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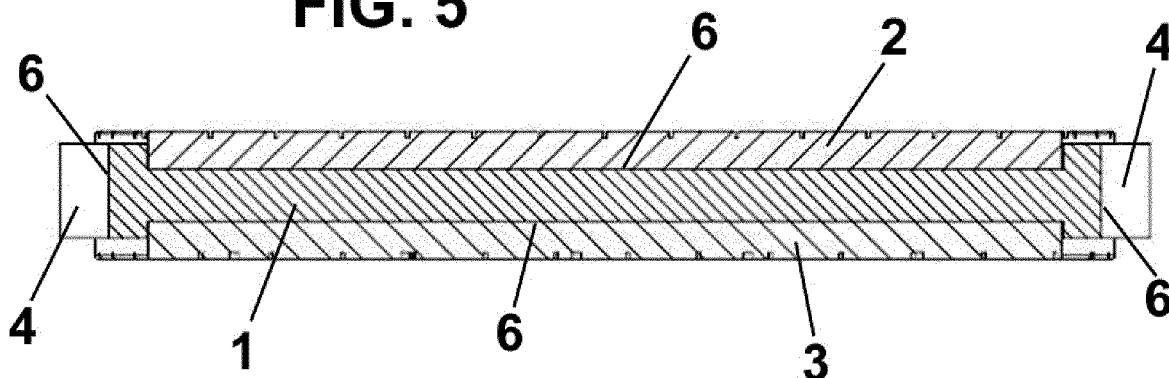
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(54) **COVER FOR USE ON PUBLIC ROADS**

(57) The cover for use in public roads comprises a main body (1) and at least one secondary body (2, 3, 4) mounted on said main body (1). Said secondary body (2) is preferably mounted on the upper part of said main body (1) in its use position.

By having a main body and at least one secondary body to withstand the wear and guarantee the surface finish, special materials can be used for this purpose, thereby extending its useful life.

FIG. 5



Description

[0001] The present invention relates to a cover for use in public roads, for example a manhole cover, which must support the passage of vehicles above it.

Background of the invention

[0002] Manhole covers are widely known by the general public and are usually located on the streets of any city, typically to cover access to the public sewage system, as well as access to utility tunnels, etc.

[0003] Currently, manhole covers are formed by a single body (usually made of cast iron). These covers have to withstand mechanical stress and fatigue loads caused by vehicles that pass over them, and also have to meet the requirements related to surface finish, which has to be rough to ensure a proper grip and prevent any element that passes over the cover (vehicles, people, etc.) from sliding.

[0004] It is very common for these covers to suffer surface wear with the passage of time, even though continue to comply with their structural function, which causes the rough surface finish to disappear. In these cases, the covers no longer comply with the regulations and must be replaced, with the consequent economic cost that this implies.

[0005] Therefore, there is an evident need to create a type of cover for use in public roads that does not require to be replaced in its entirety when for reasons of wear it no longer complies with the regulations.

Description of the invention

[0006] The cover of the invention is able to resolve the drawbacks mentioned above and exhibits other advantages that will be described below.

[0007] The cover for use in public roads according to the present invention is characterized in that it comprises a main body and at least one secondary body mounted on said main body.

[0008] As an advantage, said secondary body is mounted on the upper part of said main body in its use position and may also comprise at least one second secondary body, mounted on the lower part of said main body in its use position and/or at least one additional secondary body mounted on at least one side of said main body in its use position.

[0009] Said main body is intended to meet the structural requirements, and said at least one secondary body is intended to meet the roughness requirements. By separating the different requirements into two bodies, the possibility of using specific materials to better meet these requirements is achieved.

[0010] Furthermore, said at least one secondary body advantageously comprises a plurality of wear signals on its external surface to easily determine the state of wear of said secondary body.

[0011] According to a possible embodiment, said main body comprises at least one housing for said at least one secondary body, said housing defining a rim.

[0012] Furthermore, the connection between said main body and said at least one secondary body can be made by means of connecting elements, by means of an adhesive or by any other suitable means.

[0013] Said at least one secondary body can be made of any resistant material such as, for example, metal, plastic, composite resins or ceramic.

[0014] Said at least one secondary body can also have aesthetic functions, its surface being customizable according to:

- Environment: the surface of the cover can resemble the road around it (asphalt, paving stones, etc.)
- Site: the surface of the cover can stand out when placed on the road, sidewalk, pedestrian area, etc.
- Location: it can be customized with the name/symbol of the location where it is installed.
- Function: different visual functions can be provided by taking advantage of, for example, the addition of traffic signs on round covers, or information for pedestrians.
- Logo: it can be customized with different company or town hall logos, etc.

[0015] Advantageously, said at least one secondary body, while fulfilling aesthetic functions, can be manufactured in different colours to obtain a better mimetic effect with the surroundings.

[0016] Said at least one secondary body can be of different sizes, and can be larger than the cover (thus covering the frame of the cover), or smaller.

[0017] Advantageously, the cover according to the present invention has a centring element, which prevents its placement in the wrong direction. Said centring element may be a protrusion on the cover which, together with a housing in the frame where the cover is installed, prevents it from being mounted in the wrong direction.

[0018] The cover for use in public roads according to the present invention may have multiple secondary bodies intended to withstand different stresses, for example a lower secondary body intended to meet corrosion requirements, or a side secondary body intended to meet soundproofing requirements.

[0019] Advantageously, the cover for use in public roads according to the present invention can comprise an extra housing, different from the housings of the secondary bodies, for housing, for example, an electronic identification module and/or kinetic cells for loading electronic sensors, which may be movement or counting sensors.

[0020] Said extra housing can be located in the main body or in the secondary bodies.

[0021] The cover according to the present invention exhibits, at least, the following advantages:

- By having a main body and at least one secondary body to withstand the wear and guarantee the surface finish, special materials can be used for this purpose, thereby extending its useful life;
- Since only the body or secondary bodies and not the entire cover have to be replaced, maintenance or replacement costs are lower than with conventional one-piece covers.
- The surface of the cover can be easily equipped with different aesthetic finishes at a low cost.

Brief description of the drawings

[0022] To aid a better understanding of the above, drawings have been attached, in which several practical embodiments have been schematically represented and only by way of a non-limiting example.

Figure 1 is a perspective view of a cover according to the present invention, according to a first embodiment;

Figure 2 is a sectional elevation view of the cover according to the present invention, according to that first embodiment;

Figures 3 and 4 are exploded perspective views of two alternative embodiments of the cover according to the present invention, showing connecting elements of the secondary element to the main element; Figure 5 is a sectional elevation view of the cover according to the present invention, according to a further embodiment, comprising three secondary bodies: an upper one, a lower one and a side one. Figure 6 is a perspective view of the cover according to the present invention, according to a further embodiment, comprising an additional housing for personalized plates.

Figure 7 is a sectional elevation view of the cover according to the present invention, according to a further embodiment, comprising a secondary body which is larger than the main body. This representation of the cover is installed in the final frame on the street.

Figure 8 is a perspective view of the cover according to the present invention, according to a further embodiment, comprising a centring element on the lower part to guarantee a single mounting position on the street frame. To aid a better understanding, said frame is represented where the housing is seen in the frame for said centring element.

Description of preferred embodiments

[0023] The cover according to the present invention is a cover for use in a public road, for example a manhole cover. According to the embodiment shown in figures 1 to 7, the cover comprises a main body 1 intended to support structural stress and a secondary body 2, located on the upper part in the use position of the cover, intended

to support abrasions due to use.

[0024] Said main body 1 may be formed by one or several materials (metallic, plastics, ceramics, etc.) that best adapt to the required structural stress. If used as a manhole cover, it could be made of cast iron, composite resins, fibre, plastic, etc.

[0025] Preferably, said main body 1 has a housing 6 for the secondary body 2, which defines a rim, although said housing 6 is optional to the extent the secondary body 2 could be simply placed over the main body 1.

[0026] Said secondary body 2 may be formed by one or several materials (metallic, plastics, ceramics, etc.) that best adapt to the required stress. If used as a manhole cover, which are exposed to wear, said secondary body 2 can be made of metal, plastic, composite resins, ceramics, etc.

[0027] Said secondary body 2 can have wear indicators 5, for example grooves, as shown in the figures, which indicate when the secondary body 2 has to be replaced.

[0028] Both the main body 1 and the secondary body 2 are mounted by means of connecting elements. Figures 3 and 4 show how said connecting elements are screws 7 or clips 8, although it could be any other suitable connecting element such as, for example, a glue or an adhesive applied between the main body and the secondary body.

[0029] Figure 5 shows an alternative embodiment of the cover according to the present invention. To facilitate the description, this embodiment uses the same reference numbers to identify the common elements.

[0030] The main difference with respect to the embodiment described above is that the cover comprises more than one secondary body and in particular in addition to the secondary body 2 placed on the upper part of the main body 1 in the use position. This cover also comprises a second secondary body 3 placed on the lower part of the main body 1 and an additional secondary body 4 placed on the sides of the main body 1.

[0031] In the embodiment shown in figure 5, the cover has a circular shape and the additional secondary body 4 is placed around the lateral perimeter of the main body 1. However, if the cover were square or rectangular, the additional secondary body 4 could be placed on all or some of the sides of the main body 1.

[0032] As shown in figure 5, the main body 1 can comprise a pair of housings 6, one for the upper secondary body 2 and another for the second or lower secondary body 3, although these housings are not essential.

[0033] According to a preferred embodiment, said cover has a housing 9 for an identification element, said identification element being an electronic identification element in which information can be written on the cover (for example to describe the facilities below, maintenance history, etc.), which can communicate in two directions with a receiving device (not shown in the figures). Said receiving device, used by the maintenance or public works technician, etc. can be a generic device, for ex-

ample a smartphone, or a specific device designed for such purpose.

[0034] Preferably, said electronic identification module would be an RFID or an NFC tag.

[0035] Said housing 9 for an electronic identification element can be both in the main body 1 and in the secondary bodies 2, 3 and 4.

[0036] According to a preferred embodiment, the cover according to the present invention has electronic movement or counting sensors. This would make it possible to take advantage of these elements to take, for example, control and traffic statistics.

[0037] According to a preferred embodiment, the cover according to the present invention has a centring element 10 on the lower part to guarantee a single mounting position. Said centring element 10 is housed in a complementary housing (not shown in the drawing) of a frame 11 located on a street.

[0038] Although reference has been made to several specific embodiments of the invention, it is obvious to a person skilled in the art that the cover described is subject to numerous variations and modifications, and that all the mentioned details can be replaced by other technically equivalent ones, without departing from the scope of protection defined by the claims attached hereto.

Claims

1. A cover for use in public roads, **characterized in that** it comprises a main body (1) and at least one secondary body (2, 3, 4) mounted on said main body (1). 30
2. The cover for use in public roads according to claim 1, wherein said secondary body (2) is mounted on the upper part of said main body (1) in its use position. 35
3. The cover for use in public roads according to claim 1 or 2, wherein said secondary body (2) has a larger diameter than the main body (1). 40
4. The cover for use in public roads according to claim 1 or 2, wherein said secondary body (2) has a smaller diameter than the main body (1). 45
5. The cover for use in public roads according to claim 1, wherein said secondary body (2) is removably mounted on said main body (1). 50
6. The cover for use in public roads according to claim 1, which has a centring element to ensure a single mounting position.
7. The cover for use in public roads according to claim 1 or 2, which comprises at least one second secondary body (3) mounted on the lower part of said main body (1) in its use position. 55

8. The cover for use in public roads according to claim 1 or 2, which comprises at least one additional secondary body (4) mounted on at least one side of the main body (1) in its use position.

9. The cover for use in public roads according to claim 1, wherein said at least one secondary body (2) comprises a plurality of wear signals (5) on its external surface.

10. The cover for use in public roads according to claim 1, wherein said main body (1) comprises at least one housing (6) for said at least one secondary body (2, 3).

11. The cover for use in public roads according to claim 1 or 2, wherein the connection between said main body (1) and said at least one secondary body (2, 3, 4) is made by means of connecting elements (7, 8) or by means of an adhesive.

12. The cover for use in public roads according to claim 1, wherein said at least one secondary body (2, 3, 4) is made of metal, plastic, composite resins, or ceramic.

13. The cover for use in public roads according to any one of the preceding claims, which contains an additional housing (9) in the main body (1), in the secondary body (2), in the second secondary body (3) or in the additional secondary body (4).

14. The cover for use in public roads according to claim 13, wherein said additional housing (9) houses an electronic identification module.

15. The cover for use in public roads according to claim 13, which comprises electronic sensors.

16. The cover for use in public roads according to claim 15, which comprises movement or counting sensors.

FIG. 1

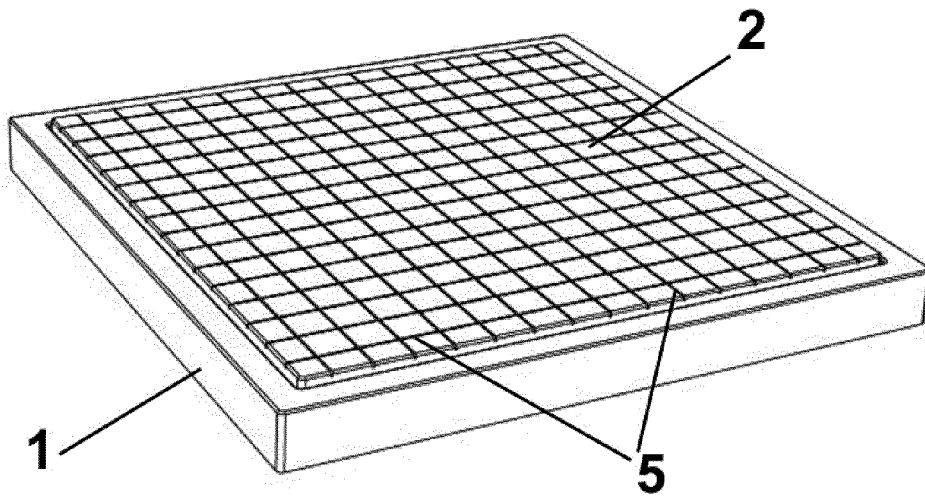


FIG. 2

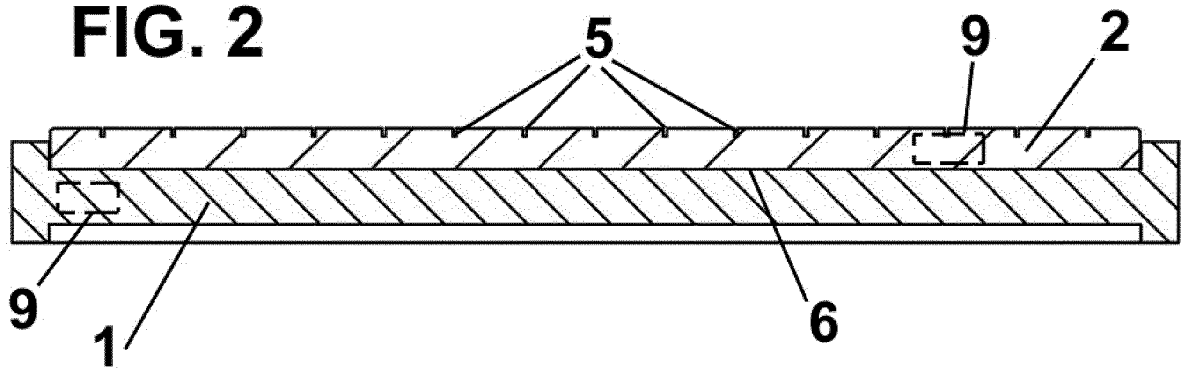


FIG. 3

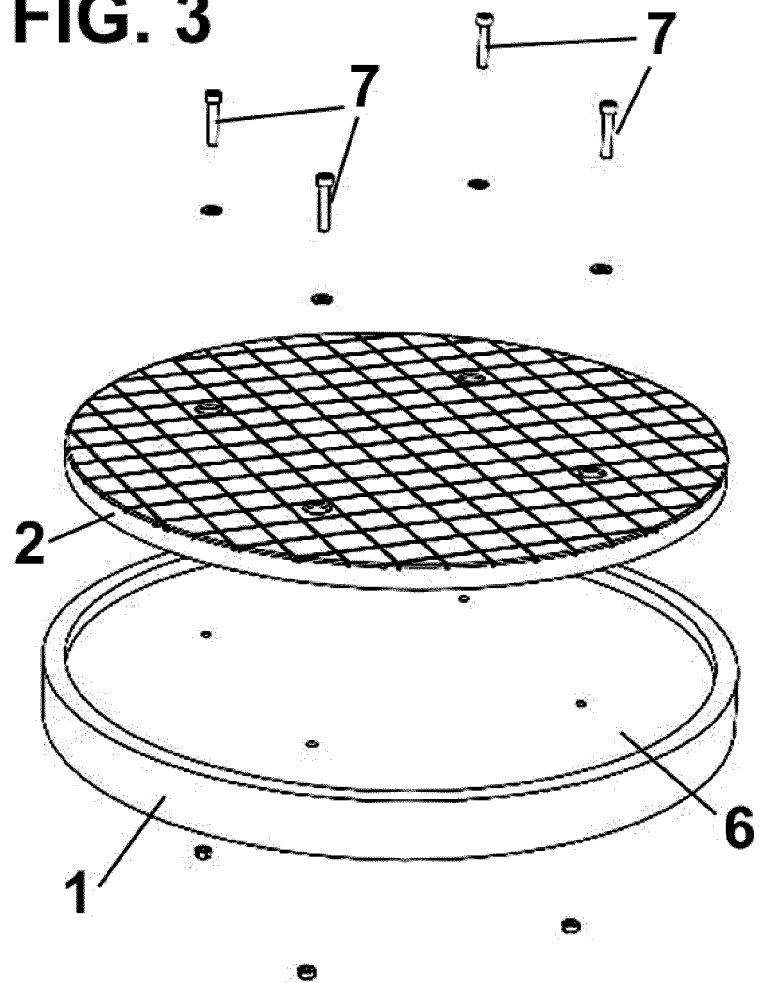


FIG. 4

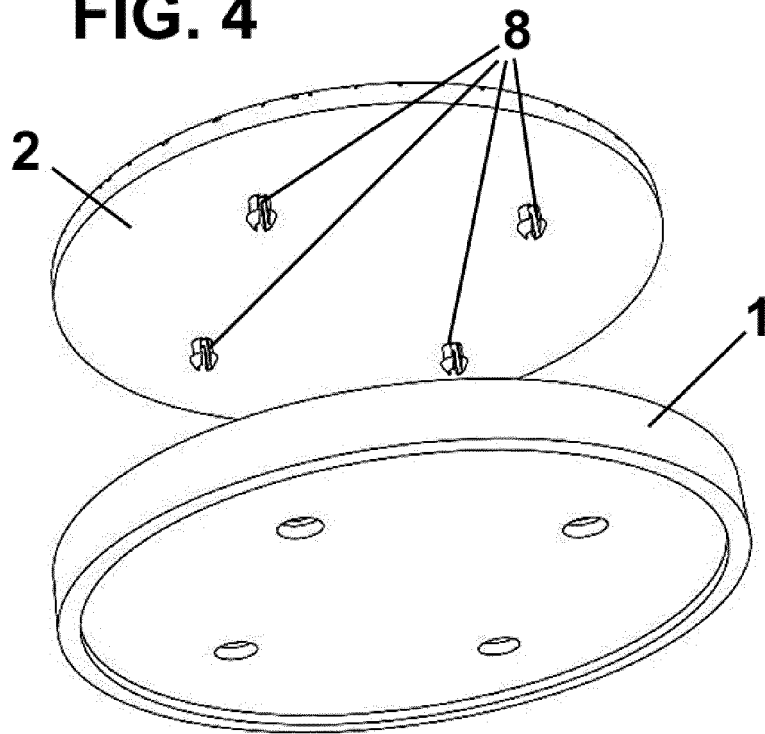


FIG. 5

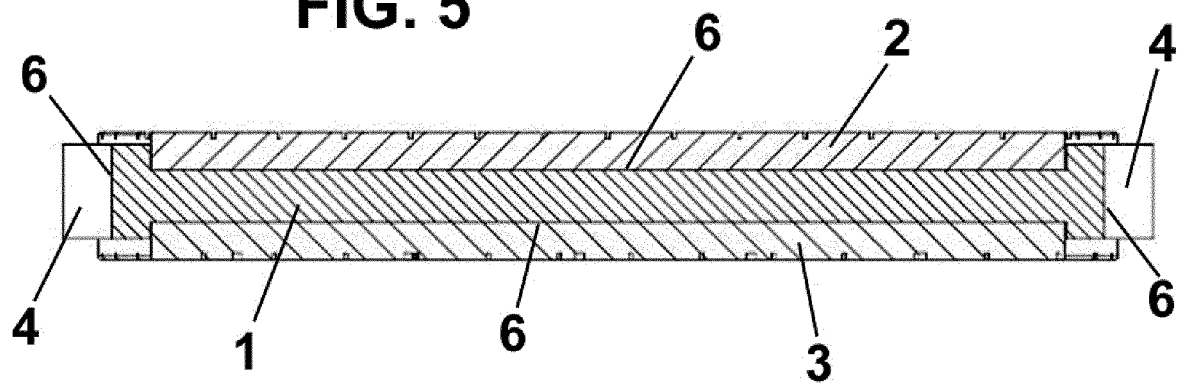


FIG. 6

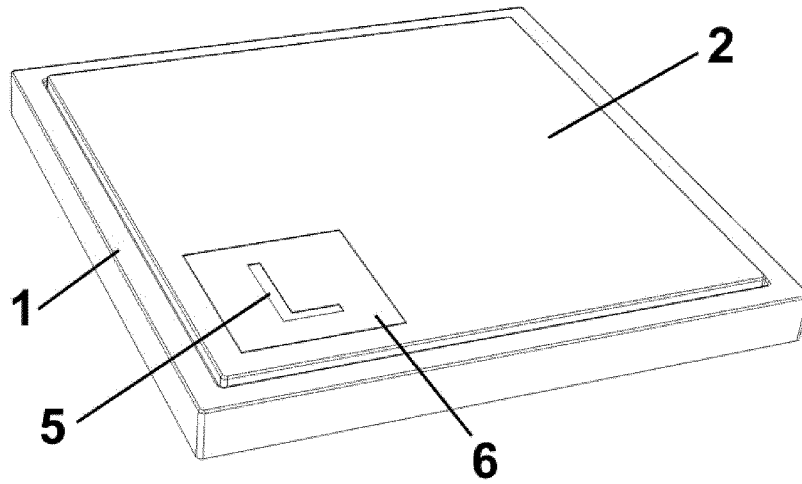


FIG. 7

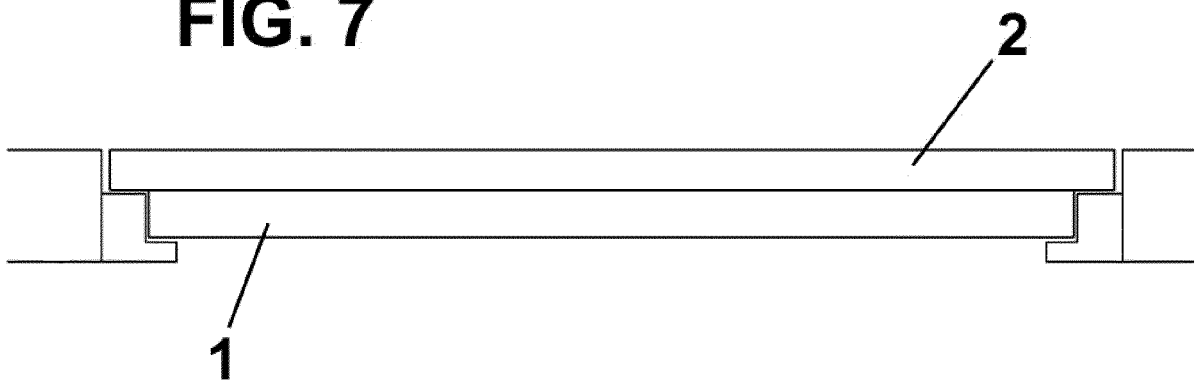
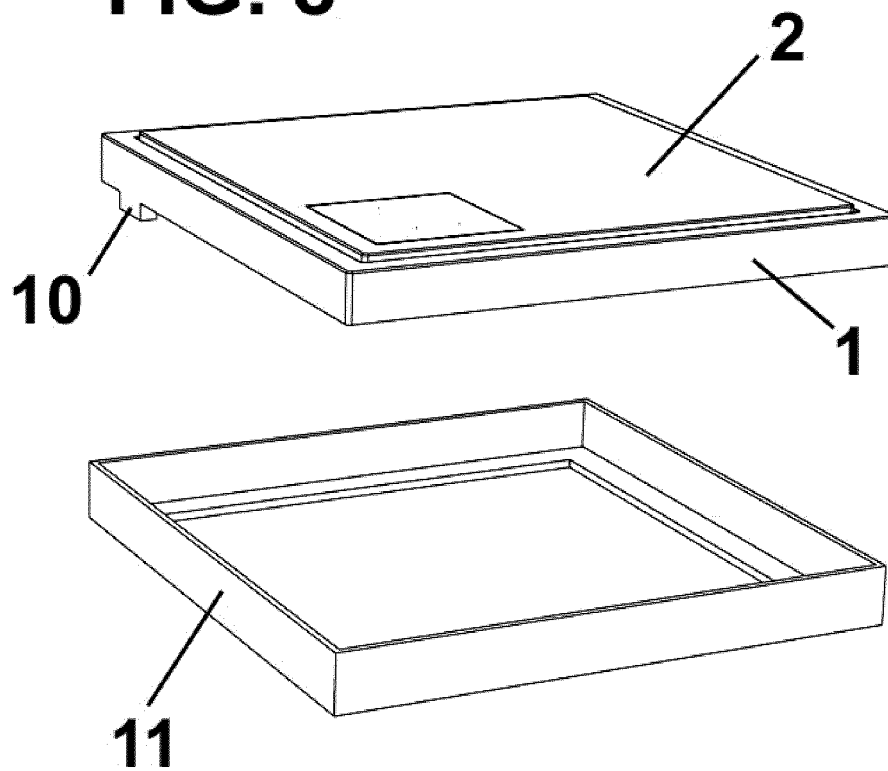


FIG. 8



INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2017/070330

A. CLASSIFICATION OF SUBJECT MATTER

E02D29/14 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E02D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	GB 2314871 A (WEST OF SCOTLAND WATER) 14/01/1998, pages 1 - 14; figures.	1-16
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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance.	
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"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

05/06/2017

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2017/070330

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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