

(12) UK Patent Application (19) GB (11) 2 159 490 A

(43) Application published 4 Dec 1985

(21) Application No **8512677**

(22) Date of filing **20 May 1985**

(30) Priority data

(31) **8416538**

(32) **30 May 1984**

(33) **DE**

(71) Applicant
**Bayer Aktiengesellschaft (FR-Germany),
509 Leverkusen, Federal Republic of Germany**

(72) Inventors
**Peter Datum,
Jurgen Hartmann,
Siegfried Krings,
Dieter Rappsilber**

(74) Agent and/or Address for Service
**Carpmaels & Ransford,
43 Bloomsbury Square, London WC1A 2RA**

(51) INT CL⁴
B65D 25/04

(52) Domestic classification
**B8D 12 1A2A 1A3 1B1 7M 7PY SC2
U1S 1003 1304 B8D**

(56) Documents cited
GB 1279226 **GB 1138690**

(58) Field of search
B8D

(54) **Combination container for two liquids**

(57) The combination container consists of a concentric double receptacle, wherein a mounting (5) for the second receptacle (2) is attached at the periphery of the aperture of the first receptacle (1) by means of notches or undercuts, eg in the manner of a bayonet closure. This mounting (5) is provided with a central aperture (10) having an internal thread (11) which fits onto an external thread located on the neck of the second receptacle (2). Perforations or apertures for pouring out the liquid contained in the first receptacle (1) are provided in the mounting (5). Moreover, the apertures of the first receptacle (1) and the central aperture in the receptacle (2) can be closed by a common screw cap (12). The first receptacle (1) consists as a rule of a canister of square or rectangular cross-section, while the second receptacle (2) can be a commercially available plastic bottle of the same height. After filling the two receptacles with different liquids, eg crop protection liquids, a metal laminated plastics film (14) may seal the apertures. Spikes (15) on the screw cap may be used to pierce the film (14), a sealing disc (18) of foamed polyethylene carried by the cap acting to seal the inner receptacle and prevent any unintentional mixing of the liquids.

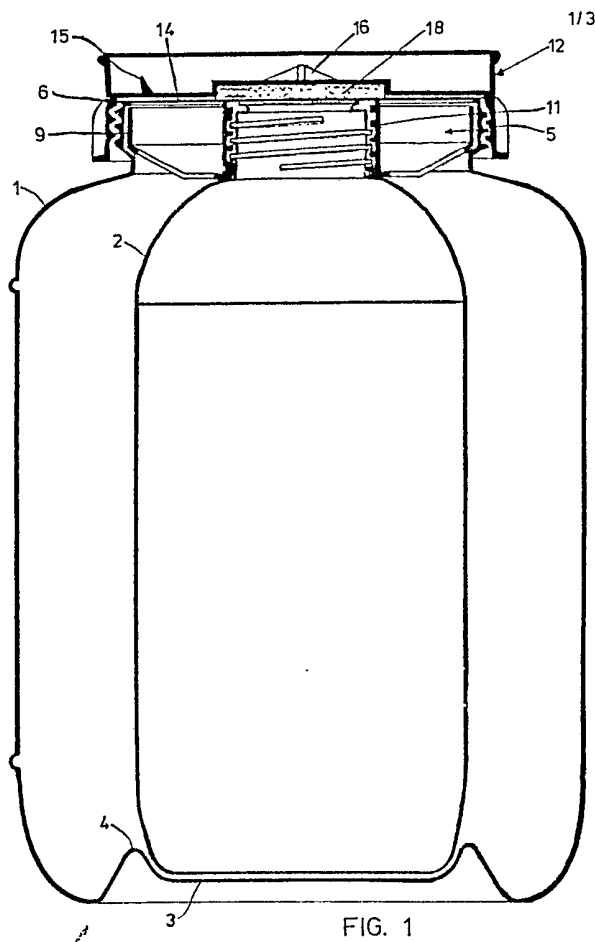
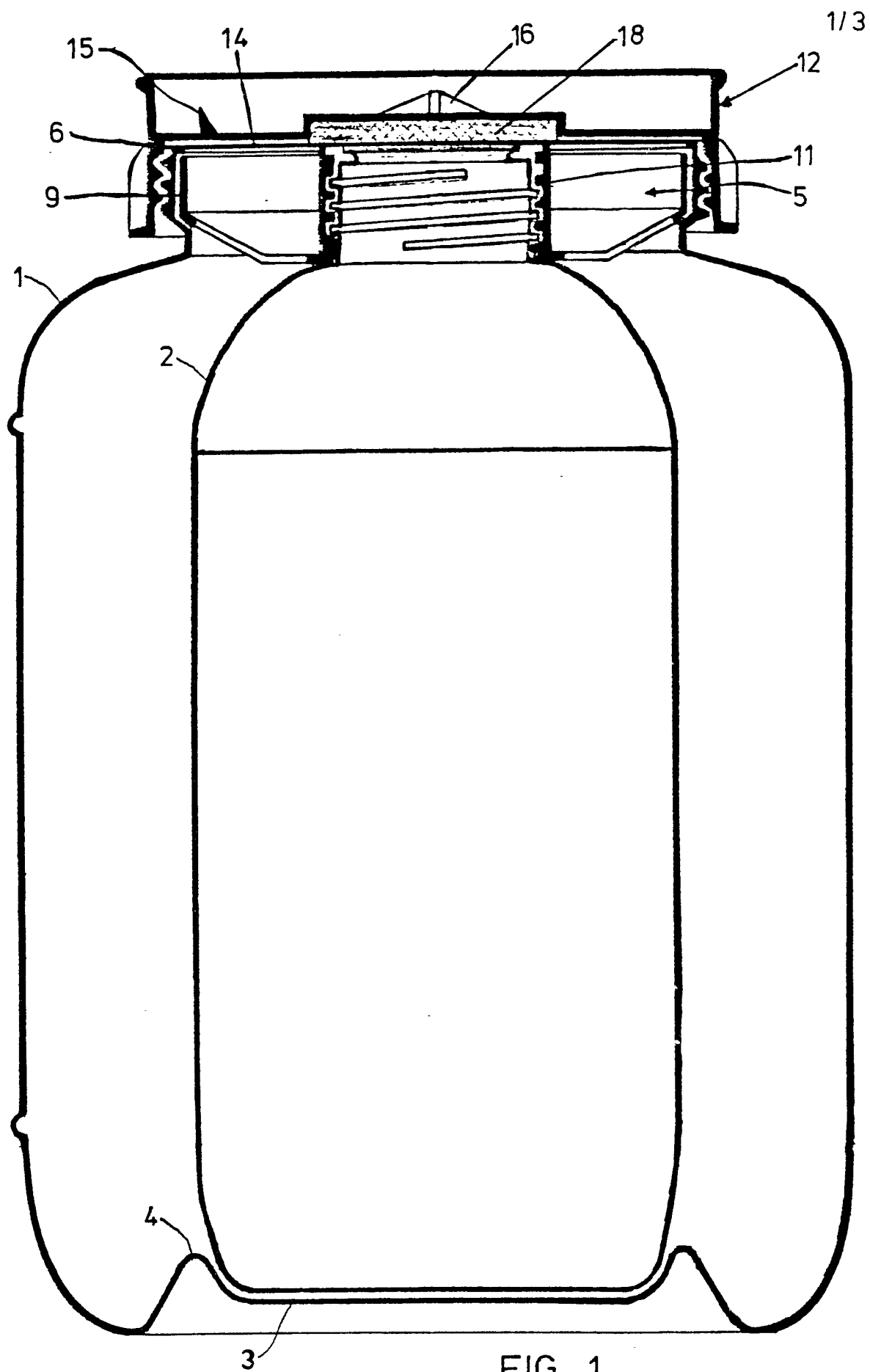


FIG. 1

GB 2 159 490 A



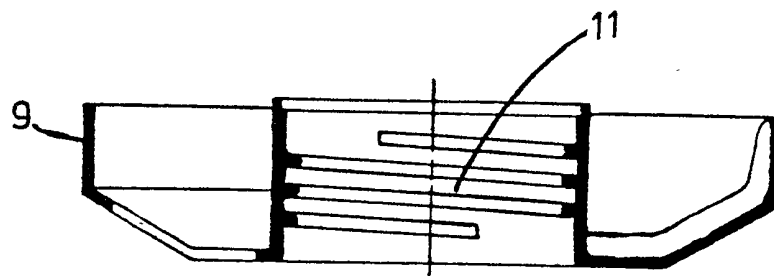


FIG. 3

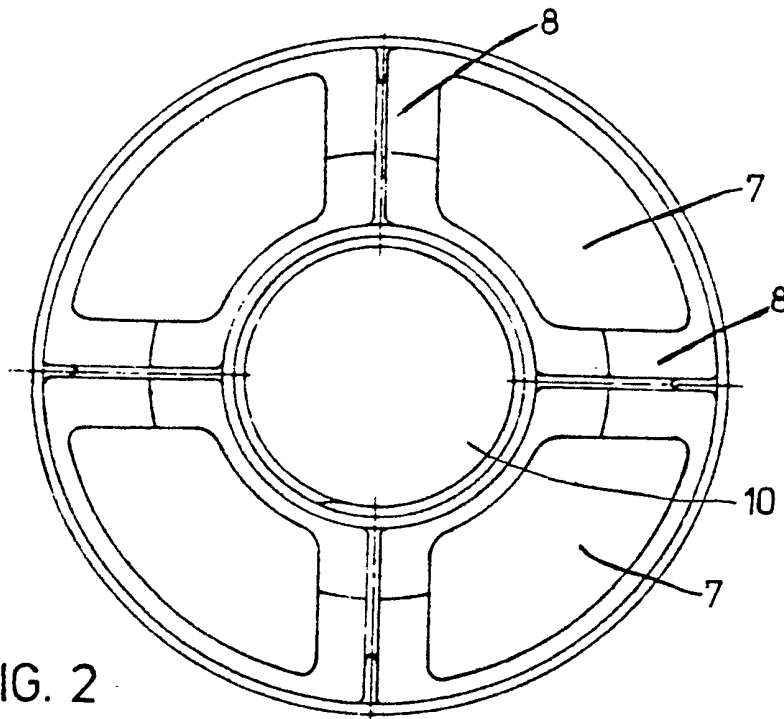


FIG. 2

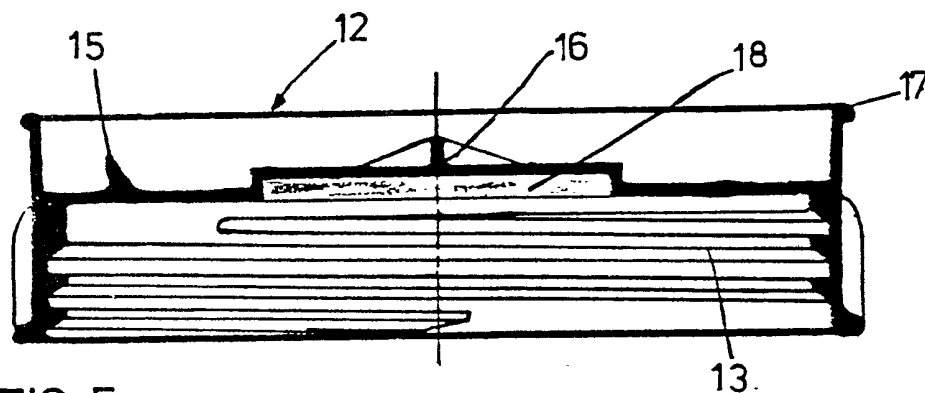


FIG. 5

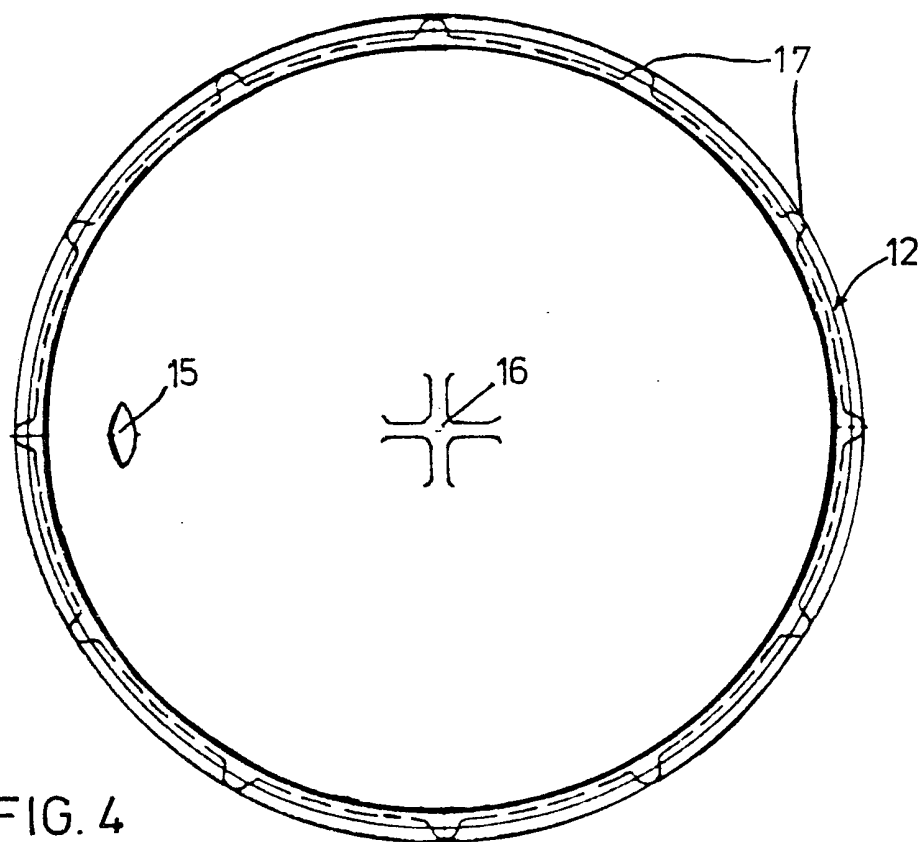


FIG. 4

SPECIFICATION

Combination container for two liquids

5 The innovation relates to a combination container for two liquids, having two receptacles, the second receptacle being arranged within the first receptacle.

Various combination packagings are known, which are constructed on the multi-chamber principle and are used for the storage or provision of liquids or of liquids and solids which are to be mixed with one another only when used. Before use the components must be kept separate because, on being mixed, they either undergo a reaction or do not have an adequate shelf life in this form.

The known combination containers have the disadvantage that they are relatively awkward to handle. A further essential aspect is the increase in the price of the product resulting from the more expensive form of packaging. In the case of the known combination packagings, the production costs are as a rule substantially in excess of the costs which would be incurred with conventional individual packagings.

The object of the innovation is to provide a combination container for two different liquids which are easily mixed one with another, the container being of user-friendly design from ergonomic aspects (easy handling) and its costs not being substantially in excess of the costs of corresponding individual packagings with the same contents.

This object is achieved, according to an innovation based on a concentric double receptacle, in that a mounting for the second receptacle is attached to the periphery of the aperture of the first receptacle by means of notches or undercuts, in that the mounting is provided with a central internal thread which fits onto an external thread located on the neck of the second receptacle, in that perforations or apertures are provided in the mounting for the purpose of pouring out the liquid contained in the first receptacle, and in that the apertures of the first receptacle and the aperture of the second receptacle can be closed by a common screw cap.

Preferably, the first receptacle consists of a canister having a rectangular or square cross-section, and the second receptacle of a commercially available plastic bottle of the same height.

The mounting for the second receptacle advantageously consists of webs, between which segment-shaped apertures remain.

A further development of the innovation consists in the fact that a sealing disc of elastic material, covering the aperture of the second receptacle, is arranged on the screw cap.

Advantageously, aids to opening in the form of spikes, cams or frustum-like raised portions are attached to the top of the screw cap.

The following advantages are obtained by means of the innovation:

a) The combination container is characterised by easy and operationally safe (clean) handling, and is therefore notably user-friendly.

b) The production costs are low and can virtually compete with the necessary costs of comparable individual packagings. A decisive feature here is that only one additional component (mounting) is necessary, and that otherwise only commercially available components, slightly modified at the most, are used.

c) The combination container possesses high mechanical strength combined with relatively low intrinsic weight.

d) A substantial production advantage lies in the fact that standard filling plants can still be used for filling. Normally a change in the form of packaging entails major modifications to the production lines, so that production is made more expensive.

In the text which follows, an exemplary embodiment of the innovation is explained in detail with reference to the drawings.

In the drawings:

Figure 1 shows an overall view of an elevation of the combination container,

Figure 2 shows a plan view of the mounting for the second receptacle,

Figure 3 shows a lateral view of the mounting,

Figure 4 shows a plan view of the screw cap and

Figure 5 shows a lateral view of the screw cap.

The combination container according to *Figure 1* consists of a double receptacle, which consists of a canister 1 having a square cross-section and of a bottle 2 located therein. The bottle 2 is arranged in the middle of the canister 1 and, for reasons of mechanical strength, rests on the base 3 of the canister 1 (the gap between the base of the bottle and the base of the canister, shown in *Figure 1*, is in fact not present). A circular beading 4 is moulded into the base 3 of the canister 1 and serves to secure the bottle 2. The canister 1 is of the same height as the bottle 2; that is to say that the apertures of the two receptacles are situated at the same height. A mounting 5 for the bottle 2 is inserted in the canister aperture at the top end. The mounting 5 is attached at the periphery of the canister aperture by means of a circular undercut 6 or by means of notch elements (in the manner of a bayonet closure).

According to *Figure 2* and *Figure 3*, the mounting 5 consists of a circular disc having segment-shaped apertures 7, between which webs 8 remain. A shoulder 9 is arranged on the periphery of the mounting, and rests on the internal periphery of the canister aperture (*Figure 1*). In the middle of the mounting is located a circular aperture 10 having an internal thread 11, so that the mounting 5 can be screwed onto the bottle 2.

The screw cap 12 having a thread 13 according to *Figures 4* and *5* serves to close the double receptacle. The screw cap 12 covers the apertures 7 (outlet apertures of the canister 1) and the central aperture in the bottle 2.

The combination container filled with the two different liquids is sealed, in the packaging plant, with a metal-laminated plastic film 14, which has to be opened or removed before use of the pack. For this purpose, aids to opening in the form of spikes 15, cams and frustum-shaped raised por-

tions 16 are attached to the top of the screw cap 12. The screw cap 12 has cams 17 on the outer periphery to improve the purchase. Moreover, a sealing disc 18 of foamed polyethylene, covering the aperture of the bottle 2, is arranged on the lid surface of the screw cap. The sealing disc 18 is intended to provide even greater safety in the event of unintentional mixing of the liquids in the canister 1 and the bottle 2. Due to the sealing disc 18, the contents of the bottle 2 are protected, in the region of the bottle aperture, against the liquid from the canister 1, for example even in the event of a tear in or damage to the sealing film 14.

The canister 1 and the bottle 2 are commercially available receptacles which are produced from polyethylene or a similar, suitable packaging material by the blow-moulding process. The mounting 5 is advantageously produced by injection moulding. The procedure for assembling the combination container is that the bottle 2 is first screwed into the mounting 5 and the mounting with the bottle 2 is then inserted into the canister 1. The two different liquids are then metered into the canister 1 and the bottle 2 in a standard filling plant. After filling, the two containers 1 and 2 are closed with the sealing film 14 and the screw cap 12 is attached.

When the pack is used, the screw cap 12 is first removed and the sealing film 14 is pierced by means of the aids to opening 15 and 16. The container is then emptied into a suitable vessel, with the apertures downward. When this is done, the two liquids emerge simultaneously and mix together. The two liquids can be solutions or dispersions.

The new combination container is primarily conceived as a packaging means for the two liquid components which belong together but require to be stored separately of crop protection formulations which are prepared when required by mixing the two liquids. In comparison to the individual packagings hitherto customary, substantially simpler handling and hence also increased safety in dealing with such substances are achieved.

45 CLAIMS

1. A combination container for two liquids having two receptacles, the second receptacle being arranged inside the first receptacle, in which

50 a) a mounting for the second receptacle is attached within the periphery of the aperture of the first receptacle by securing means;

b) the mounting is provided with a central internal thread, which fits onto an external thread located

55 on the neck of the second receptacle;

c) the mounting is further provided with perforations or apertures adapted to allow a liquid contained in the first receptacle to be poured out;

d) and the apertures of the first receptacle and the

60 aperture of the second receptacle are arranged for closure by a single cap.

2. A combination container according to claim 1 in which the securing means is an annular undercut on the first receptacle or is cooperating notch

65 elements on the mounting and the first receptacle

adapted to operate as a bayonet fitting.

3. A combination container according to claim 1 or 2, in which the first receptacle is a canister of square or rectangular cross-section.

70 4. A combination container according to any of claims 1 to 3, in which the second receptacle is a bottle.

5. A combination container according to any of claims 1 to 4 in which the mounting for the second receptacle comprises webs between which segment-shaped apertures remain.

6. A combination container according to any of claims 1 to 5 in which the cap is a screw cap.

80 7. A combination container according to claim 5, in which a sealing disc of elastic material, which is adapted to cover the aperture of the second receptacle, is arranged on the screw cap.

8. A combination container substantially as hereinbefore described with reference to the accompanying drawings.

85

Printed in the UK for HMSO, D8818935, 10/85, 7102.
Published by The Patent Office, 25 Southampton Buildings, London,
WC2A 1AY, from which copies may be obtained.