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(54) **Covering for railroad switch mechanisms in hollow sleepers and fabrication method thereof**

(57) Covering for railroad switch mechanisms in hollow sleepers and fabrication method thereof which comprises a reinforced piece (1), with variable shapes and dimensions, made of impact-modified polyamide plastic, with thermoplastic rubber, UV additives and carbon black, having an inverted U-shaped configuration, which determines a central core (2), where longitudinal and transverse reinforcing ribs (5) and lateral supporting

wings (4) are incorporated. Plural eccentric holes (8) are made at the lateral supporting wings (4) to facilitate the assembly, as well as plural accommodations (9), adapted and marked according to the needs of each case, for the settlement of the retaining pins during the railroad maintenance works. Some piece (1) generic types are fabricated via injection moulding, these being subsequently cut to measure and made by interchange of elements in the injection moulding.

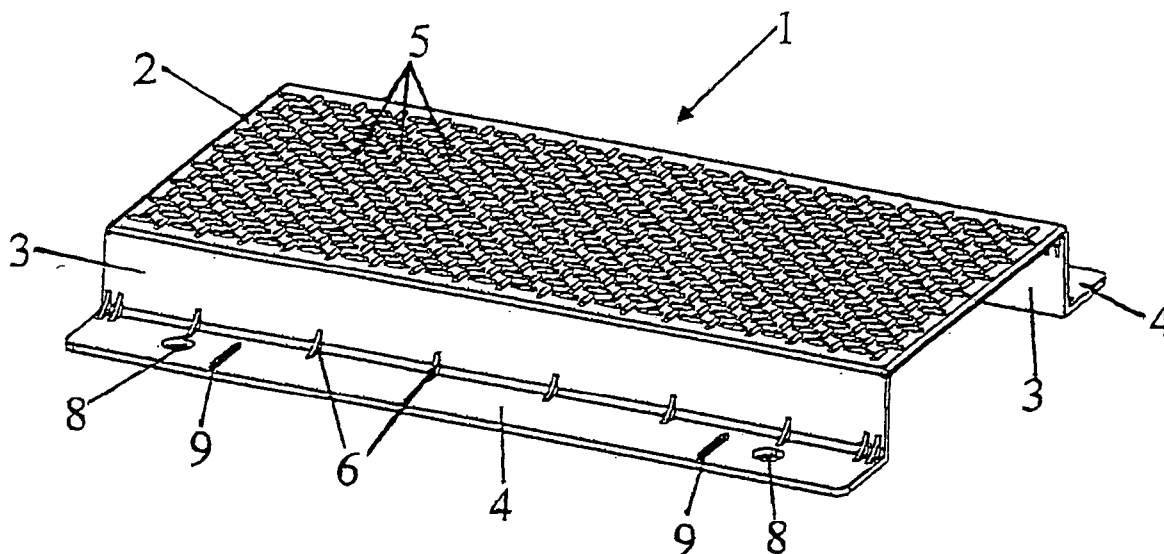


FIG. 1

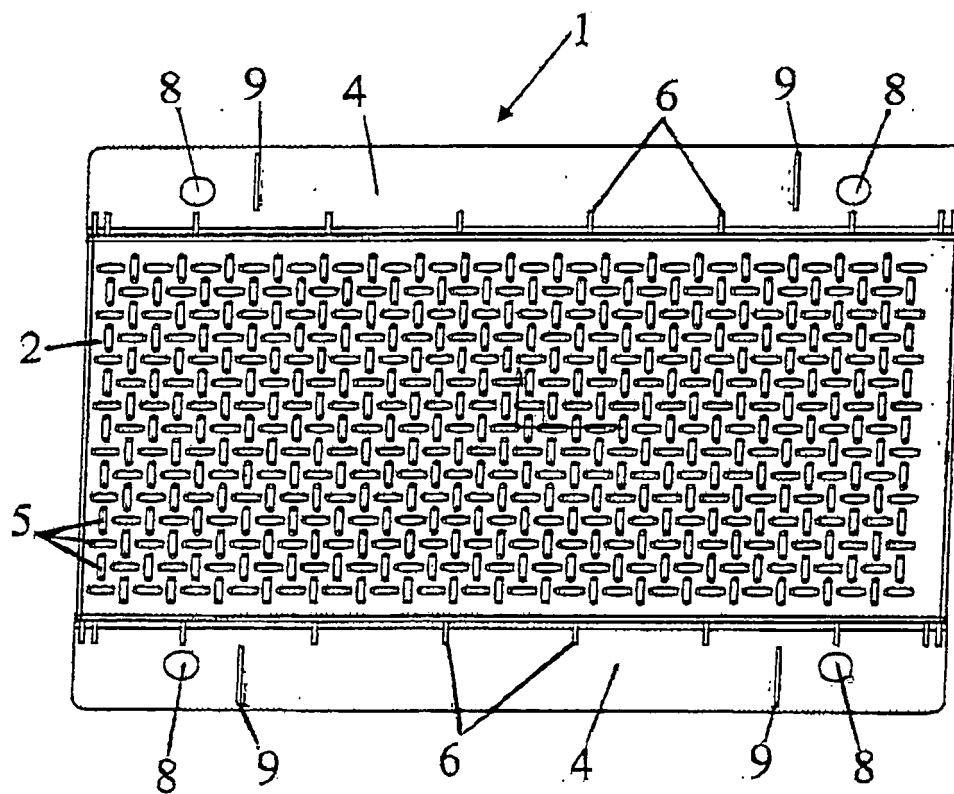


FIG. 2

Description

OBJECT OF THE INVENTION

[0001] The invention refers to, as expressed on the wording of this descriptive report, a covering for railroad switch mechanisms in hollow sleepers and the fabrication method thereof, which provides to the function it is assigned to, a number of advantages and characteristics, apart from those inherent to its organization and constitution, to be detailed afterwards, which imply an innovative improvement in this field.

[0002] Specifically, the object of the invention consists of a plastic covering with plural shapes and sizes according to each case, specially assigned to cover the different mechanisms located in hollow sleepers, which produce the coordinated movement of railroad switches, the covering being applicable to all kind of switches whose mechanisms are located in hollow sleepers, both for high speed and conventional rails.

FIELD OF THE INVENTION

[0003] This invention has its field of application in the industry dedicated to the manufacturing of railroad equipment, devices and accessories.

BACKGROUND OF THE INVENTION

[0004] Nowadays, and as a reference to the status of technique, it has to be mentioned that the applicant is not aware of the existence, for the purpose herein concerned, of any other invention with similar technical, structural and constitutive characteristics.

It has then to be remarked that the device applicable to a covering for railroad switch mechanisms in hollow sleepers supported by this invention includes improvements and innovative characteristics which substantially differentiate it from the already known systems for such purpose.

EXPLANATION OF THE INVENTION

[0005] In this way, the device supported by the invention, as stated, represents an important novelty in its field of invention, its characterizing features being suitably compiled in the claims of this descriptive report.

[0006] Specifically, the covering supported by this invention consists of a reinforced piece, with variable shapes and sizes according to the specific needs of each case, fabricated by moulding of plastic materials, preferably impact-modified polyamide plastic, with thermoplastic rubber, UV additives and carbon black.

[0007] This piece has an inverted U-shaped cross-sectional configuration, which determines a central core, where some longitudinal and transverse reinforcing ribs are incorporated, as well as both lateral supporting wings, with eccentric holes that make the assembly easier, con-

sidering potential defects of the hollow sleepers they must cover.

[0008] Besides, several accommodations are ubicat-ed along the supporting wings, which are adapted and marked according to the needs of each case, for the po-sitioning of the retaining pins during the railroad mainte-nance works.

[0009] Therefore, the piece supported by this invention exhibits several following advantages:

- Passive security, as it is a light product.
- Lightness, which makes it easy-to-use, and im-proves its transportation and assembly.
- Impact-resistance, as it is fabricated in modified PA 6.
- Weather-resistance, as it is properly additivated.
- The intrinsic properties of the plastic material provide electric isolation, which is essential for railroad sys-tems.
- The design allows to adapt a big covering capacity.

[0010] Along with the exposed advantages, and due to the wide range of possible measures, a second aspect of the present invention refers to the fabrication method of the above-mentioned covering, which is based on a flexible system, involving the fabrication of generic types via injection moulding, being subsequently cut to meas-ure so as to be adaptable to all types of hollow sleepers used for the different railroad switches.

[0011] The different generic types are made by inter-change of elements in the injection moulding.

[0012] Consequently, the covering for railroad switch mechanisms in hollow sleepers supported by this inven-tion represents an innovative structure with structural and constitutive characteristics not known so far for such pur-pose, reasons which, together with its practical useful-ness, grant enough basis to obtain the exclusiveness privilege applied for.

DESCRIPTION OF THE DRAWINGS

[0013] In order to complete this description and to ease a better understanding of the invention, we attach to this descriptive report, making part of the same, a set of lay-outs where, with an illustrative non limitative character, the following has been represented:

Figures number 1, 2, 3, and 4 show a perspective view, a top plan view, a front elevation, and a down plan view, respectively, of a preferred embodiment of the covering for railroad switch mechanisms in hollow sleepers object of the present invention, and specifically a central type covering, showing its gen-eral configuration and its different constitutive parts and elements.

[0014] Figures number 5 and 6 show both perspective views of other two preferred embodiments of the covering

according to the invention, specifically a lateral and a crossing covering.

PREFERENTIAL EXECUTION OF THE INVENTION

[0015] In the light of the said figures, and according to their numbering, it may be seen different preferred embodiments of the device in question formed by the parts and elements described in detail hereinafter.

[0016] Therefore, as the Figures show, the said covering, having different shapes and sizes according to each case, is specifically aimed at covering the mechanisms which produce the coordinated movement of railroad switches in hollow sleepers.

[0017] For that purpose, the covering is formed by means of a piece (1), fabricated by moulding of plastic material, preferably impact-modified polyamide plastic, with thermoplastic rubber, UV additives and carbon black, having an inverted U-shaped cross-sectional configuration.

[0018] The above-mentioned U determines a central core (2), from which both lateral walls (3) arise perpendicularly and facing the same direction, being these two lateral walls (3) accommodated externally on two supporting wings (4).

[0019] These supporting wings (4) comprise almost the total length of the central core (2), except for those coverings where, as the examples of Figures 5 and 6 show for a lateral and a crossing covering respectively, the central core (2) extends further the supporting wings (4) or even further the lateral walls (3) according to the needs of each case.

[0020] Likewise, it has to be remarked that the dimensions in terms of length, width, height of the central core (2), the lateral walls (3) and the supporting wings (4) will also vary to adapt to the needs of each case.

[0021] In this way, it has to be also stated that the central core (2) of the piece (1), in order to provide rigidity and resistance to the same, reinforces it by incorporating on its upper surface plural longitudinal and transverse ribs (5), gussets (6) at the junctions of the lateral walls (3) and the supporting wings (4), and transverse ribs (7) incorporated at the inner face of the central core (2), which reinforce it by joining both lateral walls (3).

[0022] The supporting wings (4) have eccentric holes (8) to facilitate the piece assembly, considering potential defects of the hollow sleepers they must cover.

[0023] Furthermore, some accommodations (9) are located along the supporting wings (4), adapted and marked according to the needs of each case, for the settlement of the retaining pins during the railroad maintenance works.

[0024] The piece fabrication system, as previously mentioned, implies fabricating some piece generic types via injection moulding, being subsequently cut to measure so as to be adaptable to all types of hollow sleepers used for railroad switches.

[0025] The different generic types are made by inter-

change of elements in the injection moulding.

Being already described the nature of this invention, as well as the way to put it into practice, it is not considered necessary to make an extensive description for an expert in the field understands it reach and the derived advantages, stating that, within its essentiality, it might be put in practice in other ways differing in detail from such indicated in the title of the example, to which the protection requested will also reach, provided its main principle is not altered, changed or modified.

Claims

1. Covering for railroad switch mechanisms in hollow sleepers, **characterized by** the fact that it includes a reinforced piece (1), of different shapes and dimensions, with an inverted U-shaped cross-sectional configuration, which determines a central core (2) from which both lateral walls (3) arise perpendicularly and facing the same direction, these lateral walls being accommodated externally on two supporting wings (4), which comprise almost the total length of the central core (2), except for those coverings whose central core (2) extends further the supporting wings (4) or even further the lateral walls (3), according to the needs of each case, wherein the supporting wings (4) have eccentric holes (8) to facilitate the piece (1) assembly, and wherein some accommodations are located along the supporting wings (4), which are adapted and marked according to the needs of each case, for the settlement of the retaining pins during the railroad maintenance works.
2. Covering for railroad switch mechanisms in hollow sleepers, as per claim 1, **characterized by** the fact that the central core (2) of the piece (1) includes, as supporting elements, plural longitudinal and transverse ribs (5), and gussets (6) at the junctions of the lateral walls (3) and the supporting wings (4), as well as transverse ribs (7) incorporated at the inner face of the central core (2), which reinforce it by joining both lateral walls (3).
3. Covering for railroad switch mechanisms in hollow sleepers, as per claim 1, **characterized by** the fact that the piece (1) is made of plastic material, preferably impact-modified polyamide plastic, with thermoplastic rubber, UV additives and carbon black.
4. Fabrication method of a covering for railroad switch mechanisms in hollow sleepers, as per the covering described in claim 1, **characterized by** the fabrication of the generic types of the piece (1) via injection moulding, these generic types being subsequently cut to measure to adapt to all kind of hollow sleepers used for railroad switches, and made by interchange of elements in the injection moulding.

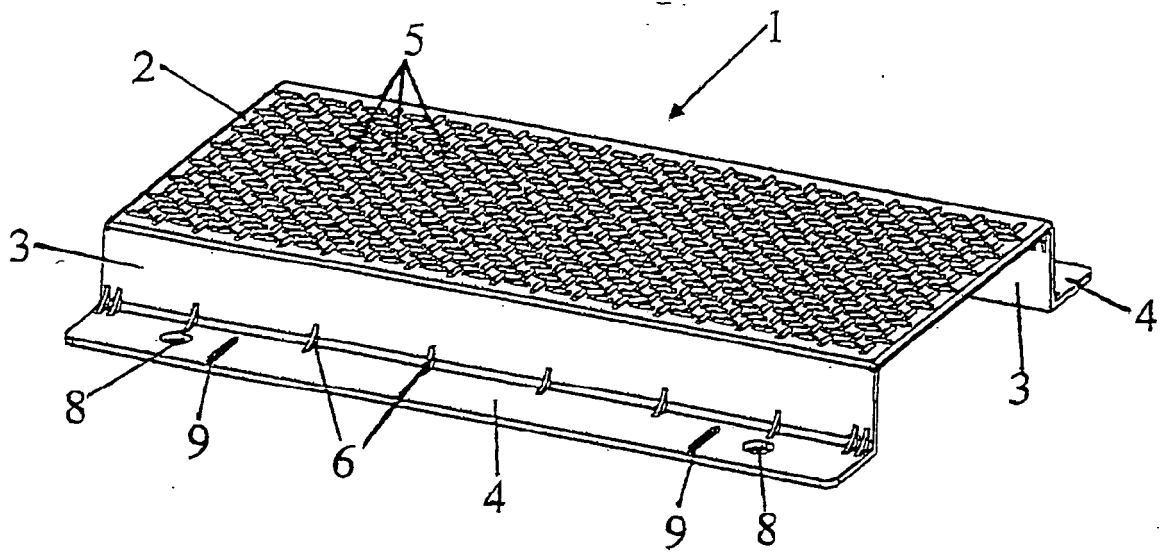


FIG. 1

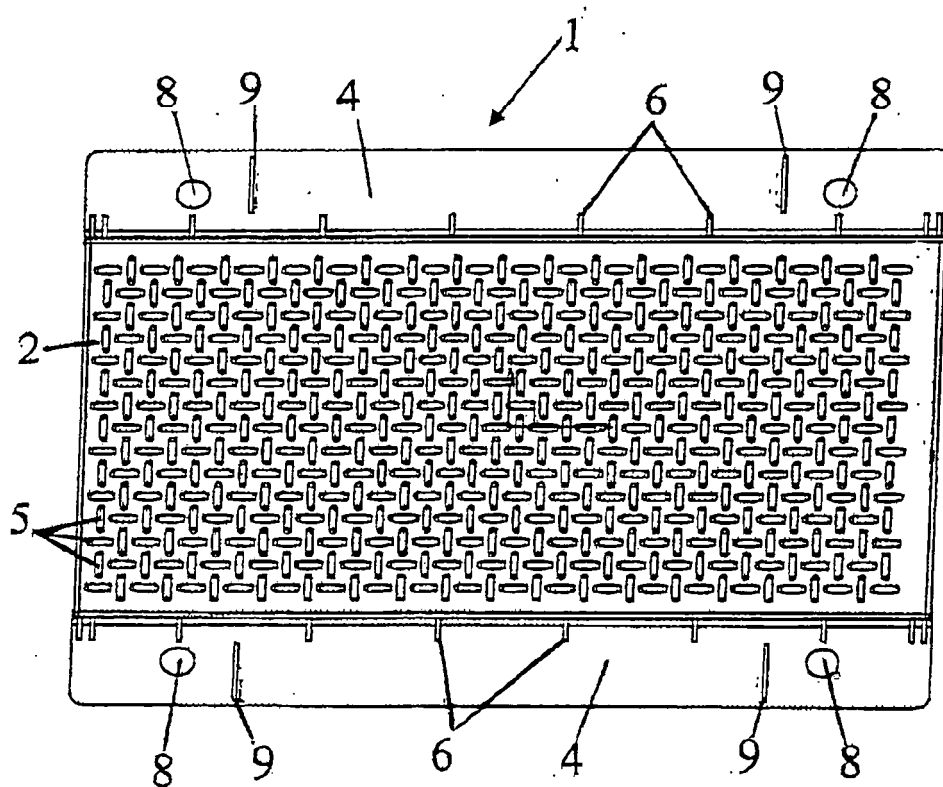


FIG. 2

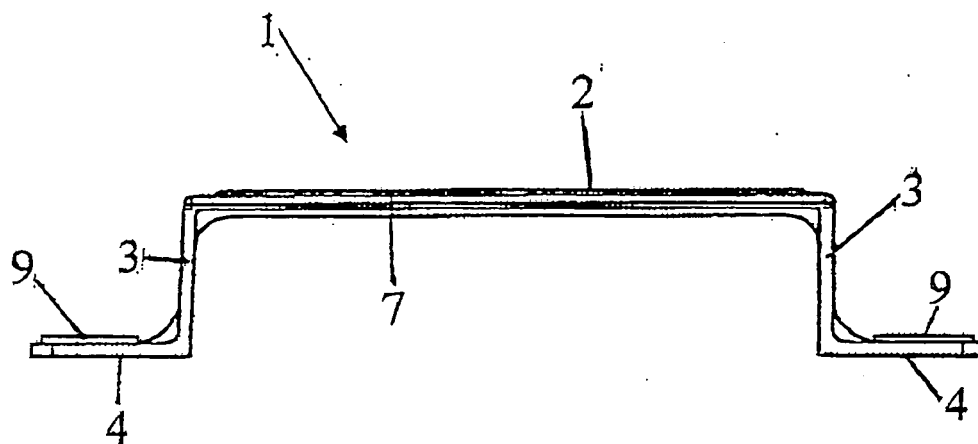


FIG. 3

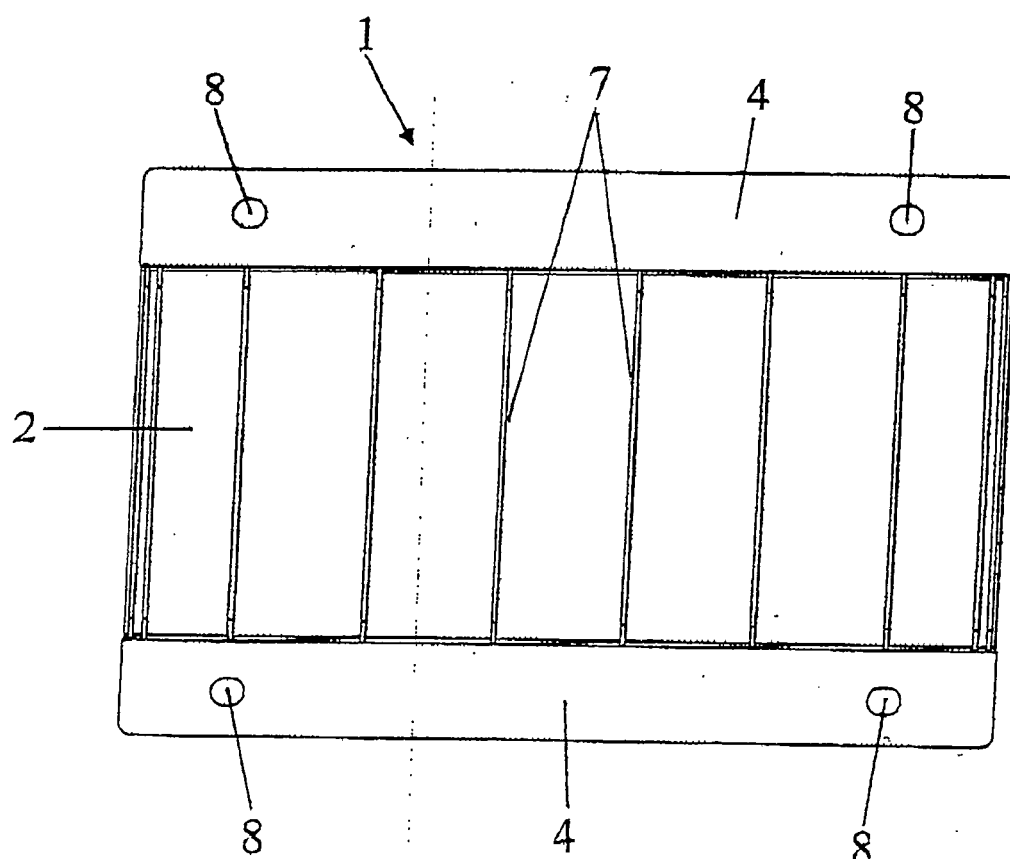


FIG. 4

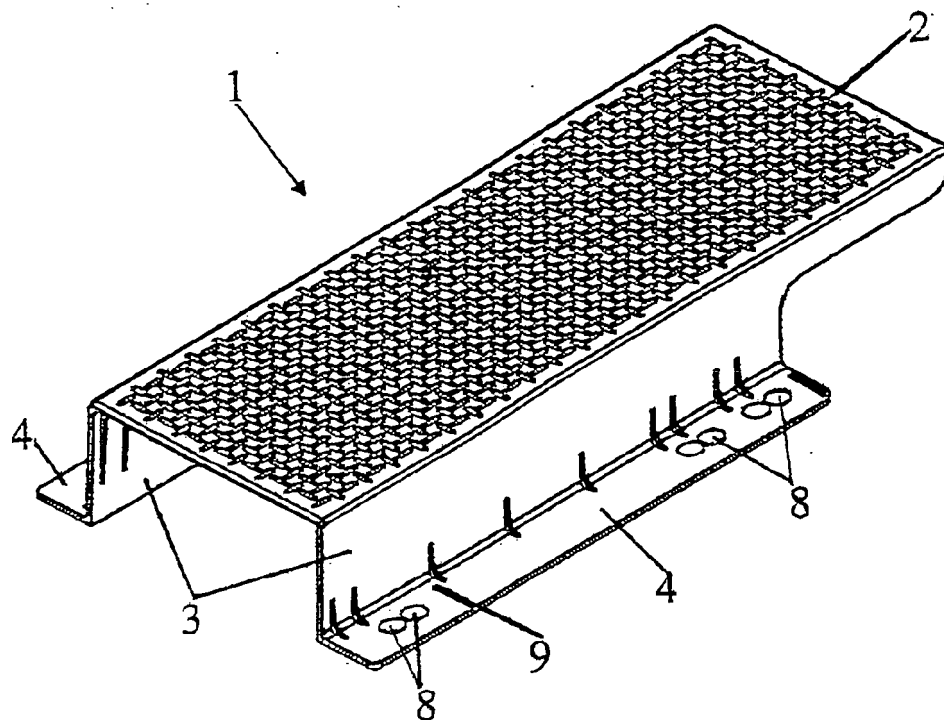


FIG. 5

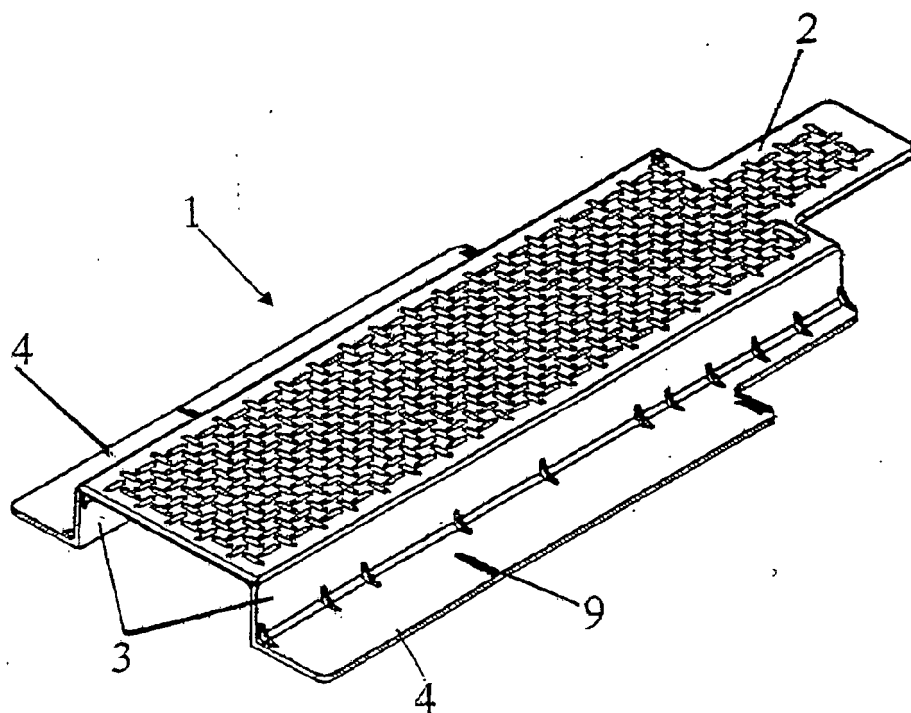


FIG. 6