FOOD BOX WITH THIN WOODEN STRUCTURE

Inventors: Chong-Shyan Wong, Pan-Chiao City (TW); Hua-Chang Tseng, Pan-Chiao City (TW)

Correspondence Address:
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747 (US)

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ABSTRACT
The present invention provides a box comprising a thin wooden structure, using a thin wooden sheet pre-coated with nontoxic moisture-proof or tenacity material to form a reinforcement layer on the surface, and following with machinery molding steps for cutting, folding and bonding to fabricate a thin wooden box. The box comprise a peripheral wall and bottom plate both are made of thin wooden, wherein the peripheral wall has a inner-folded flange at the lower edge for supporting the bottom plate, and the bottom plate can further be bonded with glue on the inner-folded flange permanently. The opening of the box can be larger than its bottom, and can be overlapping one by one to save space for packing, delivery or stock.
FOOD BOX WITH THIN WOODEN STRUCTURE

BACKGROUND OF THE INVENTION

1. Field of the Present Invention

The present invention relates to a structure using thin wooden sheet to fabricate a box; particularly, to a box which is made from thin wooden sheet, wherein the thin wooden sheet is pre-coated with a moisture-proof or tenacity material to form a reinforcement layer on the surface, and then following with cutting outline, folding inner-folded flange and bonding to fabricate such a box.

2. Description of Related Arts

Everyday, everywhere, there are countless Styro-foam lunch boxes or snack boxes been dumped away by people carelessly; thus would cause a heavy burden to treat such kind of garbage and cause an ecological damage between human being and other animals. As we know, this is a long-standing unsolved environmental protecting problem between you and me.

While some Styrofoam products, included Styro-foam lunch boxes, Styrofoam spoons and Styrofoam trays, being forbidden to sell in some country, people start to use paper products instead of it. However, in order to get enough hardness and strength to ladle soup and support foods, the paper product should be thick enough and needs water resistance treatment; however, thus would consume more paper pulp than ever.

On the other hand, as we know, from cutting timbers from woods, to smash to add chemical composition and to process to produce paper pulp, the paper products shall consume massive valuable energy and resource; in the meantime, it would discharge foul water and may damage the environment. It is also hard to judge between the gain and loss in using paper products. Actually, it is still doubtful whether to use paper product is good for environment protection or not, and would need experts to study and find it out.

There is an edible lunch box ever being invented and disclosed in Taiwan Patent No. 548081, a lunch box and method for making the same. The patent did provides an edible lunch box which may made of pastry crust; however, this patent didn’t provide us how to prevent the lunch box get moldy or rotten without adding any antiseptic during the long period before it is sold out, it may up to several weeks to several years. More seriously, such kind of lunch box may get soften or become pasty when been soaked in hot soup while in use. Whether such kind of lunch box is delicious or not? Can it be an idea replacement for the traditional Styrofoam products? Time will give us the real answer.

Another choice is, thin wooden lunch box, made of natural wooden, may giving us the nature, sanitary and reliable feeling. The main reason is, while a thin wooden lunch box has been used and dumped, it can be buried in incinerator, and can also be buried to discompose automatically and convert into fertilizer to nourish the earth. Although the cost to fabricate a lunch box with wooden is more expensive than Styrofoam, however this may lower the controversy on environmental protection issue. The wood companies in Southeast Asian Nations now, already begin to plant various fast growing and nontoxic trees to satisfy the growing mass demand for wooden food box or gift box; therefore, it is not need to doubt, the cost shall be lower than ever.

Nevertheless, we found it is difficult to get a good yield rate from manufacture the thin wooden product in ordinary mass production. Particularly, due to the fibers of thin wooden sheet are grown parallel, thus would cause the thin wooden sheet easy to get break while in folding process, and is unavoidable to break abruptly and tends to scrap occasionally. Sometime, the wooden product may get damp, inflatable, moldy, warp and deform during the period at delivery, stock and sale on the market. These and those long-standing problems are still need to be overcome. Finally, due to the easy broken wooden nature and bad yield rate, people in the related art can only fabricate ordinary simplified shape of wooden lunch box, and dare not to create new shape as new design.

SUMMARY OF THE INVENTION

In order to lower the cost for fabricating a thin wooden product, to solve the long-standing problem in the related art, we provide a thin wooden structure, suitable for mass production with higher yield rate.

According to the present invention, a thin wooden box is fabricate with thin wooden sheet, wherein the thin wooden sheet has pre-coated with a nontoxic moisture-proof or tenacity material to form a reinforcement layer on the surface, before the steps of cutting, folding and bonding.

Through the step for coating the reinforcement layer on the thin wooden sheet’s surface, it is capable to overcome the natural defects such as split, break or moisture absorption and deformation, and then easy to cut out the outline precisely, to fold without unexpected break and defect.

According to the present invention, an embodiment of the box may comprises a peripheral wall and a bottom plate, and capable to use a folding step to form an inner-folded flange on the lower edge of the peripheral wall for supporting the bottom plate of the box, and preferably, to use a bonding step to bond the bottom plate at the inner-folded flange to form a wooden box. Additionally, we can make the upper opening of the box larger than its bottom, thus, the box of the embodiment can be overlapping one by one to save space for packing, delivery and stock.

The abovementioned steps are, capable of using molding machinery to fabricate thin wooden boxes with high yield rate, and shall allow various of new shape other than the traditional style for design and manufacture.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing description or other characteristics, objects, features and advantages of the present invention will become more apparent upon consideration of the following detailed description, having reference to the accompanying drawings wherein;

FIG. 1 the perspective view illustrating the structure of the peripheral wall in accordance with the present invention;

FIG. 2 the perspective view illustrating a peripheral wall in accordance with the present invention, wherein the peripheral wall is formed an inner-folded flange on the lower edge;
[0018] FIG. 3 the cross-sectional view illustrating a bottom plate supported by the inner-folded flange of the peripheral wall, in accordance with the present invention;

[0019] FIG. 4 the exploded perspective view illustrating an embodiment in accordance with the present invention, shown a bottom plate which is engageable onto the inner-folded flange;

[0020] FIG. 5 the perspective view illustrating an embodiment in accordance with the present invention, shown that the thin wooden boxes are capable of overlapping one by one;

[0021] FIG. 6 the perspective view illustrating a thin wooden box of the second embodiment in accordance with the present invention;

[0022] FIG. 7 the perspective view illustrating another thin wooden box of the third embodiment in accordance with the present invention;

[0023] FIG. 8 the perspective view illustrating other thin wooden box of the fourth embodiment in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0024] Referring to FIGS. 3 and 4, according to the present invention, an embodiment of the box may comprise a peripheral wall (10) and bottom plate (20) both are made of thin wooden material. Wherein the peripheral wall (10) has a inner-folded flange (13) at the lower edge for supporting the bottom plate (20), and the bottom plate (20) is detachable engage within the peripheral wall (10) and can further be bonded with glue on the inner-folded flange (13). Preferably, to make the upper opening of the box larger than its bottom, thus, the box of the embodiment can be overlapping one by one to free more space for packing, delivery and stock purposes.

[0025] Referring to FIGS. 1 and 2, according to the present invention, a method to overcome the natural defects such as easily split, break, moisture absorption and deformation of the thin wooden structure, the method may comprising a pre-coating step for coating a nontoxic moisture-proof or tenacity material to form a reinforcement layer (12) on the surface of a thin wooden sheet (11), and following with the steps of cutting, folding and bonding steps. The reinforcement layer (12) can be, for example, a layer of PE film bonding on the surface by heat rolling or be a layer of glutinous rice paper or a layer of fibers to be glued on the surface of the thin wooden sheet (11). For mass production, use a cutting step to cut the coated thin wooden sheet (11) to form the outline of peripheral wall (10) with a cutting mold, and to create a pre-cutting line or groove (C1) near the lower edge of the peripheral wall (10), and use a folding mold to fold and form an inner-folded flange (13) according to the pre-cutting line or groove (C1) as shown in FIGS. 2 to 5.

[0026] Embodiments according to the present invention, the peripheral wall (10) can be round shape, cone-shape, rectangular with rounded corners shape, heart shape or triangular shape, and bonding with a bottom plate (20) with same outline respectively. All the embodiments of the present invention are easy for mass production and gain a high yield rate. Through the present invention, the cost to fabricate thin wooden box is lower, due to the yield rate can be higher, the designable shape is enriched due to the structure of box is improved. Further to refer FIGS. 6 and 8, the thin wooden box (30) in quadrilateral shape, the thin wooden box (40) in heart shape and the thin wooden box (50) in triangular shape, all are difficult to fabricate with traditional related art, but all are easy to mass production according to the present invention.

[0027] The thin wooden box of the embodiments, no matter it is in round, coned, rectangular, triangular or in heart shape, we can make the upper opening of the box larger than its bottom, thus, the box of the embodiment can be overlapping one by one to free more space for packing, delivery and stock.

[0028] In sum, the thin wooden box according to the present invention can prevent thin wooden sheet split along its parallel wooden fibers in the folding step, and gain a high yield rate in mass production.

[0029] The above embodiments are used only to illustrate the present invention, and it is not intended to limit the scope thereof. A person skilled in the art will readily recognize similar variations and alternative embodiments of the present invention, without departing from the spirit of the present invention.

We claim:
1. A food box with thin wooden structure comprising:
   a peripheral wall, which has an inner-folded flange at the lower edge thereof; and
   a bottom plate, which is engageable with the peripheral wall and is supported by the inner-folded flange.
2. The food box with thin wooden structure in accordance with claim 1, wherein the peripheral wall is coated with a nontoxic moisture-proof material to form a reinforcement layer on the surface.
3. The food box with thin wooden structure in accordance with claim 1, wherein the peripheral wall is coated with a nontoxic tenacity material to form a reinforcement layer on the surface.
4. The food box with thin wooden structure in accordance with claim 3, wherein the nontoxic tenacity material included an esculent use paper.
5. The food box with thin wooden structure in accordance with claim 3, wherein the nontoxic tenacity material included PE film.
6. The food box with thin wooden structure in accordance with claim 5, wherein the PE film is fixed on the peripheral wall by a heat roller treatment.
7. The food box with thin wooden structure in accordance with claim 1, wherein the food box has an opening larger than the bottom plate, and can be overlapping one by one to free more space for packing, delivery or stock.
8. The food box with thin wooden structure in accordance with claim 1, wherein the bottom plate is detachable fixed on the inner-folded flange.
9. The food box with thin wooden structure in accordance with claim 1, wherein the bottom plate is bonded to fix on the inner-folded flange.
10. A box made of thin wooden, comprise:
   a peripheral wall, made of a waterproof thin wood, having
   a flange protruded inwardly at the lower edge thereof;
   and
   a bottom plate which is supported by the flange.
11. The box in accordance with claim 10, has an opening
    larger than the bottom plate, and can be overlapping one
    by one to save space for packing, delivery or stock.
12. The box in accordance with claim 10, wherein the
    bottom plate is detachable fixed on the flange.
13. The box in accordance with claim 10, wherein the
    bottom plate is bonded on the flange.
14. The box in accordance with claim 1 is a box in
    rounded shape.
15. The box in accordance with claim 1 is a rectangular
    box with rounded angles.
16. The box in accordance with claim 1 is a heart-shaped
    box.
17. The box in accordance with claim 1 is a triangular box
    with rounded angles.
18. The box in accordance with claim 10 is a box in
    rounded shape.
19. The box in accordance with claim 10 is a rectangular
    box with rounded angles.
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