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(54) **Title:** FITTING OR SLIPPING SYSTEM FOR LAYING WOODEN FLOORS ON THE OUTSIDE AND THE INSIDE

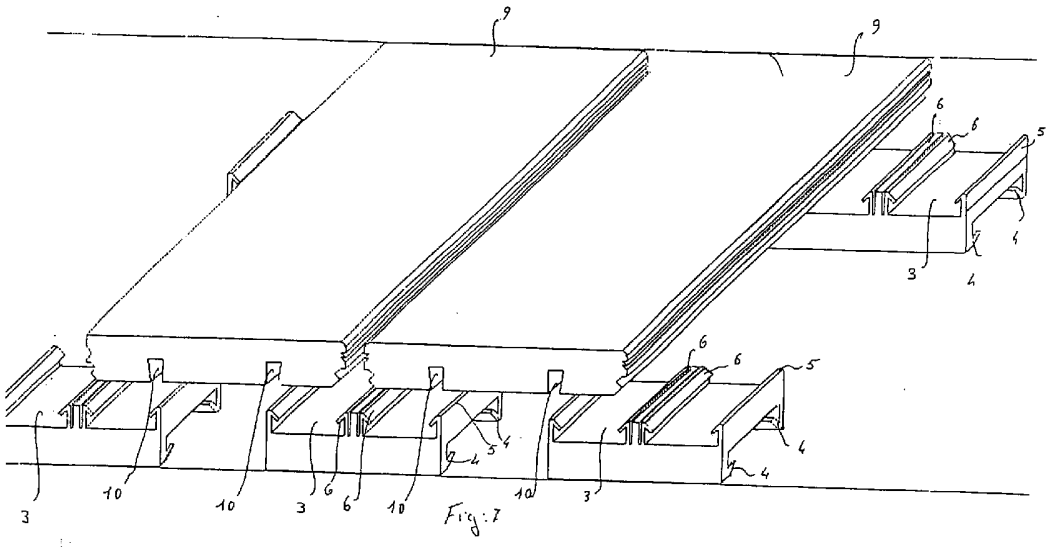

Fig. 1

(57) **Abstract:** A system of laying wooden floor without screws, nails, and glue performed by fitting or slipping the boards (9) into suitable blocks (3) provided at their upper surface with shaped tabs (6) to receive the boards and at their lower surface with a through channel to slip into the ground beams.

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Fitting or slipping system for laying wooden floors on the outside and the inside

The current wooden floors on the outside are laid by positioning wooden beams at a suitable distance from one another and then screwing the wooden boards of the floor thereon.

According to a variation of such system, clips are screwed to the wooden beams and suitable milled boards are slipped therein.

These laying systems require a considerable labour and, in the first case, the screwed boards do not look after the aesthetics as the screw heads are not hidden from sight.

The object of the present industrial invention is to simplify, speed up, and improve the aesthetics of the wooden floors both on the outside and the inside.

A further object of the invention is to provide a floor laying system that can offer suggestive designs.

The solution consists of the use of four elements:

- a wooden frame milled or not longitudinally at its side faces;
- a support of nylon or other suitable material provided with tabs at its upper surface and, if necessary, at its lower surface;
- the floor formed of boards provided with suitable grooves at their lower surface and longitudinal profiling at their side faces;
- a packing of rubber or other suitable material.

The four elements are now disclosed individually into detail with reference to the accompanying drawings.

Fig. 1 of Table 1/6 shows the wooden beam 1 which is used as base frame for the floor; it has the shape of a parallelepiped with rectangular plan having "V"-shaped grooves 2 along its lower surface.

Fig. 2 shows the upper and the lower surfaces of a support 3. It is a parallelepiped block with rectangular cross section, with its lower surface being provided with two tabs 4 forming a "V"-shaped grooves along all its length.

The upper surface of this block has two end tabs 5 and two central tabs 6 opposed and separated by a spacer 7 which is integral with the block.

These four tabs form "V"-shaped grooves which are perpendicular to the grooves of the lower surface.

In a possible variation shown in Fig. 3 and Fig. 4 of Table 2/6 the parallelepiped wooden support has no groove and block 3 has no tab in the lower surface but is provided with a rectangular through channel 8 to allow the base support 1 to slip thereon.

Fig. 5 of Table 3/6 shows a board 9 of the floor. It has the known rectangular parallelepiped shape of the boards of the wooden floors but is characterized with respect to the latter by that its lower surface has two longitudinal half-dovetail grooves 10, i.e. provided with one straight side and one sloping side.

The side surfaces can be smooth or cut to receive a suitable packing.

Fig. 6 shows packing 11 of rubber or other suitable material having a rectangular parallelepiped shape with grooved side faces to be fitted between two boards.

After having disclosed the various components of a wooden floor, its laying will now be described. The supports are fitted or slipped (according to the type shown in Fig. 2 and Fig. 4, respectively) into the frames in the workshop and, thereafter, the whole assembly is positioned on the base with predetermined, constant spacing.

Fig. 7 of Table 4/6 shows the frames positioned with their supports upon receiving the boards 9.

Fig. 8 of Table 5/6 shows the use of frames without side grooves and blocks without tabs but with through channel.

In both cases, after having positioned the frames with blocks put thereon in workshop, the boards 9 of the floor are snap slipped on their upper surfaces, as shown in Tables 4/6 and 5/6.

At last packings 11 are applied.

Fig. 9 of Table 6/6 shows a special support, half of which is the same as the base support and the other half has perpendicular grooves. This allows the boards to be applied perpendicular to one another by mating them at will so that any design can be carried out both on the outside and the inside by applying a packing.

The proposed system allows the supports to be mounted on the base frames in the workshop and the boards to

be cut to measure , thus avoiding time consuming works for aligning the frames at a suitable spacing as well as drilling, boring, and screwing of the boards.

The positioning of the supports with a suitable spacing allows spacers to be eliminated and the check of the right side of the boards to be avoided as the perpendicularity of boards and base supports is observed.

Furthermore, the aesthetics of the upper surface of the floor is emphasized as the heads of the screws are hidden from sight.

Another advantage of the system consists of that it is possible to lay boards of different lengths by varying the spacing between the supports, as the boards are laid on two different supports.

For a better stability in time of the system, it is essential to take care of the shape of the longitudinal grooves 10 formed in the lower surface of the boards.

They have a half dove tail shape. In addition, the central tabs of the upper surface of the support are slightly spaced by a spacer 7 to allow a half dove tail groove with narrower base to be formed so as to absolutely prevent the board from detaching from its block because of a yielding or any movement of the wood.

The fitting of this shaped groove is shown in the detail of Fig. 11 and the enlarged view of Fig. 10.

As can be seen, the action of the tab of the block develops at the corner of the groove so that any

movement of the board causing a force directed upwards does not cause any detachment of the board as the tab is blocked against the corner.

The distance between spacer 7 and central tabs opposed to each other is sufficient to allow the tab to be bent for the snap fitting of the boards but not sufficient to deform the board because of the its movements, thus preventing the boards from being detached.

The accompanying drawings show the system of the invention according to an illustrative, not limiting embodiment thereof, however, changes and structural modifications can be made by those skilled in the art without departing from the scope of the present industrial invention as defined in the appended claims.

Claims

1. A wooden floor laying system characterized by a support provided with two opposed central tabs spaced by a longitudinal spacer, and two further opposed end tabs, all of the tabs having a "V"-shaped profile, so that the boards of the floor are snap slipped into said supports, said boards being provided with suitable longitudinal grooves at their lower surfaces, said supports being provided at their lower surface with said tabs or a through channel to be fitted or slipped into beams as carrying structures positioned on the ground.

2. The system of the preceding claim, characterized in that the boards of the floor have at their lower surface spaced grooves having a half dove tail shape.

3. The system of the preceding claims, characterized in that said beam positioned on the ground has "V"-shaped grooves at its side surfaces to receive the tabs of the lower surface of said support block in case the latter is fitted into the beam applied on the ground.

4. The system of the preceding claims, characterized in that the lower surface of the supports has no tab and is instead provided with a through channel into which the base beams having in this case no grooves are slipped.

5. The system of the preceding claims, characterized in that the central opposed tabs on the upper surface of the block are separated by a longitudinal spacer having the function of limiting the deformation thereof.

6. The system of the preceding claims, characterized in that the spacer of claim 5 is spaced from each tab to allow the same to be deformed in a limited and predetermined way.

7. The system of the preceding claims, characterized in that special supports are provided, wherein half upper surface of said support is made as described in the preceding claims and the other half is provided with tabs perpendicular to the first tabs in order to receive boards orthogonal to one another.

8. The system of the preceding claims, characterized in that the board of the floor have such a shaped side face as to receive a suitable packing.

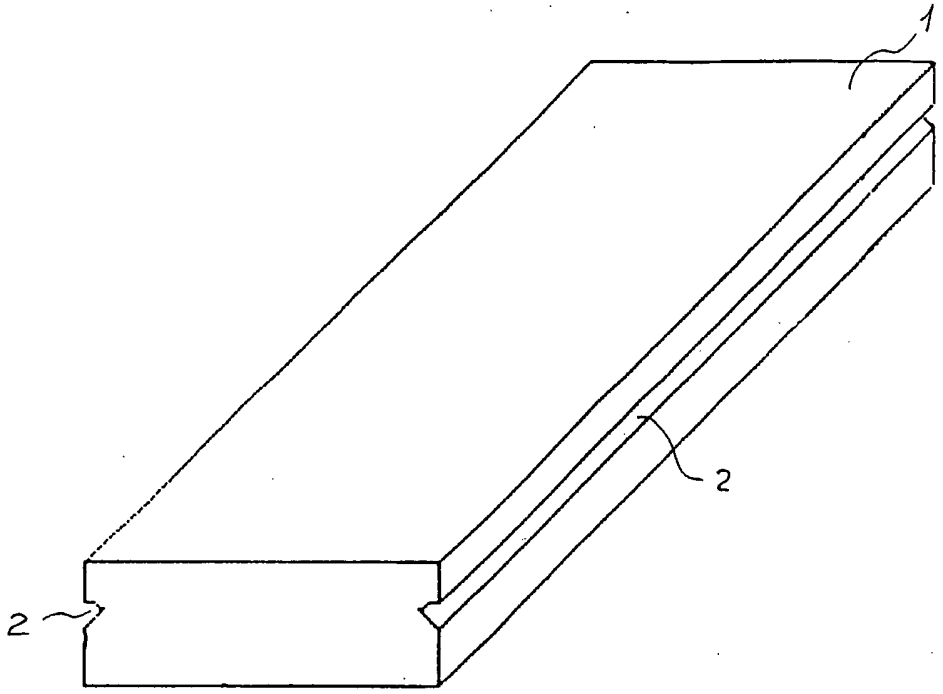

Fig: 1

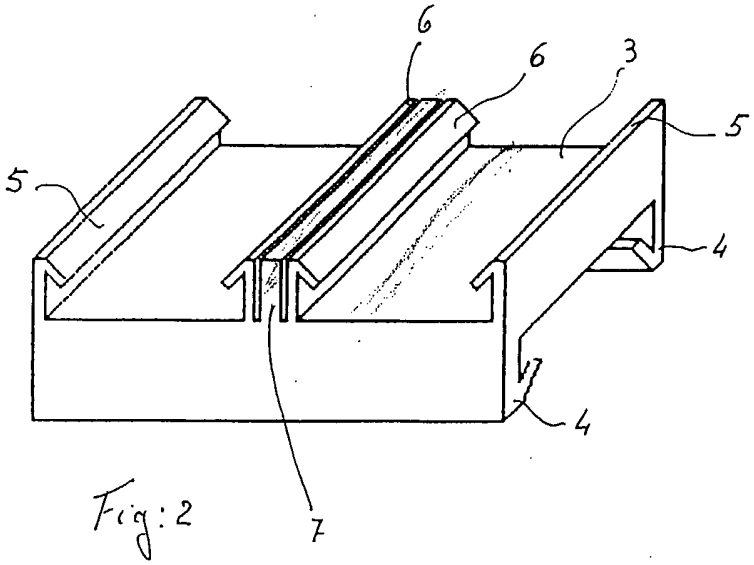

Fig: 2

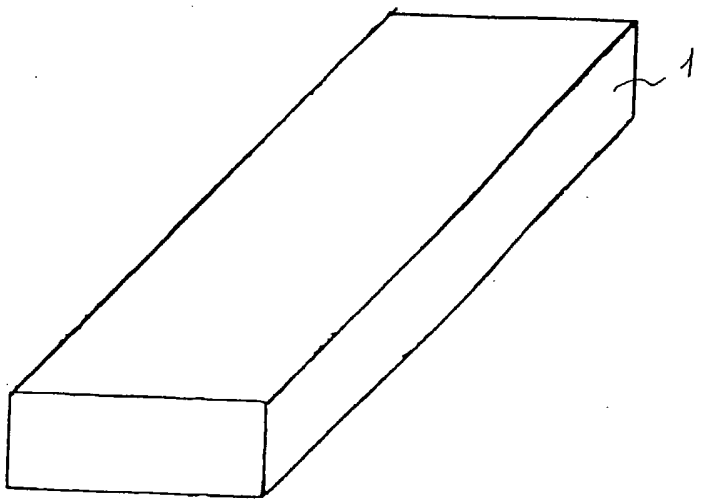

Fig: 3

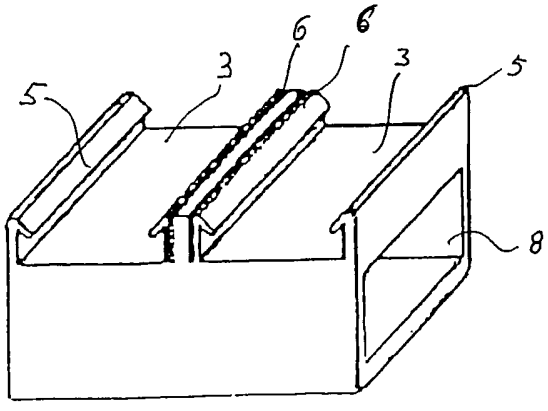

Fig: 4

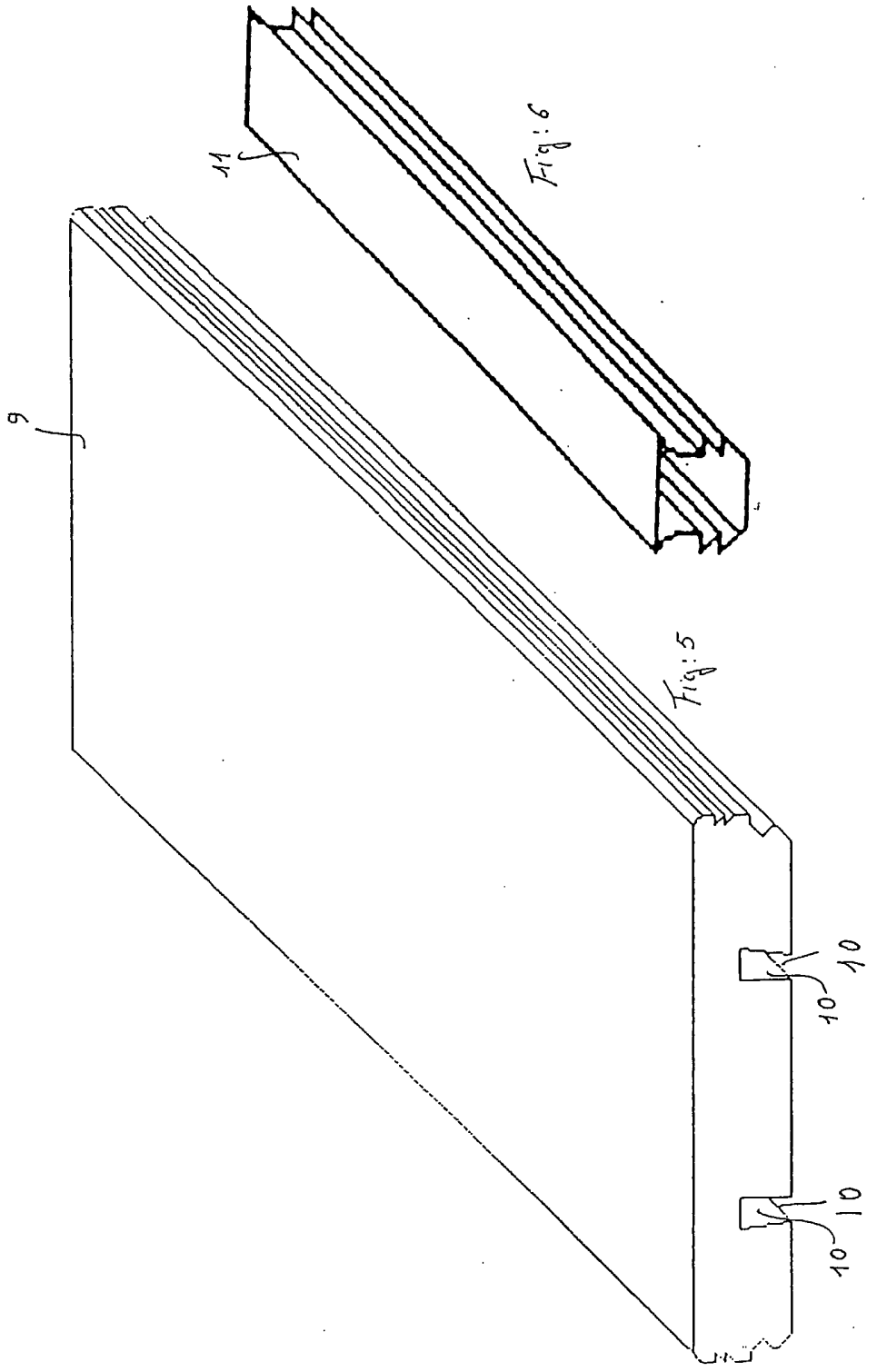

Fig: 6

Fig: 5

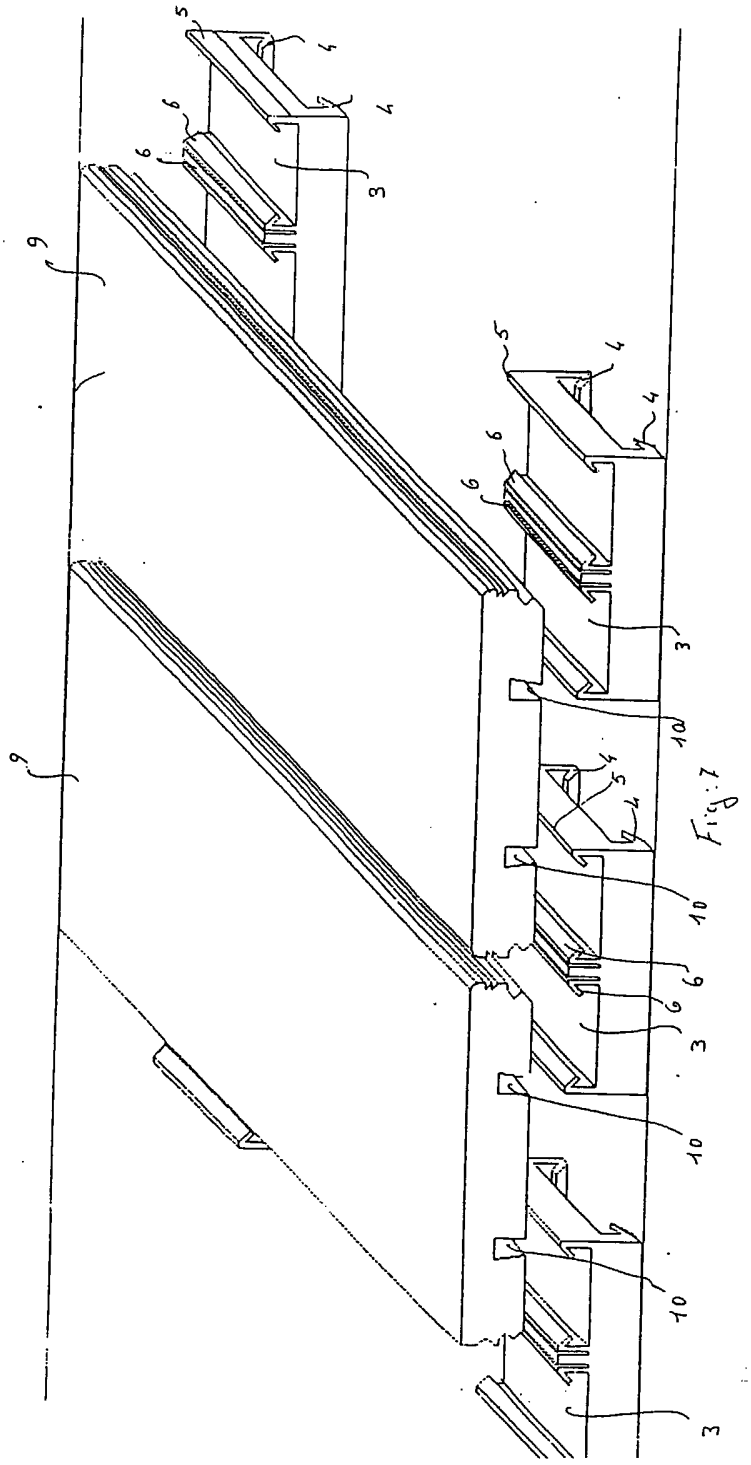

Fig. 7

FIG 7

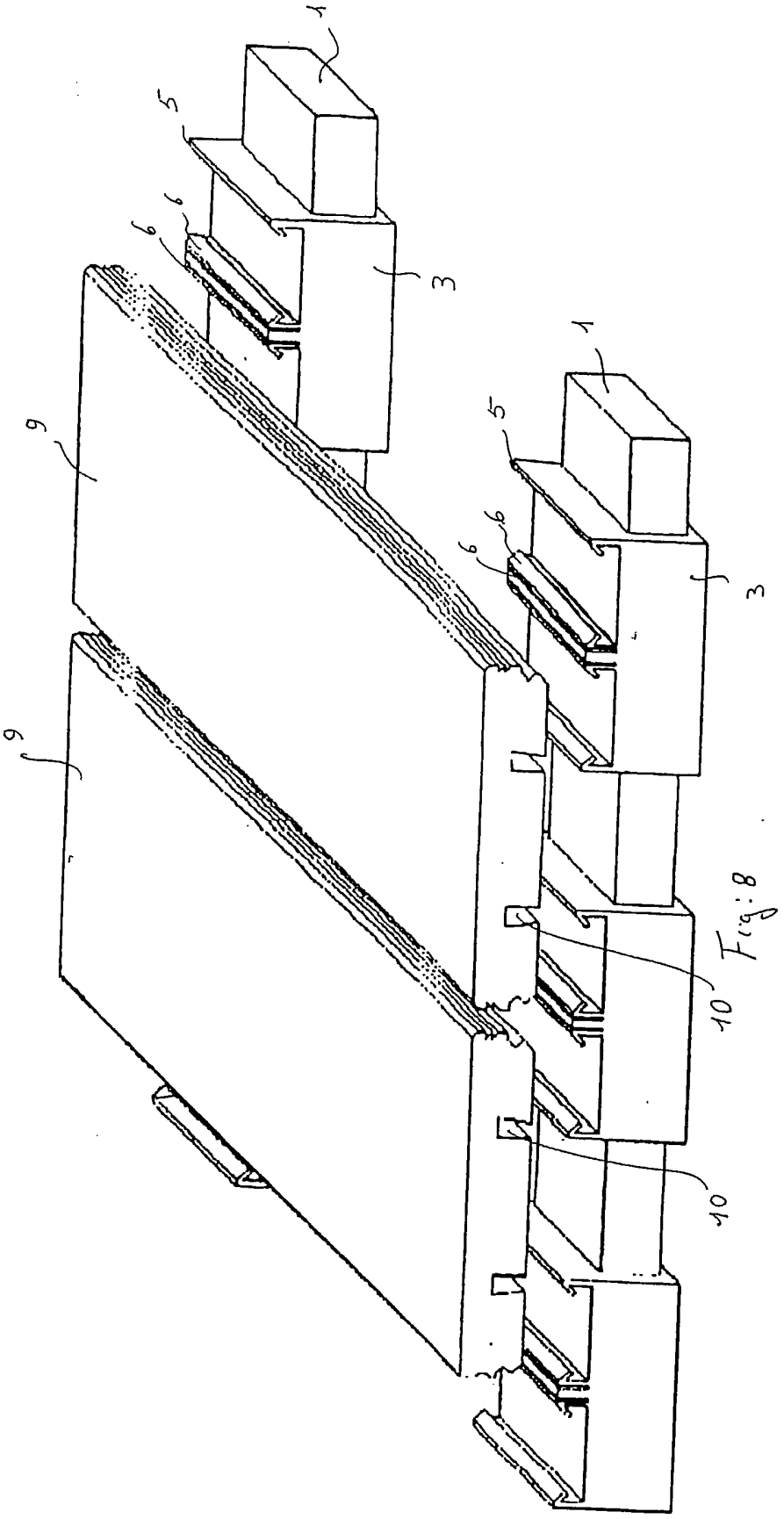

Fig. 8

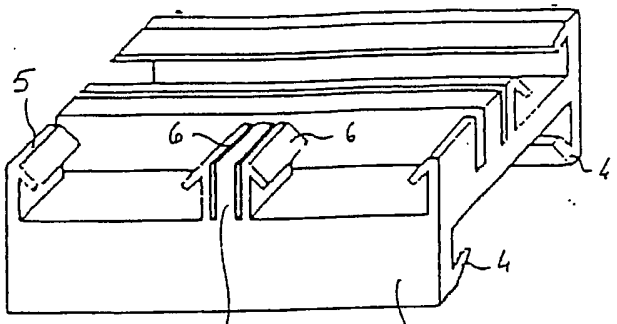

Fig: 9

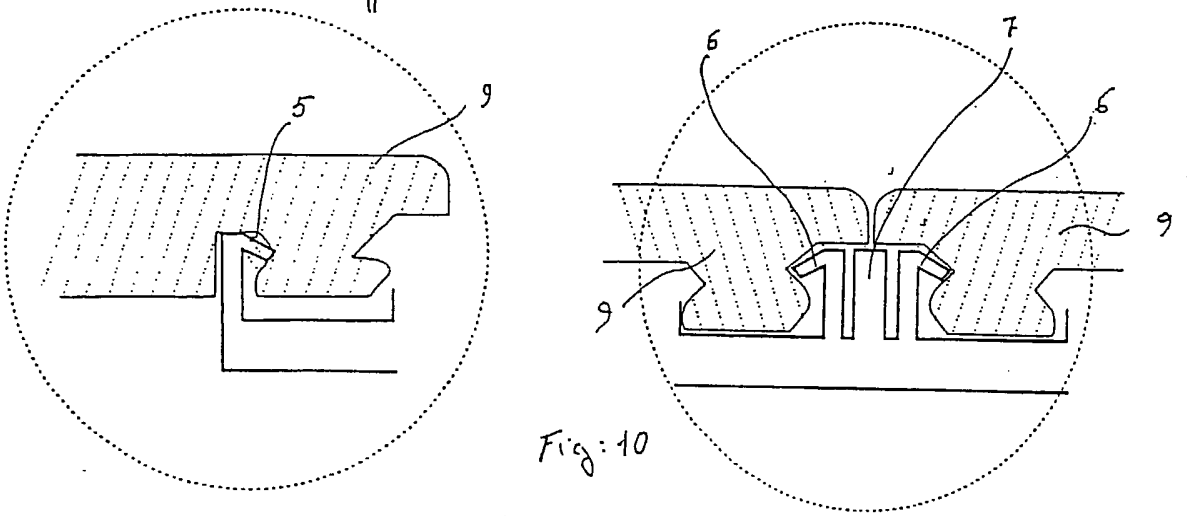

Fig: 10

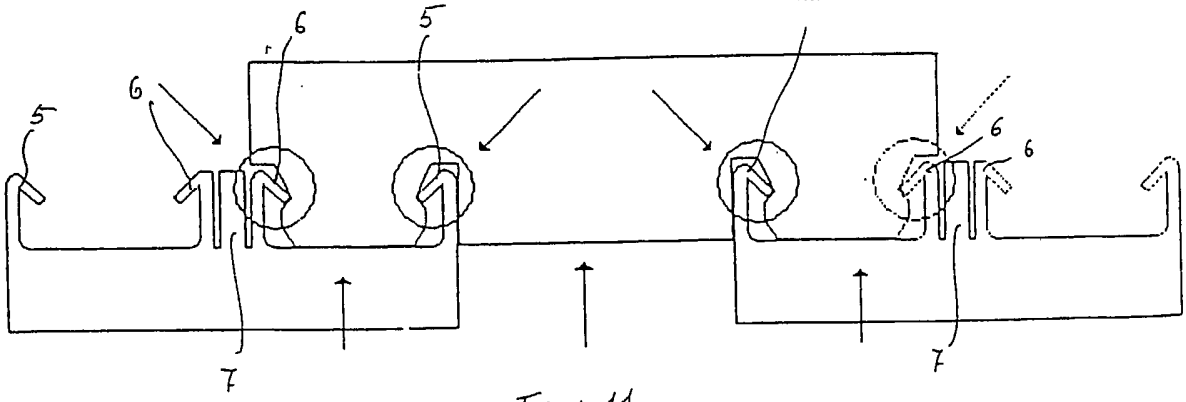

Fig: 11

INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E04F15/04 E04F15/02

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)
IPC 7 E04F

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, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 41 22 998 A1 (FLUECKIGER, WERNER, SEON, CH) 16 January 1992 (1992-01-16) column 1, line 57 - column 2, line 56 figures 1,2	1-6,8
A	DE 42 15 273 A1 (GROEGER, DIETMAR, 89281 ALTENSTADT, DE; LAESKO LAEMMLE + CO OHG, 89269) 18 November 1993 (1993-11-18) figures 1a),1b)	1-6,8
A	US 6 164 031 A (COUNIHAN ET AL) 26 December 2000 (2000-12-26) abstract column 1, line 32 - line 36 column 1, line 50 - line 59 column 4, line 4 - line 7	1-6,8

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
28 October 2005	08/11/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Severens, G

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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