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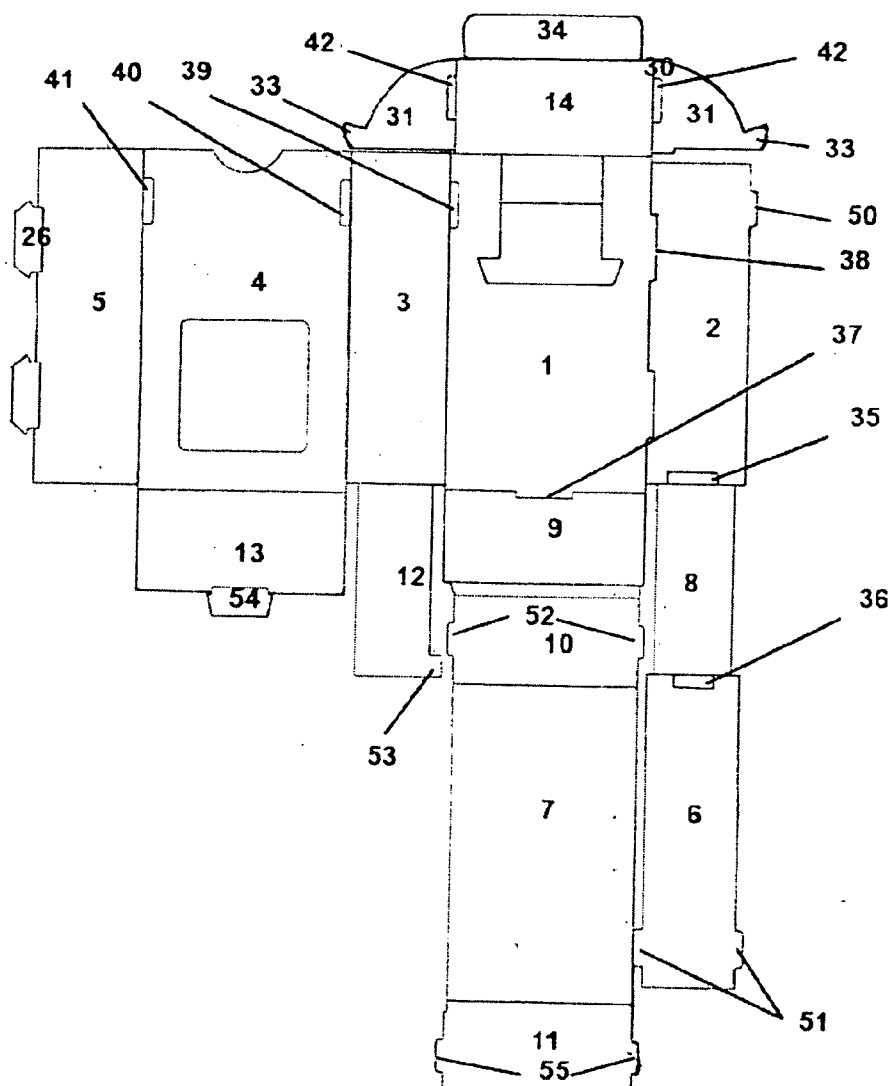
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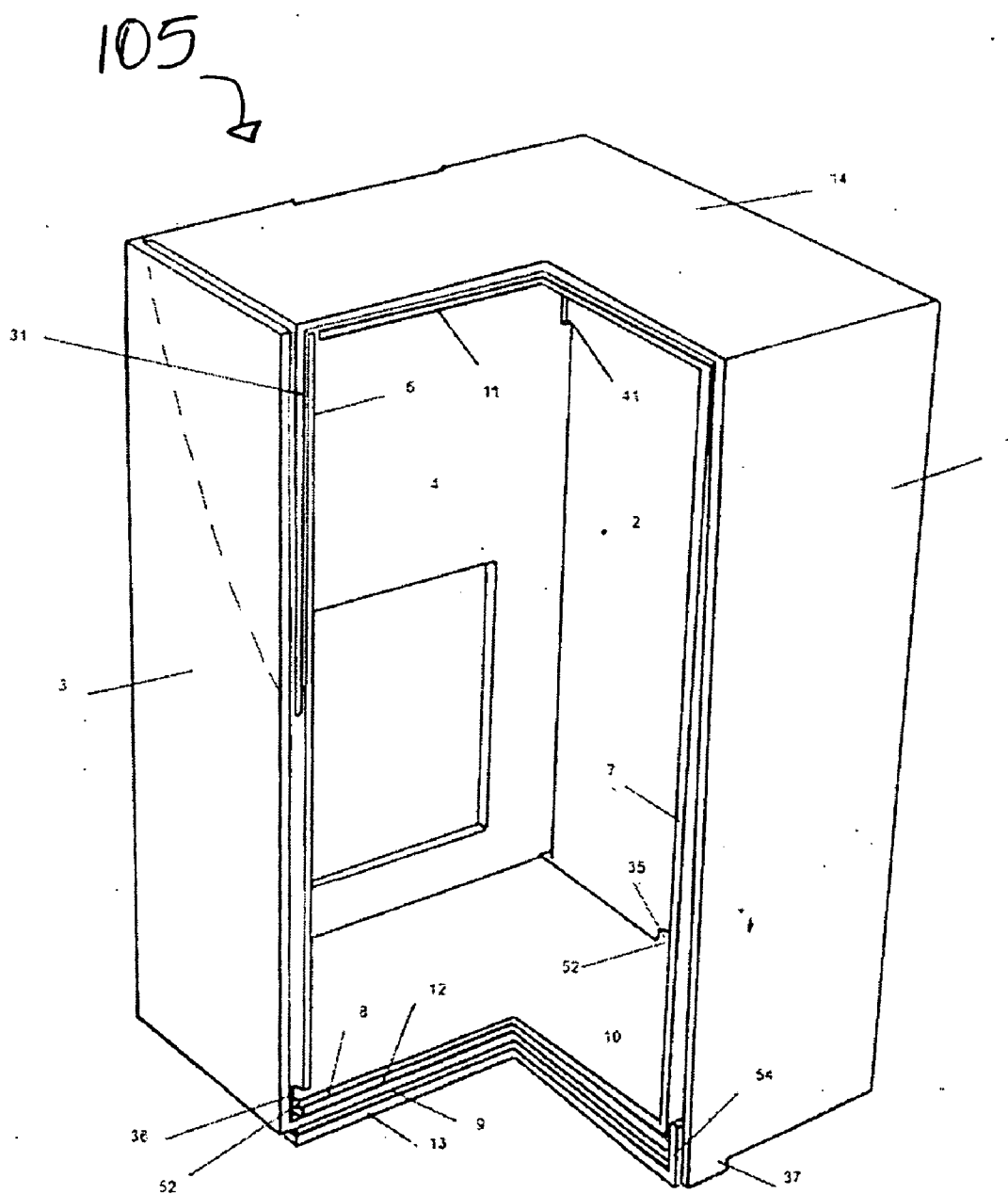
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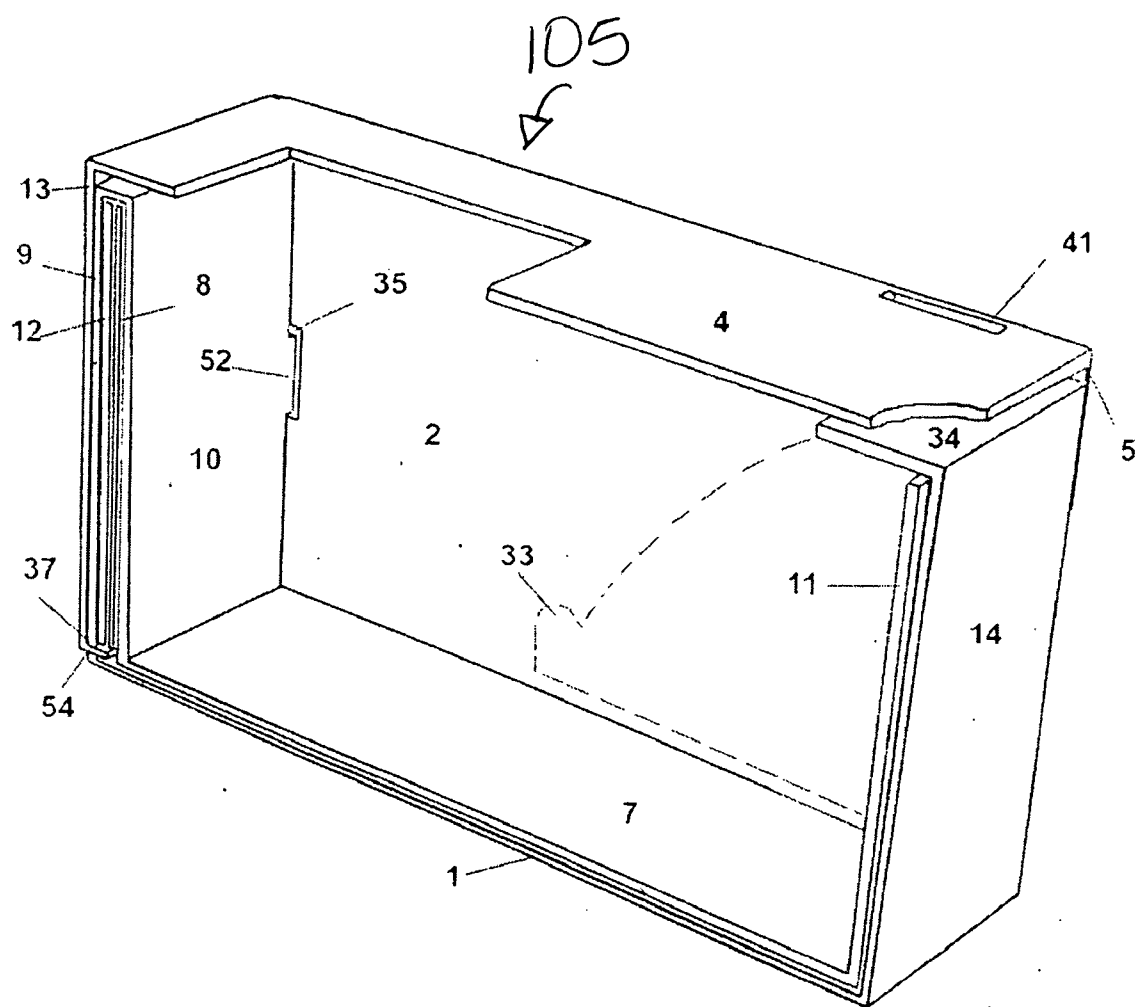
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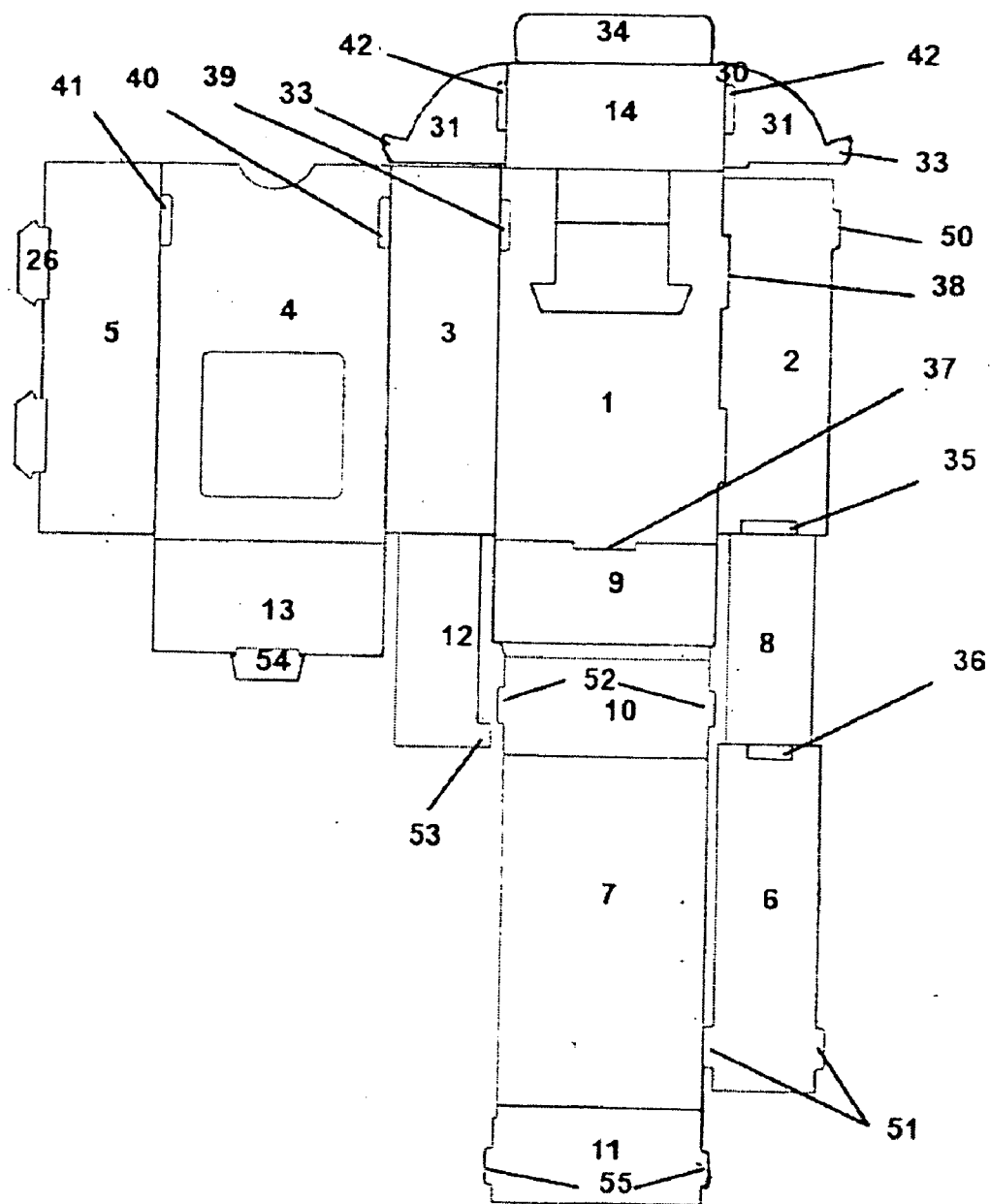
EDMONDS, P.C.**16815 ROYAL CREST DRIVE****SUITE 130****HOUSTON, TX 77058 (US)****Publication Classification**(51) **Int. Cl.****B65D 5/00** (2006.01)(52) **U.S. Cl.** **229/122; 229/130**(73) Assignee: **KRAFTOOL MFG. (SHANGHAI)**
CO., LTD., SHANGHAI (CN)(57) **ABSTRACT**

A packing box is provided. One paperboard is folded to form the packing box. Four sides and the top cover of the folded packing box can include two paperboard layers. The bottom of the folded packing box can include four paperboard layers. Advantages of the packing box include reinforced strength and a bottom that will not fail upon packing, storage, and transport of heavy bulk materials.

(21) Appl. No.: **11/594,010**(22) Filed: **Nov. 7, 2006**







PACKING BOX

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit under 35 USC § 119 of Chinese Patent Application having Serial No. 200510110080.7 filed on Nov. 7, 2005, which is incorporated by reference herein.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] Embodiments of the present invention generally relate to a packing box. More particularly, embodiments of the present invention relate to reinforced paperboard layers of a packing box that can be used to pack, store, and transport bulk materials.

[0004] 2. Description of the Related Art

[0005] Boxes used for packing, storing, and transporting bulk material are typically made of hard single layer paperboard. Problems with these conventional packing boxes are that the packed material is relatively heavy and the bottom of the packing box may break open.

[0006] There is a need therefore for a packing box that is reliable and can be used to pack, store, and transport bulk materials.

SUMMARY OF THE INVENTION

[0007] In one or more embodiments, a packing box is provided. The packing box provides reinforced strength and a bottom that will not fail upon packing, storage, and transport of heavy bulk materials.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] So that the manner in which the above recited features of the present invention can be understood in detail, a more particular description of the invention, briefly summarized above, may be had by reference to embodiments, some of which are illustrated in the appended drawings. It is to be noted, however, that the appended drawings illustrate only typical embodiments of this invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally effective embodiments.

[0009] FIG. 1 depicts a schematic cut away of a packing box according to one or more embodiments described.

[0010] FIG. 2 depicts a partial cross section view of a packing box according to one or more embodiments described.

[0011] FIG. 3 depicts a schematic view of a packing box prior to assembly according to one or more embodiments described.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0012] A detailed description will now be provided. Each of the appended claims defines a separate invention, which for infringement purposes is recognized as including equivalents to the various elements or limitations specified in the claims. Depending on the context, all references below to the “invention” may in some cases refer to certain specific

embodiments only. In other cases it will be recognized that references to the “invention” will refer to subject matter recited in one or more, but not necessarily all, of the claims. Each of the inventions will now be described in greater detail below, including specific embodiments, versions and examples, but the inventions are not limited to these embodiments, versions or examples, which are included to enable a person having ordinary skill in the art to make and use the inventions, when the information in this patent is combined with available information and technology.

[0013] In one or more embodiments, a packing box is provided. One paperboard is folded to form the packing box. Four sides and the top cover of the folded packing box can include two paperboard layers. The bottom of the folded packing box can include four paperboard layers. Accordingly, the folded packing box provides reinforced strength and a bottom that will not fail upon packing, storage, and transport of heavy bulk materials.

[0014] FIG. 1 depicts a schematic cut away of a packing box according to one or more embodiments described. FIG. 2 depicts a partial cross section view of a packing box according to one or more embodiments described. FIG. 3 depicts a schematic view of a packing box prior to assembly according to one or more embodiments described. Referring to FIGS. 1, 2, and 3, the packing box can be formed from a single paperboard. The single paperboard 100 (identified in FIG. 3) can include portions for: outer sides 1, 2, 3, 4, and 5; interior sides 6 and 7; interior bottoms 8, 9, 10, and 12; an interior top 11; an outer bottom 13; an outer top 14, air vents 30, 31, and 33; narrow slots 35, 36, 37, 38, 39, 40, 41, and 42; and plugs 26, 34, 50, 51, 52, 53, 54, and 55. As described in more detail below, the paper board 100 can be folded along one or more of these portions to provide an assembled box 105 (depicted in FIG. 1).

[0015] Referring to FIG. 3, narrow slots 35, 36, 37, 38, 39, 40, 41, and 42 can be disposed or formed on the outer side paperboards 1, 2, 3, 4, and 5, interior bottom paperboards 8 and 9, and/or air vent 31, respectively. Plugs 26, 34, 50, 51, 52, 53, 54, and 55 can be formed on the outer side 5, interior side 6, interior bottoms 10 and 12, interior top 11, outer bottom 13, and outer top 14, respectively.

[0016] The outer side 5, air vents 31, 33, and plug 34 can be arranged perpendicular to outer top 14 and set inside outer sides 2, 3. Plug 26 can be connected through narrow slot 38 and plug 50 can be connected through narrow slot 41. Interior bottoms 8, 9, 10, and 12 can be perpendicular to outer sides 1 and 3 and set inside outer bottom 13. Interior side 6 can be perpendicular to outer bottom 13 and set inside outer side 3. Plug 51 can be connected through narrow slots 39 and 40. Interior side 7 can be perpendicular to interior bottom 10 and can be set inside outer side 1. Interior top 11 can be perpendicular to interior side 7 and can be set inside outer top 14. Plug 55 can be connected through narrow slot 42.

[0017] In assembly, the packing box 105 can be formed by folding the aforementioned portions of the paperboard 100. In one or more embodiments, the outer side 2 can be folded to be perpendicular to outer side 1. Outer side 5 can be folded to be perpendicular to outer side 4. Outer side 4 can be folded to be perpendicular to outer side 3. Outer side 3 can be folded to be perpendicular to outer side 1. When outer side 5 is overlaid on outer side 2 on the inside, plug 26 can

connect to narrow slot 38, and plug 50 can connect to narrow slot 71. Accordingly, outer bottom 13 can be folded to be perpendicular to outer side 4 and plug 54 can connect to narrow slot 37. Interior bottom 12 can be folded to be perpendicular to outer side 3 and outer side 1 and can be overlaid on outer bottom 13 on the inside. Interior bottom 9 can be folded to be perpendicular to outer side 1 and can be overlaid on interior bottom 12 on the outside. Interior bottom 8 can be folded to be perpendicular to outer side 2 and outer side 1 and can be overlaid on interior bottom 12 on the inside. Interior side 6 can be folded to be perpendicular to interior bottom 8 and outer side 1 and can be overlaid on interior bottom 12 on the inside. Outer side 6 can be folded to be perpendicular to interior bottom 8 and outer side 1 and can be overlaid on outer side 3 on the inside. Plug 51 can connect to narrow slots 39 and 44. Interior bottom 10 can be folded to be perpendicular to outer side 4 and can be overlaid on interior bottom 8 on the outside. Plug 52 can connect to narrow slots 35 and 36. Interior side 7 can be folded to be perpendicular to interior bottom 10 and can be overlaid on outer side 1 on the inside. Air vent 31 can be folded to be perpendicular to outer top 14. Outer top 14 can be folded to be perpendicular to outer side 1. Plug 34 can be folded to be perpendicular to outer top 14 and can be overlaid on outer side 4 on the inside. Interior top 11 can be folded to be perpendicular to interior side 7 and can be overlaid on outer top 14 on the inside. Plug 55 can connect to narrow slot 42.

[0018] As used herein, the term “perpendicular” refers to the relative orientation between two or more portions of the packing box 105, and is not limited to a 90° angle therebetween so long as the two or more portions can be arranged and interlocked to form a box. Accordingly, “perpendicular” includes a substantially perpendicular arrangement or orientation and includes any angle between 60° to 120°, preferably 70° to 110°, more preferably 80° to 100°, and more preferably 85° to 95°.

[0019] In another embodiment, the present invention generally relates to:

[0020] 1. A packing box including parent paperboard (1), side paperboards (2, 3, 4), and back cover paperboards (13, 14), wherein said parent paperboard (1), side paperboards (2, 3, 4), and back cover paperboards (13, 14) constitute the box, characterized by the following facts: the packing box is formed by folding one paperboard; side paperboard (5), air hole (31) and plug (34) are perpendicular to back cover paperboard (14) and are set inside side paperboard (2); plug (26) is connected to narrow slot (38), and plug (50) is connected to narrow slot (41); back cover paperboards (10, 8, 9, 12) are perpendicular to side paperboard (3) and parent paperboard (1) and are set inside back cover paperboard (13); side paperboard (6) is perpendicular to back cover paperboard (13) and is set inside side paperboard (3); plug (51) is connected to narrow slots (39, 44); side paper board (7) is perpendicular to back cover paperboard (10) and is set

inside parent paperboard (1); back cover paperboard (11) is perpendicular to side paperboard (7) and is set inside back cover paperboard (14); plug (55) is connected to narrow slot (42).

[0021] 2. The packing box of paragraph 1, wherein the narrow slots (26, 35, 36, 37, 38, 39, 40, 41, 42) are formed on the side edges of said parent paperboard (1), side paperboards (2, 3, 4, 5), back cover paperboards (8, 9), and air hole (31), respectively.

3. The packing box of any of paragraphs 1 and 2, wherein the plugs (34, 51, 52, 53, 54, 55) are formed on the side edges of said side paperboard (6), back cover paperboards (10, 11, 12, 13, 14), respectively.

[0022] Various terms have been defined above. To the extent a term used in a claim is not defined above, it should be given the broadest definition persons in the pertinent art have given that term as reflected in at least one printed publication or issued patent. Furthermore, all patents, test procedures, and other documents cited in this application are fully incorporated by reference to the extent such disclosure is not inconsistent with this application and for all jurisdictions in which such incorporation is permitted.

[0023] While the foregoing is directed to embodiments of the present invention, other and further embodiments of the invention may be devised without departing from the basic scope thereof, and the scope thereof is determined by the claims that follow.

1. A packing box comprising parent paperboard, side paperboards, and back cover paperboards, wherein said parent paperboard, side paperboards, and back cover paperboards constitute the box, characterized by the following facts: the packing box is formed by folding one paperboard; side paperboard, air hole and plug are perpendicular to back cover paperboard and are set inside side paperboard; plug is connected to narrow slot, and plug is connected to narrow slot; back cover paperboards are perpendicular to side paperboard and parent paperboard and are set inside back cover paperboard; side paperboard is perpendicular to back cover paperboard and is set inside side paperboard; plug is connected to narrow slots; side paper board is perpendicular to back cover paperboard and is set inside parent paperboard; back cover paperboard is perpendicular to side paperboard and is set inside back cover paperboard; plug is connected to narrow slot.

2. The packing box of claim 1, wherein narrow slots are formed on the side edges of said parent paperboard, side paperboards, back cover paperboards, and air hole, respectively.

3. The packing box of claim 1, wherein plugs are formed on the side edges of said side paperboard, back cover paperboards, respectively.

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