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(54) **Method for producing a supporting element for a table**

(57) Method for producing a two-legged supporting element (18) for a working plane of a table, by using a plate (10) made of a deformable material, comprising the phases of defining on the plate (10) two convergent bending lines (12), which identify three portions of the plate, a central elongated portion (14) and two outer portions (16); bending the outer portions (16) of the plate (10) along the bending lines (12) in order to turn them into two legs of the supporting element, by moving to the same side with respect to the unbent central portion (14) so as to obtain a support (18) having two flat legs (20) and a supporting plane (22) for the working surface of the table; the two outer portions (16) being bent so that the supporting plane (22) is inclined with respect to a horizontal plane passing through the upper extremities of the legs (20) obtained by the bending.

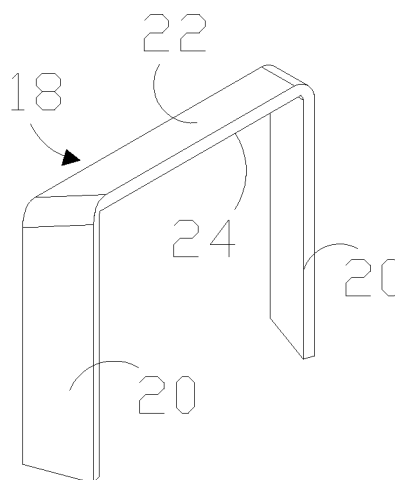


Fig. 6

Description

[0001] The present invention concerns a method for producing a supporting element for the working surface of a table, in particular of a glass table, and the relative element.

[0002] In the state of the art there are supporting elements for the working surface of a table with a structure resembling an upturned "U". The parallel sections of the "U" constitute two actual table legs, while the connecting section, which is flat and parallel to the ground, forms the resting surface for the table's working plane.

[0003] These particular supporting elements are obtained by bending a planar (meaning flat) strip 100 of an essential V-shaped form, as shown in Fig. 1, made of a glass or metallic material. The oblique sections of the V-shaped strip 100, indicated by the number 102, are not converging but connected by a horizontal section 104 (the strip 100 is thus of an enlarged V-shaped form). The strip 100 is bent by appropriate tools in two points corresponding to the connections between the oblique sections 102 and the horizontal section 104, along a bending line 106. In order to achieve the desired support, the line 106 is inclined with respect to the horizontal section 104, but the sides (or the greater axes) of the sections 102 must be perpendicular to the line 106. This is the only way to achieve the result, at the conclusion of the bending process, that the produced supporting element has a "U"-shaped form and comprises a flat horizontal surface deriving from the section 104, which extends into two legs perpendicular to the same and derived from the sections 102. The two flat elements forming the legs turn out to be contained within two planes converging toward each other and orthogonal to the floor. The reciprocally oblique disposition of the legs serves to improve the resistance of the U-shaped element, thus preventing a lateral stress on the inclined legs from bending and breaking the same at the connecting point with the horizontal portion.

[0004] This manufacturing method has obvious disadvantages. It is necessary to start out from a plate (in this case made of glass), so as to obtain an enlarged V-shaped profile and finally to bend it. The profiling takes time, generates wastes and fails to optimize the number of supports obtainable by subdividing the plate.

[0005] The main purpose of the present invention is to provide a method to produce a table support without the disadvantages described in the state of the art.

[0006] This purpose is achieved by a method for producing a two-legged supporting element for the working surface of a table or similar, by using a plate of deformable material, comprising the following phases:

- defining two converging bending lines on the plate which identify three portions of the plate, a central elongated portion and two external portions having an extremity conformed as a resting surface for the legs of the supporting element when in use;
- bending the outer portions of the plate along the said

bending lines, so as to turn them into two legs of the supporting element, while moving them over to the same side with respect to the unbent central portion, so as to obtain a support having two flat legs and a supporting surface as working plane;

characterized by the fact that the two external portions are bent so as to obtain the result that the supporting plane is tilted with respect to a horizontal plane passing through the upper end of the legs obtained by the bending process.

[0007] The method may envision utilizing a plate of an elongated form, which has its greater dimension along one axis, and defining two bending lines on the plate as described which form an angle (i.e. the half-lines lying on the bending lines) whose bisecting line is essentially perpendicular to the above axis. In this manner, the three portions subdividing the plate, the central plate and the two outer plates, can thus have their own axes of larger dimension, with respect to the main dimension, which is parallel and/or coincident with the corresponding axes of larger dimension of the other portions. After the bending, this ensures obtaining a support according to the invention, meaning a support characterized in that it comprises:

- Two flat legs disposed in two planes inclined to each other and essentially perpendicular to the floor when in use, and
- A flat connecting portion between the two legs, which is inclined with respect to a horizontal plane.

[0008] It is advantageous to use a plate of a convex shape, so as to considerably reduce the produced wastes. This is because superfluous working phases are avoided, such as for instance cutting a generic plate to obtain a shape like that in Fig. 1; and because the wasted portion of the cut is practically never utilized.

[0009] These and other objects are achieved by using the method of the invention, which will be better clarified by the following exemplifying description, with reference to the attached drawings wherein:

Fig. 1 shows a topside plan view of a plate used in the methods of the known art;

Fig. 2 shows a plan view of a plate used in the method of the invention;

Fig. 3 shows a plan view of a support produced by the method of the invention;

Fig. 4 shows a front view of the support of Fig. 3;

Fig. 5 shows a side view of the support of Fig. 3;

Fig. 6 shows an axonometric view of the support of Fig. 3 (The figures are not all to scale).

[0010] Fig. 2 show a generic flat and rectangular plate 10 made of a material capable of bending thanks to an appropriate working process, for instance made of glass. In the plate 10, having an axis W along its greater dimen-

sion, two (dashed) bending lines 12 are considered, with respect to which a central segment 14 and two equal wings 16 remain defined. These lines 12 lie on half lines converging in a point P and at an equal distance from an axis of symmetry Y (in this case, the smaller axis) of the plate 10 and inclined with respect to this axis, in a converging direction, by an angle α of about 20 degrees. The axis Y, which is bisecting the angle formed by the half lines exiting from P (having a width 2α) is perpendicular to the axis W. The three portions subdividing the plate 10 thus turn out to have axes of their own (not shown for simplicity) with respect to the greater dimension, which coincide with the corresponding axes of the other portions and with the axis W.

[0011] The plate 10 is hot-curved along the lines 12 by using a dye (if the plate 10 were made of metal, it would be bent by known tools and methods, such as bender-machines), so that the two wings 16 are essentially bent by 90° along the lines 12 and on the same side with respect to the segment 14. The result of the bending is seen in the figures from 3 to 6, which show a support 18 for a working surface of a table (not showing the latter). After the bending, the two wings 16 constitute two identical legs 20 of the support 18, which have longitudinal axes Z (see Fig. 4 in particular) parallel to each other and perpendicular to the floor, while lying on planes converging toward each other. After the bending the segment 14 constitutes a portion of the connection between the legs 20 and forms a supporting plane 22 for the working surface of the table (not shown). As can be seen in detail in Fig. 5, the supporting plane 22 is flat and tilted by an angle α with respect to a horizontal plane, and thus presents its major axes, marked by X (see Fig. 4), in a horizontal position. The working surface of a table may be fastened either to an upper rim 24 of the supporting plane 22 - which may require holes or adhesives - or to a rotation device for an extension that the Applicant has already described in patent application PCT EP05/51554, which is referred to for any further detail. This latter solution essentially compensates for the inclination of the supporting plane 22 by a disc having the bottom inclined in a complementary fashion.

[0012] It is worth noting that the curving radius at the bending lines 12 can be varied on a case by case basis, thus obtaining a curved connection 30 between the plane 22 and legs 20 having variable curvature, up to a practically sharp edge. The inclination angle α of the bending lines 12 with respect to the axis of symmetry Y may clearly vary, but α is preferably in the range from 10° to 40° in order to achieve aesthetically pleasing results. The method can also be used, for instance, by using a plate in the shape of a parallelogram, square, generally polygonal or irregular form or in a convex planar shape, meaning a shape having no two internal points capable of being connected by a segment not fully contained in the shape itself. The bending lines 12 may also be asymmetrical, both with respect to the plate's axis of symmetry Y as well as between each other: the two half lines exiting from

point P would in this case not have an equal angle α with respect to the axis Y. This latter solution allows to obtain particular supports, so that one leg is for instance more inclined than the other while being longer, or the plate forming it is more inclined with respect to the axis X. Inclinations of the axis Z of the two legs 20 other than those shown in the figures are also possible, so as to achieve original and attractive geometries. Apart from a glass plate, plates made of metallic or plastic materials may also be used. Moreover, in order to impart a characteristic aesthetic touch and/or to improve the standing on the floor, the extremities 16a, b of the wings 16 may be profiled to obtain a curved shape, so that the resulting legs 20 can have profiled extremities resting on the ground. A particularly effective length for the legs 20 is about 80 cm, which allows achieving a working plane useful for many tables, but this length can be modified as required. Other possible variants include the width of the leg or its thickness.

Claims

1. Method for producing a two-legged supporting element (18) for a working plane of a table or similar, by using a plate (10) made of a deformable material, comprising the phases of:

- defining on the plate (10) two convergent bending lines (12), which identify three portions of the plate, a central elongated portion (14) and two outer portions (16) having an extremity conformed as a resting surface for the legs of the supporting element when in use;

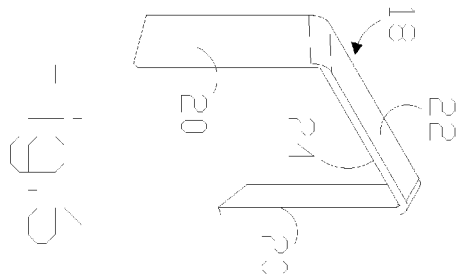
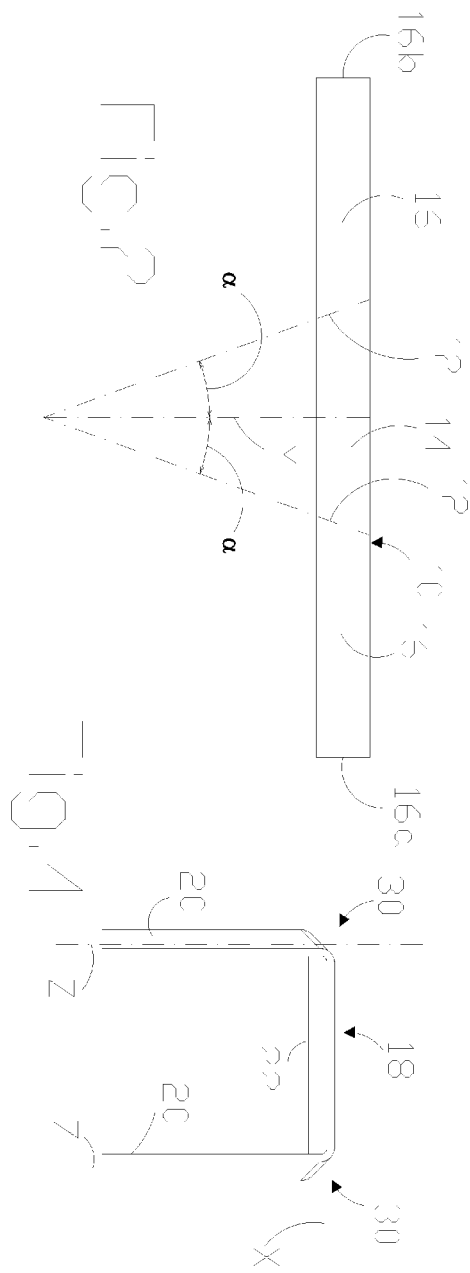
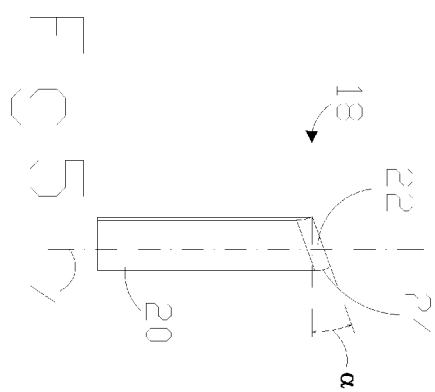
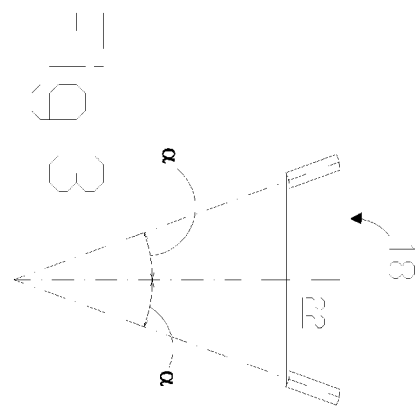
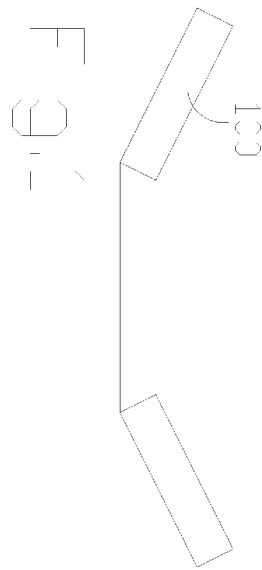
- bending the outer portions (16) of the plate (10) along the bending lines (12) in order to turn them into two legs of the supporting element, by moving to the same side with respect to the unbent central portion (14) so as to obtain a support (18) having two flat legs (20) and a supporting plane (22) for the working surface of the table;

characterized in that the two outer portions (16) are bent so that the supporting plane (22) is inclined with respect to a horizontal plane passing through the upper extremities of the legs (20) obtained by the bending.

2. Method according to claim 1, wherein the plate (10) has an elongated shape along an axis of greater dimension (W), and two bending lines (12) are defined on the plate (10), so that they form an angle (2α) between them, whose bisecting line (Y) is essentially perpendicular to the axis of greater dimension (W), thus obtaining the result that the three portions (16, 16) in which the plate (10) is divided can have own axes of greater dimension, which are essentially parallel to the corresponding axes of greater

dimension of the other portions.

3. Method according to claim 2, wherein the axes of greater dimension (W) of the three portions of the plate coincide. 5
4. Method according to any of the preceding claims, wherein the bending lines (12) are symmetrical with respect to an axis (Y) that is essentially of symmetry for the plate (10). 10
5. Method according to any of the preceding claims, wherein the outer portions (16) of the plate (10) have longitudinal axes of greater dimension (Z) and are bent so as to orient the longitudinal axes (Z) in a direction essentially parallel to each other. 15
6. Method according to any of the preceding claims, wherein the plate (10) has an essentially polygonal shape. 20
7. Method according to claim 6, wherein the plate (10) is essentially rectangular.
8. Method according to any of the preceding claims from 4 to 7, wherein the axis of symmetry (Y) is the axis of minor dimension of the plate (10). 25
9. Method according to any of the preceding claims from 2 to 8, wherein the inclination of the bending lines (10) with respect to said bisecting line is in the range from 10 to 40 degrees, preferably of 20 degrees. 30
10. Method according to any of the preceding claims, wherein the extremities (16a, b) of the plate (10) conformed as resting areas are profiled. 35
11. Method according to any of the preceding claims, wherein the plate (10) is made of glass or metal. 40
12. Support (18) for a working plane of a table, which is capable of being produced according to the method of the preceding claims, **characterized by** comprising: 45
 - Two flat legs (20) lying in two planes inclined to each other, and
 - A flat connecting portion (22) between the two legs (20), which is inclined with respect to a horizontal plane. 50
13. Support according to claim 12, wherein the legs have longitudinal axes (Z) essentially parallel to each other. 55
14. Support according to claim 12 or 13, wherein the legs (20) are of equal length.





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EUROPEAN SEARCH REPORT

Application Number
EP 06 12 5220

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 42 18 757 A1 (VER SPEZIALMOEBEL VERWALT [DE]) 9 December 1993 (1993-12-09) * column 3, line 52 - column 4, line 25; figure 1 *	1-14	INV. A47B13/02
A	DE 684 261 C (ANTON LORENZ) 24 November 1939 (1939-11-24) * the whole document *	1-14	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 March 2007	Examiner Klintebäck, Daniel
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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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 12 5220

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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13-03-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 4218757	A1	09-12-1993	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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