

ADJUSTABLE COMPARTMENTS AND METHOD OF MAKING SAME

FIELD OF THE INVENTION

The present invention relates to adjustable compartments. In particular, the
5 adjustable compartments are suitable for (but not limited to) be positioned in an area to create a plurality of compartments of various dimensions.

BACKGROUND ART

“Pigeon-holes” (see Fig. 1) generally comprises a plurality of compartments.
10 They are typically deployed in areas such as wardrobes or drawers to compartmentalize the area for storage of different items such as jewelries, watches & miscellaneous items.

Existing pigeon-holes are generally made of wood and thus require skilled work to manufacture. The manufacturing process is generally labor intensive. In
15 most cases, it takes about ten (10) man-hours to complete a twelve-compartment product, including sawing, polishing, lacquering etc.

Further due to variation in skilled labor, such as carpentry, the finishing and quality of the end product pigeon-hole would depend heavily on the skills of the individual skilled labor, for example the carpenter. As such, the quality of the
20 end product may vary and it is ‘luck of the draw’ which carpenter a customer has.

Moreover, such pigeon-holes are generally required to be customized to specific dimensions and once manufactured, the various parts may not be recycled.

25 In addition, in the process of joining different parts, chemical glue of wood is utilized. Chemical glue may pose problems to the environment as most components of such chemical glue are generally environmentally unfriendly.

There also exists a need to be more environmentally friendly and to reduce usage of wood as a raw material.

30 It is an object of the invention to alleviate at least one of the above mentioned problems or meet the cited need.

SUMMARY OF THE INVENTION

Throughout this document, unless otherwise indicated to the contrary, the terms “comprising”, “consisting of”, and the like, are to be construed as non-
5 exhaustive, or in other words, as meaning “including, but not limited to”.

In accordance with a first aspect of the invention there is an apparatus for compartmentalizing an area into a plurality of compartments comprising a plurality of sections, at least one section of the plurality of section made of a primary material layered with a secondary material; each section having at least
10 a notch formed along an edge of the section for intersection with another section.

Preferably, the primary material is foldably rigid.

Preferably, the primary material is cardboard or corrugated cardboard.

Preferably, the secondary material is felt.

15 Preferably, at least one section of the plurality of sections comprising at least one section comprising a base portion and a plurality of ridges protruding from the base portion.

In accordance with a second aspect of the invention there is a method of manufacturing a plurality of sections of the first aspect, in particular having a
20 primary material of cardboard or corrugated cardboard, comprising die cutting a piece of cardboard or corrugated cardboard to the required shape and dimension; and layering the second material onto the die-cutted cardboard thereafter.

In accordance with another aspect of the invention there is a kit comprising a
25 plurality of sections for forming an apparatus of the first aspect, wherein the plurality of sections comprises:- at least a first section comprising a ridge having a plurality of notches; at least a second section comprising a base portion and a plurality of ridges protruding from the base portion, each of the plurality of ridges protruding comprising from the base portion comprising notches.

Preferably, the at least one of the plurality of sections is a section having a base portion only.

Preferably, the at least one of the plurality of sections is a section having a base portion and a single ridge.

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BRIEF DETAILS OF THE DRAWINGS

In order that this invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings, which illustrate preferred embodiments of the invention, and wherein:

- 10 Fig. 1 shows a prior art 'pigeon hole';
- Figs. 2 to 7 illustrate various embodiment of the invention having sections and portions formed into compartments of different sizes and dimensions; in particular, Fig. 4 shows the method of assembling a plurality of sections to form compartments.
- 15 Other arrangements of the invention are possible and, consequently, the accompanying drawings are not to be understood as superseding the generality of the description of the invention.

DESCRIPTION OF EMBODIMENTS OF THE INVENTION

- 20 In accordance with an embodiment of the invention and with reference to Fig. 2 there is an apparatus 10 for compartmentalizing an area 12 into a plurality of compartments 14. The area 12 may be a drawer or any other domestic enclosed area that requires compartments 14 such as, but not limited to, wardrobes, drawers, shelves etc.
- 25 Apparatus 10 is formed a plurality of first sections 20 shaped and dimensioned to intersect with a plurality of second sections 24 to form a plurality of compartments 14. First sections 20 and second sections 24 are made from a primary material. Primary material is foldably rigid, i.e. it may be formed from a single sheet of material being folded into the desired shape. Examples of such
- 30 material include cardboard or corrugated cardboard. The primary material may

be layered with a secondary supple material such as felt. To strengthen the strength and rigidity of the sections 20, 24; the sections may be formed from folding a single piece of cardboard folded such that each section 20, 24 is a ridge (see Fig. 4).

5 The intersection portions on first sections 20 and second sections 24 may be in the form of at least one slot 20a, 24a incised at a portion of the section 20, 24. Preferably there comprises a plurality of slots 20a, 24a set along an edge of the section 20, 24 respectively. These sections can be of a preset shape with the slots incised accordingly. Alternatively, these sections can be precut such that
10 folding it in half would form the sections with the slots being presented accordingly. Therefore when slots 24a intersects or is mated with slots 20a, a joint is formed where they meet and compartments are formed due to the intersection of first and section sections 20, 24 respectively. The slots may also be referred to as notches, apertures, openings, slits or gaps or any other term of
15 art that is known to a skilled person.

When the ridge-like sections 20, 24 intersect with one another at the notches/slots 20a, 24a, the end opposite the fold-line is compressed together for added strength.

In another embodiment, a plurality of second sections 24 may extend from a
20 base region 26. With reference to Fig. 4, when unformed, the base region 26 and the plurality of second sections 24 may be a sheet of cardboard, and through folding (see 'tug-in' direction in Fig. 4), the structure of base region 26 and ridges 24 (with slots 24a) are formed.

At least one section 20, 24, 26 comprises recycled or corrugated cardboard
25 strengthened with a layer of 'felt' material. Such materials are light weight and cost efficient and can further provide the necessary stiffness and support to compartmentalize the area 12 effectively, yet provide a supple surface to cushion any inadvertent knocks against the partitions or walls formed using cardboard. In addition, the supple surface provides an aesthetic appeal to a
30 user who may be using the apparatus 10 for displaying luxury items.

In various embodiments (see Fig. 2-7), a number of sections 20, 24, 26 may be mixed and matched to form compartments of various dimensions. In addition, other sections such as section 28 comprising a base and a ridge, section 30 comprising a base, may be used to further complement sections 20, 24 to form
5 additional compartments of different permutations and combinations.

In another embodiment, a kit comprising a fixed number of each section 20, 24, 26, 28 and 30 may be sold to customers who may wish to do it yourself (DIY) and form their own compartments. Other sections such as an L-shaped section without base 32 may be used for dividing between compartments.

10 In another embodiment of the invention, there is a method of manufacturing each section of the apparatus 10. The method is based on a typical die cut process having specific mold for sections 20, 24, 26, 28 and 30. The end product is a recycled cardboard and the glue used in this product to join the stiff material (example cardboard) with the supple material (example felt) is water
15 based and hence more environmental friendly. The ability to bulk manufacture each section using the die cut process results in overall cost savings for the consumers. The die-cut equipment process will also result in minimal near zero defects unlike the wooden pigeon hole. The ease of installing this die-cut recycled cardboard pigeon hole reinforced with felt will also mean that much
20 lesser labor is required. Comparing to the 10 man-hours required in the installation of wooden pigeon hole, the die-cut recycled cardboard pigeon hole only requires less than 1 hour to install. Given the acute labor shortage problem in countries such as Singapore, this new product will present a significant improvement in productivity.

25 In summary, the use of the die-cut recycled cardboard pigeon hole versus traditional wooden pigeon hole will yield the following benefits:-

- (1) A savings of \$140.00 per set to consumer (more than 4 times of savings).
- (2) Significant increase in productivity.

(3) Use of more environmental friendly material (like water based glue versus chemical strong glue which is bad for health).

(4) Less reliant on manual labor which great help to companies.

5 It is to be understood that the above embodiments have been provided only by way of exemplification of this invention, and that further modifications and improvements thereto, as would be apparent to persons skilled in the relevant art, are deemed to fall within the broad scope and ambit of the present invention described herein. In particular:-

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- The supple material may be different types of suitable material used for finishing other than felt.
 - The cardboard material may be replaced with treated paper or thick paper, or other suitable recycled materials.

CLAIMS

1. An apparatus for compartmentalizing an area into a plurality of compartments comprising:-
a plurality of sections, at least one section of the plurality of section made
5 of a primary material layered with a secondary material; each section having at least a notch formed along an edge of the section for intersection with another section.
2. An apparatus of claim 1, wherein the primary material is foldably rigid.
3. An apparatus of claim 2, wherein the primary material is cardboard or
10 corrugated cardboard.
4. An apparatus of claims 1 to 3, wherein the secondary material is felt.
5. An apparatus of any one of the preceding claims, wherein the plurality of sections comprising at least one section comprising a base portion and a plurality of ridges protruding from the base portion.
- 15 6. A method of manufacturing a plurality of sections of claim 3, comprising die cutting a piece of cardboard or corrugated cardboard to the required shape and dimension; and layering the second material onto the die cutted cardboard thereafter.
7. A kit comprising a plurality of sections for forming an apparatus of any
20 one of claims 1 to 5, wherein the plurality of sections comprises:-
at least a first section comprising a ridge having a plurality of notches;
at least a second section comprising a base portion and a plurality of ridges protruding from the base portion, each of the plurality of ridges protruding comprising from the base portion comprising notches.
- 25 8. A kit according to claim 7, wherein at least one of the plurality of sections is a section having a base portion only.
9. A kit according to claim 7 or 8, wherein at least one of the plurality of sections is a section having a base portion and a single ridge.