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(54) **A railway sleeper**

(57) A railway sleeper having a lower surface (5) which can be associated to a railway track, and a base surface (6) which can be associated by bearing onto a railway ballast, and comprising at least an element (11) for covering at least a portion (12) of the base surface

(6). The covering element (11) is constituted by a metallic mesh (13) associated to the base surface (6) at least perimetrically, and is able to exert a stronger grip on said ballast than would the portion (12) of the base surface (6) covered by it.

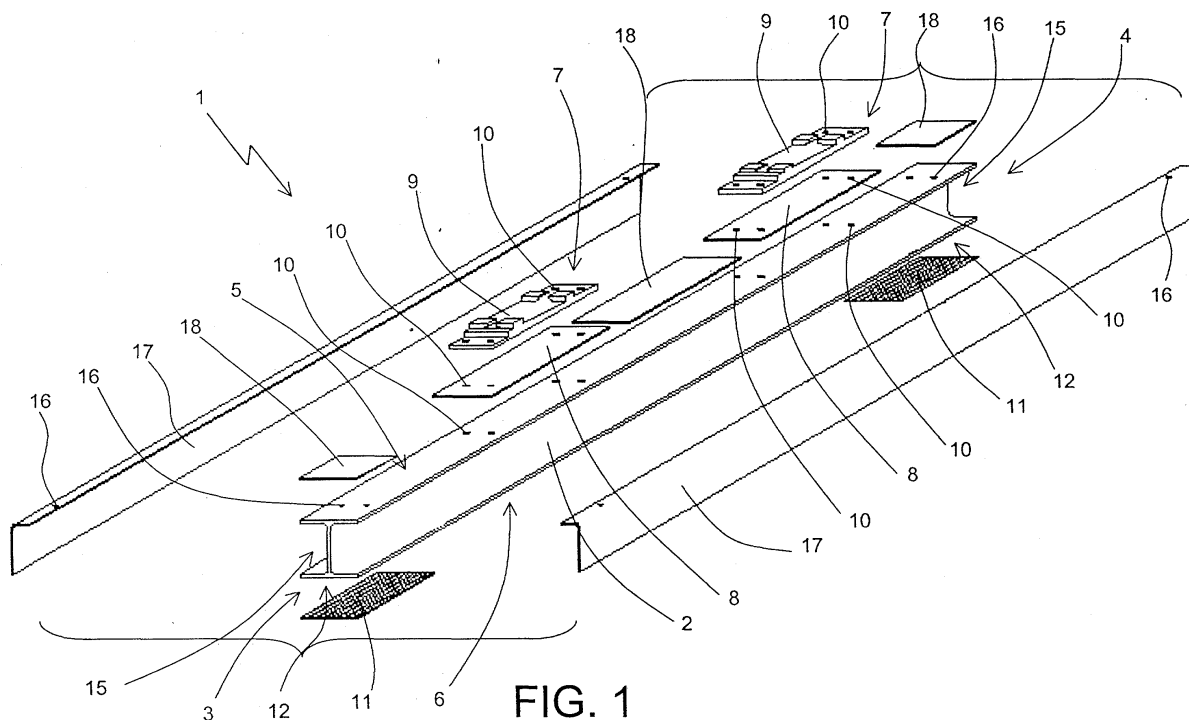


FIG. 1

Description

[0001] The present invention relates to a railway sleeper comprising the characteristics expressed in the preamble to claim 1.

[0002] The present invention finds application in particular for sleeper whose base surface tends to slip on the rocks which constitute the railway ballast.

[0003] This in particular occurs for metallic sleepers in which the base surface is smoother than cement sleepers, and hence exerts less of a grip on the ballast.

[0004] Such metallic sleepers are used for example in correspondence with points and/or signals to allow the passage of electrical wires underneath the tracks. In fact, known hollow metallic railway sleepers allow the passage of the wires inside them.

[0005] Obviously, the fact that the sleeper may slip on the ballast constitutes a considerable drawback, since on one hand it can cause hardships for personnel having to install the sleepers, and on the other hand it can constitute a hazard for the circulation of the trains, since it could case (especially if several adjacent sleepers were to slip) a deformation of the track.

[0006] In this situation, the technical task constituting the basis for the present invention is to provide a railway sleeper which overcomes the aforementioned drawbacks.

[0007] In particular, a technical task of the present invention is to provide a railway sleeper which has a good grip on the ballast, regardless of the material whereof it is made.

[0008] Yet another technical task of the present invention is to provide a metallic railway sleeper which has a grip on the ballast that is at least equal to that of traditional cement sleepers.

[0009] The specified technical task and the indicated objects are substantially achieved by a railway sleeper, as described in the accompanying claims.

[0010] Further features and advantages of the invention shall become more readily apparent from the detailed description that follows of some preferred, but not exclusive, embodiments, of a railway sleeper, illustrated in the accompanying drawings, in which:

- Figure 1 shows a schematic exploded view of a type of railway sleeper in accordance with the present invention;
- Figure 2 shows a plan view of the railway sleeper of Figure 1, partially assembled;
- Figure 3 shows a detail of the sleeper of Figure 1;
- Figures 4 through 7 show embodiment variations of the present invention.

[0011] With reference to the accompanying drawings, a railway sleeper according to the present invention is globally designated by the reference number 1.

[0012] As stated, the present invention can be applied to railway sleepers of any type and material, although

the present description expressly refers to the case of a metallic sleeper 1, for which the present invention is particularly advantageous.

[0013] The railway sleeper 1 has an elongated main body 2 which extends from a first end 3 to a second end 4 and which defines an upper surface 5 and a base surface 6 of the sleeper 1. The upper surface 5 can be associated in use to the rails, whilst the base surface 6 can be associated by bearing onto the railway ballast.

[0014] With reference to the accompanying figures, on the upper surface 5 are mounted two fastening elements 7 for the rails, each comprising a base plate 8 interposed between the sleeper 1 and a coupling element 9. First through holes 10 allow the coupling element 9 and the base plate 8 to be rigidly connected to the sleeper 1 by means of through bolts (not shown herein).

[0015] According to the present invention, the sleeper 1 further comprises at least an element 11 for covering at least a portion 12 of the base surface 6, which is able to exert a stronger grip on the ballast than could be exerted by the portion 12 of the base surface 6 covered by it.

[0016] In particular, according to the preferred embodiment of the present invention, the covering element 11 is constituted by a preferably metallic mesh 13, associated to the base surface 6 at least perimetrically.

[0017] Figures 4 through 7 show some examples of covering elements 10 having different patterns of the mesh 13.

[0018] Preferably, the covering element 11 can also comprise a rigid frame 14, where to the mesh is rigidly fastened, which in turn is fastened to the base surface 6 of the sleeper 1.

[0019] In particular, if both the sleeper 1 and the covering element 11 are metallic, the rigid frame 14 (or, in its absence, the edge of the mesh 12) can be fastened to the sleeper by welding.

[0020] A railway sleeper in accordance with the present invention can be provided with covering elements 11 of various shapes and dimensions.

[0021] By way of example the covering element 11 can be a single one and cover either just a reduced portion of the base surface 6, or the entire base surface 6. Alternatively, multiple covering elements 11 can be distributed over the base surface 6, as in the case shown in the accompanying figures, in which two covering elements 11 are associated to the sleeper 1 each in correspondence with one of the ends 3, 4 of the sleeper 1 itself.

[0022] The railway sleeper 1 shown by way of example in the accompanying figures is a metallic sleeper for the passage of wires.

[0023] In general, metallic sleepers for the passage of wires have at least an inner compartment 15 which extends longitudinally along all or less than all the extension of the sleeper 1 itself, to allow the passage of wires within it.

[0024] In the accompanying figures the main body 2 of the sleeper 1 is constituted by a I sectioned metallic beam where to are laterally associated (by means of through bolts, not shown, inserted in appropriate second through holes 16) two reverse L section bars 17 which define with the main body 2 two longitudinal compartments 15 which extend parallel within the sleeper 1.

[0025] Alternatively, the main body 2 can be constituted for instance by two I section metallic beams set side by side and rigidly connected (one of which serves the same function as the reverse L section bars 17 described above), which define a single longitudinal compartment between them.

[0026] The figures also show additional covering plates 18 which can be associated to the upper surface 5 of the sleeper 1.

[0027] Embodiments of the covering element 11 can be provided in which the mesh 13 is not present (although this is the preferred embodiment), but there is a portion of material capable of exerting a considerable grip on the ballast, such as rubber, or a high roughness material.

[0028] The presence of one or more covering elements considerably increases the grip of the sleeper on the ballast with the great advantage of minimising the risk of its moving from the ideal position. Additionally, the metal mesh is used, it is capable of enmeshing with the rocks constituting the ballast, allowing a secure and constant immobilisation of the sleeper (particularly if the mesh is fastened to the base surface only along its own perimeter).

[0029] It should also be noted that the present invention is easy to construct and that also the cost connected with embodying the invention is not very high.

[0030] The invention thus conceived can be subject to numerous modifications and variations, without thereby departing from the inventive scope that characterises it.

[0031] All components can be replaced by other technically equivalent elements and in practice all materials used, as well as the shapes and dimensions of the various components, can be any depending on requirements.

Claims

1. A railway sleeper having a lower surface (5) which can be associated to a railway track, and a base surface (6) which can be associated by bearing onto a railway ballast, **characterised in that** it comprises at least an element (11) for covering at least a portion (12) of the base surface (6), said covering element (11) being able to exert a stronger grip on said ballast than would the portion (12) of the base surface (6) covered by it.

2. A railway sleeper as claimed in claim 1, **character-**

ised in that said covering element (11) is constituted by a mesh (13).

3. A railway sleeper as claimed in claim 2, **characterised in that** said mesh (13) is metallic.

4. A railway sleeper as claimed in claim 2 or 3, **characterised in that** said mesh (13) is associated to said base surface (6) at least perimetrically.

5. A railway sleeper as claimed in any of the previous claims, **characterised in that** it extends from a first end (3) to a second end (4) and **in that** it comprises at least two of said covering elements (11) associated to said sleeper (1) each in correspondence with one of said ends (3), (4).

6. A railway sleeper as claimed in any of the claims 1 through 5, **characterised in that** said covering element (11) covers the whole base surface (6).

7. A railway sleeper as claimed in any of the previous claims, **characterised in that** it is mainly made of metallic material.

8. A railway sleeper as claimed in any of the previous claims, **characterised in that** it has at least an internal compartment (15) extending longitudinally to allow the passage of wires inside the sleeper (1) itself.

9. A railway sleeper according to claim 8 **characterised in that** it has within it at least two longitudinal compartments (15) extending parallel.

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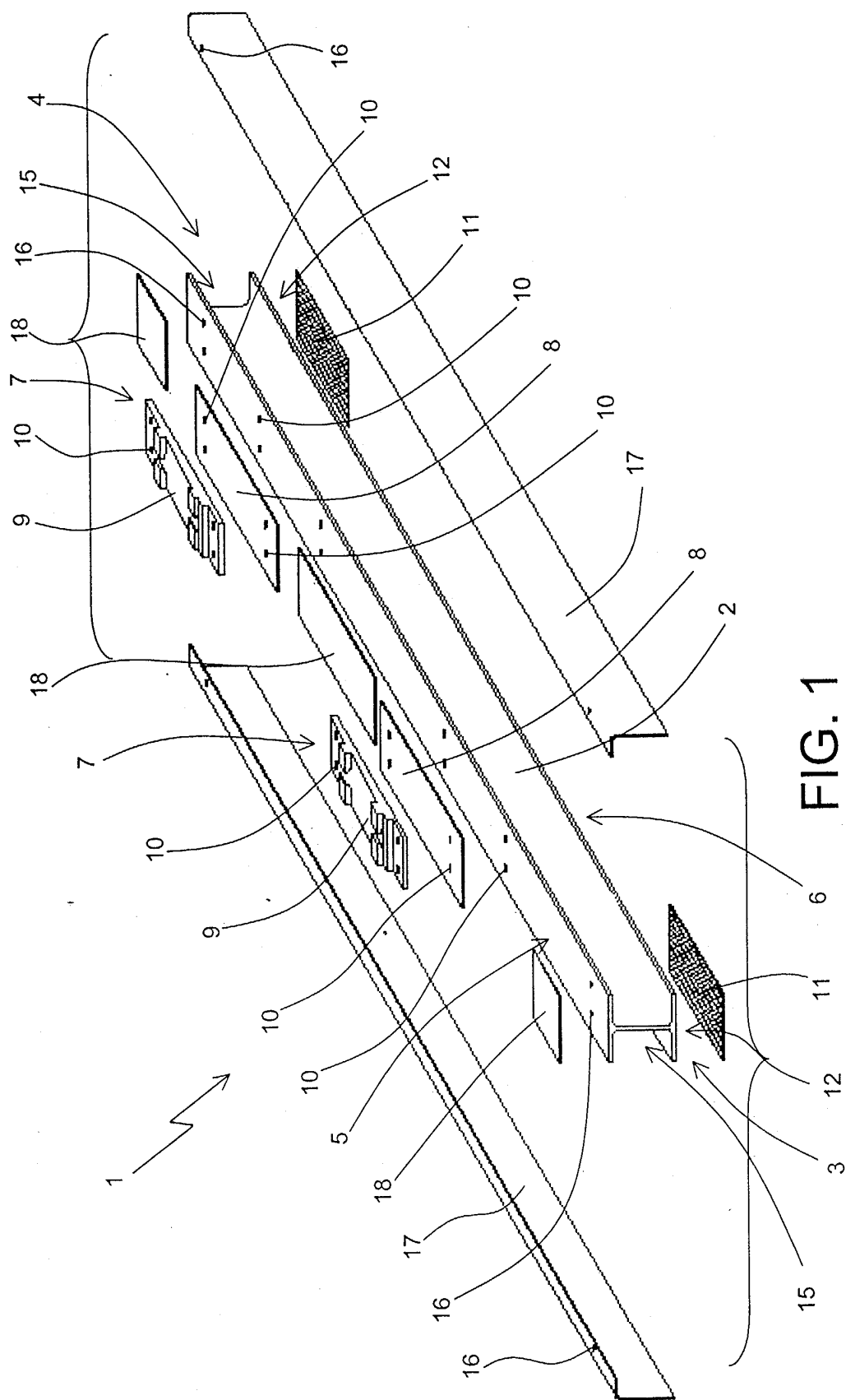
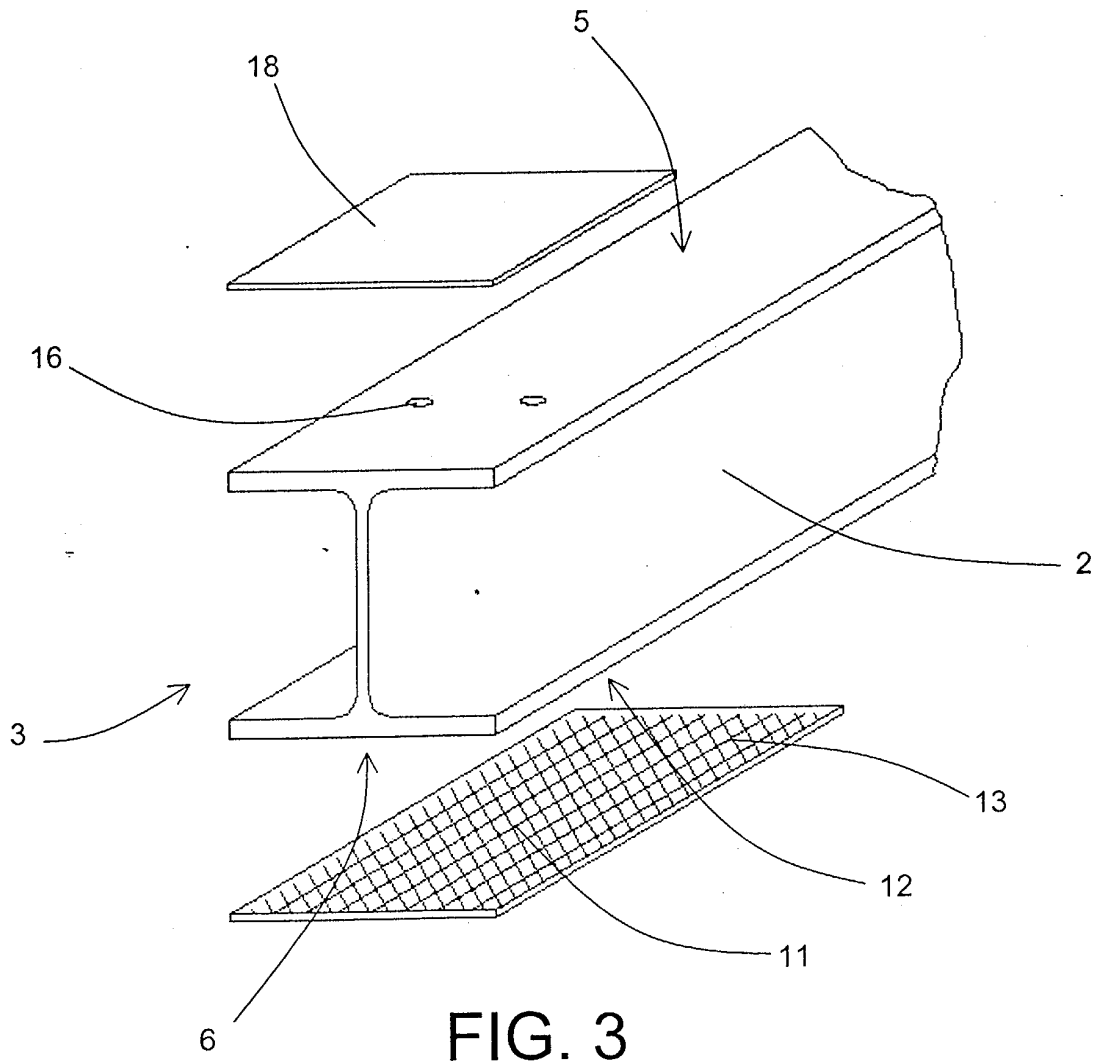
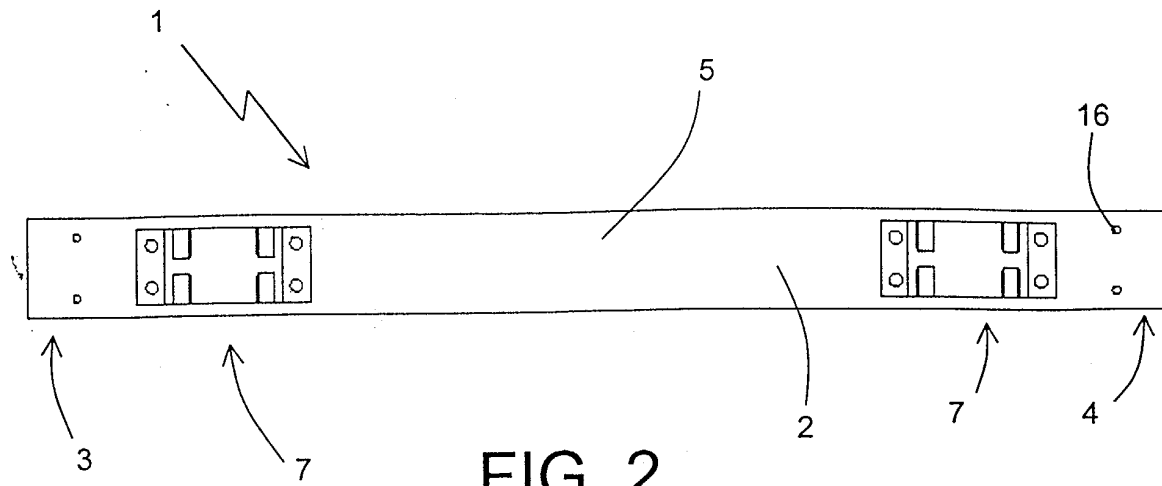


FIG. 1



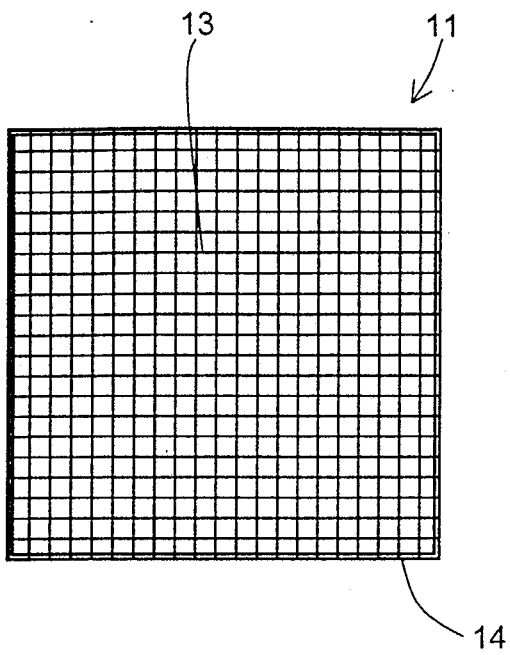


FIG. 4

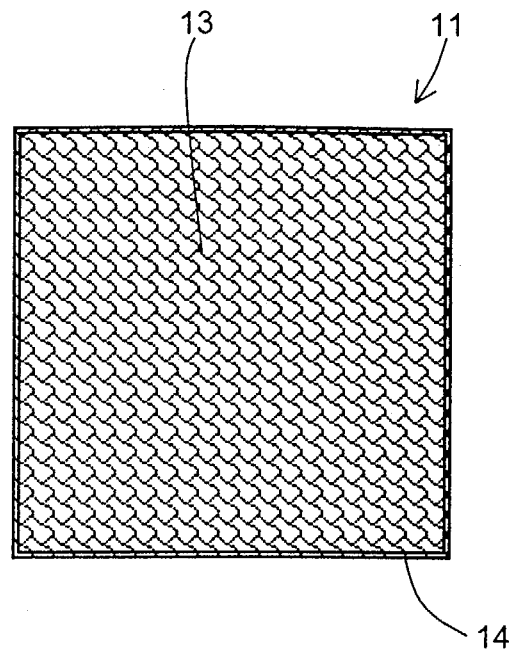


FIG. 5

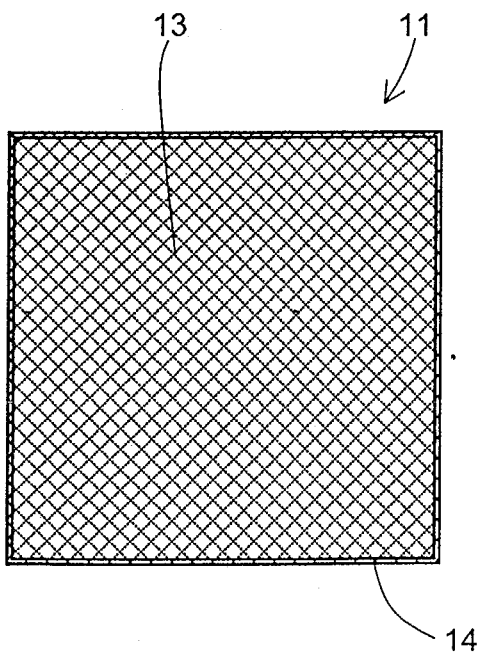


FIG. 6

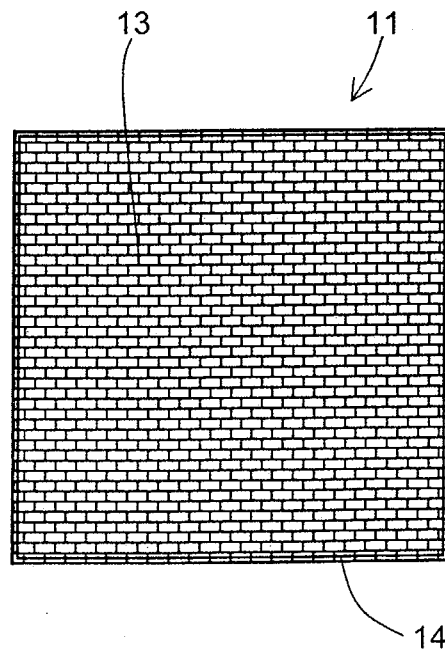


FIG. 7