

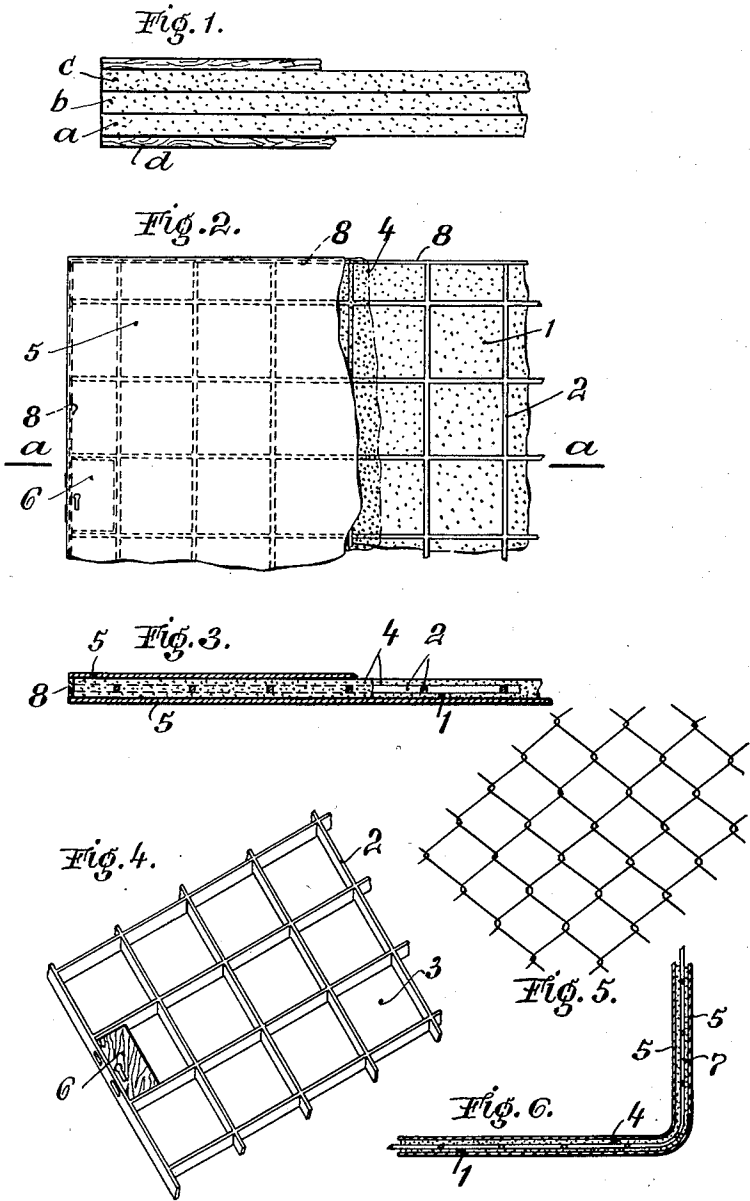
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ARTIFICIAL WOOD BOARD AND A PROCESS FOR MANUFACTURING THE SAME

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ARTIFICIAL WOOD BOARD AND A PROCESS
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The present invention relates to an artificial wood board and a process for the manufacturing of the same.

Artificial wood boards are known, consisting of an intermediate layer of wood-meal and sawdust, covered on either side with wooden veneers. These boards have been manufactured in such a manner, that first the artificial wood layer, forming the middle-layer, was pressed of sawdust or of sawdust and wood meal to form a board and on top of this board the veneers were applied by interposing between the same a layer of a cementing liquid or glue and connecting the same under pressure with the artificial wood layer to a solid board. According to another known process, such artificial wood boards may be manufactured in such a way, that the still plastic paste, consisting of sawdust, wood meal and a cementing liquid or glue, forming the middle-layer and the covering veneers were pressed to form a solid board of the thickness required, in one single working operation.

In contrast to these known processes the main object of the present invention consists in the fact, that to the sawdust to be used, which may in certain cases be mixed with wood-meal, a larger quantity of wood pulp or cellulose such as is obtained in manufacturing cellulose in pulp mills is added. The quantity of this wood pulp may, according to the kind of body to be manufactured, amount to 20–35% and in some cases more. The wood pulp may be used in the form obtained from the pulp mills or it may in some cases, before being used, be subjected to a chemical treatment, for instance with hydrochloric acid or with a lye solution, by means of which the incrusting ingredients are dissolved and the pulp will be made spongy. As the pulp has comparatively long fibers, by adding wood pulp to the artificial wood layer a very intimate cementation is produced, when the finished artificial wood board is impregnated with a cementing liquid for instance with glue, so that the manufactured boards are very rigid in comparison to the hitherto known artificial wood boards. The structure of these known artificial wood boards is granular and brittle due to the fact that only sawdust and wood meal are used. The boards manufactured of sawdust, wood meal and wood pulp may then, in order to give them a good appearance, be provided in the ordinary way with covering veneers, using a cementing intermediate layer of glue. The boards may however be used without veneers, for instance if they are used only as insulation material.

A further object consists in the fact, that the

boards are built up from a plurality of layers. The individual layers are impregnated or saturated with a cementing medium and connected together by means of pressure. In this manner the combined boards show throughout an intimate connection of the single particles of which they consist.

Another feature of the invention consists in the fact, that the artificial wood board, in certain cases may be reinforced by means of an insertion of a metal such as steel, red brass or the like, so that they are resistant to every influence and that a warping or deformation of the board is impossible, which was always noticeable with the hitherto known artificial wood boards, when they were exposed to one-sided humidity or heat or when they were covered on one side with a thicker wooden veneer sheet. In this manner larger boards, for instance for doors, may be manufactured, which have the necessary rigidity and do not warp under the influence of heat or moisture. Instead of inserting the reinforcing material into the artificial wood board, such boards may be also reinforced by covering them with a metal plate. The application of the above mentioned reinforcement has the further advantage, that not only straight boards may be manufactured but also boards having angles, corners and all kinds of other shaped bodies.

The details of the invention may be more fully understood from the following detailed description of the drawing, in which:

Fig. 1 shows a cross-section of an artificial wood board, composed of several layers, according to the invention.

Fig. 2 shows a plan-view of a veneered artificial wood board with an inserted reinforcement, according to the invention.

Fig. 3 shows a board according to Fig. 2 in a cross-section through the line a—a.

Fig. 4 shows a view of the reinforcement to be inserted.

Fig. 5 shows another kind of reinforcement.

Fig. 6 shows a cross-section through an angular, veneered artificial wood board, into which an angularly bent reinforcement is inserted, according to the invention.

For the manufacturing of the artificial wood board, the sawdust and wood meal to be used, as it is ordinarily produced, is mixed with about 20–35% of long-fibered wood pulp and flooded through with water, whereafter the material is thoroughly stirred in a mixing machine. The plastic paste, obtained by this operation will then be spread out on a plate and drained by

means of pressure; in certain cases drainers, as they are used in cellulose-factories may be applied for this purpose. The preliminarily dried artificial wood board thus obtained has a thickness of 4-6 mm.; in any case, the thickness of the unfinished board must be kept in such dimensions, that it may, as will be indicated below, be saturated thoroughly with a cementing liquid as glue or the like. The preliminarily dried board, above mentioned will then be dried entirely in the air or by application of heat and afterwards thoroughly impregnated with a cementing liquid, such as glue or the like, in order to obtain an intimate connection or adhesion of the single wood particles to each other. In consequence of the additional application of wood pulp, the board manufactured in the manner described above, has a high degree of rigidity. Several of the thus manufactured boards will then be combined with another by pressure after interposing a layer of glue between the individual boards, so that according to the purpose for which they shall be utilized, a board of 15-25 mm. thickness will be obtained. A board of this kind is illustrated in Fig. 1, the board consisting of three layers *a*, *b*, and *c*, each of which is thoroughly saturated with the cementing liquid and then glued together by means of pressure. Such boards may be used for instance as sound-proof partitions or insulating walls or as lining boards, because nails may be driven into them, or for the manufacturing of boxes or the like. If required the boards may be covered on one or on both sides with veneers in the known manner, as indicated in Fig. 1 by *d*.

There are however boards on the market, which have been manufactured exclusively from wood pulp, but these boards have, as compared with those manufactured according to the process of the invention, the drawback, that they are much more expensive than the above mentioned ones and show the further disadvantage, that they are not waterproof, as they are not impregnated with a cementing liquid.

It is the case of manufacturing boards of larger dimensions, as for doors or tables, according to the invention, the layer of artificial wood may be reinforced with an insertion of metal of any desired construction.

In this case a board 1 will be manufactured from the above described material (Figs. 2 and 3). This board being preliminarily dried by means of pressure, will then be dried entirely and finally saturated with a cementing liquid as glue. On top of this board a reinforcement 2 of steel, red brass or the like will be laid, the empty squares 3 of which are previously filled out with plastic paste, under pressure, the filling paste in same having been dried and saturated with glue in the same manner. On top of this insertion finally a further board 4 of artificial wood is laid, corresponding in its manufacture to the board 1. The gluing of the dried and impregnated boards 1 and 4 onto the middle layer, containing the insertion is performed under pressure, using a cementing liquid. Instead of availing one's self of the insertion 2, illustrated in the Figs. 2-4, any other suitable insertion may be used for the reinforcement of the boards, for instance an insertion as it is illustrated in Fig. 5. On the thus manufactured unfinished boards wooden veneer-sheets 5 may be then applied under pressure and with the use of a cementing liquid, which gives the board a better appearance.

In certain cases such an artificial wood board, under the condition that it is not too thick, may also be manufactured in such a way, that between the preliminarily dried boards 1 and 4 the likewise preliminarily dried intermediate layer with the insertion 2 may be laid. The single parts of the board will then be connected to an unfinished board by means of pressure, which will only then be dried entirely and finally saturated with glue. The covering with the veneer sheet 5 follows then in the known manner. Instead of using wooden veneer sheets the unfinished artificial wood board may be covered for instance with metal plates or metal sheeting.

In order to give the artificial wood board a better finish on the sides and ends, a thin frame 8 may be laid around it, which is also covered with the veneer sheet 5.

If it is the case of manufacturing doors or the like, the lock or the iron work may at the same time be mounted onto the metal insertion, so that an additional fastening will not be required.

An advantage of the use of metal insertions is that besides straight boards, also angles, corners or any other formed bodies may be manufactured of artificial wood. Such an angle for instance is illustrated in Fig. 6. To manufacture a body thus formed, one proceeds in the same manner as described above, only with the difference that instead of the described grate or metal grid 2, another lattice work or metal skeleton, adapted to the form of the body to be manufactured is used. In the illustrated example a rectangularly bent grate 7, must be used. The thickness of the metal grate will of course have to be adapted to the size and shape of the body to be manufactured and to its purpose of utilization.

I claim as my invention and desire to secure by Letters Patent:

1. An artificial wood board comprising a board, made of mixed sawdust and wood pulp, saturated with a cementing liquid.

2. An artificial wood board comprising a plurality of single boards, made of mixed sawdust and wood pulp, saturated with a cementing liquid and connected to each other by means of a cementing liquid.

3. An artificial wood board, comprising a board made of mixed sawdust and 20 to 35% wood pulp, saturated with a cementing liquid, and into which a metal reinforcement is inserted.

4. An artificial wood board according to claim 2, comprising a plurality of single boards, made of mixed sawdust and wood pulp, saturated with a cementing liquid and connected to each other by means of a cementing liquid, into which board a metal reinforcement is inserted.

5. An artificial wood board according to claim 1, comprising a board, made of mixed sawdust and wood pulp, saturated with a cementing liquid, which board is covered with a finishing sheathe.

6. An artificial wood board, comprising a plurality of single boards, made of mixed sawdust and wood pulp, saturated with a cementing liquid and connected to each other by means of a cementing liquid, which board is covered with a finishing sheathe.

7. An artificial wood board, comprising a board, made of mixed sawdust and wood pulp, saturated with a cementing liquid, which board is reinforced by means of a metal insertion and covered with a finishing sheathe.

8. An artificial wood board, comprising a plurality of single boards, made of mixed sawdust and wood pulp, saturated with a cementing liquid

and connected to each other by means of a cementing liquid, which board is reinforced by means of a metal insertion and covered with a finishing sheathe.

5 9. An artificial wood board comprising a plurality of individual boards made of mixed sawdust and wood pulp saturated with a cementing liquid and connected to each other by means of a cementing liquid, and a metal reinforcement, 10 provided with the necessary hardware, inserted therebetween.

10. An artificial wood board comprising a plurality of individual boards made of mixed sawdust and wood pulp saturated with a cementing 15 liquid and connected to each other by means of a cementing liquid and a surrounding frame on the edges.

11. A process for the manufacture of artificial wood board, which comprises the steps of mixing 20 sawdust and wood meal with long fibered wood pulp, flooding the mass with a liquid and thoroughly mixing the mass, spreading the resulting mixture on a surface and draining the same with the aid of rolling and pressing, drying said 25 drained board and saturating the same with a cementing liquid.

12. A process for the manufacture of artificial wood board, which comprises the steps of mixing sawdust and wood meal with long fibered 30 wood pulp, flooding the mass with a liquid and thoroughly mixing the mass, spreading the resulting mixture on a surface and draining the same with the aid of rolling and pressing, drying said drained board and saturating the same 35 with a cementing liquid and joining a plurality of said boards by means of pressure and a cementing liquid.

13. A process for the manufacture of artificial wood board, which comprises the steps of mixing 40 sawdust and wood meal with long fibered wood pulp, flooding the mass with a liquid and thoroughly mixing the mass, spreading the resulting

mixture on a surface and draining the same with the aid of rolling and pressing, drying said drained board and saturating the same with a cementing liquid and covering said saturated board with a finishing sheathe.

14. A process for the manufacture of artificial wood board which comprises the steps of mixing sawdust with wood meal and a long fibered pulp, flooding the mass with a liquid and mixing thoroughly, spreading the resulting mixture on a surface and draining with the aid of rolling and pressing, drying the said drained board and saturating the same with a cementing liquid, joining a plurality of said boards by means of pressure and a cementing liquid and covering the same 80 with a finishing sheathe. 85

15. A process for the manufacture of artificial wood boards as defined by claim 12, in which a metal reinforcing member is cemented in place between said plurality of boards. 90 95

16. A process for the manufacture of artificial wood boards as defined by claim 14, in which a metal reinforcing member is cemented in place between said plurality of boards.

17. A process for the manufacturing of an artificial wood board which comprises, placing a plastic layer of sawdust, wood meal and wood pulp on a surface and draining the same with the aid of pressure, placing a second layer composed of a drained mass of sawdust, wood meal, 100 wood pulp and a reinforcing member on said first layer, placing a third layer composed of a drained mass of sawdust, wood meal and wood pulp on said second layer, connecting said three layers by pressing, then drying and saturating the same 105 with a cementing liquid. 110

18. A process for the manufacturing of an artificial wood board as defined by claim 17 in which the connected three layers saturated with cementing liquid are covered with a finishing 115 sheathe.

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