STRUCTURE OF COMPOSITE TABLE TOP

Inventor: Luhao LENG, Xiamen (CN)

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ABSTRACT

The present invention discloses a structure of composite table top, it comprises: a face plate having smooth outer and inner surface, a reinforcement plate having a upper surface which bears array-like projections adjoining to each other and having bonding surface to the said inner surface and a lower surface, wherein the shape and size of the outer peripheral edges belonging to the two said plates are similar to each other, and a reinforcement frame attaching to the inside of the outer peripheral edges of the said face plate and reinforcement plate. The structure of table top made of synthetic material is dramatically simplified by the face plate, the reinforcement plate bearing array-like projections and the reinforcement frame according to the present invention, so that it is fit for all kinds of synthetic material and has good mechanical properties, low cost for producing and assembling, and blazonry.
STRUCTURE OF COMPOSITE TABLE TOP

FIELD OF THE INVENTION

[0001] The present invention relates to a structure of table’s accessory, more particularly to a structure of composite table top.

BACKGROUND OF THE INVENTION

[0002] As one of the household items, the table top panel of prior art is made of wood which is traditional material. On the one hand the huge amount of wood usage goes against environment protection, but on the other the applicability of wood is uneven with high cost of maintenance. The substitutes such as fiberboard and flakeboard still share some identical defects with wood.

[0003] The starting point of designing table top panel is to be tough, durable, convenience and slinky according to the requirements of modern housing design. Pro-environment and low carbon are likewise needed. Because of the demands mentioned above, there are more and more applications of table top panel made of synthetic material.

[0004] Therefore, how to design a table top made of synthetic material with blazony, good applicability, low maintaining cost and better mechanical properties is inevitable requirement and tendency.

SUMMARY OF THE INVENTION

[0005] The object of the present invention is to provide a structure of composite table top according to the demands mentioned above. The technical scheme is mentioned below:

[0006] A structure of composite table top is characterized in that it comprises: a face plate having smooth outer and inner surface, a reinforcement plate having a upper surface which bears array-like projections adjoining to each other and having bonding surface to the said inner surface and a lower surface, wherein the shape and size of the outer peripheral edges belonging to the two said plates are similar to each other, and a reinforcement frame attaching to the inside of the outer peripheral edges of the said face plate and reinforcement plate.

[0007] In some preferred embodiments of the invention, the improvement can be made in the aspects below:

[0008] According to the structure of composite table top of the present invention, wherein said reinforcement plate can be produced via vacuum forming process, of which the lower surface bears the concaveness of which the shape conform to the projections of the said upper surface, and the said projections adhere to the face plate.

[0009] According to the structure of composite table top of the present invention, the outer edge of the face plate has downward flange; the outer edge of the reinforcement plate has upward flange; the two flanges interact with each other closely.

[0010] According to the structure of composite table top of the present invention, the reinforcement frame is covered by the outer peripheral edges of the said face plate and reinforcement plate, and contacts with the two flanges closely.

[0011] According to the structure of composite table top of the present invention, a polygon-shaped reinforcing rib is formed by the outer peripheral edges of the said face plate and reinforcement plate, of which the outside and underside are covered by the said reinforcement frame.

[0012] According to the structure of composite table top of the present invention, an adjunct reinforcement frame covers the outer peripheral edges of the said face plate and reinforcement plate, and interact with their outside and underside closely.

[0013] According to the structure of composite table top of the present invention, the said projections are constructed as array and the shape of their bonding surface is rectangle.

[0014] According to the structure of composite table top of the present invention, the said projections spreading over the said reinforcement plate and abut each other closely without gaps.

[0015] According to the structure of composite table top of the present invention, an erecting floor that is used to fasten moveable parts is mounted on the said lower surface, where the folding or vertical legs are fastened.

[0016] As another kind of the technical scheme similar to the one mentioned above, it can be described as below:

[0017] A structure of composite table top is characterized in that it comprises: a face plate having smooth outer and inner surface, a reinforcement plate having a upper surface which bears array-like projections spaced out to each other and having bonding surface to the said inner surface and a lower surface, wherein the shape and size of the outer peripheral edges belonging to the two said plates are similar to each other, and a reinforcement frame attaching to the inside of the outer peripheral edges of the said face plate and reinforcement plate.

[0018] According to the structure of composite table top of the present invention, the reinforcement plate can be produced via vacuum forming process, of which the lower surface bears the concaveness sharing the same shape with the projections of the said upper surface.

[0019] According to the structure of composite table top of the present invention, the outer edge of the face plate has downward flange; the outer edge of the reinforcement plate has upward flange; the two flanges interact with each other closely.

[0020] According to the structure of composite table top of the present invention, the said reinforcement frame is covered by the outer peripheral edges of the said face plate and reinforcement plate, and contacts with the two flanges closely.

[0021] The beneficial effects of the present invention are:

[0022] 1. The structure of composite table top is dramatically simplified by the face plate, the reinforcement plate bearing array-like projections and the reinforcement frame. The structure of composite table top is fit for all kinds of synthetic material, and it has good mechanical properties, low cost for producing and assembling, and blazony.

[0023] 2. The profiles of concaveness and projections conform to each other and they can be produced via vacuum forming process which is very easy and make the stationary form of the said face plate and reinforcement plate manifold and firmly fastened.

[0024] 3. The compact structure has good applicability especially in the limited space or on the portability-needed occasion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIG. 1 shows an explored view and partly sectional view of the preferred embodiment 1 according to the invention.
Fig. 2 shows a cross sectional view of the preferred embodiment 1 according to the invention.

Fig. 3 shows an explored view and partly sectional view of the preferred embodiment 2 according to the invention.

Fig. 4 shows an explored view and partly sectional view of the preferred embodiment 3 according to the invention.

Fig. 5 shows a cross sectional view of the part of the preferred embodiment 3 in Fig. 4.

Fig. 6 shows a perspective view of the preferred embodiment 4 according to the invention.

Fig. 7 shows a perspective view of the preferred embodiment 5 according to the invention.

Fig. 8 shows a perspective view of the preferred embodiment 6 according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Embodiment 1

Fig. 1 shows an explored view and partly sectional view of the preferred embodiment 1 according to the invention. The composite table top 10 that is to use vacuum forming material comprises a face plate 100, a reinforcement plate 200, and a reinforcement frame 300. The face plate 100 is a kind of surface plate with upward flange on the outer peripheral edges. The reinforcement plate 200 having the downward flange 203 has similar shape and equivalent outer peripheral edges to the face plate 100.

Rectangular-array-distributed projections 201 are on the upper surface of the reinforcement plate 200, which are placed in the inner surface of the face plate 100 via ultrasonic bonding. There is no need to bond all projections 201 that is stagger distribution on the upper surface of the reinforcement plate 200 to the inner surface of the face plate 100, but only to fasten it with a pipe with quadrate cross section are bent to form the reinforcement frame 300 that is between the face plate 100 and the reinforcement plate 200. Every projection 201 corresponds to a concave pit 202 in the lower surface of the reinforcement plate 200.

Conjunction details of each part can be known according to Fig. 2. The reinforcement plate 200 bonds the face plate 100 closely through projection 201. The downward flange 203 of the reinforcement plate 200 mates the upward flange 101 of the face plate 100 vertically to form the outboard of the whole table top where the reinforcement frame 300 support the table top.

Embodiment 2

Fig. 3 shows an explored view and partly sectional view of the preferred embodiment 2 according to the invention; the basic inside structure of the composite table top 10 is similar to the preferred embodiment 1 such as the shape, distribution of projections and the way they combine. The difference is that the composite table top 10 is combined with two pieces through the hinge 11. The composite table top 10 can be folded facing the lower surface of the reinforcement plate 200 through the hinge 11.

Embodiment 3

Fig. 4 shows an explored view and partly sectional view of the preferred embodiment 3 according to the invention. The composite table top 10 still comprises a face plate 100 that has the same structure as the preferred embodiment 1 and 2, a reinforcement plate 200 and a reinforcement frame 300. The projections 201 of the reinforcement plate 200 are long strip and distributed as regular array with space to each other. The concave pit 202 sharing the same shape with the projection 201 is corresponded to the projection 201; the interface of the concave pit 202 which contacts with the lower surface of the face plate 100 is also long strip.

Conjunction details of each part can be known according to Fig. 5. Stagger distribution can also be chosen to fix the projection 201 of the reinforcement plate 200 on the inner surface of the face plate 100 through cementation. Frame with L-shaped cross section are bent to form reinforcement frame 300 which is fasten on the downside of the reinforcement plate 200 and the outside of the whole composite table top 10, and the reinforcement frame 300 is in the exterior of the reinforcement plate 200. The reinforcement frame 300 covers the upward flange 101 and downward flange 203 which are mate with each other from outside.

Embodiment 4

Fig. 6 shows a perspective view of the preferred embodiment 4 according to the invention. The composite table top 10 used in this the preferred embodiment is the same as the preferred embodiment 1. A portable folding scheme is formed by an erecting floor 13 that is located on the bottom of the composite table top 10 and used for fastening the folding legs 401.

Embodiment 5

Fig. 7 shows a perspective view of the preferred embodiment 5 according to the invention. This the preferred embodiment shares the same composite table top 10 and the hinge 11 of the preferred embodiment 2 and has folding vertical legs 402 attaching to the outside frame of composite table top 10 in addition. It will be space saving that the folding vertical legs 402 is fold and then the composite table top 10 is fold through the hinge 11 in practical application.

Embodiment 6

Fig. 8 shows a perspective view of the preferred embodiment 6 according to the invention. This the preferred embodiment shares the same composite table top 10 with the preferred embodiment 3 and has 4 detachable vertical legs 403 which are inserted in the 4 corners of the bottom of the composite table top 10 in addition. A portable scheme is formed by an erecting floor 13 that is located on the bottom of the composite table top 10 and used for fastening the detachable legs 403.

The invention has been described with reference to some preferred embodiments; therefore it cannot limit the reference implementation of the invention. It is obvious to a person skilled in the art that structural modification and changes can be carried out without leaving the scope of the claims hereinafter and the description above.

What is claimed is:

1. A structure of composite table top comprises: a face plate having smooth outer and inner surface, a reinforcement plate having a upper surface which bears array-like projections adjoining to each other and having bonding surface to the said inner surface and a lower surface, wherein the shape and size of the outer peripheral edges belonging to the two said plates
are similar to each other, and a reinforcement frame attaching to the inside of the outer peripheral edges of the said face plate and reinforcement plate.

2. The structure of composite table top according to claim 1, wherein said reinforcement plate can be produced via vacuum forming process and the said projections of the lower surface adhere to the said face plate.

3. The structure of composite table top according to claim 2 wherein the outer edge of the said face plate has downward flange; the outer edge of the reinforcement plate has upward flange; the two flanges interact with each other closely.

4. The structure of composite table top according to claim 3, wherein said reinforcement frame is covered by the outer peripheral edges of the said face plate and reinforcement plate, and contacts with the two flanges closely.

5. The structure of composite table top according to claim 4 wherein a polygon-shaped reinforcing rib is formed by the two outer peripheral edges of the said face plate and reinforcement plate, of which the outside and underside are covered by the said reinforcement frame.

6. The structure of composite table top according to claim 5 wherein an adjacent reinforcement frame covers the outer peripheral edges of the said face plate and reinforcement plate, and interact with their outside and underside closely.

7. The structure of composite table top according to claim 6, wherein said projections are constructed as array and the shape of the said bonding surface is rectangle.

8. The structure of composite table top according to claim 7, wherein said projections spreading over the said reinforcement plate abut each other closely without gaps.

9. The structure of composite table top according to claim 8 wherein an erecting floor that is used to fasten moveable parts is mounted on the said lower surface, where the folding or vertical legs are fastened.

10. A structure of composite table top comprises: a face plate having smooth outer and inner surface, a reinforcement plate having a upper surface which bears array-like projections spaced out to each other and having bonding surface to the said inner surface and a lower surface, wherein the shape and size of the outer peripheral edges belonging to the two said plates are similar to each other, and a reinforcement frame attaching to the inside of the outer peripheral edges of the said face plate and reinforcement plate.

11. The structure of composite table top according to claim 10, wherein said reinforcement plate can be produced via vacuum forming process and the said projections of the lower surface adhere to the said face plate.

12. The structure of composite table top according to claim 11 wherein an erecting floor that is used to fasten moveable parts is mounted on the said lower surface, where the folding or vertical legs are fastened.

13. The structure of composite table top according to claim 12 wherein an erecting floor that is used to fasten moveable parts is mounted on the said lower surface, where the folding or vertical legs are fastened.

14. The structure of composite table top according to claim 13 wherein an erecting floor that is used to fasten moveable parts is mounted on the said lower surface, where the folding or vertical legs are fastened.

15. The structure of composite table top according to claim 14 wherein an erecting floor that is used to fasten moveable parts is mounted on the said lower surface, where the folding or vertical legs are fastened.

16. The structure of composite table top according to claim 15 wherein an erecting floor that is used to fasten moveable parts is mounted on the said lower surface, where the folding or vertical legs are fastened.

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