



US 20210106135A1

(19) **United States**

(12) **Patent Application Publication**  
**Gullo**

(10) **Pub. No.: US 2021/0106135 A1**

(43) **Pub. Date: Apr. 15, 2021**

(54) **KITCHEN MODULE HAVING A METAL BEARING STRUCTURE COVERED WITH A PREDETERMINED MATERIAL**

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(21) Appl. No.: **17/018,156**

(22) Filed: **Sep. 11, 2020**

(30) **Foreign Application Priority Data**

Oct. 15, 2019 (IT) ..... 102019000018923

**Publication Classification**

(51) **Int. Cl.**  
*A47B 77/02* (2006.01)  
*A47B 47/02* (2006.01)  
*A47B 77/08* (2006.01)  
*A47B 96/20* (2006.01)

(52) **U.S. Cl.**  
 CPC ..... *A47B 77/02* (2013.01); *A47B 47/02* (2013.01); *A47B 2096/209* (2013.01); *A47B 96/20* (2013.01); *A47B 77/08* (2013.01)

(57) **ABSTRACT**

A module for forming kitchen furniture includes a bearing frame made of metallic sheets, and one or more covering elements arranged to cover at least one part of the bearing frame.

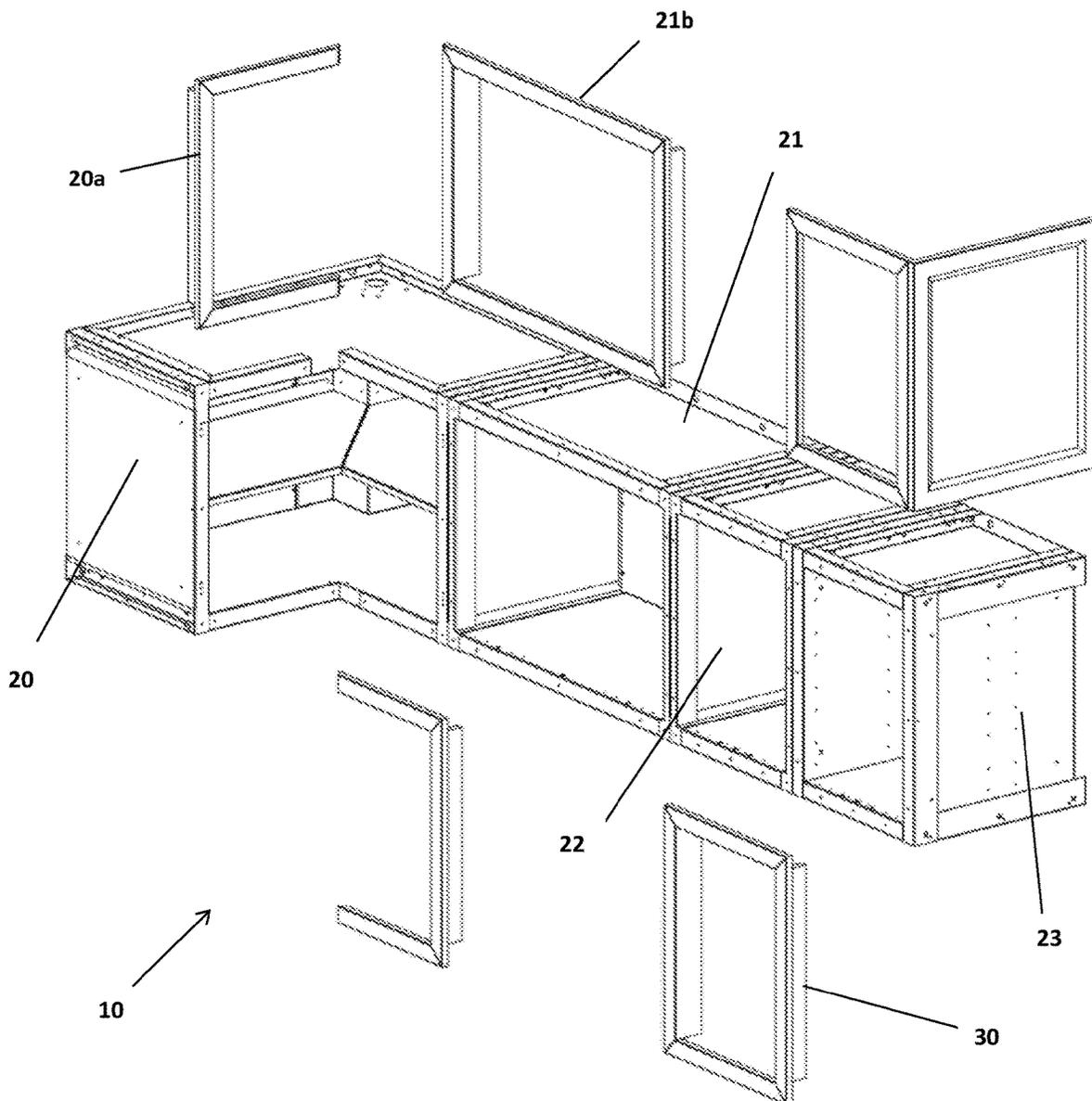


FIG. 1

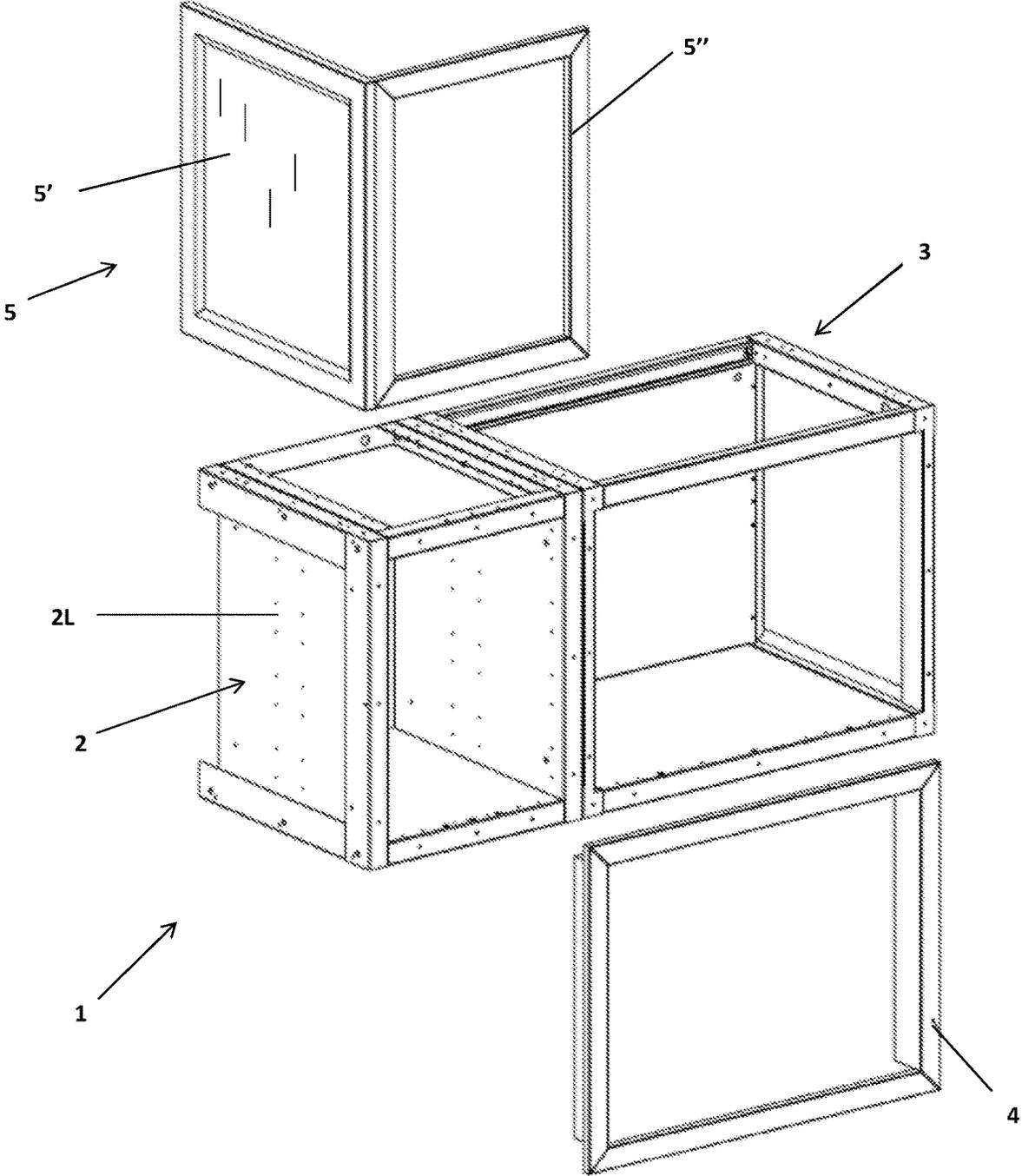


FIG. 2

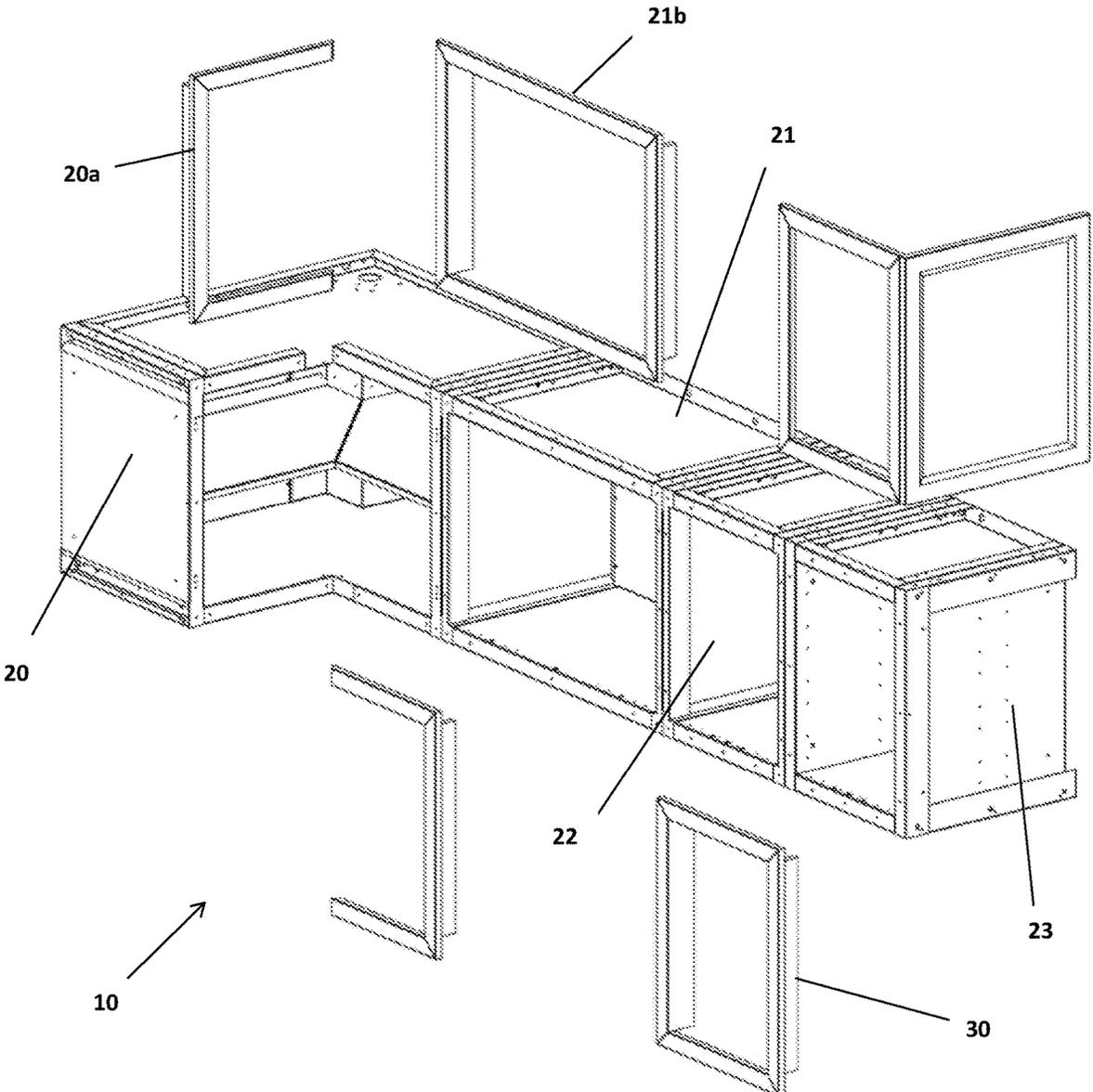


FIG. 3

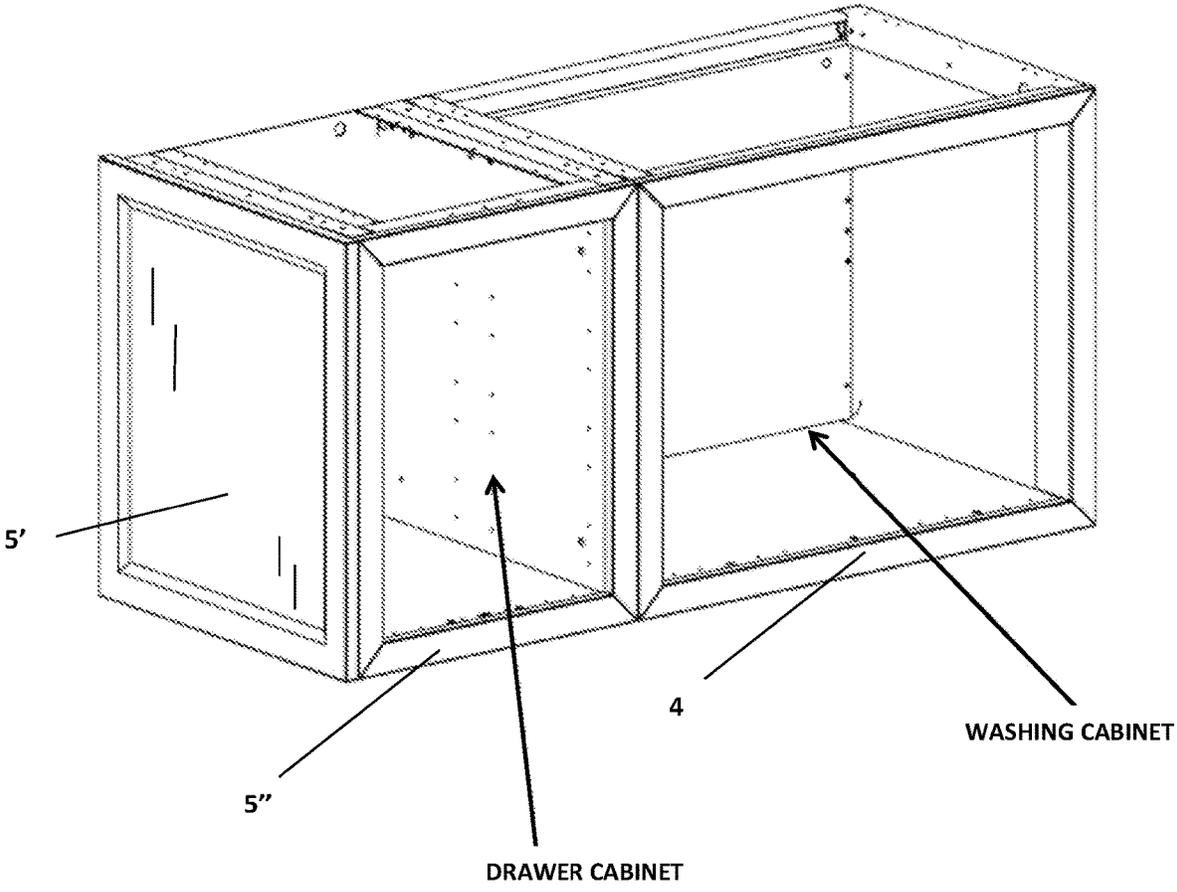
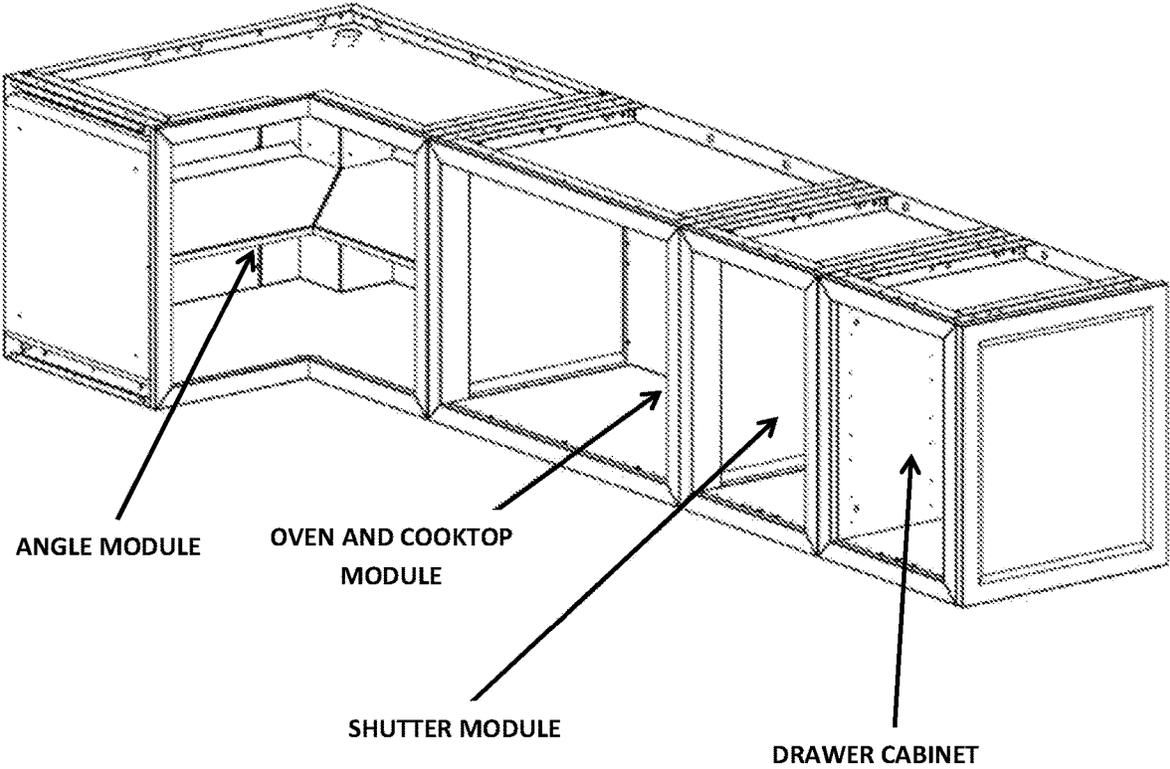


FIG. 4



**KITCHEN MODULE HAVING A METAL  
BEARING STRUCTURE COVERED WITH A  
PREDETERMINED MATERIAL**

**FIELD OF THE INVENTION**

[0001] The present invention relates to the technical field of furniture production, for example, as kitchen furniture.

[0002] In particular, the invention relates to a specific structure for modules for forming furniture parts, in particular kitchen furniture, that are long-lasting and readily adjustable.

**BACKGROUND OF THE INVENTION**

[0003] As it is well known, in the field of kitchens, various materials may be used to produce the various components thereof.

[0004] In general, a kitchen is made up by more parts, each made of a module which is then flanked, in the assembly phase, to other modules, thus forming a kitchen.

[0005] The sizes, shapes and quality strongly vary in order to cope with the most diverse needs of market.

[0006] Each module may have different sizes and may constitute a particular part of the kitchen.

[0007] By way of example, a module may form a part of the kitchen adapted to house drawers for holding cutlery and pots.

[0008] Another module may be adapted to house the oven and/or other electrical household appliances (such as the fridge) and may be fitted with shutters, drawers, etc.

[0009] In short, as mentioned, sizes may widely vary as well as the function to which each module is adapted.

[0010] A material often used to produce various components (or modules in other words) that form the kitchen as a whole is wood or wood derivatives.

[0011] By way of example, very fine kitchens are produced by using wood of various types such as chestnut, oak or other types of fine wood.

[0012] Even if can be thick and hard, it becomes yet damaged over time also because wood is particularly delicate to variations in humidity and heat and tends to increase or reduce its volume in such conditions. These enlargements and contractions may yet cause cracks and clefts over time and clearly a maintenance work is particularly expensive and it rarely enables achieving the desired outcomes.

[0013] Moreover, such kitchen components are often fitted with shutters and wickets in general, as well as drawers, and therefore require the installation of hinges or accessory structures to enable, by way of example, the installation of a drawer and the correct functioning thereof.

[0014] Therefore, this requires drilling interventions which require a lot more care for wood and certainly are far more subject to breaking over time.

[0015] Lastly, electrical appliances that produce a lot of heat, such as ovens, cannot be housed in recesses produced in pieces of furniture entirely made from wood since heat would obviously cause fire problems.

[0016] In other cases, less "noble" wood derivatives, such as plywood boards, may be used and this causes the life of the piece of furniture to be very short and damages to be immediately visible.

[0017] In other cases, plastic derivatives may be used but also in this case the life of the piece is not very satisfactory and maintenance is complex.

[0018] Often, in all the aforementioned cases, it is not possible to intervene with repairs and is necessary to replace the entire module.

[0019] The same technical drawbacks exists, in general, with other pieces of furniture, which are not necessarily part of a kitchen assembly, even if in the field of kitchens, the continuous use and the stresses to which furniture is subjected require a greater sturdiness and, therefore, those disadvantages are even more felt in that case.

[0020] PCT publication WO2014/033358, for example, is known and discloses a method of producing modules which, when assembled, may compose kitchens. In that case, part of each module is formed by two lateral frames, which are joined by transversal bars, and those lateral frames are manufactured in a mold by injection of a composite material.

[0021] This kind of solution, even if it provides various advantages in terms of lightness, is clearly expensive since it requires suitable molds for the parts of the module and, therefore, the productive process is particularly expensive and hardly customizable.

**SUMMARY OF THE INVENTION**

[0022] Therefore, an object of the present invention is to provide a new type of module for forming furniture, preferably kitchen furniture, which overcomes the above-mentioned technical disadvantages.

[0023] In particular, the object of the present invention is to provide a module for forming furniture that has an extended life and, moreover, makes maintenance or replacement work possible that is very simple and inexpensive.

[0024] These and other objects are therefore achieved with a module for forming furniture according to the invention, preferably kitchen furniture, as disclosed hereinafter.

[0025] Such module according to the invention includes:

[0026] A bearing frame of metal sheet;

[0027] One or more covering elements arranged for covering at least part, preferably entirely, of the bearing frame.

[0028] In this manner, all the above-discussed technical drawbacks are easily resolved.

[0029] In particular, by using a metallic bearing frame, resistant and long-lasting modules can be produced which are not subject to crack or deformation problems like wood.

[0030] The covering, applied to one or more zones of the module, preferably the visible zones, may be selected from any material and shape to provide an overall aesthetic impression that the module is entirely made from such covering material while keeping finished metal visible internally.

[0031] By properly joining the covering to the frame, generally in at least part of the visible areas, even the discontinuity between the two materials may be hidden and if the covering is made from wood, it may provide the impression of that a module entirely made from wood is provided.

[0032] The covering enables the frame of sheet to be exposed in the areas adapted to house electrical household appliances that produce heat, thus leaving room for air to the advantage of safety.

[0033] The applications of panels may be also avoided in inner invisible parts, thus enabling money savings and a structural simplification, besides limiting potential contamination due to varnishes or wood treatments.

**[0034]** The remaining parts, at least some exposed parts, may be covered, generating an impression that the module is partly or entirely made from the covering material.

**[0035]** Advantageously, the covering elements may be selected from at least one of the following materials or a combination thereof:

**[0036]** Wood;

**[0037]** Marble;

**[0038]** Leather or des in general;

**[0039]** Metal, such as aluminium.

**[0040]** Advantageously, the covering elements may be provided as a continuous material of predetermined shape and thickness used to manufactures products like panels or frames.

**[0041]** Advantageously, junction means may be provided that join the one or more covering elements to the bearing frame.

**[0042]** Advantageously, those junction means may be such to provide a removable junction.

**[0043]** In this manner, depending on need, the panels may be detached and repositioned with new panels or the same panels.

**[0044]** Advantageously, the junction means comprise releasable quick attachments so that each covering element can be applied and removed from the surface of the metallic bearing frame where it is applied.

**[0045]** By way of example, advantageously, such junction means may include magnetic means.

**[0046]** Since the frame is metallic, the magnet is attracted by the metal thus becoming joined in easily and firmly.

**[0047]** Advantageously, such junction means may instead provide, alternatively, a permanent junction, such as by being an adhesive.

**[0048]** Advantageously, the bearing frame may be formed by a plurality metallic sheets joined to one another.

**[0049]** A method is also disclosed to provide one or more modules for forming furniture, preferably kitchen furniture, which includes producing each module through by producing a bearing frame of the module made of a metal sheet and further producing an at least partial covering of the bearing frame by the application of one or more covering elements.

**[0050]** Advantageously, such covering elements may be selected from one or even a combination of materials such as:

**[0051]** Wood;

**[0052]** Marble;

**[0053]** Leather or hide in general;

**[0054]** Metal, such as aluminium.

**[0055]** Advantageously, such covering elements may be removable.

**[0056]** A particularly advantageous and preferred embodiment of the invention provides for producing a module for forming kitchen furniture, which includes:

**[0057]** A bearing entirely wholly made from metal sheet; and

**[0058]** One or more covering elements arranged for covering at least one part of the bearing frame,

**[0059]** wherein the bearing frame is entirely formed by a plurality of metal sheets cut to size and joined to one another so as to give the final shape, to the bearing frame, of the module which one intends to produce.

**[0060]** The advantage of this particular solution is that no molds are required and the modules may vary in sizes, shapes, etc. in a versatile manner, customizable at low cost.

**[0061]** There is no more need of an inner covering of the modules since the sheet in the form of a panel acts already as inner covering of the modules.

**[0062]** The so-structured module enables adopting a greater number of different coverings of low thicknesses and a better use of volumes.

**[0063]** Likewise, the present invention includes a preferred method of producing one or more modules that may be combined to form kitchen furniture, and of manufacturing each module by, producing a bearing frame that is entirely made of a metallic material and that is entirely formed by a plurality of metal sheets cut to size and joined to one another to produce a metallic bearing frame having the final shape of the desired module, and by further producing covering of at least part of the bearing frame through the application of one or more covering elements.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0064]** The invention will be described in details thereafter with reference to one or more embodiments according to the following drawings:

**[0065]** FIG. 1 depicts an exploded view of an example of two modules (or two adjacent components) adapted to form part of a kitchen or an entire kitchen (if such kitchen includes only two components), and illustrates a bearing metal frame of each module and an exemplary panel covering of the metallic bearing frame;

**[0066]** FIG. 2 depicts an additional example that includes four adjacent modules and a corner module;

**[0067]** FIGS. 3 and 4 depict the module of FIGS. 1 and 2 but with applied coverings.

#### DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

**[0068]** The following description relates to a preferred embodiment in the field of kitchen furniture.

**[0069]** The following description, however, is equally applicable to furniture in general and not necessarily to kitchen furniture, even if the present invention intends to solve a problem that is particularly felt in the field of kitchens, where sturdiness and durability of a product are essential.

**[0070]** With reference to a kitchen-related embodiment, as discussed in regard to the prior art, modular kitchens are formed by modules that are combined with one another according to a predetermined project geometry according to a client's requests.

**[0071]** Each module may vary depending on function and, accordingly, shapes and sizes.

**[0072]** By way of example, FIG. 3 depicts two adjacent modules that form respectively a drawer cabinet and cabinet for a washing area.

**[0073]** It is apparent that the drawer cabinet or the washing cabinet may vary in size and overall shape and, accordingly, FIG. 3 only depicts a non-limiting exemplary arrangement.

**[0074]** More specifically, FIG. 1 clearly depicts how the drawer cabinet and the washing compartments are produced.

**[0075]** It can be seen that both the drawer and the washing cabinets are each a module produced by forming initially a bearing frame of metallic material, such as a metallic alloy.

**[0076]** A particularly preferred material, due to its resistance, is steel, such as AISI304.

[0077] Other metallic alloys or metallic materials in general could be used by using materials with suitable resistance values.

[0078] FIG. 1 thus depicts with number 2 the bearing frame with regard to the module “drawer cabinet” of FIG. 3 while number 3 indicates the bearing frame made from metal with regard to the module “washing cabinet”.

[0079] By drawer cabinet, therefore, and in a non-limiting meaning, a cabinet is meant that is equipped with drawers, thus forming the module “drawer cabinet”.

[0080] The module relative to the washing cabinet indicates that it will house a sink in the upper portion.

[0081] The sizes are not indicated since obviously cabinets of any size may be provided.

[0082] Thus, as shown in FIG. 1, each module has a bearing frame which is produced in a metallic material.

[0083] Preferably, the bearing frame is obtained by assembling a plurality of sheet metal elements with one another, such as panels of sheet metal or parts of sheet metal in general, so as to give a final shape to the bearing frame which retraces the shape of the module.

[0084] As mentioned previously, the preferred material is steel.

[0085] By way of example, FIG. 1 shows that the module 2, a drawer cabinet, has a bearing frame formed by two lateral walls positioned in front of each other at a predetermined distance (FIG. 1 indicates with 2L one of the two lateral walls), a rear wall, an upper and a lower wall, thus keeping a front opening (i.e. the opening positioned in front of the rear wall) which is obviously the opening necessary for assembling the drawers.

[0086] The module 3 being instead a washing cabinet, does not include the upper wall but there are two transverse beams adapted to enable the housing of a sink.

[0087] In the event of a plurality of metal sheets cut to size, those are generally joined to one another using threaded inserts together with metallic angle bars or metallic uprights.

[0088] Sometimes, for the assembly, welding is also used or only used to give greater sturdiness to the item.

[0089] FIG. 2 depicts another example so as to highlight the wide range of kitchens that can be obtained by composing different modules with one another.

[0090] More specifically, and in non-limiting way, FIG. 2 depicts other components such as the corner module and other modules which may form drawer cabinets and/or, more generally, pieces of furniture with a shutter, which may also be used for the installation of electrical household appliances such as ovens or cooktops.

[0091] Even in this case, as in the previous one and as clearly highlighted in FIG. 2, each module is formed by a bearing metallic frame, to which one or more panels may be applied, depending on need and in the manner described for the example of FIG. 1.

[0092] Even in this case, the bearing metallic frame is preferably manufactured with a suitable combination of metal sheet panels according to a predetermined shape.

[0093] In greater detail, which the covering may be manufactured in various shapes and geometries adapted to be applied to various parts of each bearing frame, depending on need.

[0094] Preferably, the covering is applied to visible zones so as to also finish the module from an aesthetical point of view.

[0095] Generally, this covering has no bearing function but instead has a finishing function.

[0096] The covering is in form of a layer of material of a predetermined thickness and cut according to a predetermined shape.

[0097] By way of example, continuous panels (of any overall shape), frames, parts of frames, shutters, or front parts of drawers may be formed.

[0098] Therefore, continuous panels constitute a continuous covering surface.

[0099] The frames or parts of frames are obtained with a succession of material rods and their purpose is to surround a certain part, thus delimiting a sort of perimeter.

[0100] The usable materials are several.

[0101] Preferably, wood may be used (of any type, such as oak, chestnut, etc. and/or wood derivatives even if they are less fine).

[0102] However, coverings of material such as marble or even leather or aluminum, for example of treated and varnished type, may be used.

[0103] Thicknesses are selected depending on needs.

[0104] Moreover, coverings are well suited for receiving decorative finishes of any type such as applications of plaques, incisions, colorations, etc.

[0105] For example, FIG. 1 shows that such coverings may be in the form of continuous panels, frames, or parts of frames.

[0106] As another example, the module “drawer cabinet” has been produced by partially covering the metallic frame 2 using a continuous panel 5' and a frame 5".

[0107] The continuous panel 5' was applied at the external lateral wall 2L, a wall which will be probably visible (that means that it will not be flanked by any other module on that side). The other applied panel is in form of a frame 5" having four components (two horizontal shafts and two vertical shafts) that are applied along the rim delimiting the front opening of the drawer cabinet in the same manner as in the assembled product visible in FIG. 3.

[0108] The frame 5" may be pre-assembled and then ready to be applied around the opening in its entirety and may be obtained by applying in succession each rod around the opening to fully surround it.

[0109] The same applies to the washing cabinet (see FIG. 3), which receives a frame on the front opening portion and may include laterally, for example, a panel if such lateral wall is not to be coupled with other modules, thus being visible.

[0110] According to this solution, by arranging coverings of different materials, all the desired parts may be covered, in particular the visible parts, thus providing an enhanced aesthetical value to the module in combination with the sturdiness of metal.

[0111] Frames or parts of frames that surround the openings may be fitted with extensions that branch off orthogonally from the surface of the frame so as to form a chamfering that facilitates application and making such extensions lean against the lateral surface which delimits such opening, so as to facilitate the potential installation of internal hinges.

[0112] By way of example, FIG. 2 depicts one of such extensions 30. Specifically, the extension 30 leans against the internal part of the surface 23.

[0113] For example, if wood panels are selected and coverings are applied to all the visible parts, the final result

will look to a user as if fully made of wood, while in reality, having a metallic frame, it will own remarkably greater sturdiness and resistance.

**[0114]** With such solution, the furniture will not become damaged due to strong thermal shocks over time.

**[0115]** An additional important advantage according to this solution is that the covering may be applied in various ways, including removably.

**[0116]** This enables performing immediate repairs which may even be performed by the buyer and at low cost.

**[0117]** Such junction means may for example include magnets.

**[0118]** Numerous magnets of various degrees of force, which could firmly apply such coverings, are available on the market.

**[0119]** The covering may include one or more magnets, even embedded within the covering, and adapted to generate a force of attraction with the metal.

**[0120]** In such case, in order to ensure a correct centering, the metallic structure may include one or more chamfers, within which the magnet is positioned to enable a micro-metrical and precise application by the user.

**[0121]** When a part of the covering is damaged, the user may, according to such solution, remove and replace it with an equivalent one which may be provided by the producer as a spare part.

**[0122]** According to such solution, the aesthetical look of the kitchen may even be altered by simply replacing the coverings with other ones of different colors and/or materials.

**[0123]** Another joint system may comprise an adhesive. In this case, the joint is definitely firmer and non-removable even if, technically, it could be removed by using appropriate solvents. A new panel may be bonded in place of the removed panel but the operation of removal and cleaning of the surface is more expensive and more complex.

**[0124]** Many modules are adapted to contain electrical household appliances which produce heat, such as ovens. Generally, it is not possible to use wood in the proximity of the oven since heat damages wood and may even cause fires.

**[0125]** In accordance with the present solution, compartments for ovens may be produced by externally applying coverings of wood, leather or other materials, even artificial, so as to give the overall impression of a kitchen covered in leather but without risks of fires or other problems which may arise with traditional kitchens made of wood.

The invention claimed is:

1. A module for forming kitchen furniture, comprising: a bearing frame; and one or more covering elements arranged for covering externally at least one part of said bearing frame, wherein the bearing frame is entirely made from sheet metal and comprises a plurality of metal sheets cut to size and joined to one another so as to give the bearing frame a final shape of the module.

2. The module, as per claim 1, wherein at least some of the metal sheets are provided panels of already finished metal sheet.

3. The module, as per claim 1, wherein the metal sheets are joined to one another with threaded inserts and metallic angle bars or metallic uprights.

4. The module, as per claim 1, wherein at least some of the metal sheets are, joined to one another by welding.

5. The module, as per claim 1, wherein the one or more covering elements are selected from the group consisting of wood, marble, stone, leather, hides, metal, or a combination thereof.

6. The module, as per claim 1, wherein at least some of the covering elements are provided as continuous material sheet of predetermined shape and thickness adapted to produce panel-works or frames.

7. The module, as per claim 1, wherein further comprising junction means configured to join the one or more covering elements to the bearing frame.

8. The module, as per claim 7, wherein the junction means are configured to join the one or more covering elements to the bearing frame removably.

9. The module, as per claim 7, wherein the junction means comprise releasable quick attachments so that each covering element is adapted to be applied and removed from a surface of the bearing frame to which one of the one or more covering elements is applied.

10. The module, as per claim 7, wherein the junction means comprise magnetic members.

11. The module, as per claim 7, wherein the junction means comprise an adhesive junction product that causes a fixed junction.

12. A method of producing one or more modules adapted to be joined to one another for forming kitchen furniture, comprising:

- producing a module by producing a bearing frame entirely made from metal metallic material and having a plurality of metal sheets cut to size and joined to one another so as to produce the bearing frame with a desired final shape; and

- covering of the bearing frame at least in part with one or more covering elements by joining the one or more covering elements to the bearing frame.

13. The method, as per claim 12, wherein the one or more covering elements are removably joined to the bearing frame.

14. The method, as per claim 12, wherein at least some of the plurality of metal sheets are provided as panels shaped as sheets.

15. The method, as per claim 12, wherein the metal sheets are joined to one another with threaded inserts together with metallic angle bars or metallic uprights.

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