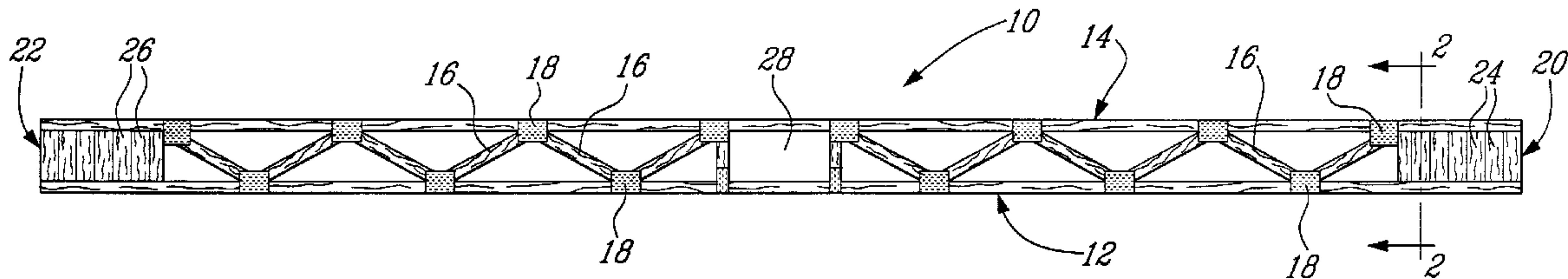




(22) Date de dépôt/Filing Date: 2001/02/13  
(41) Mise à la disp. pub./Open to Public Insp.: 2002/08/13

(51) Cl.Int.<sup>7</sup>/Int.Cl.<sup>7</sup> E04C 3/16  
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(54) Titre : UNE SOLIVE EN BOIS D'OSSATURE  
(54) Title: A STRUCTURAL WOODEN JOIST



(57) Abrégé/Abstract:

The structural wooden joist described comprises a lower chord, an upper chord, a plurality of connector members spaced along the joists and extending between the upper and lower chords, a plurality of plates attaching the connector members to the lower and upper chords and a laminated panel structure mounted at each end section of the joist. Each panel structure extends from an opposite end of the upper/lower chords to adjacent a first of the plurality of attachment plates and defines an uninterrupted surface which is formed of a series of elongated vertical planks secured edgewise to one another whereby the joist has opposite ends which are trimmable to provide one of reduced width.

## **ABSTRACT**

The structural wooden joist described comprises a lower chord, an upper chord, a plurality of connector members spaced along the joists and extending between the upper and lower chords, a plurality of plates attaching the connector members to the lower and upper chords and a laminated panel structure mounted at each end section of the joist. Each panel structure extends from an opposite end of the upper/lower chords to adjacent a first of the plurality of attachment plates and defines an uninterrupted surface which is formed of a series of elongated vertical planks secured edgewise to one another whereby the joist has opposite ends which are trimmable to provide one of reduced width.

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**TITLE OF THE INVENTION**

A structural wooden joist.

**5 FIELD OF THE INVENTION**

The present invention pertains to a structural wooden joist used in building constructions.

**10 BACKGROUND OF THE INVENTION**

Wooden joists are used increasingly in a number of building applications. They comprise top and bottom elongated chords with intervening struts joined to the chords by means of scarfing.

15 One such wooden joist may be found described in U.S. Patent No. 5,867,963 issued February 9, 1999 to Hershey and consists of a truss that includes essentially diagonal web members and, at each respective end, there is provided a section extending between the lower and the upper chords and creating an opening into which a separate trimmable section is inserted. The trimmable  
20 member, located within the insert opening at each opposite end, has upper/lower subchords which are generally in parallel relationship with the upper/lower chords of the joist. These inserts are secured in place by means of attachment plates which are located at the opposite ends of the joist. There results a joist with bulky end sections due to the presence of additional subchord members.  
25 Also, these sections are limited in their trimming to the presence of metallic the attachment plates.

**OBJECTS AND STATEMENT OF THE INVENTION**

It is an object of the present invention to provide an improved wooden joist which  
30 is simpler in construction from that known from the prior art. The joist includes a laminated panel structure at each end section between the upper and lower

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ends of the joist; the planks forming the panel structure are adhesively secured directly to the upper/lower chords of the joist.

5 The present invention therefore relates to a structural wooden joist, which comprises:

- a) an elongated lower chord;
- b) an elongated upper chord in a spaced apart generally parallel opposed relation to the lower chord;
- c) a plurality of connector members spaced along the joist and extending  
10 between the upper and lower chords; the plurality of connector members terminating inwardly from opposite ends of the joist to define a pair of end sections of the joist;
- d) a plurality of attachment plates attaching the connector members to the lower and upper chords; and
- 15 e) a laminated panel structure mounted at each end section; the laminated panel structure extending from each opposite end of the upper and lower chords to adjacent a first of the plurality of attachment plates; the laminated panel structure defining an uninterrupted surface having opposite lower and upper sides adhesively joined to the lower and upper chords respectively; each panel  
20 structure being formed of a series of elongated planks secured edgewise to one another whereby the joist has opposite ends which are trimmable to provide a joist of reduced width.

25 In one form of the invention, the central area of the joist includes a region which is free of connector members.

In a further form of the invention, the above-mentioned region free of connector members displays a laminated panel structure similar in construction to that found at each opposite ends of the joist.

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Other objects and further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. It should be

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understood, however, that this detailed description, while indicating preferred embodiments of the invention, is given by way of illustration only since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art.

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### **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is an elevational view of a wooden joist made in accordance with the present invention;

10 Figure 2 is a cross-sectional view taken along lines 2-2 of figure 1;

Figure 3 is an elevational view of another embodiment of a wooden joist made in accordance to the present invention; and

15 Figure 4 is a cross-sectional view taken along lines 4-4 of figure 3.

### **DESCRIPTION OF PREFERRED EMBODIMENTS**

Referring to figure 1, there is shown a structural wooden joist, generally denoted 10, which comprises an elongated lower chord 12 and an elongated upper chord 14 in spaced apart generally parallel opposed relation to the lower chord 12.

In the major central region of the joist, there is provided a plurality of connector members 16 which extend diagonally between the upper and lower chords 12 and 14. A plurality of metallic plates 18 disposed on either side of the joist attaches the connector members 16 to the lower chord 12 and the upper chord 14.

In a first embodiment illustrated in figures 1 and 2, there is mounted at each opposite end of the joist a laminated panel structure 20, 22, each consisting of a series of vertically extending planks 24, 26. These planks are secured in edgewise fashion to one another, preferably by glue. These planks have their lower and upper ends joined to the lower and upper chords by scarfing or finger

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joints 24a and 24b. A structural glue may also be used to further secure the panels to the chords.

In the embodiment illustrated in figures 1 and 2, there is a central region 28,  
5 which is free of connector members.

In the embodiment illustrated in figures 3 and 4, there is shown a wooden joist, generally denoted 110, which is longer than the joist illustrated in figures 1 and 2, and which is shown schematically as being adapted to be supported by three  
10 support members 111a, 111b and 111c. The wooden joist 110 may consist of two wooden joists 10' similar to the wooden joist 10 illustrated in figure 1, each comprising a lower chord 12', an upper chord 14', a series of connectors 16' and attachment plates 18'. The adjacent lower/upper chords may be adhesively secured by scarfing. The opposite ends of the joist include a laminated panel  
15 structure 20', 22', which is constructed identically to the panel structures 20, 22 of the embodiment illustrated in figure 1. Each joist 10' may also include a free central area 28'.

The central region of the joist 110 displays a laminated panel 30 which is formed  
20 of a series of vertically extending planks 32 having opposite ends 32a and 32b joined to the upper/lower chords by means of scarfing or finger joints. This panel structure 30 is identical in construction to the panel structures 20' and 22' in that it is formed of planks, which are adhesively secured edgewise to one another.

25 The wood used for all planks of the panel is a kiln dry wood, preferably one selected from the group consisting of fir, spruce and pine. The wood fibers extend in the longitudinal direction of the plank.

Also, the structural glue used in securing the planks together, as well as used in  
30 the scarfing, is one preferably having a base of resin resorcinol, such as phenol-resorcinol resin, or one having a base of urethane, or any one approved for structural wood construction.

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Although the invention has been described above in respect to the two specific forms, it will be evident to a person skilled in the art that it may be modified and refined in various ways. For example, the central regions 28 in figure 1 or 28' in  
5 figure 3 could also be closed by means of a panel structure. Also, the connector members, although shown extending diagonally between the chords, could also extend vertically. Furthermore, a plank may be formed of two superposed planks joined by finger joints and glue. It is therefore wished to have it understood that the present invention should not be limited in scope, except by  
10 the terms of the following claims:

## CLAIMS

1. A structural wooden joist comprising:
  - a) an elongated lower chord;
  - b) an elongated upper chord in a spaced apart generally parallel opposed relation to said lower chord;
  - c) a plurality of connector members spaced along said joist and extending between said upper and lower chords; said plurality of connector members terminating inwardly from opposite ends of said joist to define a pair of end sections of said joist;
  - d) a plurality of attachment plates attaching said connector members to said lower and upper chords; and
  - e) a laminated panel structure mounted at each said end section; said laminated panel structure extending from each said opposite end of said upper and lower chords to adjacent a first of said plurality of attachment plates; said laminated panel structure defining an uninterrupted surface having opposite lower and upper sides adhesively joined to said lower and upper chords respectively; each said panel structure being formed of a series of elongated planks secured edgewise to one another; whereby said joist has opposite ends which are trimmable to provide a joist of reduced width.
2. A structural wooden joist as defined in claim 1, wherein each said laminated panel has upper and lower edges secured to said chords by finger joints.
3. A structural wooden joist as defined in claim 1, wherein said planks extend perpendicularly to said upper and lower chords.
4. A structural wooden joist as defined in claim 1, wherein said planks are glued edgewise to one another.

5. A wooden structural joist as defined in claim 1, including a central region free of connector members and of attachment plates.

6. A structural wooden joist as defined in claim 5, further comprising a laminated panel structure in said central region; said panel structure defining an uninterrupted surface having opposite lower and upper sides adhesively joined to said lower and upper chords respectively; said panel structure of said central region being formed of a series of elongated planks secured edgewise to one another.

7. A structural wooden joist as defined in claim 6, wherein said planks are glued edgewise to one another.

8. A structural wooden joist as defined in any one of claims 1 to 7, wherein said planks are made of kiln dry wood.

9. A structural wooden joist as defined in claim 8, wherein said wood is selected from the group including fir, spruce and pine.

10. A structural wooden joist as defined in any one of claims 1 to 9, wherein fibers in said planks extend in the longitudinal direction of said planks.

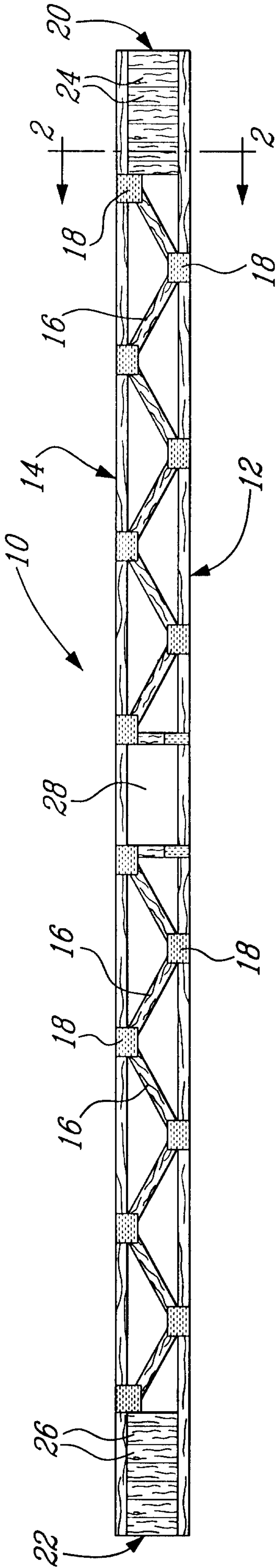


FIG. 1

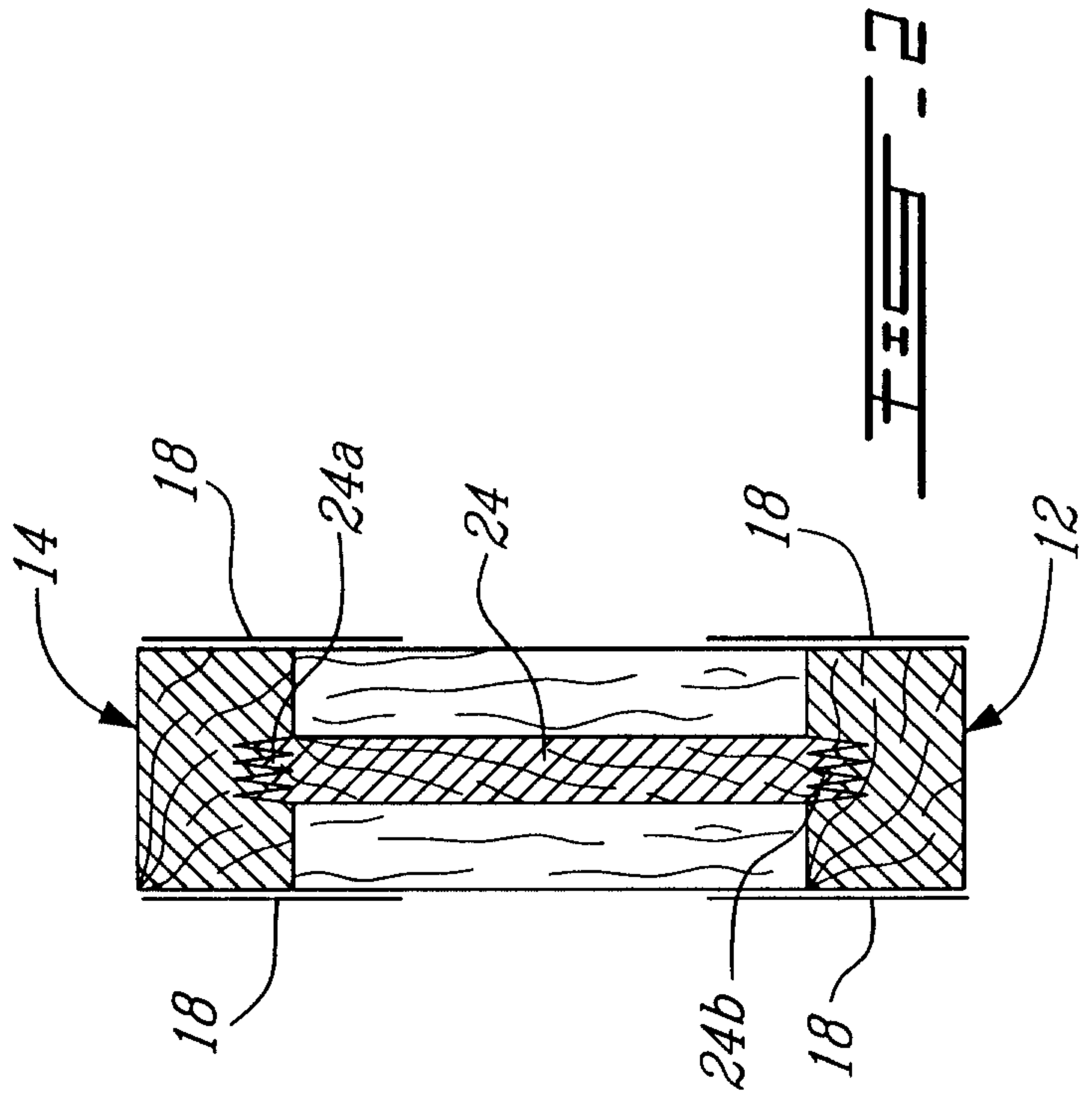


FIG. 2

