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(71) Applicant:
MOSS PLASTIC PARTS LIMITED
Kidlington, Oxford OX5 1HX (GB)

(72) Inventor:
Dhillon, Baswinder Singh
Oxford, OX5 1HX (GB)

(74) Representative:
Dempster, Benjamin John Naftel et al
Withers & Rogers
4 Dyer's Buildings,
Holborn
London EC1N 2JT (GB)

(54) **Beer keg cap**

(57) A beer keg cap 10 comprises a continuous cup shaped member to receive the neck of the beer keg. The cup shaped member comprises a top 12 and a depending skirt 14. The skirt 14 includes lines of weakness 20 extending upwardly from its lower edge to pro-

vide tamper evidence by breaking. The cap 10 further includes a plurality of inwardly directed tabs 16, to engage under the neck of a beer keg. The tabs 16 are elongate in the circumferential direction.

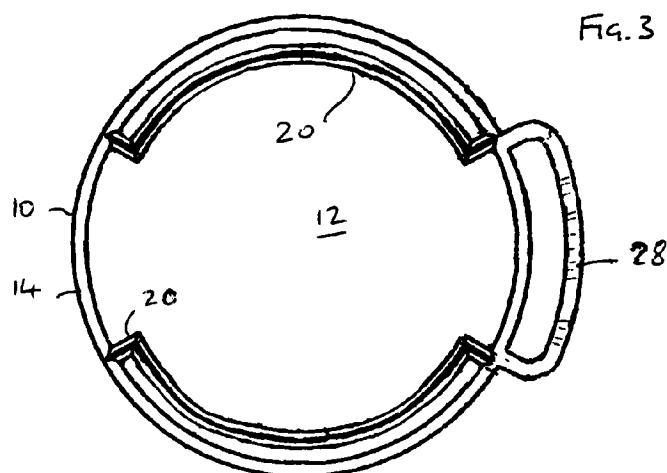


Fig. 3

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Description

The invention relates to a beer keg cap.

A known beer keg cap is described in EP 0652162. The document discloses a tamper evident cap for a keg spear comprising a flat, circular top and a depending skirt. The skirt includes a large number of apertures and from the base of each aperture a tooth extends inwardly and upwardly. Each tooth is substantially rectangular and elongate inwardly. The teeth are arranged to snap onto the neck of the keg spear and engage under the annular projection of the neck to retain the cap. There are axial slots spaced around the skirt and a radial tab is defined in the top of the cap between a pair of parallel lines of weakness which terminate at two adjacent slots in the skirt. A tamper evident ring is provided connected to the skirt by frangible tags.

According to one aspect of the invention there is provided a beer keg cap comprising a continuous cup shaped member to receive the neck of the beer keg, and means for engaging the beer keg to retain the cap.

As the cup shaped member is continuous, moisture and dirt cannot readily enter the cap to contaminate the keg unlike the known cap described above which has a large number of apertures in the skirt.

The cup shaped member may comprise a top and a depending skirt and the skirt may include at least one line of weakness extending upwardly from its lower edge to provide tamper evidence by breaking.

Indeed, according to another aspect of the invention there is provided a beer keg cap comprising a cup shaped member comprising a top for the keg neck and a skirt depending from the top to lie around the neck in use, the skirt including at least one line of weakness extending upwardly from its lower edge to provide tamper evidence by breaking.

While the known cap includes a ring which is broken away from the main part of the cap on tampering, this is entirely different from the tamper evident arrangement of the present invention. The separation of the ring is inconvenient as the ring then remains on the keg while in the present invention tampering does not result in separation of the cap into two parts. The use of lines of weakness in the skirt is also significantly easier to manufacture.

Preferably the lines of weakness are imperforate and may for example be score lines.

Preferably, there are at least two lines of weakness extending upwardly from the lower edge of the skirt and at least four lines of weakness may be provided. Preferably, at least two opposite lines of weakness are provided.

The or at least one line of weakness may extend over the whole of the height of the skirt and preferably the or at least one line of weakness extends over the whole of the height of the skirt and continues over at least part of the top, preferably at least half of the top. Breaking of the cap along the or each line of weakness

will assist in removal of the cap. Preferably, the section between two lines of weakness includes means to enable the section to be pulled to thereby break the said two lines of weakness. The means may comprise a finger loop.

The cap may include a plurality of inwardly directed tabs to engage under the neck of a beer keg, each tab being elongate in a circumferential direction.

According to a further aspect of the invention, there is provided a beer keg cap including a plurality of inwardly directed tabs to engage under the neck of a beer keg, each tab being elongate in the circumferential direction.

Circumferentially elongate tabs of this type are strongly resilient and also act to spread stresses on the cap.

The tabs may be provided in a ring around the circumference and the edges of neighbouring tabs in the ring are preferably closely adjacent.

The inner edge of each tab may be convex and preferably each tab is substantially symmetrical about a chord of the cap.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings, in which:

Fig. 1 is a front elevation of the cap of the embodiment;

Fig. 2 is an underneath plan view of the cap of Fig. 1;

Fig. 3 is a view of Fig. 2 with the tabs not shown;

Fig. 4 is a side elevation in cross-section at A-A of Fig. 2; and,

Fig. 5 is the view of Fig. 4 with the cap fitted onto a beer keg.

The cap 10 of the embodiment comprises a planar circular top 12 and a depending skirt 14. The skirt 14 includes a slight flare to be frusto-conical in shape. A circumferential ring of inwardly directed tabs 16 project from the inner surface of the skirt 14. The tabs 16 are each elongate in the circumferential direction and are substantially symmetrical about a chord of the skirt 14 parallel to the top 12. There are six tabs 16. The tabs 16 extend from the skirt 14 at about one-third of the height of the skirt 14 from the lower edge 18 of the skirt 14.

Four lines of weakness 20 are provided in the skirt 14. Each line of weakness 20 is parallel to the axis of the cap 10 and intersects the small gap between two neighbouring tabs 16. The lines of weakness 20 are provided in two opposite pairs. Each line of weakness 20 continues for a short distance into the top 12 radially and then extends in a circumferential direction around the top 12 and includes a further short radial section to connect to the more distant neighbouring line of weakness 20.

A finger loop 28 is provided and each end of the loop 28 is connected to the lower edge 18 of the skirt 14

immediately adjacent a line of weakness 20 such that the loop 28 is connected to a section between two closely spaced lines of weakness 20. The finger loop 28 is symmetrical and each arm 32 of the loop 28 extends radially outwardly initially and then circumferentially before curving upwards and then linking with the other arm to form a U-shape such that the loop 28 is substantially the same height as the skirt 14.

The cap may be injection moulded from polypropylene, high temperature polyethylene or polystyrene.

In use, the cap 10 is forced over the annular projection 32 on the neck 34 of a beer keg. In this action, the tabs 16 are bent upwardly and engage under the annular projection 32 to retain the cap 10 on the beer keg neck 34. The tabs 16 will be resiliently bent in this position. If someone should attempt to tamper with the beer keg, attempted removal of the cap will lead to splitting of the skirt 14 along one of the lines of weakness 20 which provides evidence of tampering. Dirt and moisture are prevented from entering the keg as the top 12 and skirt 14 of the cap 10 are continuous. When it is desired to open the keg, the cap 10 is removed by inserting a finger through the finger loop 28 and pulling upwardly. The cap 10 will break along the lines of weakness 20 adjacent the loop 28 and further pulling of the tab 28 will cause the top 12 of the cap 10 to be broken along the lines of weakness therein such that the cap 10 can be pulled off the beer keg neck 34.

In a further embodiment, two additional lines of weakness 20 are provided in the remaining two positions between adjacent tabs 16.

In another embodiment, the part of the line of weakness 20 which extends circumferentially in the top 12 of the cap 10 does not meet up with another line of weakness but terminates after a distance of no less than one sixth of the circumference of the cap 10. In removal, the cap can be broken across the top 12 to at least half way across, the remainder of the cap 10 will flex sufficiently for the cap 10 to be removed.

Claims

1. A beer keg cap comprising a continuous cup shaped member to receive the neck of the beer keg, and means for engaging the beer keg to retain the cap.
2. A cap as claimed in claim 1, wherein the cup shaped member comprises a top and a depending skirt and the skirt includes at least one line of weakness extending upwardly from its lower edge to provide tamper evidence by breaking.
3. A beer keg cap comprising a cup shaped member comprising a top for the keg neck and a skirt depending from the top to lie around the neck in use, the skirt including at least one line of weakness extending upwardly from its lower edge to pro-

vide tamper evidence by breaking.

4. A cap as claimed in claim 2 or claim 3, wherein the or each line of weakness is imperforate.
5. A cap as claimed in claim 4, wherein the or each line of weakness is a score line.
6. A cap as claimed in any of claims 2 to 5, wherein the or at least one line of weakness extends over the whole of the height of the skirt.
7. A cap as claimed in claim 6, wherein the or at least one line of weakness extends over the whole of the height of the skirt and continues over at least part of the top.
8. A cap as claimed in claim 7, wherein the or at least one line of weakness continues over at least half of the top.
9. A cap as claimed in any of claims 2 to 8, wherein there are at least two lines of weakness extending upwardly from the lower edge of the skirt.
10. A cap as claimed in claim 9, wherein at least four lines of weakness are provided.
11. A cap as claimed in claim 9 or claim 10, wherein at least two opposite lines of weakness are provided.
12. A cap as claimed in any of claims 9 to 11, wherein the section between two lines of weakness includes means to enable the section to be pulled to thereby break the said two lines of weakness.
13. A cap as claimed in claim 12, wherein the means comprises a finger loop.
14. A cap as claimed in any preceding claim, wherein the cap includes a plurality of inwardly directed tabs to engage under the neck of a beer keg, each tab being elongate in a circumferential direction.
15. A beer keg cap including a plurality of inwardly directed tabs to engage under the neck of a beer keg, each tab being elongate in the circumferential direction.
16. A cap as claimed in claim 14 or claim 15, wherein the tabs are provided in a ring around the circumference.
17. A cap as claimed in claim 16, wherein the edges of neighbouring tabs in the ring are closely adjacent.
18. A cap as claimed in any of claims 14 to 17, wherein the inner edge of each tab is convex.

19. A cap as claimed in claim 18, wherein each tab is substantially symmetrical about a chord of the cap.

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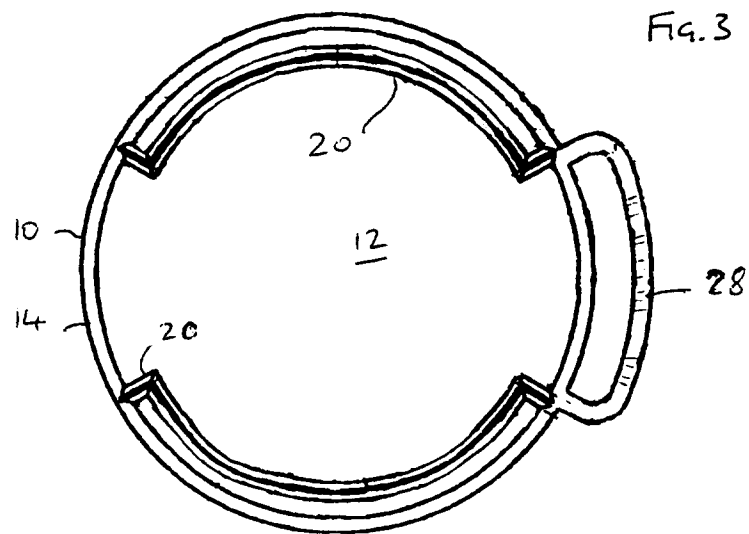
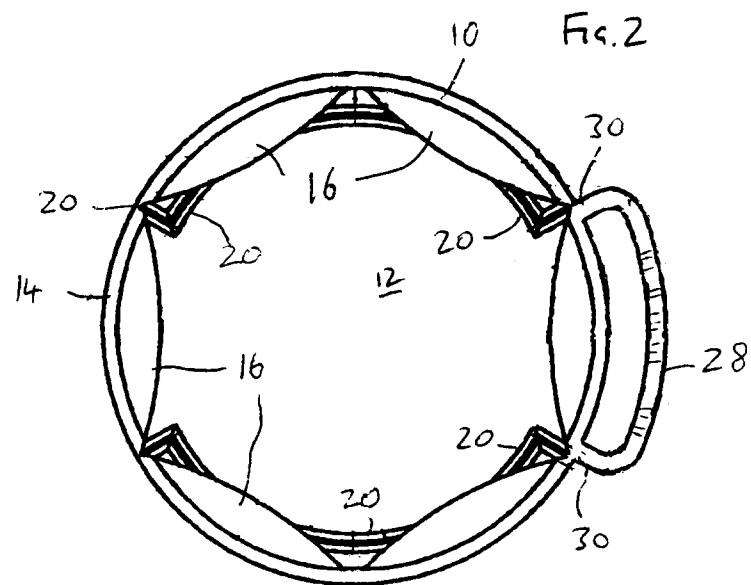
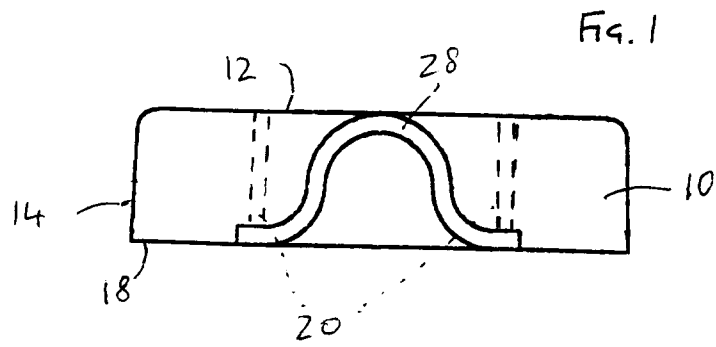
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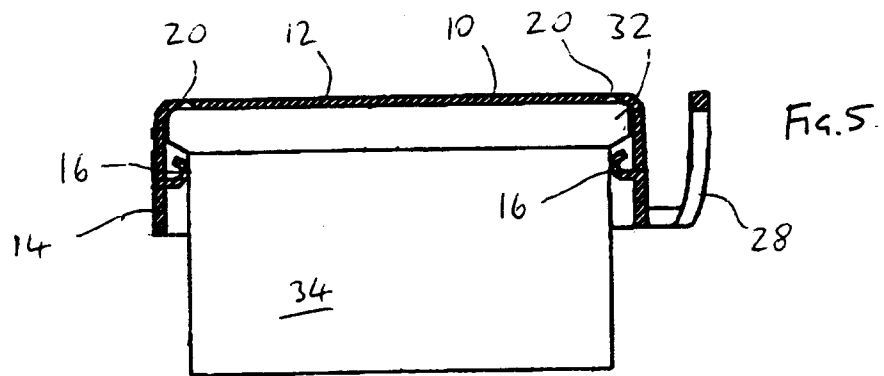
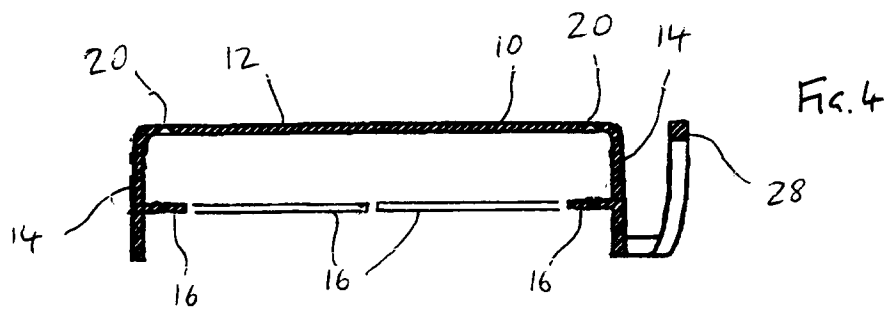
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EUROPEAN SEARCH REPORT

Application Number
EP 96 30 5871

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.6)
X	GB-A-2 222 399 (MAUSER-WERKE GMBH) 7 March 1990 * page 4, line 2-16; figures 1,2 *	1-9,11, 12,14-19	B65D41/48 B65D51/18
X	WO-A-91 02686 (CAMPBELL) 7 March 1991 * page 3, line 24 - page 4, line 3; figures 1,2 *	1-8, 14-19	
X	FR-A-2 077 521 (CONTINENTAL CAN COMPANY) 29 October 1971 * page 17, line 4-37; figures 17-19 *	1-9, 11-13	
A	LU-A-66 661 (ALCA SA.) 14 December 1972 * page 5, line 17-24; figure 8 *	1,13	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14 January 1997	Examiner Vollering, J
<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>			

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