

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 933 295 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
04.08.1999 Bulletin 1999/31

(51) Int Cl.⁶: **B65B 3/04**

(21) Application number: **99300644.4**

(22) Date of filing: **28.01.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **30.01.1998 GB 9802133**

(71) Applicant: **DAVID S. SMITH PACKAGING LIMITED**
London SW1P 2BX (GB)

(72) Inventor: **Shipway, Malcolm**
Rudgeway, Bristol BS12 2RS (GB)

(74) Representative: **Johnson, Terence Leslie**
Edward Evans & Co.
Chancery House
53-64 Chancery Lane
London WC2A 1SD (GB)

(54) **Method and apparatus for filling a container having a dispensing spout**

(57) The invention relates to apparatus (1) for charging a container with liquid there being an orifice (3) of the container (2) through which the liquid is charged

comprising means for inserting a tap into the orifice and to maintain the tap in an open position or substantially so during inversion whereby the air is expelled through the tap (4) during insertion.

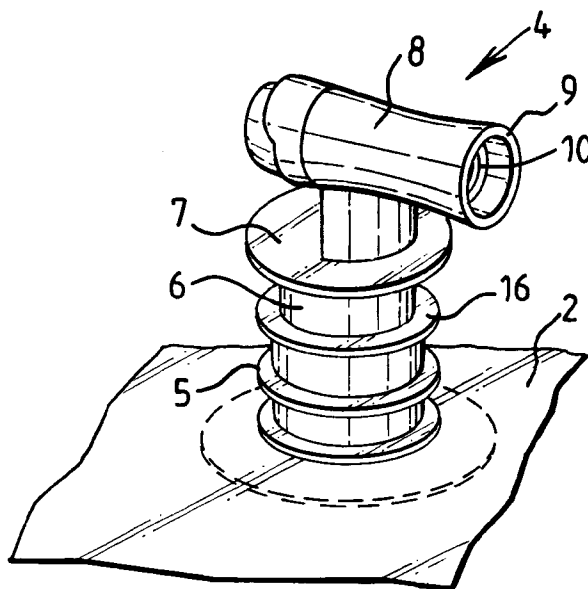


Fig. 2

Description

[0001] The invention relates to containers, particularly to containers for holding a liquid such as wine for dispensing through a tap. A typical such container is known as a "bag-in-box".

[0002] Wine is dispensed from the container on demand by operation of a tap, which is mounted in an orifice of the container (actually comprising a flexible inner container and an outer relatively rigid container such as a cardboard box). The wine is usually charged into the container through the orifice, with the tap removed. It is usually important to ensure that there is no air in the box over the wine as atmospheric oxygen can have a deleterious effect on the wine.

[0003] Unfortunately, air is often trapped in the box, thereby tending to have a harmful effect.

[0004] It is accordingly an object of the invention to seek to mitigate this disadvantage.

[0005] According to a first aspect of the invention there is provided a method of charging a container with liquid, the container having an orifice which is closed by a tap for selective opening and obturating for dispensing of liquid, the container being charged with liquid through the orifice, comprising the steps of providing a tap with a manually operable valve member for opening and closing same, providing a source of liquid, charging the liquid into the container up to a liquid level, adjacent an outer boundary of the orifice, inserting the tap into the orifice with the valve member in an open or partly open position, expelling air from the tap through the valve by action of the liquid in the air as the tap is inserted, and then closing the tap.

[0006] The tap may initially be in the orifice, and the method may then include the step of removing the tap from the orifice prior to charging the container with liquid. This allows for relatively easy charging of wine.

[0007] According to a second aspect of the invention there is provided apparatus for charging a container with liquid, there being an orifice of the container through which the liquid is charged, comprising means for inserting the tap into the orifice and to maintain the tap in an open position or substantially so during insertion whereby air is expelled through the tap during insertion.

[0008] The tap may be initially mounted in the orifice, and there may be means to remove the tap from the orifice prior to charging with liquid. This provides for ease of charging.

[0009] The said means may be the same means. This provides for a compact structure.

[0010] The means may comprise a gripper means to grip the tap and an actuating means to actuate a valve member of the tap between open and closed operative positions. This provides for expulsion of air through the tap by the action of the wine.

[0011] The valve member may be a manually operable push member, and the actuating means may comprise a push means. This provides a relatively simple

positive push operation to operate the valve member, particularly when the push means may comprise a reciprocable extensible finger means.

[0012] The gripper means may comprise finger means for grasping the tap. This provides a positive removal and reinsertion of the tap.

[0013] A method of and apparatus for charging a container with liquid are hereinafter described, by way of example, with reference to the accompanying drawings.

Fig. 1 shows a cross-section through a bag with an integral gland defining an orifice;

Fig. 2 is an enlarged perspective view of Fig. 1, with a dispensing tap mounted in the gland;

Fig. 3 shows a schematic side elevational view of apparatus according to the invention; and

Fig. 4 shows a perspective view of a strip of containers.

[0014] Referring to the drawings, there is shown apparatus 1 for charging a container 2 with liquid, there being an orifice 3 of the container 2 through which the liquid is charged, comprising means for inserting a tap into the orifice and maintaining the tap in an open position or substantially so during insertion whereby the air is expelled through the tap 4 during insertion.

[0015] The tap 4 is initially mounted in a gland 5 defining the orifice 3, and itself has a cylindrical body 6 with an annular flange 7, and a spout or spigot 8 substantially at right angles to the body 6, there being a flow path through the body 6 to the outlet 9 of the spout or spigot which is normally closed to liquid flow by a valve member 10 which is mounted under spring pressure to be biased to the closed position. To open the tap 4 the valve member 10 is depressed by manual (finger or thumb) pressure on a push button 11 which is exposed for such operation and which depresses a valve stem of the valve member 10 to open an annular passage at the outlet 9.

[0016] The container 2 is in the embodiment a flexible sealable container such as a plastic bag of suitable construction which is part of a strip 12 of such bags 2 and which are filled with product such as wine in apparatus 1 for charging the bags with product. Whilst the bags 2 are initially free of air, and the fitting procedure is generally a non-aseptic procedure, air in the cylindrical body 6 of the tap 4 is exposed to the wine, and can have a deleterious effect thereon.

[0017] The tap 4 is normally mounted in the gland 3 when the bag 2 is presented for filling in a filling or charging apparatus. The bag is indexed through various stations, one of which is a charging station 13. At the charging station, the apparatus 1 in the embodiment comprising means in the form of gripping fingers 14 which grasp the tap, suitably at its flange 7, and remove it from and

clear of the gland 5. A filling head 15 is then offered up to the gland 5 and charges wine into the container 2.

[0018] The wine is charged into the container, which is suitably disposed so that the gland 5 is directed upwardly or nearly so, up to a level within about 2mm of an outer flange 16 of the gland 5. The filling head 15 is then retracted, and means in the form of a finger or plunger 17 is extended to engage and push down on the push button 11 to open the tap 4 and then the tap is reinserted in the gland 3 by the apparatus 1, the fingers 14 gripping the flange 7 meanwhile. This act of insertion means that wine in the gland acts on the air of the body.

[0019] As the wine is virtually incompressible, the air is forced out of the tap 4 through the outlet orifice 9 to the atmosphere. When the tap 4 is fully reinserted, the wine has expelled virtually all the air. The finger is then retracted so that the push button is released and the valve is closed, so closing the tap against wine flow. The fingers 14 then release the flange 7, and the bag 2 is free to be indexed to the next station.

[0020] It will be understood that the term "liquid" covers a slurry or the like, and particulates.

Claims

1. A method of charging a container with liquid, the container having an orifice which is closed by a tap for selective opening and obturating for dispensing of liquid, the container being charged with liquid through the orifice, characterised by the steps of providing a tap (4) with a manually operable valve member for opening and closing same, by providing a source 15 of liquid, by charging the liquid into the container (21) up to a liquid level adjacent an outer boundary (16) of the orifice (3), by inserting the tap (4) into the orifice with the valve member in an open or partly open position, by expelling air from the tap through the valve by action of the liquid in the air as the tap is inserted, and by then closing the tap (4).
2. A method according to Claim 1, characterised by the tap (4) being initially in the orifice and by the method including the step of removing the tap (4) from the orifice (3) prior to charging the container with liquid.
3. Apparatus for charging a container with liquid, characterised by an orifice (3) of the container (2) through which the liquid is charged, by means (17) for inserting a tap (4) into the orifice (3) and to maintain the tap in an open position or substantially so during insertion whereby air is expelled through the tap during insertion.
4. Apparatus according to Claim 3, characterised by the tap (4) being initially mounted in the orifice (3), and by means (14) to remove the tap from the orifice

prior to charging with liquid.

5. Apparatus according to Claim 4, characterised by the said means (14), (17) being the same means.
6. Apparatus according to Claim 5, characterised by the means (14), (17) comprising a gripper means (14) to grip the tap and by an actuating means (17) to actuate a valve member (10) of the tap between open and closed operative positions.
7. Apparatus according to Claim 6, characterised by the valve member (10) being a manually operable push member, and by the actuating means (17) comprising a push means.
8. Apparatus according to Claim 7, characterised by the push means (17) comprising a reciprocable extensible finger means.
9. Apparatus according to Claim 8, characterised by the gripper means (14) comprising finger means for grasping the tap.
10. A bag, whenever filled with liquid by a method according to Claim 1.

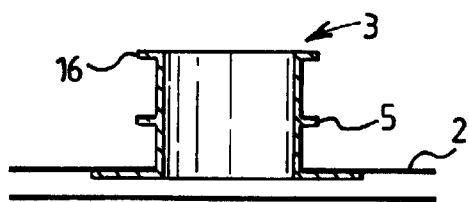


Fig. 1

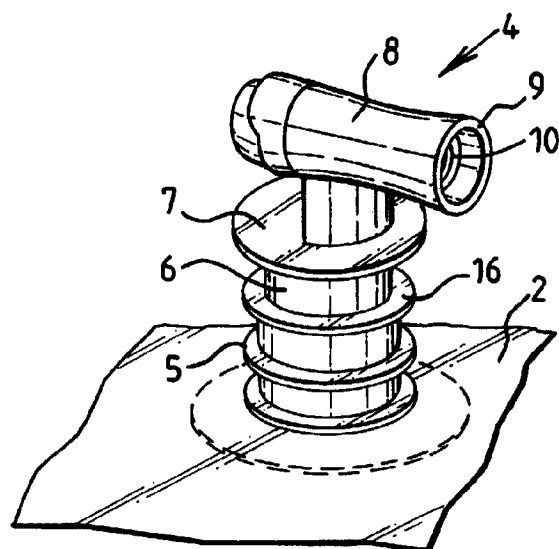


Fig. 2

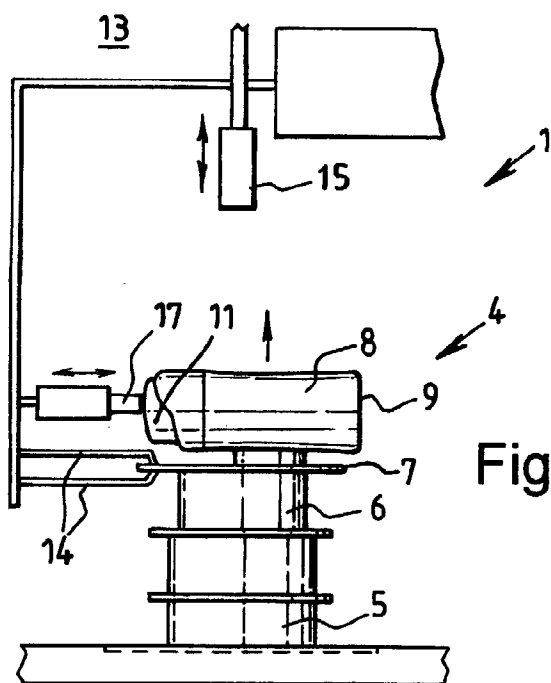


Fig. 3

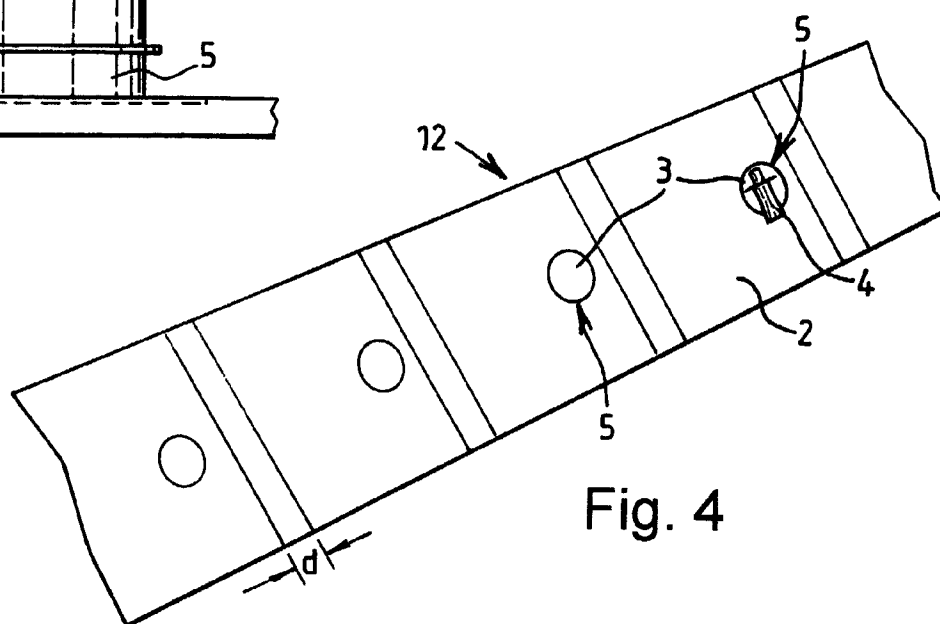


Fig. 4



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 0644

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	GB 1 044 816 A (CORRUGATED CONTAINER CO) * the whole document * -----	1,3,10	B65B3/04
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 May 1999	Examiner Claeys, H
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPC FORM 1503 03 82 (FOA001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 0644

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-05-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 1044816 6 A		NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82