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(56) Documents Cited:  
**GB 2010176 A** **EP 1277552 A1**  
**EP 0799947 A2** **EP 0107690 A1**  
**CH 000308506 A** **US 3989078 A**

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Other: **Online: WPI, EPODOC**

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(54) Title of the Invention: **Improved method of manufacture of planks of wood**  
Abstract Title: **Method of manufacturing a plank of wood from wedge shaped pieces**

(57) A method of manufacturing a plank of wood comprises making cuts 2 into the circumference of a log of wood 1 to produce at least two wedge shaped pieces 3, placing the at least two pieces together such that they abut along respective inclined faces 4, and fixing the at least two wedge pieces together to form a plank 5. The pieces may be adhered with glue. The plank may be formed from three wedge shaped pieces. Preferably, the cuts terminate at a certain inner radius 6 from the centre of the log. Once wedge shaped pieces have been cut from the entire circumference of the log the process can be repeated on the remaining log.

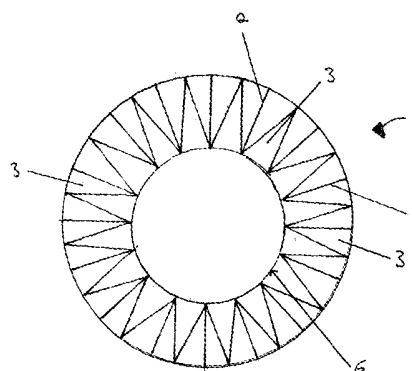


FIG. 4

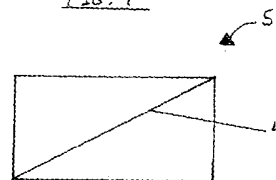


FIG. 5

**GB 2465148 A**

1/4

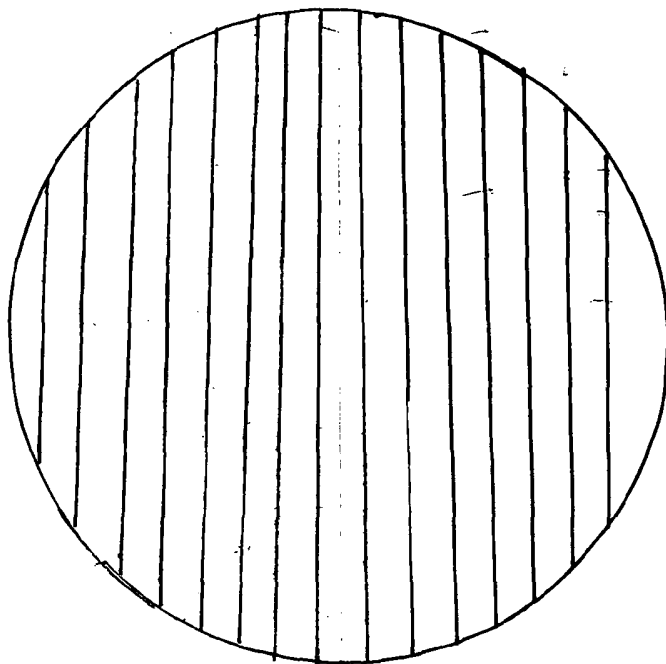


FIG. 1

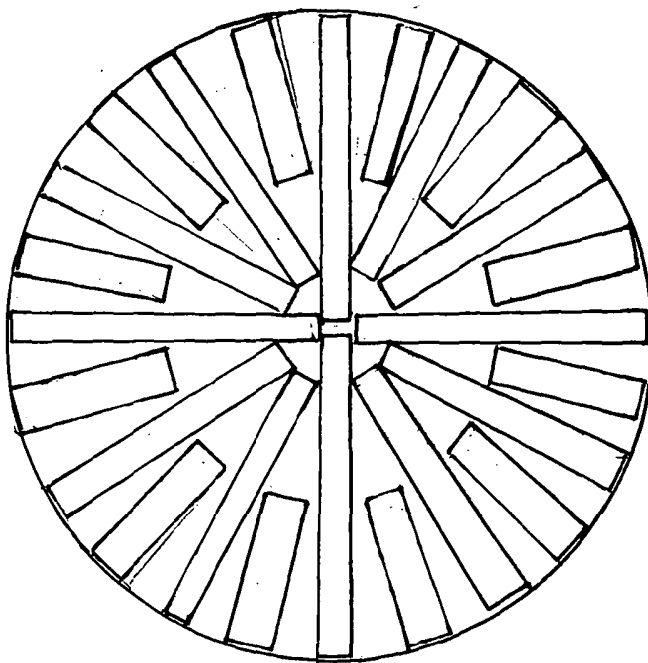


FIG. 2

2/4

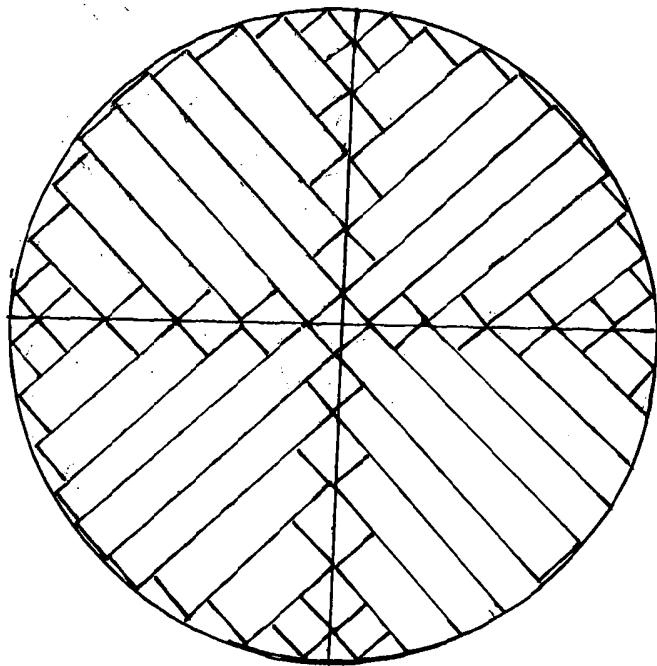


FIG. 3

3/14

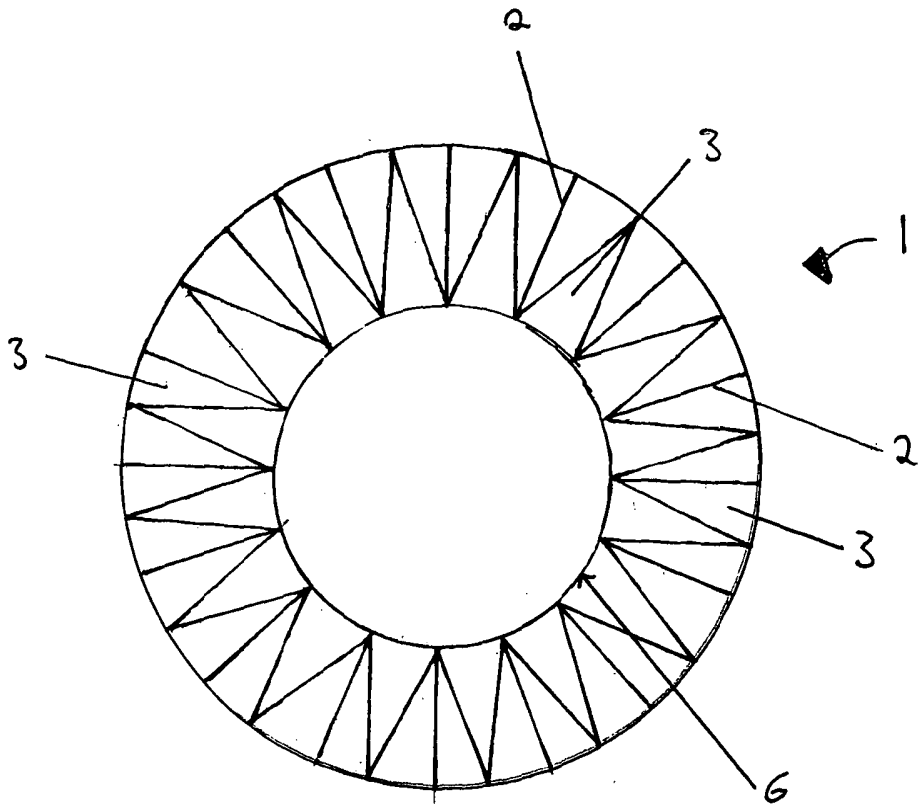


FIG. 4

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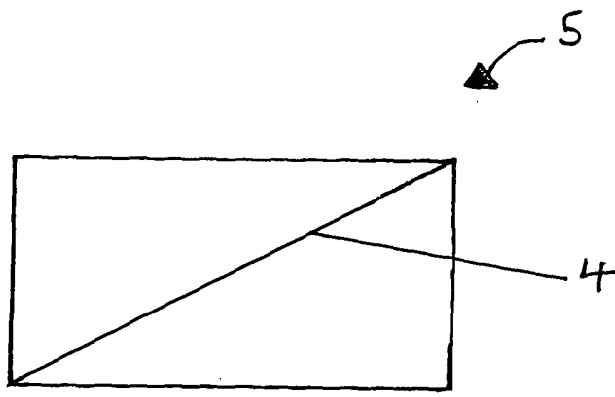


FIG. 5

**IMPROVED METHOD OF MANUFACTURE OF PLANKS OF WOOD**

The present invention relates to an improved method of manufacture of planks of wood.

5

There are currently a number of known methods of manufacturing planks of wood, including the production of plainsawn, riftsawn and quartersawn wood. Each of these methods and the planks of wood produced has its own  
10 advantages and disadvantages.

As shown in Figure 1, planks of plainsawn wood are produced by making a series of parallel length-wise cuts into a log, perpendicular to the grain of the wood.

15

This method of cutting is advantageous in that it produces a high yield of planks, with minimal wastage of wood, and allows planks to be cut which are as wide as the section of log being cut.

20

However, since the grain of a log comprises a series of concentric growth circles, starting at the centre of the log, the curvature of the grain varies significantly across the width of the planks and the planks therefore

have widely varying grain patterns, depending on where they are cut from a log.

Since the amount that a piece of wood expands or contracts  
5 is primarily dependent on its grain pattern, plainsawn planks are relatively unstable.

An alternative method of manufacturing planks of wood is to make a series of radial cuts into the log, as shown in  
10 Figure 2. This results in the production of planks of riftsawn wood.

Since riftsawn wood is produced from radial cuts, the grain pattern is generally perpendicular to the width of  
15 the planks and each plank has generally the same grain pattern. As a result, riftsawn planks have relatively high stability as well a more uniform appearance than plainsawn planks. However, this method produces a large amount of wasted wood, evident from the wedge shaped scrap portions  
20 shown in Figure 2, and therefore has a low yield.

A further method of manufacturing planks is to first cut the log into quarters, followed by making a series of parallel cuts which are generally perpendicular to the

grain rings, as shown in Figure 3. This results in the production of quartersawn planks.

Since the cuts are generally perpendicular to the grain  
5 rings, the grain pattern is relatively uniform and  
therefore quartersawn planks are relatively stable.  
Although the yield is greater than with riftsawing, it is  
less than with plainsawing as not all of the wood can be  
used, as shown in Figure 3.

10

The method of the present invention seeks to overcome, or  
at least reduce, the above problems with the prior art.

According to the present invention there is provided a  
15 method of manufacture of a plank of wood comprising making  
cuts into the circumference of a log to produce at least  
two wedge shaped pieces, placing the at least two wedge  
shaped pieces together such that they abut along  
respective inclined faces and fixing the at least two  
20 wedge pieces together to form a plank.

Said pieces are preferably adhered to each other along  
their respective inclined faces and may be glued together  
while the wood is still green. A conventional wood glue



may be used. Or, any other suitable method for joining the wedge shaped pieces may be used.

Some or all of the wedge shaped pieces may be cut as  
5 segments of the log, i.e. with the pointed end of the wedge being directed towards the centre of the log. Alternatively, or additionally, some or all of the wedge shaped pieces may be oppositely directed.

10 The planks may be reinforced with at least one layer of wood to form a laminate.

Preferably the plank is generally cuboidal in shape, although it may be necessary to make minor alterations to  
15 the plank and/or cut pieces in order to achieve this shape. However, the amount of wood wasted will be less than that of the above described riftsawn or quartersawn techniques and therefore the method of the present invention provides a higher yield than these known  
20 techniques.

The plank may be formed by three wedge shaped pieces, and could be formed by a greater number of wedge shaped pieces.

At least some of the cuts may be substantially in the radial direction of the log. Preferably at least some of the cuts may have a component in the radial direction of the log.

5

In this way, the grain pattern of the plank is generally perpendicular to the width of the plank and each plank has generally the same grain pattern. The resulting planks therefore have a relatively high stability and uniform  
10 appearance.

The cuts may terminate at an inner radius from the centre of the log. In this way, when pieces have been cut from the entire circumference of the log, the portion of the  
15 log which remains is of generally circular cross section. The above described method of cutting wood may then be repeated. In this way, wastage of wood is further minimised as the centre section of the log is utilised to its full extent.

20

All of the features described herein may be combined with the present invention, in any combination.

For a better understanding of the invention, and to show  
25 how embodiments of the same may be carried into effect,

reference will now be made, by way of example, to the accompanying diagrammatic drawings in which:

Figure 1 shows a cross section of a log of wood cut using  
5 a known plainsawn technique;

Figure 2 shows a cross section of a log of wood cut using  
a known riftsawn technique;

10 Figure 3 shows a cross section of a log of wood cut using  
a known quartersawn technique;

Figure 4 shows a cross section of a log of wood cut  
according to the method of the present invention; and

15

Figure 5 shows a plank constructed according to the method  
of the present invention.

Referring to Figures 4 and 5 there is shown a log 1.  
20 Generally radial cuts 2 are made into the log 1 to produce  
a series of wedge shaped pieces 3. In the illustrated  
embodiment a substantially radial cut is made into the  
log, at one point on the circumference of the log. Then,  
two further cuts are made, starting from points on the  
25 circumference spaced approximately an equal distance

either side of the first cut and angled towards the first cut so that they each intersect the first cut thereby forming two wedge shaped pieces of wood. The process is repeated around the circumference of the log, leaving a series of radially outwardly directed wedge shaped pieces which are then cut from the remainder of the log. Other approaches are possible though, where fewer or no radially outwardly directed wedge shaped pieces are formed. In each case though the wedge shaped pieces are all formed by cuts which extend generally radially into the log and hence intersect the grain of the wood generally at right angles.

Pairs of the wedge shaped pieces 3 are joined together such that they abut along respective inclined faces 4 to form a plank 5. The pieces are joined together using a wood glue, whilst the wood is still green.

The plank 5 is generally cuboidal in shape, although it may be necessary to make minor alterations to the plank 5 and/or cut pieces 3 in order to achieve this shape.

The cuts 2 terminate at a certain inner radius 6 from the centre of the log 1. In this way, when wedge shaped pieces 3 have been cut from the entire circumference of the log

1, the section of the log 1 which remains is of generally circular cross section.

The above described method of cutting wood may then be  
5 repeated. In this way, wastage of wood is further  
minimised as the centre section of the log is utilised to  
its full extent.

The thickness of the cut pieces 3 may be varied depending  
10 on the thickness of the log being cut and/or on the  
thickness of the plank to be formed. For example, for a  
thicker log, thicker pieces may be cut and the planks  
formed therefrom may be cut into 3 by 2 or 4 by 2 inch  
lengths. These lengths may then be halved, if appropriate.  
15 A thin log, or a branch, may be cut into 16 tenths.

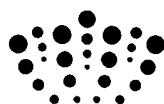
The above method therefore produces a high yield of stable  
planks.

20 The above embodiment is described by way of example. Many  
variations are possible without departing from the  
invention as defined by the following claims.

Claims

1. A method of manufacture of a plank of wood comprising making cuts into the circumference of a log of wood to produce at least two wedge shaped pieces, placing the at least two wedge shaped pieces together such that they abut along respective inclined faces and fixing the at least two wedge pieces together to form a plank.
2. A method according to claim 1 wherein said pieces are adhered to each other along their respective inclined faces.
3. A method according to either of claims 1 or 2 wherein said pieces are glued together while the wood is still green.
4. A method according to any preceding claim wherein the plank is reinforced with at least one layer of wood to form a laminate.
5. A method according to any preceding claim wherein the plank is generally cuboidal in shape.

6. A method according to any preceding claim wherein the plank is formed by three wedge shaped pieces.
7. A method according to any preceding claim wherein at least one of the cuts is substantially in the radial direction of the log.
8. A method according to any preceding claim wherein at least one of the cuts has a component in the radial direction of the log.
9. A method according to any preceding claim wherein the cuts terminate at an inner radius from the centre of the log.
10. A method according to claim 9 wherein one or more further planks are formed from the remaining portion of the log according to the method of any preceding claim.
11. A method of manufacture substantially as described herein with reference to the accompanying drawings.



**Application No:** GB0820197.2

**Examiner:** Gareth Prothero

**Claims searched:** 1 to 11

**Date of search:** 18 February 2009

**Patents Act 1977: Search Report under Section 17**

**Documents considered to be relevant:**

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 to 10	GB2010176 A (BALTEK) See figures.
X	1 to 10	EP1277552 A1 (FRIES) See figures, and WPI and EPODOC English abstracts.
X	1 to 10	EP0107690 A1 (POLACZEK) See figures, and WPI and EPODOC English abstracts.
X	1 to 10	EP0799947 A2 (KIRST) See figures 2 and 4, and WPI and EPODOC English abstracts.
X	1 to 10	CH308506 A (FUERM) See figures.
X	1 to 10	US3989078 A (HASENWINKLE) See figures.

**Categories:**

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

**Field of Search:**

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup> :

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Worldwide search of patent documents classified in the following areas of the IPC

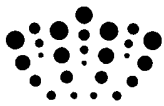
B27B; B27M
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The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC
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**International Classification:**





<b>Subclass</b>	<b>Subgroup</b>	<b>Valid From</b>
B27B	0001/00	01/01/2006