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(54) Screw cap for canisters

(57) A screw cap (32) for a canister having a pouring nozzle with an external thread and a through hole (24) in said nozzle which opens into an end face of the pouring nozzle and leads to inside the canister the cap having a base and a skirt, comprises an annular channel (48) which opens away from the cap base, at least two through airholes (50, 63, 64), which lead through the cap base from the annular channel (48), and an internal thread (19) which matches the external thread (18) of said pouring nozzle; the screw cap (32) has a particular angular position relative to the pouring nozzle (16) at the end of the process for screwing it on, and the airholes are arranged angularly offset relative to one another.

FIG.1

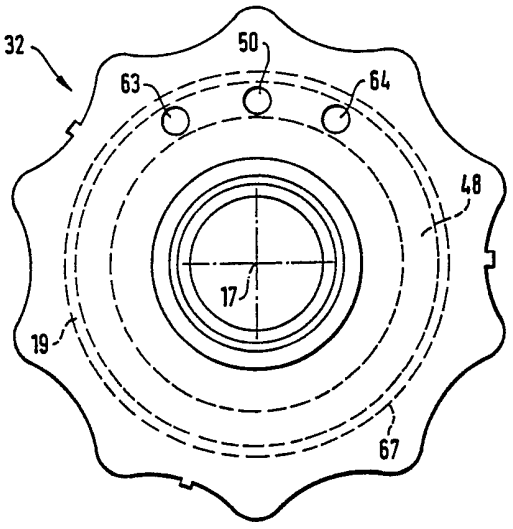
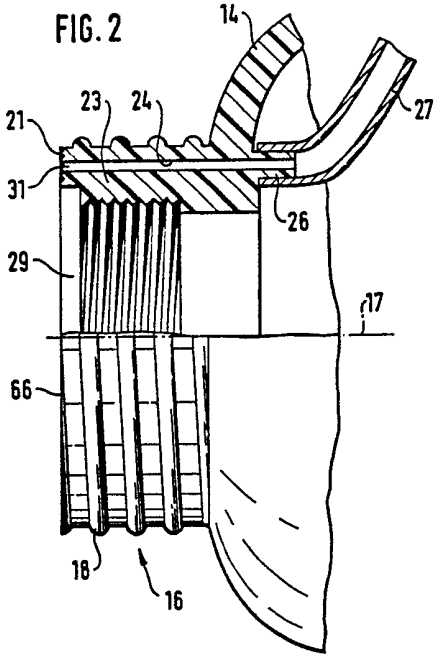


FIG.2



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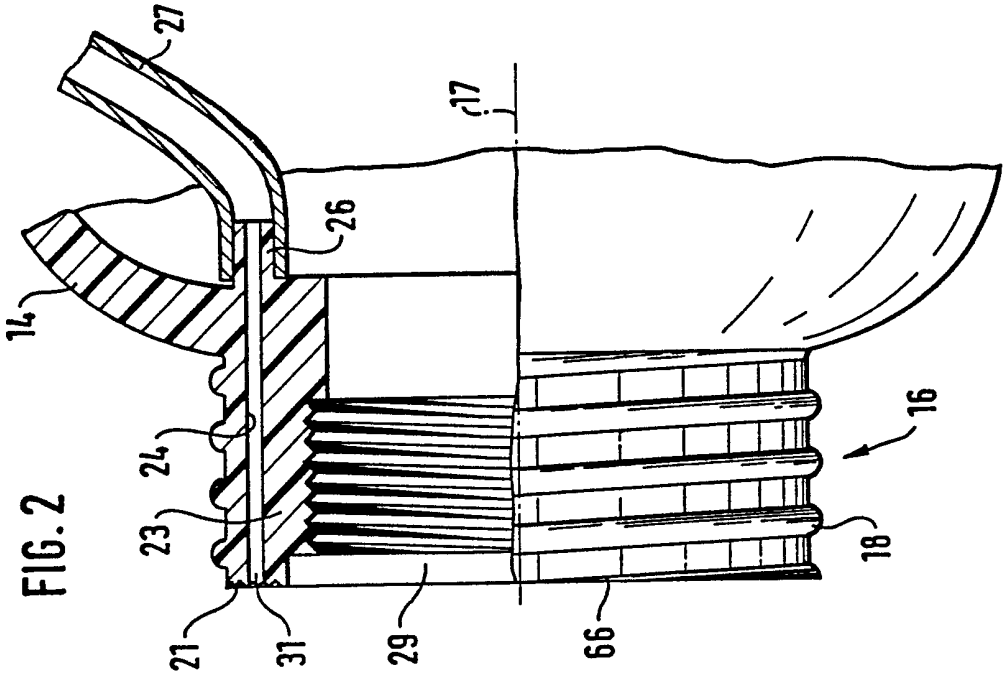

FIG. 2

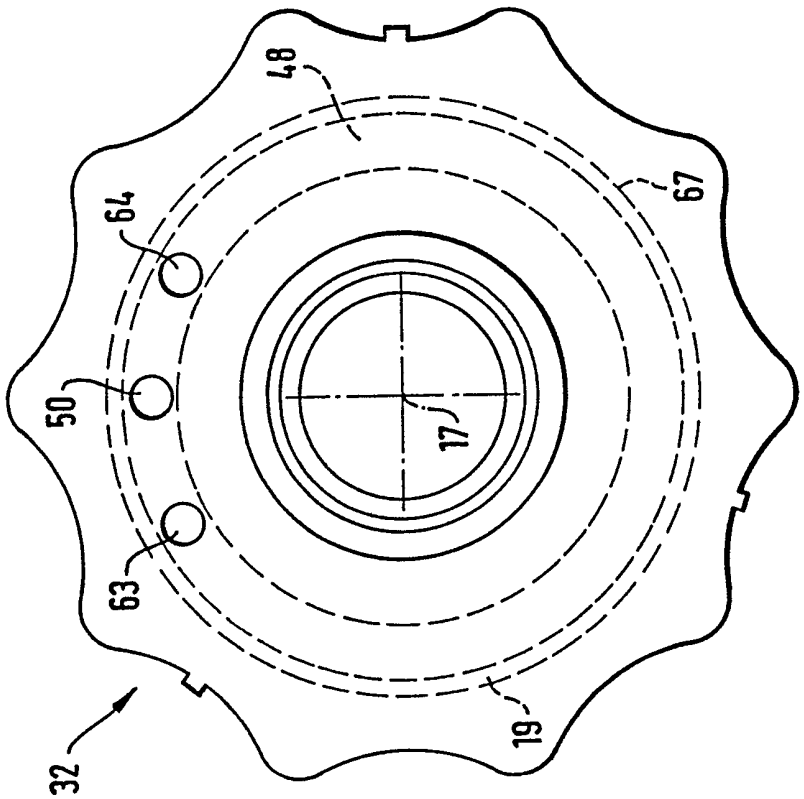

FIG. 1

SCREW CAP FOR CANISTERS

The invention relates to a screw cap for canisters especially but not solely of the kind described in our copending patent application No. 8900945.0.

Such canisters are mass-produced articles and, owing to their method of production, the manufacturing tolerances to be expected from them are also not very high. They are used in widely differing environments which, for example, can be at -40°C to +75°C. The force with which the screw cap is tightened also varies widely. When men are very tired and it is cold, they have little strength to spare. It is not always important that emptying of the contents should proceed rapidly. Nevertheless, there are emergency situations in which rapid emptying of the canister is important and the ability to do this may be life-preserving. One need only consider a situation in which, for example, fuel has to be transferred from the canister to the tank on a swaying boat. If this takes too long, even a strong man cannot hold the canister balanced for very long. If the transfer takes too long, there is the risk that the pouring spout will slip out of the inlet nozzle of the tank and the fuel will miss, with all the dangers that result from this, such as, for example risk of explosion. Frequently, it is also important to spill as little as possible, when the canister is the last spare canister etc.

In order to allow air to enter the canister during pouring with the arrangement of Application 8900945.0, a

single air inlet with an associated annular channel is be provided. However, if this single air inlet is completely or partially blocked and/or if the annular channel is completely or partially closed, the air no longer flows back correctly and the above mentioned consequences can occur. For various reasons, the cross-section of the annular channel can be reduced or completely closed in practice: for example enough viscous fluid may get into it at very low temperatures; or it is simply blocked; or its cross-section has been squashed shut by some other occurrence.

It is an object of the invention to ensure good backflow of the air even in extreme situations.

According to the invention there is provided a screw cap for a canister having a pouring nozzle with an external thread, and a through hole in said nozzle, which opens into an end face of the pouring nozzle and leads to inside the canister, said cap having a base and a skirt, an annular channel which opens away from the cap base, at least two through airholes, which lead through the cap base from the annular channel, an internal thread which matches the external thread of said pouring nozzle, said screw cap having a particular angular position relative to the pouring nozzle at the end of the process for screwing it on, said airholes being arranged angularly offset relative to one another.

The angular spacing may be greater than two airhole diameters but less than five airhole diameters, whereby an optimum proximity between through airhole and through airhole

to be maintained and, on the other hand, to ensure that the through airholes are not too close together, thus weakening the cap and possibly producing a predetermined breaking point there. Furthermore, they are then sufficiently far apart, with the result that something which causes the blockage of one of the through airholes does not also affect the other.

Preferably the angular spacing is between two and four airhole diameters.

Three airholes may be provided of which, after a screwing-on procedure, the central one is in alignment in the alignment zone with the through hole of the pouring nozzle under normal conditions, whereby it is ensured that there is almost always a through airhole opposite the through hole and the through airholes to the right and to the left of it only come into effect in the event of extreme tolerances in one direction or the other.

The invention is now described by way of example with reference to the accompanying drawing in which:-

FIGURE 1 shows the plan view of a screw cap without a pouring spout, otherwise however being identical to the screw cap discussed in patent application No. 8900945.0.

FIGURE 2 shows a partially sectioned side view of the region of the pouring nozzle of a canister.

A canister 11, blow-moulded from plastic, has a nominal value of 20 litres. It has a pouring nozzle 16, which is essentially rotationally symmetrical to a geometrical longitudinal axis 17. The pouring nozzle bears

an external screw thread 18 which is relatively coarse. In the approximately 1 cm thick wall 23 of the pouring nozzle 16 there is a through hole 24 which, during the emptying of the canister 11, is at the top, opens into the front facer 21 and, on the inside of a slope 14 of the canister 11, continues in a mounting peg 26. Onto it is pushed a rigid vent tube 27, the inner end of which opens in the volume which is uppermost during the emptying of the canister. If such a canister 11 is emptied, liquid flows out of the opening 29 of the pouring nozzle 16. Air is drawn in at the opening 31 of the pouring nozzle 16, said air flowing through the through hole 24, through the vent tube 27 to the far end of the latter into the uppermost air volume of the canister 11. On its lower side according to Figure 1, a screw cap 32 has an annular channel 48 open towards the end face 21 in the use position. Into this there open three through airholes 50, 63, 64. Their diameter corresponds approximately to the width of the annular channel 48. Through airholes 63, 64 have an angular spacing from airhole 50 of 30°, as seen from the geometrical longitudinal axis 17. Under normal conditions, i.e. in the central range of the manufacturing tolerance, at normal temperatures and in the case of normal screw-on forces, through airhole 50 is in alignment with the opening 31. This is because an external thread 18, which is a single-start thread, has a thread start 66 which coincides with the thread start 67 of an internal thread 19. The internal thread 19 is likewise a single-start thread, with

the result that the through airholes 50, 63, 64 are always in the region of the opening 31 with the screw cap 32 screwed on.

CLAIMS:

1. A screw cap for a canister having a pouring nozzle with an external thread, and a through hole (24) in said nozzle, which opens into an end face of the pouring nozzle and leads to inside the canister, said cap having a base and a skirt, an annular channel (48) which opens away from the cap base (37), at least two through airholes (50, 63, 64), which lead through the cap base (37) from the annular channel (48), an internal thread (34) which matches the external thread (18) of said pouring nozzle, said screw cap (32) having a particular angular position relative to the pouring nozzle (16) at the end of the process for screwing it on, said airholes being arranged angularly offset relative to one another.

2. A screw cap according to Claim 1, characterised in that the angular spacing is greater than two airhole diameters but less than five airhole diameters.

3. A screw cap according to Claim 2, characterised in that the angular spacing is between two and four airhole diameters.

4. A screw cap according to Claims 1 to 2, characterised in that three through airholes (50, 63, 64) are provided, of which, after a screwing-on procedure, the central one is in alignment in the alignment zone with the through hole (24) of the pouring nozzle (16) under normal conditions.

5. A screw cap according to Claim 1, characterised in that the internal thread (19) and the external thread (18) are single-start threads with starts (66, 67) which, in terms of their angular position, match the through airholes (50, 63, 64).

6. A screw cap for a canister having a pouring nozzle substantially as herein described with reference to the accompanying drawings.

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