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(54) Process for making construction elements and elements made thereby

(57) By means of respective, opposite and almost diagonal cuts in the slabs, parts (6) of an irregular scalene triangle section are obtained with steps (2,2') along their larger side to form parts of a considerable height or else of a laminar shape for forming bi- or tridimensional

figures, or by means of attaching the protruding notches (3,3') to said steps or to the steps of other parts or to the opposite ends of these notches in said same steps.

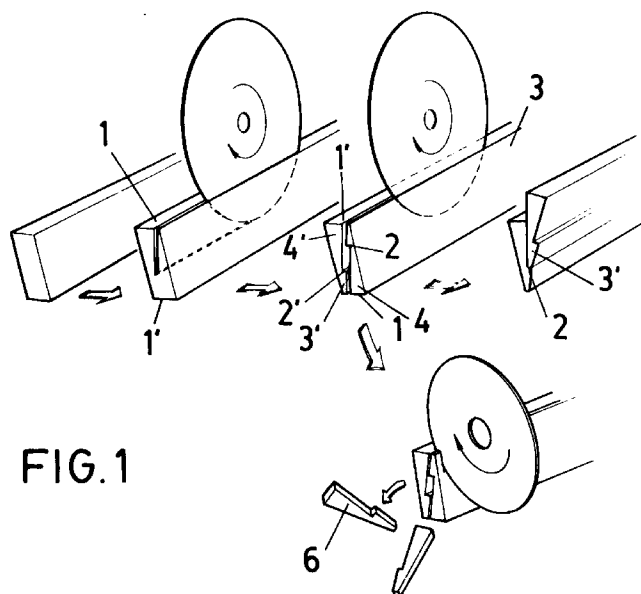


FIG.1

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Description

OBJECT OF THE INVENTION

The object of the present specification relates to a procedure for manufacturing a marble part, as well as parts made of granite, ornamental stones and other natural materials, and it relates also to the part made according to this procedure and to parts having said shape made of ceramic or other materials.

These parts are formed in pairs, as from longitudinal and almost diagonal cuts in appropriate slabs of an irregular scalene triangle section having a stepped shape along their longer side to form parts of a considerable height or a laminar configuration, the bi- or tridimensional figures thus formed being built by engaging the protruding step notches to the notches of other parts or to the opposite ends of said step notches.

FIELD OF APPLICATION

These parts are used in the construction field to form columns, fences, friezes and other building elements.

They are also used in the construction of furniture pieces such as table pedestals, screens and other objects.

Conveniently cut into plates of a small thickness, these parts are also used in the construction of wall linings and floor coverings, producing custom designed figures based on the characteristics of each application, which may include large public facilities such as murals, city squares, urban promenades, railway station platforms, portals, etc.

BACKGROUND OF THE INVENTION

It is well known that furniture pieces are obtained from components that are similar to each other and adequately combined - Central European ceiling lamp designs of the sixties coming to mind - in which said similar component parts are intertwined to form complex geometrical figures. Other lamps of a more modern design have their pedestals formed by a combination of parts that are identical to each other and which in turn can be combined once more by the user himself.

Similarly shaped parts are also known which determine the meeting points of conventional figures such as, for instance, those of modular shelves comprising mutually fitting parts in the converging vertical and horizontal boards.

Also pertaining to the architectural historical tradition are constructions characteristic in that they are modular, such as those in the porticos of ancient civilizations or in the internationally renowned and award-winning modular arrangements such as the "L module" of the Spanish architect Leoz.

Despite the above, the possibility of forming bi- or

tridimensional figures is unknown, based on construction materials of a very simple section such as an irregular scalene triangle section and for furniture and construction purposes.

DESCRIPTION OF THE INVENTION

The solution proposed by this invention consists of a procedure for fabricating a marble part from a conveniently cut regular parallelepiped shape, although it may also be formed from other natural products such as granite or other noble stones; also claimed is the part made by this procedure and parts which are not cut but which are formed with a shape similar to that of the part, made of ceramic or similar materials, plastics and mixtures thereof, in lieu of natural materials.

A further object of this invention patent lies in the figures resulting from the adequate arrangement of a multiplicity of said parts into figures or constructions for decorative purposes or into structures which can be used as objects.

The parts are thus grouped in various arrangements, by themselves or by intercalating other parts of a conventional shape, in order to build spatial structures which can then be used as table supports, decorative pedestals, etc.

Likewise, and if conveniently cut into a multiplicity of parts of a reduced thickness, complex figures can be formed for building pavings and wall facings such as those in railway station platforms, urban promenades and squares, murals, etc.

Their common feature is that they form flat figures or spatial figures having a section similar to that of the previously mentioned parts, forming curves of various radii, spirals, waves, circles and in general any curved surface.

The raw material, consisting in a marble prism, is cut into various sizes depending on the dimensions and the number of parts which make up the main configuration that is to be built. The prismatic blocks or slabs are thus adapted to the respective radii of the assemblies being built with them.

Once the slabs are defined and cut into single units, a longitudinal and oblique cut is performed in each of them, almost diagonally, starting from the proximity of the edge of one of the intermediate faces and finishing at the lower portion, relatively spaced apart from the opposite diagonal edge and without the cut passing through.

The slab is then turned upside down and the same cut is repeated, starting from the position equivalent to the proximity of the edge in the opposite face of the slab.

This second cut reaches the lateral face of the first cut and continues its path along a stretch equivalent to that of the previous cut, so that the prismatic block is divided into two parts of an irregular triangular section, the larger side of which reveals an internal, right-angled stepped shape, the end adjacent the start of the respec-

tive cut being shaped like a notch with a base width identical to the distance from the edge to the rim of the cut.

The angle of the cut varies in each case, according to the requirements of the figure being built.

The parts are now ready for forming the tridimensional figures, a surface finish to the edges and vertices, standard in conventional marble parts or tiles, being provided.

Concerning the flat figures, the parts are arranged so that a series of transverse cuts are implemented on them, along the longitudinal direction of the original slab, providing them with the normal subsequent finishing and making them ready for use in the surface tiling.

To form said objects or shapes, the figures are lodged one against the other, overlapping and adhering to the respective notches inserted in the opposite grades, or, on the contrary, with the end opposite the notch inserted in the steps.

The curves are thus formed by subsequently adhering the notches to the steps until the desired circular sector or end circle is formed, the opposite side forming a multiple pointed star, or, in the case of an internal circle, a regular polygonal figure.

If at a given point in the construction the arrangement of the notch is changed for that of the opposite end of the part, with the insertion of the stepped shape, the curvature changes and generates a wave, with alternate curves and star-shaped arrangements being thus provided.

Alternatively, this step may be implemented by inserting a rectangular part, or else facing and adhering the respective cut lines of these two parts so that a rectangle is also formed.

Finally, the curve radius may be changed if the cut in slabs of a different section, arranged step-wise according to sizes, is made in such a way that it opens or closes the curve in respect to the curves of the same size already formed, or drawing progressively varying curves so that spirals are formed at the other end.

DESCRIPTION OF THE DRAWINGS

In order to complement the description set forth and to provide a better and easier understanding of the characteristics of the invention, a set of drawings is attached to this specification as an integral part thereof and wherein the following is represented in an illustrative and non limiting character:

Figure 1 shows the slab cutting procedure and the final fitting together of the parts obtained, as well as the alternative plates or tiles formed therefrom.

Figure 2 is a sample of different shapes, intermediate to the well known circles and ellipses, as well as variations of curve mixtures.

Figure 3 is a construction example of two tables showing the tridimensional shape of the pedestals

and also showing a decorative figure for a lamp base.

PREFERRED DESCRIPTION OF THE INVENTION

In the light of these figures, it can be seen that the proposed invention consists in a procedure for making a marble piece from a slab, as well as the part made by this procedure and the shapes resulting from the proper ordering of a multiplicity of these parts, which are grouped in various arrangements by themselves or by inserting other conventional parts to form spatial structures having an adequate utility, such as table supports, decorative pedestals, columns, portals, friezes, fences, relief murals, etc.

When these parts are cut transversely into a multiplicity of sheets, the central elements of pavements and wall facings can be constructed, such as those seen in railway station platforms, urban promenades and squares, murals, etc.

Figures or part sections are characterized which form curves of various radii, spirals, waves, circles and in general any curved surface.

The starting material is a marble slab of a size dependent on the dimensions and on the number of parts which make up the main configuration that is to be built, adapting the slabs to the respective radii of the elements or objects being built with them.

Once the slabs are defined and cut, they are in turn cut almost diagonally, in the proximity of the edge of one of their intermediate faces (1) and without the cut passing through. The slab is then turned upside down and the same cut is repeated on its opposite face (1'), without reaching face (1), so that the prismatic block is divided into two parts of an irregular triangular section, with an internal right-angled stepped shape (2) and (2'), and also notches (3) and (3'), the cutting angle varying according to the requirements of the figure being built.

The parts are now ready for forming the tridimensional figures, after a conventional surface finish on the edges, the figures being lodged one against the other and adhered to the notches (3) or (3') inserted in the steps (2') or (2) or, on the contrary, with the end (4) or (4') inserted in the step (3') or (3), said curves being thus formed by subsequently applying the notches or opposite ends in the steps until the circular sector, circle, wave, shell, spiral, etc., is formed, the opposite side forming a multiple pointed star, as well as alternate arrangements of evolving curves and stars, and resorting, in specific curve changes, to the insertion of an intermediate part (5), conventionally rectangular, or else forming said rectangle with the parts of the invention, by facing and adhering the respective cutting lines of two parts.

The curve radius can also be achieved by cutting slabs with rectangularly graded section slabs, the curve opening or closing in respect to the curves of the same size already formed, or forming progressively varying

curves, so that even spirals may be formed.

Alternatively, each part may have transverse cuts performed in the longitudinal direction of the slab to form sheets for forming the described figures for floor and wall facing coverings.

This description need not be more extensive in the understanding that any expert on the subject will have sufficient information to understand the scope of the invention and the advantages deriving therefrom, as well as to reproduce it.

It should be understood that the materials, shape, size and arrangement of the elements are liable to variation provided the essence of the invention is not altered.

The terms used in the description and the principle thereof must at all times be considered in a non limiting manner.

Claims

1. Procedure for fabricating a furniture piece or construction component, of the type combining other component parts that are mutually alike, essentially characterized in that it is based on a slab of a size that depends on the final dimensions and on the number of parts which make up the main configuration that is to be built with said parts, adapting the slabs to the radius or respective radii of the elements or objects being built with them, so that once the slabs are defined and cut, they are in turn cut almost diagonally, in the proximity of the edge of one of the intermediate faces (1) and without the cut passing through, the slab then being turned upside down and the same cut being repeated on its opposite face (1'), likewise without reaching face (1), so that the prismatic block is divided into two parts.
2. Part fabricated according to the procedure described in the preceding claim, characterized in that it has an irregular scalene triangle section with internal right-angled stepped shape (2) and notches (3), the cutting angle varying according to the requirements of the figure being built, whereupon the part is finished in a conventional manner.
3. Tridimensional figure according to the preceding claims, characterized in that it forms, with one of the enveloping curves composed of different combinations of these parts, curves of different radii, spirals, waves, shells, circles and in general all sorts of curved figures which overlap and adhere to each other by means of notches (3) and (3') inserted in steps (2') and (2), or, on the contrary, with the opposite end (4') or (4) inserted in the steps (3') or (3), said enveloping curves being generated by the subsequent attachment of opposite notches or ends on steps, until the circular sector, circle, wave, shell, spiral, etc., is formed, whereas the opposite enveloping curve defines a multiple pointed star, constituting furniture pieces such as table legs, pedestals, lamp supports, separating screens and others, as well as construction elements such as columns or their components, friezes, fences, portals, relief murals and others.
4. Tridimensional figure constructed with said parts according to the preceding claims, characterized in that it alternates arrangements of enveloping curves followed by other star shaped enveloping curves and resorting, in specific curve changes, to the provision of an intermediate part (5), conventionally rectangular, said rectangle being formed or not by two of the parts of the invention by facing and adhering their respective cutting lines.
5. Thin laminar part (6) of the type used for covering floors and wall facings, according to the fabrication procedure described in claim 1 and based on the part according to claim 2, characterized in that each part thus obtained by this procedure subsequently receives transverse cuts, in the longitudinal direction of the slab, to form the new parts (6).
6. Figure constructed with these laminar parts (6), according to claims 3 and 4, characterized in that it is normally bidimensional once it is integrated in the floor or wall facing it covers.
7. Figures resulting from the grouping of the parts described in claim 2, as well as those resulting from the grouping of the new parts (6) according to claim 5, respectively formed according to claims 3, 4 and 6, obtained according to the procedure described in claim 1, characterized by the modification of the curve radius of the enveloping curve by cutting slabs of rectangular and differently stepped sections, the enveloping curve opening or closing in respect to the curvature of the parts already formed, all or them having the same size, or forming progressively varying curves, even to form spirals.

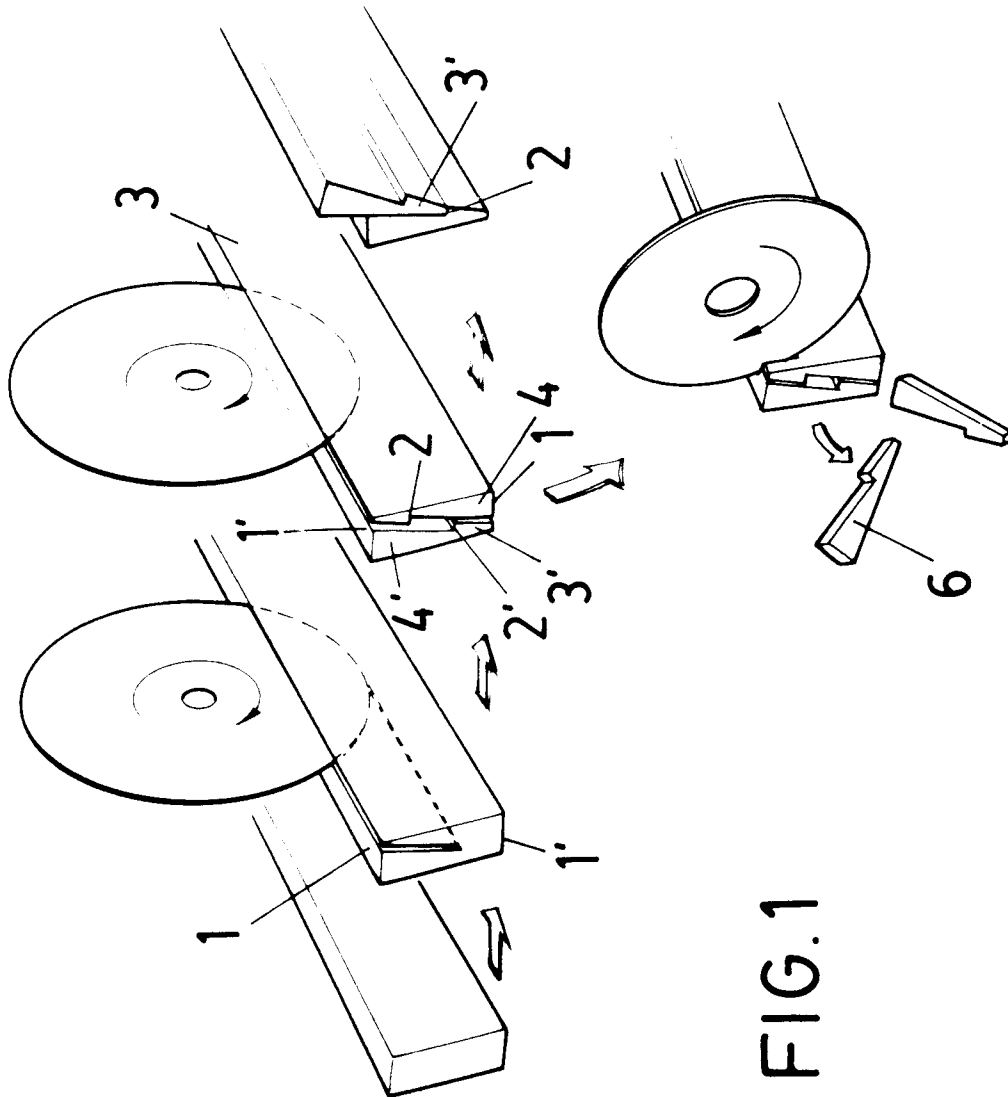


FIG.1

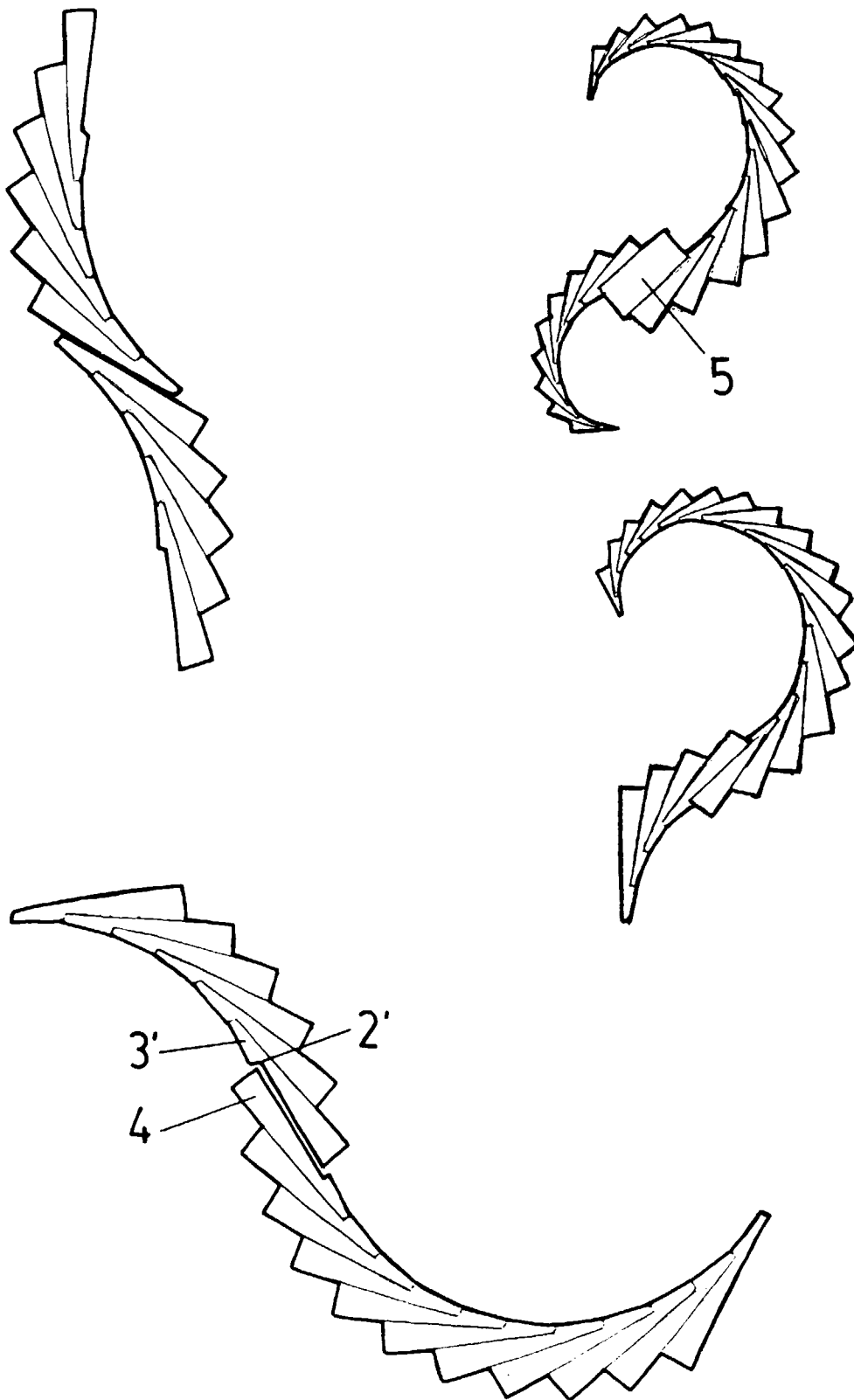


FIG. 2

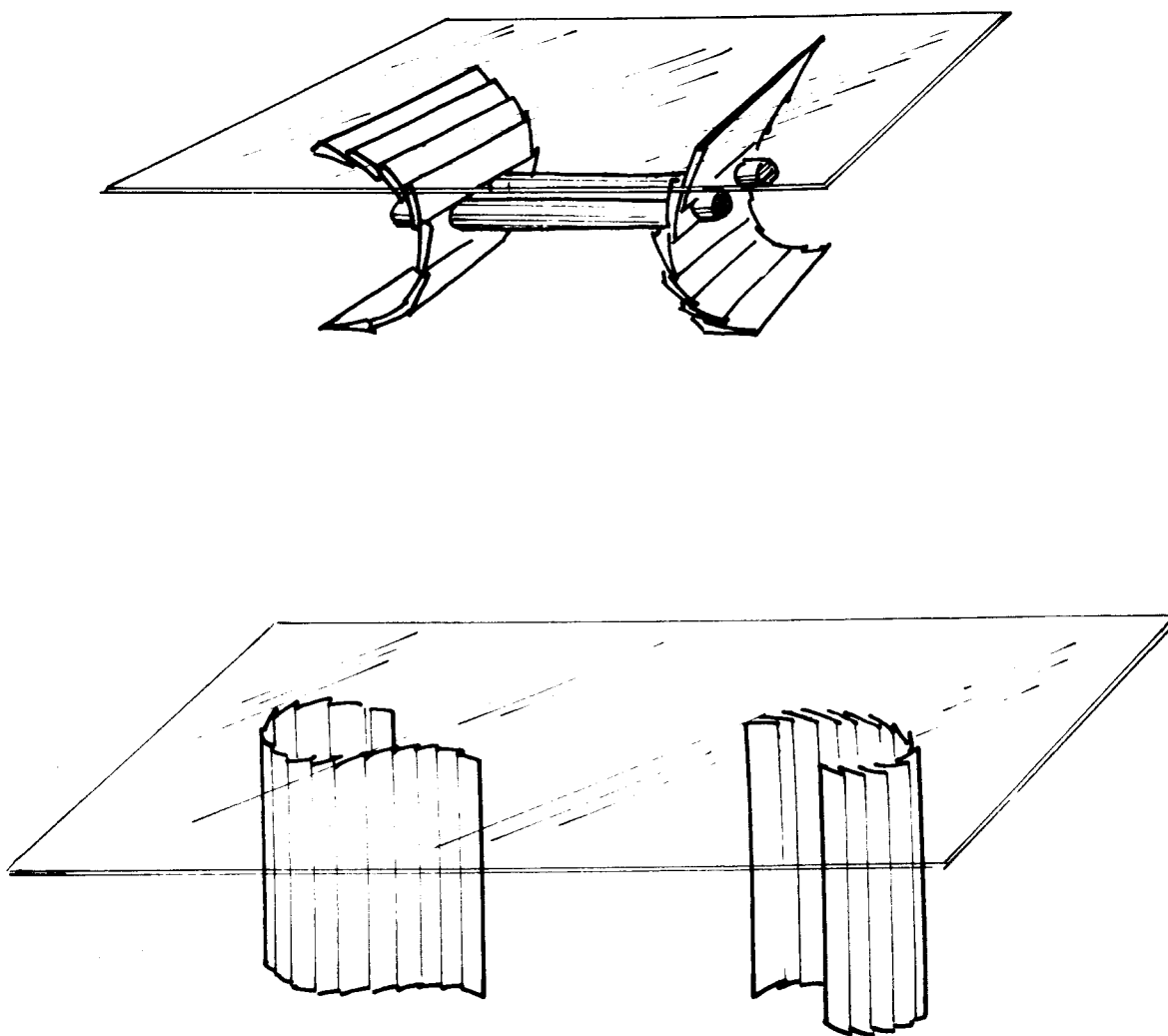


FIG. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 97 50 0061

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 4 394 409 A (J. E. HERTEL) * column 2, line 33 - column 4, line 38 * ---	2-7	B44C5/00 E01C5/00 B28D1/04 B27B1/00
X	US 5 520 388 A (J. A. L. OSBORN) * column 1, line 60 - column 4, line 17 * ---	2-7	
X	WO 95 05102 A (J. MARCUS ET AL) * the whole document * ---	2	
A	US 4 578 291 A (J. MINER) * column 1, line 30 - column 3, line 8 * -----	2-7	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B44C E01C B27M B28D B27B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 3 September 1997	Examiner Doolan, G
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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