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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CAP WITH SPECIAL HOLLOW SPACE

(57) Abstract: The creation consists of a cap (HIDE-CAP) with a special hollow space to be used as cap for a container or a bottle. This creation facilitates the combination of the functions: storage, heating, and cap, as they are combined in the same product. Especially in situations, where there is a need to save space, e.g., as provisions on board air-craft, ships, strains, etc., the creation solves a special need.
Cap with special hollow space

DESCRIPTION:

Designation:

Cap for container with its own hollow space for storage of objects of a liquid or solid nature.

Application:

The creation consists of a box (HIDE-CAP) with a special hollow space which may be used as a cap for a container, bottle, etc.

The creation may e.g. be used as an alternative to ordinary screw caps for bottles and as cap for other containers.

The creation facilitates the storage and keeping of objects of a liquid or solid nature in the cap itself which at the same time may be used as a cap for a container made of metal, glass, plastic, or any other material.

The creation may e.g. contain a straw, advertising material, information, cosmetics, peanuts, raisins, ketchup, etc. which of course will be adjusted to the contents of the main container. The main container may e.g. contain sausages, travelling tickets, desserts, shampoo, soft drinks, chemical substances, etc.

The creation is assembled onto the container either with an adjusted screw cap or with a tip-up lock.

Upon assembling with a screw cap the upper and lower part are oppositely directed facilitating the screwing on and off of the cap.

Upon assembling with a tip-up lock, a lock triggers a tipping function on one side of the creation thus tipping the cap off the main container. The tip-up lock may be equipped with a lifting hook which makes it possible to open and lift off the cap entirely (HOOK-CAP).

A ring is placed between the creation and the container to ensure the tightness of the cap. A plastic covering may be attached to the creation and the container to seal up the container and keep it free from dust, dirt, and pollution, etc. and thus increase hygiene. This covering may cover the whole container or just a small part between the creation and the main container. The covering is broken in connection with the opening of the main container.

The creation may also be used to heat the contents of the main container (HIDE-CAP HEATBOX). By putting two different kinds of chemicals into the creation and mixing these to generate heat, one may heat the contents of the main container.

In this case the creation constitutes an alternative heating source.
The creation may be widely used and may e.g. be used for fast food, provisions, outdoor life, heated spare provisions, drinking cups for aircraft, trains, cars, boats, etc.

**Known technology:**

In this field there is a number of different caps. However, there are no caps like the creation in question, where the functions: storage, heating and cap are combined in the same product.

**The technical problem:**

With this creation it is possible to combine the functions: storage, heating and cap in the same product. Especially in situations, where there is a need to save space, e.g. as provisions for outdoor life, food and drink on board aircraft, ships, trains, etc., the creation solves a special need.

Additionally, there are numerous potential applications e.g. combined sale within the advertising, food, and stimulant industry.
LIST OF FIGURES:

Figure 1:  Cap closed from the side (bottle)
Figure 2:  Cap from above (bottle)
Figure 3:  Cap opened (bottle)
Figure 4:  Cap in sectional view from the side (bottle)
Figure 5:  Cap in sectional view from the side with an object in the hollow space - open (bottle)
Figure 6:  Cap in sectional view from the side with an object in the hollow space - closed (bottle)
Figure 7:  Cap closed from the side (container)
Figure 8:  Cap with illustrated tipping function
Figure 9:  Removable cap illustrated open
Figure 10: Removable cap illustrated open and removable top
Figure 11: Heat box with hollow space under box illustrated from the side
Figure 12: Heat box with hollow space under box illustrated from the side with removable cap with hollow space.
CLAIMS

UTILITY MODEL REQUIREMENTS:

The creation is an innovation in that the cap may function both as a container in itself for the storage of accompaniments or accessories to the contents of the main container and at the same time function as a cap.

The creation is an innovation in that the cap may be used for heating of the main contents and at the same time function as a cap.
Hide-Cap & "Flaske / Bottle"
HIDE-CAP & Boks
m. gjenger & aluminium drikkeboks m. gjenget toppf lens.
HIDE-CAP & Boks
m.vippeåpning og gripekrok & aluminiumboks

Figure 8:

HIDE-CAP m. vippeåpning uten gripekrok
Figure 10:

HIDE-CAP & Drikkebeger.

Leskedrikk-Te-
Figure 11.

HIDE-CAP "HEATBOX"

TURN TO BREAK THE SAFETY LOCKS TO ACTIVATE THE HEATING PROCESS.
HIDE-CAP "HEATBOX" med pakning & åpen aluminiumsboks.

Figure 12
A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B65D 51/28, B65D 81/34
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPDOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>DE 20019838 U1 (OMIRATE, SARAJE), 7 February 2002 (07.02.02), page 1</td>
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<td>WO 0073167 A1 (ALCOA CLOSURE SYSTEMS INTERNATIONAL, INC.), 7 December 2000 (07.12.00), page 2, line 6 - line 15, figure 2</td>
<td>1</td>
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<tr>
<td>X</td>
<td>DE 2351842 A1 (AROMAC NACHF. BURKART &amp; CO.), 24 April 1975 (24.04.75), figure 2, page 4, forth paragraph - the last</td>
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[ ] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

Date of the actual completion of the international search: 25 June 2002

Date of mailing of the international search report: 26-06-2002

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<tr>
<td>X</td>
<td>US 5769263 A (WENDELL D. WILLINGHAM ET AL), 23 June 1998 (23.06.98), column 3,</td>
<td>1</td>
</tr>
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<td></td>
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<tr>
<td>X</td>
<td>US 3941275 A (RICHARD J. SIMMONS), 2 March 1976 (02.03.76), column 1, line 19 -</td>
<td>1</td>
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<tr>
<td>X</td>
<td>US 5255812 A (YU T. HSU), 26 October 1993 (26.10.93), column 1, line 20 - line 32;</td>
<td>1</td>
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<tr>
<td></td>
<td>column 2, line 9 - line 26, figure 4</td>
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<tr>
<td>X</td>
<td>DE 3314340 A1 (SOCIETE D'APPLICATION PLASTIQUE, MECANIQUE ET ELECTRONIQUE</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PLASTIMECANIQUE S.A.), 25 October 1984 (25.10.84), page 5</td>
<td></td>
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<tr>
<td>X</td>
<td>GB 2040864 A (INDUSTRIAS DIETICAS Y ALLMENTICIAS, PHOSCAO S.A.), 3 Sept 1980 (03.09.80),</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>page 1, line 5 - line 29, figures 1, 2</td>
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<tr>
<td>Patent document cited in search report</td>
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<td>Patent family member(s)</td>
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<tr>
<td>GB 2216110 A</td>
<td>04/10/89</td>
<td>AT 47089 A</td>
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<td>CA 1323613 A</td>
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<td>ES 2014581 A</td>
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<td>FR 2628070 A,B</td>
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<td>GB 8904578 D</td>
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<td>NL 193587 B,C</td>
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<td>NL 8900516 A</td>
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<td>WO 0073167 A1</td>
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<td>DE 2351842 A1</td>
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<td>NONE</td>
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<tr>
<td>US 5769263 A</td>
<td>23/06/98</td>
<td>AU 5533398 A</td>
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<td>WO 9831600 A</td>
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<td>US 3941275 A</td>
<td>02/03/76</td>
<td>NONE</td>
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<tr>
<td>US 5255812 A</td>
<td>26/10/93</td>
<td>GB 2277800 A</td>
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<td>DE 3314340 A1</td>
<td>25/10/84</td>
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