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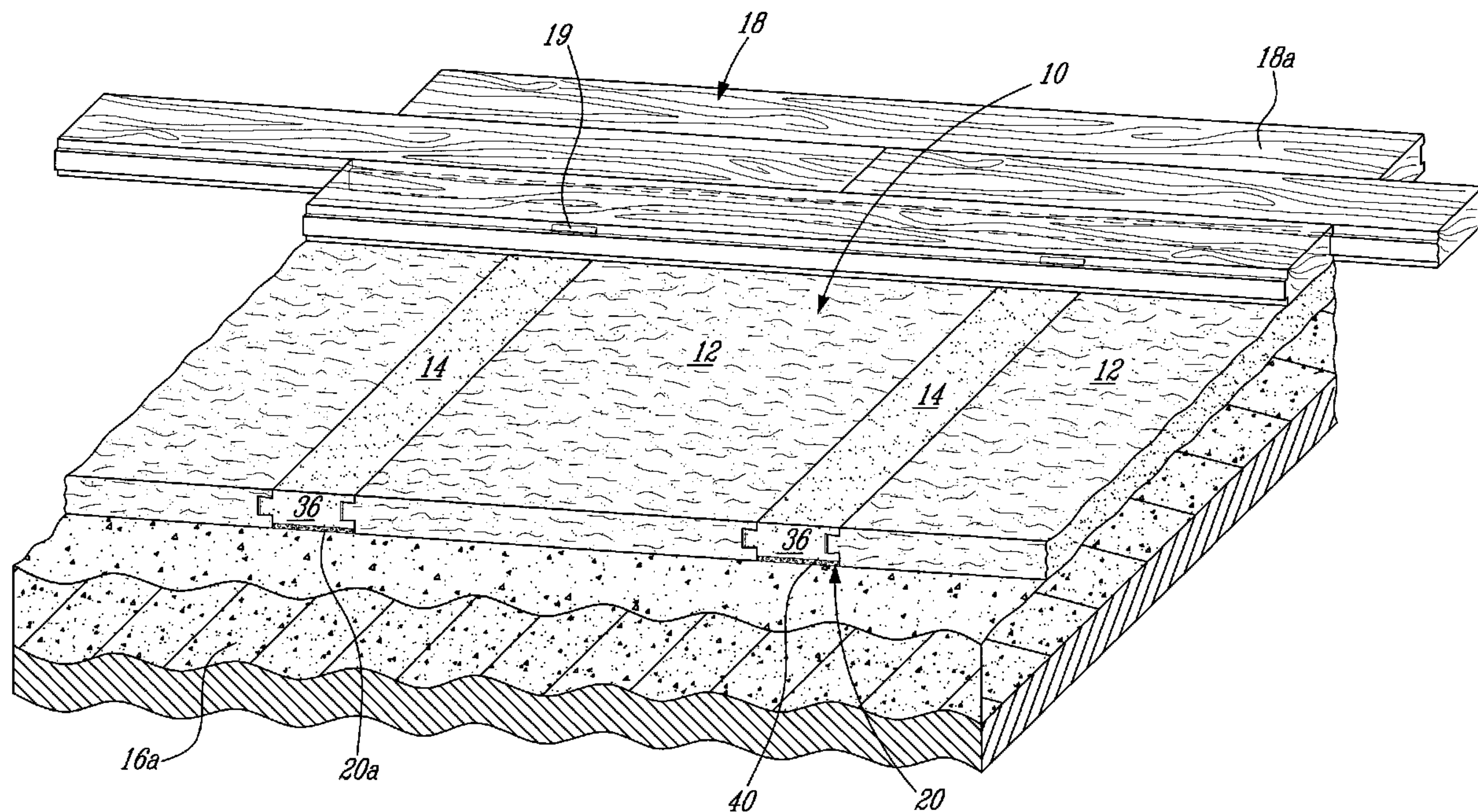
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(54) Titre : FAUX PLANCHER EN PANNEAUX DE FIBRES

(54) Title: FIBERBOARD COUNTER FLOOR



(57) Abrégé/Abstract:

The fiberboard counter floor is for installation between a subfloor and a flooring. It includes panels and can also include fastener-receiving boards used between the panels to receive fasteners of the flooring. The panels are made of a construction-grade low-density fiberboard and have two opposite mating sides. The fastener-receiving boards have a body made of a construction-grade medium-density fiberboard and also have two opposite mating sides, each one of the opposite mating sides of the fastener-receiving board being shaped to matingly engage a corresponding mating side of the insulating panels. The fiberboard counter floor can be used for soundproofing.

### **Abstract**

The fiberboard counter floor is for installation between a subfloor and a flooring. It includes panels and can also include fastener-receiving boards used between the panels to receive fasteners of the flooring. The panels are made of a construction-grade low-density fiberboard and have two opposite mating sides. The fastener-receiving boards have a body made of a construction-grade medium-density fiberboard and also have two opposite mating sides, each one of the opposite mating sides of the fastener-receiving board being shaped to matingly engage a corresponding mating side of the insulating panels. The fiberboard counter floor can be used for soundproofing.

## FIBERBOARD COUNTER FLOOR

### BACKGROUND

In the building construction industry it is desirable to provide a certain degree of soundproofing, or acoustic insulation, in the floors of buildings. This can be achieved by using a fiberboard counter floor between the subfloor and the flooring.

The use of fiberboard counter floors is known, especially in Europe, and prior art counter floors have been found satisfactory to a certain degree. However, there remains room for improvement, including improvements to the soundproofing capacity of fiberboard counter floors.

### 10 SUMMARY

In accordance with one aspect, there is provided a fiberboard counter floor for installation between a subfloor and a flooring, the fiberboard counter floor comprising: a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite mating sides; a plurality of fastener-receiving boards for use between adjacent ones of the insulating panels, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite mating sides, each one of the opposite mating sides of the board body being shaped to matingly engage a respective one of the opposite mating sides of one of the insulating panels, the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when a fastener-receiving board is matingly engaged between two adjacent insulating panels.

In accordance with another aspect, there is provided a fastener-receiving board for use between insulating floor panels having a top face and a bottom face, and two opposite mating sides, in an acoustic fiberboard counter floor, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite mating sides, each one of the opposite mating sides of the board body

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being shaped to matingly engage a respective one of the opposite mating sides of the insulating panels, the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when the fastener-receiving board is  
5 matingly engaged between two adjacent insulating panels.

In accordance with another aspect, there is provided an insulating panel having a panel body made of a construction-grade low-density fiberboard and having a top face, a bottom face, and two opposite mating sides, one of the two sides having a flared tab and the other mating side having a flared groove shaped to snappingly receive the flared tab of an identical other  
10 insulating panel.

In accordance with another aspect, there is provided a kit of parts for assembling a fiberboard counter floor on a subfloor, the kit of parts comprising: a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite mating sides; and a plurality of fastener-receiving boards  
15 for use between adjacent ones of the insulating panels, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite mating sides, each one of the opposite mating sides of the board body being shaped to matingly engage a corresponding one of the opposite mating sides of one of the insulating panels.

20 In accordance with another aspect, there is provided a fiberboard counter floor for installation between a subfloor and a flooring, the fiberboard counter floor comprising: a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite sides; and a plurality of fastener-receiving boards for use between adjacent ones of the insulating panels, each fastener-  
25 receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite sides; the fiberboard counter floor being CHARACTERIZED IN THAT the two opposite sides of each panel body and the two opposite sides of each board body are specifically and correspondingly shaped, configured and adapted in a manner that each one of the two opposite sides of each board body

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is matingly engageable with a corresponding one of the two opposite sides of any one of the panel bodies; the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being further configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when a fastener-receiving board is matingly engaged with and between two adjacent insulating panels.

In accordance with another aspect, there is provided a kit of parts for assembling a fiberboard counter floor, the kit of parts comprising: a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite sides; and a plurality of fastener-receiving boards for use between adjacent ones of the insulating panels, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite sides; the kit of parts being CHARACTERIZED IN THAT the two opposite sides of each panel body and the two opposite sides of each board body are specifically and correspondingly shaped, configured and adapted in a manner that each one of the two opposite sides of each board body is matingly engageable with a corresponding one of the two opposite sides of any one of the panel bodies; the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being further configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when a fastener-receiving board is matingly engaged with and between two adjacent insulating panels.

### **DESCRIPTION OF THE FIGURES**

Further features and advantages of the present improvements will become apparent from the following detailed description, taken in combination with the appended figures, in which:

Fig. 1 is a perspective view, partly sectioned, of an embodiment of an improved fiberboard counter floor;

Fig. 2 is a perspective view of an insulating panel used in the counter floor of Fig. 1;

Fig. 3 is a perspective view of the fastener-receiving board used in the counter floor of Fig. 1; and

Fig. 4 is a perspective view of another example of an improved counter floor.

### DETAILED DESCRIPTION

Fig. 1 shows an example of an improved fiberboard counter floor 10. The fiberboard counter floor 10 includes a plurality of insulating panels 12 separated from one another by fastener-receiving boards 14. The fiberboard counter floor 10 is positioned on a subfloor 16, and a flooring 18 is assembled onto the fiberboard counter floor 10 by fasteners 19. In this case, the subfloor 16 is a cement screed 16a, and the flooring 18 is made of floorboards 18a. A foam element 20 is provided underneath the fastener-receiving board 14.

The fiberboard counter floor 10 acts as a sound barrier by providing soundproofing, or acoustic insulation. In this embodiment, the fiberboard counter floor 10 offers insulation to both impact sounds and airborne sounds. It will be noted that the fiberboard counter floor 10 also offers thermal insulation. The thermal insulation characteristics of the fiberboard counter floor 10 can be further exploited in alternate embodiments.

Fig. 2 shows one of the insulating panels 12 in greater detail. The insulating panel 12 has a panel body 22 having a top face 24 and a bottom face 26 relative to its position when installed. The insulating panel 12 also has two opposite mating sides, a first mating side 28 and a second mating side 30. In this case, the first mating side 28 has a groove 32 defined longitudinally along it, whereas the second mating side 30 has a tongue 34 which is adapted to mate with the groove 32 of another insulating panel 12. The panel body 22 is made of a construction-grade low-density fiberboard (LDF).

Fig. 3 shows a fastener-receiving board 14 in greater detail. The fastener-receiving board 14 has a board body 36 having a top face 38 and a bottom face 40, and two opposite mating sides 42, 44. The first mating side 42 has a groove 46 whereas the second mating side 44 has a tongue 48. The thickness of the fastener-receiving board 14 is less than the thickness of the insulating panels 12. A foam strip 20a is adhered to the bottom face 40 of the board body 36. The foam strip 20a fills the space left between the bottom face 40 of the board body 36 and the subfloor 16 when the fastener-receiving board 14 is installed, as shown in Fig. 1. The combined thickness of the board body 36 and the foam strip 20a is approximately equal to the thickness of

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the panel body 22 of the insulating panels 12. The board body 36 is made of a construction-grade medium-density fiberboard (MDF) adapted to receive the fasteners used with the flooring.

In the illustrated example, the tongues 34, 48 and grooves 32, 46 of the insulating panel 12 and of the fastener-receiving board 14 are flared to offer a snapping engagement. The snapping engagement takes advantage of the natural resilience characteristics of the low-density fiberboard. A snapping engagement is advantageous because it helps prevent the fastener-receiving boards 14 from becoming disassembled from the insulating panels 12 when the flooring 18 is assembled.

It will be noted here that the groove 32 and the tongue 34 of the insulating panel 12 (Fig. 2) are off-center relative to the thickness of the panel body 22 and are positioned closer toward the top face 24 than the bottom face 26. In the case of the board body 36 (Fig. 3), the tongue 48 and groove 46 are centered. Therefore, when the board body 36 is engaged between two adjacent insulating panels 12, a space is left between the bottom face 40 of the board body 36 and the subfloor 16 (Fig. 1). In this example, this space is filled by the foam strip 20a.

When the flooring 18 is installed on the counter floor 10, the floor boards 18a can be tacked into the fastener-receiving boards 14. The insulating panels 12 offer a relatively high degree of acoustic insulation, however, they do not offer much structure to receive fasteners. The fastener-receiving boards 14 have a sufficient density and structure to receive fasteners. Experiments have shown that some sound can be transmitted to the subfloor through the fastener-receiving boards if the fastener-receiving boards are in contact with the subfloor. A greater degree of acoustic insulation is achieved by leaving a space between the bottom face 40 of the board body 36 and the subfloor 16. An even greater degree of acoustic insulation is achieved by filling this space with a foam element 20. Providing the foam element 20 as a foam strip 20a adhered to the board body 36 can simplify installation of the fiberboard counter floor 10 when compared to using a foam element which is installed independently from the fastener receiving boards 14.

Some specific characteristics of the illustrated example will now be given, for illustrative purposes only.

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In the insulating panel 12, the thickness is of 2.5 cm (1 inch). In alternate configurations, insulating panels having a thickness between 1.3 cm (1/2 of an inch) and 5.1 cm (2 inches) can be used, but insulating panels having a thickness of between 1.9 cm (3/4 of an inch) and 3.8 cm (1.5 inches) are preferred. The panel body 22 of the insulating panel 12 is made of a construction-grade low-density fiberboard (LDF) satisfying the norm CAN/ULS-S706 Type I, Category 1 or 2. Low-density fiberboards having a density between 150 and 290 kg per cubic meter are typically available, but densities ranging between 230 and 260 kg per cubic meter are preferred for this application. The density used in the specific example is of approximately 240 kg per cubic meter. In alternate embodiments, the insulating panel can additionally include a layer of aluminum sheeting adhered to the bottom face thereof.

In the fastener-receiving board 14, the thickness of the board body 36 is less than the thickness of the insulating panel 12, to leave a space between the bottom face 40 of the board body 14 and the subfloor 16. Board bodies having a thickness of 1.9 cm (3/4 inches) and 2.2 cm (7/8 inches) can be used with the insulating panels having a thickness of 1 inch, for example. The board body 36 used in the illustrated embodiment is made of a construction-grade medium-density fiberboard having a density of about 720 kg per cubic meter manufactured. Medium-density fiberboards having a density between 640 and 800 kg per cubic meter are commonly available. A density offering satisfactory fastener-receiving characteristics can be selected.

Using medium-density fiberboard as the material for the board body is advantageous when compared to a wood board. Medium-density fiberboard can be less prone to warping and splitting than wood boards while offering satisfactory fastener-receiving characteristics. Price is also a factor in the selection of medium-density fiberboard.

In the illustrated example, the insulating panels 12 have a width of 26.0 cm (10 1/4 inches) including the tongue 34. The fastener-receiving boards 14 have a width of 6.0 cm (2 3/8 inches) including the tongue 48. The tongues 34, 48 have 0.8 cm (5/16 inches). A combined engaged insulating panel 12 and fastener-receiving board 14 thus totals 30.5 cm (12 inches) of width, excluding the exposed tongue, once assembled. Having a combined width of 12 inches is advantageous during installation of the flooring because the fastener-receiving boards will be spaced apart by 12 inches from one another, which is a standard length of which many flooring

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materials are a multiple thereof. Increasing the width of the fastener-receiving boards relatively to the insulating panels typically results in decreasing the overall acoustic insulation of the counter floor, whereas decreasing the width of the fastener-receiving boards typically results in reducing the fastenerreceiving capacity of the fiberboard counter floor. Therefore, fastener-receiving boards having a width of between 3.8 cm (1 1/2 inches) and 6.4 cm (2 1/2 inches) can also be used, however, a width of between 4.1 cm (1 5/8 inches) and 5.7 cm (2 1/4 inches) is preferred. The structural integrity and maneuverability of the insulating panels 12 during installation is also a factor to consider when selecting the width of the insulating panels 12. Typically, insulating panels having a length of 1.219 m (4 feet) are used, whereas fastener-receiving boards having a length of 2.438 m (8 feet) are used.

Still for illustrative purposes, for a 1.9 cm (3/4 inch) thick fastener-receiving board, a 0.8 cm (5/16 inch) tongue can be used both for the insulating panel 12 and the fastener-receiving board 14, with grooves having a depth of 1 cm (3/8 inches). The tongue thickness can be of 1 cm (3/8 inches) at the root and of 1.1 cm (7/16 inches) at the flared end. This configuration can be used with the type of low-density fiberboard used in this example. The compressibility of the medium-density fiberboard is negligible when compared to the compressibility, or resilience, of the low-density fiberboard.

Providing a foam strip 20a adhered to the bottom face 40 of the board body 36 of the fastener-receiving board 14 can advantageously ease the maneuverability and the installation of the fastener-receiving boards 14. Nevertheless, the foam strip 20a can alternately be provided separately from the fastener-receiving board 14, or another foam element can be used instead. In the illustrated example, a non-reticulated flexible polyester polyurethane foam is used as the material for the foam strip 20a. The foam element can be entirely omitted in certain applications.

As shown in Fig. 1, the illustrated example of fiberboard counter floor 10 is shown installed between a cement screed subfloor 16a and the floorboard flooring 18a. However, it will be understood that the fiberboard counter floor 10 can be used on other types of subfloors than cement subfloors, such as wood subfloors for example. Wood subfloors are typically more common in buildings having 3 floors or less, but cement subfloors are more common in

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buildings having 4 floors or more. Whatever the type of subfloor used, the subfloor will often be coated with a sheet of polyethylene to increase its resistance to water.

It will also be understood that the fiberboard counter floor 10 can be used with other types of flooring than floorboards 18a. Wooden flooring can be used, but other types of flooring such as ceramic tile can also be used. If used with ceramic tile, a veneer can be used to cover the counter floor and the tiles can be installed onto the veneer. Using this arrangement is advantageous in the case where floorboards and ceramic tiles are used respectively in adjacent rooms because using an appropriately chosen thickness of veneer will result in the ceramic tiles having the same elevation as the floorboards so as to communicate between rooms.

Fig. 4 shows an alternate example of a counter floor 110. This counter floor 110 also has insulating panels 112 and fastener-receiving boards 114, but the foam element is omitted. The tongues 134, 148 and grooves 132, 146 are not flared. The tongue 134 and groove 146 of the insulating panels 112 are centered, whereas the tongue 146 and groove 148 of the fastener-receiving board 114 are off-centered toward the bottom face to create a space or gap between the bottom face of the board body 136 and the subfloor when the fastener-receiving board is installed. This example can also be satisfactory in certain applications.

Alternate embodiments of the fastener-receiving boards and insulating panels can have other types of mating means than the tongue and groove assembly.

During installation, it will often be found advantageous to use a perimeter insulation foam tape surrounding the area to be covered by the fiberboard counter floor.

As can be seen therefore, the examples described above and illustrated are intended to be exemplary only. The scope of the invention(s) is intended to be determined solely by the appended claims.

**WHAT IS CLAIMED IS:**

1. A fiberboard counter floor for installation between a subfloor and a flooring, the fiberboard counter floor comprising:

a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite mating sides; and

a plurality of fastener-receiving boards for use between adjacent ones of the insulating panels, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite mating sides, each one of the opposite mating sides of the board body being shaped to matingly engage a corresponding one of the opposite mating sides of one of the insulating panels, the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when a fastener-receiving board is matingly engaged between two adjacent insulating panels.

2. The counter floor of claim 1 further comprising a construction-grade foam element between the bottom face of the board body and the subfloor when a fastener-receiving board is matingly engaged between two adjacent insulating panels.

3. The counter floor of claim 2 wherein the foam element is a strip made of foam material which is adhered to the bottom face of a fastener-receiving board.

4. The counter floor of any one of claims 1 to 3 wherein the mating sides of the insulating panels and fastener-receiving boards have respective mating tongues and grooves.

5. The counter floor of claim 4 wherein the tongues and grooves are flared for snapping engagement.

6. The counter floor of claim 4 or 5 wherein each of the fastener-receiving boards and the insulating panels have both a tongue and a groove, on respective ones of the two opposite sides.

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7. The counter floor of claim 6 wherein the tongue and the groove in the insulating panels are off-centered toward the top face of the panel body.
8. The counter floor of any one of claims 1 to 7 wherein the combined width of an assembled insulating panel and fastener-receiving board is of one of 12 inches and 16 inches.
9. A fastener-receiving board for use between insulating floor panels having a top face and a bottom face, and two opposite mating sides, in an acoustic fiberboard counter floor, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite mating sides, each one of the opposite mating sides of the board body being shaped to matingly engage a respective one of the opposite mating sides of the insulating panels, the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when the fastener-receiving board is matingly engaged between two adjacent insulating panels.
10. The fastener-receiving board of claim 9 further comprising a strip made of construction-grade foam material adhered to the bottom face of the fastener-receiving board for filling the space between the bottom face of the board body and the subfloor when the fastener-receiving board is matingly engaged between two adjacent insulating panels.
11. The fastener-receiving board of claim 9 or 10 wherein the mating sides of the insulating panels and fastener-receiving boards have mating tongues and grooves.
12. The fastener-receiving board of claim 11 wherein the tongues and grooves are flared for snapping engagement.
13. The fastener-receiving board of claim 11 or 12 wherein each of the fastener-receiving boards and the insulating panels have both a tongue and a groove, on respective ones of the two opposite sides.

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14. The fastener-receiving board of claim 13 wherein the tongue and groove in the fastener-receiving boards are off-centered toward the bottom face of the board body.

15. A kit of parts for assembling a fiberboard counter floor on a subfloor, the kit of parts comprising:

a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite mating sides; and

a plurality of fastener-receiving boards for use between adjacent ones of the insulating panels, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite mating sides, each one of the opposite mating sides of the board body being shaped to matingly engage a corresponding one of the opposite mating sides of one of the insulating panels.

16. The kit of parts of claim 15 wherein the fastener-receiving boards have a thickness inferior to the thickness of the insulating panels and the mating sides thereof are configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when a fastener-receiving board is matingly engaged between two adjacent insulating panels

17. The kit of parts of claim 15 or 16 further comprising a construction-grade foam element between the bottom face of the board body and the subfloor when a fastener-receiving board is matingly engaged between two adjacent insulating panels.

18. The kit of parts of claim 17 wherein the foam element is a strip made of foam material which is adhered to the bottom face of a fastener-receiving board.

19. The kit of parts of any one of claims 15 to 18 wherein the mating sides of the insulating panels and fastener-receiving boards have respective mating tongues and grooves.

20. The kit of parts of claim 19 wherein the tongues and grooves are flared for snapping engagement.

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21. The kit of parts of claim 19 or 20 wherein each of the fastener-receiving boards and the insulating panels have both a tongue and a groove, on respective ones of the two opposite sides.
22. The kit of parts of claim 21 wherein the tongue and the groove in the insulating panels are off-centered toward the top face of the panel body.
23. A fiberboard counter floor for installation between a subfloor and a flooring, the fiberboard counter floor comprising: a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite sides; and a plurality of fastener-receiving boards for use between adjacent ones of the insulating panels, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite sides; the fiberboard counter floor being CHARACTERIZED IN THAT the two opposite sides of each panel body and the two opposite sides of each board body are specifically and correspondingly shaped, configured and adapted in a manner that each one of the two opposite sides of each board body is matingly engageable with a corresponding one of the two opposite sides of any one of the panel bodies; the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being further configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when a fastener-receiving board is matingly engaged with and between two adjacent insulating panels.
24. The counter floor of claim 23 further comprising a sound-insulating element between the bottom face of the board body and the subfloor when a fastener-receiving board is matingly engaged between two adjacent insulating panels.
25. The counter floor of claim 24 wherein the sound-insulating element has an element made of a foam material.
26. The counter floor of claim 23 or 24 wherein the sides of the insulating panels and fastener-receiving boards have tongues and grooves adapted for said mating engagement.
27. The counter floor of claim 26 wherein the tongues are flared outwardly.

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28. The counter floor of claim 26 or 27 wherein each of the fastener-receiving boards and the insulating panels have both a tongue and a groove, on a respective opposite one of said sides.

29. The counter floor of any one of claims 23 to 28 wherein the combined width of an assembled insulating panel and fastener-receiving board is of one of 12 inches and 16 inches.

30. A kit of parts for assembling a fiberboard counter floor, the kit of parts comprising: a plurality of insulating panels each having a panel body made of a construction-grade low-density fiberboard, and having a top face, a bottom face, and two opposite sides; and a plurality of fastener-receiving boards for use between adjacent ones of the insulating panels, each fastener-receiving board having a board body made of a construction-grade medium-density fiberboard, the board body having a top face and a bottom face, and two opposite sides; the kit of parts being CHARACTERIZED IN THAT the two opposite sides of each panel body and the two opposite sides of each board body are specifically and correspondingly shaped, configured and adapted in a manner that each one of the two opposite sides of each board body is matingly engageable with a corresponding one of the two opposite sides of any one of the panel bodies; the fastener-receiving boards having a thickness inferior to the thickness of the insulating panels and the mating sides thereof being further configured and adapted for the bottom face of the board body to be spaced apart from the subfloor when a fastener-receiving board is matingly engaged with and between two adjacent insulating panels.

31. The kit of parts of claim 30 further comprising a sound-insulating element between the bottom face of the board body and the subfloor when a fastener-receiving board is matingly engaged between two adjacent insulating panels.

32. The counter floor of claim 31 wherein the sound-insulating element has an element made of a foam material.

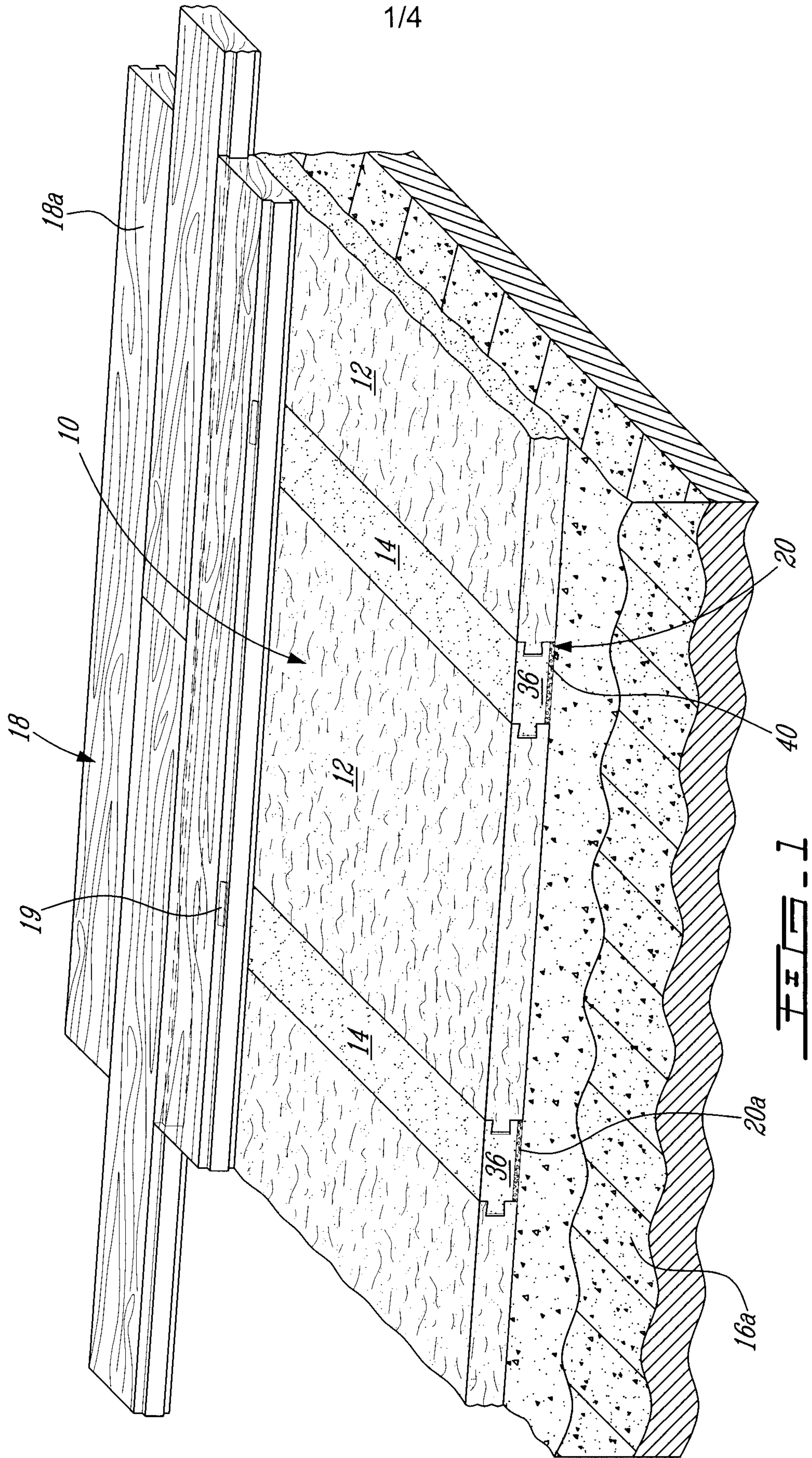
33. The kit of parts of claim 30 or 31 wherein the sides of the insulating panels and fastener-receiving boards have tongues and grooves adapted for said mating engagement.

34. The kit of parts of claim 33 wherein the tongues are flared outwardly.

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35. The kit of parts of claim 33 or 34 wherein each of the fastener-receiving boards and the insulating panels have both a tongue and a groove, on respective ones of the opposite sides.

36. The kit of parts of any one of claims 30 to 35 wherein the combined width of an assembled insulating panel and fastener-receiving board is of one of 12 inches and 16 inches.



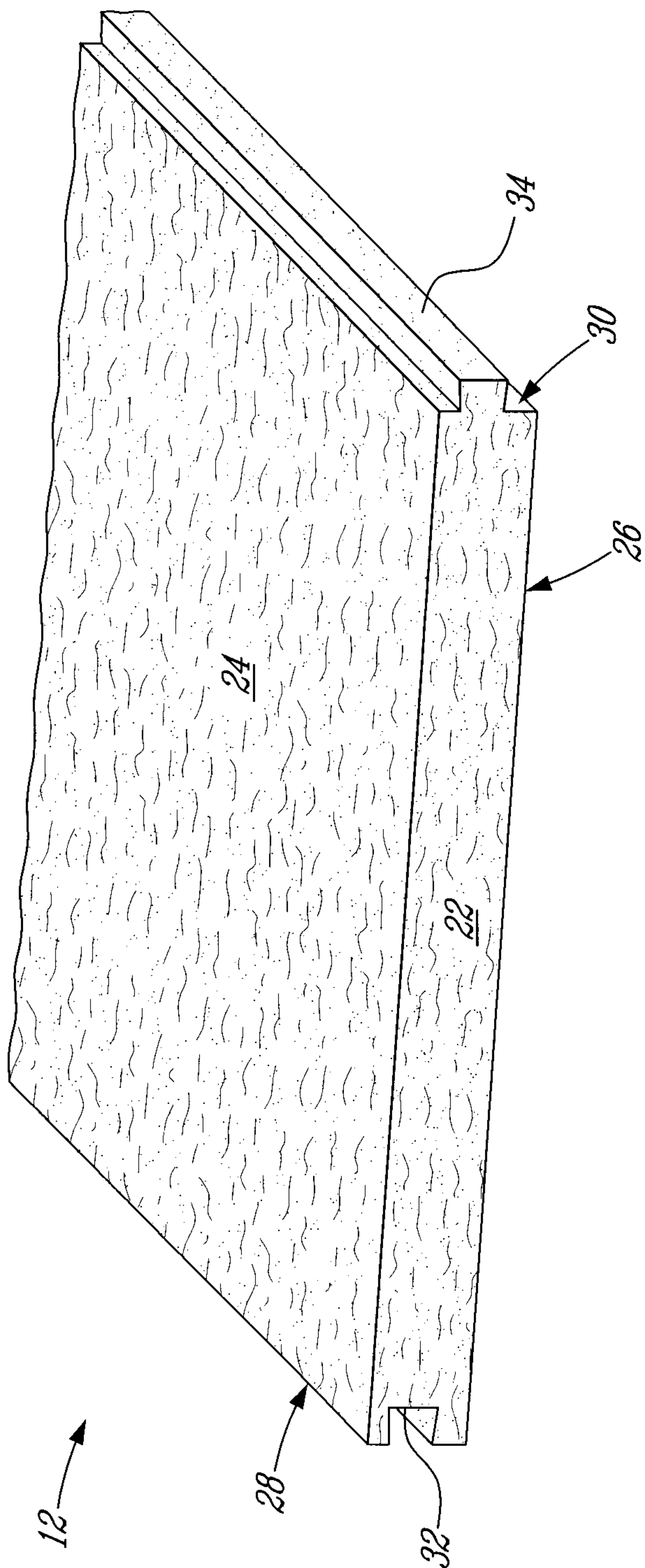


FIG. 2

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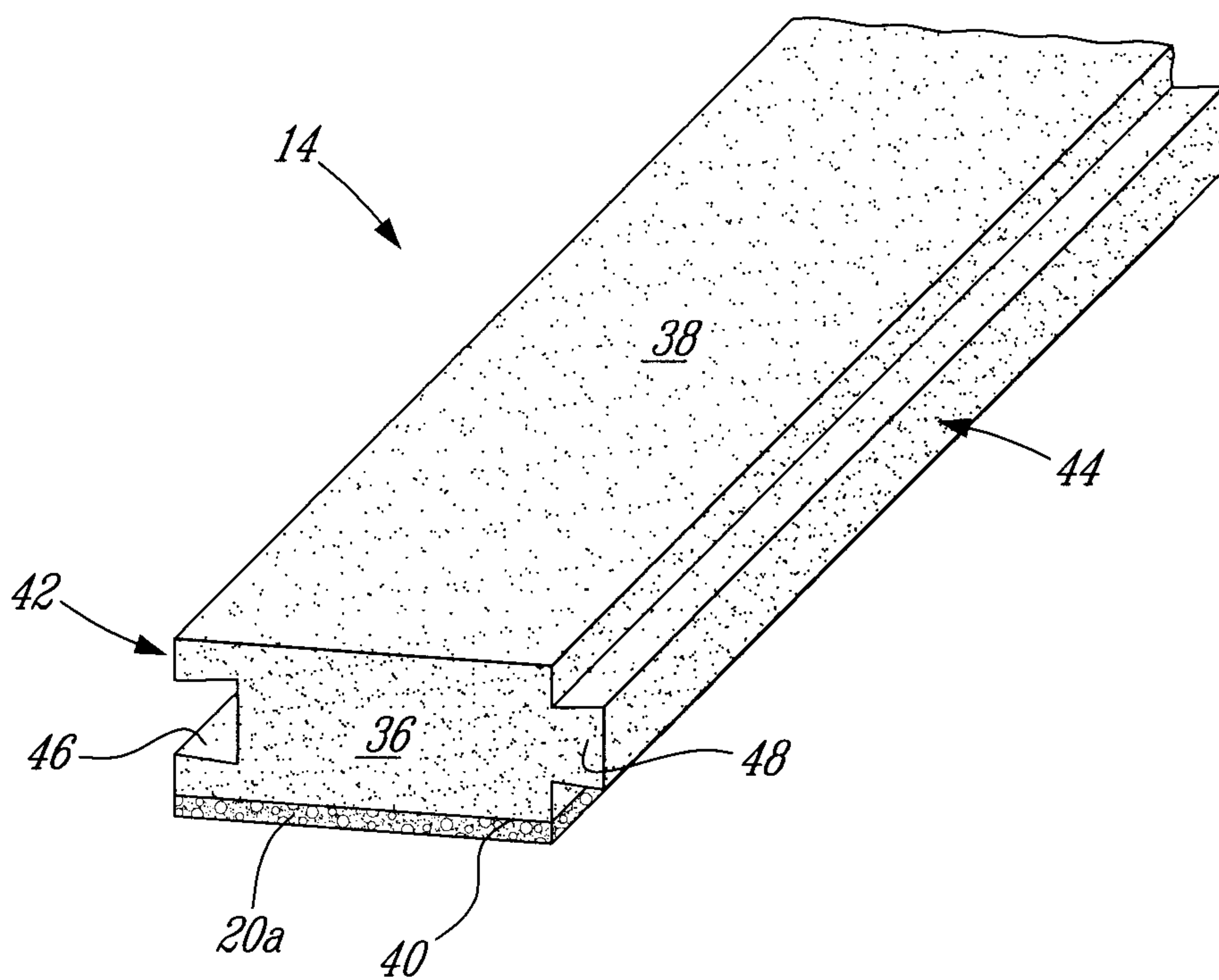


FIG. 3

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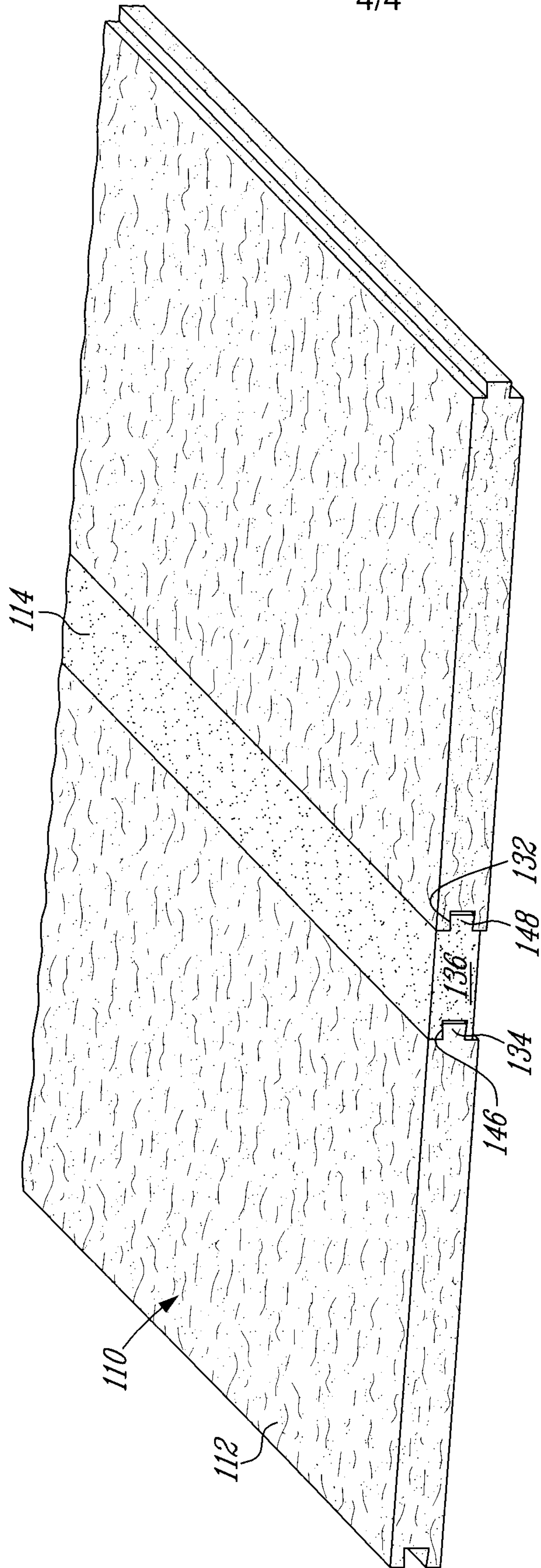


FIG. 4

