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(54) **A METHOD FOR MANUFACTURING WOODEN BOARDS BY GLUEING AND A BOARD**

VERFAHREN ZUR HERSTELLUNG VON HOLZPLATTEN DURCH KLEBEN UND EINE PLATTE

PROCEDE DE FABRICATION DE PANNEAUX DE BOIS PAR COLLAGE ET PANNEAU DE BOIS

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**SE-C- 39 648**                      **US-A- 3 327 747**

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## Description

**[0001]** The invention is directed to a method for producing glued wood-boards, which are specially thin and are formed of close together glued sawn timber battens.

**[0002]** Nowadays different methods are known to produce glued wood-boards. One such known method is introduced in Swiss patent publication no. 173818 and another in FI patent application no. 794083. According to the invention glued wood-board is formed out of sawn timber, out of which at least a portion is sawed lengthwise of the sawn timber and formed pieces of sawn timber are jointed together by glueing in to a woodboard. In the laying of the sawn timber pieces, they are arranged so, that in ready made wood-board the living of the sawn timber causes less possible reformation and cracks to the woodboard.

**[0003]** In the production of glued woodboard the width of the pieces of sawn timber is most suitable a little bit bigger than the thickness of produced glued woodboard. One of the weaknesses of this method is, that against each other glued pieces of sawn timber wideness can vary, therefore the surface of glued woodboard is going to be stepped. The measurement of the steps can even be in the class of 3 mm. Out of that follows, that glued woodboard must be planned in order to get even surface. In the application 794083 given description of the method means that it's very difficult to produce thin glued solid woodboard. In practice with this method produced glued woodboards thickness is at least Apr. 6 mm. All used known methods have restricted the minimum thickness of the glued woodboard to 6 millimeters and the methods have needed a big quantity of wooden raw material compared to the quantity of produced glued woodboard. Typically out of three cubic metres of sawn timber raw material is needed in order to produce apr. one cubic meter ready made thick glued woodboard.

**[0004]** With the new kind of product method of glued woodboard have suprisingly solved the production of specially thin solid glued woodboard without a mentionable waste of sawn timber raw material. Even that produced woodboard is thin, it consists of next to each other glued sawn timber pieces, most suitable those are even thick and even wide. For the invented solid glued woodboard and it's production method is characteristic, what is presented in the patent application.

**[0005]** With this invention is going to be reached noticeable advantages, because new, thin glued solid woodboards measurements can be for example widely used 600 mm X 2400 mm and thickness 2 mm - 6 mm. In it's production does not greate mentionable amounts of waste wood raw material and this makes it profitable coverplate to install both straight surfaces and curved surfaces, what has not been possible with the previous glued woodboards. With the invented sawing method can be succeed in the loose sawing of thin woodboard and kept it equally thick through out the plate.

**[0006]** In the following explanation the innovation is

introduced closer by pointing to the attached drawing, where

Figure 1. presents glued sawn timber element, out of which woodboards are going to be sawed loose with the invented method.

Figure 2. presents the sawing performance.

Figure 3. presents the glued woodboard.

**[0007]** Glued sawn timber element 1. in figure 1. has produced out of several, widewise equal, sawn timber boards or planks, as such known method. Boards 2. are put into a stack, one on top of another, when one against another boards sides 3. are glued together. Produced glued woodboards 4. in order to expand the strength and straightness, it's profitable to notice the woods grains 9. (figure 3.) directions, when the boards or planks are stacked, should, when looking from the end of sawn timber, grain directions should take turns between the sawn timber next to each other, most likely in the 90 degrees turns.

**[0008]** The boards 2. are shaped right-angled by the cross section and planed from the surfaces 3. to be glued. During the glueing process glued sawn timber element 1. is going to pressed against the sides 3. perpendicular direction with the powers F1, F2. Out of the element is sawed, after the glue has dried, glued woodboard plates 4. loose in the direction of the elements side surface.

**[0009]** According to an embodiment of the invention, the sawing is going to be done along the lines I, II, III ... and so forth, that way that always the blank is going to be sawed split from the centre of the blank. In the start is going to be sawed line I, as result got two pieces are going to be sawed split along the line II and as the result got four pieces are going to be sawed split along the lines III and carry on until the final result is desired woodboard thickness in all the pieces. With this sawing method the saw blade is directed and stays well in the middle of the blank just in accurately follows the sawing line, because thicker and also thinner blanks are opened always symmetrically during the sawing.

**[0010]** To the saw blade 5. does not have any effect of any side directional forces, what would bend the blade out of the element. The blade 5. will advance straight ahead even in the thin element. If the sawing would be done close to the other side of the element 1. for example out of the distance of 3 mm, the thin loosing plate would bend behind the blade 5. and the element would stay stiff. This would cause unsymmetrical forces to the blade.

**[0011]** In the figure 2. will show a suitable saw to the method, which blade 5. is a linear blade. The blade does back and forth movement or it is a band saws blade, when it works with continues one directional movement. The saw cut 6. which is left behind the blade stays, due to the symmetry, also in the centre of the sawing line. Also, in the both sides of the blade 5. are the friction

forces and circumstance the same. The element 1. is going to be concentrated with respect to the blade for example with the help of movable controls 7. As a controls are most suitable slide rails or rotating rolls.

[0012] The saw surface of the element can grind before loosing the following glued woodboard, then the next loose sawed woodboard 4. does not have to grind, if only the other surface of the woodboard must be grinded.

[0013] In figure 3. is ready made glued woodboard 4. which thickness d is in between 2 mm - 6 mm. By sawing loosed woodboards wideness can go up to 600 mm and even one meter and length at least 2 - 2,4 metres. Board consists of sawn timber pieces, which are side by side 8. and are length wise same as the length of the woodboard and which wideness is bigger than the thickness.

[0014] In most of the usage purposes of the woodboard, it is jointed with glue to the desired surfaces, also to the curved surfaces, which outer surface is wanted to be wood.

### Claims

1. A method for producing wood-board sheets (4) out of a wooden element (I) said wooden element being made of a number of pre-sawn timber boards (2) glued together in order to form a stack element, with said wood-board sheets being subsequently separated from said stack element by means of a saw apparatus, in a vertical direction perpendicular to the board width of said stack element, **characterized in that** said stack element (1) is firstly sawn through an imaginary middle line (I) into two equal half pieces, each resulting half piece is then in turn again sawn through an imaginary middle line (II), so that four quarter pieces are produced, and then each of these four quarter pieces is again sawn through an imaginary middle line (III), so that eight eighth pieces are produced, with this sawing procedure being repeated by means of a reciprocating or continuous unidirectional linear blade (5), until an especially thin woodboard sheet as compared to the thickness of said pre-sawn timber board and having a constant and even thickness throughout its extent is achieved.
2. A method according to claim 1, including the step of holding said stack element (1) symmetrically with respect to said linear blade (5) on either side by means of rollers (7).
3. A method according to claim 1, wherein in the finished wood-board sheet product (4), sawn from said glued stack element, the side by side locating pieces (8) all have the same length and have a width essentially larger than their thickness (d) which is between 2 - 6 mm.

### Patentansprüche

1. Ein Verfahren zur Fertigung von Bretterplatten (4), gemacht aus einem Holzelement (1), das genannte Holzelement bestehend aus mehreren, vorgesägten Brettern (2), die, um ein Stapелеlement zu bilden, zusammengeleimt sind, wobei Bretterplatten nacher aus dem genannten Stapелеlement mit einem Sägeapparat, lotrecht in Verhältnis zu der Plattenbreite des genannten Stapелеlements getrennt werden, **gekennzeichnet dadurch, dass** das Stapелеlement (1) zuerst durch eine imaginäre Linie I in zwei gleiche Hälften gesägt wird, nachher jede Hälfte der Reihe nah durch eine imaginäre Linie II wieder gesägt, um vier Viertelstücke zu erzeugen, und dann jedes dieser Viertelstücke wieder durch eine imaginäre Linie III, sodass acht Stücke durch Wiederholung dieser Prozedur entstehen, zwar mit Hilfe einer hin und hergehenden oder in einer Richtung durchgehenden linearen Klinge (5) bis in Verhältnis zu der Dicke des genannten, vorgesägten Bretts eine besonders dünne Bretterplatte mit konstanter und gleichmäßiger Dicke durch ihre Ganze Weite erzeugt worden ist.
2. Ein Verfahren gemäss Patentanspruch 1 einschliesslich der Funktion das genannte Stapелеlement (1) im Verhältnis zu der linearen Klinge (5) auf beiden seiten mit Hilfe von Rollen (7) symmetrisch zu halten.
3. Ein Verfahren gemäss Patentanspruch 1, wo in dem fertigen, aus dem genannten geleimten Stapелеlement ausgesägten Bretterprodukt (4) sämtliche nebeneinander liegende Stücke (8) gleiche Länge haben und eine Breite wesentlich größer als ihre Dicke (d), die zwischen 2-6 mm liegt.

### Revendications

1. Une méthode pour produire des feuilles de carton de bois (4) à partir d'un élément en bois (1), ledit élément en bois étant fait d'un nombre de planches de bois pré-sciées (2) et collées l'une à l'autre afin de former un élément en pile, lesdites feuilles de carton de bois étant subséquentement séparées dudit élément en pile au moyen d'un appareil de sciage en les sciant dans la direction verticale perpendiculairement à la largeur des planches constituant ledit élément en pile, **caractérisée en ce que** ledit élément en pile (1) est tout d'abord scié le long d'une ligne centrale imaginaire (I) en deux moitiés égales qui sont ensuite sciées le long d'une ligne centrale imaginaire (II) de façon à produire quatre éléments dont chacun est ensuite scié le long d'une ligne centrale imaginaire (III) de façon à produire huit éléments correspon-

dant chacun à une huitième de l'élément initial, le processus de sciage étant répété au moyen d'une lame à va-et-vient ou d'une lame continue unidirectionnelle (5) jusqu'à obtenir une feuille de carton de bois extrêmement mince par rapport à l'épaisseur de la planche de bois pré-sciée et présentant une même épaisseur sur toute son étendue. 5

2. Une méthode selon la revendication 1 et comprenant une phase où ledit élément en pile (1) est maintenu à l'aide de rouleaux (7) des deux côtés et symétriquement par rapport à la lame linéaire (5). 10

3. Une méthode selon la revendication 1 dans laquelle les pièces (8) situées côte à côte dans le produit final, soit dans la feuille de carton de bois (4) sciée à partir dudit élément collé en pile, sont toutes d'une même longueur et essentiellement plus larges qu'elles ne sont épaisses (d), leur épaisseur étant de 2 à 6 mm. 15 20

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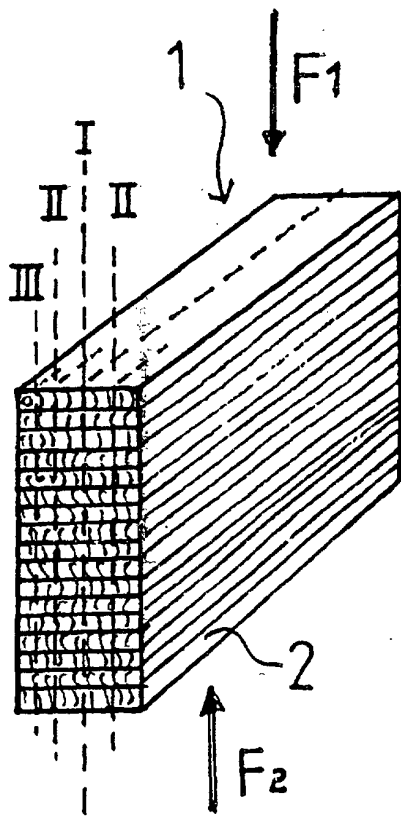


Fig.1

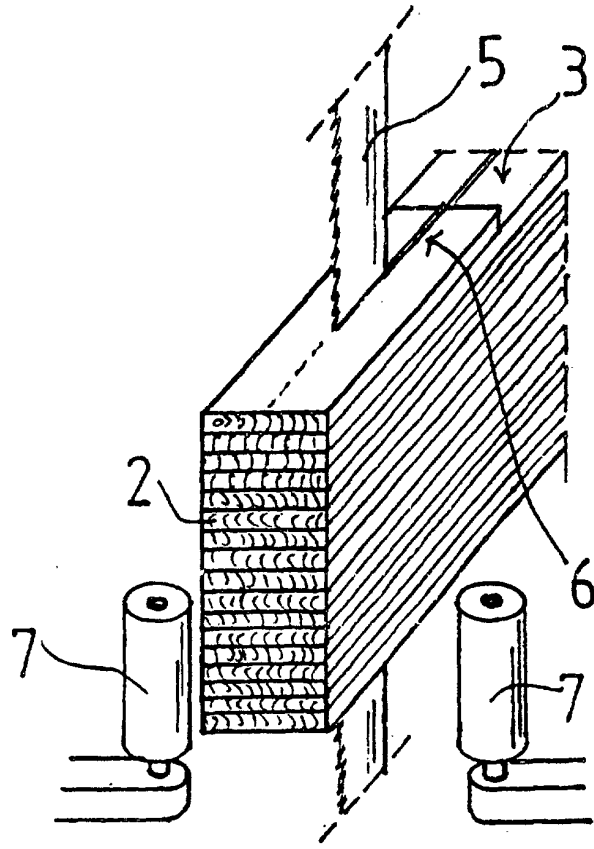


Fig.2

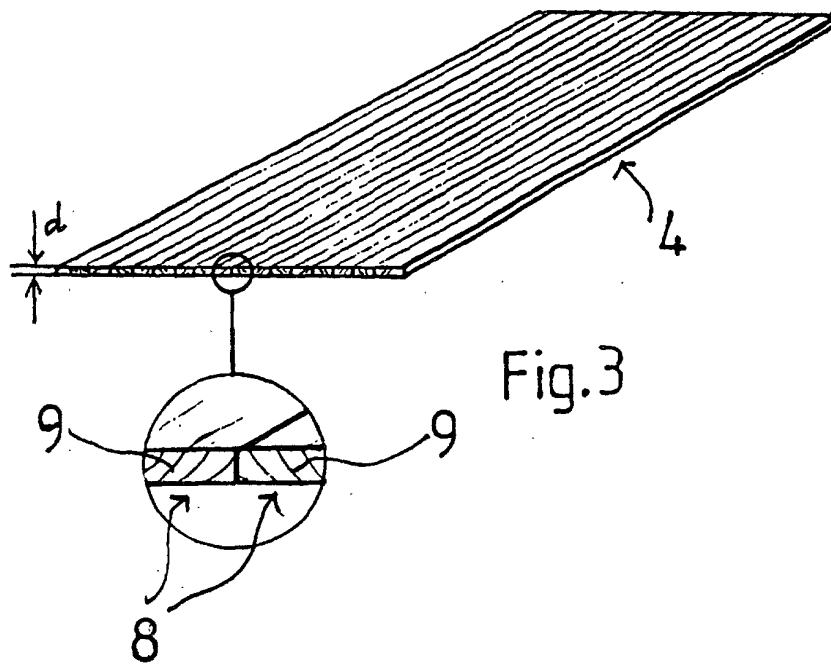


Fig.3