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(54) **Laminar objects and method of construction**

(57) A plurality of elongate members 10 to 17 are secured to each other to form a log and individual laminar articles are separated from the log along a line at right angles to the longitudinal axis of the log. Each laminar article may include further material of a functional or decorative nature and a plurality of the laminar articles may be juxtaposed to form a surface covering. The laminar article can be used for floor or wall tiles or for table mats.

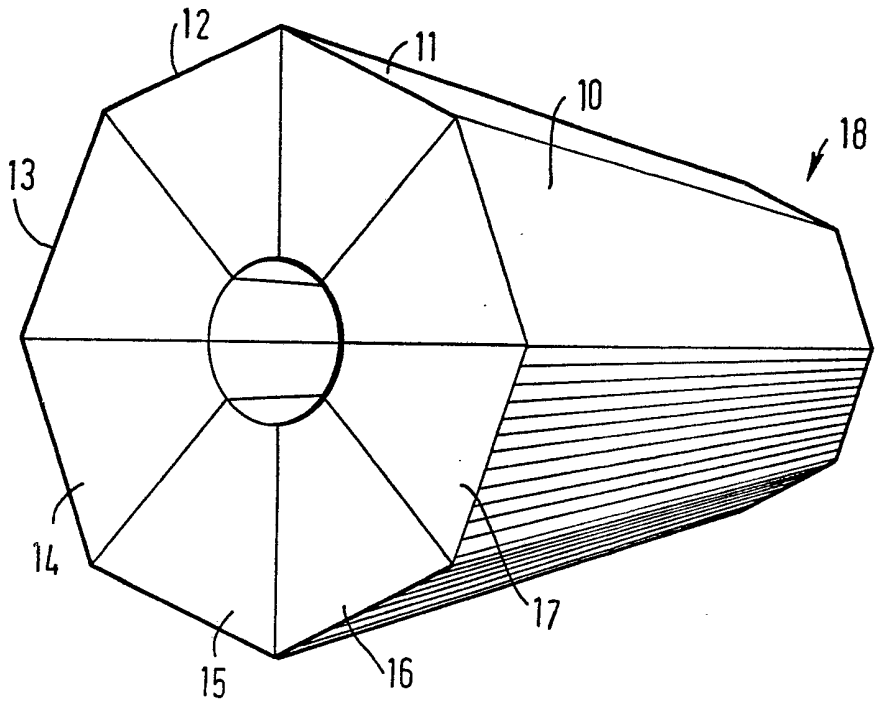

FIG 2

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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

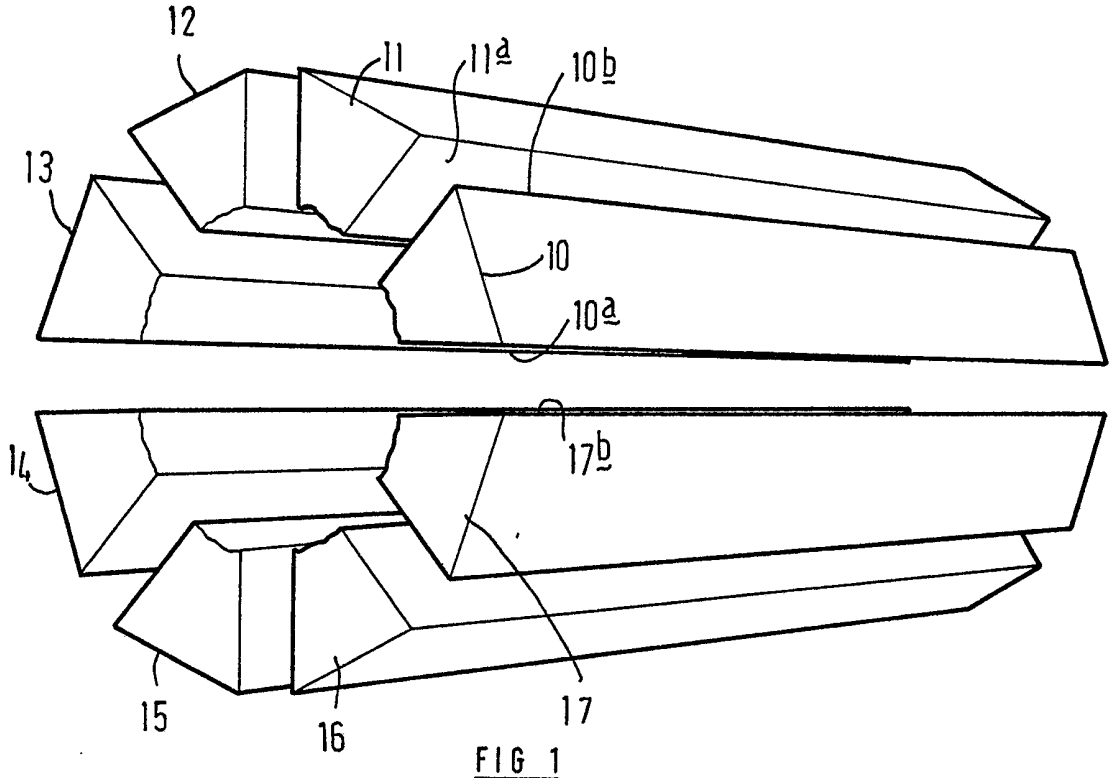

FIG 1

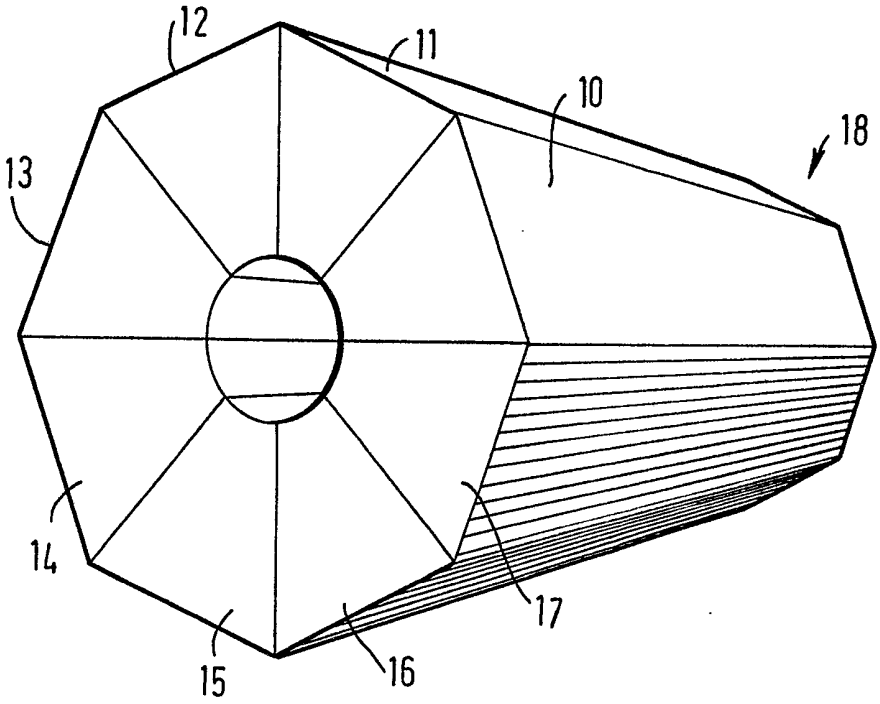

FIG 2

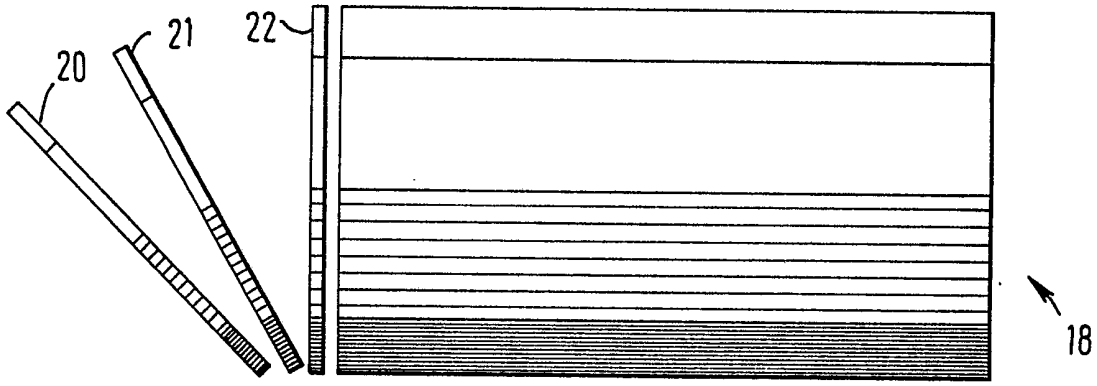

FIG 3

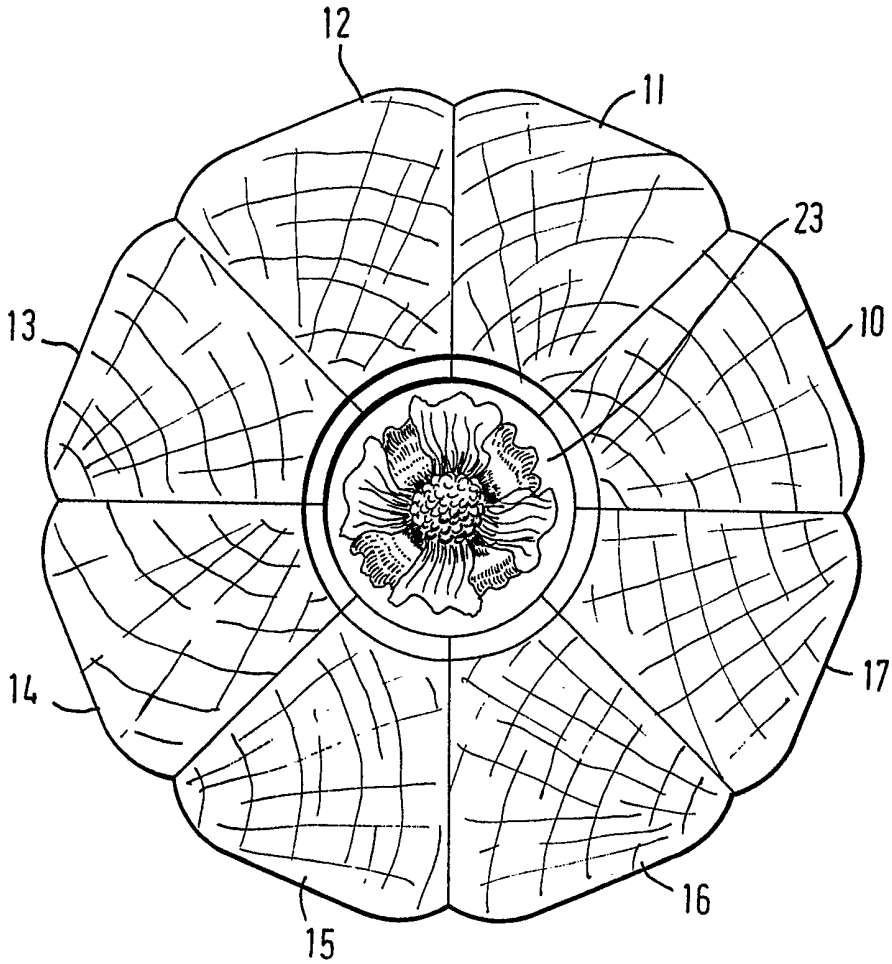

FIG 4

SPECIFICATION

Laminar objects and method of construction

The present invention relates to the construction of thin laminar-like objects, the dimensions of its opposed major sides being very much greater than the thickness of the object. Examples of such objects may comprise mats for placing on top of a surface to support plates or dishes and so protect the surface from plates or dishes which may be hot, wall tiles, floor tiles, all being objects of which the dimensions defining the major surface are very much greater than the thickness. Such objects will hereinafter be referred to for the sake of convenience as laminar objects.

The construction of laminar objects from some materials causes no great problem, for example wall tiles are usually constructed from ceramics material which are then baked in an oven, floor tiles may be made out of plastics material, and place mats are conventionally made out of hardboard. The construction of these laminar articles from such materials has proved quite satisfactory.

Problems occur, however, if it is desired to make such laminar objects from some other materials due to the shape of the laminar object and the material in which it is desired to be made.

A prime example of the material from which it is difficult to make satisfactory laminar objects is wood unless the wood used is plywood having the plies substantially planar to the major surface of the laminar object.

Since such laminar objects are often used for decorative purposes or at least the appearance thereof must be aesthetically pleasing, to manufacture such objects out of plywood, even though the material is quite suitable, would not necessarily result in an object which was aesthetically pleasing and hence does not overcome the problems.

It it is desired to make such laminar articles from hardwood for example, it is found that, in use, the objects not only may have insufficient strength in one direction depending on orientation of the grain of the wood but if subjected to slight differences of moisture content in the air or slight variations in ambient temperature the articles are likely to warp, thus making hardwoods for example highly unsatisfactory materials for the construction of such articles.

If, for example, it is desired to lay a hardwood floor, the floor is normally a parquet floor, that is a floor in which the hardwood pieces are placed in individual pieces of fairly small area so that the thickness thereof, even though smaller than the dimensions defining the major surface, is sufficiently large, or alternatively the major surface is sufficiently small to prevent the occurrence of the aforementioned problems.

It is an object of the present invention to provide a method of construction of laminar articles which enable such articles to be manufactured from materials which have hitherto been found unsuitable.

According to the present invention I provide a method of construction of laminar articles comprising the steps of shaping a plurality of elongate members of substantial thickness relative to the thickness of the finished laminar article, securing said members together to form an integral member, cutting or otherwise dividing said integral member in a plane substantially at right angles to the longitudinal axis of said elongate members to form a plurality of laminar articles.

Each laminar article formed by the method of the present invention will thus have a major surface area which can be very large compared with its thickness, however each laminar article will be made from a plurality of different members all secured together depending upon the number of elongate members making up the integral member, thus not only distributing the directions along which the grain of the wood lies in many different directions but, since adjacent members are secured to each other, a coherent bond is formed between adjacent members which minimises, if not entirely prevents, any subsequent deforming or warping of the laminar object.

Not only is a very strong stable structure provided in the laminar article constructed in accordance with the invention but, depending on the shaping of the elongate members, a laminar object made from many individual members may have an appearance which is aesthetically pleasing.

The method of construction of the present invention allows considerable pressure to be applied to the individual elongate members during the securing step in the process since at that stage they have a substantial thickness, and will not deform when the substantial pressure necessary to form an efficient bond between adjacent members is applied.

Furthermore, since many laminar articles may be cut or otherwise separated from the integral members so formed, each of the laminar objects will in the case of the laminar articles be made from a plurality of hardwood members, for example, have a similar appearance to each other since the grain orientation will be the same as will the natural colour of the woods used, thus making the method of construction highly suitable for making a set of laminar articles which it is intended to use alongside each other, for example floor tiles, table mats, wall tiles etc.

Any desired number of elongate members may be used and in a simple construction, for example, eight elongate members may be used, each cut having a trapezoidal cross-section having a base angle of $67\frac{1}{2}°$ so that the eight elongate members may be secured together to form a "log" having an octagonal outer surface.

Preferably the elongate members from which the "log" is constructed are dimensioned so that the centre of the "log" is hollow in order to prevent all eight of the members from which the "log" is constructed meeting each other at the centre, which joint may cause constructional

problems and unless each member was perfectly shaped may lead to an untidy joint at the middle.

Preferably the hole is filled at some stage in the construction, for example if the hole was bored out to make it circular in cross-section then a piece of dowel may be inserted prior to the integral member or "log" being separated into the individual laminar articles. Alternatively the hole may remain until after the laminar articles have been separated from the "log" and may, if desired, after some shaping, remain open or be filled with some material which may be functional or decorative, or both.

In the case where it is desired to form, for example, floor tiles which may be juxtaposed with each other and so cooperate to form a continuous covering, the integral member or "log" may be formed from six, trapezoidal in cross-section, elongate members secured together to form a "log" of hexagonal cross-section and, when the laminar articles are separated therefrom, the resultant hexagonal laminar articles will be of a form so that they may be juxtaposed with each other to form a continuous covering without gaps remaining between adjacent articles.

It is further envisaged that the outer shape of the integral member, even though it may have a functional pleasing appearance prior to separation of the laminar articles therefrom, may be further worked to improve on the appearance of the laminar articles.

The present invention will now be described in more detail by way of example only with reference to the accompanying drawings wherein:—

FIGURE 1 is an exploded view of a plurality of elongate members about to be secured to form an integral member;

FIGURE 2 is a perspective view of the formed integral member;

FIGURE 3 is a side elevation of the integral member, three laminar articles having been separated therefrom;

FIGURE 4 is a plan view of a finished laminar article.

Referring first to Figure 1, eight longitudinal members 10 to 17 are shaped to trapezoid form in cross-section and adhesive is applied on their surfaces with which they contact adjacent members, i.e. 17*b*, 10*a*, 10*b*, 11*a* of the elongage members 10 to 17. Adhesive having been applied to all contacting surfaces the elongate members are then brought into contact with each other and pressure applied in order to form an integral member substantially as shown in Figure 2.

After the glue has bonded the elongate members together and had sufficient time to effect a satisfactory bond, the laminar articles may be separated from the integral "log" by guillotine, sawing, cutting etc. as shown in Figure 3 in which three laminar articles 20, 21 and 22 have been cut from the integral log 18.

The laminar articles as cut from the log 18 as shown at 20, 21, 22 may be left as they are or further work may be carried out to produce a table mat for example, as shown in Figure 4.

The circumferential edge of the octagon has been cut or machined to produce the form shown in Figure 4 and a decorative centre piece 23 has been secured to the centre of the mat.

It can be seen from the mat shown in Figure 4 that the grain of the wood in each of the laminar pieces 10 to 17 is oriented in different directions and in view of the substantially elongate bonding line between adjacent pieces 10 to 17, and due to the fact that each piece is bonded on two edges, a very stable structure is formed in which deformation due to large changes in temperature or moisture content in the surroundings is reduced to a minimum.

Whereas the invention has been described primarily in relation to forming laminar articles from wood and particular hardwood, it will be appreciated that the method of construction of laminar articles of the present invention is equally applicable to other materials which, even though they may not be subject to deformation, construction by the method of the present invention may produce an article which is stronger in addition to enabling the manufacture of a laminar article having a substantial sectional area from pieces of material of substantially smaller size.

Such benefit is particularly noticeable when the laminar article is made from hardwood since the obtainability of hardwood in sizes to enable the construction of a table mat, for example, which may have a diameter of 25 centimetres to 30 centimetres would entail the use of pieces of wood of large size which is expensive.

CLAIMS

1. A method of construction of laminar articles comprising the steps of shaping a plurality of elongage members of substantial thickness relative to the thickness of the finished laminar article securing said members together to form an integral member, cutting or otherwise dividing said integral member into a plane substantially at right angles to the longitudinal axis of said elongate members to form a plurality of laminar articles.

2. A method of construction of laminar articles as claimed in Claim 1 wherein said elongate members are wood.

3. A method of construction of laminar articles as claimed in Claim 2 wherein said elongate members are secured together in a manner such that the grain of the wood of each member lies in a different direction from the grain of the wood of adjacent elongate members to which it is secured.

4. A method of construction of laminar articles as claimed in Claim 2 wherein the elongate members are arranged such that the grain of the wood of at least some of said elongate members is parallel to the thickness of the laminar article after formation thereof.

5. A method of construction of laminar articles as claimed in any one of the preceding claims wherein the elongate members are dimensioned in a manner such that on securing of the elongate

members to each other a "log" is formed.

6. A method of construction of laminar articles as claimed in Claim 5 wherein said elongate members are dimensioned so that the centre of the log is hollow.

7. A method of construction of laminar articles as claimed in Claim 6 wherein the hole at the centre of each laminar article is filled with material having either a functional or decorative nature or both.

8. A method of construction of laminar articles as claimed in Claim 7 wherein said material comprises a plastics material.

9. A method of constructing laminar articles as claimed in Claim 8 wherein said plastics material is secured to said laminar articles in a liquid state either prior to separation of the laminar articles from each other or after separation of the laminar articles.

10. A method of constructing laminar articles as claimed in any one of the preceding claims wherein each of said elongate members has a trapezoidal cross-section the base angle of each trapezoid being determined by the number of elongate members required to form a "log".

11. A method of construction of laminar articles as claimed in Claim 2 or any claim appendant thereto wherein each of said elongate members is a hardwood.

12. A laminar article constructed in accordance with the method as claimed in any one of Claims 1 to 10.

13. A surface covering comprising a plurality of laminar articles constructed in accordance with the method of any one of Claims 1 to 11 said laminar articles being arranged in juxtaposed relationship.

14. A surface covering as claimed in Claim 13 wherein any gaps between the said juxtaposed laminar articles is filled with material.

15. A surface covering as claimed in Claim 14 wherein said material used to fill said gaps is different from the material from which said laminar articles are made.

16. A surface covering as claimed in Claim 15 wherein said material comprises plastics material.

17. A surface covering as claimed in any one of Claims 13 to 16 wherein said surface covering comprises the upper surface of a floor.

18. A method of constructing laminar articles substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

19. A surface covering comprising a plurality of laminar articles constructed in accordance with the method substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

20. A method of constructing laminar articles including any novel feature or novel combination of features as described here and/or illustrated in the accompanying drawings.

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