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(54) **Two part kerb**

Zweiteiliger Bordstein

Bordure en deux parties

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(73) Proprietor: **Storey, Jason**
Trimdon Village,
Co Durham TS29 6QP (GB)

(72) Inventor: **Storey, Jason**
Trimdon Village,
Co Durham TS29 6QP (GB)

(74) Representative: **Vinsome, Rex Martin**
Urquhart-Dykes & Lord LLP
Cale Cross House
Pilgrim Street 156
Newcastle upon Tyne NE1 6SU (GB)

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GB-A- 683 336 GB-A- 2 280 464

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Description

[0001] The present invention relates to an apparatus and method for laying a kerb at an edge of a road surface, and relates particularly, but not exclusively, to an apparatus and method for laying a temporary kerb for use during construction work.

[0002] During the construction of new housing sites, concrete road kerbs are prone to chipping and cracking when heavy plant machinery moves over the kerb stones. As a result, kerb stones may have to be replaced once construction work has been completed on the housing site, thus increasing costs.

[0003] Traditional concrete kerb stones are also very heavy. Current safety guidelines advise that a compact load of 30kg can be safely carried by an average male worker providing proper techniques are used, whereas an average concrete kerbstone weighs approximately 70kg. Consequently, replacing damaged kerbstones after construction work introduces manual-handling problems.

[0004] Relevant examples of prior art include GB-A-2280464, GB683336A, WO92/09747A and WO02/04748A.

[0005] GB-A-2 280 464 discloses a kerb at an edge of a road surface, comprising:- a or several base members adapted to be laid at an edge of said road surface, the base members comprising a first engaging portion and at least one cover member adapted to be mounted on at least one said base member and comprising a respective second engaging portion for engaging a respective said first engaging portion. GB-A-2 280 464 also discloses one intermediate member adapted to be mounted on at least one said base, and comprising a respective third engaging portion for engaging a respective said first engaging portion

[0006] GB683336A discloses a kerb assembly comprising top unit having a rebate for a paving slab and a frog or groove; and a sub-kerb having a tongue at the top and a groove at the bottom.

[0007] WO92/09747A discloses a kerbing between a roadway and a pavement comprised of individual runs of kerbing structure formed from lightweight plastics material having internal cavities for accommodating service conduits and/or water drainage.

[0008] WO02/0474 discloses a method of laying a kerb, the method comprising a first kerb in a base, wherein the first kerb is not fixedly secured in the base, the method further comprising subsequently removing the first kerb from the base and replacing the first kerb with a second kerb which is fixedly secured to the base.

[0009] Preferred embodiments of the present invention seek to overcome the above disadvantages of the prior art.

[0010] According to the present invention, there is provided an assembly for forming a kerb at an edge of a road, the assembly comprising:-

at least part of a road, the road comprising a base layer having a first surface and a top layer substantially covering said base layer and having a second surface;

at least one base member adapted to be laid at an edge of said road, the or each said base member comprising a respective first engaging portion;

at least one cover member adapted to be mounted on at least one said base member and comprising a respective second engaging portion for engaging a respective said first engaging portion, wherein when said cover member is mounted to said base member, said cover member is adapted to project above the vertical level of said second surface; and

at least one intermediate member adapted to be mounted on at least one said base as an alternative to said cover member, and comprising a respective third engaging portion for engaging a respective said first engaging portion, characterised in that when at least one said intermediate member is mounted to said base member, an upper surface of the or each said intermediate member is adapted to be positioned at substantially the same vertical level as the level of said first surface in use.

[0011] By providing a base member adapted to be laid at an edge of a road surface and having a first engaging portion and a cover member having a respective second engaging portion adapted to engage the first engaging portion such that the cover member can be laid on top of the base member, this means that a base kerb and base course of tarmac can be laid whilst site construction work is ongoing. The base kerb can be made of a material which is resistant to damage due to heavy site machinery, such that when the construction work is completed the cover member can be mounted on the base member to form the completed kerb. The top layer of tarmac can then be laid to complete the road. This provides two main advantages. Firstly, overall costs are reduced as there is no need to replace damaged concrete kerb stones, the cover member only needs to be put in place once the construction work is completed and heavy machinery has left the site. Also, the base unit and cover member are lighter than a complete kerb stone thus reducing the problems associated with manual handling of heavy loads.

[0012] Also, by providing an intermediate member with a third engaging portion adapted to engage the first engaging portion of the base member, provides the advantage that the intermediate member can be mounted on top of the base member such that it is level with the tarmac surface of the road. This provides the advantage that the base member is protected from site machinery passing over it, and the intermediate member which is designed to be removed once the construction work has been completed takes any damage which may be caused. The

intermediate member can then be removed once site construction has been completed allowing the cover member to be positioned on top of the base member to complete the kerb.

[0013] By providing an intermediate member which is adapted to be mounted to the base member, wherein an upper surface of the intermediate member is adapted to be positioned at substantially the same vertical level as the level of the first surface in use, provides the advantage of providing a level surface for site machinery to travel across, thus presenting no edges of either the tarmac road surface or intermediate member to which damage can be caused.

[0014] The upper surface of said base member in use may be adapted to be positioned at a lower vertical level than the level of said first surface in use.

[0015] At least one said base member, intermediate member and/or cover member may be formed from durable plastics material.

[0016] This provides the advantage of both reducing the cost and weight of the components of the assembly.

[0017] In a preferred embodiment, said durable plastics material may be recycled.

[0018] In a preferred embodiment, said plastics material is recycled by a co-mingling process.

[0019] This provides the advantage of reducing costs as unsorted, mixed and contaminated plastics waste can be used as raw materials for the recycling process.

[0020] According to the present invention, there is provided a method of forming a kerb, comprising:

laying at least one base member at an edge of a road, the road comprising a base layer having a first surface and top layer substantially covering said base layer and having a second surface;

mounting at least one intermediate member on top of at least one said base member such that said intermediate member resiliently engages said base member

removing the or each intermediate member from the corresponding said base member;

mounting at least one cover member on top of at least one said base member in use, such that said cover member resiliently engages said base member, and that the or each said cover member projects above the vertical level of said second surface in use, characterised in that an upper surface of said intermediate member in use is positioned at substantially the same vertical level as a first surface in use.

[0021] A preferred embodiment of the invention will now be described, by way of example only and not in any limitative sense, with reference to the accompanying drawings in which:-

Figure 1 is a cross sectional view of a road incorporating a two part kerb assembly;

Figure 2a is a cross sectional view of the top unit of the present invention;

Figure 2b is a cross sectional view of the base unit of the present invention;

Figure 2c is a cross sectional view of the protective strip of the present invention;

Figure 3 is a schematic view of the base kerb unit with the protective strip of the present invention mounted thereto;

Figure 4 is a schematic view of the base kerb unit with the upper kerb unit of the present invention mounted thereto;

Figure 5 is a schematic view of a second embodiment of the present invention showing the base kerb unit with a protective strip mounted thereto; and

Figure 6 is a schematic view of the second embodiment of the present invention with the upper kerb unit mounted to the base kerb unit.

[0022] Referring to Figure 1, a road comprises a base layer of tarmac 2 covered by a top layer of tarmac 4. A two part kerb assembly shown generally by 6 comprises a base unit 8 and a top unit 10. The kerb assembly 6 is laid between concrete haunching 12 which may form part of a pathway (not shown), and a road formed from tarmac layers 2 and 4.

[0023] Referring to Figure 2a to 2c, the components of the three part kerb assembly comprise a base unit 8, a top unit 10 and an intermediate protective strip 14. Base unit 8 comprises a connection channel 8a and a connection rib 8b. Both the top unit 10 and protective strip 14 comprise corresponding connection channels 10a, 14a and connection ribs 10b, 14b which are formed such that both the top unit 10 and protective strip 14 can be mounted to the base unit 8. Preferably, the connection channel 14a and connection rib 14b of protective strip 14 are adapted to resiliently engage the connection channel 8a and connection rib 8b of the base unit 8 such that the protective strip 14 can be easily removed from base unit 8.

[0024] The base unit 8, top unit 10 and intermediate strip 14 are all formed from a post consumer recycled durable plastics material. The plastic material used to form the components of the kerb assembly is produced in a co-mingling process. A co-mingling process allows unsorted and unwashed plastic waste products to be used as raw materials for the recycling process thus making the use of this material economically viable. The co-mingled plastic is surprisingly durable enough to be used

to form kerb structures for roads and the like. This plastic also has the advantage that it is a lot lighter than prior art concrete kerb assemblies and therefore presents fewer problems relating to the manual handling of the kerb structures.

[0025] Referring to Figure 1 to 4, the process of building a road and kerb using the three part kerb assembly will now be described.

[0026] The first step in the construction of a road on a new housing site using the three part kerb assembly is the laying of a plurality of base units 8 to define the edges of a road (not shown). The base units 8 can be levelled such that when the top units 10 are mounted onto the base units the kerb is complete and does not need re-levelling. The second step is to mount a protective strip 14 on each base unit 8. The connection channel 14a and rib 14b of the protective strips 14 are dimensioned such that they resiliently engage the protection channel 8a and rib 8b of each base unit 8 to allow the protection strip 14 to be removed when required. A base layer of tarmac can then be laid on the road surface between the base units 8. Additionally, concrete haunching 12 can be placed alongside the base unit 8 to provide support. In this configuration (best shown in Figure 3) the base units 8 of the kerb assembly are protected by protective strips 14 such that plant machinery moving around the construction site can move across the kerb assembly without damaging the base unit 8 and only damaging the removable protection strips 14.

[0027] When the construction work is complete and it is necessary to complete construction of the road, the protection strips 14 can be removed from the base units 8 by simply pulling them off. As the base units were levelled in the first step of road construction, it is not necessary to perform a further levelling operation and a plurality of top units 10 can be mounted onto the base unit 8 to complete the kerb. A top layer of finishing tarmac can then be added to the road surface to complete the road.

[0028] A second embodiment of the three part kerb assembly is shown in Figures 5 and 6. Instead of having connection channels and ribs, the base unit 16 protective strip 18 and top unit 20 are interconnected by means of a plurality of pegs 22 which are received in respective holes in the assembly members. In this embodiment, the protective strip 18 protects a roadside edge of the base member 16.

[0029] A traditional method of laying a temporary kerb has been to lay bricks in the region where the kerb is to be laid whilst construction work is performed, and then remove the bricks and replace them with kerb stone to complete the kerb. It has been found that this operation generally costs more per metre when all materials and labour costs are taken into account than the method of the present invention. If a co-mingled recycled plastic is used to form the components of the three part kerb assembly then the cost of using this method to form the kerbs is substantially less.

[0030] Also, a single concrete kerb stone weights ap-

proximately 70 kilograms whilst the heaviest component of the three part kerb assembly weight only 40 kilograms. It can therefore be seen that the present invention is advantageous in terms of both cost and weight as well as providing a use for plastic waste thus diverting this waste from landfill sites and benefiting the environment.

[0031] It will be appreciated by persons skilled in the art that the above embodiment have been described by way of example only, and not in any limitative sense, and that various alterations and modifications are possible without departure from the scope of the invention as defined by the appended claims. For example, it will be appreciated that the components of the three part assembly may be made from materials other than a co-mingled recycled plastic, for example reinforced concrete. It will also be appreciated that the assembly may be a two part assembly with only the top unit and base unit used and also it will be appreciated that there are other methods for interconnecting the components such as the use of adhesives etc.

Claims

1. An assembly (6) for forming a kerb at an edge of a road, the assembly comprising:-

at least part of a road, the road comprising a base layer (2) having a first surface and a top layer (4) substantially covering said base layer and having a second surface;
at least one base member (18) adapted to be laid at an edge of said road, the or each said base member comprising a respective first engaging portion (8a, 8b);
at least one cover member (10) adapted to be mounted on at least one said base member and comprising a respective second engaging portion (10a, 10b) for engaging a respective said first engaging portion, wherein when said cover member is mounted to said base member, said cover member is adapted to project above the vertical level of said second surface; and
at least one intermediate member (14) adapted to be mounted on at least one said base as an alternative to said cover member, and comprising a respective third engaging portion (14a, 14b) for engaging a respective said first engaging portion, **characterised in that** when at least one said intermediate member is mounted to said base member, an upper surface of the or each said intermediate member is adapted to be positioned at substantially the same vertical level as the level of said first surface in use.

2. An assembly according to claim 1, wherein an upper surface of said base member in use is adapted to be positioned at a lower vertical level than the level of

said first surface in use.

3. An assembly according to claims 1 or 2, wherein at least one said base member, intermediate member and/or cover member is formed from durable plastics material. 5
4. An assembly according to claim 3, wherein said durable plastics material is recycled. 10
5. An assembly according to claim 4, wherein said plastics material is recycled by a co-mingling process.
6. A method of forming a kerb, comprising:- 15
 - laying at least one base member (8) at an edge of a road, the road comprising a base layer (2) having a first surface and top layer (4) substantially covering said base layer and having a second surface; 20
 - mounting at least one intermediate member (14) on top of at least one said base member such that said intermediate member resiliently engages said base member; 25
 - removing the or each intermediate member from the corresponding said base member;
 - mounting at least one cover member (10) on top of at least one said base member in use, such that said cover member resiliently engages said base member, and that the or each said cover member projects above the vertical level of said second surface in use, **characterised in that** an upper surface of said intermediate member in use is positioned at substantially the same vertical level as a first surface in use. 30 35
7. A method according to claim 6, wherein the step of laying at least one said base member includes laying at least one said base member such that an upper surface of said base member in use is positioned at a lower vertical level than the level of a first surface in use. 40

Patentansprüche 45

1. Anordnung (6) zum Herstellen eines Bordsteins an einem Rand einer Straße, wobei die Anordnung Folgendes umfasst: 50
 - wenigstens einen Teil einer Straße, wobei die Straße eine Unterschicht (2) mit einer ersten Oberfläche und eine die genannte Unterschicht im Wesentlichen bedeckende Oberschicht (4) mit einer zweiten Oberfläche umfasst; 55
 - wenigstens ein Basiselement (18) zum Verlegen an einem Rand der genannten Straße, wobei das oder jedes genannte Basiselement ei-

nen jeweiligen ersten Eingriffsteil (8a, 8b) hat; wenigstens ein Aufsatzelement (10) zum Anbringen auf wenigstens einem genannten Basiselement, das einen jeweiligen zweiten Eingriffsteil (10a, 10b) für den Eingriff mit einem jeweiligen genannten ersten Eingriffsteil hat, wobei das genannte Aufsatzelement zum Überstehen über die senkrechte Höhe der genannten zweiten Oberfläche ausgeführt ist, wenn das genannte Aufsatzelement auf dem genannten Basiselement angebracht ist; und wenigstens ein Zwischenelement (14) zum Anbringen an wenigstens einer genannten Basis als eine Alternative zu dem genannten Aufsatzelement, das einen jeweiligen dritten Eingriffsteil (14a, 14b) für den Eingriff mit einem jeweiligen genannten ersten Eingriffsteil hat, **dadurch gekennzeichnet, dass**, wenn wenigstens ein genanntes Zwischenelement auf dem genannten Basiselement angebracht ist, eine obere Oberfläche des oder jedes genannten Zwischenelements ausgeführt ist, um im Wesentlichen auf der gleichen senkrechten Höhe positioniert zu sein wie die Höhe der genannten in Gebrauch befindlichen ersten Oberfläche.

2. Anordnung nach Anspruch 1, bei der eine obere Oberfläche des genannten Basiselements im Gebrauch zur Positionierung auf einer niedrigeren senkrechten Höhe als die Höhe der genannten in Gebrauch befindlichen ersten Oberfläche ausgeführt ist.
3. Anordnung nach Anspruch 1 oder 2, bei der wenigstens ein genanntes Basiselement, Zwischenelement und/oder Aufsatzelement aus widerstandsfähigem Kunststoff hergestellt ist.
4. Anordnung nach Anspruch 3, bei der der genannte widerstandsfähige Kunststoff recyclet wurde.
5. Anordnung nach Anspruch 4, bei der der genannte Kunststoff durch ein Vermischungsverfahren recyclet wurde.
6. Verfahren zum Herstellen eines Bordsteins, umfassend:

Verlegen von wenigstens einem Basiselement (8) an einem Rand einer Straße, wobei die Straße eine Unterschicht (2) mit einer ersten Oberfläche und eine die genannte Unterschicht im Wesentlichen bedeckende Oberschicht (4) mit einer zweiten Oberfläche umfasst; Anbringen von wenigstens einem Zwischenelement (14) auf wenigstens einem genannten Basiselement, so dass das genannte Zwischenelement elastisch in das genannte Basiselement

eingreift;

Entfernen des oder jedes Zwischenelements von dem entsprechenden genannten Basiselement;

Anbringen von wenigstens einem Aufsatzelement (10) auf wenigstens einem genannten Basiselement im Gebrauch, so dass das genannte Aufsatzelement elastisch in das genannte Basiselement eingreift und das oder jedes genannte Aufsatzelement über die senkrechte Höhe der genannten im Gebrauch befindlichen zweiten Oberfläche übersteht, **dadurch gekennzeichnet, dass** eine obere Oberfläche des genannten Zwischenelements im Gebrauch auf im Wesentlichen der gleichen senkrechten Höhe wie eine im Gebrauch befindliche erste Oberfläche positioniert wird.

7. Verfahren nach Anspruch 6, bei dem der Schritt des Verlegens wenigstens eines genannten Basiselements das Verlegen von wenigstens einem genannten Basiselement umfasst und zwar so, dass eine obere Oberfläche des genannten Basiselements im Gebrauch auf einer niedrigeren senkrechten Höhe positioniert ist als die Höhe einer im Gebrauch befindlichen ersten Oberfläche.

Revendications

1. Ensemble (6) permettant de former une bordure sur un bord d'une route, l'ensemble comportant :

au moins une partie d'une route, la route comportant une couche de base (2) ayant une première surface et une couche supérieure (4) recouvrant sensiblement ladite couche de base et ayant une deuxième surface ;
au moins un organe de base (18) adapté pour être posé sur un bord de ladite route, ledit ou chaque dit organe de base comportant une première partie respective de mise en prise (8a, 8b) ;
au moins un organe de couverture (10) adapté pour être monté sur ledit au moins un organe de base et comportant une deuxième partie respective de mise en prise (10a, 10b) à des fins de mise en prise avec ladite une première partie respective de mise en prise, dans lequel, quand ledit organe de couverture est monté sur ledit organe de base, ledit organe de couverture est adapté pour faire saillie au-dessus du niveau vertical de ladite deuxième surface ; et
au moins un organe intermédiaire (14) adapté pour être monté sur ledit au moins une base comme autre variante audit organe de couverture, et comportant une troisième partie respective de mise en prise (14a, 14b) à des fins de

mise en prise avec ladite une première partie de mise en prise, **caractérisé en ce que**, quand ledit au moins un organe intermédiaire est monté sur ledit organe de base, une surface supérieure dudit ou de chaque dit organe intermédiaire est adaptée pour être positionnée sur sensiblement le même niveau vertical que le niveau de ladite première surface lors de l'utilisation.

2. Ensemble selon la revendication 1, dans lequel une surface supérieure dudit organe de base lors de l'utilisation est adaptée pour être positionnée sur un niveau vertical inférieur au niveau de ladite première surface lors de l'utilisation.
3. Ensemble selon la revendication 1 ou la revendication 2, dans lequel au moins l'un quelconque dudit organe de base, organe intermédiaire et/ou organe de couverture est formé à partir d'une matière plastique durable.
4. Ensemble selon la revendication 3, dans lequel ladite matière plastique durable est recyclée.
5. Ensemble selon la revendication 4, dans lequel ladite matière plastique est recyclé par un processus de co-mélange.
6. Procédé permettant de former une bordure, comportant :

la pose d'au moins un organe de base (8) sur un bord d'une route, la route comportant une couche de base (2) ayant une première surface et une surface supérieure (4) recouvrant sensiblement ladite couche de base et ayant une deuxième surface ;
le montage d'au moins un organe intermédiaire (14) sur ledit au moins un organe de base de telle manière que ledit organe intermédiaire se met en prise de manière élastique avec ledit organe de base ;
le retrait dudit ou de chaque dit organe intermédiaire dudit organe de base correspondant ;
le montage d'au moins un organe de couverture (10) sur ledit au moins un organe de base lors de l'utilisation, de telle manière que ledit organe de couverture se met en prise de manière élastique avec ledit organe de base, et de telle manière que ledit ou chaque dit organe de couverture fait saillie au-dessus du niveau vertical de ladite deuxième surface lors de l'utilisation, **caractérisé en ce qu'**une surface supérieure dudit organe intermédiaire lors de l'utilisation est positionnée sur sensiblement le même niveau vertical qu'une première surface lors de l'utilisation.

7. Procédé selon la revendication 6, dans lequel l'étape consistant à poser ledit au moins un organe de base comprend la pose dudit au moins un organe de base de telle manière qu'une surface supérieure dudit organe de base lors de l'utilisation est positionnée sur un niveau vertical inférieur au niveau d'une première surface lors de l'utilisation.

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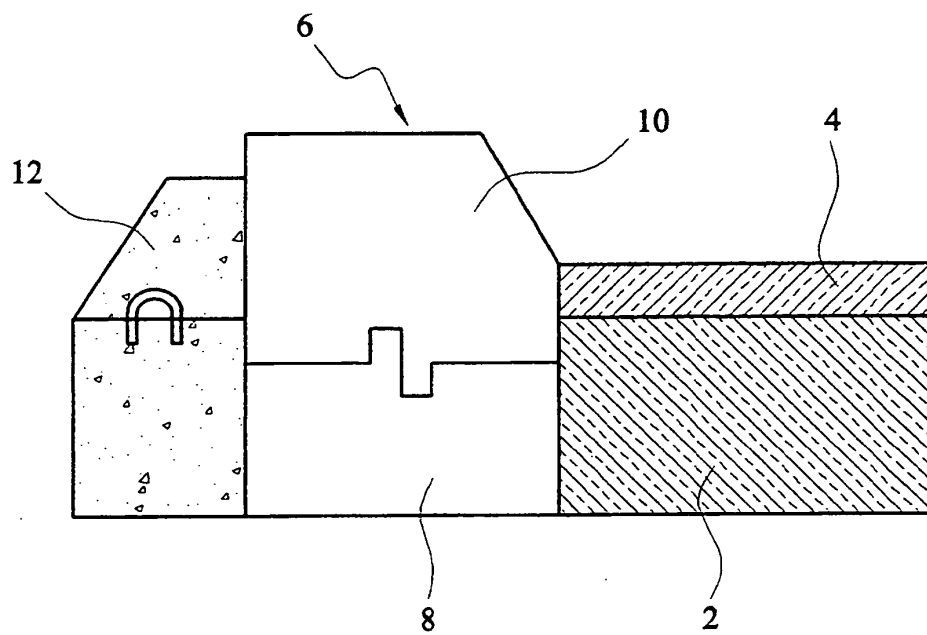


FIG. 1

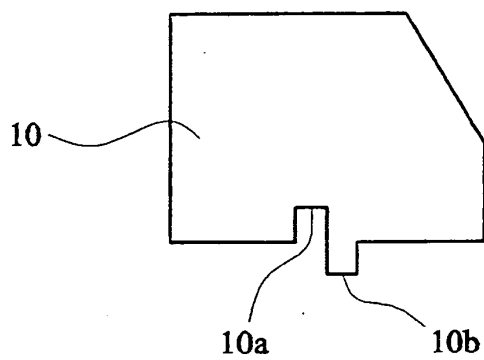


FIG. 2a

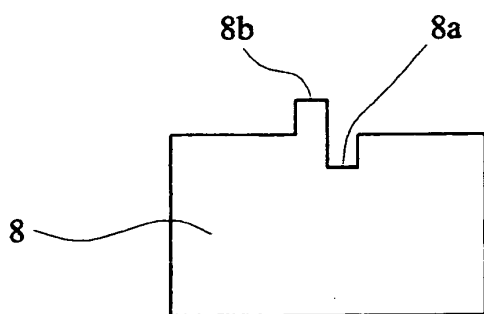


FIG. 2b

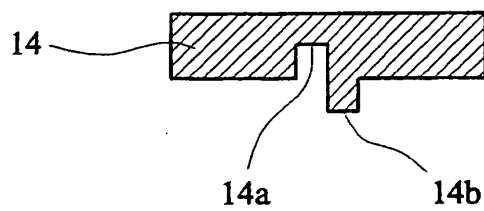


FIG. 2c

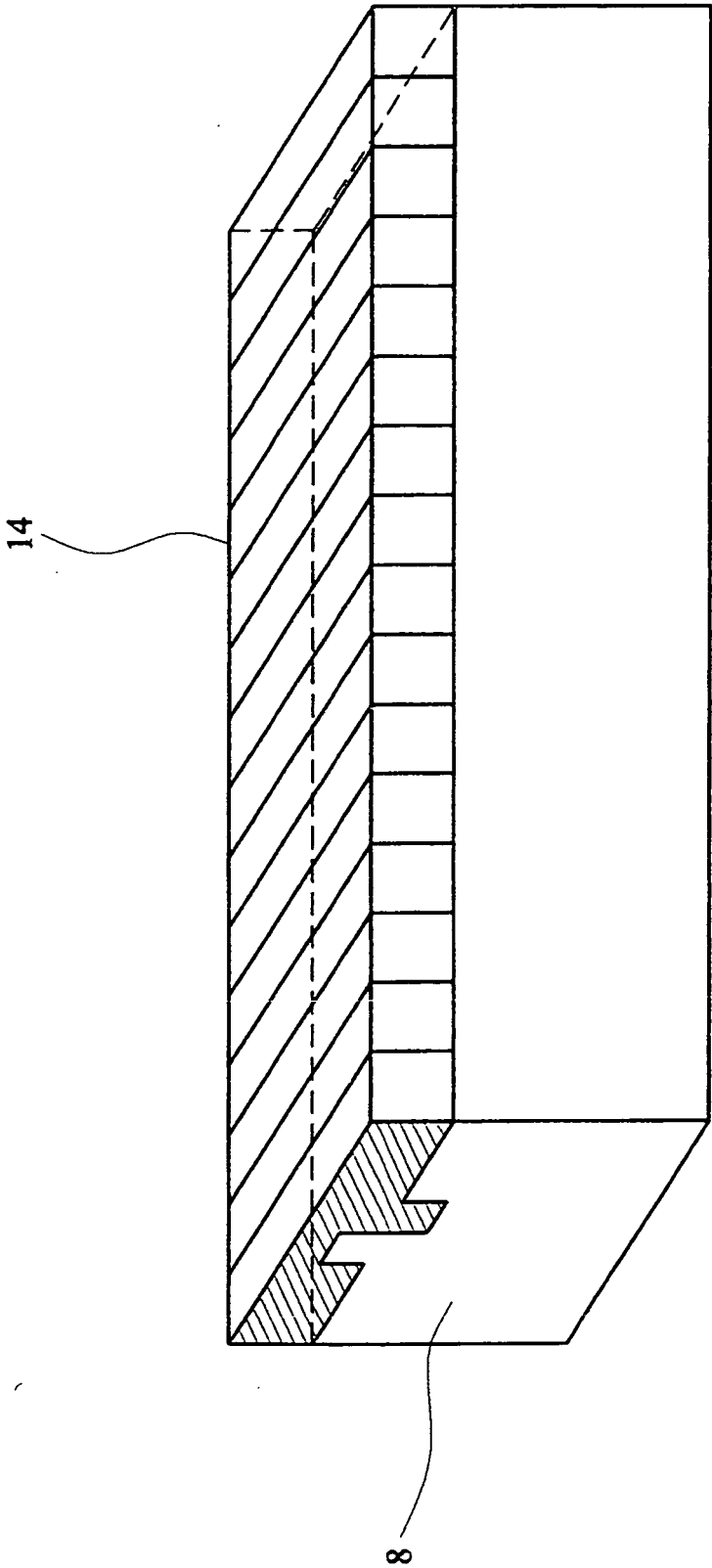


FIG. 3

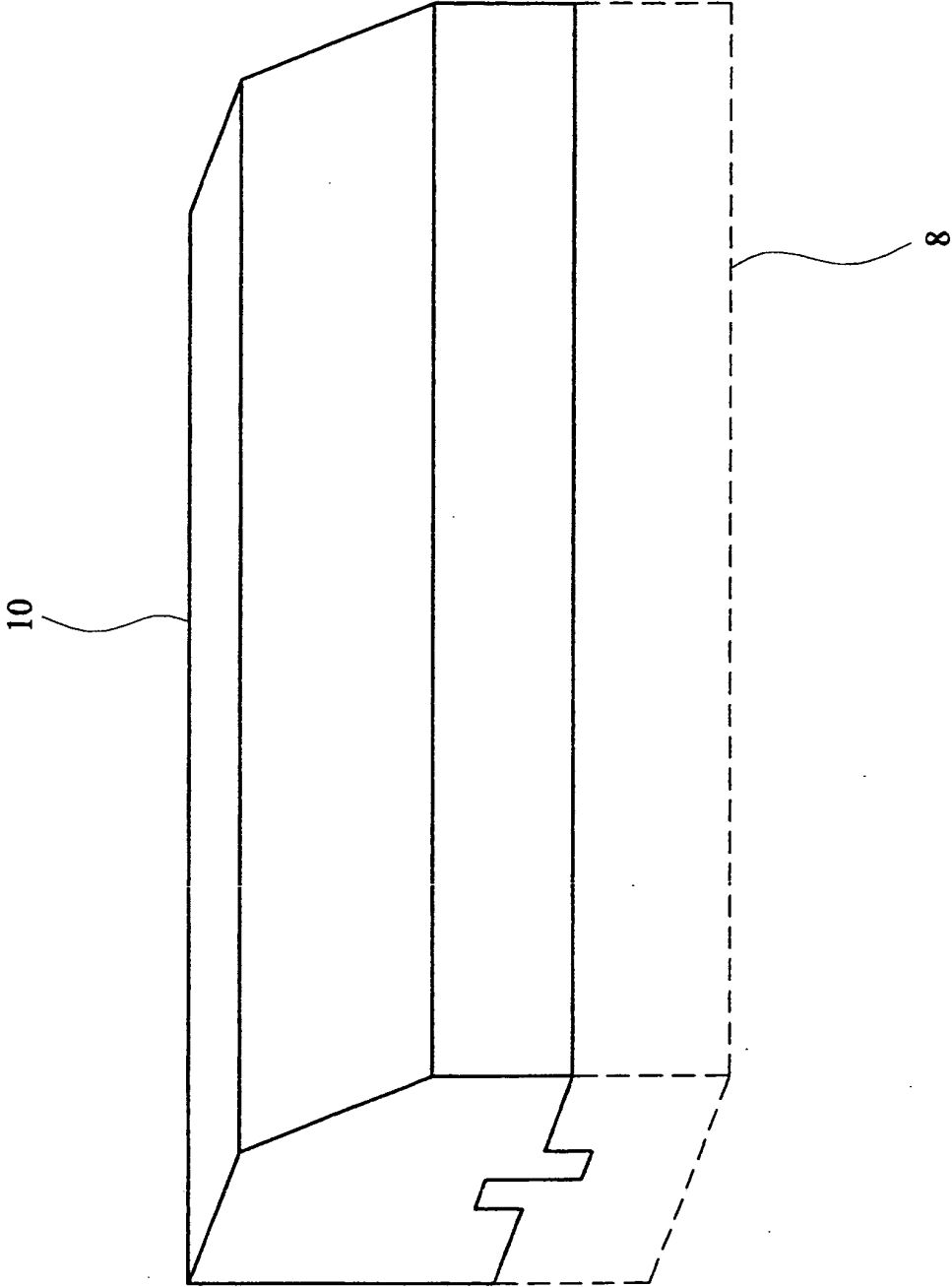


FIG. 4

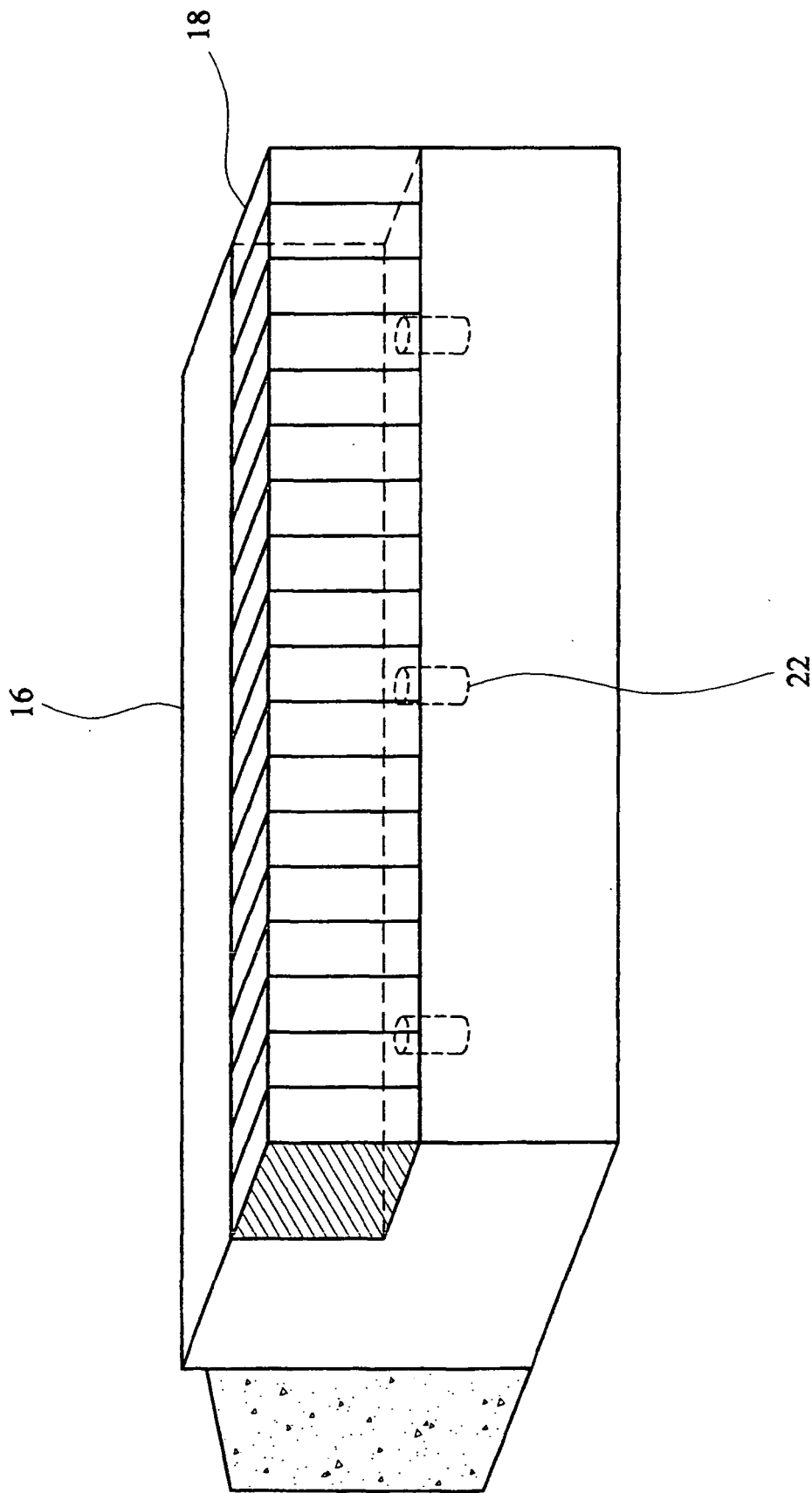


FIG. 5

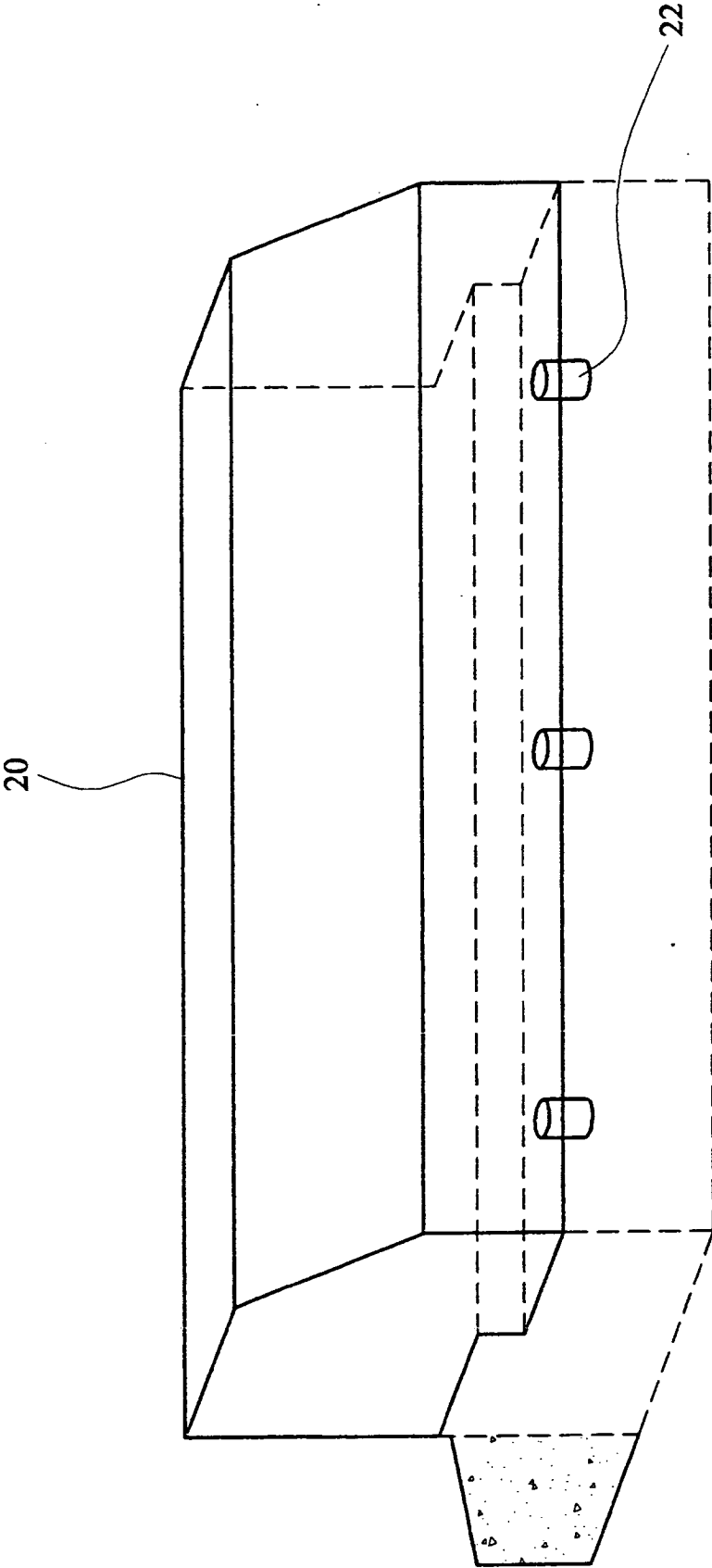


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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