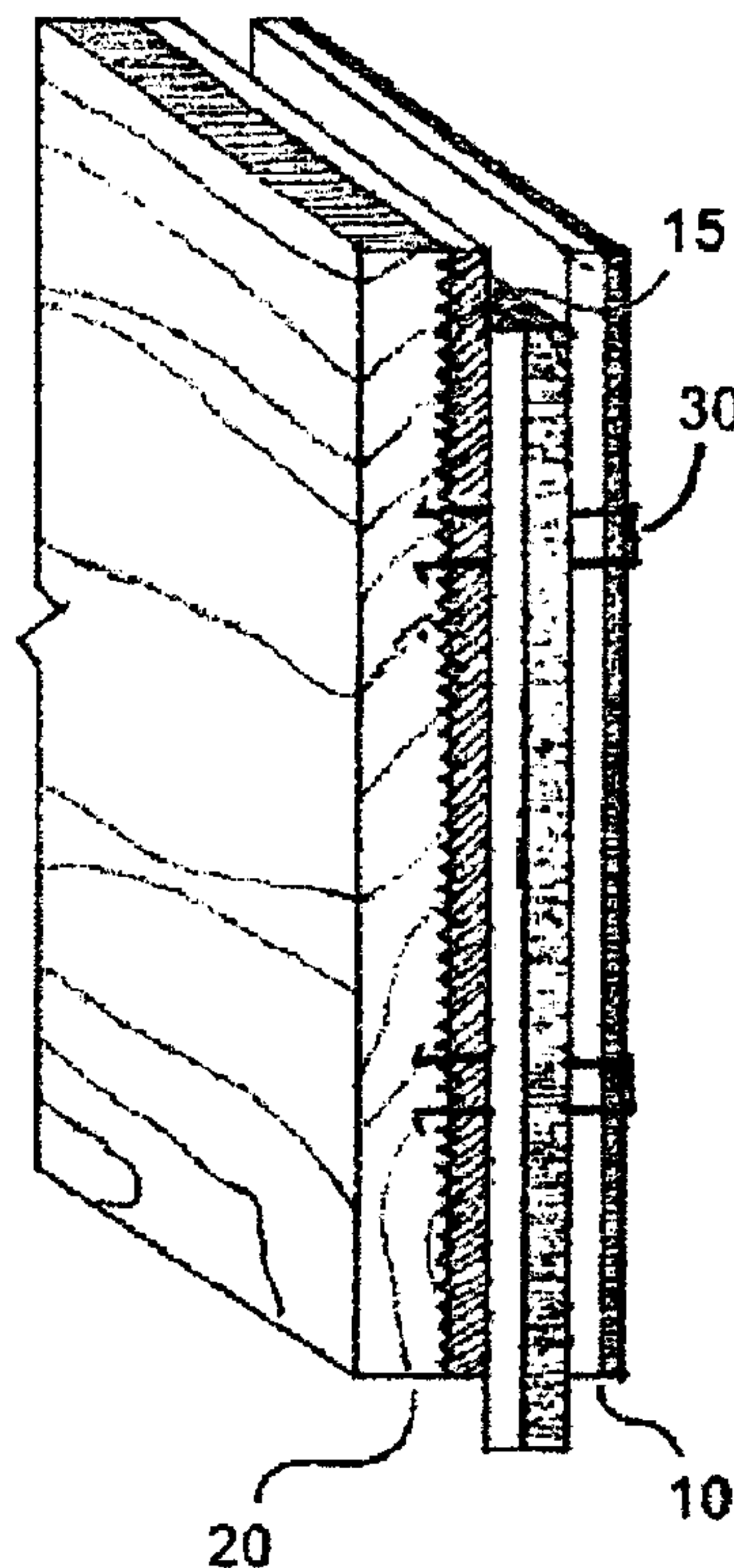




(86) Date de dépôt PCT/PCT Filing Date: 2011/05/25
(87) Date publication PCT/PCT Publication Date: 2011/12/01
(45) Date de délivrance/Issue Date: 2015/12/08
(85) Entrée phase nationale/National Entry: 2012/05/07
(86) N° demande PCT/PCT Application No.: MX 2011/000063
(87) N° publication PCT/PCT Publication No.: 2011/149322
(30) Priorités/Priorities: 2010/05/28 (MXMX/a/2010/005899);
2011/05/25 (MXMX/a/2011/005499)

(51) Cl.Int./Int.Cl. *E04F 15/022* (2006.01)
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(54) Titre : AMELIORATIONS APORTEES A DES PLANCHERS LATTES COMPOSITES, PROCEDE DE PRODUCTION ET ENTRETIEN CORRECTIF
(54) Title: IMPROVEMENTS TO COMPOSITE STAVE FLOORING, PRODUCTION METHOD THEREOF, AND CORRECTIVE MAINTENANCE OF SAME



(57) Abrégé/Abstract:

The invention relates to improvements to composite wood flooring, the production method thereof and the maintenance of same. The wood flooring strips that from the floor comprise a base board and a visible coating. The base board has a minimum thickness of 12 mm, while the visible coating has a minimum coating of 4 mm. The contact surfaces therebetween are provided with complementary tothing. The two layers are assembled to one another using adhesive and clamps.

(12) SOLICITUD INTERNACIONAL PUBLICADA EN VIRTUD DEL TRATADO DE COOPERACIÓN EN MATERIA DE PATENTES (PCT)

(19) Organización Mundial de la Propiedad
Intelectual
Oficina internacional

(10) Número de Publicación Internacional

WO 2011/149322 A3(43) Fecha de publicación internacional
1 de diciembre de 2011 (01.12.2011)**PCT**(51) Clasificación Internacional de Patentes:
E04F 15/022 (2006.01)(21) Número de la solicitud internacional:
PCT/MX2011/000063(22) Fecha de presentación internacional:
25 de mayo de 2011 (25.05.2011)

(25) Idioma de presentación: español

(26) Idioma de publicación: español

(30) Datos relativos a la prioridad:
MX/a/2010/005899
28 de mayo de 2010 (28.05.2010) MX
MX/a/2011/005499
25 de mayo de 2011 (25.05.2011) MX

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C.P.11800 México, D.F. (MX).(81) Estados designados (*a menos que se indique otra cosa, para toda clase de protección nacional admisible*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

[Continúa en la página siguiente]

(54) Title: IMPROVEMENTS TO COMPOSITE WOOD FLOORING, PRODUCTION METHOD THEREOF AND MAINTENANCE OF SAME

(54) Título : MEJORAS EN LOS SUELOS DE TARIMA COMPUESTA, MÉTODO DE REALIZACIÓN Y MANTENIMIENTO

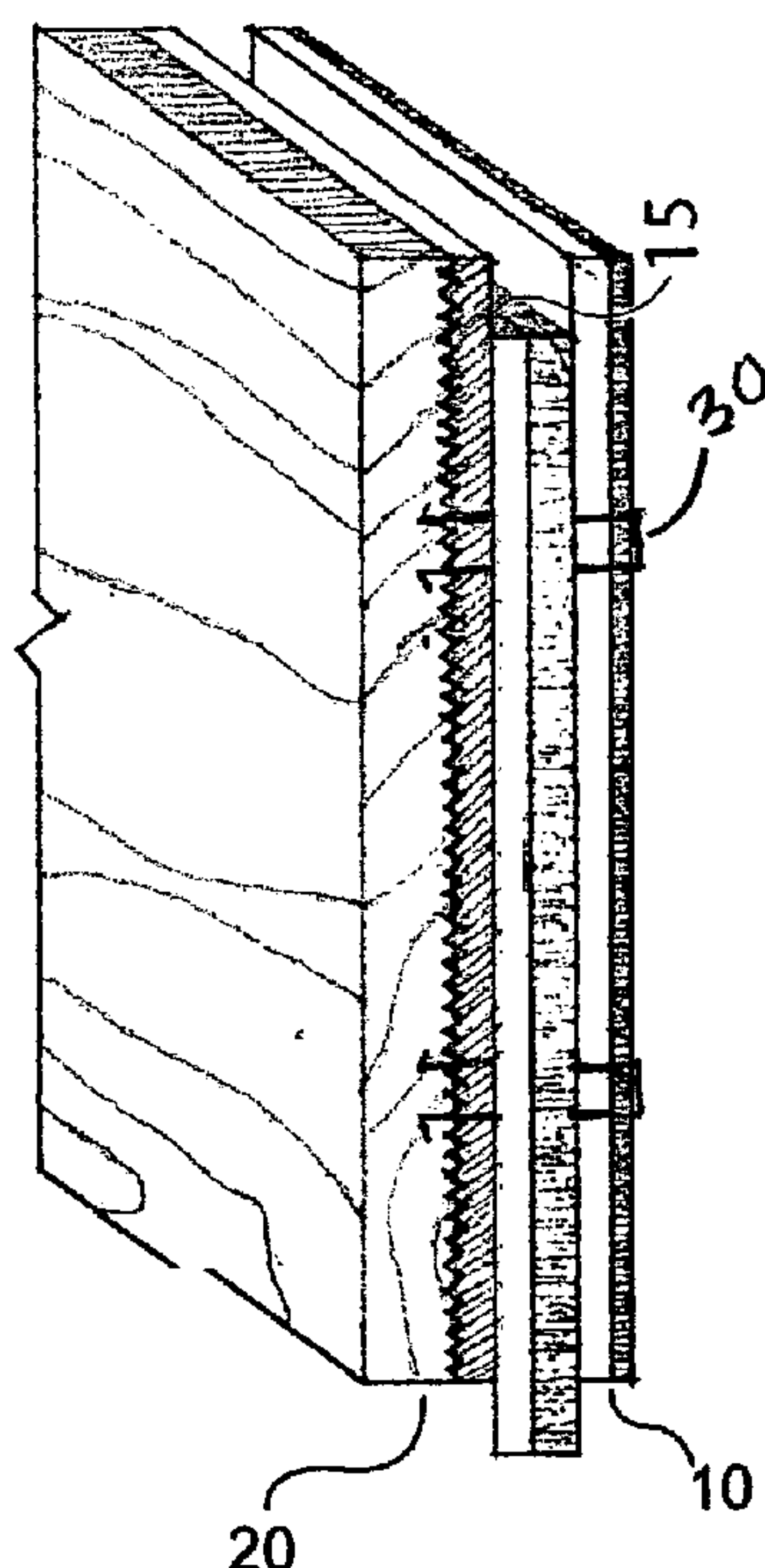


Fig. 4

(57) Abstract: The invention relates to improvements to composite wood flooring, the production method thereof and the maintenance of same. The wood flooring strips that from the floor comprise a base board and a visible coating. The base board has a minimum thickness of 12 mm, while the visible coating has a minimum coating of 4 mm. The contact surfaces therebetween are provided with complementary toothings. The two layers are assembled to one another using adhesive and clamps.

(57) Resumen: La presente invención hace referencia a las mejoras en los suelos de tarima compuesta, el método de realización y mantenimiento. Las tarimas que forman el suelo comprenden una plancha base y un revestimiento visto. El primero con un espesor mínimo de 12 mm y el segundo con un espesor mínimo de 4 mm. Las superficies de contacto entre ambas capas adoptan un relieve complementario en forma de dientes. Ambas capas se ensamblan mediante adhesivos y grapas.

WO 2011/149322 A3

WO 2011/149322 A3



(84) Estados designados (*a menos que se indique otra cosa, para toda clase de protección regional admisible*):
ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), euroasiática (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europea (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Publicada:

— *con informe de búsqueda internacional (Art. 21(3))*

(88) Fecha de publicación del informe de búsqueda internacional:

22 de marzo de 2012

**IMPROVEMENTS TO COMPOSITE STAVE FLOORING, PRODUCTION
METHOD THEREOF, AND CORRECTIVE MAINTENANCE OF SAME**

BACKGROUNDS

5 In patent application number MX/a/2010/005899, there are disclosed the drawbacks that exist in the composed a staves floors or engineering floors, which include at least a base substrate (after face) also known as core and at least a sight substrate, of finished (face) or top part for the traffic surface. The above mentioned sight substrate is selected from the group that consists of:
10 noble hard woods, exotic woods, capricious woods which, for the formation of his seam, have great acceptance on the market.

 In the know stave floors, the minimum material to be rushed for a corrective maintenance is 1 mm, whilst it is known that the sight substrate, also
15 referred as micro plates or plates, is of a thickness from 2 to 3 mm. The drawback of such a thin thickness in the sight substrate, is that on having be sanded or rushed, the remaining material warms up and tends to be deformed and eventually to become detached in partial or complete form, completely spoiling the appearance of the floor, this is, in its physical, aesthetic and
20 functional properties.

 Generally speaking, the micro plate or plate that constitutes the sight substrate, it is wood "de-rolled" of the tree trunk from which they are obtained, what affects the aesthetic properties of the final product since the forces of the
25 mechanical action on "de-rolling", generate a sheet that will tend to curl or recover his cylindrical original form. The base substrate nowadays elaborated of slung wood or against plated (triplay). Both sheets are joined by means of glue. A disadvantage on having used only the glue is that with the opened period, both sheets can suffer deformations and/or changes of displacement
30 between them as well as changes of dimensions. Another disadvantage is that there is necessary to provide a uniform and leveled surface of assembly, in order to ensemble both sheet, as well as to held a constant pressure in order to reach the correct adhesion when the glue is uniformly distributed between both substrates. Another additional disadvantage is the long time that the pieces

must remain static, without moving; in order that the glue hardens completely usually, the above mentioned times consist in several days. The compose stave floors life due to the thin thickness of the plate of the noble layer or sight substrate of the known composed stave floors is very short, and without a possibility of providing corrective maintenance. Though the materials are supplied pre-varnished from the supplier, the thin thickness of the sheet, does not offer a solid base of attachment and the resistance of the glaze is poor, being susceptible to be easily scratched, or it suffers easily the effect of peeling.

10

Currently, the technique it is faced with the problem of joining both sheets of plate preventing the displacement or change of dimensions; as previously noted, different factors, prevent that they are fixed in a firm way, even though patent application number MX/a/2010/005899, tried to solved the problem, finding great benefits, it was not the awaited solution.

15

The previous and additional drawbacks are overcome with the present invention, which will be apparent from the attached drawings and the detailed description of the invention.

20

SUMARY OF THE INVENTION

An object of the present invention is to preserve the physical, aesthetic and functional properties in sight substrate of composed stave floors or engineering floors.

25

Another object of the present invention is to provide a sight substrate for composite stave compounds or engineering floors, without trend to be deformed.

30

An additional object of the present invention is to bond both sheets without displacement or change of dimensions, using bonding means such like dendrite, glue, knitted wire, clamps, or cemented clamps or divergent legs.

Another object of the present invention is to provide to the floors with a major time of useful life and to allow giving him corrective maintenance.

5 An additional object of the present invention is to provide improved composed stave floors, with applied glaze from supplier, eliminating the time and the inconveniences of the application of the glaze in period of the installation. Site preferred glazes include aluminum oxide or another metal that provide higher hardness without changing its aesthetic appearance.

10 All the numbers, numerical parameters and / or ranges that are express here with, for example, sizes or thicknesses, used in the specification and claims, will to be understood as modified in all the instances by the term "approximately". Accordingly, unless it is indicated on the contrary, the numerical parameters established in the following specification and attached
15 claims, are approximations that can change depending on the properties provided by the present invention. As minimum, and not as an attempt for limiting the application of the doctrine of equivalents to the scope the claims, every numerical parameter will have to be considered at least in the light of the number of significant reported digits and for application of techniques of
20 ordinary rounded.

Likewise, there will to be understood that any numerical range described herein is intended to embrace all the sub-ranges there included: for example, a range of " 1 to 10 " is intended to include all the intermediate sub-ranges (and
25 including) the minimal described value of 1 and the maximum described value of 10, this is with a minimal value equal to, or major that 1 and one maximum value equal to, or minor that 10.

BRIEF DESCRIPTION OF THE DRAWINGS

30

The previous ones and other characteristics and advantages of the present invention will be apparent for those stilled in the art, by reading read the following description with reference to the drawings where:

Figure 1 is a view in perspective of a composed stave floor or conventional engineering floor.

Figure 2 is a perspective cross-section view of a compose stave floor or engineering floor that shows the base substrate (after face) (10), dendrite (15) and the sight substrate or of finished (face) (20) for the traffic surface of the present invention.

Figure 3 is a side view of a compose stave floor or engineering floor of the present invention, which illustrates multidirectional holding: dendrite (15), in conjunction with adhesion means and horizontal reinforcement means, or in the union plane: glue, and adhesion means and vertical or normal reinforcement means perpendicular with respect to the union plane: clamp, divergent clamp and / or cemented clamp (30), under the teachings described in my previous Mexican patent No. 189,203.

Figure 4 is a perspective cross-section view of a compose stave floor or engineering floor of the present invention, which depicts the means of holding, as it is described in my previous Mexican patent No. 189,203.

20

Figure 5 is a representation that shows a perspective top view of a compose stave floor or floor of conventional engineering floor showing detachment.

Figure 6 shows a top view of a compose stave floor or floor of conventional engineering floor, wavy deformed.

DETAILED DESCRIPTION OF THE FIGURES

Whereas the invention will be described with reference to the mentioned embodiments, it should be understood that the above mentioned embodiments will not limit the invention. The sizes in the figures are exaggerated with purpose of clarity

30

In Figure 1, depicts the composed stave floor or conventional engineering floor which includes at least a base substrate (after face) (10) also known as a core and at least a sight substrate, of finished face or top part (20), having a thickness from 2 to 3 mm for the traffic surface;

In Figure 2, is shown the base substrate (after face) (10) having a practical minimal thickness from 12 to 19 mm; the sight substrate or finished (face) (20) having a practical minimal thickness of at least 4 mm and the dendrites (15), for the traffic surface of a composed stave floor in accordance with the present invention.

Figure 3 is a perspective cross-section view of a compose stave floor or engineering floor which illustrates multidirectional holding means, including: dendrite (15), in conjunction with adhesion means and horizontal reinforcement means, or in the union plane: glue, and adhesion means and vertical or normal reinforcement means perpendicular with respect to the union plane: clamp, divergent clamp and/or cemented clamp (30). In the union plane: glue; and adhesion and vertical reinforcement means perpendicular or normal to the union plane: clamp, divergent clamp and/or cemented clamp (30); that join the base substrate (after face) (10) with thickness from 15 to 19 mm and the sight substrate or of finished (face) (20) having a practical minimal thickness of at least 4 mm, for the traffic surface of a composed stave floor in accordance with the present invention.

In an embodiment, the face substrate of the example embodiment is obtained from decorative or functional substrate, wood cut in tangential form, quarter form or another possible cutting, giving it a beautiful appearance and without limiting the manifestation of the natural seams, preserving its properties of uniform physical resistance that is maintained along the length of the entire substrate.

EXAMPLES

Example of Composed Stave Floor or Conventional Engineering Floor

A conventional composed stave floor or conventional engineering floor was manufactured including at least a base substrate (after face) also known as a core and at least a sight substrate(12), of finished (face) or top part for the traffic

surface. After a short period of time, the conventional composed stave floor exhibited detachment as shows in FIG. 5.

On the other hand a test of deformation was conducted by applying the glue in conventional form to the sight substrate(12), of finished (face) or top part for the traffic surface, resulting in a simple sight perceptible frizziness as it is shown in Figure. 6.

Example of Composed Stave Floor or Engineering Floor of the Invention

A composed stave floor or engineering floor of the example embodiment, was manufactured comprising a base substrate (after face) having a thickness of 15 mm and a sight substrate, of finished (face) or top part for the traffic surface having thickness of 6 mm. The assembly of both substrates was carried out by gluing both substrates, using multidirectional holding means: dendrite (15), in conjunction with adhesion and horizontal reinforcement means in the union plane: glue; and adhesion and reinforcement vertical means normal to the union plane: clamp, divergent clamp and/or cemented clamp (30), the clamps being distributed in an uniform way. The composed stave floor of the present invention thus obtained did not present deformation or any detachment. After a period of use when it required corrective maintenance, it was possible to provide the mentioned maintenance, it was possible to provide the mentioned maintenance, obtaining again the physical, aesthetic and functional properties of the original floor. Thus the present invention provides the floors with increased durability.

Diverse embodiments of the invention have been described in order to reach the diverse objects of the invention. Should be admitted that the embodiments are only illustrative of the general principles of the present invention.

CLAIMS

1. A flooring plank which allow to provide corrective maintenance without reducing the physical, aesthetic and functional properties thereof, the flooring plank comprising:

a sight substrate having a thickness of at least 4 mm; and

a base substrate having a thickness of at least 12 mm,

wherein the base substrate and the sight substrate are assembled together with glue and multidirectional holding means, the multidirectional holding means comprising:
dendrites, adhesion and horizontal stiffing means in a union plane, and adhesion and vertical stiffing means normal to the union plane,

and wherein the glue is uniformly distributing between the sight substrate and the base substrate, providing thus increased stability and durability the floors.
2. The flooring plank of claim 1 wherein the adhesion and horizontal stiffing means consists of glue.
3. The flooring plank of claim 1 wherein the vertical stiffing means comprises a clamp.

4. The flooring plank of claim 3 wherein the clamp comprises at least one of: a divergent clamp; and a cemented clamp.
5. The flooring plank of claim 1 wherein the sight substrate is formed by cutting wood in one of: a tangential form; and quarter.
6. The flooring plank of claim 1 wherein the flooring plank is for one of: a composed stave floor; and an engineered floor.
7. A method for the manufacture of flooring, comprising:

providing a sight substrate having a thickness of at least 4 mm;

providing a base substrate having a thickness of at least 12 mm; and

assembling the base substrate and sight substrate together with glue and multidirectional holding means, the multidirectional holding means consisting of: dendrites, adhesion and horizontal reinforcement means, in a union plane, and adhesion and vertical reinforcement means, normal to the union plane.
8. The method of claim 7, wherein the adhesion and horizontal reinforcement means consist of glue.

9. The method of claim 7, wherein the adhesion and vertical reinforcement means are selected from one in a group consisting of knitted wire, a clamp, a divergent clamp, and a cemented clamp.
10. The method of claim 7, wherein the sight substrate is selected from one in a group consisting of: noble hard wood; exotic wood; and capricious wood.
11. The method of claim 7, wherein the base substrate is selected from one in a group consisting: medium density fiber (MDF) boards; minor quality woods; and PVC.
12. The method of claim 7, wherein the sight substrate is made of wood cut in one of: tangential form; and cut in quarters.
13. The method of claim 7, wherein assembling the base substrate and the sight substrate further comprises providing constant pressure holding means between both substrates, in order to uniformly distribute glue between both substrates.
14. A composed stave floor obtainable from the method of claim 7.
15. A method for providing maintenance to a composed stave floor, comprising the steps of:
 - a) conducting a first maintenance, by removing a commercial composed stave floor and providing a compose stave floor, obtainable by the method of claim 7, and

b) conducting a second maintenance by means of sanding or polishing 1 mm of the sight substrate and varnishing the composed stave floor from step (a).

16. The method of claim 15, further comprising:

c) conducting a third maintenance by means of sanding or polishing 1 mm of the sight substrate and varnishing such sight surface of the composed stave floor from step (b).

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PRIOR ART

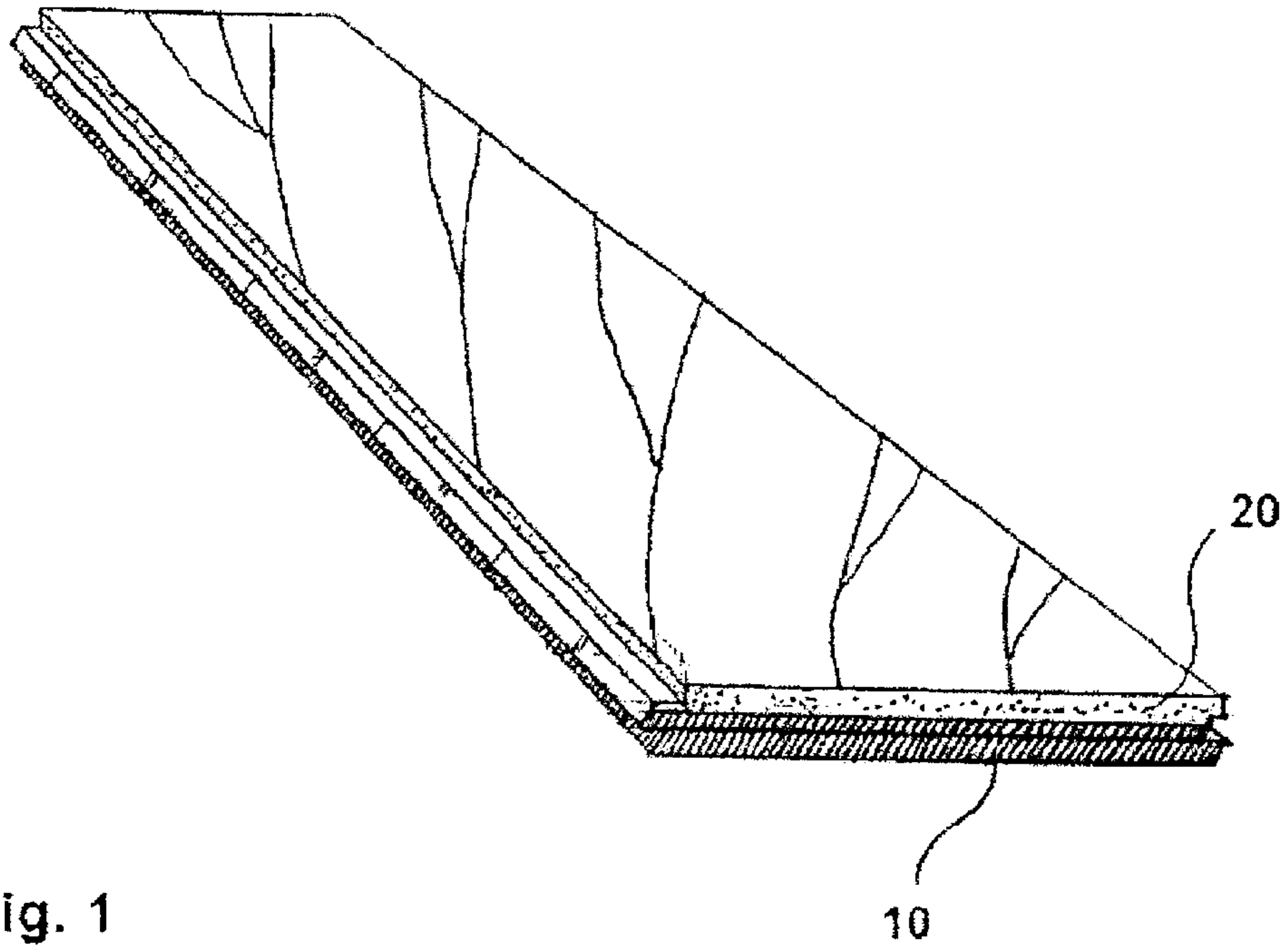


Fig. 1

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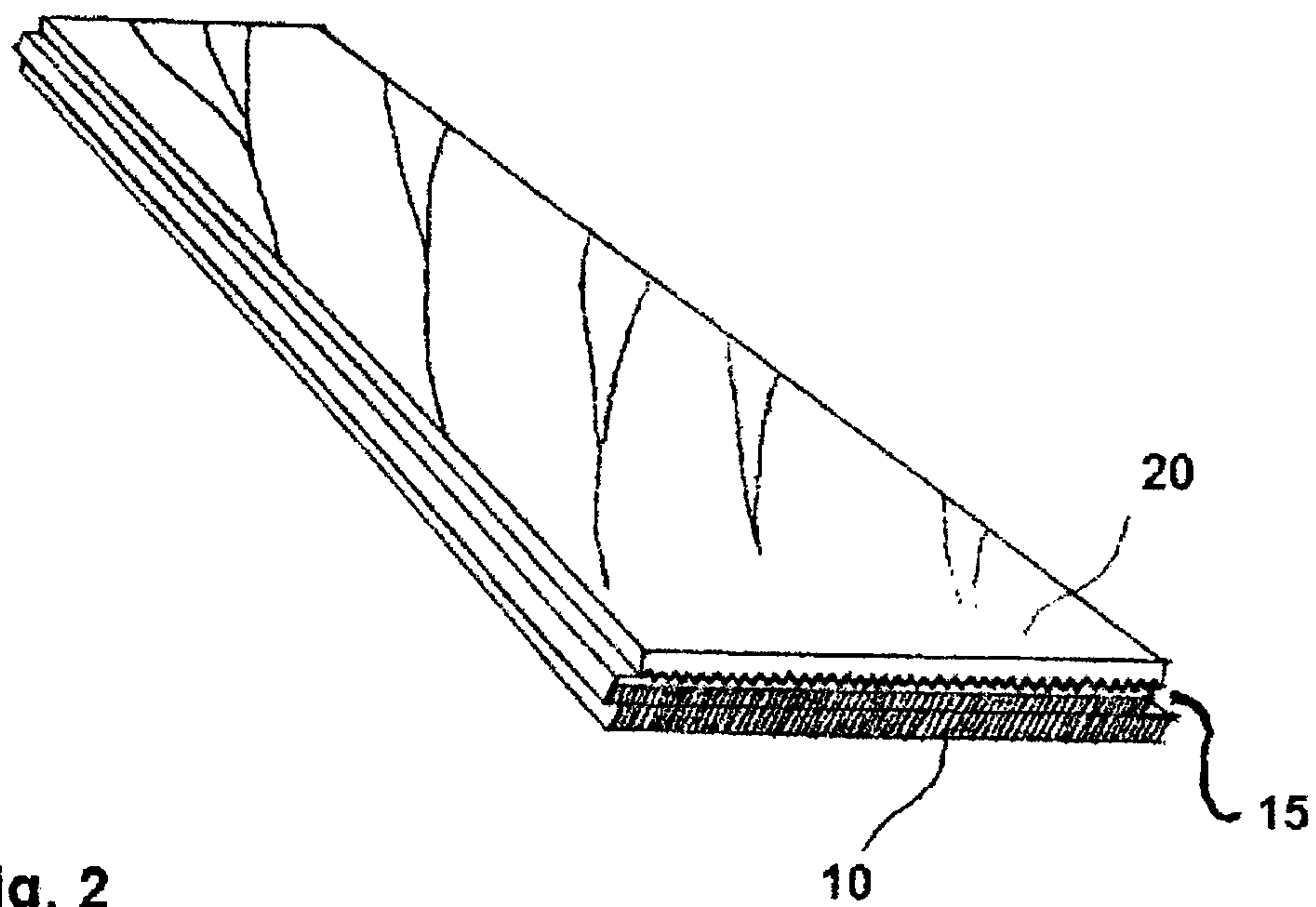
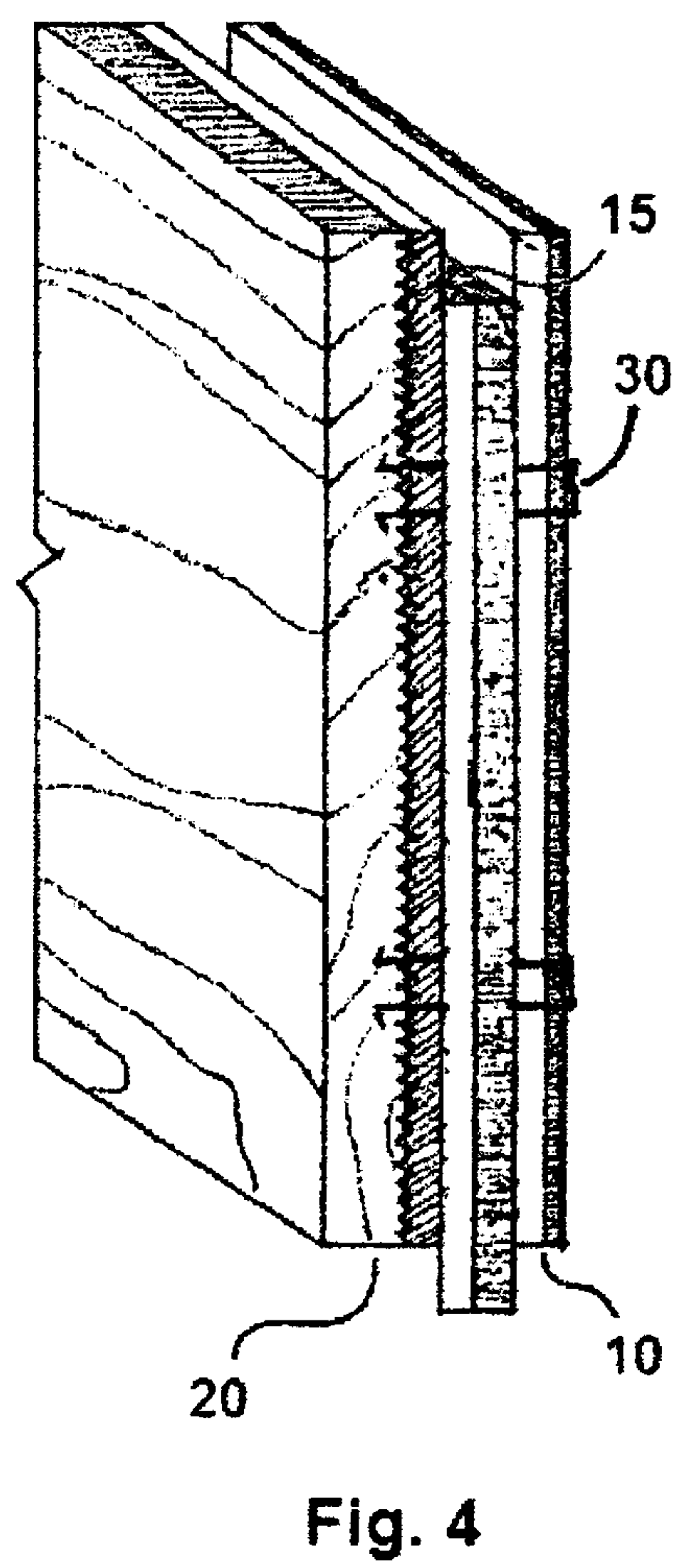
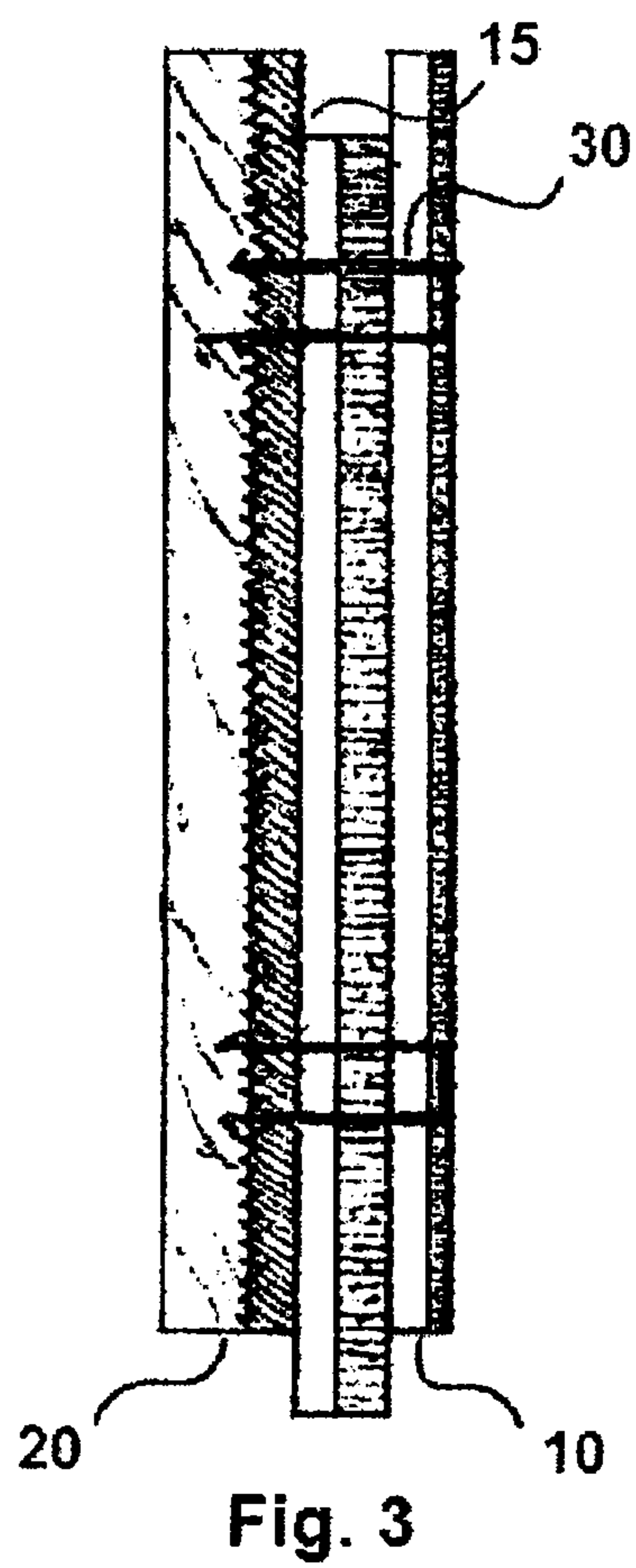


Fig. 2

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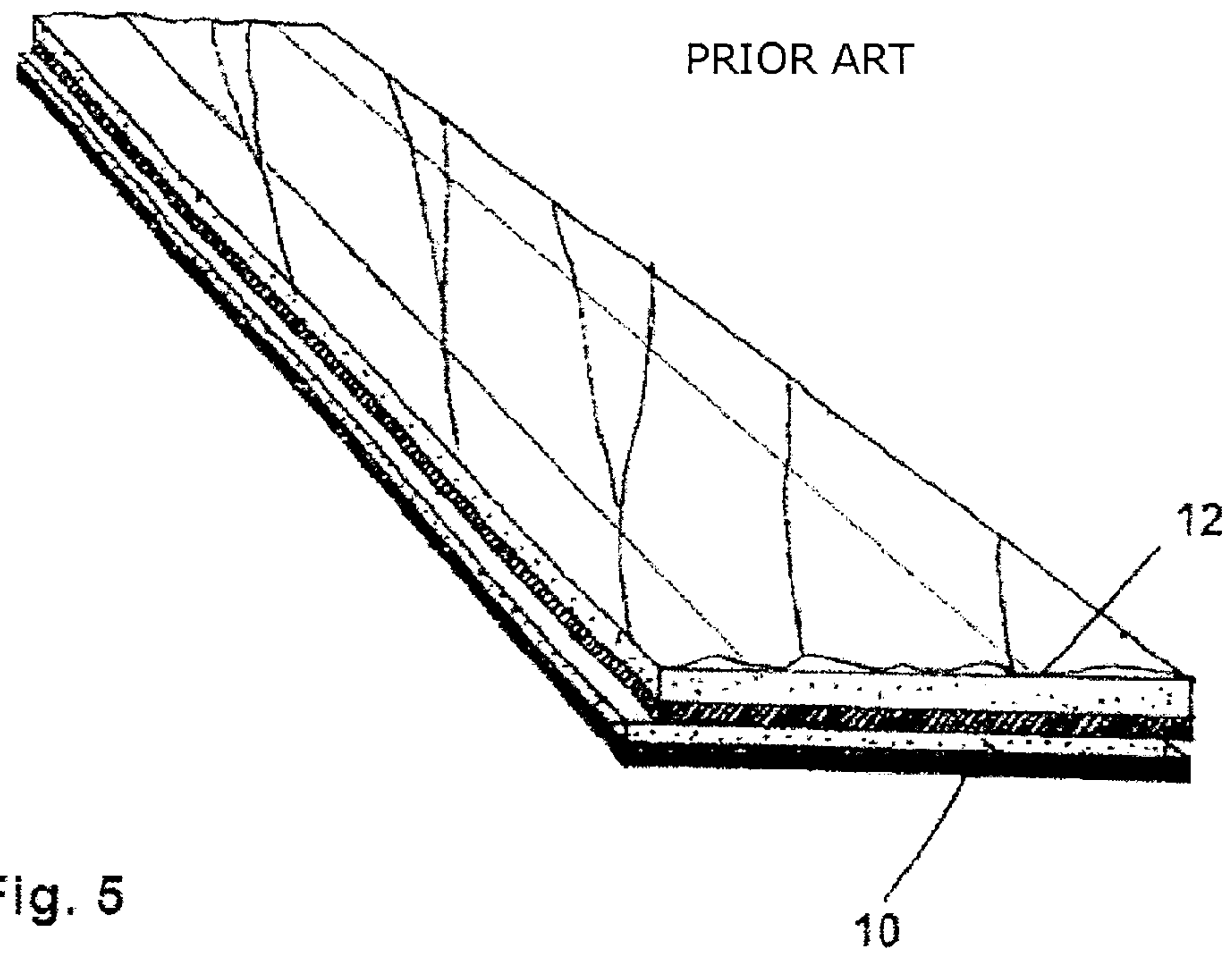


Fig. 5

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