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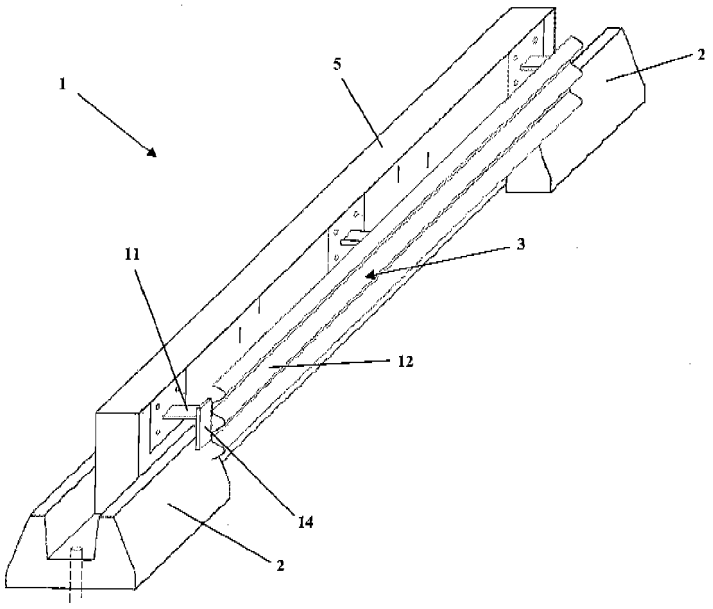
(54) **A support base for the fencing of a building yard provided with an integrated guardrail**

(57) The present invention concerns an innovative base (1) on which to erect a structure (100), preferably an anti-noise barrier (100).

The said base comprises at least a plinth (2) on which a beam (5) results arranged configured to form a support base for holding the structure (100). In accordance with the invention, the base (1) further comprises an impact-absorbing element (11, 12) arranged in such a way as to result at least on the edge or projecting externally with respect to the more external profile of the plinth that holds the base in such a way as to impede direct impacts against the base itself.

FIG. 4



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Description

Technical Field

[0001] The present invention refers to the technical field relative to the devices for delimiting building yards in proximity of a road path on which to eventually erect anti-noise and anti-powder barriers or separating elements in general such as metal nets.

[0002] In particular, the invention refers to an innovative base which includes integrated to it a guardrail to prevent accidental impacts of the circulating vehicles on the path against such delimiting elements.

Background Art

[0003] As shown in figures from 1 to 3, a well known type of building yard anti-noise and/or anti-powder barrier 100 includes a base formed by a saddle-like beam 110 and that leans in two parts on two plinths 120 appropriately distanced between them. Figure 1 in fact shows the two plinths on which the saddle-like beam 110 leans and destined to hold the overlapped panels forming in such an example the said barrier. The beam must therefore be dimensioned (material and thickness) in such a way as to be able to support stably the weight and the loads deriving from the overlying structure.

[0004] By coupling in succession more than one saddle-like beam the desired length of barrier is obtained. The plinths 120 in fact form a sort of small base. The saddle-like beam has a base profile cut in such a way as to lean into the longitudinal seats formed by the two plinths (see detail of figure 2) and, at the same time, remaining substantially in contact with the ground in the middle part that results comprised between the two plinths themselves (see for example figure 3 or figure 1).

[0005] Such type of barrier includes the posts on sight only from the opposite part to that of reception of the sound in such a way as to improve the visual impact of it and the aesthetic characteristics to allow on both surfaces of the barrier the eventual application of advertising elements.

[0006] Another characteristic of such barriers is that of being resistant to R180 fire and therefore of being very of high performance from the point of view of the passive protection.

[0007] The saddle-like beams are assembled to the posts and to the panels in Porenbeton in the plant and then arranged in loco directly pre-assembled on the plinths positioned in the appropriate points of installation of the barrier. In that sense, there is a significant saving of costs in terms of time and transport and of laying in building yard (quick because in pre-assembled modules).

[0008] A technical problem relative to such a type of barrier is that by which the plinth, being a low element (height of about 50 cm and width of about 110 cm) does not result well visible to a driver. In that sense, if these barriers were installed along the edges of the roads, exactly as described, they could be a risk since the driver does not see the underlying plinth and risks going on top of it with the wheels of the vehicle, impacting also violently. Precisely because of this reason, currently, such types of barriers are used only along railway lines but it is not allowed to assemble them along ordinary road and highway paths.

Disclosure of invention

[0009] It is therefore the aim of the present invention to provide a base on which to erect a structure such as an anti-noise barrier that solves at least in part the said inconveniences.

[0010] In particular, it is the aim of the present invention to provide a base on which to erect an anti-noise barrier that is able to absorb tangential and frontal impacts due to the accidental impact of a vehicle in motion against the structure overlying the base.

[0011] These and other aims are therefore obtained with the present base 1 on which to erect a structure such as an anti-noise barrier (for example in Porenbeton) or a dividing metal net or a combination of both.

[0012] In accordance with the invention, the base (1) includes at least a plinth (2) on which a beam (5) results arranged and configured to form a support base for bearing the structure (100) as per the background art.

[0013] Since the plinth is not well visible due to its reduced height, in order to avoid damages caused in case of accidental impacts with vehicles in motion, an absorbing-impact element (11, 12) has been created connected to the base in such a way as to absorb accidental impacts of the vehicles.

[0014] In such a manner, a vehicle that goes excessively alongside the base, for example because the driver does not identify the underlying plinth, cannot receive a direct impact against the plinth itself.

[0015] Advantageously, the impact-absorbing element, even if it can be arranged directly on the plinth, is preferably arranged directly on the beam 5 overlying the plinth. In such a manner, not only is the problem of the absorption of the impact solved in case of impact, but the accidental impact is also prevented. In fact, the problem of the impact is due to the choice of the plinth, which is not visible to the driver since it is relatively low. The arrangement of such an impact-absorbing element at a higher quota in correspondence of the overlying beam makes that such an element results well visible and that the driver thus keeps the right distance. Moreover, also in case of impact the system duly cushions the impact.

[0016] Advantageously, the impact-absorbing element is connected to the beam in such a way as to result at least on the edge of the external profile (15) or projecting externally with respect to the more external profile (15) of the underlying plinth (2) on which the beam (5) results arranged.

[0017] In this manner, in case of impact, the vehicle

cannot impact directly against the base.

[0018] Advantageously, the impact-absorbing element (3) can include a guardrail (12) connected to the beam (5).

[0019] Advantageously, one or more distance elements (11, 13, 14) can be included interposed between the guardrail (12) and the beam (5) to connect the beam (5) to the guardrail (12).

[0020] In a possible realization of such distance elements (11, 13, 14) they can advantageously include a back plate (13) connected to the beam (5) from which emerges a pivot (11) of connection to the guardrail.

[0021] Alternatively, the said distance elements (11, 13, 14) can be in the shape of a spring in such a way as to allow an oscillation motion of the guardrail with respect to the beam that allows to absorb better the impact.

[0022] Alternatively, the said distance elements (11, 13, 14) can include a U square.

[0023] Advantageously, the plinth can further include one or more holes (6) through which to fix it to the ground through iron elements driven on the ground.

[0024] Advantageously, two plinths (2) can be included distanced between them in succession and on which the beam (5) is arranged.

[0025] In a possible solution, advantageously, the plinth (2) can include a seat (4) that runs along its entire longitudinal length (L) in correspondence of its upper surface (10) and into which the said beam (5) results arranged in such a way as to result emergent from the seat (4), the said guardrail (12) being connected to the beam in the said part emergent from the seat (4).

[0026] In that case, advantageously, the beam (5) can be a saddle-like beam in such a way that when it results arranged into the seats (4) of two plinths (2) in succession, the lower edge (5") of the beam results in proximity or substantially in contact with the ground.

[0027] Advantageously, in that case, the beam can be fixed into the seat through a concrete casting.

[0028] Advantageously, in an alternative solution, the plinth can have a flat upper surface (10) lacking a seat (4) and in which the beam is therefore fixed directly on the said flat surface.

[0029] Last, it is here described an anti-noise barrier (100) comprising a base (1) as described above and one or a plurality of panels, preferably in Porenbeton, overlapped and fixed above the said base.

Brief description of drawings

[0030] Further characteristics and advantages of the present base, according to the invention, will result clearer with the description of some of its preferred embodiments that follows, made to illustrate but not to limit, with reference to the annexed drawings, wherein:

- Figures from 1 to 3 show an anti-noise barrier 100 erected on a base formed by a saddle-like beam born by two plinths, in accordance with the background art.
- Figure 4 shows in an axonometric view a base for an anti-noise barrier integrated with the guardrail 12 in accordance with the invention;
- Figure 5 shows for clarity purposes the detail of the single beam 5 arranged on the plinths 2;
- Figure 6 shows, in an axonometric view, the configuration of the plinth in accordance with a first possible embodiment;
- Figure 7 shows, in a lateral view, an assembly of an anti-noise barrier 100 formed by a plurality of panels 101 overlapped (for example in Porenbeton) and born through posts 102 directly fixed on the support base formed by the beam 5. The posts are preferably arranged on the opposite side to the one where the sound impacts, that is the "building yard" side;
- Figure 8 shows a frontal view of the barrier of figure 7;
- Figure 9 extrapolates for clarity purposes the saddle-like profile of the beam 5.

Description of some preferred embodiments

[0031] Figure 4 shows, in an axonometric view, a base in accordance with a first embodiment of the invention. The base is therefore made up of two plinths 2 that realize a stable support base on which a saddle-like base 5 is arranged provided with a guardrail 12 to absorb eventual impacts to vehicles.

[0032] As shown in the detail of figure 6, the plinth 2 includes a corridor 4 obtained in correspondence of its upper surface 10 opposite to the support base 15. A seat 4 is thus formed (for example with U-shaped or trunk-conical section) that runs for all the longitudinal length L of the plinth. As better described in detail below, the seat is configured in such a way as to hold inside a part of the saddle-like beam.

[0033] Such plinth is generally in concrete and therefore the seat 4 is directly obtained including a casting in a caisson appropriately configured. Moreover, the plinth, though it can have any form, is preferably realized with a substantially trapezoidal shape, that is a greater support base 15 with respect to the upper surface 10. In this manner, the support base 15 guarantees a good stability but, on the contrary, it results more projecting with respect to the upper base.

[0034] The plinth includes also one or more holes 6 through its thickness and emergent in the area defined by the seat 4. In particular, the holes go from the support base 15 to the base formed by the seat 4 in such a way that, through the said holes 6, the plinth can be fixed to the ground, for example by driving a long iron element on the ground. The iron element, in the case of impact, serves as further cushion/damper or dissipator of tangential energy (parallel to the ground).

[0035] Going back to figure 4, and as better described in detail in figure 5, the saddle-like beam 5 has a predetermined height h and longitudinal length L1. In correspondence of its front face 5' one or more, preferably

three, distance elements 11 are included emergent preferably orthogonally from such a surface. In this manner, the guardrail 12 is connected to the said beam 5 through such distance elements 11 which result thus comprised between the beam 5 and the guardrail 12.

[0036] The distance elements 11 are preferably in the shape of a pivot having a back plate 13 that is connected directly to the front face 5' of the beam 5 and a front plate 14 that is connected to the guardrail 12. In this manner, by selecting freely the right length of the pivots 11, the right distance between the guardrail and the beam is found, as results clearer below.

[0037] In a variant, U squares can be included instead of pivots in such a way as to be configured so as to include directly the said front and back front plate.

[0038] Otherwise, nothing would impede the realization of such distance elements in the shape of rigid springs to which to connect the guardrail.

[0039] Figure 5, just for clarity purposes, extrapolates the single beam 5 arranged through its base 5" into the seat 4 of the plinths in such a way as to better highlight it together with the back connection plates 13 from which the pivots 11 for the connection to the guardrail emerge.

[0040] As better shown in figure 7, it is clear that the height h of the beam 5 must be greater than the height hi of the seat 4, in such a way that an exceeding portion of beam results emergent from the seat. Such portion is destined to hold the connection described above formed by the pivots 11 (or the springs or the squares) through which to connect the guardrail 12. In such a manner, as well highlighted in figure 7, the guardrail is arranged frontally to the profile of the plinth.

[0041] It is also clear that, by selecting appropriately the length of the pivots 11, the distance of the guardrail from the plinth can be appropriately selected. As is in fact well highlighted in figure 7, on the basis of the shape of the pre-chosen plinth, the distance can freely be prechosen in such a way by which the guardrail results preferably at least on the edge or externally distanced with respect to the more external surface of the plinth (in the case of a trapezoidal plinth the more external surface coincides precisely with the support base 15). Only in this way, in case of impact of a vehicle against the plinth, the vehicles impacts against the guard-rail and not directly on the plinth. Naturally, a distance between the guardrail and the beam could be selected such that the guardrail is further sent away with respect to the more external surface of the plinth.

[0042] Always figure 7 shows how, in the assembly phase, the beam 5 is generally fixed to the plinth through a concrete casting 120 (operation called anchor).

[0043] The beam has therefore the shape of a saddle with a profile as that shown in figure 9. In this manner, the ends 30 of the beam 5 result configured in a complementary manner with respect to the seat 4 into which they are inserted in such a way that the low edge 5" of the beam results in contact or anyway in proximity with the ground when assembled in the plinths (see also figure 8). In this manner, the structure results particularly stable.

[0044] Figure 8 therefore shows, in a frontal view, the whole assembly assembled with a barrier 100 assembled superiorly to the beam 5 and the guardrail 12. Naturally, nothing would impede the use also of more than two plinths although two of them are enough to give a good stability. Moreover, instead of the barrier any other element could be arranged superiorly, such as a dividing net or plane.

[0045] Such a first configuration described is therefore particularly advantageous since the seat 4 confers to the plinth anchored inside it an optimal stability and a good capacity to react to the impacts.

[0046] Nevertheless, in a second possible embodiment of the invention, nothing would impede the use of a plinth lacking a seat (that is with flat upper surface) and fix on it a cushion element as per the first configuration formed by a beam provided with guardrail. In this case, the beam is linear and not saddle-like. However, the fixing of the beam on a flat surface would result more complex and surely less resistant in case of impact.

[0047] In all the configurations described, preferably, the guardrail enters in the classification of the type H1, H2, H3 or also H4.

Claims

1. A base (1) on which to erect a structure (100), preferably an anti-noise barrier (100), the said base comprising at least a plinth (2) on which a beam (5) results arranged configured to form a support base for holding the overlying structure (100) and **characterized in that** the base (1) further comprises an impact-absorbing element (11, 12) arranged in such a way as to prevent direct impacts against the base itself.

2. A base (1), according to claim 1, wherein the impact-absorbing element (11, 12) results connected to the beam (5) in such a way as to result arranged above the underlying plinth.

3. A base (1), according to claim 2, wherein the impact-absorbing element is connected to the beam in such a way as to result at least on the edge or projecting externally with respect to the more external profile (15) of the underlying plinth (2).

4. A base (1), according to one or more claims from 1 to 3, wherein the impact-absorbing element (3) includes a guard-rail (12).

5. A base (1), according to one or more claims from 1 to 4, wherein one or more distance elements (11, 13, 14) interposes between the guardrail (12) and the beam (5) to connect the beam (5) to the guardrail (12).

6. A base (1), according to claim 5, wherein the said distance elements (11, 13, 14) include a back plate (13) connected to the beam (5) from which a pivot (11) of connection to the guardrail emerges.

7. A base (1), according to claim 5, wherein the said distance elements (11, 13, 14) are spring-shaped in such a way as to allow an oscillation motion of the guardrail with respect to the beam that renders the absorption of the impact possible.

8. A base (1), according to claim 5, wherein the said distance elements (11, 13, 14) include a U square.

9. A base (1), according to one or more of the preceding claims from 1 to 8, wherein the plinth further includes one or more holes (6) through which to fix it to the ground through iron elements driven on the ground.

10. A base (1), according to one or more of the preceding claims from 1 to 9, wherein two plinths (2) are included distanced between them in succession and on which the said beam (5) is arranged.

11. A base (1), according to one or more of the preceding claims from 1 to 10, wherein the plinth (2) includes a seat (4) that runs along its entire longitudinal length (**L**) in correspondence of its upper surface (10) and into which the said beam (5) results arranged in such a way as to result emergent from the seat (4), the said guardrail (12) being connected to the beam in the said part emergent from the seat (4).

12. A base (1), according to claim 11, wherein the beam (5) is a saddle-like beam in such a way that when it results arranged into the seats (4) of two plinths (2) in succession the lower edge (5") of the beam results to be in proximity or substantially in contact with the ground.

13. A base (1), according to claim 12, wherein the beam is fixed into the seat of the plinth through a concrete casting.

14. A base (1), according to one or more of the preceding claims from 1 to 10, wherein the plinth has an upper surface (10) that is flat and lacks seats (4) and wherein the beam is fixed directly on the said flat surface.

15. An anti-noise barrier (100) comprising a base (1) as per one or more of the preceding claims from 1 to 14, and one or a plurality of panels, preferably in Porenbeton, overlapped and fixed above the said base.

FIG. 1

(Prior Art)

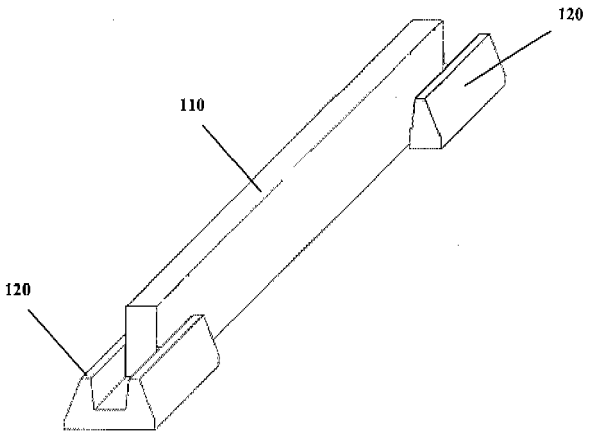


FIG. 2

(Prior Art)

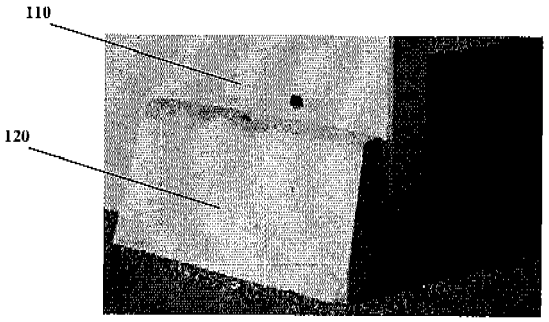


FIG. 3

(Prior Art)

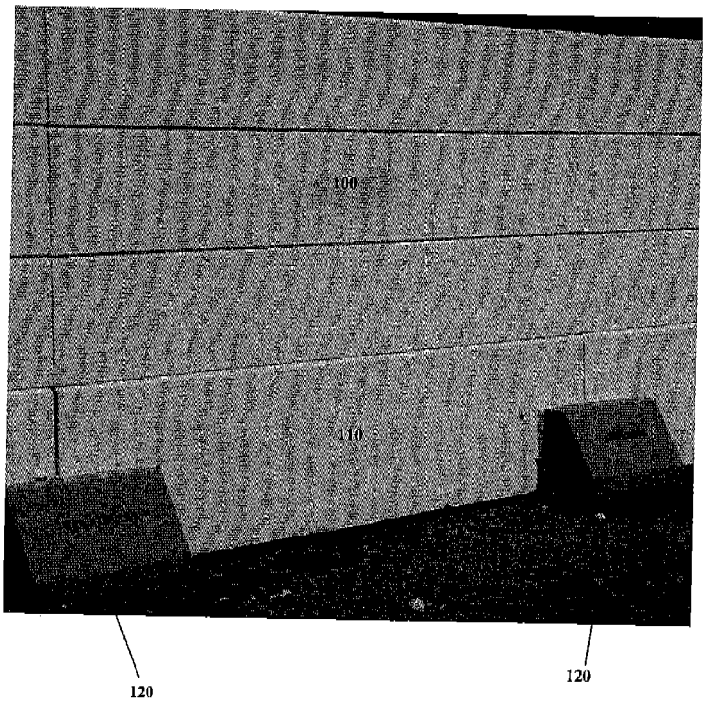


FIG. 4

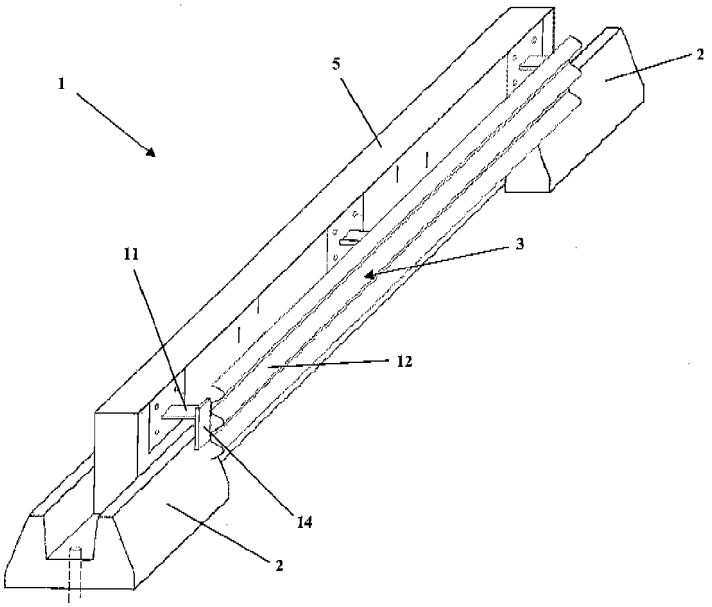


FIG. 5

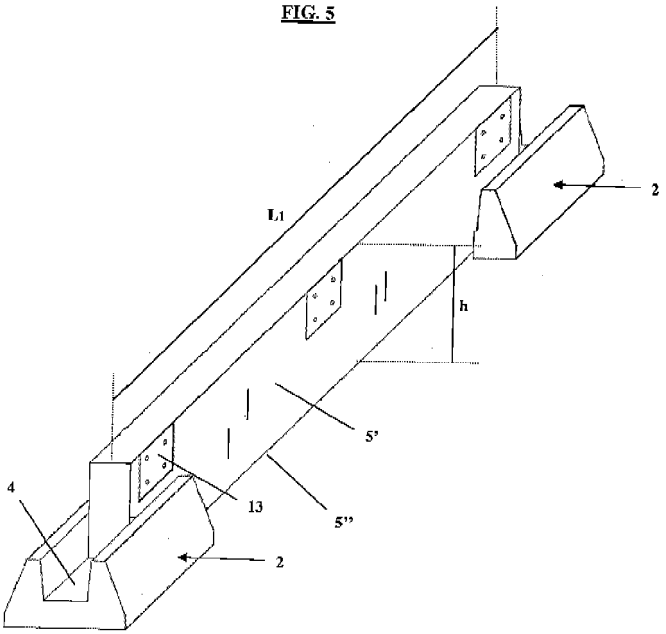


FIG. 6

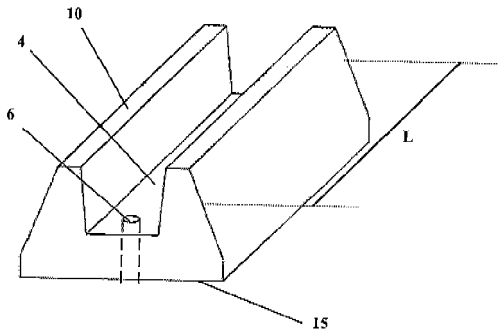


FIG. 7

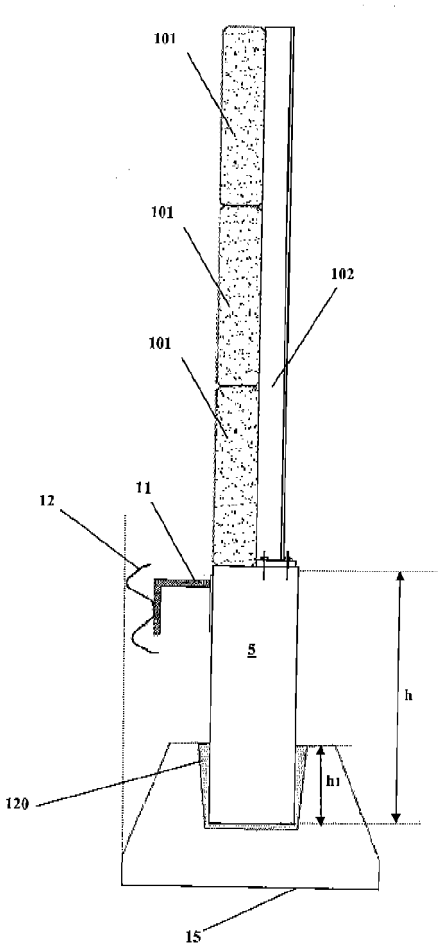


FIG. 8

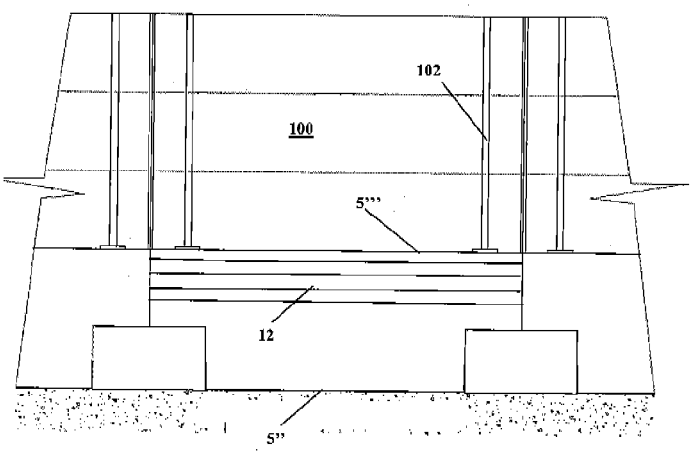
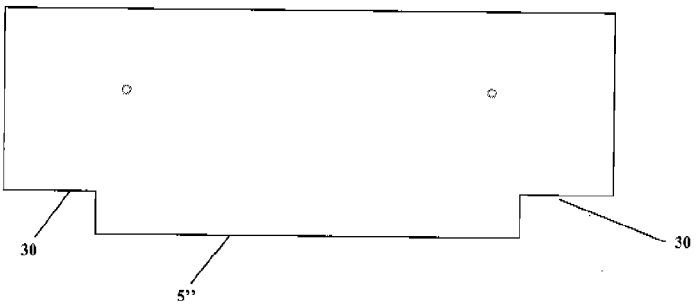


FIG. 9



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EUROPEAN SEARCH REPORT

Application Number
EP 11 42 5108

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	14 September 2011	Tran, Kim Lien

CATEGORY OF CITED DOCUMENTS

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14-09-2011

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