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(54) **Paperboard container with screw cap closure**

(57) A container comprises a paperboard tube (1) having an internal aperture for storing items and at least one opening (2) by means of which the internal aperture is externally accessible. A plastic tubular collar (6) is secured to the opening (2) of the tube (1), the collar (6)

having an external flange (7) which locates against the opening (2). The collar (6) further has a threaded cap receiving surface (6b) which, in use, is engageable by a complementary threaded surface of a cap (8) so as to secure the cap to the collar and hence close the container.

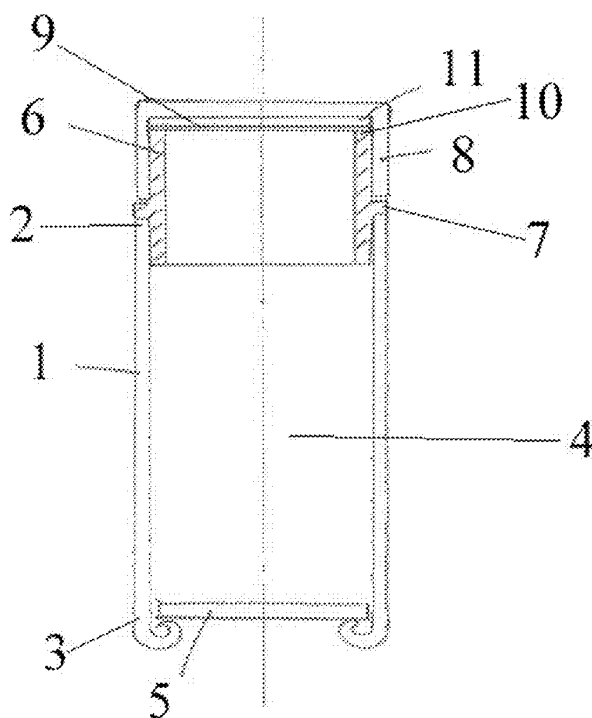


Figure 1

Description

[0001] The present invention relates to paperboard containers having replaceable screw cap closures.

[0002] Screw caps are a convenient and widely used way of providing a replaceable closure system for a container since they are cost effective and at the same time provide a reliable closure system which can be used repeatedly without deterioration in the effectiveness of the closure. Furthermore, the camming action which is effected by the tightening of the cap onto a threaded opening makes the system effective for providing an air tight seal when used in conjunction with a suitable seal member between the cap and the mouth of the container - typically mounted within the cap. However, there are limitations to the applications for such screw caps because the container with which they are to be used must be strong enough to carry a male thread without stripping when a cap is screwed tightly thereon. For example, paperboard containers, which are widely used for carrying a range of goods such as sweets, and which are particularly advantageous due to their being more environmentally friendly and more easily recyclable than corresponding containers made of plastic or the like, have hitherto not been used with screw caps because the thinness of the walls and relative weakness of the material means that even if a thread could be cut into the outer surface of the mouth of the container, it would easily be stripped or sheared and hence the cap not effectively retained. Although to some extent this problem can be overcome by making the walls of the container thicker, this is only possible for larger containers. As a result, smaller, thin walled paperboard containers have conventionally been used with press-in or press-on caps which are a close tolerance fit with the container so as to rely on friction for retention.

[0003] According to the present invention there is provided a container comprising a hollow body of a first material having an internal aperture for storing items and at least one opening by means of which the internal aperture is externally accessible, a collar formed of a second material secured to the opening of the container, the collar having a cap receiving surface which, in use, is engageable by a complementary surface of a cap member so as to secure the cap to the collar and hence close the container.

[0004] A container in accordance with the invention has the advantage that it enables use of a secure cap in conjunction with a container whose main body is formed of a material which is not strong enough to securely support a cap. As a result, it increases the choice of materials for different storage applications.

[0005] The cap receiving surface of the collar is preferably threaded for fastening of a screw cap, but may alternatively be tapered for receiving a friction lock fit cap.

[0006] Preferably, the main body is formed of a paperboard, in particular a spirally wound construction or 'con-volute' being a blank wrapped around to form a cylinder,

especially having thin walls, but other materials for the main body are also possible, such as plastic, metal or glass. In particular, the main body may be formed of a material which could, it self, support a thread but on which it would be more costly to form the thread as compared with the material of the collar.

[0007] The collar is preferably a tubular member, in particular of plastic material, advantageously injection molded, having opposing end sections which are separated by a central flange - a first end section engaging in the opening of the body and being attached therein and the second end having a male thread formed on its external surface which mates with a complementary female thread formed on the cap. Alternatively, a female thread may be formed on an internal surface of the collar which mates with a male thread formed on the cap.

[0008] The first end section preferably tapers inwards away from the flange so as to allow easy press fitting of the collar into the mouth of the container. The outer surface of the first end section then advantageously has teeth or barbs formed on it, for example by molding, which engage with the inner surface of the body of the container, biting thereinto so as to secure the collar to the body against rotation and/or removal from the body. The collar may alternatively or additionally be fastened to the body by means of adhesive which would provide an airtight seal between the body and the collar. Other sealing means may also be used.

[0009] A tamper evident seal may be fastened across the upper end of the collar which is pierced or removed by the user upon first removal of the cap.

[0010] In order that the invention may be well understood, there will now be described an embodiment thereof, given by way of example, reference being made to the accompanying drawings, in which:

Figure 1 is a sectional side view of a container of the invention with a cap in place; and

Figure 2 is a sectional side view of the container of Figure 1 with the cap removed.

[0011] Referring first to Figure 1, there is shown a paperboard tube 1 having opposing ends 2, 3 which close off the interior of the tube to form a closed storage space 4. The lower end 3, which forms the base, is closed off via a paperboard disk 5 which is retained in place by the base edge of the tube 1 being curled inwards. This disc 5 may optionally be sealed to the container in a known fashion, and may alternatively be of other material such as metal or plastic.

[0012] Inserted into the upper end 2 of the tube 1 is a tubular collar 6 having an external flange 7 located partially along its length and extending radially from its outer surface which forms an abutment stop to limit the insertion length of the collar 6 into upper end of the tube 1. The outer surface of the portion 6a of the tubular collar 6 which extends below the flange 7 tapers radially in-

wardly in the direction away from the flange so as to facilitate insertion of the collar 6 into the tube, the outer diameter of the lower portion 6a immediately adjacent the flange 7 being a close tolerance fit with the inner diameter of the mouth of the upper end 2 of the tube so that the friction retains the collar in the tube 1. The outer surface of the lower portion 6a of the collar 6 furthermore includes a number of teeth or barbs (not shown) formed on it which are oriented to enable easy insertion of the lower portion 6a into the mouth of the tube 1 but resist rotation of the collar relative to the tube 1 once so inserted and preferably also resistance withdrawal of the lower portion 6a from the tube 1. The lower portion 6a is additionally sealed to the tube by means of adhesive in a known manner.

[0013] The outer circumferential surface of the upper portion 6b of the collar 6 has a male thread formed in it, for example by molding, so as to enable a screw cap 8 to be removably fastened to the upper end of the collar 6, thereby sealing the storage space 4 of the container.

[0014] The container is initially sealed in a tamper evident fashion by means of a diaphragm 9 which is been sealed onto the upper open mouth 10 of the collar 6 and which must be pierced by the consumer in order initially to access the product contained in the tube 1. This would normally be applied by an induction heat-sealing technique which would also allow the incorporation of a wadding material 11 into the cap. The wadding material 11 allows for an effective closure of the cap 8 onto the collar 6 once the consumer has removed the diaphragm 9.

Claims

1. A container comprising a hollow body (1) of a first material having an internal aperture (4) for storing items and at least one opening (2) by means of which the internal aperture (4) is externally accessible, a collar (6) formed of a second material secured to the opening (2) of the container, the collar (6) having a cap receiving surface (6B) which, in use, is engageable by a complementary surface of a cap member (8) so as to secure the cap (8) to the collar (6) and hence close the container.
2. A container according to claim 1, wherein the cap receiving surface (6B) of the collar (6) is threaded for fastening of a screw cap (8).
3. A container according to claim 1, wherein the cap receiving surface (6B) of the collar (6) is tapered for receiving a friction lock fit cap.
4. A container according to any of the preceding claims, wherein the main body (1) is formed of a paperboard, in particular a spirally wound construction or 'convolute' being a blank wrapped around to form a cylinder.

5. A container according to any of the preceding claims, where the collar (6) is a tubular member.
6. A container according to claim 5, wherein the collar (6) is formed of plastic material, advantageously injection molded.
7. A container according to claim 5 or claim 6, wherein the collar (6) has opposing end sections (6A, 6B) which are separated by a central flange (7) - a first end section (6A) engaging in the opening of the body (1) and being attached therein and the second end (6B) having a thread formed on a surface which mates with a complementary thread formed on the cap (8).
8. A container according to claim 7, wherein the first end section (6A) tapers inwards away from the flange (7) so as to allow easy press fitting of the collar (6) into the mouth of the container.
9. A container according to claim 7 or claim 8, wherein the outer surface of the first end section (6A) has teeth or barbs formed on it which engage with the inner surface of the body (1) of the container, biting thereinto so as to secure the collar (6) to the body (1) against rotation and/or removal from the body.
10. A container according to any of the preceding claims, wherein the collar (6) is fastened to the body (1) by means of adhesive so as to provide an airtight seal between the body (1) and the collar (6).
11. A container according to any of the preceding claims, wherein a tamper evident seal (9) is fastened across the upper end (10) of the collar (6), which seal is pierced or removed by the user upon first removal of the cap (6).

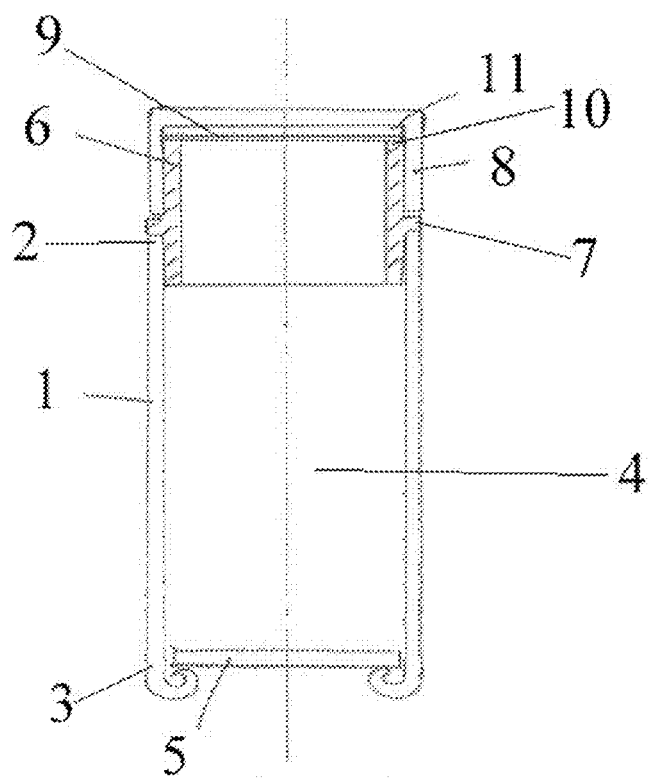


Figure 1

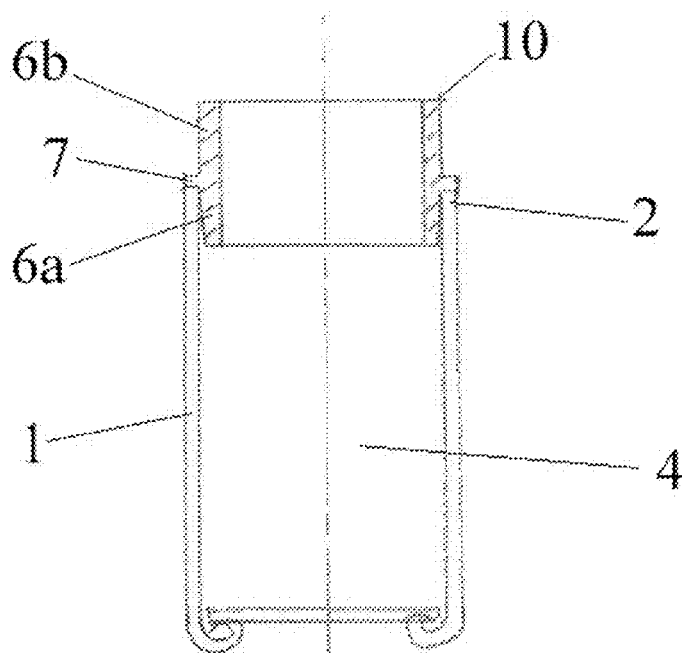


Figure 2



EUROPEAN SEARCH REPORT

Application Number
EP 08 16 2803

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			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 26 November 2008	Examiner Grondin, David
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 08 16 2803

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
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