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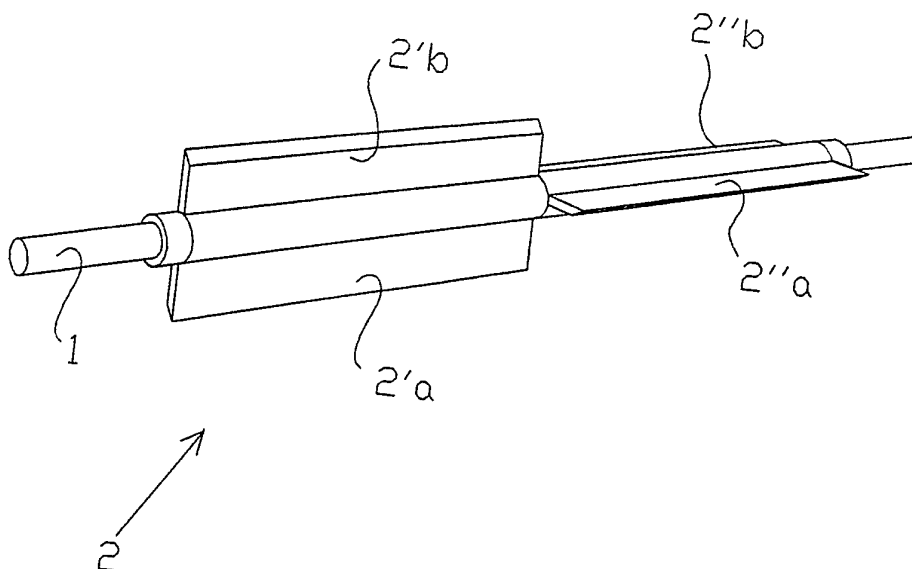
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913111 26 June 1991 (26.06.91) FI(71) Applicant (for all designated States except US): RAUTE OY
[FI/FI]; Vesijärvenkatu 23-25, SF-15140 Lahti (FI).

(72) Inventor; and

(75) Inventor/Applicant (for US only) : SINTONEN, Kari [FI/
FI]; Aumakatu 16, SF-15700 Lahti (FI).(74) Agent: OY JALO ANT-WUORINEN AB; Laivurinrinne
2, SF-00120 Helsinki (FI).(81) Designated States: CA, JP, KR, US, European patent (AT,
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SE).**Published***With international search report.*

(54) Title: A DEVICE FOR CUTTING PLYWOOD VENEER



(57) Abstract

The invention concerns a veneer cutter for cutting off the faulty spots, and for cutting the veneer into sheets at certain intervals. The cutter is furnished with rotatable blade, which consists of two independently controllable sections.

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A device for cutting plywood veneer

5 The object of the invention is a device for cutting plywood veneer.

The device is intended for cutting the veneer web issuing forth from a plywood lathe. The cutting is executed either so that the faulty spots are cut off or the veneer web is cut into sheets of certain width at set intervals. 10 The device is especially intended for a veneer cutting application in which the veneer web cut off a log is slit into two parts in the longitudinal direction, i.e. in the direction of motion of the veneer web in so far as the web has faulty spots. 15 The slitting is normally executed essentially along the middle of the web. Following the implementation of this method, the faults are removed independently from either part of the veneer web, whereas the sound part of the web is cut to set widths along the entire web without slitting it. 20

While the said method does save web, because faulty spots seldom extend very far across the web, it also imposes great demands on the cutting apparatus. In applications 25 of this method it is known for more than one slitter to be used; that is to say, two narrow slitters are used for cutting off the faulty spots in the two halves of the web and one full-size slitter is used for cross cutting complete web sections.

30 The invention that is the subject of this application brings about an essential improvement to the said problem in that the device in accordance with the invention makes it possible to execute both the cutting off of faulty spots in the web halves as well as the cutting into set widths of complete web sections. 35 The device in accordance with the invention is based on what may be called the technique of a rotary-blade cutter which embodies a

cutting blade reaching across the web to be cut, the said cutting blade lending itself to be rotated in a controlled manner into cutting contact with a selected cutting point on the veneer web. The rotary motion of the
5 said blade has been selected to be such that it complies with the forward motion of the veneer web whereupon the blade does not cause the veneer web to be arrested on being cut.

10 Usually this type of a cutting blade works in unison with a roller supporting the veneer web or with a corresponding opposing organ against which the blade is forced in order for the cutting action to be executed. The blade
15 can be made to sufficiently massive for the cutting operation to occur successfully. The said massiveness of the blade may be achieved, for instance, by making the blade shaft sufficiently solid. Alternatively, the cutting apparatus may embody an abutting organ on the side opposite
20 to the blade, the said abutting organ providing the blade with support for the cutting operation to be executed. The stiffness of a structurally light blade can be increased by subjecting the blade shaft to tensile stress when in use.

25 In accordance with the invention, the said blade element is divided into two consecutive sections along its shaft, the rotational position of the said elements being such that they can be controlled independently.

30 The invention is described by means of the appended drawing.

The drawing shows the blade arrangement in accordance with the invention, the said arrangement embodying a
35 shaft 1 reaching across the entire veneer web that is to be cut and the two blade elements 2' and 2'' supported by it. The blade elements may be rotated independently on

the shaft 1 and they are provided with their own rotating apparatus. When the slit veneer web passes underneath the blade structure 2, and it contains random faults on one half or the other or simultaneously on both halves, the blade elements 2' and 2'' execute cutting operations on the web halves independently on one another in order to remove faulty spots from their respective halves.

Once the peeling of the veneer web has proceeded onto the sound part of the peeled log, the slitting of the veneer web coming to the slitter is discontinued and the control for the blade elements 2' and 2'' are combined to obey the same command, this command usually being to cut the veneer web into sheets of certain width. When executing this function, the blade elements 2' and 2'' are, of course, angularly in unison with one another and form a contiguous blade reaching across the veneer web. The said joint-function model may include situations in which the veneer web contains faulty spots that need to be removed. When this is the case, the faulty spots are cut off in strips extending across the entire veneer web by the blade elements 2' and 2'' working in unison.

In deviation from the above execution model, where the blade elements 2' and 2'' are composed of two blades 2'a, 2'b, and correspondingly 2''a, 2''b, the blade elements may consist more blades; e.g. four blades positioned at even angles on a shaft. Even one blade per blade element 2' and 2'' forms a functioning solution.

Claims:

1. A device for cutting a veneer web into sheets of certain width and/or for removing faulty spots by means of a cutting blade (2) that can be rotated in a controlled manner on a shaft (1), the said blade (2) traversing essentially crosswise across the veneer web and lending itself to be rotated into cutting contact with the veneer web to execute a crosswise cut so that the blade complies with the motion of the veneer web, **characterized in that** the blade (2) is formed of two independently controllable sections (2', 2'') along the shaft (1).
2. A device in accordance with claim 1, **characterized in that** each of the blade sections (2', 2'') extends to half-way across the veneer web to be cut.
3. A device in accordance with claim 1 or 2, **characterized in that** both of the blade sections contain two blades (2'a, 2'b; 2''a, 2''b) oppositely located with respect to the shaft (1).
4. A device in accordance with any of claims 1 to 3, **characterized in that** the blade (2) is arranged to cut the veneer against a supporting roller while at the same time behind abutting on a supporting organ.
5. A device in accordance with claim 4, **characterized in that** the blade shaft (1) is under tensile stress.
6. A device in accordance with any of claims 1 to 3, **characterized in that** the blade (2) is mounted onto a massive shaft (1) that is solid enough to provide the blade with sufficient support for the execution of the veneer cutting operation.

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FIG. 1

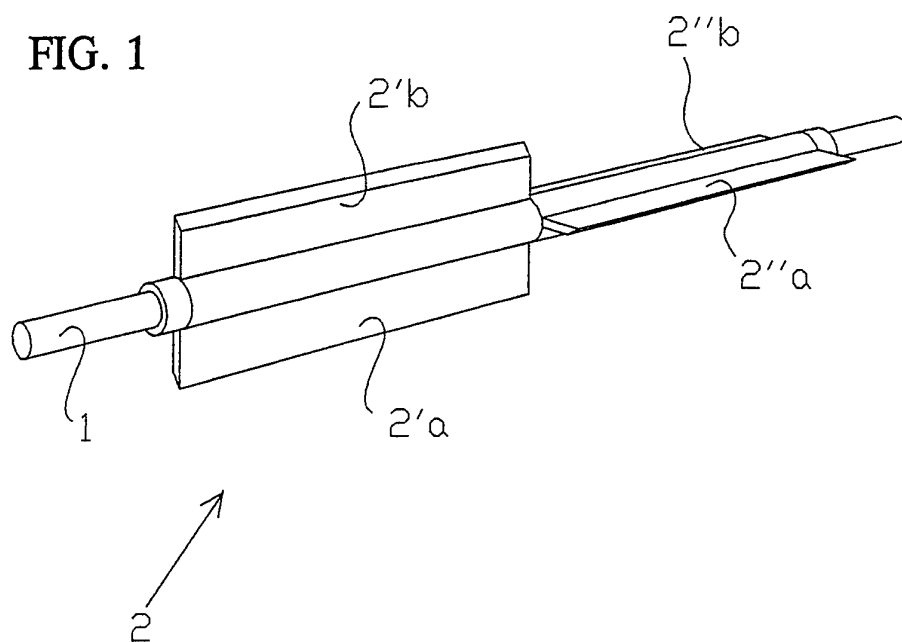
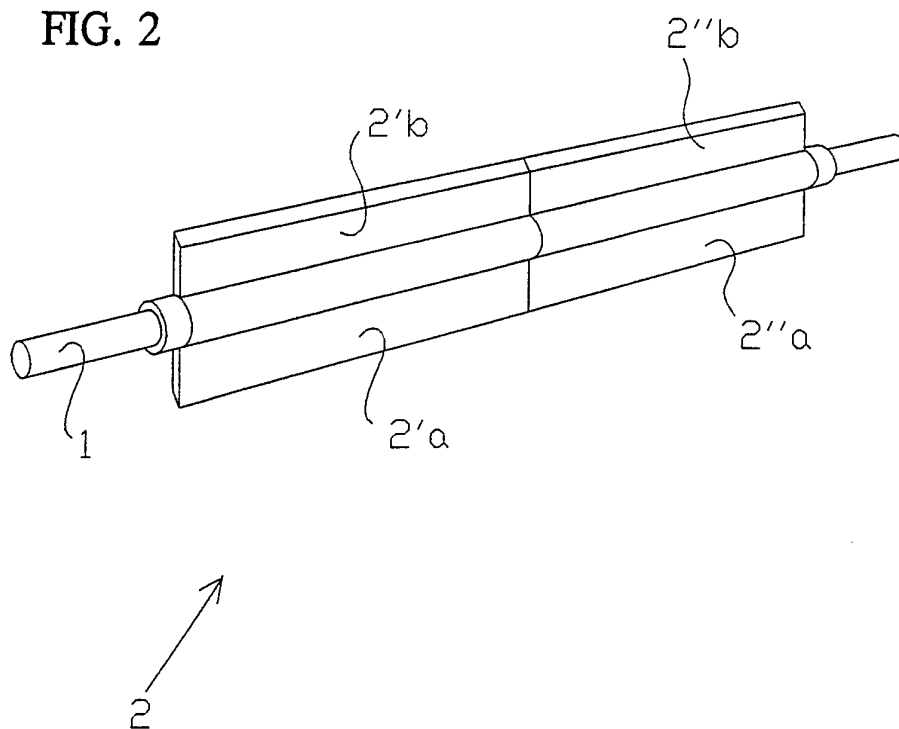


FIG. 2



INTERNATIONAL SEARCH REPORT

International Application No PCT/FI 92/00091

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶ According to International Patent Classification (IPC) or to both National Classification and IPC IPC5: B 27 L 5/08, B 27 G 1/10																				
II. FIELDS SEARCHED Minimum Documentation Searched⁷ <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%; border: 1px solid black; padding: 2px;">Classification System</th> <th style="border: 1px solid black; padding: 2px;">Classification Symbols</th> </tr> <tr> <td style="border: 1px solid black; padding: 5px; vertical-align: top;">IPC5</td> <td style="border: 1px solid black; padding: 5px; vertical-align: top;">B 27 L; B 27 G</td> </tr> </table> Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in Fields Searched⁸ SE,DK,FI,NO classes as above			Classification System	Classification Symbols	IPC5	B 27 L; B 27 G														
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IPC5	B 27 L; B 27 G																			
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹ <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%; border: 1px solid black; padding: 2px;">Category *</th> <th style="border: 1px solid black; padding: 2px;">Citation of Document,¹¹ with indication, where appropriate, of the relevant passages¹²</th> <th style="width: 15%; border: 1px solid black; padding: 2px;">Relevant to Claim No.¹³</th> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; padding: 5px;">SE, B, 464122 (ANGELO CREMONA & FIGLIO SPA) 11 March 1991, see figure 1 --</td> <td style="border: 1px solid black; text-align: center; vertical-align: top;">1-6</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; padding: 5px;">FI, B, 80230 (PLYMACHINE ENGINEERING OY) 31 January 1990, see figure 2 --</td> <td style="border: 1px solid black; text-align: center; vertical-align: top;">1-6</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; padding: 5px;">SE, B, 395235 (DURAND MACHINE CO) 8 August 1977, see figure 2 --</td> <td style="border: 1px solid black; text-align: center; vertical-align: top;">1-6</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; padding: 5px;">US, A, 4732067 (YAMADA) 22 March 1988, see figure 5 --</td> <td style="border: 1px solid black; text-align: center; vertical-align: top;">1-6</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; vertical-align: top;">A</td> <td style="border: 1px solid black; padding: 5px;">US, A, 4726271 (MC EWAN) 23 February 1988, see figure 1 --</td> <td style="border: 1px solid black; text-align: center; vertical-align: top;">1-6</td> </tr> </table>			Category *	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³	A	SE, B, 464122 (ANGELO CREMONA & FIGLIO SPA) 11 March 1991, see figure 1 --	1-6	A	FI, B, 80230 (PLYMACHINE ENGINEERING OY) 31 January 1990, see figure 2 --	1-6	A	SE, B, 395235 (DURAND MACHINE CO) 8 August 1977, see figure 2 --	1-6	A	US, A, 4732067 (YAMADA) 22 March 1988, see figure 5 --	1-6	A	US, A, 4726271 (MC EWAN) 23 February 1988, see figure 1 --	1-6
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A	US, A, 4726271 (MC EWAN) 23 February 1988, see figure 1 --	1-6																		
* Special categories of cited documents: ¹⁰ "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family																				
IV. CERTIFICATION <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border: 1px solid black; padding: 5px;"> Date of the Actual Completion of the International Search 17th September 1992 </td> <td style="width: 50%; border: 1px solid black; padding: 5px;"> Date of Mailing of this International Search Report 28 -09- 1992 </td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;"> International Searching Authority SWEDISH PATENT OFFICE </td> <td style="border: 1px solid black; padding: 5px;"> Signature of Authorized Officer Eddy Leopold </td> </tr> </table>			Date of the Actual Completion of the International Search 17th September 1992	Date of Mailing of this International Search Report 28 -09- 1992	International Searching Authority SWEDISH PATENT OFFICE	Signature of Authorized Officer Eddy Leopold														
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III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category *	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No
A	US, A, 4397204 (COLOMBO) 9 August 1983, see figure 1 -- -----	1-6

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.PCT/FI 92/00091**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the Swedish Patent Office EDP file on 28/08/92
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
SE-B- 464122	91-03-11	DE-A-C- 3632779 FR-A- 2587636 SE-A- 8603984 US-A- 4742745	87-04-16 87-03-27 87-03-26 88-05-10
FI-B- 80230	90-01-31	NONE	
SE-B- 395235	77-08-08	SE-A- 7405846	75-11-03
US-A- 4732067	88-03-22	EP-A-B- 0204227 EP-A- 0349012 EP-A- 0349013 JP-A- 62187001 US-A- 4813612 US-A- 4915372 US-A- 5004217 US-A- 5052677	86-12-10 90-01-03 90-01-03 87-08-15 89-03-21 90-04-10 91-04-02 91-10-01
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US-A- 4397204	83-08-09	DE-A-C- 3100812 FR-A-B- 2473394	82-01-28 81-07-17