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(54) LID FOR INSULATED BOX AND METHOD FOR STORING PRODUCTS

DECKEL FÜR EINEN ISOLIERBEHÄLTER UND VERFAHREN ZUR BEVORRATUNG VON
PRODUKTEN

COUVERCLE POUR BOÎTE ISOTHERME ET PROCÉDÉ DE STOCKAGE DE PRODUITS

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(73) Proprietor: **Bellivo, Société Anonyme**

**2163 Luxembourg, Gr. Duché du Luxembourg
(LU)**

(72) Inventor: **OEYEN, Jan**

2250 Olen (BE)

(74) Representative: **Kamphuis, Albertus Johannes et
al**

Patenthuis

Slachthuisstraat 120 bus 3

2300 Turnhout (BE)

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Description

[0001] The present invention relates to a lid for an insulated box and a method for storing products.

[0002] It is known to temporarily store products that have to be kept cooled in an insulated box, that is closed by means of a lid, in which box there is a cooling element that has been cooled or frozen beforehand. This is done in order to transport such products without them warming up, for example. Such combinations of boxes and lids are known from US2008/173650A1, EP1010957A2 and EP0153975A1.

[0003] Here a box is considered as a general term for a broad range of roughly rectangular storage means, which in principle are intended to be carried by a person and which can be constructed as a bin or crate, for example in plastic. The products concerned are for example frozen products, meat products, dairy products, medicines, flowers and vegetables.

[0004] A cooling element for use with such a box is typically a closed casing, in which a coolant, for example water, is introduced. This cooling element is cooled or frozen before use. During use the cooling element, together with the products to be cooled, is placed in the insulated box such that the content of the box can remain sufficiently cool for a long time, typically around ten hours, and this also due to the good insulation of the box and the lid.

[0005] Different types of cooling elements are hereby known, which are designed to maintain a certain temperature interval during use. This means that these cooling elements are designed to be able to absorb or give off more energy for a given temperature change in the specific temperature interval than outside the specific temperature interval. These cooling elements essentially differ from one another due to the formulation of the coolant.

[0006] It goes without saying that all these elements, if they are cooled to a temperature that is low enough, can perform a cooling function at all temperatures that are higher than the said temperature.

[0007] The difference between the various types is that with a mutually equal total cooling capacity, the quantity of heat that a cooling element can absorb in the specified temperature interval concerned is greater than with a cooling element of a different type, i.e. a cooling element optimised for a different temperature interval.

[0008] The cooling elements are normally separate from the box, because it is then the easiest to compactly cool or freeze them again in a cooling or freezing device for reuse.

[0009] However, such boxes have a number of disadvantages that primarily show up in industrial practice. This primarily concerns the risk of mistakes that can be made, and the lack of possibilities to ascertain them.

[0010] Thus it can happen that no cooling elements or too few cooling elements are accidentally placed in a box by somebody who places a product in the box and then closes the box.

[0011] It can also happen that somebody is confused by the presence of cooling elements for different temperature intervals, so that incorrect cooling elements are accidentally used that are not suitable or less suitable for the product concerned.

[0012] These mistakes cannot be observed, and thus cannot be rectified, after the box has been closed. A further disadvantage is that placing the cooling elements is labour intensive.

[0013] The cooling elements also take up space that could otherwise be usefully used, and they can move in the box, for example during transport of the box, and thereby can damage themselves, the box and/or the product placed in it.

[0014] An uneven distribution of cooling function over the volume of the box can occur relatively easily.

[0015] The purpose of the present invention is to provide a solution to the aforementioned and other disadvantages, by providing a combination of a lid and a box according to claim 1.

[0016] This means that the cooling element is integrated in the lid and that the lid and the cooling element are not intended or suitable for the regular removal of the cooling element from the lid, although there can be a possibility to take the cooling element out of the lid, for example to replace a damaged cooling element.

[0017] As a result the number of actions for the cooled packaging of products is reduced, because no step is necessary to place cooling elements in the box because they are necessarily present when the lid is put on.

[0018] Also the risk of mistakes is hereby reduced, because in principle the cooling elements can never be taken out of the lids.

[0019] This is a passive cooling element, i.e. a cooling element without a connection to an energy source.

[0020] Hereby an identification legend must of course be agreed and used to link a specific mark or colour to a specific temperature interval.

[0021] In this way a suitable cooling element, on the basis of the optimum storage conditions of the product that has to be stored, is identified more easily because the different types are easy to distinguish from one another.

[0022] As a result, the risk of mistakes relating to the use of the correct type of cooling element is reduced.

[0023] Preferably, the lid is a lid with a mark or colour to indicate the optimum temperature interval of the cooling element, whereby a mark corresponding to the mark of the lid is affixed on the outside of the box, or whereby the outside of the box is made in a colour corresponding to the outside of the lid.

[0024] As a result the risk of mistakes is further reduced because a clearly affixed mark or specific colour on the box is easily recognisable.

[0025] Preferably this concerns two or more of the said combinations whereby a first type of lid has a cooling element that is designed for a first temperature interval and a second type of lid has a cooling element that is

designed for a second temperature interval.

[0026] This has the advantage that in a situation in which products with different optimum temperatures have to be packed, the risk of mistakes is lower because only the colour or mark on the box, which is easy to observe even for somebody who has no product knowledge, determines which lid, and thereby which type of cooling element, has to be used. Moreover, a subsequent check for correctness is very simple.

[0027] The invention also concerns a method according to claim 6.

[0028] Preferably use is made of two or more combinations, whereby the following step is implemented before step A:

a box is selected on the basis of correspondence between the mark or the colour and the desired temperature interval for the type of the product, whereby this box is used in step A,

whereby optionally step B can be implemented indirectly by selecting a lid on the basis of correspondence between the mark or the colour of the lid and the mark or the colour of the box.

[0029] These methods have the advantage that they can be implemented entirely or partially by people without knowledge of the desired cooling temperature for the various products, and that the risk of mistakes, as discussed in detail above, is thereby very low.

[0030] With the intention of better showing the characteristics of the invention, a preferred embodiment of a lid and combination according to the invention is described hereinafter by way of an example, without any limiting nature, with reference to the accompanying drawings, wherein:

Figure 1 schematically shows a perspective view of a combination according to the invention;
figure 2 shows a cross-section according to line II-II of a component of the combination of figure 1 ;
figure 3 shows a cross-section according to line III-III of another component of the combination of figure 1;
figure 4 shows a cross-section of the combination of figure 1 in a state of use.

[0031] The combination 1 shown in the drawings comprises an insulated box 2 and a lid 3 that fits on the insulated box 2.

[0032] The box 2 is double-walled and made of plastic. The space 4 between the walls 5 is filled with an insulating foam.

[0033] The plastic from which the walls 5 are made forms, on the top edge of the box 2, two lips 6 with a widening 7, that are somewhat elastic due to the nature of the plastic. The outside of the box 2 is blue.

[0034] The lid 3 is also double-walled and filled with

foam. Two cooling elements 8 are affixed in the lid 3 against the bottom wall 9 of the lid, i.e. the wall that is turned towards the box 2 when the box 2 is closed by the lid 3. The lid 3 is in the same shade of blue.

[0035] The lid 3 is narrowed on its underside such that this narrowed part 10 fits in the box 2. The lid 3 is provided with two cutaways 11 on its top at positions, corresponding to the lips 6 on the box 2.

[0036] The cooling elements 8 are designed to maintain a temperature of approximately -23°C.

[0037] The use of the lid 3 and the box 2 is simple and as follows.

[0038] This use takes place at a location where many different products must be packed, for example to be transported to an end user.

[0039] These products are to be classified on the basis of three different types, i.e. a first type of product, for example frozen foodstuffs, that must be stored at a temperature below -10°C, a second type of product, for example fresh meat or meat products, that must be stored at a temperature between 0°C and 4°C, and a third type of product, for example fresh vegetables, that must be stored at a temperature of 10°C to 15°C.

[0040] The blue boxes 2 and blue lids 3 described above are present at the location. There are also yellow boxes 2, yellow lids 3, green boxes 2 and green lids 3. Apart from their colour, the yellow boxes 2 and green boxes 2 are identical to the above-mentioned blue boxes 2.

[0041] The yellow lids 3 and the green lids 3, in addition to a different colour, also have different types of cooling elements 8 to the blue lids 3. More specifically, the green lids 3 have cooling elements 8 that are designed to maintain a cooled temperature of around 10°C, and the yellow lids 3 have cooling elements 8 that are designed to maintain a cooled temperature just above 0°C.

[0042] The lids 3 are cooled in an industrial freezing installation or cooling installation until the cooling elements 8 in the lids 3 are at the right temperature, i.e. have been cooled to a temperature that enables them to optimally fulfil their cooling function. Normally a period in a cooling or freezing installation specified by the supplier is adhered to for this purpose, whereby this period is determined by the supplier on the basis of tests.

[0043] Then the packing of the products is started. The lids 3 are hereby made ready for the people who implement this process.

[0044] Depending on the circumstances, and the expected quantity of required lids 3, this can mean that they are ready in a cooling or freezing device, or that they are all together close to the location concerned. An intermediate form is also possible whereby a partial stock stands ready at the location, whereby this partial stock is regularly supplemented from a cooling or freezing device.

[0045] A first product is now taken. If this is a product of the first type, it is placed in a blue box 2. If it is a product of the second type, it is placed in a yellow box 2. If it is a product of the third type, it is placed in a green box 2. It

goes without saying that, instead of one product, a number of products of the same type can also be placed in the same box 2 simultaneously or after one another.

[0046] In order to facilitate this, information signs are present at the location that clearly indicate which type of product must be placed in which colour of box 2.

[0047] Then the box 2 is closed with a lid 3, whereby only the colour of the box 2 needs to be checked and a lid 3 of the same colour has to be taken. Hereby the colour of the lid 3, and as a result the temperature for which the cooling elements 8 are designed, is selected, indirectly via the colour of the box 2, on the basis of the type of product.

[0048] When closing, the lips 6 of the box spring somewhat outwards, until the widenings 7 of these lips come into the cutaways 11 in the lid 3, such that the box 2 is properly closed.

[0049] It is now certain that the closed combination 1 of box 2 and lid 3 is provided with cooling elements 8 and that these cooling elements 8 are of the right type. This is achieved in a very low number of operations.

[0050] The closed box 2, as shown in figure 4 for example, is now ready for shipping. The box shown in figure 4 is filled with sausages 12. The box 2 and lid 3 are yellow.

[0051] The sausages 12 are hereby kept cool because the bottom wall 9 of the lid 3 does not form a significant thermal barrier, so that the cooling elements 8 can perform their cooling function well, while the insulating foam ensures that heat from outside the box 2 can only penetrate the box 2 slowly.

[0052] The box 2 and the lid 3 can be reused after the product 12 has been delivered to the recipient, whereby the lid 3 is again placed in the cooling or freezing installation for a sufficient time, after which it is again ready for use.

[0053] It goes without saying that instead of the said colours, other colours or other marks can also be used, whereby it also goes without saying that these marks are preferably as clear as possible.

[0054] The method can also be implemented in steps, in which in a first step an employee with product knowledge places the products in the boxes 2 belonging to the product type, and in a second step an employee without product knowledge provides the boxes 2, on the basis of the colour, with a lid 3 with a corresponding colour.

[0055] The first step can also be implemented at different locations, whereby only products of a certain type are placed in the boxes 2 at each location, so that only boxes 2 of the colour corresponding to that type are necessary at this location.

[0056] The cooling or freezing device in which the lids 3 with the cooling elements 8 are cooled can be the same for each colour of lid 3, but separate devices with different temperatures can also be used for this purpose. This choice depends on what types of cooling elements 8 are used, and what cooling they necessarily or preferably have to undergo, in order to be able to perform their cooling function sufficiently or optimally.

[0057] Although a lid with two cooling elements is shown above as an example, such a lid according to the invention can of course also be provided with only one cooling element, or with a number of cooling elements greater than two.

[0058] The present invention is by no means limited to the embodiment described as an example and shown in the drawings, but a combination and a method according to the invention can be realised in all kinds of forms and variants, without departing from the invention as defined by the claims.

Claims

1. Combination (1) of a lid (3) for an insulated box (2) and a box (2) on which the lid (3) fits, whereby the lid (3) has a cooling element (8) that forms part of the lid (3), whereby this cooling element (8) is filled with coolant that is intended to be cooled or frozen in order to then perform a cooling function, whereby the cooling element is a passive cooling element (8) that forms a permanent part of the lid (3), whereby the cooling element (8) is designed to perform its cooling function in a certain temperature interval, whereby the lid is provided on its outside with a mark or a colour that is an indication of the temperature interval for which the cooling element (8) is designed, **characterised in that** the combination comprises an identification legend that links the specific mark or colour to a specific temperature interval.
2. Combination according to claim 1, **characterised in that** the material or materials from which the lid (3) is made is such that the coolant is not visible.
3. Combination according to any one of the previous claims, whereby a mark is affixed on the outside of the box (2) that corresponds to the mark on the lid (3) or whereby the outside of the box (2) is made in a colour that corresponds to the outside of the lid(3).
4. Two or more combinations (1) according to any one of the previous claims, whereby a first type of lid (3) of the lids (3) has a cooling element (8) that is designed for a first temperature interval and a second type of lid (3) of the lids (3) has a cooling element (8) that is designed for a second temperature interval.
5. Two or more combinations (1) according to any one of claims 1 to 3, whereby a first type of lid (3) of the lids (3) has a cooling element (8) that is designed for a first temperature interval and a second type of lid (3) of the lids (3) has a cooling element (8) that is designed for a second temperature interval and whereby the first type of lid (3) and the second type of lid (3) have the same shape.

6. Method for the cooled storage and/or transport of products, whereby the products can include products of a first type that are intended to be stored at a temperature in a first temperature interval and products of a second type that are intended to be stored at a temperature in a second temperature interval, **characterised in that** use is made of two or more combinations (1) according to any one of claims 1 to 3, whereby the lids (3) are stored at a suitable temperature for sufficiently long to cool the cooling element (8) sufficiently, whereby the following steps are completed for each product (12) to be stored:

A: the product (12) to be stored is placed in a box (2),

B: a lid (3) is selected on the basis of correspondence between the mark or colour of the lid (3) and the desired temperature for the type of product (12),

C: The selected lid (3) is used to close the box (2).

7. Method according to claim 6, **characterised in that** use is made of two or more combinations (1) according to claim 3, whereby before step A the following step is implemented:

a box (2) is selected on the basis of correspondence between the mark or the colour of the box and the desired temperature interval for the type of the product (12), whereby this box (2) is used in step A,

whereby optionally step B can be implemented indirectly by selecting a lid (3) on the basis of correspondence between the mark or the colour of the lid (3) and the mark or the colour of the box (2).

Patentansprüche

1. Kombination (1) aus einem Deckel (3) für einen Isolierbehälter (2) und einem Behälter (2), auf den der Deckel (3) passt, wobei der Deckel (3) ein Kühlelement (8) aufweist, das Teil des Deckels (3) ist, wobei dieses Kühlelement (8) mit Kühlmittel gefüllt ist, das dazu bestimmt ist, gekühlt oder eingefroren zu werden, um dann eine Kühlfunktion auszuführen, wobei das Kühlelement ein passives Kühlelement (8) ist, das einen permanenten Teil des Deckels (3) bildet, wobei das Kühlelement (8) dafür ausgelegt ist, seine Kühlfunktion in einem bestimmten Temperaturintervall auszuüben, wobei der Deckel an seiner Außenseite mit einer Markierung oder einer Farbe versehen ist, die eine Indikation für das Temperaturintervall ist, wofür das Kühlelement (8) ausgelegt ist, **dadurch gekennzeichnet, dass** die Kombination eine

Identifikationslegende umfasst, welche die spezifische Markierung oder Farbe mit einem spezifischen Temperaturintervall verknüpft.

2. Kombination nach Anspruch 1, **dadurch gekennzeichnet, dass** das Material oder die Materialien, woraus der Deckel (3) hergestellt ist, derart ist bzw. sind, dass das Kühlmittel nicht sichtbar ist.
3. Kombination nach einem der vorhergehenden Ansprüche, wobei an der Außenseite des Behälters (2) eine Markierung angebracht ist, die mit der Markierung an dem Deckel (3) übereinstimmt, oder wobei die Außenseite des Behälters (2) in einer Farbe ausgeführt ist, die der Außenseite des Deckels (3) entspricht.
4. Zwei oder mehr Kombinationen (1) nach einem der vorhergehenden Ansprüche, wobei ein erster Typ von Deckel (3) der Deckel (3) ein Kühlelement (8) aufweist, das für ein erstes Temperaturintervall ausgelegt ist, und ein zweiter Typ von Deckel (3) der Deckel (3) ein Kühlelement (8) aufweist, das für ein zweites Temperaturintervall ausgelegt ist.
5. Zwei oder mehr Kombinationen (1) nach einem der Ansprüche 1 bis 3, wobei ein erster Typ von Deckel (3) der Deckel (3) ein Kühlelement (8) aufweist, das für ein erstes Temperaturintervall ausgelegt ist, und ein zweiter Typ von Deckel (3) der Deckel (3) ein Kühlelement (8) aufweist, das für ein zweites Temperaturintervall ausgelegt ist, und wobei der erste Typ von Deckel (3) und der zweite Typ von Deckel (3) dieselbe Form aufweisen.
6. Verfahren zur gekühlten Lagerung und/oder Transport von Produkten, wobei die Produkte Produkte eines ersten Typs, die zur Lagerung bei einer Temperatur in einem ersten Temperaturintervall bestimmt sind, und Produkte eines zweiten Typs, die zur Lagerung bei einer Temperatur in einem zweiten Temperaturintervall bestimmt sind, umfassen können, **dadurch gekennzeichnet, dass** von zwei oder mehr Kombinationen (1) nach einem der Ansprüche 1 bis 3 Gebrauch gemacht wird, wobei die Deckel (3) ausreichend lange auf einer geeigneten Temperatur gelagert werden, um das Kühlelement (8) ausreichend zu kühlen, wobei für jedes zu lagernde Produkt (12) die folgenden Schritte vollzogen werden:

A: das zu lagernde Produkt (12) wird in einem Behälter (2) platziert,

B: ein Deckel (3) wird auf Basis von Übereinstimmung zwischen der Markierung oder Farbe des Deckels (3) und der gewünschten Temperatur für den Typ von Produkt (12) ausgewählt,

C: der ausgewählte Deckel (3) wird zum Verschließen des Behälters (2) verwendet.

7. Verfahren nach Anspruch 6, **dadurch gekennzeichnet, dass** von zwei oder mehr Kombinationen (1) nach Anspruch 3 Gebrauch gemacht wird, wobei vor Schritt A der folgende Schritt ausgeführt wird:

ein Behälter (2) wird auf Basis von Übereinstimmung zwischen der Markierung oder der Farbe des Behälters und dem gewünschten Temperaturintervall für den Typ des Produkts (12) ausgewählt, wobei dieser Behälter (2) in Schritt A angewendet wird,
wobei gegebenenfalls Schritt B indirekt ausgeführt werden kann, indem ein Deckel (3) auf Basis von Übereinstimmung zwischen der Markierung oder der Farbe des Deckels (3) und der Markierung oder der Farbe des Behälters (2) ausgewählt wird.

Revendications

1. Combinaison (1) d'un couvercle (3) pour une boîte isotherme (2) et d'une boîte (2) sur laquelle s'adapte le couvercle (3), le couvercle (3) possédant un élément de refroidissement (8) qui fait partie du couvercle (3), cet élément de refroidissement (8) étant rempli de liquide de refroidissement qui est destiné à être refroidi ou congelé afin d'effectuer ensuite une fonction de refroidissement, l'élément de refroidissement étant un élément de refroidissement passif (8) qui forme une partie permanente du couvercle (3), l'élément de refroidissement (8) étant conçu pour effectuer sa fonction de refroidissement dans un certain intervalle de température, le couvercle étant doté sur son extérieur d'une marque ou d'une couleur qui est une indication de l'intervalle de température pour lequel l'élément de refroidissement (8) est conçu, **caractérisée en ce que** la combinaison comprend une légende d'identification qui relie la marque ou la couleur spécifique à un intervalle de température spécifique.
2. Combinaison selon la revendication 1, **caractérisée en ce que** le matériau ou les matériaux à partir duquel ou desquels est réalisé le couvercle (3) est ou sont tel(s) que le liquide de refroidissement n'est pas visible.
3. Combinaison selon l'une quelconque des revendications précédentes, une marque étant apposée sur l'extérieur de la boîte (2) qui correspond à la marque sur le couvercle (3) ou l'extérieur de la boîte (2) étant réalisé dans une couleur qui correspond à l'extérieur du couvercle (3).
4. Deux combinaisons (1) ou plus selon l'une quelconque des revendications précédentes, un premier type de couvercle (3) des couvercles (3) possédant

un élément de refroidissement (8) qui est conçu pour un premier intervalle de température et un deuxième type de couvercle (3) des couvercles (3) possédant un élément de refroidissement (8) qui est conçu pour un deuxième intervalle de température.

5. Deux combinaisons (1) ou plus selon l'une quelconque des revendications 1 à 3, un premier type de couvercle (3) des couvercles (3) possédant un élément de refroidissement (8) qui est conçu pour un premier intervalle de température et un deuxième type de couvercle (3) des couvercles (3) possédant un élément de refroidissement (8) qui est conçu pour un deuxième intervalle de température et le premier type de couvercle (3) et le deuxième type de couvercle (3) ayant la même forme.
6. Procédé de stockage et/ou de transport réfrigéré de produits, les produits pouvant comprendre des produits d'un premier type qui sont destinés à être stockés à une température dans un premier intervalle de température et des produits d'un deuxième type qui sont destinés à être stockés à une température dans un deuxième intervalle de température, **caractérisé en ce que** deux combinaisons (1) ou plus selon l'une quelconque des revendications 1 à 3 sont utilisées, les couvercles (3) étant stockés à une température appropriée pendant suffisamment longtemps pour refroidir suffisamment l'élément de refroidissement (8), les étapes suivantes étant menées pour chaque produit (12) à stocker :

A : le produit (12) à stocker est placé dans une boîte (2),

B : un couvercle (3) est choisi sur la base de la correspondance entre la marque ou la couleur du couvercle (3) et la température souhaitée pour le type de produit (12),

C : le couvercle (3) choisi est utilisé pour fermer la boîte (2).

7. Procédé selon la revendication 6, **caractérisé en ce que** deux combinaisons (1) ou plus selon la revendication 3 sont utilisées, l'étape suivante étant mise en oeuvre avant l'étape A :

une boîte (2) est choisie sur la base de la correspondance entre la marque ou la couleur de la boîte et l'intervalle de température souhaité pour le type du produit (12),
cette boîte (2) étant utilisée à l'étape A,
l'étape B pouvant être facultativement mise en oeuvre indirectement en choisissant un couvercle (3) sur la base de la correspondance entre la marque ou la couleur du couvercle (3) et la marque ou la couleur de la boîte (2).

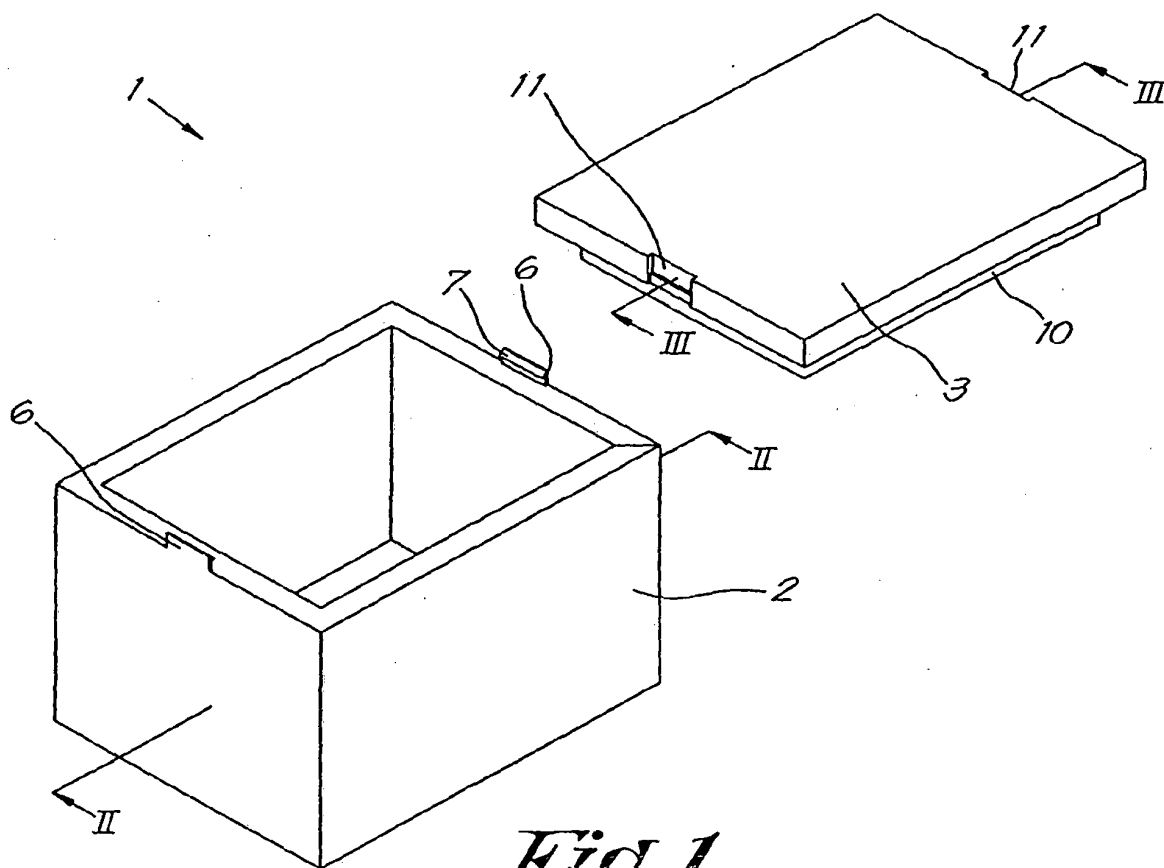


Fig. 1

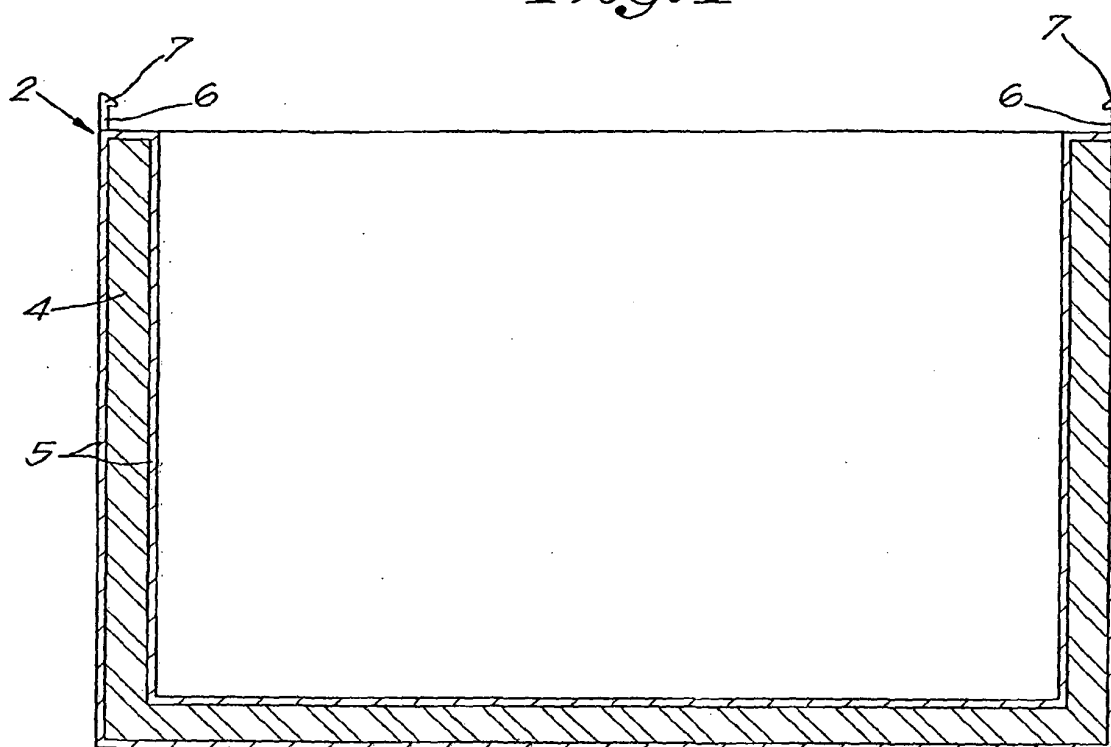


Fig. 2

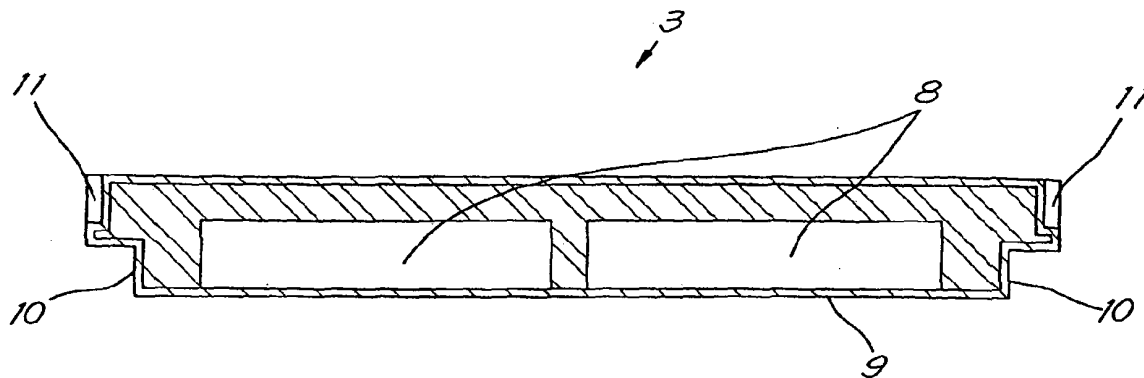


Fig. 3

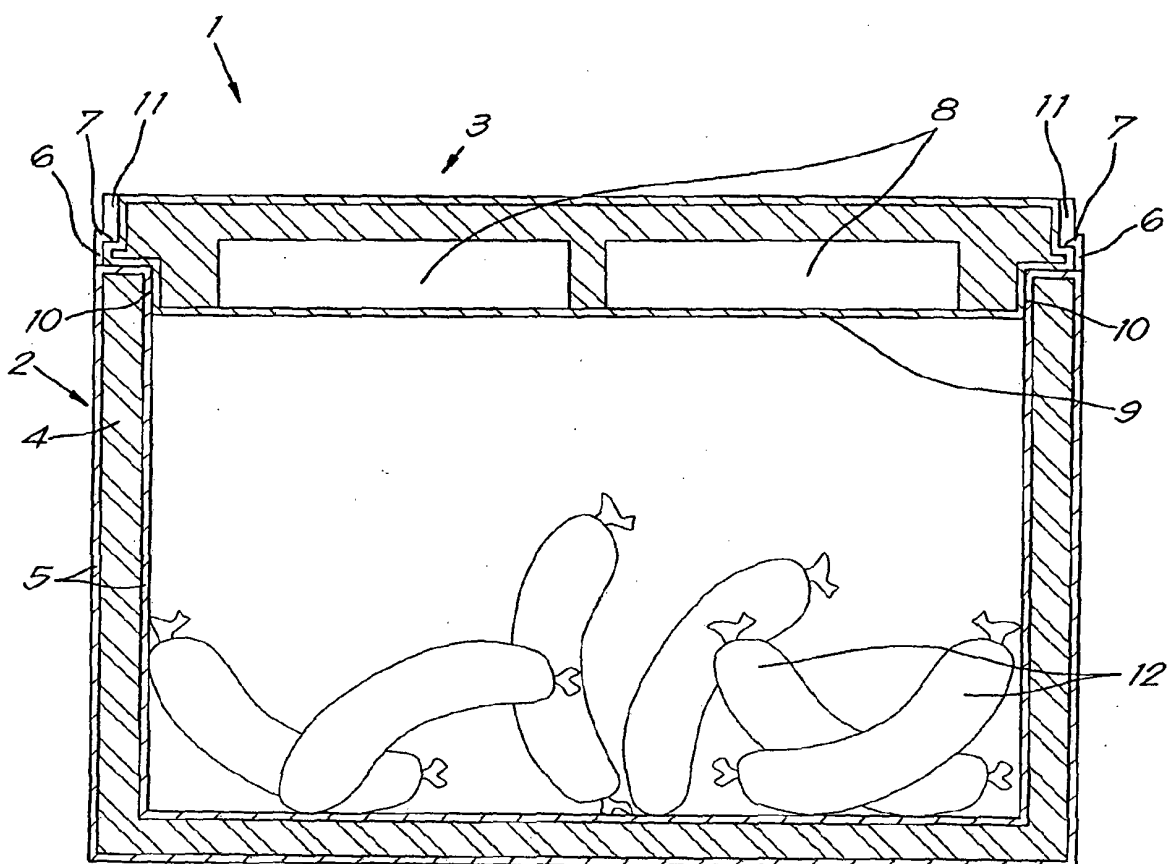


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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