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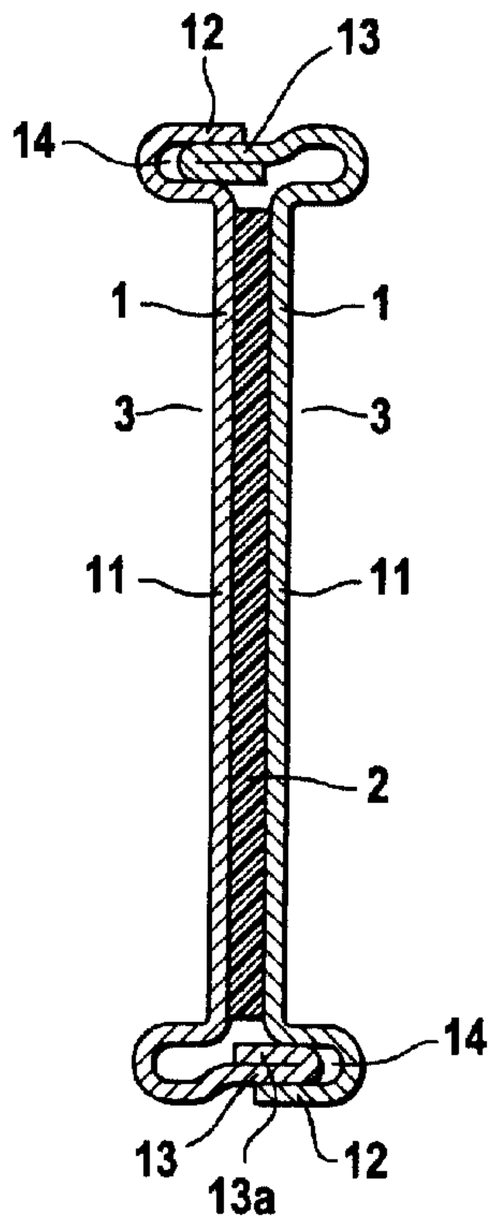
(54) Title: DEVICE FOR FORMING EXPANSION JOINTS BETWEEN FIELDS OF FLOOR COVERING LAID ON A RAW FLOOR



(57) Abrégé/Abstract:
A device for forming expansion joints between the fields of a floor covering laid on a raw floor, comprises limiting sections that are tied to the edges of the floor covering limiting the joint, as well as to the corresponding fastening mortar. The two limiting sections are joined with each other in a sliding manner parallel with the fields of the floor covering. The two limiting sections have approximately U-shaped cross sections. In their sliding connection, in which the two limiting sections are directed against each other, they jointly have a cross section in the form of a double "T".

ABSTRACT OF THE DISCLOSURE

A device for forming expansion joints between the fields of a floor covering laid on a raw floor, comprises limiting sections that are tied to the edges of the floor covering limiting the joint, as well as to the corresponding fastening mortar. The two limiting sections are joined with each other in a sliding manner parallel with the fields of the floor covering. The two limiting sections have approximately U-shaped cross sections. In their sliding connection, in which the two limiting sections are directed against each other, they jointly have a cross section in the form of a double "T".

DEVICE FOR FORMING EXPANSION JOINTS BETWEEN FIELDS OF FLOOR COVERING LAID ON A RAW FLOOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a device for forming expansion joints between fields of floor covering laid on a raw or uncoated floor. Limiting sections are tied to each of the edges of the floor covering defining the joint, as well as in the associated fastening mortar, so that the two limiting sections are connected with each other in a sliding manner and extend parallel with the fields of the floor covering.

2. The Prior Art

Expansion joints are used as field-limiting joints, among other things, in locations where tiles, natural stone, terrazzo mosaic coverings, tiling finishes and similar coverings installed on mortar beds, or glued layers have to be laid on raw floors, for example concrete floors. These joints are required especially in conjunction with floors with large surface areas, such as in shopping centers, large market places, or in connection with industrial floors. Expansion joint constructions of this type are expected to

absorb the movements of the floor covering caused by tensile, pressure and/or shear stress in a safe and controlled manner. At the same time, the joints further transmit the forces caused by the wheels of forklift trucks or floor transporter vehicles and acting on the construction of the joint. In these situations, the edges of the floor covering have to be protected within the zone of such field-limiting joints.

Panel-laying techniques where joint zones are exactly fixed in advance are commonly used. This means that the plates are first laid from one side up to the fixed axis of the joint. The joint constructions are then installed in a second step of the installation process, and the field of plates is finally tied to the joint constructions or sections of the joint.

A device for forming expansion joints between fields of floor covering is known from DE 43 41 224 C2. Strip-like limiting sections are tied to the edges of the floor covering limiting the joints. A hollow, elastic section strip is supported between the two spaced-apart limiting sections for covering the space of the joints. This device permits only minor movements of the coated areas against each other.

A joint arrangement comprising two vertical strips extending parallel next to each other with a lateral spacing, and a bridge element located between the vertical strips for incorporation in a field-limiting joint of a floor covering laid on a bed of mortar, is discussed in German Patent No. DE 196 45 637 C1. In this case, the upper longitudinal edges of the vertical strips extend in the plane extending on the top side of the floor covering. The vertical strips, which are provided with a large number of breakthroughs and which extend up into the bed of mortar, are joined with each other along their upper longitudinal edges by a bridge, forming one single piece. This bridge has a closed surface area and serves as the bridge element. The breakthroughs located in the upper longitudinal strip of the vertical strips extending at the level of the floor covering have smaller cross sections than the breakthroughs located in the lower strip disposed at the level of the bed of mortar.

The one-component section employed in this joint arrangement has the drawback that the upper, rigid connection with a bridge prevents an adequate pushing and compensating motion from taking place within the area of the joint. This poses the risk that the profiles may get torn from the edges of the floor coating. The further drawback is that in the

presence of substantial vertical stresses acting on the joint section, which has an inadequate surface area to support the sections on the substrate, causes the sections to be torn off on their sides, lower themselves down into the joint and consequently lose their protective function versus the edges of the floor covering.

Constructions according to German Patent No. DE 197 53 937 A1 satisfy the requirements that devices for forming expansion joints are expected to meet in practical applications with respect to an adequately sliding joint. That case has two angle sections, with one angle section having pockets with parallel surfaces. These pockets are engaged in a sliding manner by legs correspondingly arranged on the other angle section. These sections, however, can be installed below the floor covering only with molded-on fastening legs and are consequently not suited for the laying technique addressed in the present case. Such constructions can be usefully installed only when at least one angle section is already installed in the course of the first phase of the covering laying process. However, it is difficult to then tie this angle section to the edges of the expansion joint, since these edges are produced only during the second phase of this construction work.

SUMMARY OF THE INVENTION

It is therefore an object of the invention to provide a device for forming expansion joints that permits tying to the edges of the already laid plates with adequate tying of the limiting sections to the fastening mortar, and provides for a large space in which the fields of the floor covering can move.

The invention comprises two limiting sections having an approximately U-shaped cross section and identical constructions, which engage one another in a sliding manner. This arrangement of the limiting sections leads to a device that is closed at the top and at the bottom. The underside forms an adequate support surface.

In a preferred embodiment, the chambers formed around the bridges and the legs of the limiting sections are filled in the laying process with the fastening mortar, so that the upper legs of the limiting sections are supported by the fastening mortar, and are consequently tied to the fields of the floor covering, safely securing them to a high degree against vertical stress.

These devices can be joined in a simple manner with the edges of the floor covering limiting the moving joints, by securing the devices via the fastening mortar. The fastening mortar, which is preferably provided with a joint in the form of a cut, recess or notch, is arranged below the device, so that such mortar supports the device as well.

In another preferred embodiment, the corresponding limiting sections can be manufactured in a simple way by metal sheet rolling or metal sheet folding. It is therefore possible to use sections made of metal sheet material that can be economically produced not by the extrusion process, such as sections made of stainless steel sheet materials.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying drawings. It is to be understood, however, that the drawings are designed as an illustration only and not as a definition of the limits of the invention.

In the drawings, wherein similar reference characters denote similar elements throughout the several views:

FIG. 1 shows a cross-sectional view of a device for forming expansion joints according to the invention; and

FIG. 2 shows a corresponding perspective sectional view of such a device after its unilateral installation in the structure of a floor.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The device shown in FIG. 1 comprises two limiting sections 1 basically having a U-shaped cross section and identical constructions. After having been installed in an arrangement in which the two sections are turned against each other by 180º, the two sections 1 engage each other in a sliding manner and form a cross section having the shape of a double "T". A space-keeping filling insert 2 is glued in between the inwardly curved bridges 11. The curved components of bridges 11 each form an outwardly open chamber 3. In the area of the transitions from bridge 11 to lateral bridges 12, pockets 14 are formed by chamfering or rolling

methods, and each engage the corresponding leg 13 of the other limiting section in a sliding manner. Engaging legs 13 are shaped in two layers by the corresponding bend or corresponding fold 13a. The corresponding two-layer section is shaped curved inwards around a pocket 14 by the thickness of the metal sheet the leg 12.

The device shown in FIG. 1 is shown again in FIG. 2 in an installation situation. A mortar layer 5 is applied to a raw floor 4, for example a concrete floor, and a plate floor covering 6 or the like is applied to raw floor 4. The device as defined by the invention is installed on one side on layer 5 and plate floor covering 6 by means of limiting section 1. The entire device is supported on a mortar stilt applied to raw floor 4, as well as on a corresponding bed, which has a joint 8 in the form of a notch. The fastening mortar denoted by reference numeral 7 serves for the tie-up. Mortar 7 fully or completely penetrates chamber 3 formed by the limiting section 1 and cures in said section. For additionally bracing the fastening mortar, it is possible to provide for breakthroughs 15 in bridge 11, which may also be combined with undercut contours. As shown in the representation in FIG. 2, on the other side of the device as

defined by the invention, the other limiting section 1 is joined with the adjoining structure of the floor.

Accordingly, while only a few embodiments of the present invention have been shown and described, it is obvious that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A device for forming expansion joints between fields of floor covering laid on a raw floor with fastening mortar, comprising:

at least two limiting sections adapted to be tied to each of the edges of the floor covering defining the joints, and in the corresponding fastening mortar, each section being identical to the other and having an approximately U-shaped cross section with two lateral legs and a middle bridge section,

wherein when one section is turned by 180º against the other, one of the legs of each section engages an open pocket formed in an opposite leg of the other section to slidingly join the two sections together.

2. The device according to claim 1, wherein the two limiting sections jointly form a cross section in the form of a double "T" when the sections are turned 180º against the other.

3. The device according to claim 2, wherein the bridge sections and the legs of the limiting sections form at least one chamber for receiving fastening mortar, said chambers being open toward a fastening side.

4. The device according to claim 1, wherein the pockets are formed in an area between the bridge section and the lateral legs on at least one side of each limiting section, said pockets each being engaged in a sliding manner by the legs of the other limiting section.

5. The device according to claim 1, wherein each of the legs engaging the pockets is formed by two layers on an end side.

6. The device according to claim 5, wherein a section of each lateral leg that engages one of the pockets is shaped curved inwards by the thickness of the corresponding opposite leg.

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Fig. 1

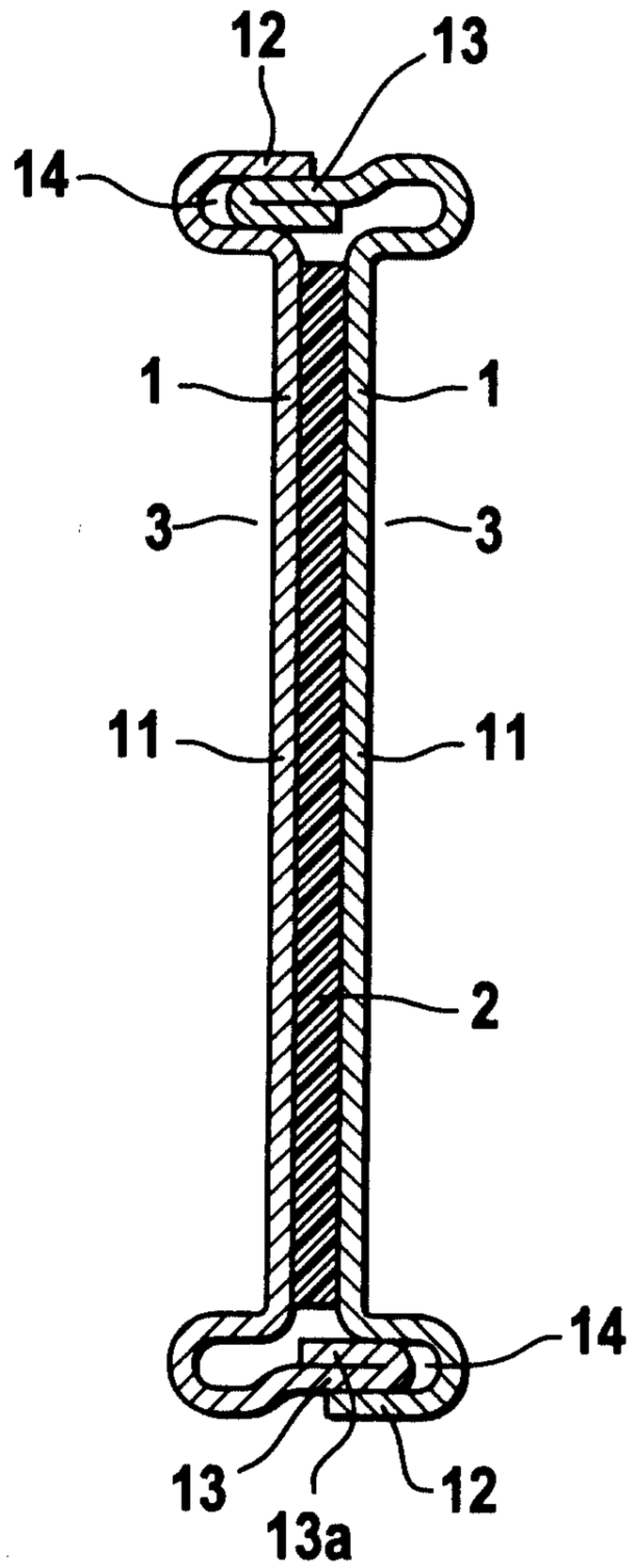
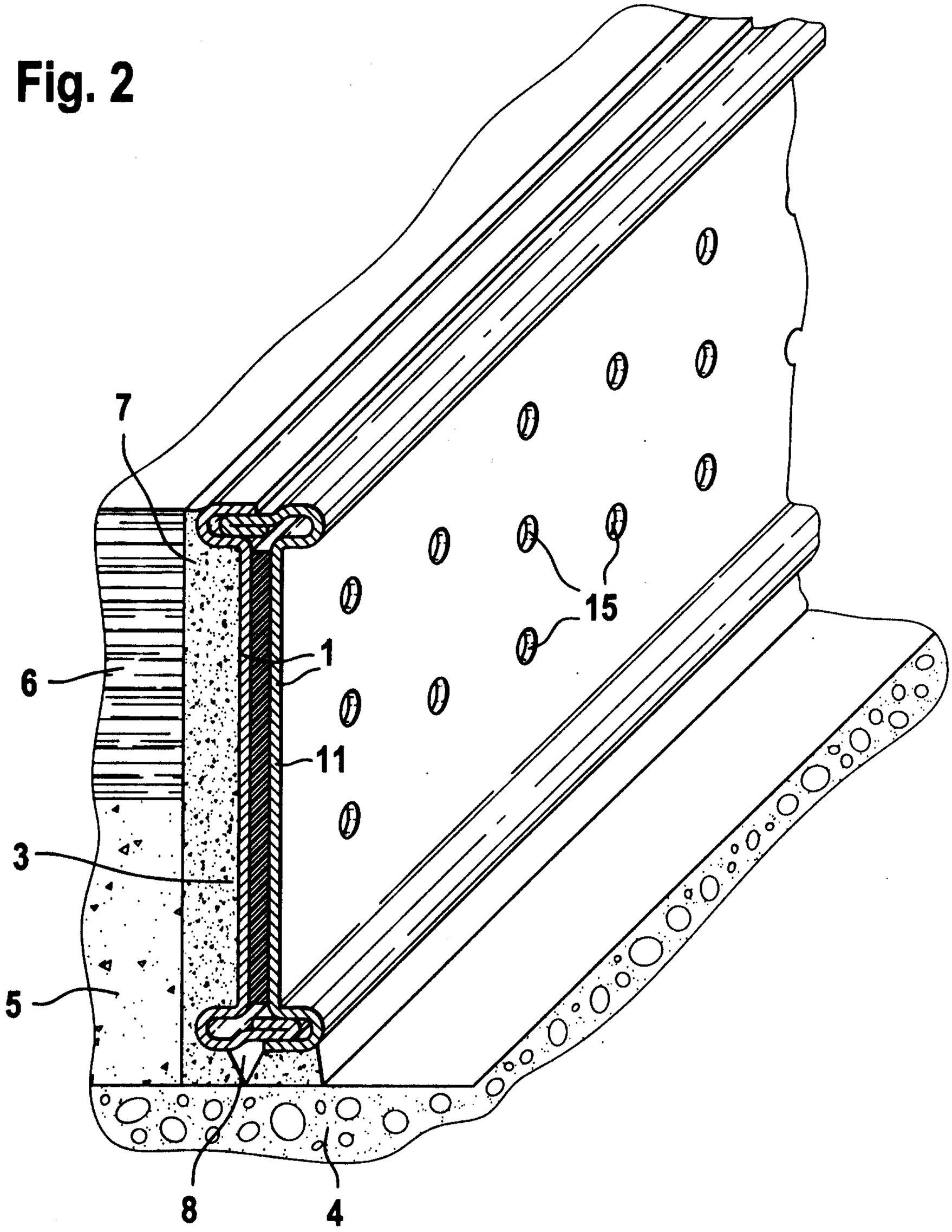
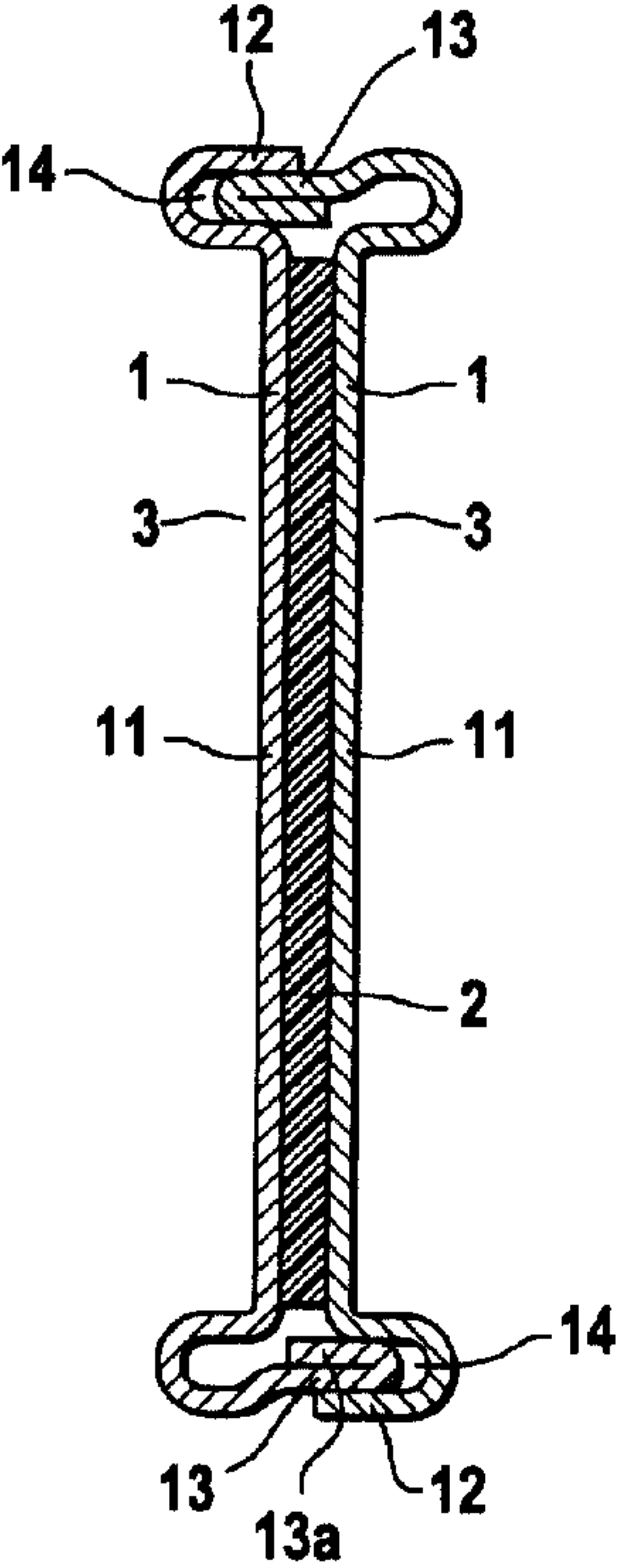


Fig. 2

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