

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
13 January 2011 (13.01.2011)

(10) International Publication Number  
**WO 2011/004366 A1**

(51) International Patent Classification:  
F27D 11/00 (2006.01)

(21) International Application Number:  
PCT/IL2010/000540

(22) International Filing Date:  
6 July 2010 (06.07.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
199711 6 July 2009 (06.07.2009) IL

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(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,  
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,  
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,  
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,  
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,  
NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD,  
SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,  
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,  
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,  
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,  
LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK,  
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments (Rule 48.2(h))

(54) Title: A CONTAINER WARMER APPARATUS

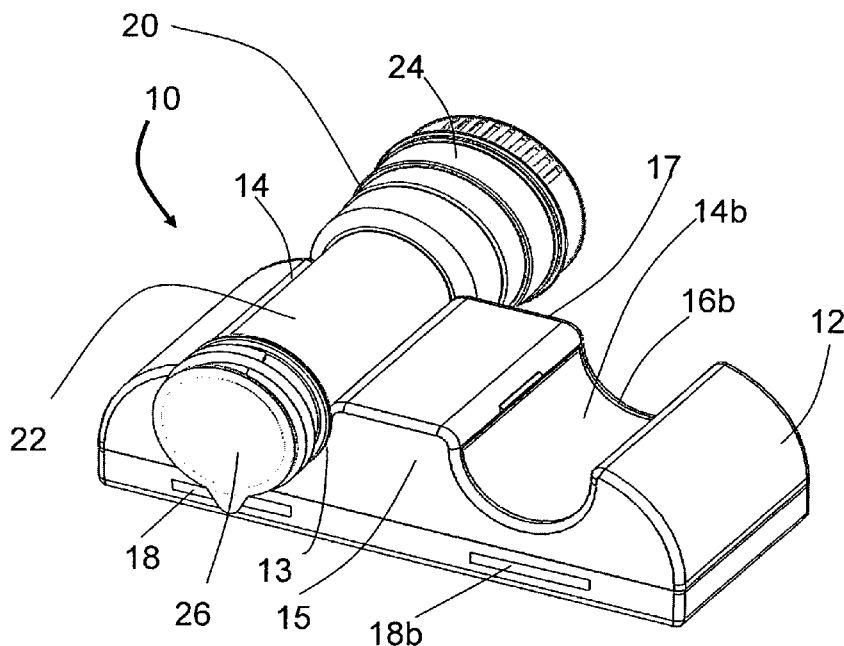


Figure 4

(57) Abstract: A warming apparatus for warming a container having outer walls, the apparatus including a warmer body, at least one container holder, open at both ends, defined in the body, the container holder including holder walls adapted and configured to cradle a portion of the outer walls of a container for releasably holding that portion of the outer walls, and at least one heating element disposed in the warmer body adjacent the container holder.



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## A CONTAINER WARMER APPARATUS

### FIELD OF THE INVENTION

The present invention relates to a container warming apparatus, in general and, in particular, to a warmer for a single or multi compartment container.

5

### BACKGROUND OF THE INVENTION

Container warmers are known in the art and include a variety of devices for warming containers. Typically, each warming device is adapted to warm a certain kind of container. One known container warming device is a baby bottle warmer, which is used for warming the formula, milk or other nutriments stored inside baby bottles or other containers for baby nutriments.

One example of such a baby bottle warmer is disclosed in US Patent 6,427,863 to Nichols, where a thermos base with an insulated cup is filled up with water which is heated to a predefined temperature. A baby bottle is placed inside the hot water and is retained therein until the food inside the bottle reaches the desired temperature. Nichols further describes a cap with a plurality of vent holes, which allows steam from the hot water in the insulated cup to escape. The bottle warmer according to this US Patent permits the bottle to be disposed therein and heated in an upright position only and the heat generated by the warmer spreads upwards to all parts of the bottle heating the entire formulation which it contains.

Baby formulas typically require several steps for preparation. First, sterilized or purified liquid, such as water, must be measured into the bottle. Second, the powdered formula must be measured and added to the liquid, and third, the formulation may be warmed to a proper temperature before feeding the baby, particularly if it is prepared in advance and stored in a refrigerator. This is a time consuming process for a user, especially when the baby is hungry and crying. In addition, sterilized or purified water or other materials, such as substances in powdered form, are not available at all locations, or appropriate facilities for preparing them may not be available, when it is desired to prepare the formulation.

There are also known a wide variety of containers having two compartments for storing separately different components for combining to form a desired formulation immediately prior to consumption. One example of such a container is shown in USP 6,113,257 to the present applicant. This patent describes a container including a housing with a dispensing opening and a neck portion between the opening and a bottom end of the housing; and a displaceable member disposed within the housing and having a partition wall with an edge adapted for a sealing engagement with the internal walls of the neck portion, thereby defining two compartments separated by the partition wall. The displaceable member is axially displaceable between two positions along an axis extending through the neck portion, the two positions comprising a first position, where the edge of the partition wall sealingly engages the internal walls of the neck portion, and a second position, where the edge and the internal walls are disengaged permitting flow communication between the two compartments.

Typically, one compartment of the multi-compartment container is filled with one component in powdered form of the formulation, and a second compartment is filled with water or other liquid at a desired temperature and is mixed with the component contained in the first compartment just prior to use. In case of a baby bottle, the multi-compartment container is pre-filled with water in one compartment and powder in the second compartment. Prior to forming the formulation and feeding a crying baby, the water needs to be heated to a proper temperature. In order to speed up the start of the feeding, it would be an advantage if the water is kept warmed at a desirable temperature up until just prior to use while both components of the formulation are already stored in the container. However, heating up the multi-compartment container by known baby bottle warmers may result in heating both the water and the powdered component for extended periods of time. It is known that heating certain substances for extended periods of time may cause an undesirable structural change in the macromolecules of the substance, in a process known as denaturation. Thus, placing a pre-filled multi-compartment container in a

conventional bottle warmer in the upright position may result in undesirably heating up all the components in the container, since heat naturally rises.

Accordingly, there is a long felt need for a container warmer that will heat substantially only one or more desired portions of a single compartment or a multi-  
5 compartment container.

### SUMMARY OF THE INVENTION

There is provided, according to the present invention a warming apparatus for warming at least one container having outer walls, which can be a single- or multi-  
10 compartment container. The apparatus includes a warmer body, at least one container holder, open at both ends, defined in the body, the container holder including holder walls adapted and configured to cradle a portion of the outer walls of a container for releasably holding that portion of the outer walls, and at least one heating element disposed in the warmer body adjacent the container holder.

15 According to one embodiment the container holder has a shape complementary to a portion of the container for releasably cradling that portion.

According to another embodiment the warmer body further includes a temperature selector associated with each container holder.

20 According to one embodiment of the invention, the warmer body further includes a portable energy source.

According to another embodiment of the invention, the warmer body further includes a car outlet plug.

There is also provided, according to the invention, a warming apparatus for warming a multi-compartment container, the apparatus including a warmer body, at  
25 least one container holder defined in the body, each for holding a multi-compartment container in a substantially horizontal position, each container holder being sized to hold a portion of the container, and at least one heating element disposed in the body, one of the heating elements being disposed adjacent one of the container holders for heating at least a portion of the container holder.

Still further according to the invention, there is provided a method for forming a warming apparatus for warming a container having outer walls, the method including forming warmer body, defining at least one container holder, open at both ends, in the warmer body for releasably holding a container, forming holder walls in  
5 the container holder sized and configured to cradle a portion of the outer walls of a container, and disposing at least one heating element in the warmer body adjacent the container holder.

## BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be further understood and appreciated from the following detailed description taken in conjunction with the drawings in which:

**Figure 1a** is a side perspective schematic illustration of container warmer  
5 constructed and operative in accordance with one embodiment of the present invention;

**Figure 1b** is a side perspective schematic illustration of container warmer constructed and operative in accordance with one embodiment of the present invention;

10 **Figure 2** is a side view illustration of the container warmer of **Figure 1b**;

**Figure 3** is a top view illustration of the container warmer of **Figure 1b**;

**Figure 4** is a side perspective view illustration of the container warmer of **Figure 1b** holding a multi-compartment bottle;

15 **Figure 5** is a side view illustration of the container warmer of **Figure 1b** holding a multi-compartment bottle;

**Figure 6** is a top view illustration of the container warmer of **Figure 1b** holding a multi-compartment bottle;

**Figure 7** is a perspective view illustration of a container warmer constructed and operative in accordance with another embodiment of the present invention;

20 **Figure 8** is a perspective view illustration of a heating unit for a container warmer constructed and operative in accordance with one embodiment of the present invention;

**Figure 9** is a perspective view of a container warmer constructed and operative in accordance with another embodiment of the present invention; and

25 **Figure 10** is an end view of the container warmer of **Figure 9**.

## DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a container warming apparatus for warming at least one container having outer walls. The container can be a single compartment or multi-compartment container, which may contain substances in one or more compartments while being warmed. The warming apparatus includes a warmer body  
5 defining at least one cradle or container holder, open at both ends, and having holder walls adapted and configured to cradle a portion of the outer walls of a container for releasably holding a portion of the container. A heating element is disposed in the warmer body adjacent the container holder for heating a portion of  
10 the container which is placed in the cradle.

According to the invention, only a desired portion of the container held in the container holder is heated by the container warmer, while other portions of the container are not warmed or are warmed very little. Thus, the container can be held in a horizontal position, meaning holding the container in a position wherein all of  
15 its compartments are substantially leveled in respect to each other and the horizon. The container can also be held in a substantially horizontal position, which includes an acute angle from the horizontal, i.e., about 45° or less, whereby only the desired portion of the container held in the container holder is heated by the container warmer. Alternatively, the container can be held substantially vertically, where the  
20 portion to be heated is held above the portion not to be heated, to prevent warming by convection. According to some embodiments of the invention, holder holds the container so that it cannot not fall out unintentionally. Thus, the container holder may be sized for snap fit, or may include conventional flexible stopper elements, as so forth, such that no external means are required to retain the container in the  
25 holder/cradle.

According to one embodiment, the cradle of the warming apparatus is sized to permit warming of a portion of a multi-compartment container, and preferably the outer walls of one compartment of the container, while the other portions of the

container or other compartments extend outside the cradle. Holding the container in a substantially horizontal position on the warmer apparatus prevents the heat, which naturally rises from the heating element of the warmer and the heated portion of the container, from reaching other portions of the container and heating their contents, as well. This is of particular importance when one substance in a first compartment of the multi-compartment container is being heated, while a second substance contained in a second compartment can be denaturalized when exposed to heat. The warming apparatus according to the present invention allows, for example, heating water contained in one compartment of a two-compartment baby bottle without heating a powdered baby formula contained in the second compartment of the bottle before mixing the two components into a formulation and feeding a baby.

**Figure 1a** is a perspective view of a container warmer constructed and operative in accordance with one embodiment of the present invention. Container warmer **10** includes a warmer body **12** having a heating element **18** which can be energized by any conventional power source. It is a particular feature of the present invention that warmer body **12** defines a container holder, here illustrated as a cradle **14**, open at both ends, having holder walls **13** for releasably holding or engaging a single- or multi-compartment container in a horizontal position. Cradle **14** is defined in body **14** along a horizontal axis **X** through body **12**. Preferably, cradle **14** is formed with a semi-cylinder shape, which is complementary to typical cylindrically shaped contours of the outer walls of the container, for engaging the outer walls of the container. Cradle **14** extends from one outside wall **15** of body **12** to a second outside wall **17** of body **12**, and is open on both ends. Preferably, cradle **14** is sized along axis **X** to hold a portion of the container, while the other portion or portions of the container extend outside of either one or both ends of cradle **14** and, preferably, of body **12**. The heating element heats at least a portion of the cradle which, in turn, heats the outer walls of the portion of the container held therein. The portions of the container which extend outside of cradle **14** are not in contact with warmer body **12**, thus remain substantially unheated. Furthermore, these portions of the container are

surrounded by ambient air, which enhances heat convection away from these portions.

**Figures 1b, 2 and 3** are perspective, side, and top views, respectively, of a container warmer constructed and operative in accordance with an alternative embodiment of the present invention including two container holders, here illustrated as cradles **14** and **14b**, each for holding a container in a substantially horizontal position, substantially as described above with regard to **Figure 1a**. Container warmer **10** includes a warmer body **12** having heating elements **18, 18b** associated with each container holder, which can be energized by any conventional power source. The heating elements heat at least a portion of the cradles which, in turn, heat the portions of side walls of the containers held therein and preferably can be energized individually and independently. An on/off switch (not shown) is provided in the warmer body for selectively energizing heating elements **18, 18b**. The portions of the container which extend outside of cradle **14** are not in contact with warmer body **12**, thus remain substantially unheated. Furthermore, these portions of the container are surrounded by ambient air, which enhances heat convection away from these portions.

According to other embodiments of the present invention, cradle **14** may be formed in various shapes to complement the contours of the outer walls of containers having unconventional shapes, such as rectangular or hexagonal, etc. Preferably, the shape of cradle **14** complements the contours of the outer walls of that portion of the container which it is desired to heat.

Preferably, wall **13** of cradle **14** is lined with a heat-conductive plate **16**, wherein one side of the plate is adapted to engage, or to be mounted in close proximity to, the heating element in body **12**, and the second side of the plate lines cradle **14** and is mounted adjacent a portion of the container to be heated. According to another embodiment, the heating element in body **12** heats a heat convection medium, such as oil or other liquid or heat transferring material, wherein the medium

is contained in body **12** and contacts cradle **14** for heating at least a portion of the cradle.

Heat-conductive plate **16** can be made of any heat conductive material, such as metal or other materials having similar heat conductive characteristics. Plate **16**, according to this embodiment, is semi-cylindrically shaped and is arranged to completely line cradle **14**, as shown in **Fig. 1a**. Alternatively, plate **16** may be arranged to line a portion or selected portions of cradle **14**. For example, heat-conductive plate **16** may consist of several metal strips (not shown) disposed in cradle **14** between its open ends along axis **X**, or around its circumference perpendicular to axis **X**. According to yet another embodiment, plate **16** may consist of a heating element. Such plate **16** or preferably a plurality of such plates can be mounted in cradle **14** or in a portion or portions thereof (not shown).

Container warmer **10**, as shown in **Figure 1b**, includes a second container holder, here a second cradle **14b** having holder wall **13b**, which is lined with a heat conductive plate **16b**. Second cradle **14b** may be used simultaneously with cradle **14**. Alternatively, cradles **14** and **14b** may differ in diameter or shape, each adapted to hold a container having a different diameter or shape.

Preferably, container warmer **10** includes a thermostat (not shown) associated with each container holder, for maintaining the heating temperature in each holder at a prescribed level, for example, 38°C in case the container warmer **10** is used for warming baby bottles. In addition, container warmer **10** may further include a temperature selector (not shown), associated with each container holder, which may be adjusted in accordance with the substance to be heated and the desired temperature. According to yet another embodiment, body **12** may include a heating element for each cradle **14** and **14b**, wherein one heating element may be set to one pre-selected temperature, while the second heating element is set to another pre-selected temperature.

Container warmer **10** may further include a portable power source, such as batteries, and/or a car plug, for using a car battery as a power source.

Figures 4, 5, and 6 are perspective, side, and top views, respectively, of container warmer 10 of Figure 1 holding a multi-compartment bottle 20 thereon. Bottle 20 includes a first compartment 22, a second compartment 24, and bottle cap 26. Second compartment 24 includes a partition wall (not shown), which may be  
5 selectively opened, so as to permit flow communication between the two compartments. The components contained in the two compartments may form, for example, a formula for feeding a baby, or another food product or a medication, when mixed together.

It is a particular feature of the present invention that the warming apparatus  
10 permits continual warming of only one component before it is mixed with the second component, where the second component is undesirably sensitive to heat. If the user wishes to heat the component which is stored in compartment 22 while avoiding heating the component stored in compartment 24, multi-compartment bottle 20 is placed on bottle warmer 10, here illustrated in a horizontal position, by disposing first  
15 compartment 22 inside cradle 14 as shown, resulting in physical contact between the outer walls of compartment 22 and heat-conductive plate 16 in wall 13. The length of cradle 14 is arranged so as to engage the outer walls of compartment 22 only, while the outer walls of compartment 24 extend outside of cradle 14, thus avoiding direct contact with warmer body 12, so as to minimize heat convection from heat-  
20 conductive plate 16 to compartment 24. Placing bottle 20 on bottle warmer 10 in a horizontal position substantially eliminates heat convection from heated compartment 22 to compartment 24 (which may occur in conventional bottle warmers by heat naturally rising from first compartment 22 to compartment 24 when bottle 20 is vertically placed and heated). Once the temperature of the component in  
25 compartment 22 reaches the desired level, bottle 20 may be removed and the partition wall in the multi-compartment container can be opened, thus permitting flow communication between the two compartments and mixing of the heated component in compartment 22 with the non-heated component in compartment 24, to form a mixture ready for immediate consumption.

**Figure 7** is a side perspective view of a container warmer constructed and operative in accordance with another embodiment of the present invention. Container warmer **40** is substantially the same as container warmer **10** of **Figures 1 to 3**, and includes a warmer body **42**, and a container holder, here illustrated as a depression **44**. According to this embodiment, depression **44** includes a heating portion **45a**, having a heat-conductive plate **46**, and an insulating portion **45b**, having an insulating plate **48**. Heating portion **45a** is configured and shaped for holding the outer walls of the portion of the container which is to be heated, and insulating portion **45b** is configured and shaped for holding portions of the container which are to remain, substantially, unheated. Insulating plate **48** may be mounted on the entire insulating portion **45b** or on any part thereof.

**Figure 8** is a bottom perspective view of a heat-conductive plate **50** for a two cradle container warmer, constructed and operative in accordance with one embodiment of the present invention. According to this embodiment, heat-conductive plate **50** includes a conductive sheet **52** shaped to define a first cradle **54** and a second cradle **54b**. Heat-conductive plate **50** can be formed of a conductive metal, such as aluminum or copper. A heating element **56**, here illustrated as heating filaments, is affixed to one side of heat-conductive plate **50**, beneath first and second cradles **54** and **54b**. Heating element **56** is preferably adapted to the shape of the bottom portion of first and second cradles **54** and **54b** and configured for direct physical contact with the bottom portion of cradles **54** and **54b**. Heating element **56** preferably is disposed symmetrically on the bottom portion of first and second cradles **54** and **54b**, creating an even temperature. Cradle arrangement **50** further includes two mounting flanges **58** having screw apertures **60** disposed therein. Heat-conductive plate **50** can be mounted on a container warmer body, as with screws inserted through screw apertures **60**.

While typically it will be preferred that the container be heated in a horizontal position, as stated above, an acute angle up to about 45° may also provide a sufficient tilt between the portion of the container to be heated and the portion of the container

extending from the warmer so that there is little or no heating of the upper portion by convection. One example of such a warmer is illustrated in **Figures 9** and **10**, perspective and end views, respectively, of a container warmer **70** constructed and operative in accordance with another embodiment of the present invention.

5 Container warmer **70** includes two container holders **72a** and **72b**, each having walls **76** for holding a container at an acute angle  $\alpha$  to the horizontal. Container warmer **70** includes a warmer body **74** having heating elements (not shown) associated with each container holder, as described above. The heating elements heat at least a portion of the container holders which, in turn, heat the portions of the containers held therein.

10 According to another embodiment of the present invention, the container warmer may include a container holder formed by one or more rotating rollers mounted inside an arcuate or semi-cylindrical cradle defined in the body of the warmer. Rotation of the rollers causes a container, disposed therein, to rotate about its longitudinal axis. Rotation of the container permits physical contact of the entire  
15 circumference of the outer walls of the container with the heat-conductive plate, thus accelerating the heating of the component contained therein.

According to yet another embodiment, the container warmer may include a body and a container holder formed by at least two synchronal rotating rollers mounted in the body, extending in parallel to a substantially horizontal axis through  
20 the body and in parallel to each other, and spaced apart. The two rotating rollers may cause a container, disposed in the container holder, to rotate about its longitudinal axis. According to this embodiment, each roller may include a heating element arranged to engage and heat the outer walls of the multi-compartment container, or of any portion thereof.

25 While the invention has been described with respect to a limited number of embodiments, it will be appreciated that many variations, modifications and other applications of the invention may be made. It will further be appreciated that the invention is not limited to what has been described hereinabove merely by way of example. Rather, the invention is limited solely by the claims which follow.

## CLAIMS

1. A warming apparatus for warming a container having outer walls, the apparatus comprising:

a warmer body;

5 at least one container holder, open at both ends, defined in said body, said container holder including holder walls adapted and configured to cradle a portion of the outer walls of a container for releasably holding said portion of the outer walls; and

10 at least one heating element disposed in said warmer body adjacent said container holder.

2. The warming apparatus according to claim 1, wherein each said heating element is arranged to heat at least a portion of one of said container holders.

15 3. The warming apparatus according to claim 1 or claim 2, wherein said container holder is selected from the group including a cradle, a depression and a pair of rollers.

20 4. The warming apparatus according to any of the preceding claims, wherein said heating element in said body heats a heat convection medium, wherein the medium is contained in said body and contacts said container holder for heating at least a portion of the holder.

25 5. The warming apparatus according to any of the preceding claims, wherein said container holder has a shape complementary to a portion of said container for releasably engaging said portion of said container.

6. The warming apparatus according to any of the preceding claims, further comprising a heat-conductive plate lining said container holder.

7. The warming apparatus according to claim 6, wherein said heating element is affixed to said heat-conductive plate.

5 8. The warming apparatus according to any of the preceding claims, wherein said warmer body further includes a temperature selector associated with each container holder.

9. The warming apparatus according to any of the preceding claims,  
10 wherein said warmer body further includes a thermostat associated with each container holder.

10. The warming apparatus according to any of the preceding claims,  
wherein said heating element is coupled to a portable power source.

15

11. The warming apparatus according to any of the preceding claims,  
wherein said heating element is coupled to a car outlet plug.

12. The warming apparatus according to any of the preceding claims,  
20 comprising:

two container holders defined in said warmer body, each for holding a container, each said container holder being sized to hold the outer walls of a portion of a container; and

a pair of heating elements disposed in said body, each heating element  
25 arranged to heat at least a portion of one of said container holders.

13. A warming apparatus for warming a multi-compartment container, the apparatus comprising:

a warmer body;

at least one container holder defined in said body, each for holding a multi-compartment container in a substantially horizontal position, each said container holder being sized to hold a portion of the container; and

at least one heating element disposed in said body, one of said heating elements being disposed adjacent one of said container holders for heating at least a portion of said container holder.

10

14. A method for forming a warming apparatus for warming a container having outer walls, the method comprising:

forming warmer body;

defining at least one container holder, open at both ends, in said body for releasably holding a container;

forming holder walls in said container holder sized and configured to cradle a portion of the outer walls of a container; and

disposing at least one heating element in said warmer body adjacent said container holder.

20

15. The method according to claim 14, comprising defining two container holders in said body, each for holding a portion of the outer walls of a container;

said step of defining including sizing each said container holder to cradle a portion of the outer walls of a container; and

said step of disposing including disposing two heating elements in said warmer body, each heating element being arranged for heating at least a portion of one of said container holders.

16. The method according to either of claims 14 and 15, wherein said at least one container holder is defined in said body for holding said container in a position where a portion of said container is warmed by said heating element and another portion of said container substantially is not warmed by said heating  
5 element.

10

1/6

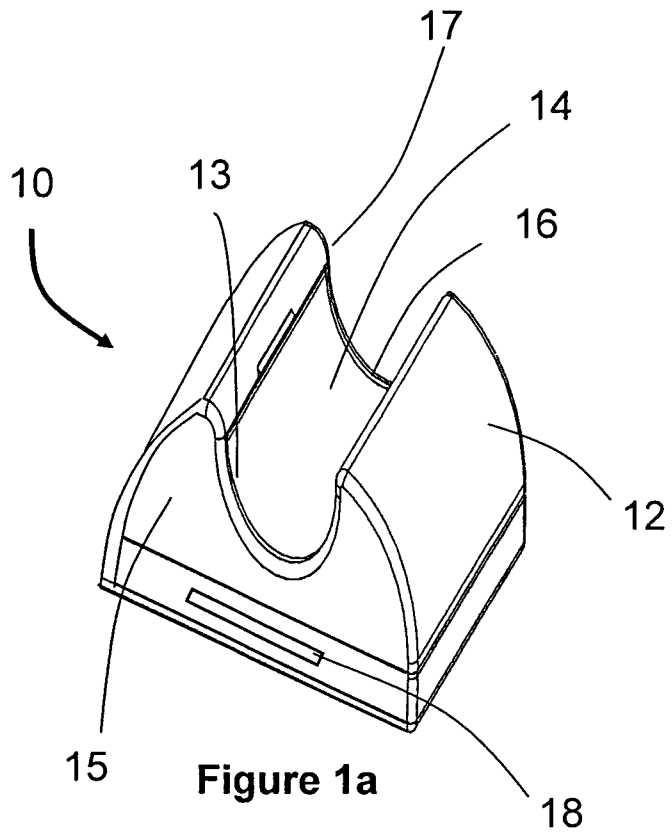


Figure 1a

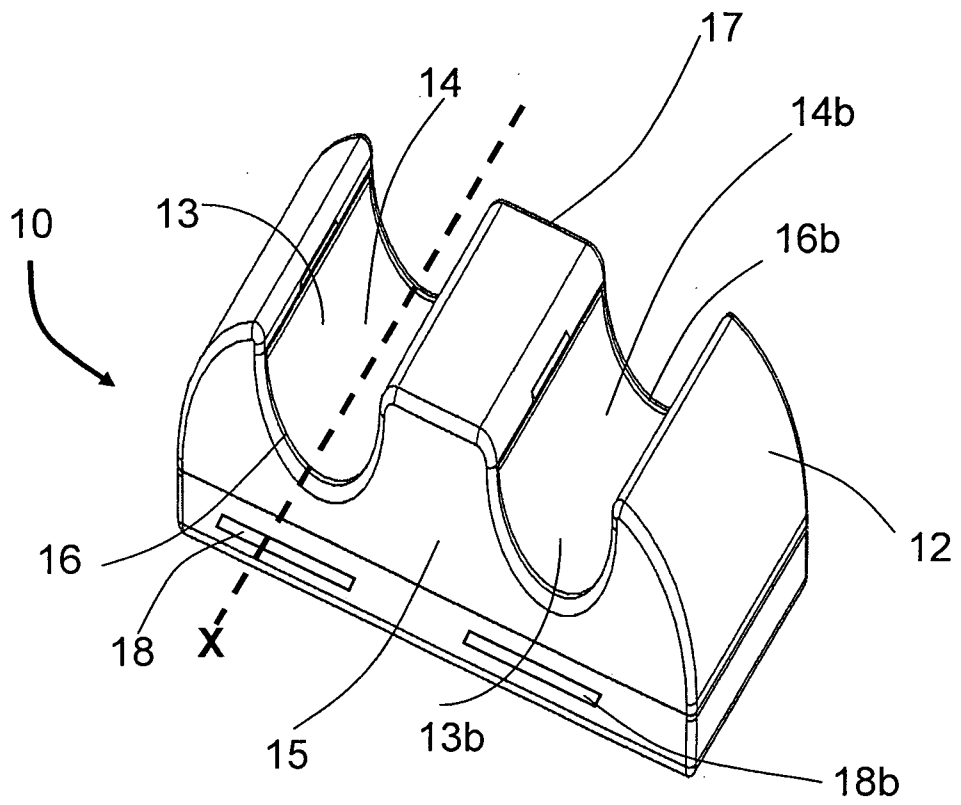


Figure 1b

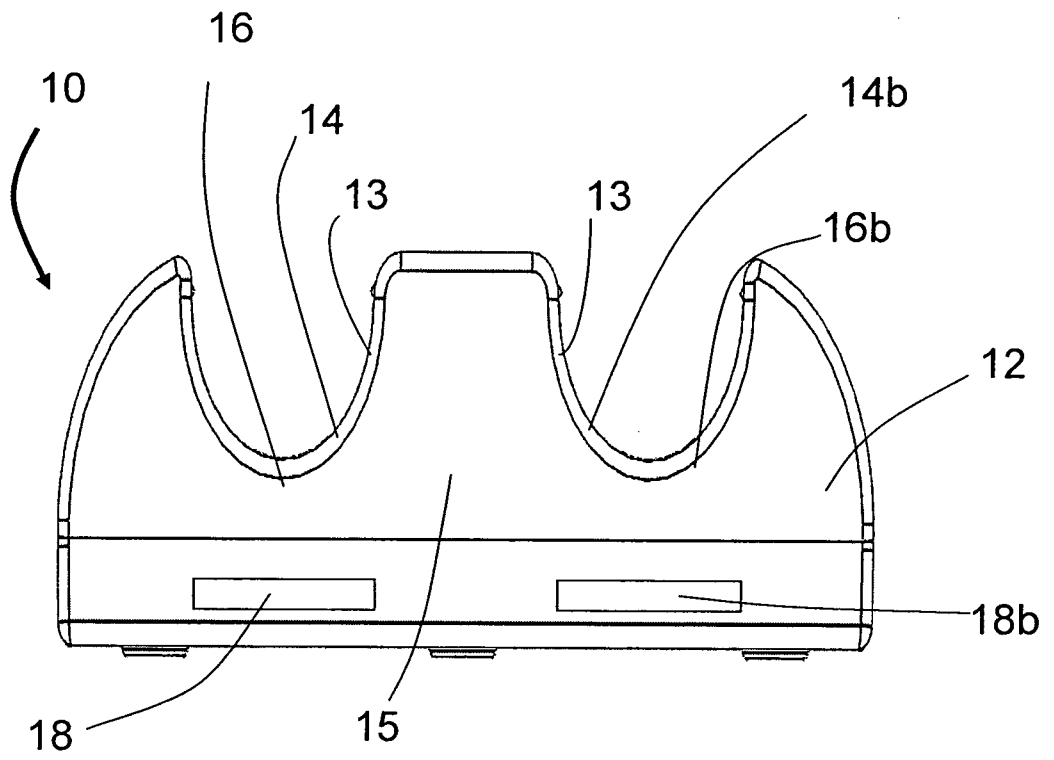


Figure 2

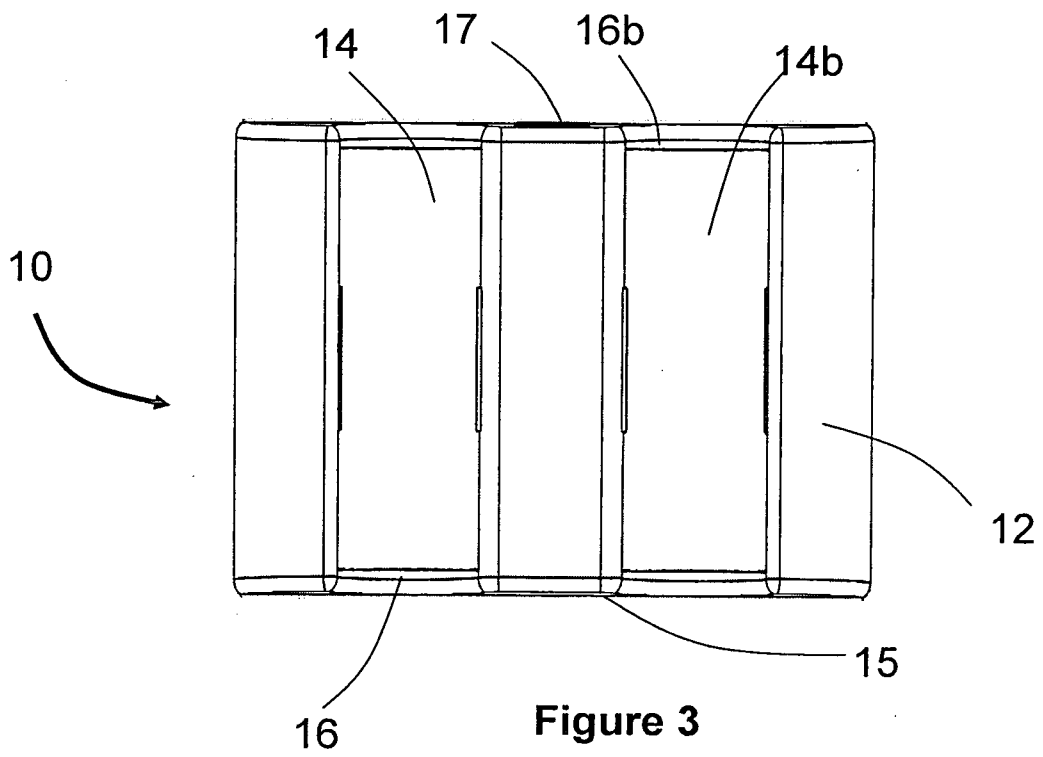


Figure 3

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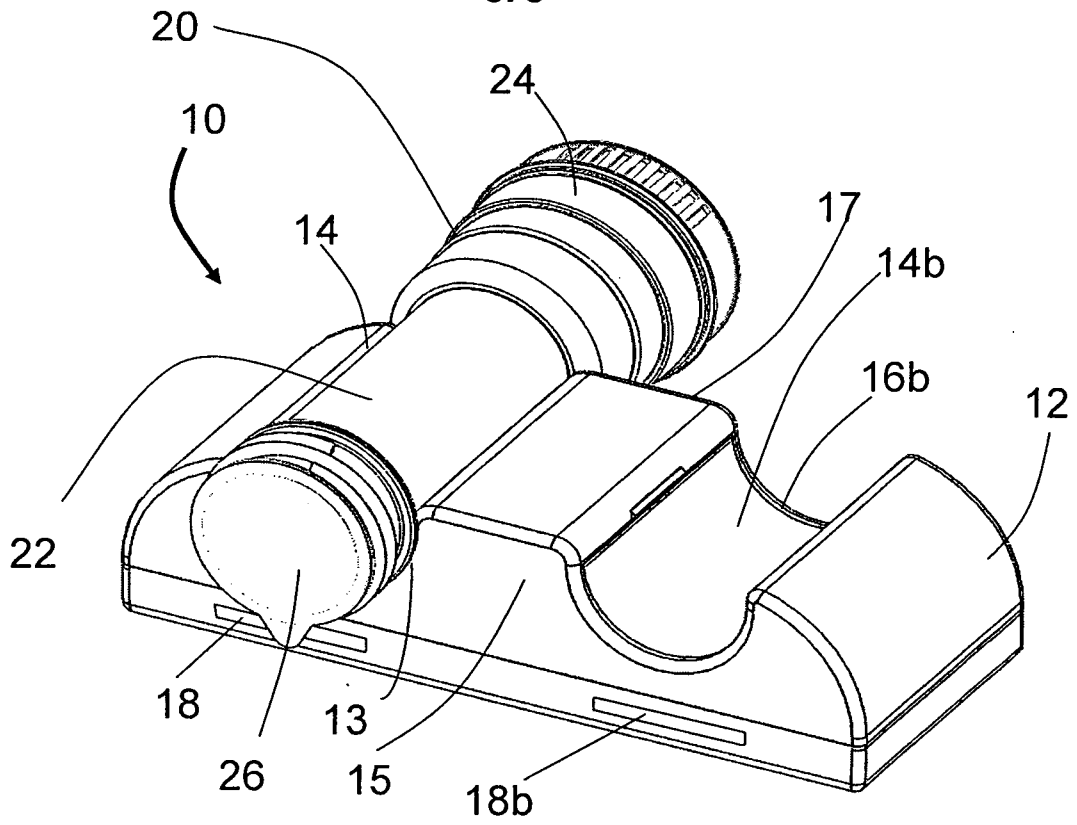


Figure 4

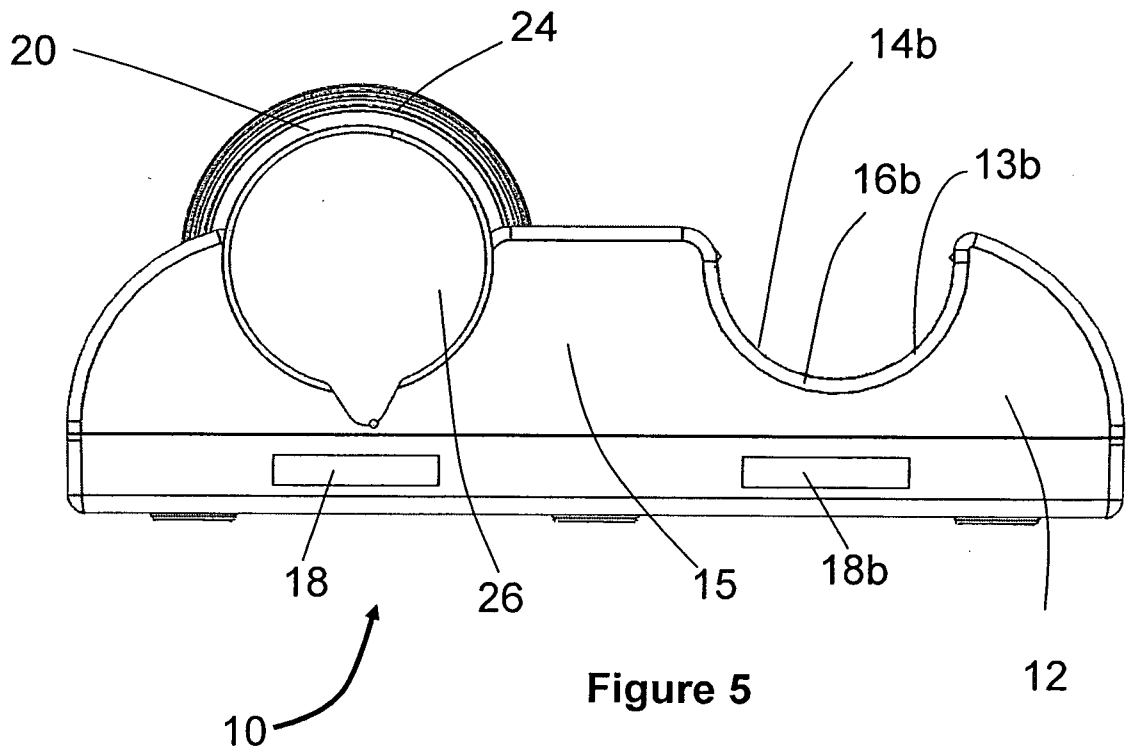


Figure 5

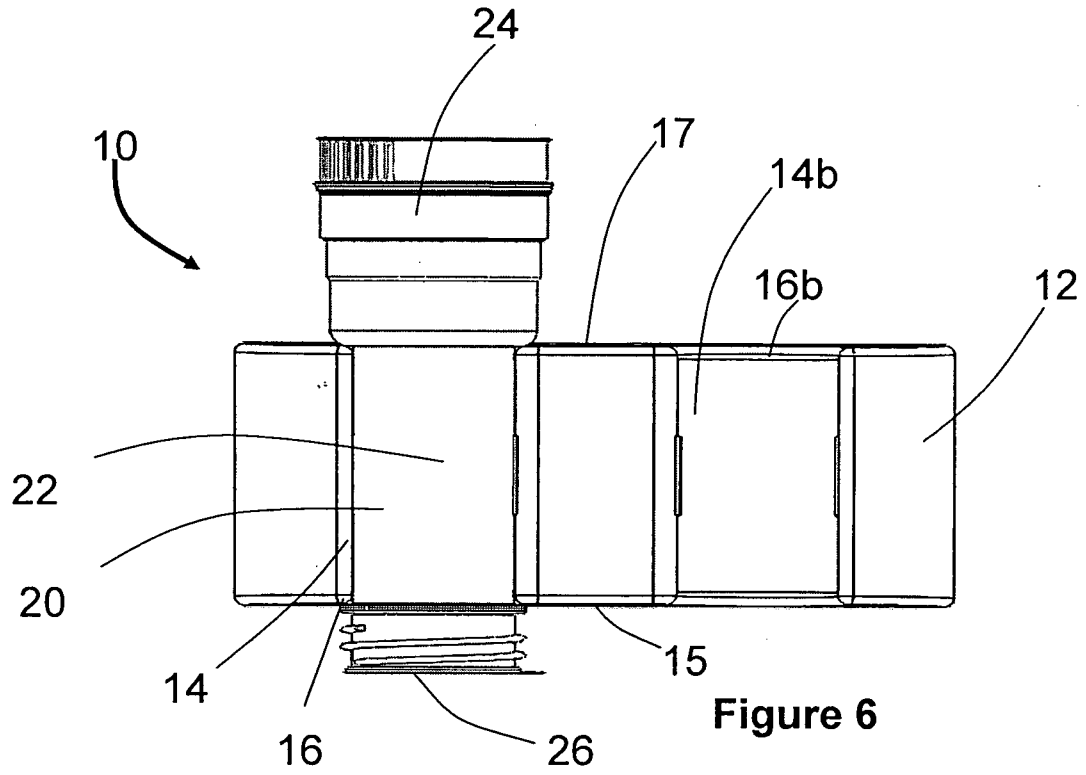


Figure 6

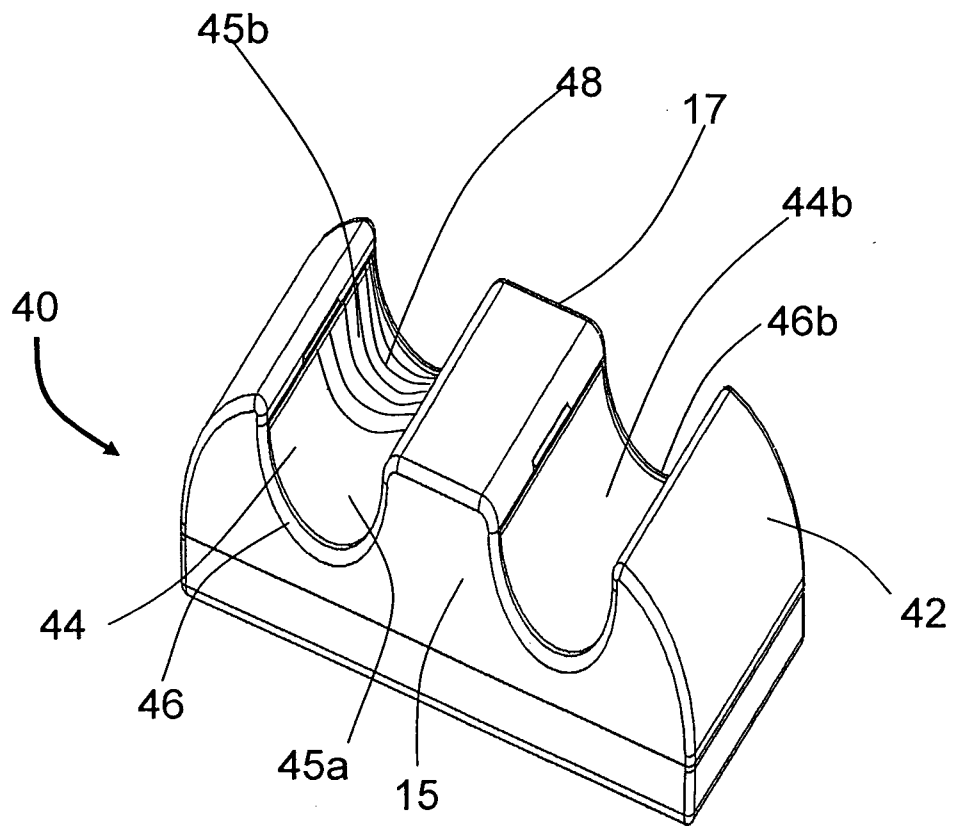


Figure 7

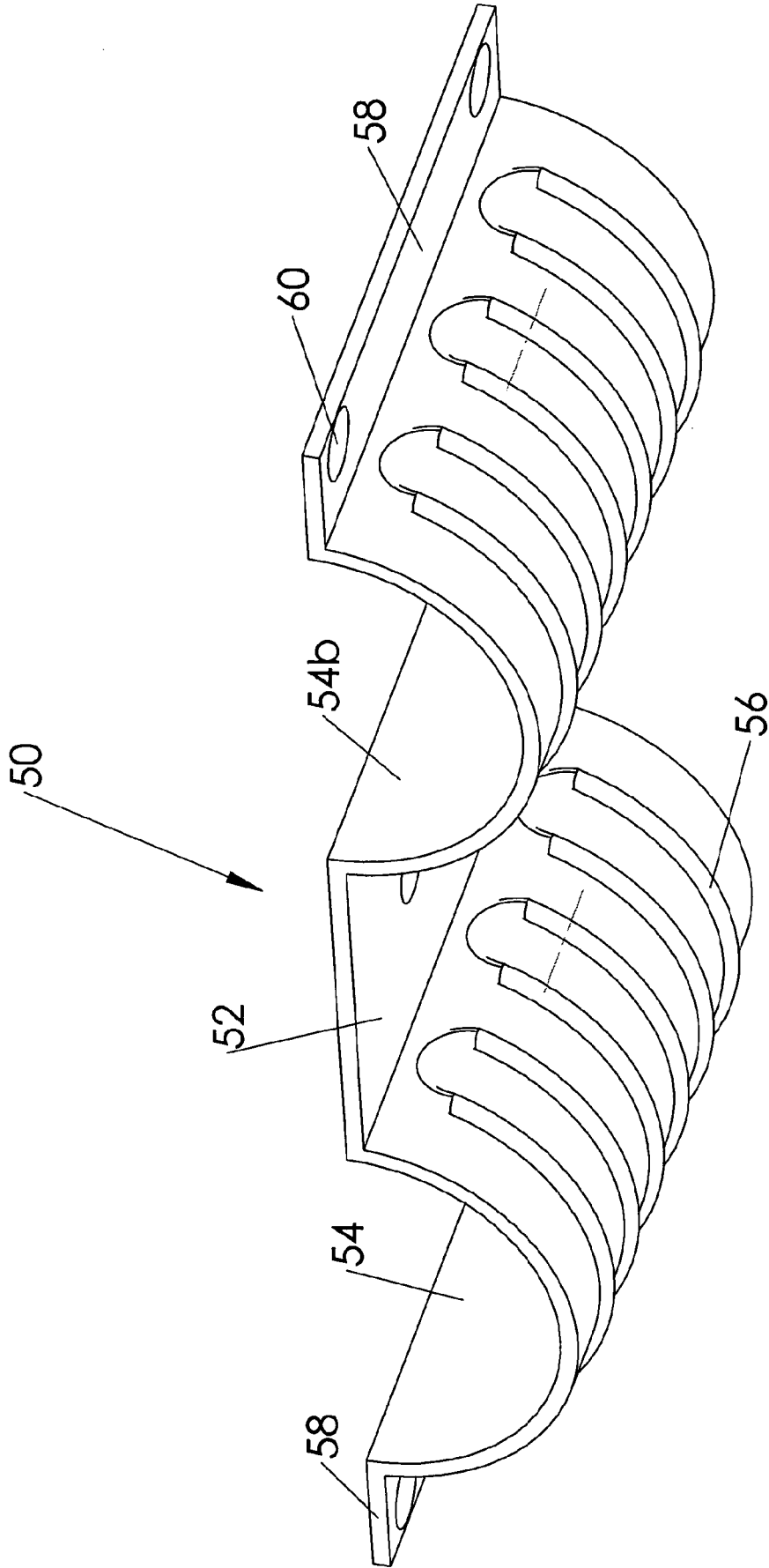


FIGURE.8

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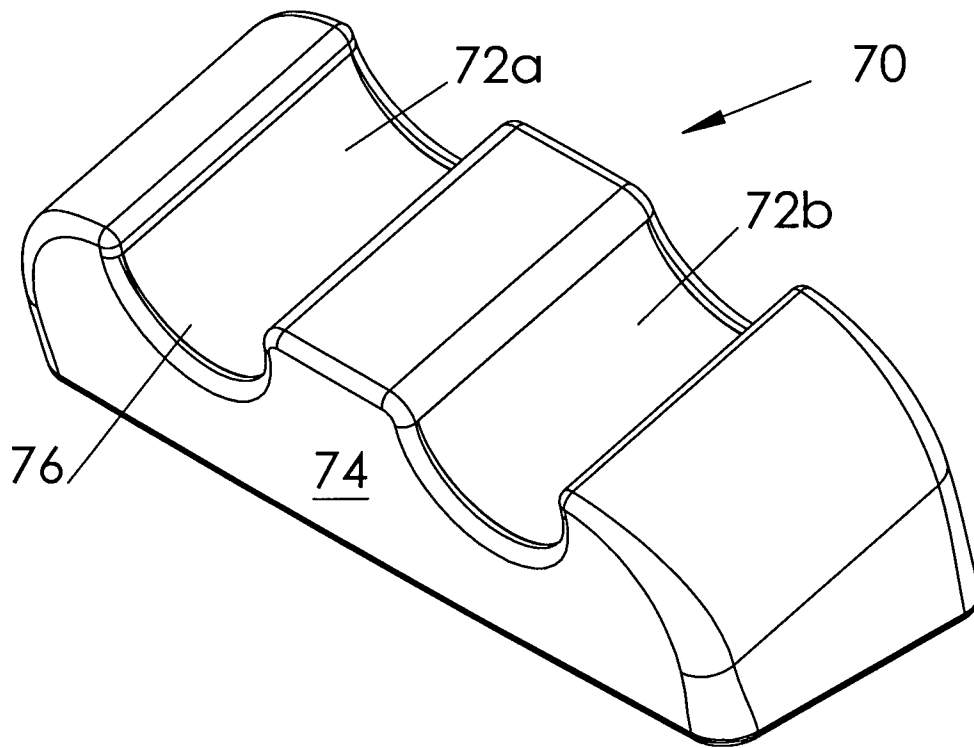


FIG. 9

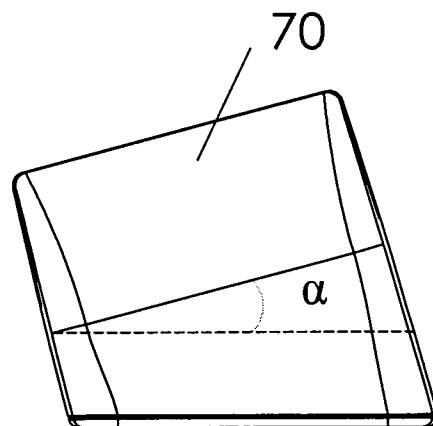


FIG. 10

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/IL 10/00540

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) - F27D 11/00 (2010.01)

USPC - 219/385

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)

IPC(8): F27D 11/00 (2010.01)

USPC: 219/385

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

IPC(8): F27D 11/00 (2010.01)

USPC: 62/3.3; 219/200, 201, 209, 221, 225-229, 242, 385-387, 428, 443.1

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

PubWEST; PGPB, USPT, EPAB, JPAB; Google Scholar; Google Patent; Search Terms: beverage milk formula drink container bottle can carafe heat warm temperature thermostat thermal element heater liquid thermos insulated conductive power baby infant coffee

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2006/0239667 A1 (Young et al.) 26 October 2006 (26.10.2006) para. [0001] through [0026], Fig. 1-7	13 ----- 1-3 and 14-16
Y	US 2004/0139860 A1 (Hamm et al.) 22 July 2004 (22.07.2004) para. [0027] through [0035], Fig. 1-3	1-3 and 14-16
A	US 6,703,590 B1 (Holley Jr.) 09 March 2004 (09.03.2004) entire document	1-3 and 13-16
A	US 2004/0140304 A1 (Leyendecker) 22 July 2004 (22.07.2004) entire document	1-3 and 13-16
A	US 2004/0112069 A1 (Loibl et al.) 17 June 2004 (17.06.2004) entire document	1-3 and 13-16

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 19 October 2010 (19.10.2010)	Date of mailing of the international search report <b>29 OCT 2010</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL 10/00540

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.: 4-12  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
  - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
  - No protest accompanied the payment of additional search fees.