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### (54) LUNCH BOX

(76) Inventor: Wen-Tao Liu, Zhonghe City (TW)

Correspondence Address: LOWE HAUPTMAN BERNER, LLP 1700 DIAGONAL ROAD **SUITE 300** ALEXANDRIA, VA 22314 (US)

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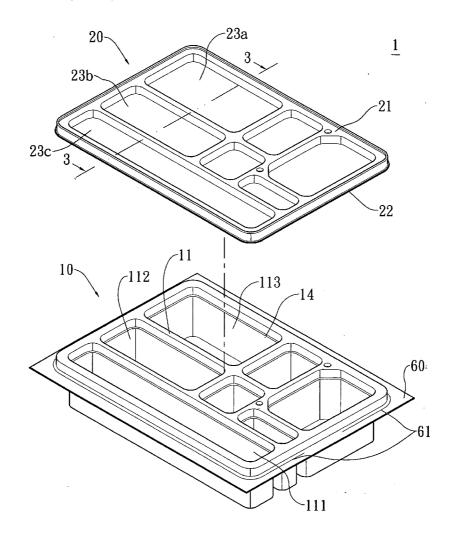
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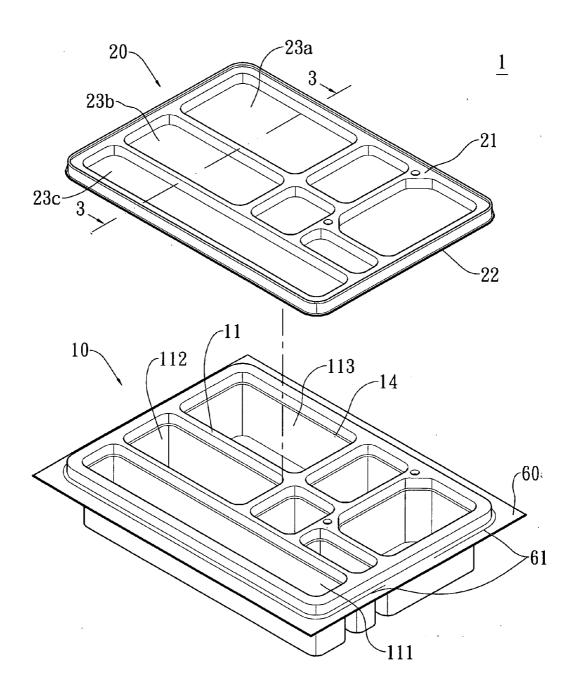
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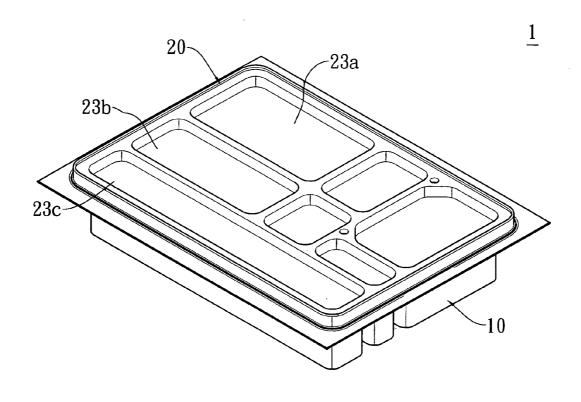
#### (57)ABSTRACT

A lunch box comprising: a receptacle and a cover able to cover the receptacle. The receptacle is provided therein with partitions to divide the receptacle into a plurality of receiving spaces; in which a receiving space is used to store therein soup, and the remaining spaces are used to store therein cooked rice or repast. And in which the cover is formed thereon downwardly recessed areas in corresponding to and in opposition respectively to the receiving spaces of the receptacle; the bottoms or peripheries of the receiving spaces of the cover and the partitions of the receiving spaces of the receptacle at the positions opposite respectively to those of the bottoms or peripheries are provided with engaging means for mutual engaging, so that the cover and the receptacle can be tightly engaging with each other to prevent spilling of soup or food juices.

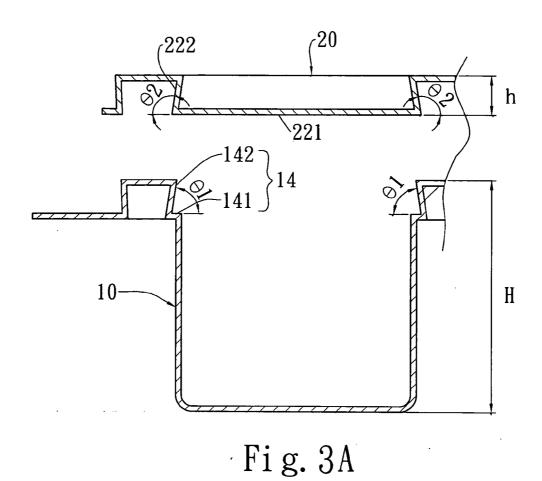


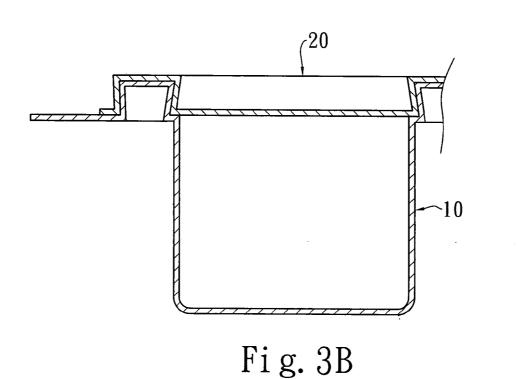


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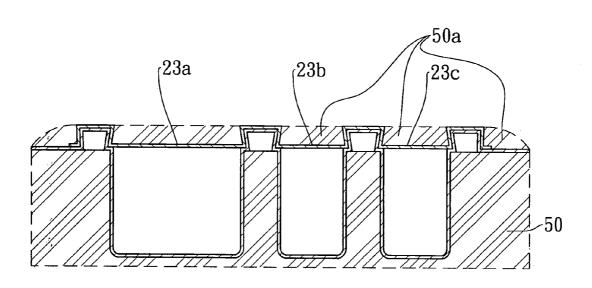


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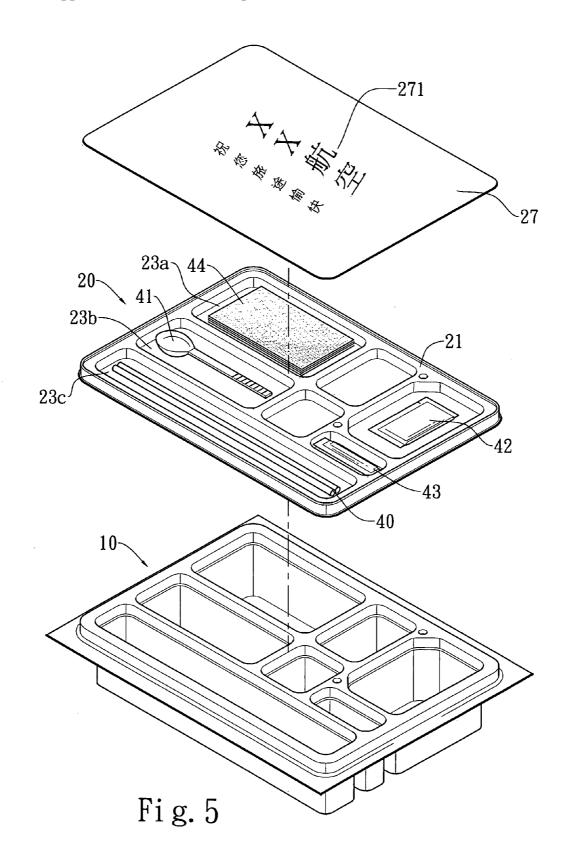




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Fi g. 4



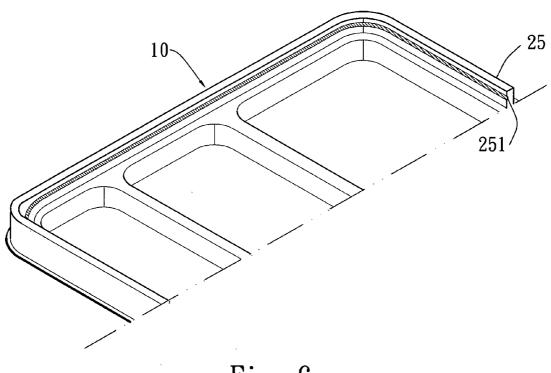
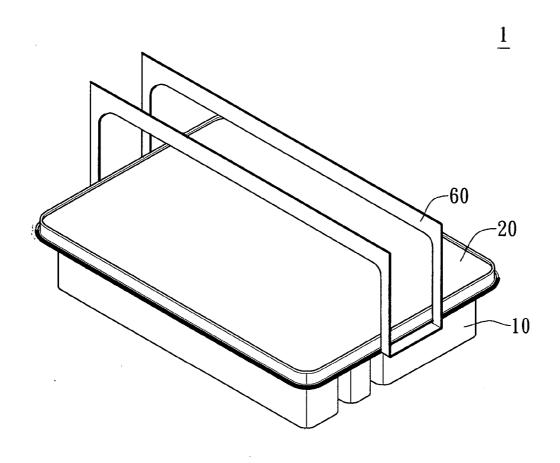
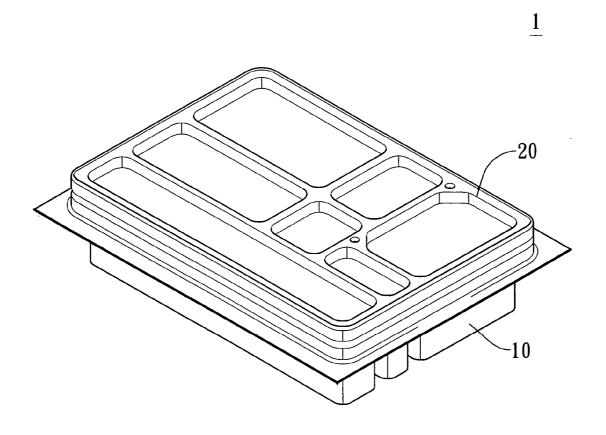


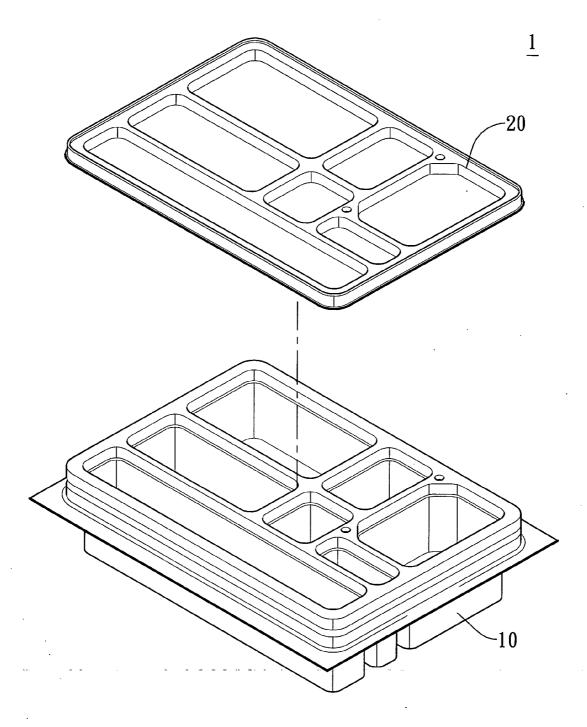
Fig. 6



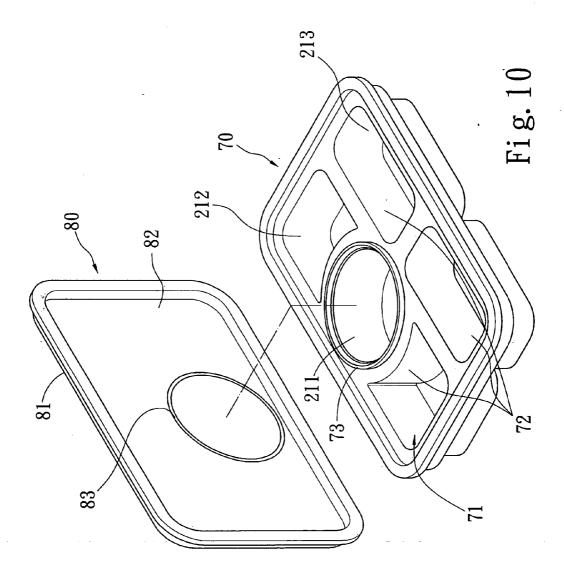
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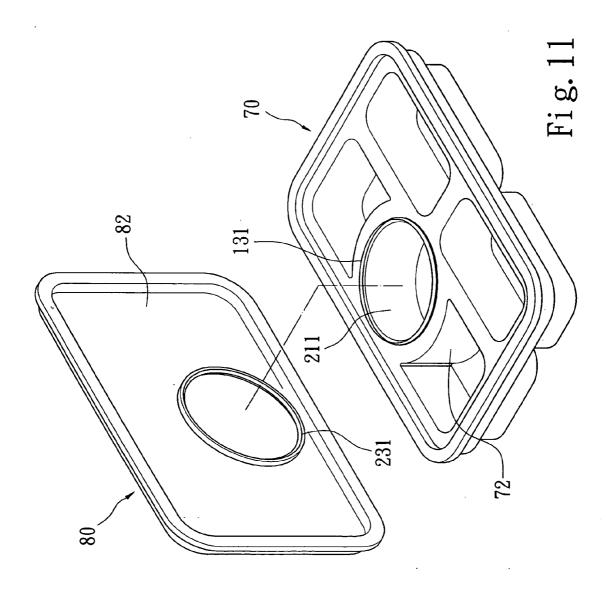


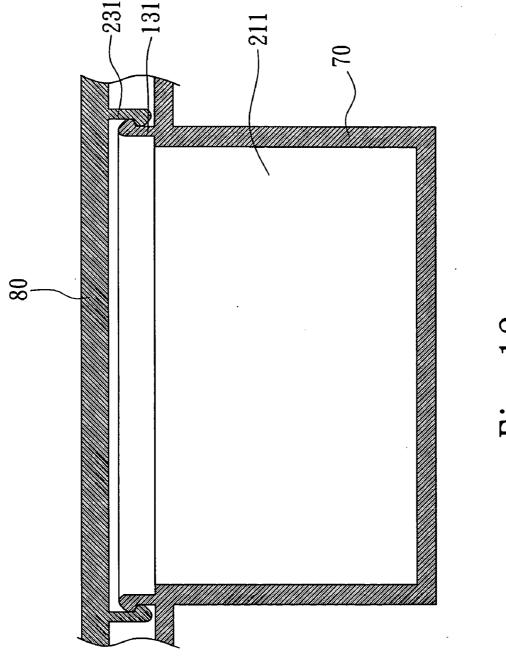
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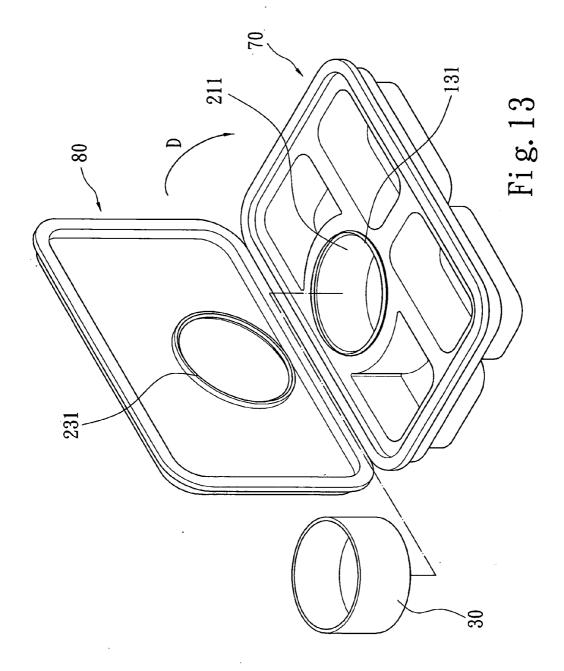


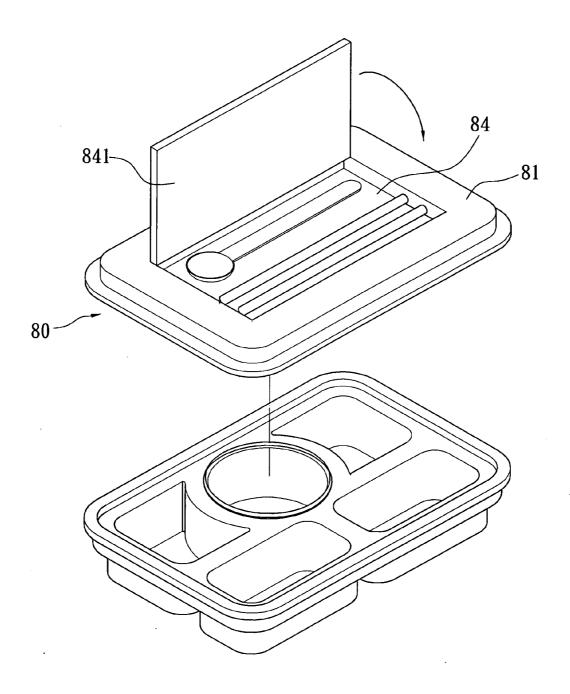
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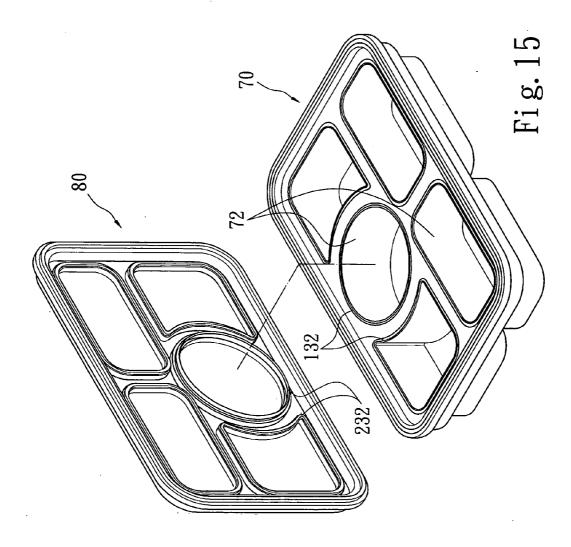








Fi g. 14



#### LUNCH BOX

#### BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a lunch box, and more particularly to a lunch box for storing therein soup and cooked food. The soup or food juices therein will not spill or mingle, the lunch box can be a lunch box used in our daily life or the like.

[0003] 2. Description of the Prior Art

[0004] Lunch boxes are one kind of utensils necessary for meals. The conventional structure of lunch box is only a container for storing therein food and it has a cover able to cover the container. The lunch box mostly is made of metal (such as stainless steel). However, due to various requirements, the structure of a lunch box has been variant; for example, a dual layer lunch box has a first layer that is a deeper container to be used for receiving staple food (rice or noodle), and has a second layer that is a shallower container to be hung on the periphery of the first layer, the second layer is divided into several receiving areas for receiving cooked meats and vegetables. Thus, the staple food, the cooked meats and vegetables are separated with one another to have their flavor and tastes maintained. Certainly, there are many kinds of lunch boxes such as heat maintaining lunch boxes or portable lunch boxes etc.

[0005] Modern people in busy lives, particularly students and those nine-to-fivers, hardly have time to prepare meals in lunch boxes. This makes increased population of people who are eating outside homes or offices. Presently, containers to be stored therein food for eating outside homes or offices mostly are the lunch boxes capable of being heated by microwave ovens, such as those lunch boxes sold in convenient stores and they are mainly made of PP (polypropylene); and such lunch boxes mostly are provided only with a plurality of separated spaces for receiving staple food or cooked meats and vegetables except independent space for receiving soup. Even when there is independent space for receiving soup, the soup is stored in a cup covered with a small cover to avoid being toppling over to have the soup spilled out during carrying in a road.

[0006] Although providing cups for storing therein soups increases the vendibility of lunch boxes, it also increases the cost of production of the lunch boxes, if including the costs of soup cups, cup covers, and the time for covering the covers on the soup cups.

[0007] Therefore, to provide a lunch box to store therein food including soup and repast directly is the main goal of the present invention.

### SUMMARY OF THE INVENTION

[0008] The primary objective of the present invention is to provide a lunch box provided at least with a space for storing therein soup, and the soup will not spill after storing.

[0009] The secondary objective of the present invention is to provide a lunch box in which repast and food juices will not spill or mingle.

[0010] Another objective of the present invention is to provide a lunch box that can have heat therein maintained,

have coldness therein maintained, and have freshness of soup and repast therein maintained too.

[0011] A further objective of the present invention is to provide a lunch box that can be formed a set of handle for easy carrying in a simple way.

[0012] Therefore, in order to achieve the above objectives, the lunch box structure of the present invention comprises: a receptacle and a cover able to cover the receptacle. The receptacle is provided therein with partitions to divide the receptacle into a plurality of receiving spaces. In which a receiving space is used to store therein soup and the remaining spaces are used to store therein cooked rice or repast. The cover is formed thereon downwardly recessed areas in corresponding to and in opposition respectively to the receiving spaces of the receptacle; the bottoms or peripheries of the cover and the partitions of the receiving spaces of the receptacle at the positions opposite respectively to those of the bottoms or peripheries are provided with engaging means for mutual engaging, so that the cover and the receptacle can be tightly engaged with each other to prevent spilling of soup.

[0013] One feature of the present invention resides in that: a plurality of outwardly protruding areas formed between the recessed areas on the upper surface of the cover and the receiving spaces on the bottom surface of the receptacle of the lunch box are enveloped with heat insulating material for having heat therein maintained, having coldness therein maintained, and having freshness of soup and repast therein maintained too.

[0014] Another feature of the present invention resides in that: a flange encircles the periphery of the receptacle, the flange is provided with a tearing line, in order that a part of the flange can be torn off along the tearing line to form a set of handle.

[0015] Another feature of the present invention resides in that: the periphery of the cover protrudes upwards to form a circle of protruding wall; the inner wall surface of the protruding wall has a circling recess to allow a planar sheet to be embedded therein to seal the upper surface of the cover. And the surface of the planar sheet can be printed thereon with advertisement letters or patterns.

[0016] The present invention will be apparent in its content and effect to be achieved after reading the detailed description of the preferred embodiment thereof in reference to the accompanying drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1 is a perspective view of a first embodiment of lunch box of the present invention before assembling;

[0018] FIG. 2 is a perspective view of the first embodiment of lunch box of the present invention after assembling;

[0019] FIGS. 3A and 3B are sectional schematic views showing engagement of elements of the first embodiment of lunch box of the present invention (respectively before and after engagement);

[0020] FIG. 4 is a sectional view taken from a sectional line 3-3 in FIG. 1 to show that the lunch box is enveloped with heat insulating material;

[0021] FIG. 5 is a perspective schematic view of the present invention showing some recessed areas of an embodiment of the present invention are used for receiving some tableware.

[0022] FIG. 6 is a partially enlarged perspective schematic view of FIG. 5;

[0023] FIG. 7 is a schematic perspective view of an embodiment of the present invention with a set of handle formed in a simple way;

[0024] FIG. 8 is a perspective view showing the appearance when a plurality of lunch boxes of the present invention are piled together;

[0025] FIG. 9 is a perspective view of the present invention before assembling showing another status of using;

[0026] FIG. 10 is a perspective view of another embodiment of lunch box of the present invention before assembling showing the elements therein, and showing that an area for receiving soup is provided with a first engaging means (ridged portion) and that the cover is formed thereon at an area in opposition to that of the first engaging means a second engaging means (recessed portion);

[0027] FIG. 11 shows a perspective view of another embodiment of the present invention, wherein the first engaging means is a first lip protruding out of the top of a partition, while the second engaging means is a second lip protruding out of the bottom of the cover; thereby a force can be exerted to cover the cover on the receptacle to render the first and the second lip to tightly engage with each other;

[0028] FIG. 12 is a schematic sectional view taken from FIG. 11 showing engagement of the first engaging means with the second engaging means;

[0029] FIG. 13 is a schematic perspective view of an embodiment of the present invention showing that one side of the cover is adapted to connecting with one side of the receptacle to allow direct turning over of the cover on the receptacle for tight covering;

[0030] FIG. 14 is a perspective view of another embodiment of the present invention showing that the cover of a lunch box is provided thereon with another recessed area for receiving tableware; and

[0031] FIG. 15 is a schematic perspective view of another embodiment of the present invention showing that the partition around each receiving space has on its top a recessed portion, while the cover is formed thereon at an area in opposition to that of the receiving space a ridged portion.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0032] Referring firstly to FIGS. 1, 2, 3A and 3B showing perspective views before and after assembling and sectional schematic views before and after engagement of elements of a first embodiment of lunch box 1 of the present invention, the lunch box 1 comprises: a receptacle 10 and a cover 20 able to cover the receptacle 10.

[0033] The receptacle 10 is provided therein with partitions 11 to divide the receptacle 10 into a plurality of receiving spaces 111, 112 and 113 etc. Each of the receiving

spaces 111, 112 and 113 has a first height "H" for receiving staple food (such as rice or noodle) or cooked meats and vegetables. In which the receiving space 113 is used to store therein soup or some other food juices.

[0034] The cover 20 is formed downwardly recessed areas 23a, 23b and 23c etc. in corresponding to and in opposition respectively to the receiving spaces 113, 112 and 111 etc. of the receptacle 10. Each of the recessed areas 23a, 23b and 23c has a second height "h" which is smaller than the height "H", in order that each of the receiving spaces 111, 112 and 113 etc. has a sufficient space for receiving food. The bottoms or peripheries of the recessed areas 23a, 23b and 23c of the cover 20 and the partitions 11 of the receiving spaces 113, 112 and 111 of the receptacle 10 at the positions opposite respectively to those of the bottoms or peripheries are provided with engaging means for mutual engaging. So that the cover 20 and the receptacle 10 can be tightly engaged with each other to prevent soup or food juices in the receiving spaces 111, 112 and 113 from spilling outside or mingling.

[0035] In one embodiment, for the purpose of tight engaging of the cover 20 with the receptacle 10, the partition 11 on the periphery of each of the receiving spaces 111, 112 and 113 is provided thereon with a first engaging means which is defined a stepped portion 14 provided on the inner wall of the partition 11. Each stepped portion 14 includes a first surface 141 and a second surface 142 having therebetween an angle that preferably is an acute included angle  $\theta 1$  having preferably between 80-89 degrees.

[0036] The cover 20 includes an upper surface 21 and a lower surface 22. The lower surface 22 is provided thereon with a plurality of second engaging means in opposition respectively to those of first engaging means when the cover 20 covers the receptacle 10. In this embodiment, the plurality of second engaging means take advantage of downwardly recessing of the upper surface 21 of the cover 20 to protrude downwardly out of the lower surface 22 of the cover 20. Thereby the lower surface 22 of the cover 20 forms bottoms 221 and peripheries 222. Between each of the bottoms 221 and the peripheries 222 is an obtuse included angle  $\theta$ 2 which is preferably a supplementary angle to the acute included angle  $\theta$ 1. Hence when the cover 20 covers the receptacle 10, the bottoms 221 protruding downwardly out of the lower surface 22 of the cover 20 and the peripheries 222 can exactly be firmly engaged with the stepped portions 14 to make tight engaging of the cover 20 with the receptacle 10, so that soup and food juices in the receiving spaces 111, 112 and 113 do not spill outside nor mingle

[0037] In another embodiment, each first engaging means can be provided on the top of each partition 11; while each second engaging means can be provided on the bottom of the cover 20 at each corresponding position to that of the first engaging means respectively to engage with the latter (this will be described hereinafter).

[0038] Referring to FIG. 4, a plurality of outwardly protruding areas formed between the recessed areas 23a, 23b and 23c of the cover 20 of the lunch box 1 and the receiving spaces 111, 112 and 113 on the bottom surface of the receptacle 10 are enveloped with heat insulating material 50, 50a for having heat in the receptacle 10 maintained, having coldness therein maintained, and having freshness therein maintained too. When the embodiment in FIG. 4 is provided

with heat insulating or heat maintaining material, the lunch box 1 of the present invention can be used as a container of ice products such as ice cream etc.

[0039] And referring to FIG. 5, the recessed areas 23a, 23b and 23c formed on the upper surface 21 of the cover 20 can be used to receive therein tissue papers 44, tableware (such as chopsticks 40 and spoons 41 etc.), flavoring packs 42 and tooth picks 43 etc.

[0040] Referring to FIG. 6, the periphery of the cover 20 has a circle of upwardly protruding wall 25; the inner wall surface of the protruding wall 25 has a circling recess 251 to allow a planar sheet 27 to be embedded therein to close the upper surface 21 of the cover 20, this can keep neat of the tableware and avoid scattering of the things (the tableware 40, 41, flavoring packs 42 and tooth picks 43 etc) in the receiving spaces 111, 112 and 113. And the surface of the planar sheet 27 can be printed thereon with advertisement letters or patterns 271 etc.

[0041] And again referring to FIG. 1, a flange 60 encircles the periphery of the receptacle 10. The flange 60 is provided with a tearing line 61, in order that a part of the flange 60 can be torn off along the tearing line 61 to form a set of handle, such as is shown in FIG. 7. Forming of the tearing line 61 is performed in pressing of a mold; a predetermined area of the flange 60 is pressed to be particularly thin to be beneficial for tearing the flange 60 by a user.

[0042] When in practicing, the lunch box 1 can be used to store therein any food including solid food and food juices. Alternatively, a lunch box able to avoid the food juices in the receiving spaces 111, 112 and 113 to mingle can further be used as a freshness keeping container to reduce possibility of mingling of flavors in the receiving spaces 111, 112 and 113. And therefore the lunch box can be used as a portable food container

[0043] Moreover, again referring to FIG. 8, the outwardly protruding areas formed from the receiving spaces 113, 112 and 111 on the bottom surface of the receptacle 10 are in corresponding and in opposition respectively to the recessed areas 23a, 23b and 23c of the cover 20 of the lunch box 1. Therefore, a plurality of lunch boxes can be piled up one on another conveniently. Such as is shown in FIG. 9, in practical application, a plurality of receptacles 10 can be used for receiving cooked meats, vegetables and staple food, while only the uppermost receptacle 10 has a cover 20 placed thereon.

[0044] The material of the lunch box 1 can be PP (polypropylene) to be heated in a microwave oven or to be free of washing and to be discarded, or can be any other materials suitable for recycled using.

[0045] Referring to FIG. 10 showing another embodiment of lunch box of the present invention, the lunch box comprises a receptacle 70 and a cover 80 able to cover the receptacle 70.

[0046] The receptacle 70 is a food container having a receiving unit 71, partitions 72 are provided inside of the receiving unit 71 to divide the receptacle 70 into a plurality of receiving spaces 211, 212, 213 for receiving staple food (rice or noodle) or cooked meats and vegetables, wherein one receiving space 211 is used particularly to store therein soup.

[0047] The receiving space 211 used particularly to store therein soup has on its top periphery a circle of ridged portion 73 forming a first engaging means. The cover 80 has thereon an upper surface 81 and a lower surface 82; the lower surface 82 is provided thereon with a recessed portion 83 forming a second engaging means in opposition to the ridged portion 73 of the first engaging means. When the cover 80 covers the receptacle 70, the first engaging means can have tight engaging with the second engaging means by embedding of the ridged portion 73 in the recessed portion 83, and thereby soup in the receiving space 211 does not spill outside.

[0048] And as shown in FIG. 11, the first engaging means of the receptacle 70 can be a first lip 131 with a reversely hooking edge protruding out of the top of the partitions 72, while the second engaging means of the cover 80 can be a second lip 231 with a reversely hooking edge protruding out of the bottom 82 of the cover 80. Thereby a force can be exerted to cover the cover 80 on the receptacle 70 to render the first and the second lips 131, 231 to tightly engage with each other. Thereby soup in the receiving space 211 does not spill outside (as shown in FIG. 12).

[0049] The cover 80 can also be integrally formed with the receptacle 70, i.e., one side of the cover 80 is connected with one side of the receptacle 70, such as is shown in FIG. 13, to allow direct turning over of the cover 80 along a direction "D" on the receptacle 70 for tight covering by mutual engaging between the first and the second lips 131, 231. Such designing renders a person of the art of food and beverage to directly cover the cover 80 onto the receptacle 70 after placing in staple food, cooked meats, vegetables and soup sequentially. There is no need of an additional means such as rubber rings etc. to fix the cover 80 onto the receptacle 70. Thereby packing speed for lunch boxes can be increased. Certainly, the periphery of the receptacle 70 can be provided with any means that can fixedly engage the cover 80 onto the receptacle 70 without helping of additional rubber rings.

[0050] Although the receiving space 211 can be used to receive soup, a conventional soup cup 30 can still be placed therein. In this way, people of the art of food and beverage can flexibly use soup cups in manufacturing lunch boxes.

[0051] And referring to FIG. 14, the upper surface 81 of the cover 80 can be provided thereon with a recessed area 84 for receiving tableware (such as chopsticks and spoons etc.). The recessed area 84 can also be added thereon with a lid 841 to keep neat of the tableware. The recessed area 84 can also be added therein with clamping means for stably clamping the tableware (not shown). Certainly, one of the above stated plural receiving spaces can also be used as a tableware receiving space (not shown).

[0052] In practicing, the tops of all the partitions 72 can further be provided with first engaging means and second engaging means. Referring to FIG. 15, it shows that each of the partitions 72 of the receptacle 70 has on its top a continuous circle of a recessed portion 132. The lower surface 82 of the cover 80 can be provided thereon with a circle of ridged portion 232 in corresponding to and in opposition to the recessed portion 132; thereby when the cover 20 covers the receptacle 10, the ridged portion 232 is tightly engaged in the recessed portion 132 to prevent food juices in the receiving spaces from spilling outside or mingling.

Therefore, the present invention has the following advantages:

- [0053] 1. The structure of lunch box of the present invention renders the bottoms or peripheries of the recessed areas of the cover to be engaged with the partitions of the receiving spaces of the receptacle at the positions opposite respectively to those of the bottoms or peripheries, so that a well-engaging lunch box is formed and soup therein is prevented from spilling outside.
- [0054] 2. The lunch box is different from the conventional lunch boxes, it can be directly stored therein soup, and can be fast assembled and detached by providing the mutually engageable first and second engaging means to form a fast assembling and detaching lunch box structure. This saves the cost of the requisition to use a soup cup, and omits the step of covering a cover onto the soup cup, and to thereby save the time in manufacturing each of such a lunch box.
- [0055] 3. The lunch box at least can have excellent tight engaging at the tops of the partitions after storing soup by precise engagement of the first and the second engaging means. And this idea can be extended to apply to each receiving space, hence food juices in staple food, cooked meats and vegetables will not mingle, so that the staple food, the cooked meats and the vegetables can surely keep their original flavors and tastes.
- [0056] 4. The lunch box can be made a discardable one to achieve an objective of simplifying and convenience. Alternatively, it can be made a lunch box able to use repeatedly to obtain an environment-friendly objective.
- [0057] 5. The lunch box is enveloped therearound heat insulating material to have heat therein maintained, have coldness therein maintained, and have freshness therein maintained too.
- [0058] 6. The lunch box is provided thereon with a simple set of handle in favor of carrying.
- [0059] In conclusion, according to the description disclosed and drawings above, the present invention surely can achieve the expected objectives thereof to provide a lunch box able to store therein soup and food juices of repast in the receiving spaces is prevented from mingling.
- [0060] The embodiment stated above is only for illustrating the present invention, it will be apparent to those skilled in this art that various equivalent modifications or changes according to the idea of and without departing from the disclosing and teaching of this invention shall also fall within technical scope of the appended claims.

#### What is claimed is:

- 1. A lunch box comprising: a receptacle and a cover, said receptacle is provided therein with partitions to divide said receptacle into a plurality of receiving spaces, in which one of said receiving spaces is used to store therein soup, the remaining of said receiving spaces are used to store therein other foods, said cover includes an upper surface and a lower surface, said lunch box is characterized in that:
  - said cover is formed thereon downwardly recessed areas in corresponding to and in opposition respectively to said receiving spaces of said receptacle; bottoms or peripheries of said receiving spaces of said cover and said partitions of said receiving spaces of said recep-

- tacle at positions opposite respectively to those of said bottoms or peripheries are provided with engaging means for mutual engaging, so that said cover and said receptacle are tightly engaging with each other to prevent spilling of soup.
- 2. The lunch box as in claim 1, wherein: said partitions of said receiving spaces of said receptacle are provided thereon with a plurality of first engaging means which have stepped portions on inner walls of said partitions, said lower surface of said cover is provided thereon with a plurality of second engaging means in opposition to said first engaging means, said second engaging means take advantage of downwardly recessing of said upper surface of said cover to protrude downwardly out of said lower surface of said cover.
- 3. The lunch box as in claim 1, wherein: each of said partitions is provided thereon with a first engaging means, a plurality of second engaging means are provided in opposition respectively to those said first engaging means, so that food juices in said receiving spaces does not spill outside nor mingle.
- **4**. The lunch box as in claim 1, wherein: said recessed areas of said cover are used to receive therein tableware and flavoring packs.
- 5. The lunch box as in claim 1, wherein: a plurality of outwardly protruding areas formed between said recessed areas of said cover of said lunch box and said receiving spaces on said bottom surface of said receptacle are enveloped with heat insulating material for heat maintaining, coldness keeping and freshness keeping.
- **6**. The lunch box as in claim 1, wherein: said heat insulating material is foam sponge.
- 7. The lunch box as in claim 1, wherein: a flange encircles a periphery of said receptacle, said flange is provided with a tearing line, in order that said flange is adapted to being torn off a part of it along said tearing line to form a set of handle.
- 8. The lunch box as in claim 1, wherein: a surrounding periphery of said cover protrudes upwards to form a circle of protruding wall, an inner wall surface of said protruding wall has a circling recess to allow a planar sheet to be embedded therein to seal said upper surface of said cover.
- **9**. The lunch box as in claim 8, wherein: a surface of said planar sheet is printed thereon with advertisement letters or patterns.
- 10. A lunch box comprising: a receptacle and a cover, said receptacle is provided therein with partitions to divide said receptacle into a plurality of receiving spaces, in which one of said receiving spaces is used to store therein soup, the remaining of said receiving spaces are used to store therein other kinds of foods, said cover includes an upper surface and a lower surface, said lunch box is characterized in that:
  - said receptacle is provided at least on one of said partitions of said receiving spaces to store therein soup with a first engaging means; a lower surface of said cover is provided thereon with a second engaging means in opposition to said first engaging means, when said cover covers said receptacle, said first and second engaging means are tightly engaged with each other to prevent spilling of soup.
- 11. The lunch box as in claim 10, wherein: said first engaging means has a stepped portion on an inner wall of said one of said partitions, said second engaging means takes

advantage of downwardly recessing of said upper surface of said cover to protrude downwardly out of said lower surface of said cover.

- 12. The lunch box as in claim 10, wherein: said first engaging means is provided on a top of said one of said partitions, said second engaging means is provided on said lower surface of said cover in opposition to said first engaging means in order that said first engaging means is engaged with said second engaging means.
- 13. The lunch box as in claim 10, wherein: said partitions of all said receiving spaces each is provided with a first engaging means as said first engaging means, and a plurality of second engaging means as said second engaging means are provided on said lower surface of said cover in opposition respectively to all said first engaging means, so that food juices in said receiving spaces of said lunch box does not spill outside or mingle.
- 14. The lunch box as in claim 10, wherein: said first engaging means is a ridged portion, while said second engaging means is a recessed portion for inserting of said ridged portion therein.
- 15. The lunch box as in claim 10, wherein: said second engaging means is a ridged portion, while said first engaging

- means is a recessed portion for inserting of said ridged portion therein.
- 16. The lunch box as in claim 10, wherein: said first engaging means is a first lip protruding out of a top of on one of said partitions, while said second engaging means is a second lip protruding out of a bottom of said cover; thereby a force exerted to cover said cover on said receptacle renders said first and said second engaging means to tightly engage with each other.
- 17. The lunch box as in claim 10, wherein: one side of said cover is adapted to engaging with one side of said receptacle to allow direct turning over of said cover on said receptacle for tight covering.
- 18. The lunch box as in claim 10, wherein: said one of said receiving spaces used to store therein soup is further placed separately therein with a soup cup.
- 19. The lunch box as in claim 10, wherein: one of said receiving spaces is used for receiving tableware.
- 20. The lunch box as in claim 10, wherein: said cover is provided thereon with a recessed area for receiving tableware.

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