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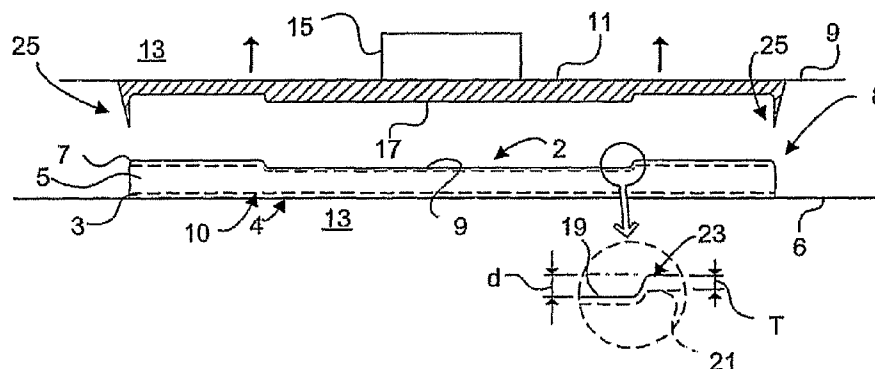
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(54) Title: CHIPBOARD COMPRISING DECORATIVE RECESS AND MANUFACTURING METHOD



(57) Abstract: The present invention relates to a board constructed from essentially wood material (10), the board (8) comprising at least one decorative recess (2). The wood material (10) consists of wood chips (4) pressed together with one another and has greater density within the area of the decorative recess (2). The board is produced by application of the wood material (10) to a first pressure pad (6), movement of the first pressure pad (6) and a second pressure pad (11) towards one another by the drive means (15), the second pressure pad (11) comprising a projecting means (17) corresponding to the shape of the decorative recess (2), until the pressure pads (6, 11) are in the position of completed compression, separation of the pressure pads (6, 11) from one another and removal of the board (8), as a finished product, from the pressing arrangement (13).

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Chipboard comprising decorative recess and manufacturing method

The present invention relates to a board with decorative recess according to the precharacterizing clause of Patent Claim 1 and also relates to a method for  
5 manufacturing the board according to the precharacterizing clause of Patent Claim 8.

Boards are often required with an appearance imitating a panel door or cupboard door with a framework of solid wood and panels or with other  
10 aesthetic designs.

The present invention can be attributed to the manufacturing industry for chipboards, which are a type of wood-based board. Wood-based boards are in turn used in furniture manufacture and within the building industry, for  
15 example.

In furniture manufacture, panel doors and cupboard doors made from solid wood are desirable. These are expensive to manufacture and heavy to handle.

20 Today there are boards with decorative recesses in order to imitate such panel doors and cupboard doors or the like, which boards can be of the MDF (Medium Density Fibreboard) type. These boards are manufactured by a fine fraction of wood fibres being baked together with a large quantity of adhesive. Then, when the board has hardened, the decorative recess is milled out of the  
25 surface of the board. MDF consists of a relatively fine fraction of wood fibres and a relatively large quantity of adhesive, with which a fine surface can be achieved at the same time as good strength is obtained.

The problem with such known boards is that they are also heavy to handle and that a large quantity of wood material and adhesive is required, which is expensive. The boards have to be manufactured in a number of manufacturing steps (smoothing, sawing, milling of surfaces and edges and sealing of milled surfaces and edges), which is likewise expensive. High vapour pressure in the board exists in the case of compression-moulding of a board with a large content of plastic, which, in combination with sealed edges, contributes to the drying and pressing time being unnecessarily long.

- 10 Compression-moulding of chipboards is carried out today according to various methods in order to produce reliefs or patterns in a surface layer. However, no board consists of a conventional single chipboard with a relatively deep distinct decorative recess over a relatively large area of the board, for imitating a panel of a panel door, for example. On the other hand, milling out of decorative recesses in a chipboard is carried out. However, the surface produced by means of machining has to be covered with a surface layer because the surface has a rough appearance owing to the coarser wood chips in comparison with the finer wood fibres in a board of the MDF type.
- 20 Document US 4812188 discloses a method for producing doors with panels (decorative recess). The method is based on manufacturing thin boards made of wood chips, which can be faced with veneer for example, which boards are produced with a desired profile in their cross section. Document US 3793125 discloses a method in which a central chip layer made of coarser glued chips (L < 10 mm) is surrounded by finer chip layers (diam. < 0.1 mm) made of glued chips. The chip layers are applied to one another and then prepressed. The prepressed chip mass is surrounded by embossed decorative paper which has been impregnated with adhesive for hardening, a relief being produced in

the surface layer imitating the distribution of natural wood grain. DE 2615661 discloses a chipboard with embossed veneer on both sides.

The disadvantages of known boards, such as the abovementioned MDF with decorative recess, are overcome by the board described in the introduction characterized by the features indicated in the characterizing part of Patent Claim 1. A board, suitable for being used as a finished product as a cupboard door, kitchen hatch, wardrobe door, sliding hatch, table top, front panel etc., has thus been produced, which board has a decorative recess imitating a panel, for example. The recess or hollow in one surface plane (surface layer) (or both surface planes) of the board is made so deep that an artificial framework, a fluting or other decorative depression is clearly marked. By using wood chips as the wood material, manufacture, handling and transport of the board are cost-effective. In manufacture of the board(s), use can be made of one and the same spreading apparatus generating an even chip mat of glued wood chips.

A number of pressure pads of different appearance with regard to external dimensions and projecting means for producing different types of recess in the boards can likewise be used in one and the same pressing arrangement according to a module system and also in one manufacturing operation according to a chip-separation method. The chip mat is essentially even before compression, which is cost-effective as regards manufacture. As the density of the wood material brought about by compression is greater within the area of the recess than in the remaining part of the board, the strength is greater in this thinner area of the board which is defined by the decorative recess of the board.

The wood chips are preferably of a finer chip size in the at least one surface layer of the board than in an intermediate layer of the board.

5 In this way, an even and smooth surface is brought about at the transition between the surface of the decorative recess and the remaining surface of the board.

The wood chips are suitably of both finer and coarser chip size in an intermediate chip layer of the board.

10

The intermediate layer (intermediate chip layer) of the board is thus made stronger, and the board within the area of the decorative recess can be made even stronger on account of the greater density of wood chips.

15 Alternatively, the board is mechanically separable from at least one other board.

In this way, a “cake” consisting of a number of continuous boards can be manufactured in one compression operation. The boards can either be  
20 separated from one another already in the compression operation or be sawn apart (cut apart, broken along recessed indications between the boards produced in the compression operation). By virtue of a pressure pad, with projecting elements for producing a recessed indication, automatically marking exactly the outer edges of the finished board, the position of the saw cut can be  
25 determined accurately for sawing the boards apart from one another. This means minimum material waste. By virtue of the edge of the board being left untreated during/after the compression step, adhesive vapours (adhesive with which the wood chips have previously been coated) can be removed from the

edges, which results in cost-effective manufacture of the board from a time perspective (shorter drying time). After the glued wood chips have been compressed under heat action (for example 140°C-250°C), it is thus possible for the vapour pressure which has built up to be removed and water vapour to  
5 leave the adhesive in an effective way.

The decorative recess suitably has a depth greater than the thickness of a surface layer (chip layer) assigned to the board.

10 A marked recess has thus been produced in the board, which contributes to making the board more like, for example, a solid wood door with panels and a framework. If the upper chip layer (the surface layer) consists of wood chips of finer chip size, the applicant for the present patent has observed in experiments that this surface layer effectively covers the coarser wood chips constituting  
15 the intermediate chip layer within the area of the transition from the decorative recess to the non-recessed area. The depth of the decorative recess is suitably around 4-8 mm when the upper chip layer (chip size 0.1-2.0 mm) has a thickness of around 6-10 mm (before compression) and around 3-7 mm (after compression has been completed).

20

The surface layer of the board preferably comprises a decorative film.

The board can thus imitate any wood type as far as its appearance is concerned. The decorative film, such as a relief paper or thin veneer sheet for  
25 example, is suitably applied to the chip mat before compression of the board (the chip mat). Coloured powder lacquer can also be used for decoration, which lacquer is distributed on top of and/or below the chip mat before

compression. Melamine-impregnated film or laminate can likewise advantageously be used.

Alternatively, the board has rounded edges, and the wood material has greater  
5 density within the area of the rounded edge.

In this way, the edge of the board can already undergo shaping in the compression step. The edge likewise automatically obtains greater strength by virtue of the greater density of wood chips in the compacted edge. This is  
10 desirable as well because edges have a tendency to be exposed to impacts to a greater extent than other parts of the board.

The disadvantages of known methods for manufacturing boards, such as the abovementioned MDF with decorative recess, are overcome by the method  
15 described in the introduction characterized by the steps included in Patent Claim 8. In the manufacture of the board(s), use can thus be made of one and the same spreading apparatus generating an even chip mat of glued wood chips. A number of pressure pads of different appearance with regard to dimensions and projecting means for producing different types of recess in the  
20 boards can likewise be used in one and the same pressing arrangement according to a module system and also in one manufacturing operation, which is cost-effective. As the density of the wood material is greater within the area of the recess than in the remaining part of the board, the strength is greater in this thinner area which is defined by the decorative recess of the board owing  
25 to the chip mat having an essentially even thickness before compression. This thinner area is more compressed and has a greater density than other areas. Alternatively, use can be made of a continuous press or an intermittent press.

The first pressure pad suitably comprises a projecting means corresponding to the shape of a decorative recess.

Both sides of a board can thus be produced with decorative recesses in a single  
5 manufacturing step.

The wood chips are preferably heated with the aid of a heat-generating means of the pressing arrangement.

10 Temperatures higher than room temperature can thus be used for producing a glued-together board made of wood chips. By means of a control arrangement, the heat for compression can be adjusted according to desired adhesive melting points and compression times. As mentioned above, glued wood chips can be compressed under heat action at around 140°C-250°C, depending on the  
15 adhesive type and depending on the compression time which in turn depends on the thickness of the board. In general, about 6-18 seconds can be reckoned with per mm thickness, for example.

Alternatively, the compression step also comprises, when the pressure pads are  
20 in the position of essentially completed compression of the wood chips, mechanical separation of at least two boards from one another.

In this way, a "cake" consisting of a number of continuous boards can be manufactured in one compression operation. The boards are already separated  
25 from one another in the compression operation, which is cost-effective.

The wood chips are suitably applied to the first pressure pad in such a way that wood chips of finer chip size form at least one surface layer (lower chip layer) and wood chips of coarser chip size form an intermediate chip layer.

- 5 The board can thus be made lighter and with a smaller quantity of wood chips, which is cost-effective. The intermediate layer can suitably consist of non-separated wood chips (that is to say a chip fraction with coarser and finer chips). It is also easier to separate boards from the abovementioned "cake" with indicated edges. The surface layers suitably consist of separated wood  
10 chips, which provides a homogeneous surface layer after compression. This allows the surface of the decorative recess to be made even and fine.

The pressing arrangement preferably comprises a fixing pad comprising fastening means for mounting a number of pressure pads.

15

- Conventional pressing arrangements such as, for example, a hydraulic press can thus be used. The pressing arrangement suitably comprises a fixing pad (fixing plate) which can be fastened to the pressing arrangement by means of clamps. The pressure pads (forming plates) (designed on the basis of desired  
20 board designs and customer wishes) are fastened detachably to the fixing pad by means of screws, for example. A number of boards can thus be manufactured in one and the same pressing operation according to a module system.

## 25 SUMMARY OF FIGURES

The present invention will now be explained in greater detail with the aid of accompanying drawings, in which:

- Figure 1 shows diagrammatically a chip mat for compression;
- Figure 2 shows diagrammatically, according to a first embodiment, removal of the pressure pad in Fig. 1 from a finished board with finer chip size in the surface layer;
- Figure 2a shows diagrammatically the edge area of the board in Fig. 2;
- Figure 3 shows diagrammatically a second embodiment for a module system and an indication for separation of boards from one another;
- Figure 4 shows diagrammatically a cake with two boards with an indication brought about by the module system in Figure 3;
- Figure 5 shows diagrammatically a board with a distinct recess imitating a panel door with a framework;
- Figure 6 shows diagrammatically a second pressure pad for manufacturing the board in Figure 5;
- Figure 7 shows diagrammatically a fixing pad with pressure pads mounted;
- Figure 8 shows diagrammatically an intermittent press for manufacturing boards according to a third embodiment, and
- Figures 9a-9d show diagrammatically a spreading machine for distributing chips of different chip size forming a chip mat before compression to form a board according to a fourth embodiment.

## DETAILED DESCRIPTION OF THE INVENTION

- The present invention will now be explained with reference to the figures. For the sake of clarity, components which are not important for the invention are not included.

Figure 1 shows a chip mat 1 comprising a lower chip layer 3 consisting of glued wood chips 4 (shown in Figure 4) of essentially the chip size 1 mm – 2 mm, that is to say a finer chip size, spread evenly on a spreading strip (a first pressure pad 6). An intermediate chip layer 5, with a coarser chip size, is spread on the lower chip layer 3. An upper chip layer 7 consisting of wood chips corresponding to the chip size of the lower chip layer is spread on the intermediate chip layer 5 with a thickness  $t_1$ . The three chip layers 3, 5 and 7 therefore consist of wood material 10 made up of glued wood chips 4 which has been applied to the first pressure pad 6, the wood chips 4 forming a desired board 8 after hot-pressing.

A pressure plate (a second pressure pad 11) made of metal is fastened detachably to a fixing plate (fixing pad 9) of a pressing arrangement 13. In order to produce a decorative recess 2 in the board 8, a drive means 15 brings about movement of the second pressure pad 11 towards the first pressure pad 6 until the pressure pads 6 and 11 are in the position of completed compression moulding. The compression moulding can alternatively take place by the first pressure pad 6 being moved towards the second pressure pad 11.

The second pressure pad 11 comprises projecting means 17 corresponding in inverted form to the decorative recess 2 in the board 8. Compression for producing the decorative recess 2 is completed when the projecting means 17 of the pressure pad 11 has compressed the chip layers 3, 5, 7 to such an extent that the upper side 19 of the upper chip layer 7 has arrived below the lower side 21 of the upper chip layer 7 in the direction of compression.

Figure 2 shows diagrammatically how, after the first and second pressure pads 6 and 11 are in the position of completed compression of the wood chips 4, the

drive means 15 of the pressing arrangement 13 moves the second pressure pad 11 in the direction away from the first pressure pad 6 in order to expose the board 8. Figure 2 (partial section) also shows diagrammatically on enlarged scale the transition 23 from the bottom (= the upper side 19 of the upper chip layer 7) of the decorative recess 2 to a non-recessed area of the board 8. The decorative recess 2 therefore has a depth  $d$  which is greater than the thickness  $T$  of the compressed upper chip layer 7.

The upper chip layer 7 (the surface layer) consists of wood chips of finer chip size. The applicant has observed in experiments that, after the compression step, this surface layer effectively covers the coarser wood chips in the intermediate chip layer within the area of the transition from the decorative recess to the non-recessed area. The depth of the decorative recess is around 4-8 mm when the upper chip layer (chip size 0.1-2.0 mm) has a thickness of around 6-10 mm (before compression) and around 3-7 mm (after compression has been completed).

The second pressure pad 11 comprises projecting elements 25 for mechanical separation of the board 8 from wood material 10 surrounding the board 8 or from an adjacent finished pressed board. Such a pressure pad 11 is used for manufacturing boards 8 which are separated from one another at the end of the compression step. That is to say, when the pressure pads 11 are in the position of essentially completed compression of the wood chips 4, mechanical separation of at least two boards 8 from one another also takes place.

Figure 2a shows diagrammatically an edge area 27 of a board 8 with a homogeneous, non-separated chip layer of wood chips 4 of different chip size  $g'$ ,  $g''$  according to a second embodiment. The chip mat 1 has been covered

with a decorative film 29, such as a plastic film, before the compression step. The wood chips 4 of the edge area 27 and the decorative film 29 located on top form a rounded edge 28 during the compression step, the board 8 automatically being provided with greater density within the edge area 27 and the rounded edge 28 because the wood chips 4 are more tightly packed here (see reference P). This contributes to greater strength in the edge area 27, which is desirable because the edges of the board 8 are extra sensitive to impacts. The projecting element 25 in Figure 2 brings about harder compression of the wood chips 4 in the edge area 27, the distance L (= thickness of the board) being greater than the distance L'.

Figure 3 shows diagrammatically a pressing arrangement 13 for compression moulding of a number of boards 8 located side by side in line with one another. The pressing arrangement 13 comprises a fixing pad 31 comprising fastening means 33, such as clamps 35. Before the fixing pad 31 is mounted on the pressing arrangement 13 by means of the clamps 35, two upper second pressure pads 11 made of metal are screwed firmly to the fixing pad 31 with the aid of screws 37. The pressure pads 11 are manufactured on the basis of the wishes of one or more customers for the type of finished board 8. A number of designs of finished pressed boards 8 can thus be manufactured in one compression step according to the module system brought about. Heat-generating means 39 are provided on the pressing arrangement 13 for heating the glued wood chips 4 during compression to a temperature of 140°C-250°C, preferably 160°C-220°C, so that the hardening properties of the adhesive complete the firm (hard) structure of the board 8. Projecting elements 25 of the second pressure pads 11 are adapted so as in the compression step to produce an indication 41 which marks the external dimensions (the edges of the board 8) of the boards 8, which indication 41 also further simplifies mechanical

separation of the boards 8 from one another. The mechanical separation can take place by means of breaking, sawing etc. of wood material 10 forming waste material 42. Figure 3 shows diagrammatically the finished pressed boards 8 and how the fixing pad 31 is moved in the direction away from the first pressure pad 6 after the compression step has been completed.

The depth the projecting elements 25 produced in the board can be half the thickness of the board.

Figure 4 shows diagrammatically how a cake 43 has been produced comprising the two boards 8 in accordance with the compression step shown in Figure 3. According to this embodiment, the boards are constructed from an intermediate chip layer 5 and a lower 3 and an upper chip layer 7. This makes it clear that the density of the wood material 10 within the area 45 of (below) the decorative recess 2 is greater than in other areas 46 of the boards 8 because the thickness  $s$  is greater than the thickness  $s'$  (of the compressed intermediate layer 5) and the total thickness  $S$  of the remaining area 46 is greater than the thickness  $S'$  of said area 45.

Figure 5 illustrates diagrammatically a board 8 with a distinct decorative recess 2 imitating a panel door with a framework 47. According to a cross section I-I of the profile of the board 8, the corresponding profile of a second pressure pad 11 provided for the purpose is shown in Figure 6. The projecting means 17 for producing the imaginary panel (decorative recess 2) of the board 8 is adapted to compress at least a third of the surface area of the chip mat with greater compression than the remaining area 46. The projecting means 17 is adjoined by four (two of which are shown) projecting means 17' and 17'' of

the pressure pad 11 for producing grooves 49 (see Figure 5) in the board 8 to mark the joining together of the imaginary wood frame 47.

Figure 7 shows diagrammatically a fixing pad 9 detachably fastened to a pressing arrangement 13. Six pressure pads 11 are mounted on the fixing pad 9 according to the module system for producing three different board types. On the basis of the wishes of customers, pressure pads for new boards can be produced during the time for production of boards already ordered and mounted on a second fixing pad (not shown). A module system has been brought about which has the advantage of on the one hand producing a number of boards 8 in a single compression step and on the other hand saving time in the production line because fixing pads 9 for new types of board 8 can be prepared without any interruption of production being necessary.

Figure 8 illustrates diagrammatically an intermittent press 50 for manufacturing boards 8 according to a third embodiment. These boards comprise decorative recesses 2 on both sides of the board 8. The first pressure pad 6 thus also comprises the projecting means 17. Fixing pads 31 with screwed-on pressure pads (pressing strips) 6 are positioned one on another in stacks for compression of four chip mats (not shown). In this way, a large number of boards 8 can be produced in a single compression step, which is cost-effective.

The method for manufacturing a board 8 in the pressing arrangement 13 shown in Figure 8, by compression of essentially wood material 10, in which the board 8 comprises at least one decorative recess 2, is carried out by the wood material 10, consisting of glued wood chips 4, first being applied to at least the first pressure pad 6. The second pressure pad 11 is then moved towards the

first pressure pad 6 by the drive means 15. Both the first 6 and the second pressure pad 11 comprise projecting means 17 with the shape corresponding in an inverted manner to the desired decorative recess 2. The movement takes place (the compression step) until the pressure pads 6 and 11 are in the position of completed compression of the wood chips 4 and the projecting means 17 have formed the decorative recesses 2. The pressure pads 6 and 11 are then separated from one another by the drive means 15 to free the board 8 (the boards 8), which is (are) then removed from the pressing arrangement 13 and cooled.

10

The board can then be used as a finished product in a piece of furniture. This finished product is lighter and has a lower manufacturing cost than boards of the MDF type.

- 15 A method for producing a chip mat 1 (board 8) constructed from glued wood chips 4 of finer chip size in the lower chip layer 3 and upper chip layer 7 of the board 8 and of wood chips 4 of both coarser and finer chip sizes in the intermediate layer of the board will now be described in conjunction with Figures 9a-9d. This is brought about by the lower 3 and upper chip layer 7 being applied in two layers A and B after mechanical separation of the wood chips 4 with supplementary air separation. Separation can likewise take place only mechanically. A first pressure pad 6 is moved by drive means (not shown) in the direction of the arrow p'. Separation rollers 52 of different circumference and at different relative spacing are rotated anti-clockwise.
- 25 Glued wood chips 4 are fed from a chip feed unit (not shown) over the separation rollers 52, which separate the wood chips 4 so that wood chips 4 of finer chip size are distributed first on the pressure pad 6, forming the layer A. As the pressure pad 6 is moved in the direction of the arrow p', separated

wood chips 4 of coarser chip size are also applied, forming the layer B. An air flow 54 can supplement the separation.

When the layers A and B fill the pressure pad 6, it is moved in the opposite  
5 direction according to the arrow p'', which is shown in Figure 9b. Non-separated wood chips 4 are then applied to the layer B so that a third layer C is produced. A fourth layer D of non-separated wood chips 4 is then applied, but in the direction of the arrow p''', which is shown in Figure 9c. Wood chips 4 of both finer and coarser chip sizes constitute the intermediate chip layer 5  
10 produced for the board (the third and fourth layer C and D).

Finally, the pressure pad 6 is moved in the direction of the arrow p'''' shown in Figure 9d. As this direction p'''' is opposite to the direction shown in Figure 9a, wood chips 4 of coarser chip size will be distributed first on the  
15 fourth layer D, forming a fifth layer B'. As the pressure pad 6 is moved in the direction of the arrow p''', separated wood chips 4 of finer chip size are also applied to the layer B', forming a sixth layer A'. This separation can also be supplemented with an air flow 54.

20 The finished chip mat 1 consisting of the layers A, B, C, D, B' and A' then undergoes compression by means of a second (upper) pressure pad 11 comprising a projecting means 17 (not shown). The wood chips are heated during compression so that the hardening properties of the adhesive complete the firm (hard) structure of the board 8.

25

By virtue of not separating the wood chips of the central layer (C and D), the board 8 is provided with greater strength owing to the greater central density.

The present invention is not to be regarded as being limited to the embodiments described above, but combinations of these and other embodiments also exist within the scope of the features indicated in the accompanying patent claims. For example, the surface layer of the board can  
5 be provided with a decorative film with a relief such as a plastic film, a melamine-impregnated film, various types of bottoming film etc. Application of face veneer and direct lacquering can likewise be incorporated in the surface layer in order to produce an aesthetically attractive surface layer. The present invention produces cost-effectively ready-made boards for cupboard  
10 doors, front panels, panel doors and other finished boards with a distinct decorative recess.

## PATENT CLAIMS

1. Board constructed from essentially wood material (10), the board (8) comprising at least one decorative recess (2), characterized in that the wood material (10) consists of wood chips (4) pressed together with one another, and the wood material (10) has greater density within the area of the decorative recess (2).
2. Board according to Claim 1, characterized in that the wood chips (4) are of finer chip size in the at least one surface layer of the board (8) than in an intermediate layer of the board.
3. Board according to Claim 1 or 2, characterized in that the wood chips (4) are of both finer and coarser chip size in an intermediate chip layer (5) of the board.
4. Board according to any one of Claims 1-3, characterized in that the board (8) is mechanically separable from at least one other board.
5. Board according to any one of the preceding claims, characterized in that the decorative recess (2) has a depth (d) greater than the thickness (T) of the surface layer of the board.
6. Board according to any one of the preceding claims, characterized in that the surface layer of the board (8) comprises a decorative film (29).

7. Board according to any one of the preceding claims, characterized in that the board (8) has rounded edges (28) and in that the wood material (10) has greater density within the area of the rounded edge (28).

- 5 8. Method for manufacturing a board (8) comprising at least one decorative recess (2) by compression of essentially wood material (10) with the aid of a pressing arrangement (13) comprising a drive means (15), characterized by the steps:
- 10 - application of the wood material (10), consisting of glued wood chips (4), to a first pressure pad (6);
  - movement of the first pressure pad (6) and a second pressure pad (11) towards one another by the drive means (15), the second pressure pad (11) comprising a projecting means (17) corresponding to the shape of the decorative recess (2), until the pressure pads (6, 11) are in the position of
  - 15 completed compression of the wood chips (4) and the projecting means (17) has formed the decorative recess (2);
  - separation of the pressure pads (6, 11) from one another by the drive means (15) for freeing the board (8);
  - removal of the board (8) from the pressing arrangement (13).

20

9. Method according to Claim 8, in which the first pressure pad (6) comprises a projecting means corresponding to the shape of a decorative recess (2).

- 25 10. Method according to Claim 8 or 9, in which the wood chips (4) are heated with the aid of a heat-generating means (39) of the pressing arrangement (13).

11. Method according to any one of Claims 8-10, in which the compression step also comprises, when the pressure pads (6, 11) are in the position of essentially completed compression of the wood chips (4), mechanical separation of at least two boards (8) from one another.

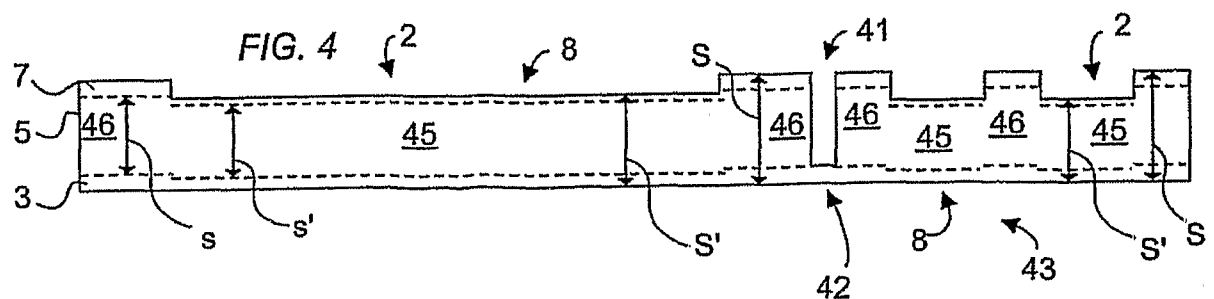
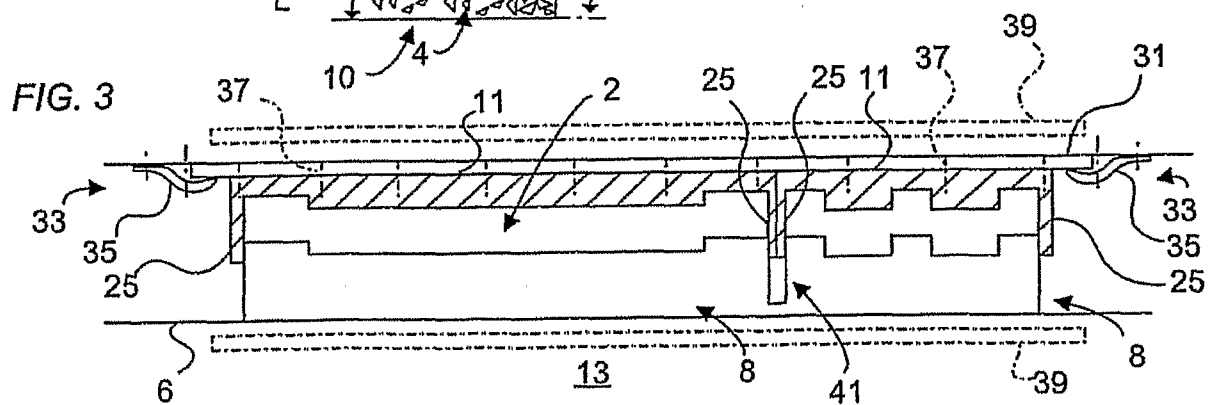
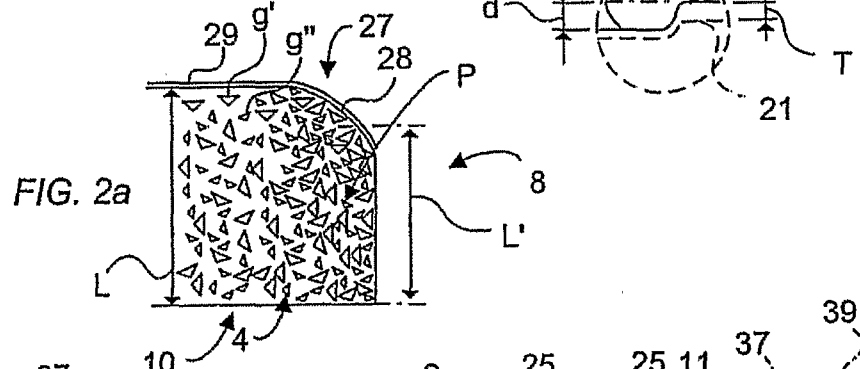
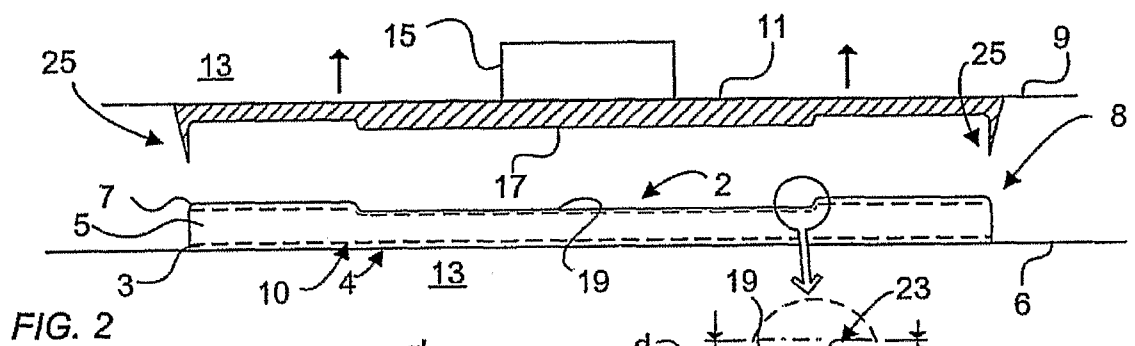
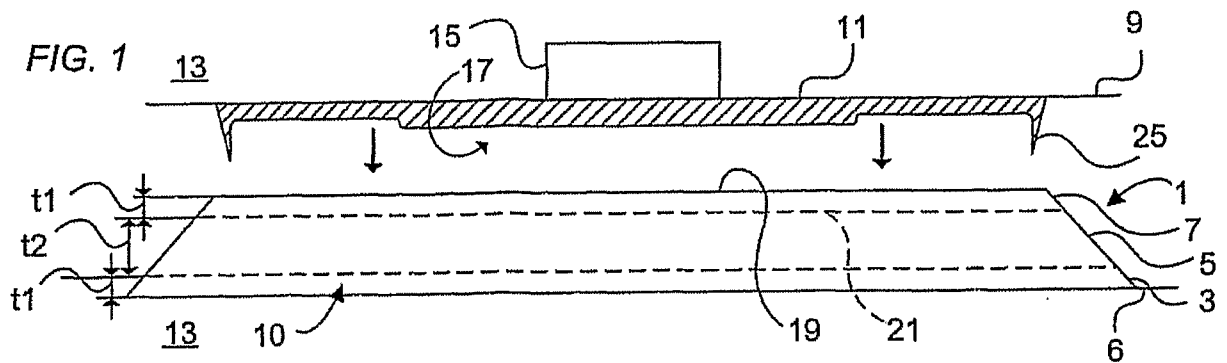
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12. Method according to any one of Claims 8-11, in which the wood chips (4) are applied to the first pressure pad (6) in such a way that wood chips (4) of finer chip size form at least one surface layer and wood chips (4) of coarser chip size form an intermediate chip layer (5).

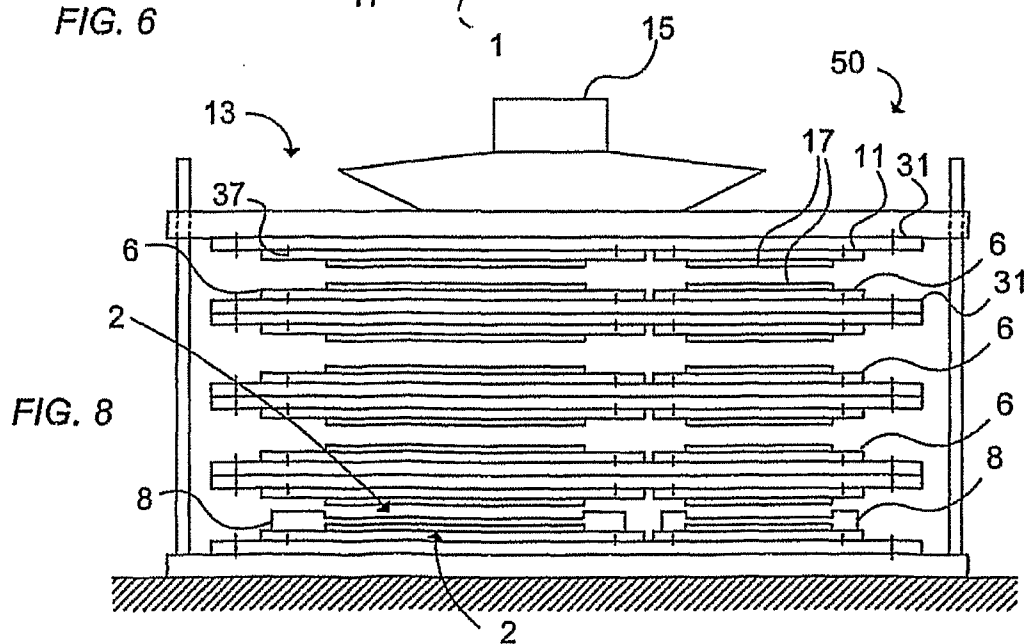
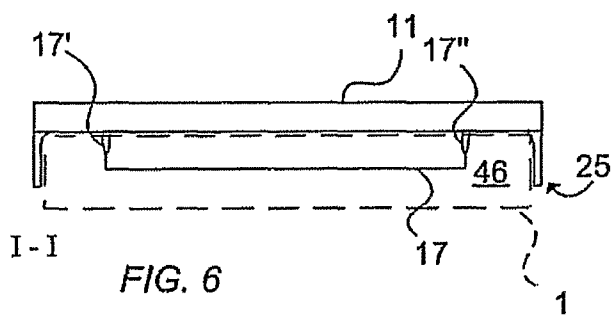
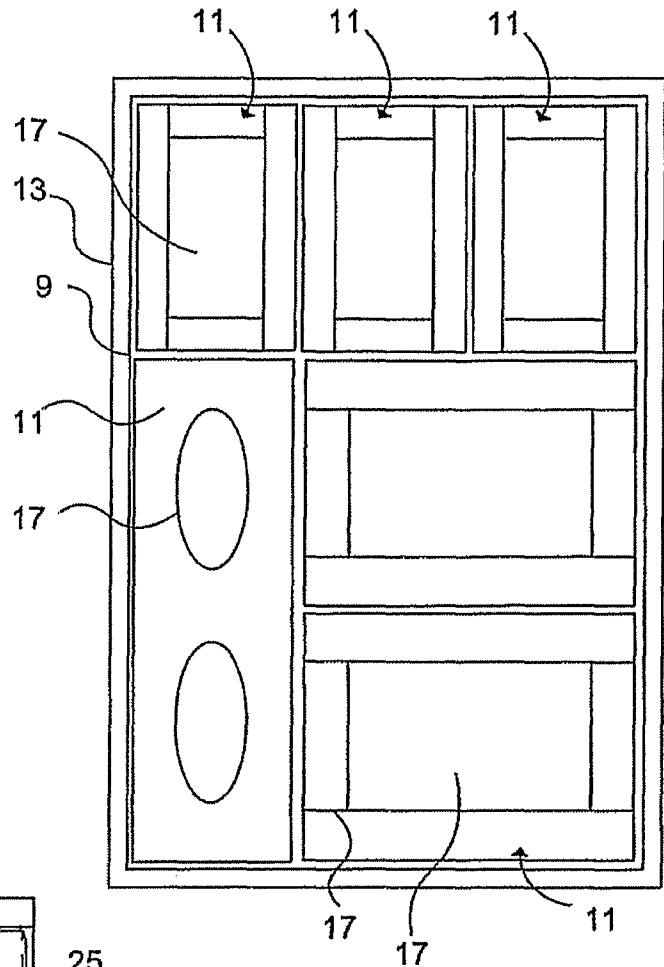
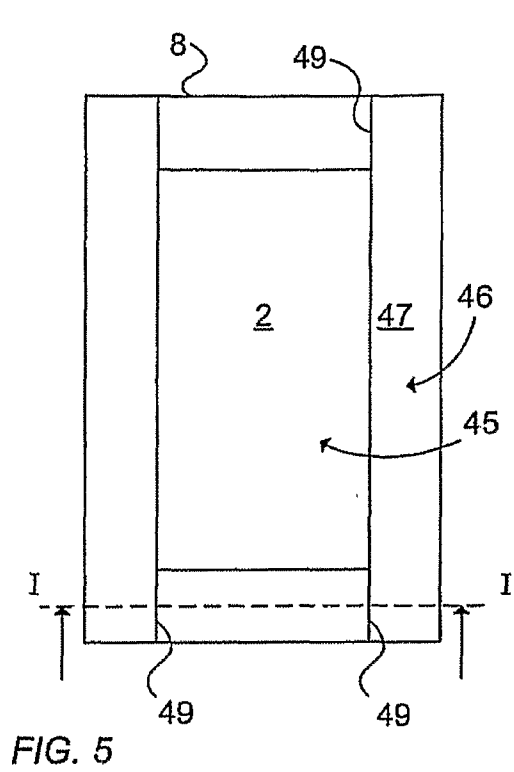
10

13. Method according to any one of Claims 8-12, in which the pressing arrangement (13) comprises a fixing pad (31) comprising fastening means (33) for mounting a number of pressure pads (6, 11).

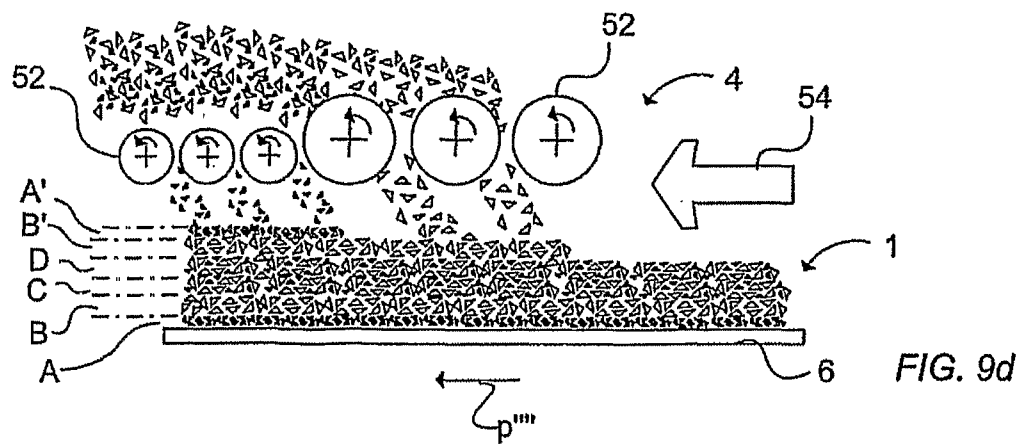
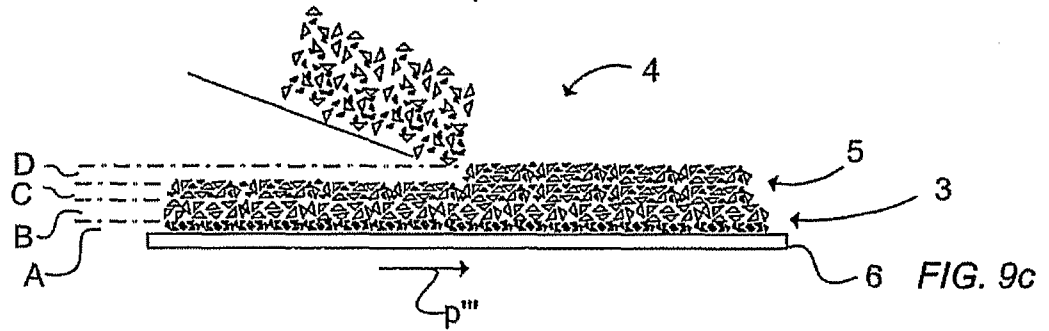
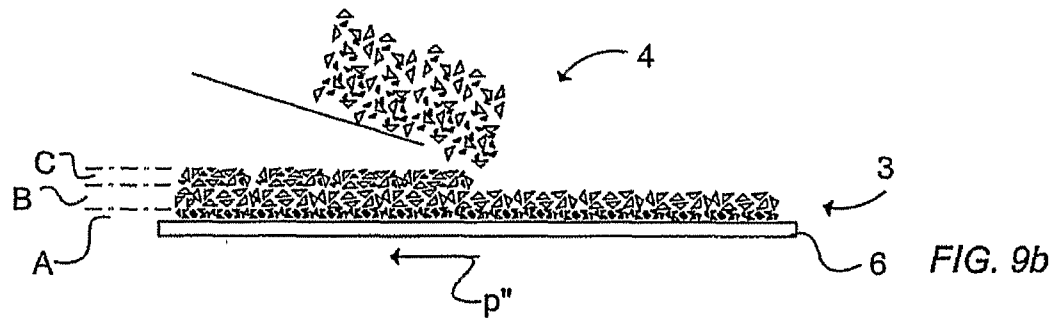
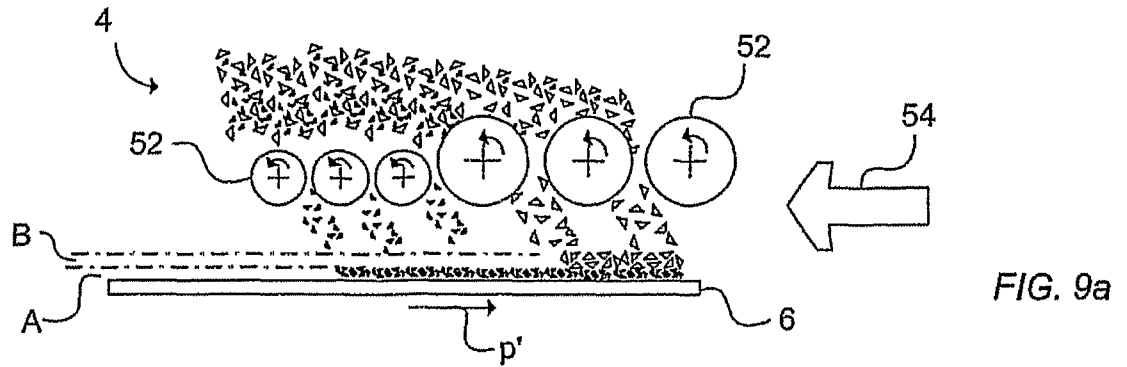
1/3



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3/3



## INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2006/003232

## A. CLASSIFICATION OF SUBJECT MATTER

INV. B27N3/08 B27N3/18 B27N3/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B27N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                  | Relevant to claim No. |
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|           | -----<br>-/--                                                                                                                                                                                                       |                       |

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

## \* Special categories of cited documents :

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- \*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 when the document is taken alone

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Date of the actual completion of the international search

20 April 2007

Date of mailing of the international search report

27/04/2007

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## INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2006/003232

## C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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## INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2006/003232

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