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- (54) **PAPER-MADE COMPOSITE FURNITURE**
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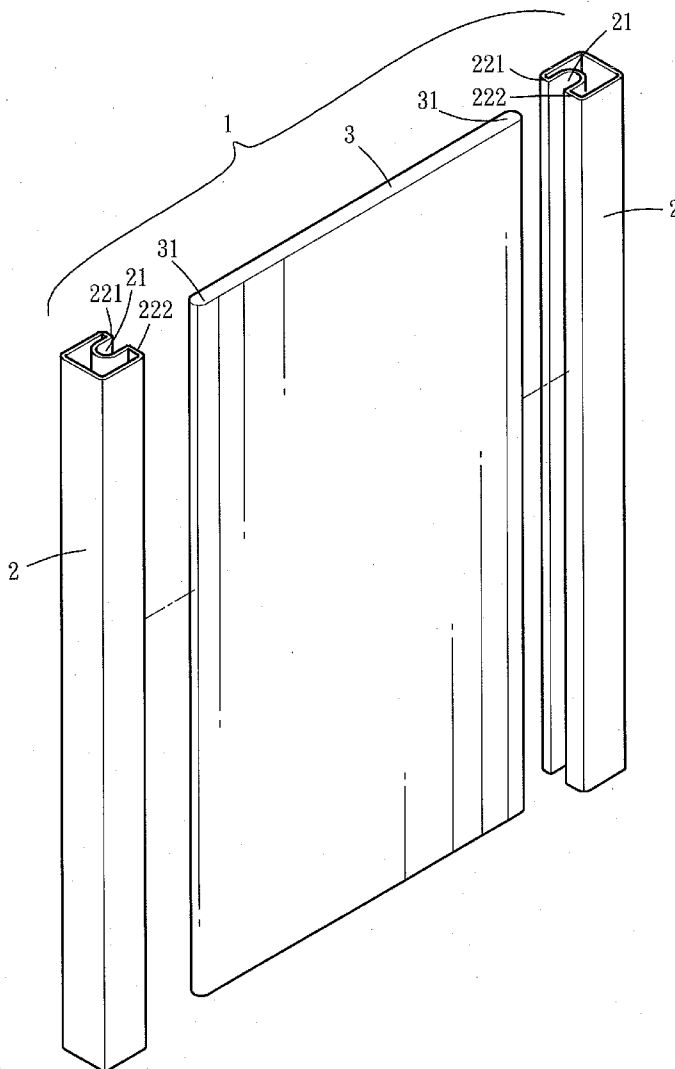
(57) **ABSTRACT**
Paper-made composite furniture comprises at least two connection tubes and at least one spacer that are coupled together. Each connection tube is a hollow tube with an inner side made of stiff paper and an outer side made of smooth paper. The connection tube has at least one latch groove. The spacer is a solid panel made of stiff paper with the outer side coated by smooth paper. The spacer has two sides wedged in the latch grooves of the connection tubes. The stiff paper has characteristics to withstand greater loading and pressure, thus can replace the conventional furniture made of woods, plastics or metal. The invention not only can reduce material, transportation and assembly costs, also can reduce environmental pollution and facilitate carrying and assembly during outing. The smooth paper can be formed with colors, patterns or texts, thus can provide greater visual appeal and ornamental efficacy.

Related U.S. Application Data

- (63) Continuation-in-part of application No. 12/817,226, filed on Jun. 17, 2010.

Publication Classification

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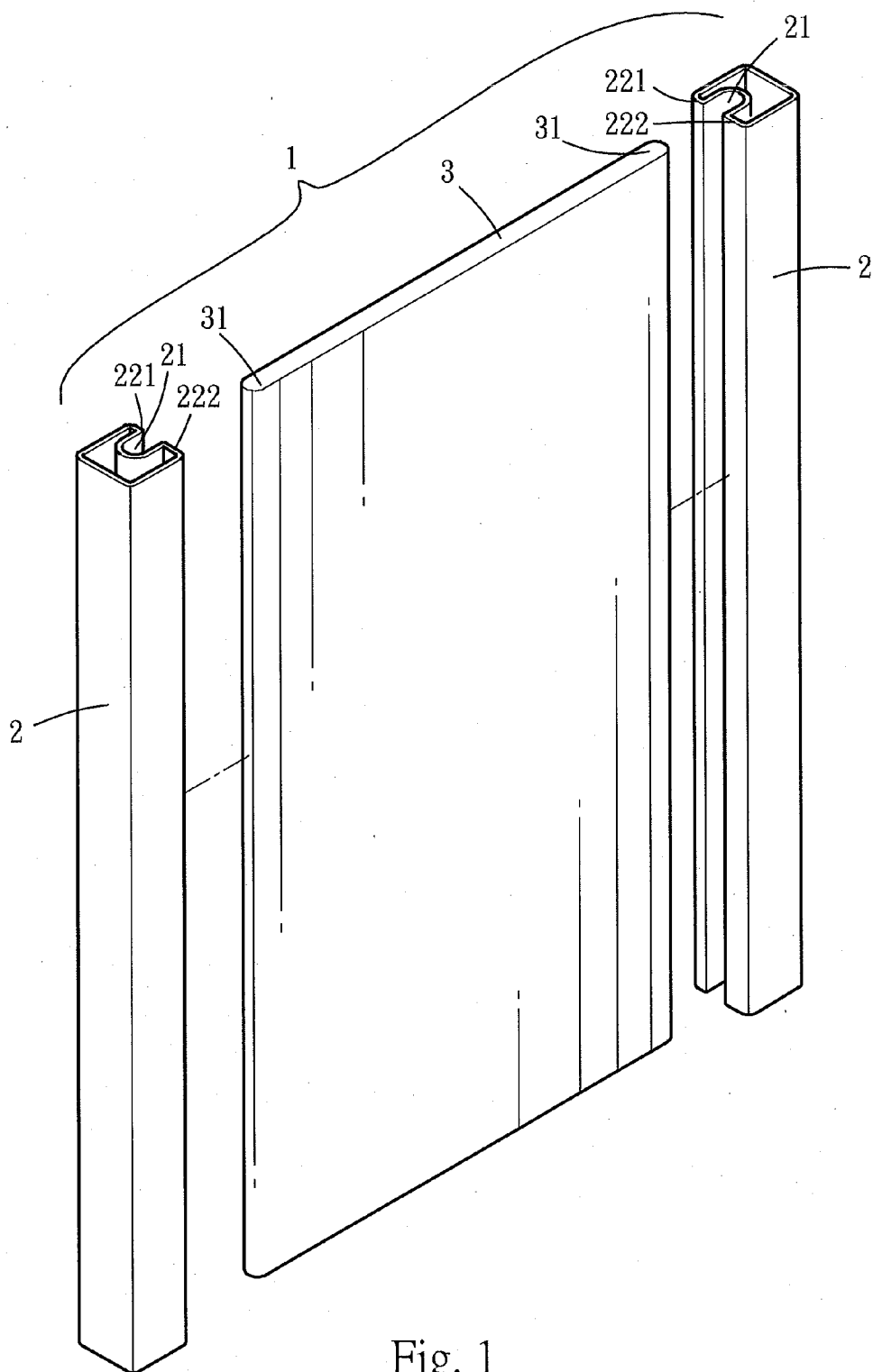


Fig. 1

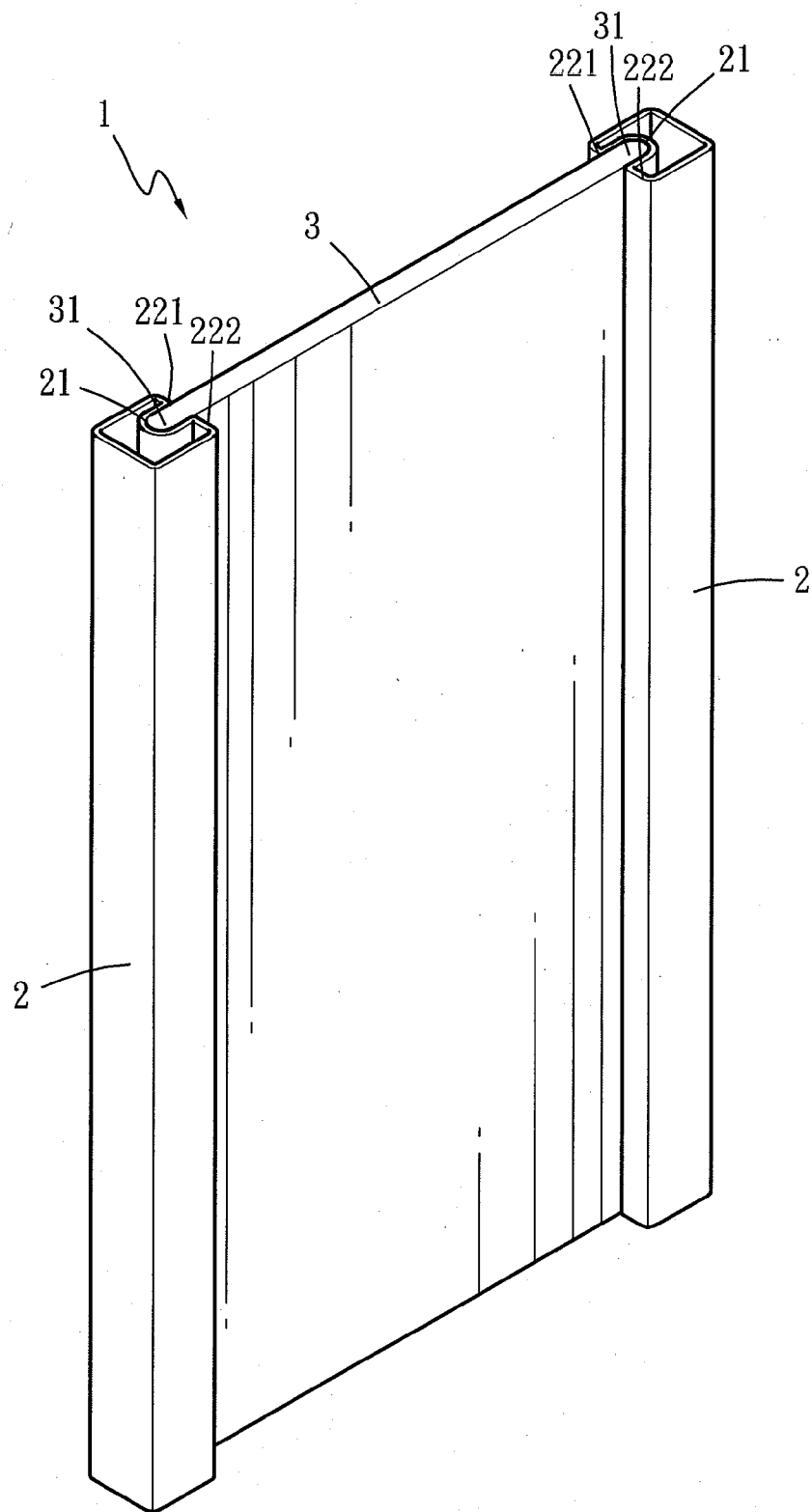


Fig. 2

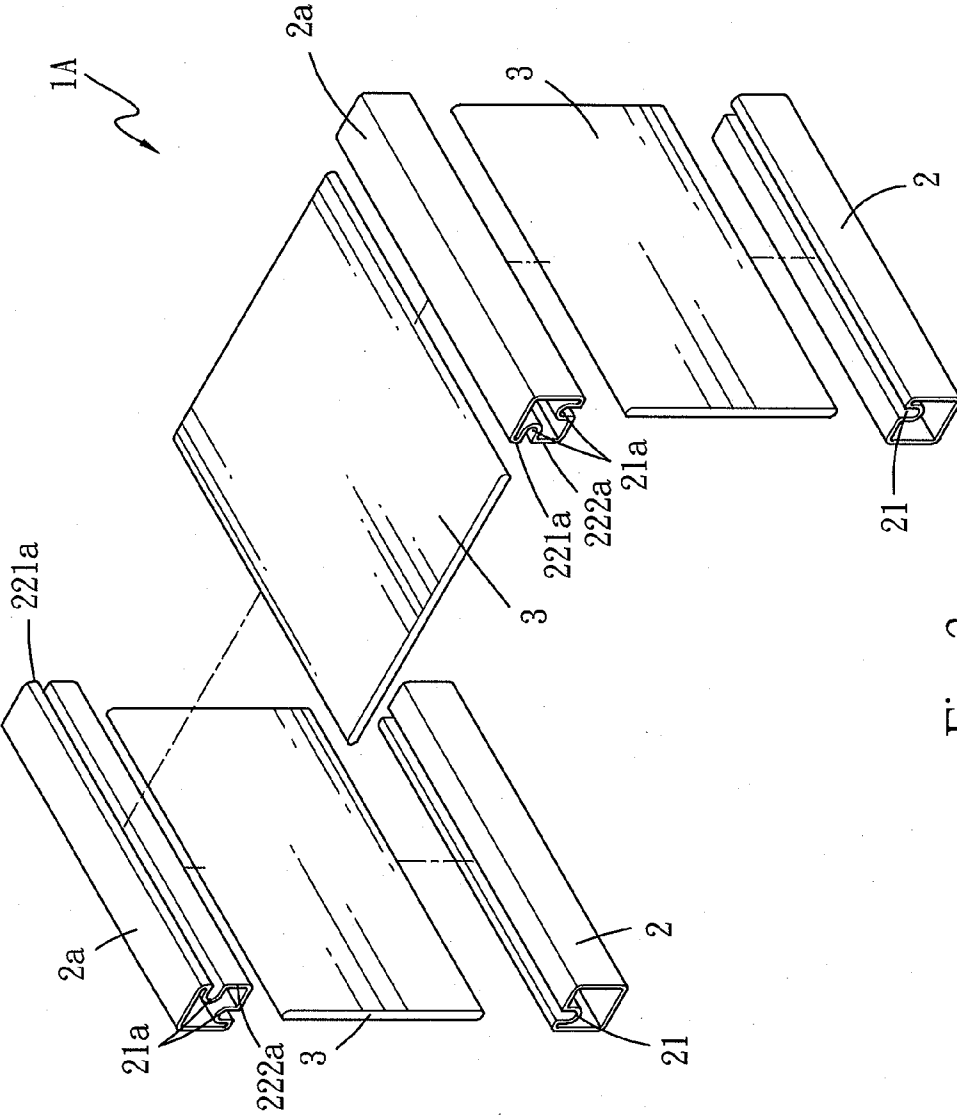


Fig. 3

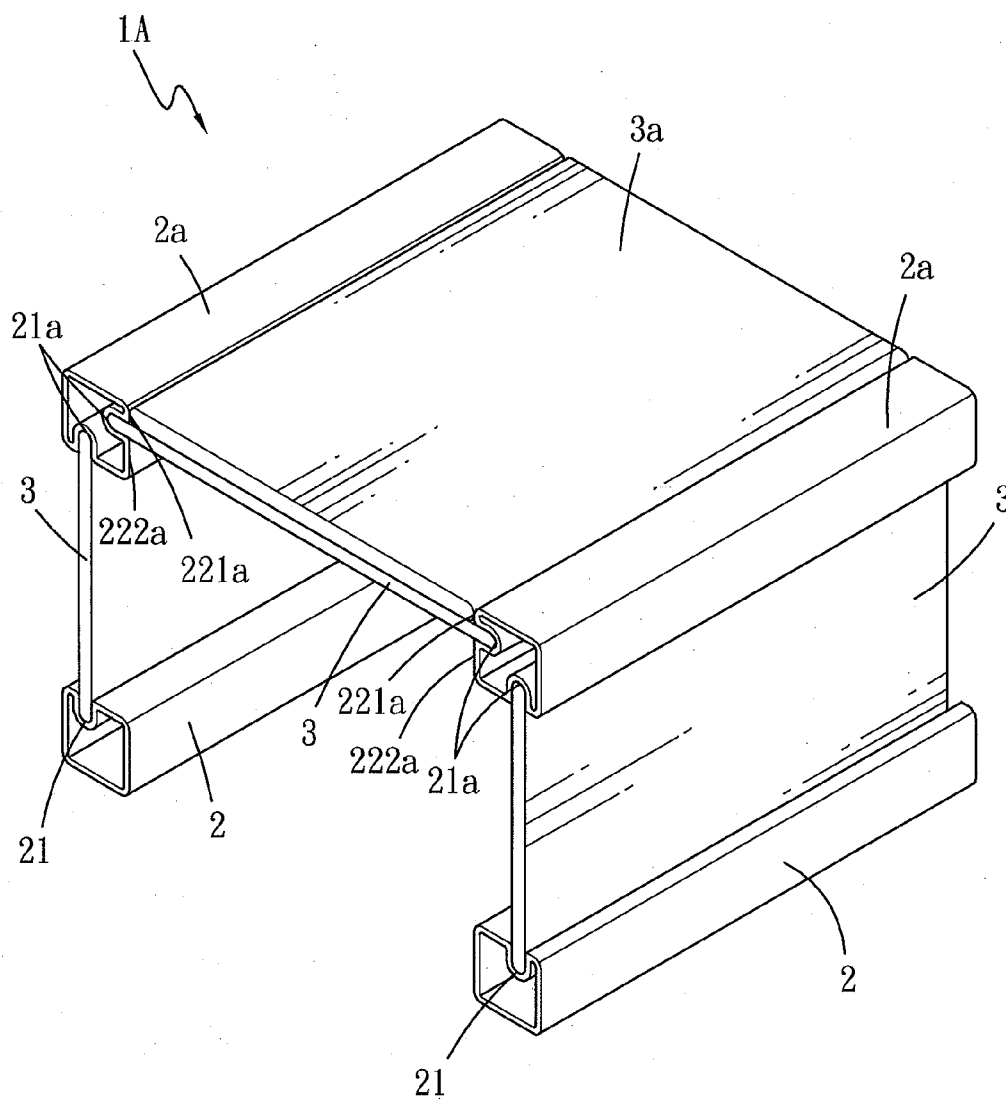


Fig. 4

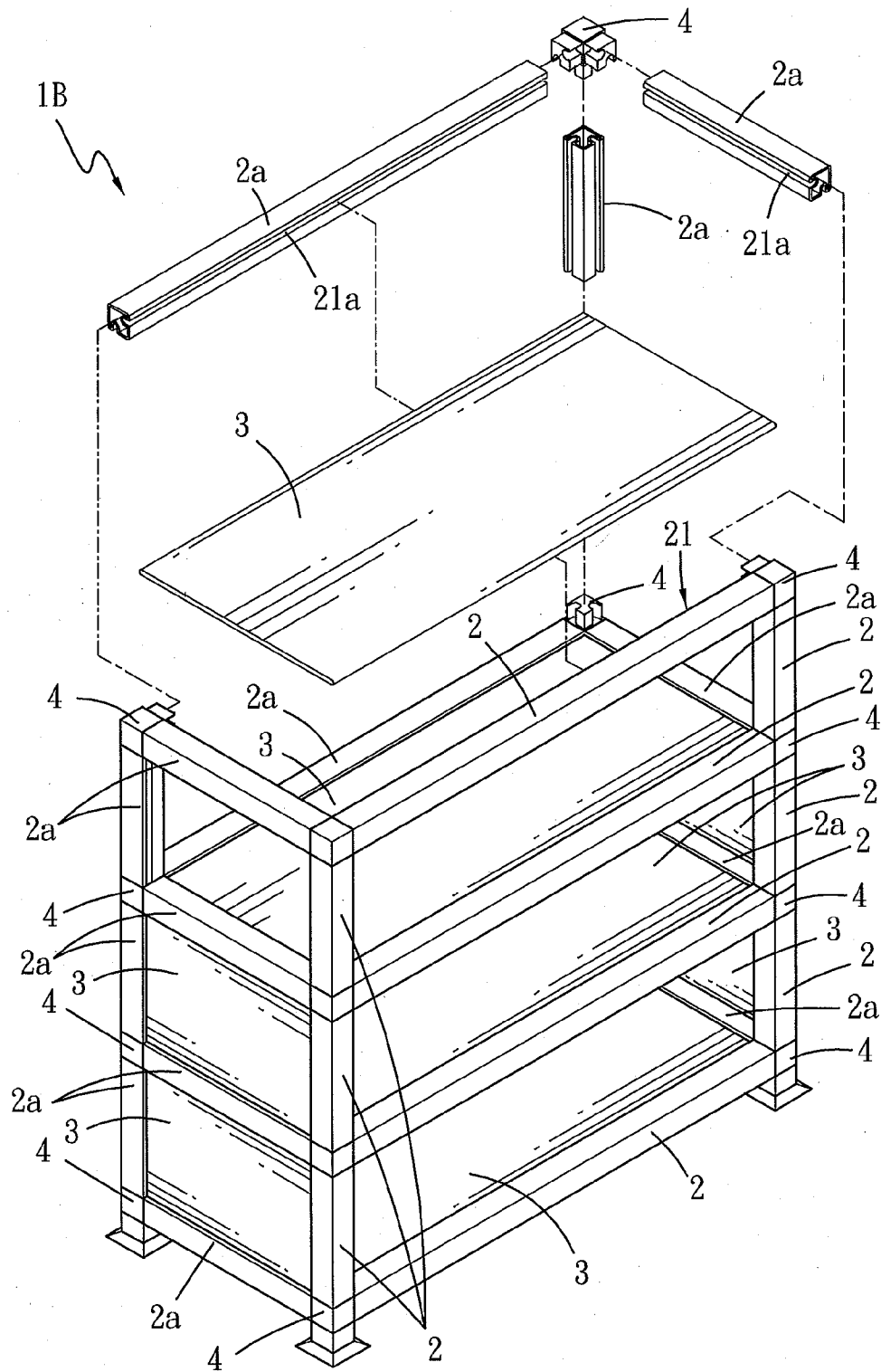


Fig. 5

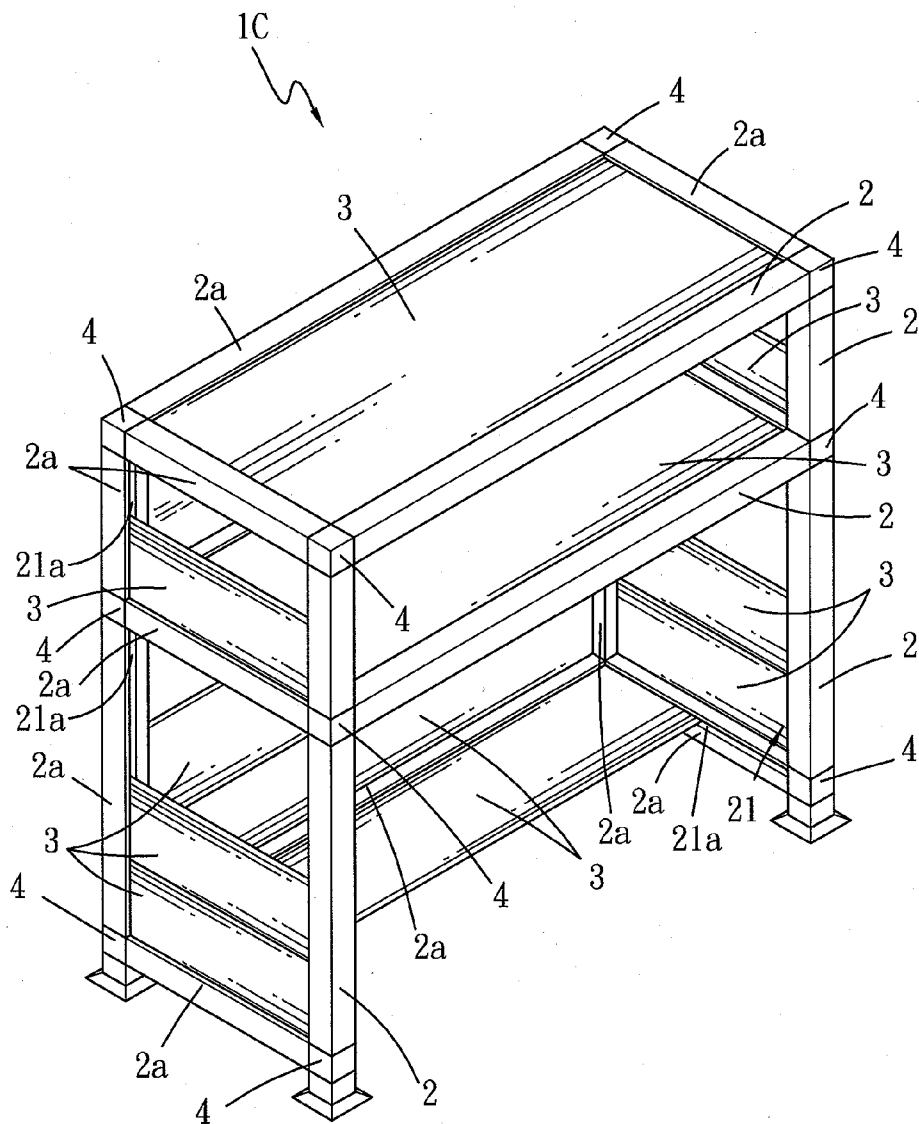


Fig. 6

PAPER-MADE COMPOSITE FURNITURE

[0001] This application is a continuation-in-part, and claims priority, of from U.S. patent application Ser. No. 12/817,226 filed on Jun. 17, 2010, entitled “ENVIRONMENTAL PROTECTION SHELVING COMBINATION”, the entire contents of which are hereby incorporated by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to composite furniture and particularly to assembled furniture made of paper.

BACKGROUND OF THE INVENTION

[0003] There is a growing awareness of environmental protection in the modern society. In many people’s mind the good quality of life is no longer simply pursuing fancy life style or material opulence, but trying to make life more meaningful. Many people nowadays have changed their life style from using expensive goods to those beneficial to the general public, and try to live in a lifestyle that stresses on coexistence between human being and environment.

[0004] The conventional furniture, in order to meet consumers’ requirements in assembly, disassembly, storage or flexibility in use, generally is made of materials that consume a great amount of wood, metal or plastic materials. And greater sturdiness and durability are the main objective.

[0005] However, while wood, metal and plastic materials are sturdy and durable, they cause great harm to environments during production. Wood is natural material, but its growing speed is slow. During fabrication of wooden furniture inadvertent impact can easily take place that results in scrapes or damages, and spoils the total appeal. Moreover, mending the damaged surface of wooden material is difficult, hence it often happens that the entire set of furniture has to be replaced that causes even more waste of the wood. The steel is heavier in weight and costs more in terms of fabrication, construction and transportation, and also is more difficult to recycle when replacement takes places, hence creates a great impact to the environment. Plastics are easier to form into desired shapes, but also generate a great deal of pollution during production, and the wastes produced by the plastics are hard to be decomposed, or even create environmental pollution problems such as air or water if they are treated by burning.

[0006] There is furniture made of corrugated paper on the market, such as chairs or cabinets. They are generally lighter than the furniture made of woods or steel, and less likely to create environmental pollution. But they also have their share of shortcomings, such as deficient in structural strength and easily warp and deform when subject to greater loading.

[0007] U.S. Pat. No. 5,423,604 discloses an eco-friendly cabinet frame structure which comprises a plurality of coupling tubes, a plurality of panels and a plurality of connector sets that are made from recyclable plastic material. Each coupling tube has a groove on the outer side. The coupling tubes are interconnected via the connector sets. The panels are wedged in the grooves of the coupling tubes, thereby to form the eco-friendly cabinet frame structure. However, the coupling tubes, panels and connector sets could still be thrown away or burned by users maliciously, which creates environmental pollution and non-decomposition.

[0008] Another U.S. Pat. No. 4,192,562 discloses a composite storage rack consisting of flat panels and ribs that use three-layer fiber boards with a middle layer made of kraft

paper mixed with resin. But the fiber boards are formed by compression of wooden fibers at a high pressure, hence is heavier in weight. Moreover, to make the fiber boards moisture-resistant is expensive. All these create a great burden to consumers in terms of transportation and cost.

SUMMARY OF THE INVENTION

[0009] The primary object of the present invention is to solve the disadvantages of the conventional paper furniture in material and technique by providing novel paper furniture assembled by connection tubes and spacers formed by compression of multi-layer stiff paper and multi-layer smooth paper.

[0010] To achieve the foregoing object, the present invention provides paper-made composite furniture which comprises at least two connection tubes and at least one spacer that are coupled together. Each connection tube is a hollow tube which has an inner side made of stiff paper and an outer side made of smooth paper. The connection tube has at least one latch groove. The spacer is a solid panel made of the stiff paper with the outer side coated by the smooth paper. The spacer has two sides wedged respectively in the latch grooves of the connection tubes.

[0011] By means of the structure set forth above, the invention provides many advantages, notably:

[0012] 1. The paper-made composite furniture is made of paper, hence can be recycled easily without generating environmental pollution.

[0013] 2. The invention employs stiff paper which is lighter in weight and sturdy, hence can be transported easily to save manpower, and also is easier to fabricate to reduce cost.

[0014] 3. The invention also uses smooth paper which can be formed with colors or patterns or texts thereon, thus can provide furniture with diversified styles to improve visual appeal and enhance ornamental efficacy.

[0015] The foregoing, as well as additional objects, features and advantages of the invention will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 is an exploded view of the paper-made composite furniture of the invention.

[0017] FIG. 2 is a perspective view of the paper-made composite furniture of the invention.

[0018] FIG. 3 is an exploded view of the paper-made composite furniture of the invention formed in an embodiment of a chair.

[0019] FIG. 4 is a perspective view of the paper-made composite furniture of the invention formed in an embodiment of a chair.

[0020] FIG. 5 is a schematic view of the paper-made composite furniture of the invention formed in another embodiment of a cabinet.

[0021] FIG. 6 is a schematic view of the paper-made composite furniture of the invention formed in yet another embodiment of a table.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] Please refer to FIGS. 1 and 2, the paper-made composite furniture of the invention comprises at least two connection tubes 2 and at least one spacer 3. Each connection

tube 2 is a hollow tube with an inner side made of stiff paper and an outer side made of smooth paper. Each connection tube 2 has at least one latch groove 21, and a first extension section 221 and a second extension section 222 at two sides of the latch groove 21. The first extension section 221 is formed at a width smaller than that of the second extension section 222. The spacer 3 is a solid panel made of stiff paper coated by smooth paper on the outer side thereof. The spacer 3 has two sides 31 wedged respectively in the corresponding grooves 21 of the connection tubes 2 to form secure latching.

[0023] The stiff paper can be a sand tube paper. The smooth paper can be a kraft paper. The connection tubes 2 and spacer 3 can be respectively formed by compression of multi-layer stiff paper and multi-layer smooth paper. By means of the structure set forth above, the connection tubes 2 are spaced from each other with the latch grooves 21 respectively wedged by the two sides 31 of the spacer 3, thereby form partition-like composite furniture 1.

[0024] In another embodiment of the invention, the connection tube 2a has two latch grooves 21a on the abutting outer sides that can be incorporated and assembled with the spacers 3 to form various types of furniture, as shown in FIGS. 3 and 4. By interconnecting the connection tubes 2 and 2a with the spacers 3 wedged in the latch grooves 21 and 21a of the connection tubes 2 and 2a, varying styles of furniture 1A such as chairs can be formed. The second extension section 222a of the connection tube 2a is formed at a width greater than that of the first extension section 221a, hence the spacer 3 has a greater loading capability in the direction perpendicular to the second extension section 222a. Moreover, the first extension section 221a of the connection tube 2a and the coupled spacer 3 form a smaller gap at the upper side of the composite furniture 1A, hence an additional spacer 3a can be disposed above the spacer 3 to form a smooth surface to provide more comfortable sitting and a neat appearance.

[0025] The composite furniture 1 of the invention further includes a plurality of corner joints 4 to couple with the connection tubes 2 as shown in FIGS. 5 and 6. The connection tubes 2 and 2a are assembled with the corner joints 4 in various styles to form secure latching and positioning, and the spacers 3 are wedged in the latch grooves 21 and 21a of the connection tubes 2 and 2a, thereby other types of the composite furniture 1B and 1C such as cabinet or table are formed.

[0026] The connection tubes 2 and 2a and spacers 3 can be assembled with the corner joints 4 to form various configurations according to requirements when in use. The stiff paper is lighter in weight and sturdy, hence is easier to transport and assemble and can save manpower, and also can be recycled without creating environmental pollution. Moreover, the smooth paper can be formed with different colors or printed with varying patterns or texts on the surface thereof, thus varying styles of composite furniture can be formed with greater visual appeal and ornamental efficacy.

What is claimed is:

1. A paper-made composite furniture, comprising at least two connection tubes and at least one spacer coupled together, wherein:

each of the at least two connection tubes is a hollow tube including an inner side made of stiff paper and an outer side made of smooth paper, and at least one latch groove; and

the at least one spacer is a solid panel made of stiff paper coated by smooth paper at an outer side thereof and includes two sides wedged respectively in the latch grooves of the connection tubes.

2. The paper-made composite furniture of claim 1, wherein the connection tube includes a first extension section and a second extension section at two sides of the latch groove, the first extension section being formed at a width smaller than that of the second extension section.

3. The paper-made composite furniture of claim 1, wherein the connection tubes and the spacer are respectively formed by compression of multi-layer stiff paper and multi-layer smooth paper.

4. The paper-made composite furniture of claim 1, wherein the stiff paper is sand tube paper and the smooth paper is kraft paper.

5. The paper-made composite furniture of claim 1, wherein the surface of the smooth paper is formed with colors, patterns or texts.

6. The paper-made composite furniture of claim 1 further including a plurality of corner joints to couple with the connection tubes.

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