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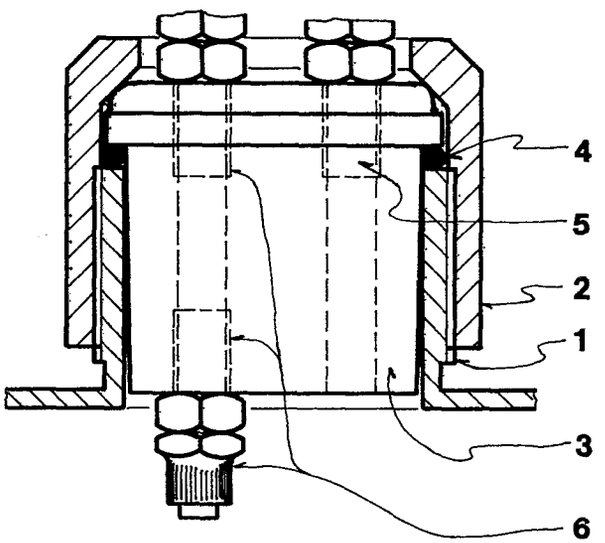
(54) Improved liquid-tight fastener, especially for cans.

(57) This invention relates to an improved can fastener which comprises the can filling port (1), a cylindrical cap (3) provided upperly with a sealing surface and with an annular projection, an O-ring (4) and a ring nut (2). The cap (3) is inserted into the can filling port (1) and the ring nut (2) is then screwed over the filling port (1) after positioning the O-ring (4) at the end of the port.



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IMPROVED LIQUID-TIGHT FASTENER, ESPECIALLY FOR CANS

This invention relates to an improved liquid-tight fastener for cans, which comprises the can filling port, a cap provided upperly with a sealing surface and an annular projection, and finally a ring nut.

A liquid-tight seal must be able to be attained even with cans produced by economical moulding means, i.e. starting from a plastics tube which is hot-deformed with compressed air in a suitable mould, until it takes the form of the mould. The resultant filling ports have fairly thin walls, an irregular thread and a high tendency to liquid loss through the fastener, when relatively low pressures are exceeded.

This drawback becomes worse if it is necessary to make a threaded connection through the cap of a can produced as described, even if the cap is made thicker.

I have now found that the aforesaid drawbacks can be completely overcome by using a cap provided upperly with a sealing surface, and with an annular projection; the cap is inserted into the can filling port and a ring nut is then screwed over the filling port after positioning an O-ring at the end of the port. The O-ring is preferably of nylon. I have also found that by adopting a circular line of contact between the upper parts of the cap and the ring nut, the seal is improved even if vibration is present.

I have also found that a perfect seal is obtained if, in particular, the lower part of the cap instead of being cylindrical is slightly conical with a vertex angle of less than 10^{o} in the direction of the can interior.

The ring nut and cap can be of suitable thermoplastic material, for example nylon, or can be of metal.

The invention is further illustrated by way of non-limiting example in the accompanying figure in which the reference numeral 1 indicates the can filling port, 2 the ring nut, 3 the cap, 4 the O-ring, 5 and 6 the threaded connectors, which are however extraneous to the invention.

The filling port has been designed for the simultaneous patent application in the name of the present applicant entitled: "Containers for distributors of liquids for spraying on to hay and other agricultural products", and for this reason $\frac{1}{4}$" male threaded connectors are shown for the compressed air 5 and for the pressurised liquid 6.

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PATENT CLAIMS

1. An improved liquid-tight can fastener, comprising: a can filling port; a cap inserted into the port and provided upperly with a sealing surface and with an annular projection; an O-ring disposed on the end of the port; and a ring nut screwed on to the port.

2. A fastener as claimed in claim 1, wherein a circular contact is used between the cap and ring nut.

3. A fastener as claimed in claim 1 or 2, wherein the lower part of the cap is slightly conical, with the angle at the vertex in the direction of the can interior being less than 10°.

4. A fastener as claimed in one of the preceding claims, wherein one or more liquid-tight threaded connectors are connected to the cap.

5. A fastener as described and illustrated on the drawing.

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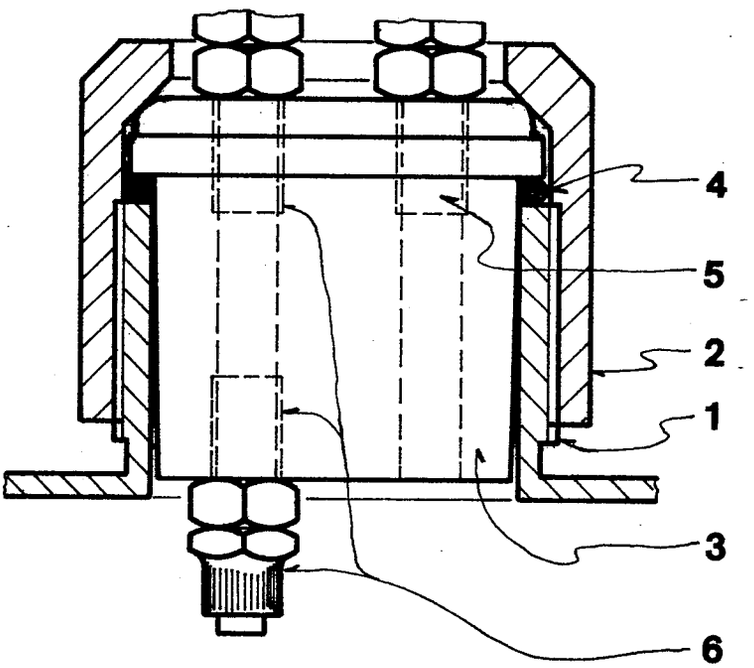
fig 1



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EUROPEAN SEARCH REPORT

Application number
EP 82830162.2

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. 3)
X	DE - A - 2 056 246 (SCHIEMANN) * Totality, especially fig. 1 *	1,2	B 65 D 41/28
A	DE - A - 2 113 106 (R. v. HÜNERSDORFF NACHF.) * Fig. 1,2 *	1,2,3	
A	US - A - 3 944 103 (CROS) * Fig. 2,6 *	1,2	
A	LUEGER "Lexikon der Technik", Maschinenbau Grundlagen, 1971 ROWOHLT TASCHENBUCHVERLAG, Hamburg * Page 442, fig. 29 *	1,2	TECHNICAL FIELDS SEARCHED (Int.Cl. 3) B 65 D 39/00 B 65 D 41/00 B 65 D 45/00 B 65 D 47/00 B 65 D 51/00 B 65 D 53/00 F 16 L 19/00
A	US - A - 4 116 352 (DAVIS) * Fig. 1 *		

CATEGORY OF CITED DOCUMENTS

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
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

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	09-09-1982	CZUBA