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(54) **Process for the production of thin strips of oak or other types of high quality wood and the device used to achieve this process.**

(57) This procedure is carried out by sawing thin strips (L) from semimanufactured planks of fresh high quality wood, which are then dried artificially; these strips (L) are arranged in the dryer in neat stacks whose different layers are supported separately at regular intervals, preferably with the device (1) according to the invention.

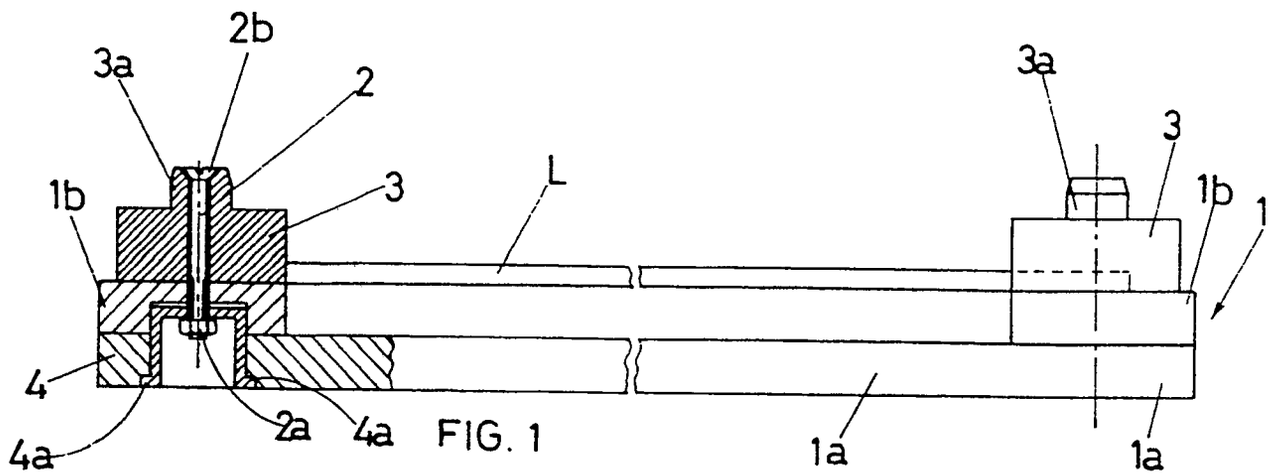

FIG. 1

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This design patent application involves a process for the production of thin strips of oak or other high quality woods and the device used for this procedure.

It is common knowledge that wood must undergo a drying process before any production phase; for many years now, hot air dryers have been used for removing the humidity from sawn wooden boards as quickly as possible.

The wood dryers used in recent decades alter the structure and colour of certain species of wood, above all oak, making this a real problem for the industries in this sector.

In fact, with the standard most commonly used technique, the oak wood is sawn into semimanufactured pieces about 30 mm thick and stacked neatly in the dryer where it remains for about forty-five days; these semimanufactured pieces are then removed from the dryer and sawn into thin strips and used as flooring boards, doors, windows or furniture.

Obviously these strips had to present certain characteristics, above all, a uniform colour; it was not however possible to obtain this constantly and with a sufficient degree of reliability because of the very fact that the wood was placed in the dryers in fairly thick semimanufactured pieces.

Often, a semimanufactured piece of high quality wood would dry only on the surface of its sides while the core was still rather humid; this was unsatisfactory since when the core dried, the semimanufactured piece had different colour tones.

Consequently the strips made from a semimanufactured piece of wood dried in this way also had different colours, making it difficult to use.

In view of these problems, the research which led ultimately to this invention, was started by directly drying thin strips of oak or other high quality woods sawn from fresh semimanufactured pieces which were then stacked with the traditional spacers and then exposed to air.

The same techniques used for drying the semimanufactured pieces were taken into consideration for this procedure as well; these strips were in fact stacked - inside the drying chamber - with pairs of spacers placed transversely between the layers, generally positioned at the longitudinal ends of the strips.

This method did not however provide the results expected since the strips, not only tended to curve but alos formed unattractive dark colour stains on the areas where the spacers were placed.

The research carried out, made it possible to ascertain that the side of those strips, which in their semimanufactured state, were exposed to air, took longer to dry with respect to the opposite side not exposed to the air; this caused different phenomena of shrinkage between the two sides of the same strip, producing a deformation on the transverse cross-section of the strip.

The formation of stains was due to the contact and pressure on the strips of high quality wood by the spacers resting on the same and weighed down by all the other wooden strips above.

Despite these problems, the Company applying for this patent right, nonetheless retains that the best method to follow in the future is that of drying wooden strips having a smaller thickness, in that this choice seems to ensure a better quality and better yield of the product, as well as shorter drying times.

For this reason, MARGARITELLI SPA undertook a lengthy study and research on this specific subject, brilliantly carried out in order to perfect a production procedure for parts in high quality wood with a smaller thickness, which would provide a finished product of excellent structural stability and which would preserve the natural colour of the wood.

According to the procedure of the invention, the semimanufactured pieces made of oak or other high quality wood, sawn when fresh, must be further quickly sawn, while fresh, into thin strips, normally not more than 10 mm thick.

In this way all the sides of the strips which are still fresh will have the same level of humidity and the strips will no longer be subject to deformation during the artificial drying process.

It must be pointed out however, that the same result can be obtained using a semimanufactured part which has been semidried in air until the wood has a residual humidity of 30%. The strips obtained in this way are immediately positioned for drying, which is another very important and innovative phase of this procedure, by forming stacks inside the hot air drying chamber.

In fact, in order to avoid the problems mentioned previously, the strips are not placed directly on each other using the traditional spacers.

In the new stacking technique, the single layers of strips are laid on top of one another at perfectly equal distances (about 15 mm) and above all, each layer of strips is supported separately, without weighing down on the layer below.

All the strips of the same layer are supported on two points of their bottom side, at the longitudinal ends of the side itself.

The advantages of this stacking technique became evident after repeated empirical tests: in fact, the perfectly equal distance between the different layers of the stack ensures uniform air circulation - and consequently drying - on the top and bottom sides of all the strips, providing - on completion of drying - a high structural stability to all the strips.

The fact that each layer of the stack is supported separately makes it possible to avoid loading the underlying strips with the weight of those above as well eliminating the use of spacers on the top sides of the strips in the dryer.

In this way the top side of each strip - which now transpire freely - can dry completely with the same

efficiency all over its surface, resulting in a perfect and uniform colouring.

These two advantageous results also make it possible to optimize the yield of the high quality wood, by reducing the number of excessively thick pieces of wood which would have normally been scrapped before the next production phase.

The achievement of obtaining a uniform colour of the piece of wood dried and having reduced the risk of deformation to a minimum have eliminated the need to carry out the difficult operation of removing the stained or deformed sections of the wooden strips: the strips dried with the above technique may require, at the most, a very simple calibration to make the surfaces level and parallel.

Based on the previously described procedure according to the invention, the Applicant has produced a device which makes it possible to carry out the procedure in question easily and efficiently, in that the same is used for stacking the wooden strips inside the drying chamber.

For major clarity the description of the invention proceeds with reference to the enclosed drawings intended for illustrative purposes and not in a limiting sense, where:

– figure 1 is a side view of the device according to the invention, with a partial cross-section of one of the spacers;

– figure 2 is a top view of figure 1.

With reference to the enclosed figures the device according to the invention consists of a tray (1) formed by a rectangular platform (1a) at whose transverse sides two axles (1b) are fixed and superimposed.

These axles (1b) are fixed above the platform (1a) at the four ends with four screws (2) which are also used to stop, above the axles (1b), the cylindrical spacers (3) which ensure the centering, balance and constant center to center distance between the superimposed trays.

As shown in figure 1 - the nut (2a) of each screw (2) is housed inside a cylindrical bushing (4), having a vertical axis, which is fitted in as far as the stopping point constituted by the external base flange (4a) at each of the four corners of the platform (1a); the size of these bushings (4) is sufficient to house, when a number of trays are stacked, collars (3a) which project at the top of the spacers (3) of the tray below and which house the head (2b) of the screw (2).

Different layers of strips (L) for drying are arranged on these trays (1); each strip (L) must be placed longitudinally above the tray (1) so that its two ends can rest on the opposite axles (1b).

Claims

1) A procedure for the production of thin strips of oak or other high quality wood, characterized by a succession of the following operation phases:

a - fresh semimanufactured pieces of high quality wood are sawn into thin strips in the thickness required, but less than 10 mm;

b - the strips which are to be dried are stacked, with the various overlying layers supported separately at perfectly equal distances; all the strips in the same layer must be supported at two points of the bottom side, at the longitudinal ends of the same.

2) A device used during the procedure described in claim 1 consisting of a tray (1) used to support a layer of strips "L" inside a stack in the dryer and consisting of a rectangular platform (1a) on whose transverse sides, two axles (1b) are fixed and superimposed; at the four ends of these transverse axles (1b), four cylindrical spacers (3) are applied, each of which is fixed by a screw (2), whose head is housed inside a collar (3a) projecting at the top of each spacer (3); the nut (2a) of this screw (2) is housed inside a cylindrical bushing (4) having a vertical axis fitted into the platform (1) whose size is sufficient to house - with a male and female coupling - the collar (3a) which projects from the top of the corresponding spacer (3) in the tray below.

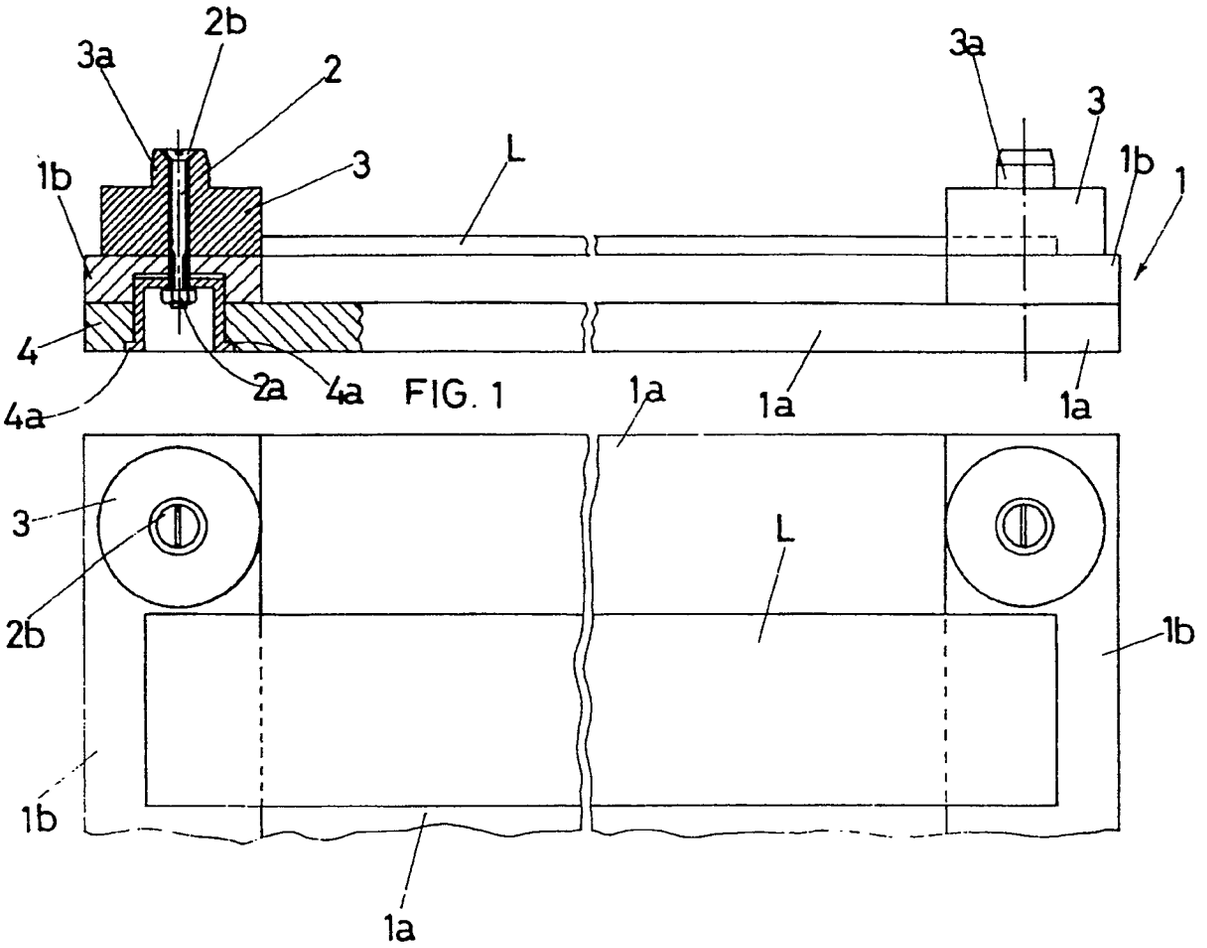

FIG. 1

FIG. 2

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EUROPEAN SEARCH REPORT

Application Number

EP 91 83 0093

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.5)
X	DE-C-476838 (BENNO SCHILDE MASCHINENBAU-A.G.) * the whole document *	1	F26B25/18
A	US-A-1760056 (HARTMANN) * the whole document *	2	
A	GB-A-682814 (WILSON) * the whole document *	2	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			F26B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	25 JUNE 1991	SILVIS H.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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