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## (54) Method for covering a ship deck, prefabricated cover unit, and method for making the unit

(57) A method for covering a ship deck, according to which the position of the deck planks (11) with respect to each other is determined by means of transverse securing strips (12), so that the guide means (14) to be connected to the securing strips are fitted into the corresponding holes formed in the deck planks, which means that the securing strips and deck planks together form a prefabricated cover unit (10) to be fastened to the ship deck. The cover unit (10) comprises at least two deck planks (11) and at least two transverse securing strips (12) located on the underside of the deck planks, to which securing strips guide means (14) are attached fitting into the holes formed in the deck planks.

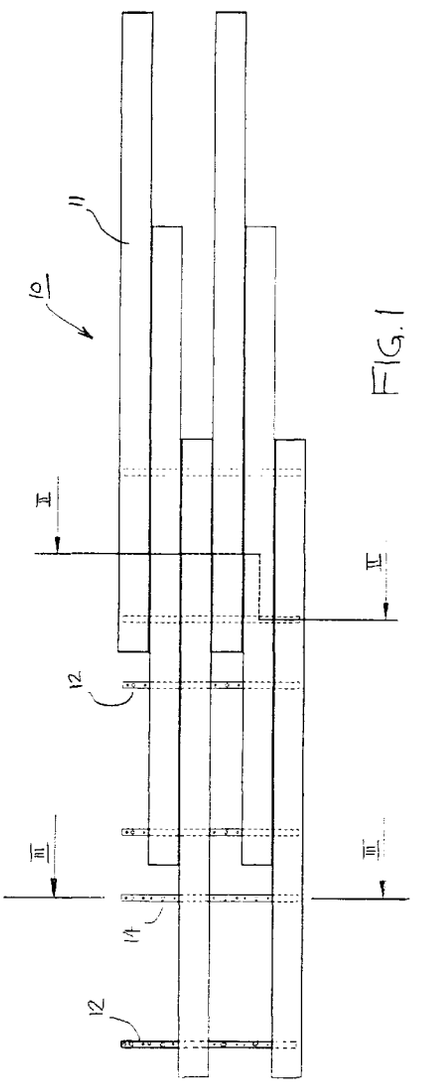


FIG. 1

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## Description

The object of the invention is a method for covering a ship deck by means of deck planks fastened to the deck, according to which method the position of the deck planks with respect to each other is determined by means of intermediate elements.

It is known to cover the steel deck of a ship with wood planking. The wood type generally used for this purpose is teak. Deck planking is conventionally formed by fastening each deck plank separately to the deck by means of screws. The screws are then usually covered with plugs made of the same wood type, that is teak, thus providing a uniform, durable and elegant teak deck.

Since installing individual planks on the ship deck is laborious and slow, it is known to form prefabricated units of the planks. These are much quicker to install in place on the deck than individual planks. One such prefabricated unit and installation method are disclosed in US patent no. 5,359,954. The disadvantage of the unit installation method disclosed therein is, however, that it is difficult to produce uniform deck planking using this method. This is because two types of joints are formed between the planks on the deck. Firstly, there are ready-made joints between the planks forming the prefabricated units. Secondly, other joints are formed between units. These joints have to be made afterwards in any case, and it is thus difficult to make them identical to those made already in the units at the factory.

The object of the present invention is to eliminate the above problem and to achieve a new method for covering a ship deck. It is characteristic of the covering method relating to the invention that the position of the deck planks with respect to each other is determined by means of transverse securing strips, so that the securing strips are placed on the underside of the deck planks and the guide means in the securing strips are fitted into the corresponding holes in the deck planks, which means that the securing strips and at least three deck planks together form a prefabricated cover unit to be fastened to the ship deck.

By means of the present invention, both deck planks in the same prefabricated unit and deck planks in two adjacent units can be positioned accurately with respect to each other. The deck planking produced by using transverse securing strips is exactly equivalent to that produced by installing the planks individually, but the installation work is much faster and more efficient and accurate.

According to a preferred embodiment of the covering method relating to the invention, the deck planks positioned by means of transverse securing strips and guide means are fastened to the ship deck by glueing so that the securing strips are fixed in the glue layer between the deck planks and the ship deck.

The spaces between the fastened deck planks are then jointed in one work phase, which means that all joints will be identical. As the deck planks are glued to the ship deck without using other connecting elements, the deck is also provided with good waterproofing and sound insulation qualities.

According to another preferred embodiment of the covering method relating to the invention, one or more deck planks are fixed to at least one transverse securing strip, after which the prefabricated cover unit thus formed is installed on the ship deck.

In such a case, the prefabricated cover unit is assembled in advance and glued to the ship deck. A deck plank can be attached to the securing strip, for example, by means of screws. The purpose of these screws is, however, to keep the unit intact only while it is being moved and installed. Once the cover unit has been glued, the screws are of no significance.

The procedure may, however, also be such that at least one deck plank is installed on the ship deck subsequent to the installation of the prefabricated cover unit, by placing the deck plank on top of the transverse securing strip of the prefabricated cover unit so that the guide means of the securing strip fits into the corresponding hole formed in the deck plank.

This means that deck planks which cannot, for some reason, be fitted into place as such can be left out of the prefabricated cover unit at the first installation phase. Such places may be, for example, the edge sections of the ship deck where shorter or longer planks than the others have to be used. According to the disclosed method, fitting and adding a deck plank afterwards is easy, because there are guide means in the securing strip and corresponding holes in the deck planks.

According to yet another preferred embodiment of the invention, a gap is left between the deck planks, so that the deck plank guide means in the securing strip of the prefabricated cover unit are placed at a suitable distance apart from each other.

The gap between the deck planks is necessary to allow for the expansion of the wood. Thus it is possible to make all the joints between planks of a suitable size. The preferable size of the gap between deck planks is, for example, 1 mm. This means that the prefabricated cover unit can easily be installed also on a curved ship deck.

The gap between deck planks also gives the advantage that, when the planks are glued to the deck, no layer of air remains between, which would impair the fastening of the plank to the deck. Fastening is facilitated further by the fact that, although the unit in question is a unit consisting of individual deck planks, the planks are in a way glued to the deck as separate units.

Since the gap between each deck plank is fixed at a suitable width by means of transverse securing strips, the jointing of gaps taking place after the glueing is also easy.

The aim is to place the prefabricated cover units so that the units overlap to some extent. However, in corridors and other narrow spaces the prefabricated cover

units can be placed in succession.

The object of the invention also comprises a prefabricated ship deck cover unit consisting of deck planks and intermediate elements that determine the position of the deck planks with respect to each other. It is characteristic of the prefabricated cover unit relating to the invention that the prefabricated ship deck cover unit comprises at least three deck planks, and that the intermediate elements are transverse securing strips on the underside of the deck planks, the strips having guide means fitting into holes formed in the deck planks.

According to one preferred embodiment of the prefabricated cover unit relating to the invention, the transverse securing strip is made of metal or plastics and the guide means is a plastic guide plug which fits into the hole in the deck plank, and can be fastened in the strip, for example, by means of a screw.

According to another preferred embodiment of the prefabricated cover unit, a transverse groove is formed on the underside of the deck plank, in which groove the securing strip can be embedded at least partly.

The object of the invention also comprises a method for making the prefabricated ship deck cover unit. It is characteristic of the method relating to the invention that the cover unit is assembled by fastening one or more deck plank guide means, by means of screws, to at least two transverse securing strips, and that the deck plank is placed on top of the transverse securing strips so that the deck plank guide means fits into the corresponding hole in the deck plank.

According to another alternative embodiment, guide means are placed in the holes in the deck planks, after which the prefabricated cover unit is assembled by fastening the transverse securing strips by means of screws in the guide means in the deck planks.

The invention is described in the following by way of an example, with reference to the appended drawings in which

Figure 1 shows the prefabricated cover unit relating to the invention, as seen from above.
Figure 2 shows a cross-section of figure 1 along line II-II.
Figure 3 shows a cross-section of figure 1 along line III-III.
Figure 4 shows the securing strip of the prefabricated cover unit, as seen from above.
Figure 5 shows diagrammatically the placing of the prefabricated cover units relating to the invention, as seen from above.
Figure 6 corresponds to figure 5 and shows the placing of the prefabricated cover units according to another embodiment.

Figure 1 shows the prefabricated cover unit 10 relating to the invention, as seen from above. In this example, the cover unit 10 comprises six teak planks 11 placed adjacent to each other, which are connected with each other by means of six transverse securing strips 12 made of metal. The number six only serves as an example, and in practice the number of deck plates may be varied. Figure 1 shows that the ends of the deck planks 11 have been placed at different points in order that the joints between deck planks form a configuration conforming to the desired pattern on the finished ship deck. In figure 1, every third deck plank starts at the same point.

The securing strips 12 of the prefabricated cover unit 10 shown in figure 1 are made of stainless steel or plastics and they have holes for screws. The securing strips 12 are grouped so that they are located in pairs on either side of the joints at the ends of the deck planks 11. The structure of the securing strips 12 is shown in greater detail in figure 3.

Figure 2 shows a cross-section of figure 1 along line II-II. The figure shows how the deck planks 11 of the prefabricated cover unit 10 are joined to each other by means of securing strips 12 made of stainless steel or plastics, which are located on the underside of the planks. If necessary, the securing strips 12 can be embedded in the grooves formed on the bottom surface of the deck planks. This is not necessary, however, because the thin securing strips 12 remain inside the layer of glue between the deck plank 11 and the ship deck, even if the securing strip 12 is not embedded in the groove in the deck plank 11.

Figure 2 shows that plastic guide plugs 14 acting as guide means are fitted in the deck plank 11 holes, which plugs can be fastened to the securing strips 12 by means of screws. The deck planks 11 of the prefabricated cover unit 10 are fastened to the ship deck 15 by means of a layer of glue 16.

Figure 3 shows a cross-section of figure 1 along line III-III. It reveals clearly the structure of the securing strips 12. The plastic guide plugs 14 have been fastened to the securing strips 12 with screws before the assembly of the prefabricated cover unit 10. During assembly, the deck plank 11 is pressed on top of the securing strip 12 so that the plastic guide plug 14 fits into the corresponding hole. Figure 3 also shows that there is another set of screw holes in the securing strips 12, through which the deck plank 11 can be fastened to the securing strip. This fastening is necessary when the prefabricated cover unit is moved to the installation site.

Figure 4 shows the securing strip of the prefabricated cover unit, as seen from above. The figure shows the guide means 14 attached to the securing strip 12 and the screw holes 13 through which the deck plank can be fastened to the securing strip.

Figure 5 shows diagrammatically the placing of the prefabricated cover units relating to the invention, as seen from above. The aim is to position the units 10 so that they overlap, which makes the cover structure as strong as possible. However, in corridors and other narrow spaces, the placing shown in figure 6 can also be used.

It is obvious to a person skilled in the art that the different embodiments of the invention may vary within the scope of the claims presented below.

## Claims

1. A method for covering a ship deck (15) by means of deck planks (11) fastened to the deck, according to which method the position of the deck planks (11) with respect to each other is determined by means of intermediate elements (12), **characterized** in that the position of the deck planks (11) with respect to each other is determined by means of transverse securing strips (12) so that the securing strips are placed on the underside of the deck planks and the guide means (14) of the securing strips are fitted into the corresponding holes formed in the deck planks, in which case the securing strips and at least three deck planks together form a prefabricated cover unit (10) to be fastened to the ship deck.

2. A method as claimed in claim 1, **characterized** in that the deck planks (11) positioned by means of transverse securing strips (12) and guide means (14), are fastened to the ship deck (15) by glueing so that the securing strips remain fast in the glue layer (16) between the deck planks and the ship deck.

3. A method as claimed in claim 1 or 2, **characterized** in that one or more deck planks (11) are fastened to at least one transverse securing strip (12), after which the prefabricated cover unit (10) thus formed is installed on the ship deck (15).

4. A method as claimed in claim 1, 2 or 3, **characterized** in that at least one deck plank (11) is installed on the ship deck (15) subsequent to the installation of the prefabricated cover unit (10), by placing the deck plank on top of the transverse securing strip (12) of the prefabricated cover unit so that the guide means (14) of the securing strip fits into the corresponding hole formed in the deck plank.

5. A method as claimed in any of the claims 1 to 4, **characterized** in that a gap is left between the deck planks (11) so that the deck plank guide means (14) in the securing strip (12) of the prefabricated cover unit (10) are placed at a suitable distance apart from each other.

6. A prefabricated ship deck (15) cover unit (10) comprising deck planks (11) and intermediate units (12) that determine the position of the deck planks (11) with respect to each other, **characterized** in that the prefabricated ship deck (15) cover unit (10) comprises at least three deck planks (11), and that the intermediate elements (12) are transverse securing strips on the underside of the deck planks, the said strips having guide means (14) fitting into the holes formed in the deck planks.

7. A prefabricated cover unit (10) as claimed in claim 6, **characterized** in that the transverse securing strip (12) is made of metal or plastics and the guide means (14) is a plastic guide plug which fits into the hole in the deck plank (11), which guide plug can be fastened in the strip, for example, by means of a screw.

8. A prefabricated cover unit (10) as claimed in claim 6 or 7, **characterized** in that a transverse groove is formed on the bottom surface of the deck plank (11), in which groove the securing strip (12) can be embedded at least partly.

9. A method for making the prefabricated ship deck (15) cover unit (10), **characterized** in that the prefabricated cover unit (10) is assembled by fastening one or more deck plank (11) guide means (14), by means of screws, on at least two transverse securing strips (12), and that the deck plank is placed on top of the transverse securing strips so that the deck plank guide means fits into the corresponding hole in the deck plank.

10. A method for making the prefabricated ship deck (15) cover unit (10) as claimed in claim 9, **characterized** in that guide means (14) are placed in the holes in the deck planks (11), after which the prefabricated cover unit (10) is assembled by fastening the transverse securing strips (12) by means of screws in the guide means in the deck planks.

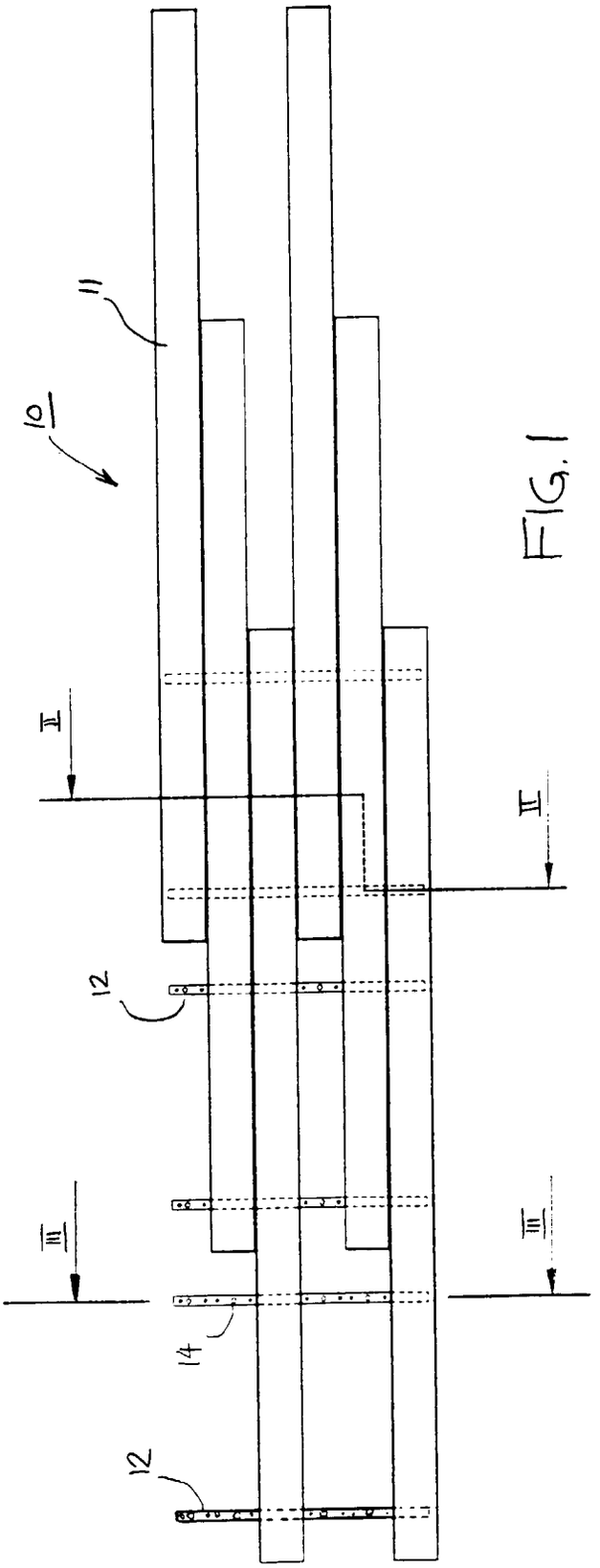


FIG. 1

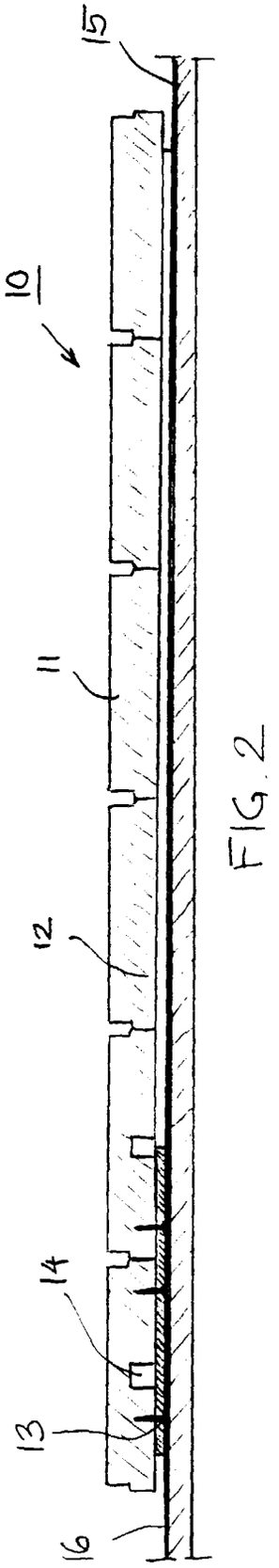


FIG. 2

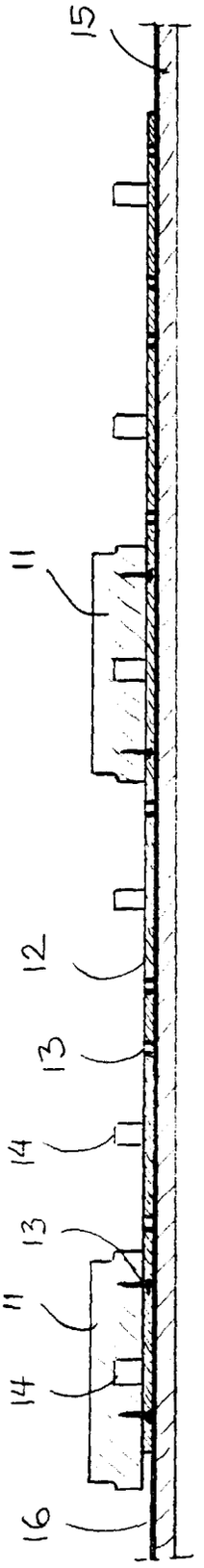


FIG. 3

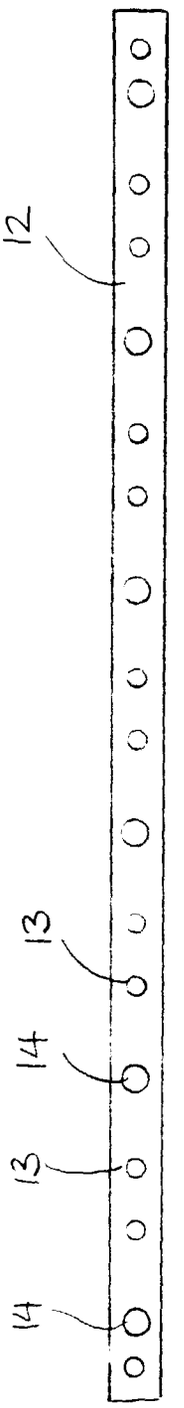


FIG. 4

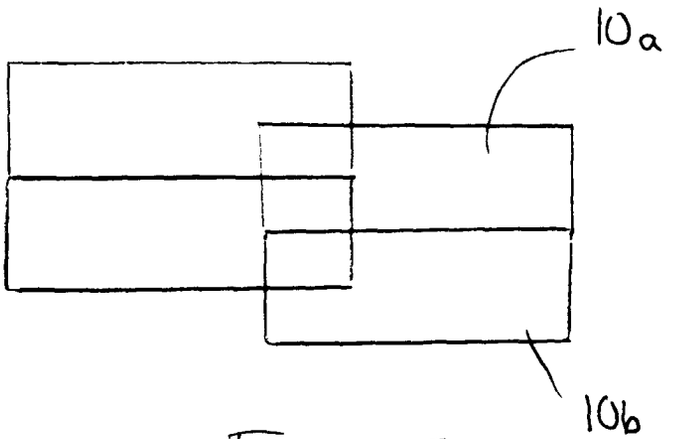


FIG. 5

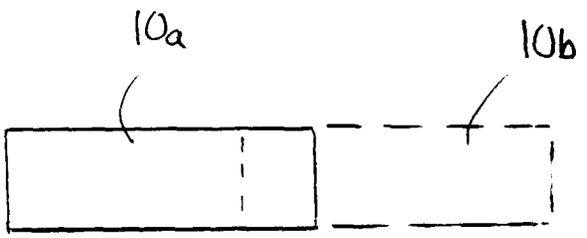


FIG. 6

European Patent Office

# EUROPEAN SEARCH REPORT

Application Number
EP 96 66 0039

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
|---|---|---|---|
| X<br>Y | WO-A-94 01632 (NYSTROM)<br>* abstract; figures 1,6,9 * | 1,3,4<br>2 | B63B1/00<br>B63B5/06<br>B63B3/68 |
| Y<br>A | FR-A-448 272 (THUILLIER)<br>* page 1, line 57 - page 2, line 11; figures 1-7 * | 2<br>8 | |
| Y,D<br>A | US-A-5 359 954 (KORDELIN)<br>* abstract; figures 1-7 * | 1,5<br>6-10 | |
| Y | GB-A-K22129 (RÖTH)<br>* page 2, line 10 - line 37; figures 1-6 * | 1,5 | |
| A | US-A-5 058 349 (CONRAD)<br>* the whole document * | 6,8 | |

| TECHNICAL FIELDS SEARCHED (Int.Cl.6) |
|---|
| B63B<br>E04F |

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| THE HAGUE | 14 November 1996 | DE SENA, A |

CATEGORY OF CITED DOCUMENTS

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