated by dashed lines in figure 4. Sealing structure 45 is thereby disengaged from outlet spout 42 allowing liquid to flow from the spout and container through an aperture 52 in the lower rim of lid member 43 as indicated by the arrows in figure 4.

Turning again to figures 5 and 6, figure 5 shows two containers 10 stacked one on top of another and interlocked by means of the raised ridge feature 16 and the indented groove feature 18. Figure 6 shows a pallet 30 stacked with containers 10. Because the liquid dispensers 32, which project from the recessed lower portion 29, do not project passed upper portion 22 of the containers, containers may

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be stacked with an upper portions 22 abutting the rear end of an adjoining container.

The above describes only some embodiments of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope and spirit of the present invention.

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CLAIMS

1. A container for the storage, transport and dispensing of low viscosity liquids; said container provided with at least one raised feature on a first surface of said container and at least one corresponding indented feature on a second opposite surface of said container; said at least one raised feature and said at least one indented feature adapted to the interlocked stacking of said containers; said container further provided with an outwardly projecting liquid dispensing means; said dispensing means projecting from a recessed portion of an end surface of said container; and wherein the depth of said recessed portion and extent of said outwardly projecting liquid dispenser are arranged so that said liquid dispenser does not project beyond a plane defined by a portion of said one end of said container extending upwardly from said recess to said uppermost surface.

2. The container of claim 1 wherein said at least one raised feature projects upwardly from an uppermost surface of said container and wherein said at least one corresponding indented feature is indented into a lowermost surface of said container.

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3. The container of claim 1 wherein said at least one raised feature includes an upwardly projecting ridge and wherein said at least one corresponding indented feature includes an indented groove.

4. The container of any one of claims 2 to 3 wherein a said at least one raised feature of a first lower container is adapted to enter as a light press fit into a said indented feature of a second upper container such that said uppermost surface of said lower container and said lowermost surface of said upper container are abutting.

5. The container of any one of claims 2 to 4 wherein said uppermost surface is interrupted by a centrally located depressed section extending across the width of said container; said centrally located depressed section being bridged by a bridging portion; said bridging portion forming a handle for carrying said container.

DATED: 22 December 2005

ZAMPLAS AUSTRALIA PTY LTD

by its Patent Attorneys:

WALLINGTON-DUMMER

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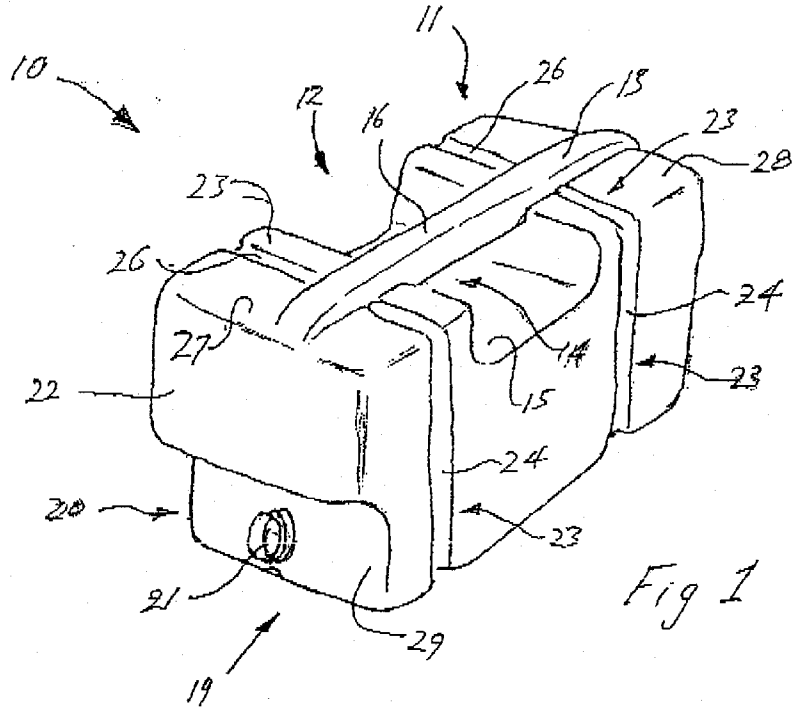

Fig 1

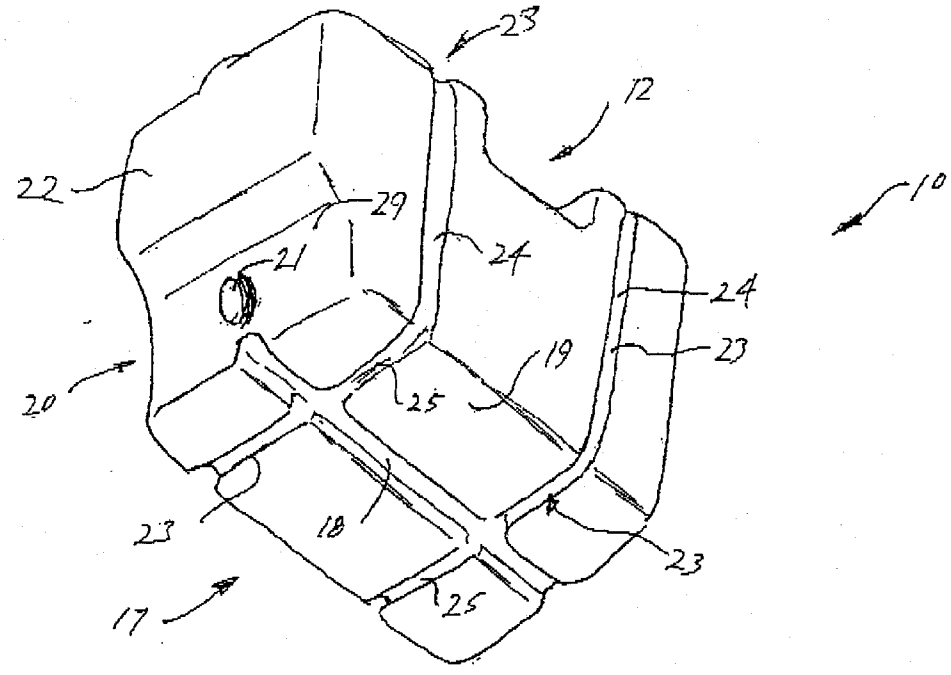

Fig. 2

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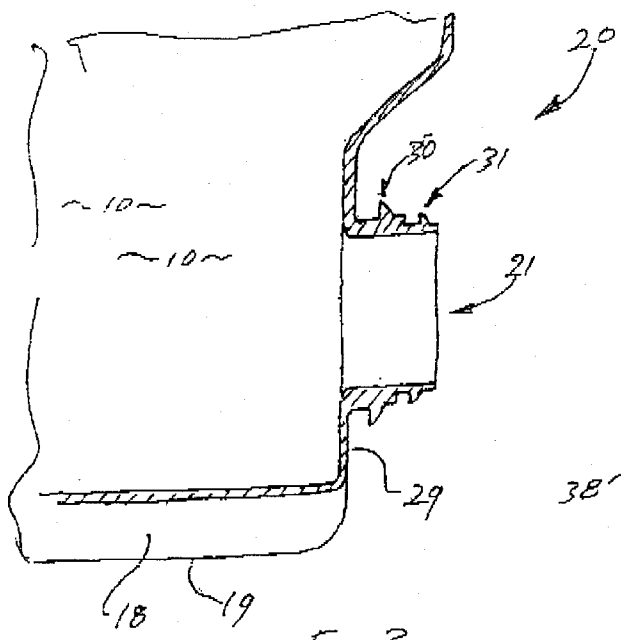

Fig 3

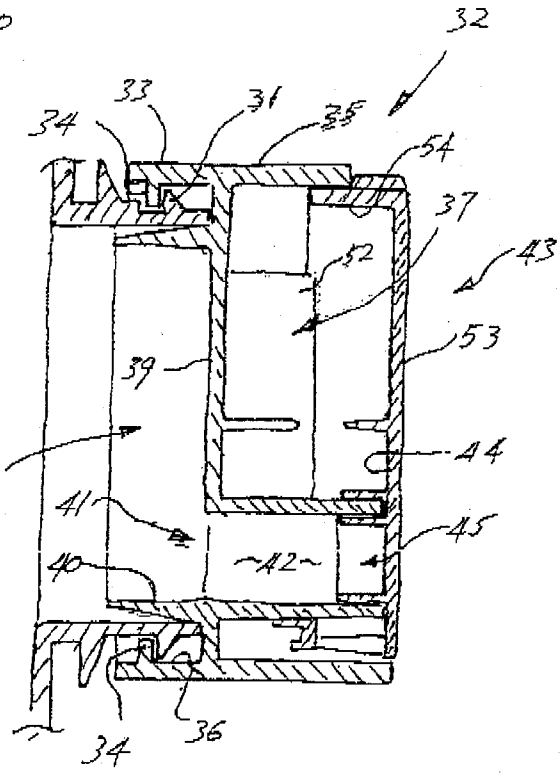

Fig 3A

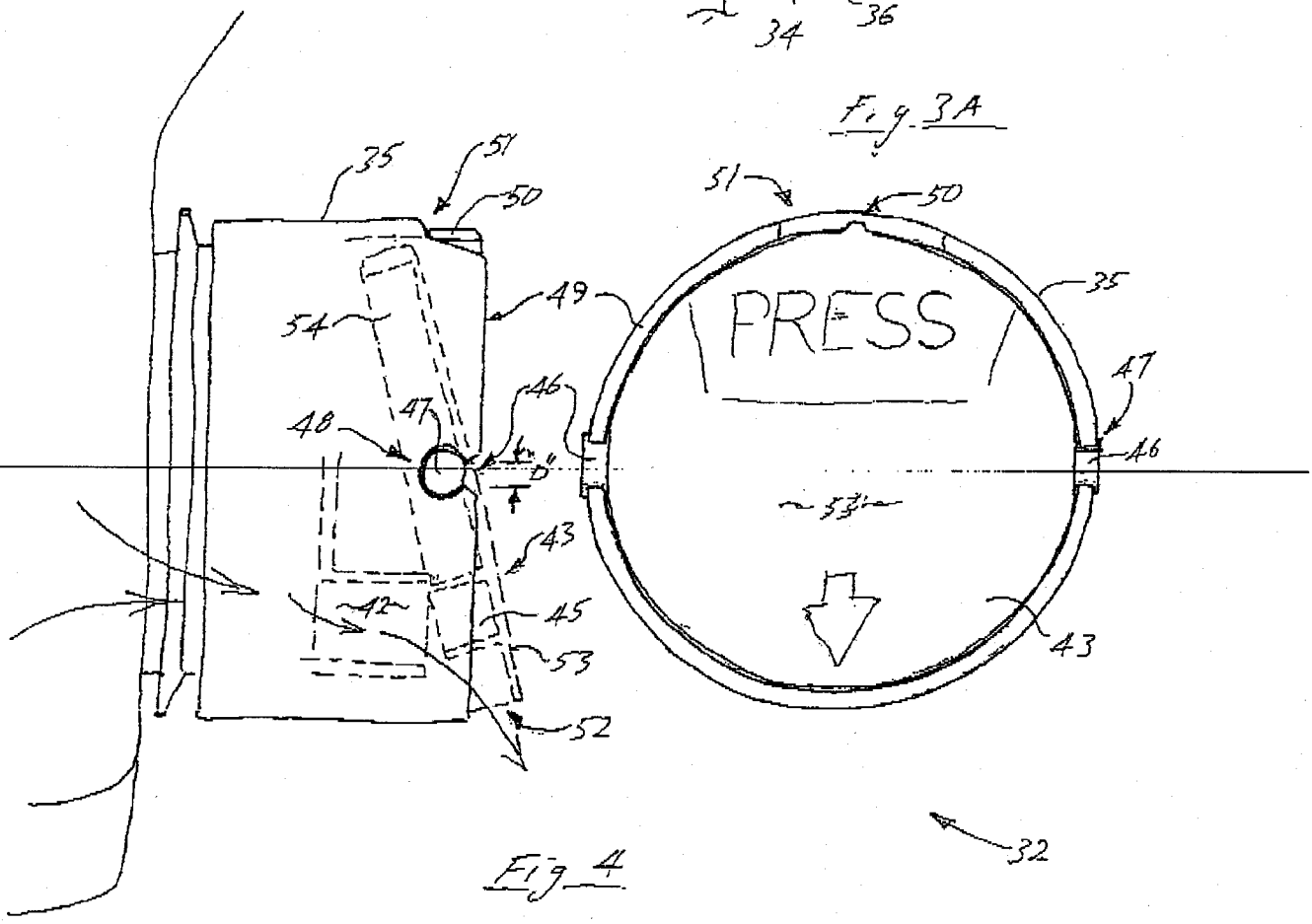

Fig 4

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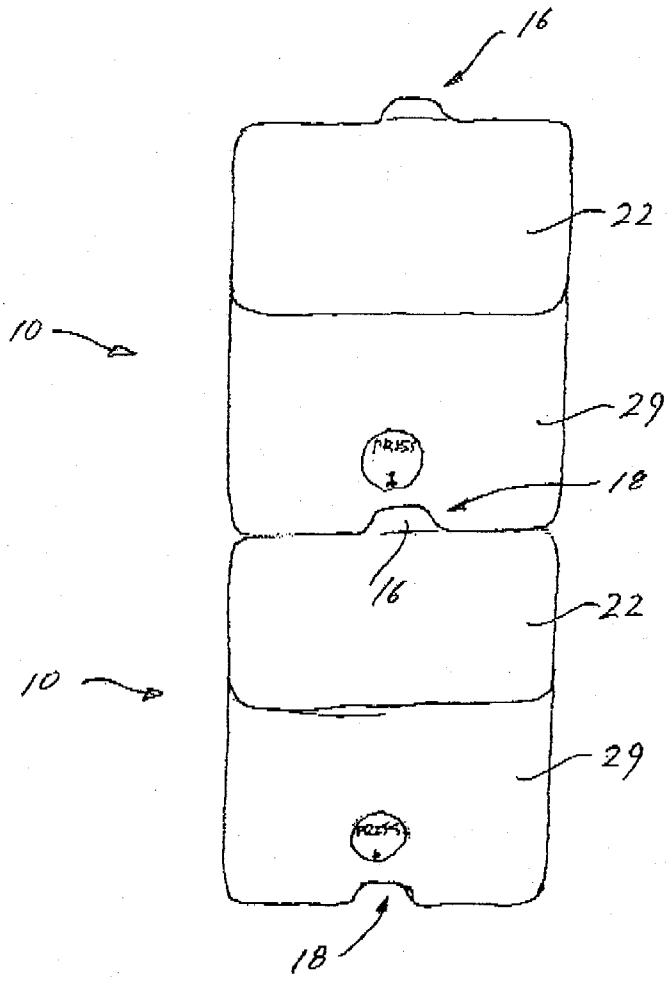

Fig 5

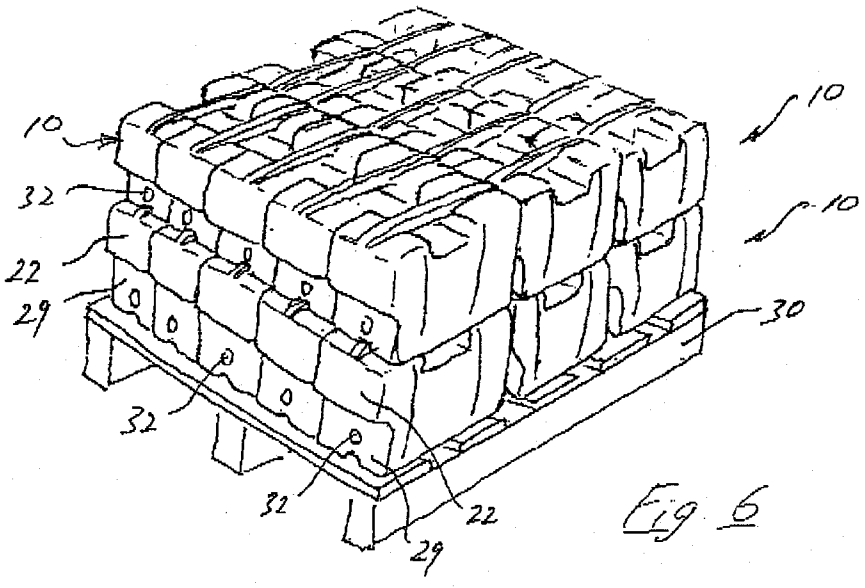

Fig 6