(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 322 039 A1**

# (12) EUROPEAN PATENT APPLICATION

(21) Application number: **88202893.9**

(51) Int. Cl.4: **E04H 12/22**

(22) Date of filing: **14.12.88**

(30) Priority: **21.12.87 NL 8703090**

(43) Date of publication of application:
**28.06.89 Bulletin 89/26**

(84) Designated Contracting States:
**AT BE CH DE ES FR GB IT LI LU NL**

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## (54) Anchor block.

(57) The invention relates to an anchor block (1), for instance for supporting an external lighting fitting, a traffic sign or other construction.

One of the objects of the invention is to produce an anchor block (1) which is considerably easier to use than the known anchors in combination with the widest possible range of devices.

To this end the invention proposes an anchor block (1) of the type stated which is characterized by mounting means for connection to the anchor block of the construction to be supported, in preference an upper surface (10) with a number of mounting slots (12-15) which extend from the centre of the surface (11) in an at least approximately radial direction, for fastening the construction to be supported with screwed connections.

Use may for example be made of a first group of mounting slots, which are arranged at angles of approximately 90° to each other, or alternatively a second group of mounting slots which are arranged at angles of approximately 120° to each other, while combinations of both these groups are possible. In this resepct preference is accorded to a variant with six mounting slots, whereby the two groups have one mounting slot in common.

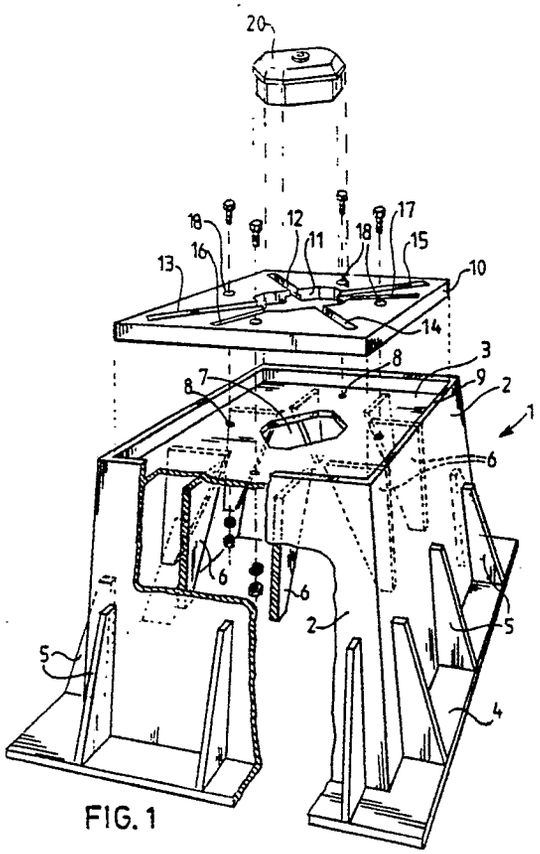


FIG. 1

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# Anchor block

The invention relates to an anchor block, for instance for supporting an external lighting fitting, a traffic sign or other construction. An anchor block of the kind is known in many embodiments, for example from CA-A-888.457, DE-A-2.228.381 and DE-A-2.264.468. Such anchor blocks provide for the firm anchoring in the ground of a variety of devices, such as external lighting fittings for private use or professional application, or traffic signs such as illuminated road signals or routing indicators.

The invention has for its aim to produce an anchor block which is considerably easier to use than the known anchors in combination with the widest possible range of devices.

The invention aims further to embody an anchor block such that it can be installed very quickly, which may have a cost-saving effect.

The invention has the further object of producing an anchor block which is considerably less expensive than known anchor blocks. Finally, an aim of the invention is the provision of an anchor block which offers the possibility to make electrical connections in a way which is very simple, quick and hence inexpensive, and is nonetheless in accordance with official regulations and thus reliable.

In order to realize these and other objectives, the invention proposes an anchor block of the type stated which is characterized by mounting means for connection to the anchor block of the construction to be supported, in preference an upper surface with a number of mounting slots which extend from the centre of the surface in an at least approximately radial direction, for fastening the construction to be supported with screwed connections.

Use may for example be made of a first group of mounting slots, which are arranged at angles of approximately 90° to each other, or alternatively a second group of mounting slots which are arranged at angles of approximately 120° to each other, while combinations of both these groups are possible. In this respect preference is accorded to a variant with six mounting slots, wherein the two groups have one mounting slot in common.

In order to allow the average length of the mounting slots to be as long as possible in an embodiment with a square upper surface, that variant in which a mounting slot extends in a diagonal direction is recommended.

Ease of mounting is ensured by an embodiment in which the mounting slots narrow towards the top so that the head of a bolt can be accommodated and prevented from passing through the slot.

For example, the mounting slots may open towards the top surface only.

In a recommended embodiment, the anchor block has the feature that the upper surface is part of a detachable plate.

In this case it is recommended that the plate can be mounted in a recessed position.

In a recommended embodiment, the anchor block according to the invention consists of optionally reinforced plastic, for example glass-fibre reinforced polyester.

A great degree of strength is ensured by an embodiment which is provided with struts which extend between flat parts of the anchor block which stand substantially perpendicular to one other.

A very secure anchoring in the ground is ensured by an embodiment which is provided with an outward-extending flange at the bottom.

Preferably, the anchor block has a holed through aperture in the top surface for holding a junction box for electrical leads.

It is recommended that the anchor block is provided to this end with a flange means present in the holed through aperture for defining the lowest position of the junction box in the aperture.

As an alternative, or in combination with the above, an embodiment can be adopted which has the characteristic that the junction box is capable of gripping co-action with the wall of the aperture.

The invention further relates to a junction box for use with an anchor block as described above, comprising a casing with a cover, means for the passing of cables through the bottom of the casing, for example at least one break-away port and means present in the cover for passing cables, for example a through hole with a rubber grommet.

Such a junction box can with advantage be provided with an external flange means for cooperation with an optional flange member present in the holed through aperture of the anchor block.

The invention will now be elucidated by reference to the drawing of a number of embodiments, to which the invention is not restricted. In the drawing:

Figure 1 shows a partly broken away perspective view of a preferred embodiment of the anchor block according to the invention, in which for the sake of clarity the component parts have been drawn separated to some extent from one another;

Figure 2 shows a partly broken away perspective view of the upper side of the anchor block shown in figure 1, upon which a construction has been mounted;

Figure 3 shows a different embodiment;

Figure 4 shows a cross section of a detail of the anchor block drawn in figure 3; and

Figure 5 shows a view corresponding to figure 4 of the anchor block shown in figures 1 and 2.

Figure 1 shows an anchor block 1 made of reinforced polyester. It comprises four upright walls 2, a plate 3 situated between them, a circumferential flange 4 extending outwards around the bottom of the walls 2, struts 5 which are arranged externally between the upright walls 2 and the flange 4, and struts 6 which are arranged internally between the walls 2 and the plate 3. The plate 3 has a central polygonal aperture 7 in addition to four relatively small through holes 8.

The plate 3 is mounted in a recessed position with respect to the upper edge 9 of the upright walls 2, which taper towards one another to a certain extent. An enclosed platform is thus obtained, upon which a separate cast-iron mounting plate 10 can be placed, in such manner that it can be held in a recessed position on the top of the block 1. This plate 10 has a hole 11 corresponding to the central hole 7, out from which a number of mounting slots extend. These mounting slots are arranged in a first group comprising the slots 12, 13, 14 and 15, which slots are disposed at a mutual angular interval of 90°, and a second group, consisting of the slots 12, 16, 17 which are disposed at a mutual angular interval of 120°. It will be apparent that the slot 12 is common to both groups.

The plate 10 is square and the slots 12-15 are disposed in a diagonal direction, so that their length can be as great as possible. It will thus also be apparent that the slots 16 and 17 are somewhat shorter than the other slots.

The plate 10 has four holes 18, which are placed such that they can be positioned in accurate register with the holes 8. Thus the plate 10 can be fastened onto the plate 3 using bolts 19. For reasons to be discussed below, the bolts 19 can be placed in a recessed situation with respect to the top surface of the plate 10. This is not shown in figure 1; reference is made to figure 2, to be discussed below.

Using the configuration of mounting slots described above, a large measure of freedom is guaranteed in the dimensioning and in the type of the mounting members of the construction which is to be supported. Not only can mounting members with three-fold or four-fold attachment points be used, but also the dimensioning and even the relative positioning with respect to the top surface of the anchor block can, within certain limits, be chosen freely.

The form of the apertures 7 and 11 is such that a junction box 20 for electrical leads can be received therein. Such a junction box has been specially designed with a view to its use together with the anchor block according to the invention. In consideration of the statutory requirements, the junction box together with the anchor block has been submitted to a Dutch government inspection institute. Official approval has in the meantime been obtained. The junction box functions as a replacement for the considerably more expensive and complicated known underground connector sleeves, with which electrical branching or connection is realized according to the known art. Moreover the junction box according to the invention has the advantage that it lends itself to installation by untrained personnel, while the known underground connector sleeves should preferably be installed by qualified technicians.

More specific reference is now made to figure 2, in which a number of details of figure 1 are shown on a somewhat enlarged scale.

The slots 12-17 are made in a stepped form, such that they are wider on the underside facing towards the plate 3 than on the upper side open to the top. As will be apparent from figure 2, the dimensioning of the grooves is such that the heads of bolts 21, which heads have a hexagonal shape, fit into them, whereby locking against rotation is obtained. The bolts 21 serve for the mounting of a construction 23, for example a lamp post, by means of holes present in a flange 22. It will be apparent that correct positioning of each bolt with respect to a hole in the flange 22 can be obtained through the sliding of the bolts 21, which can enter the requisite slots from the hole 12. After the positioning of the construction 23, the nuts 24 can be tightened, so that the construction 23 is firmly mounted on the block 1.

In the case of a device requiring electrical connection, such as a lamp post, the electrical connection will have to be provided for first, before the above mounting takes place. To that end the following procedure, now to be described briefly, is followed.

The electrical wiring is carried from a source through a previously dug trench in the ground to the place where the anchor block has to be placed. At that position the ground is also dug out to the required depth. The electrical wiring is now carried upward in such manner that the anchor block 1 can slide with the apertures 7 and 11 over the wiring, whereby the anchor block can be brought into its position. The junction box 20 is then coupled to the wiring, while if required wiring which continues to subsequent constructions can also be connected in the relevant box 20. The electrical wiring of the construction 23 can also be connected with the junction box 20. The junction box 20 is placed into the apertures 7, 11, whereafter the construction 23 can be mounted in the manner described with

reference to figure 2. By refilling the hole made for the placement of the anchor block 1 and the trench for laying the cable or cables with ground material, the construction is completed.

Figure 3 shows a concrete anchor block 25, in the top surface 26 of which metal groove members are embedded. Here too these groove members are grouped in respectively a first group 27, 28, 29, 30 with a mutual angular interval of 90°, and a second group 27, 31, 32 with a mutual angular interval of 120°, in complete analogy with the embodiment according to figures 1 and 2. The groove members 27-32 are metal, more or less U-shaped sections which narrow towards the top, for the holding of bolt heads.

The groove members 27-32 are held in the concrete.

The disadvantage of the variant shown in figure 3 is that the concrete construction is relatively heavy and is thus also relatively more difficult to handle, particularly in the case of larger anchor blocks. The embodiment according to figures 1 and 2 is considerably lighter while nevertheless ensuring an excellent anchoring in the ground owing partly to the presence of the flange 4.

After the description of the manner in which anchor block 1 is placed, the installation of the anchor block 25 will not be discussed. This is substantially the same as that of anchor block 1.

Figures 4 and 5 show the manner of placing the junction box 20 in, respectively, the aperture 34 in the top surface of the anchor block 25, and the aperture 7, 11 in the top surface of the anchor block 1. As figures 4 and 5 show, the junction box 20 is provided with a flange members 35 for cooperation with a corresponding flange member 36 - i.e. an edge on the aperture 34 in the case of figure 4, and the peripheral edge of the aperture 7 in the plate 3 in the case of figure 5. As will be apparent without explanation, the flange member 35 can in both cases rest on a protruding edge. Moreover the measurements of the junction box 20 on the one hand and the aperture 34;11,7 on the other are such that the junction box can be mounted with gripping effect in the aperture concerned.

The junction box 20 comprises a casing 37 with a cover 38 which can be mounted by means of a gasket 39 for gripping and sealing on the casing.

The bottom of the casing 37 has a cable passage means, in this case a hole 40, which is made by the puncturing of a break-away port. A gland nut 41 is arranged in the hole.

A through hole 42, in which a rubber grommet 43 is placed, is present in the cover 38.

The embodiment is such that the top of the grommet 42 lies in approximately the same plane as the top surface 26, or, respectively, the top surface of the plate 10.

It will be apparent that the invention is not restricted to the embodiments illustrated and described. Various modifications to the design are possible.

## Claims

1. Anchor block for the supporting of e.g. an exterior lighting fitting, a traffic sign or other construction, **characterized by** mounting means for the connection of the construction to be supported to the anchor block.

2. Anchor block as claimed in claim 1, **characterized by** an upper surface with a number of mounting slots,. which extend from the centre of said surface in an at least approximately radial direction, for fastening the construction to be supported with screwed connections.

3. Anchor block as claimed in claim 1 or 2, **characterized by** a first group of mounting slots extending at angles of approximately 90° to each other.

4. Anchor block as claimed in claim 1, 2 or 3, **characterized by** a second group of mounting slots which are arranged at angles of approximately 120° to each other.

5. Anchor block as claimed in claims 3 and 4, **characterized by** six mounting slots, where the two groups have one mounting slot in common.

6. Anchor block as claimed in claim 3, 4 or 5, **characterized in that** the upper surface is substantially square and that a slot extends in a diagonal direction.

7. Anchor block as claimed in any of the preceding claims, **characterized in that** the mounting slots narrow towards the top so that the head of a bolt can be accommodated and prevented from passing through said slots.

8. Anchor block as claimed in claim 7, **characterized in that** the mounting slots are open only towards the upper surface.

9. Anchor block as claimed in any of the preceding claims, **characterized in that** the upper surface forms part of a detachable plate.

10. Anchor block as claimed in claim 9, **characterized in that** the plate can be located in a recessed situation.

11. Anchor block as claimed in any of the preceding claims, **characterized in that** the anchor block consists of optionally reinforced plastic, for example polyester.

12. Anchor block as claimed in claim 11, **characterized by** struts extending between flat parts of the anchor block which are disposed approximately perpendicular to one another.

13. Anchor block as claimed in one of the claims 11 and 12, **characterized by** an outward-extending flange at the bottom.

14. Anchor block as claimed in any of the preceding claims, **characterized by** a through holed aperture present in the upper surface for the receiving of a junction box for electrical wiring.

15. Anchor block as claimed in claim 14, **characterized by** a flange member situated in the through holed aperture for defining the lowest position of the junction box in said aperture.

16. Anchor block as claimed in claim 14 or 15, **characterized in that** the junction box can display a gripping co-action with the wall of the aperture.

17. Junction box for use with an anchor block as claimed in any of the preceding claims, comprising a casing with a cover, cable passage means situated in the bottom of said casing, for example at least one break-away port, and cable passage means situated in said cover, for example a through hole with a rubber grommet.

18. Junction box as claimed in 17 for use with an anchor block as claimed in claim 15, **characterized by** an external flange member for cooperation with the flange member situated in the through holed aperture of the anchor block.

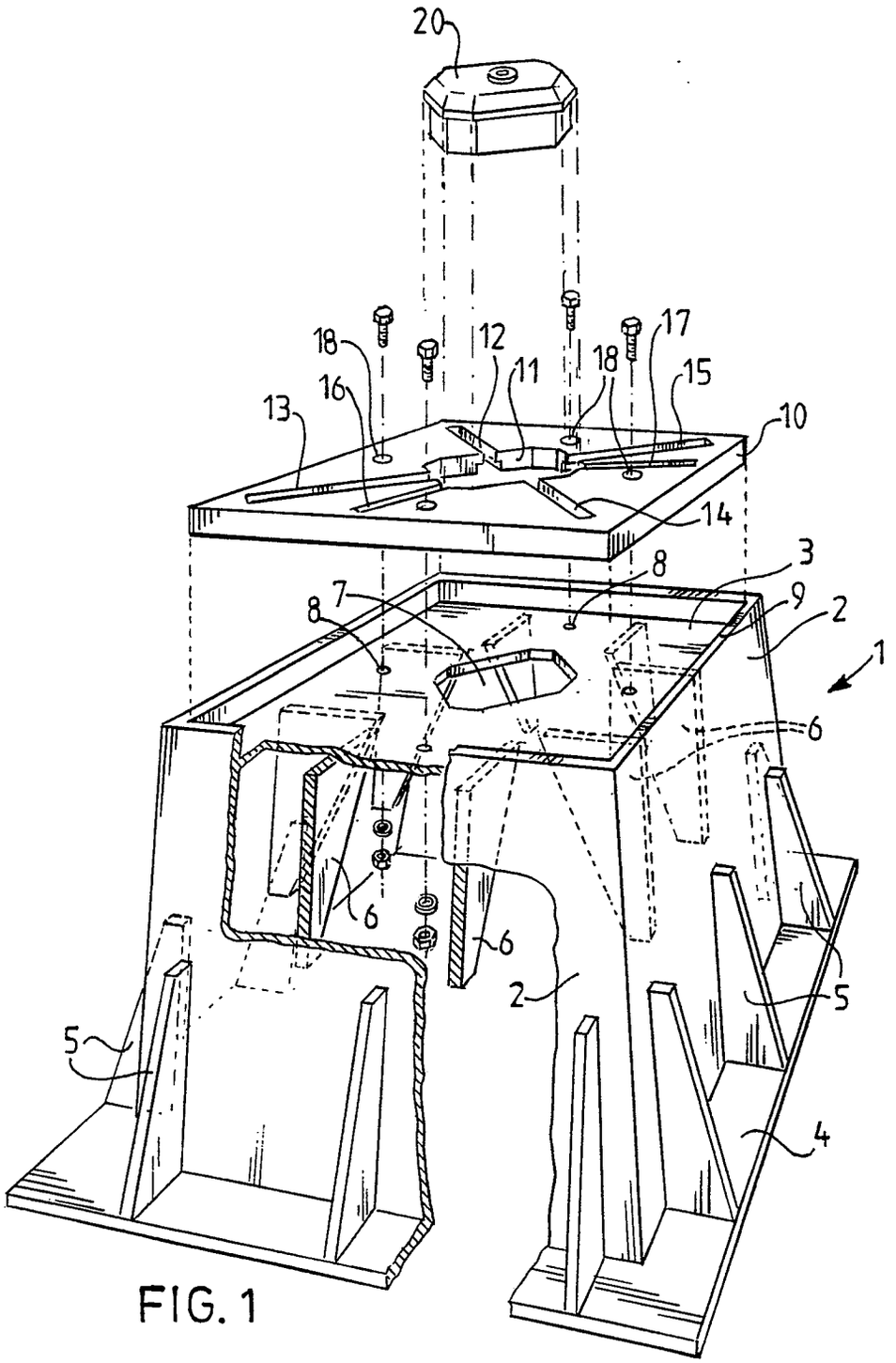


FIG. 1

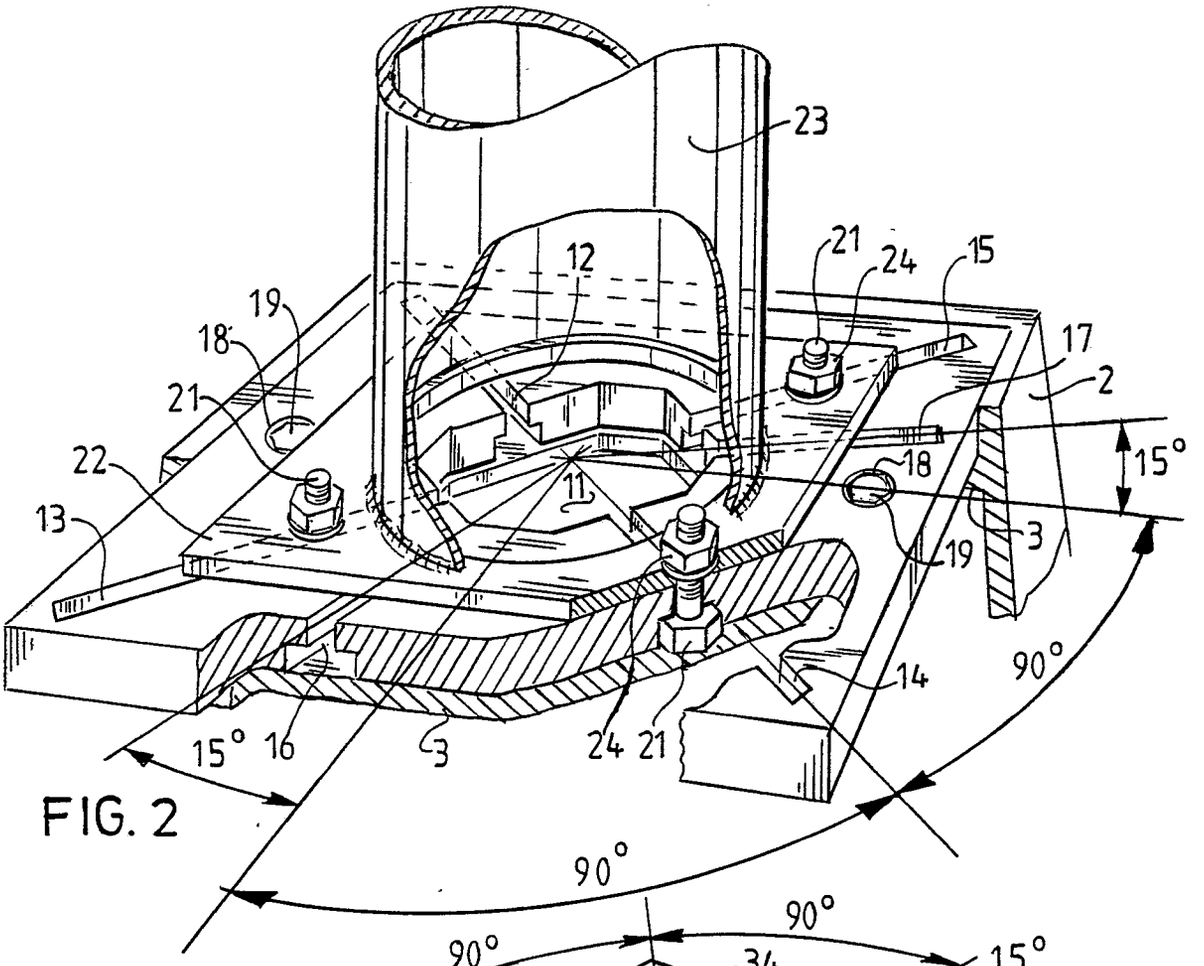
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FIG. 2

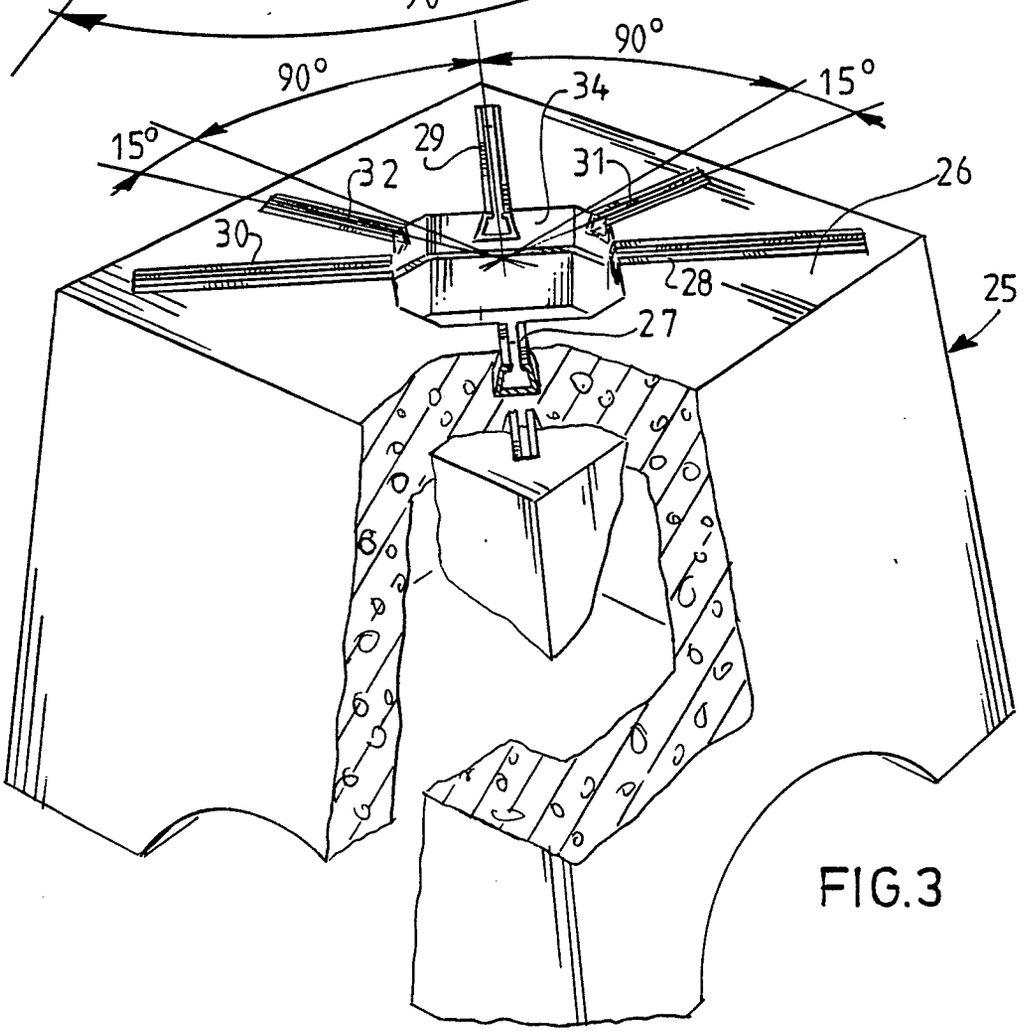
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FIG.3

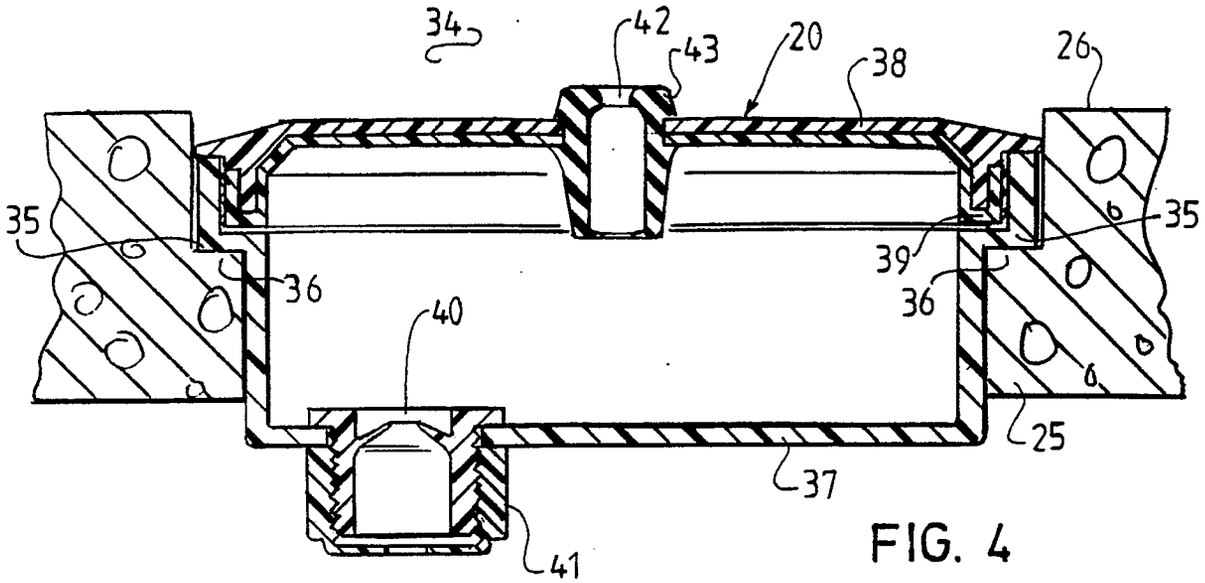


FIG. 4

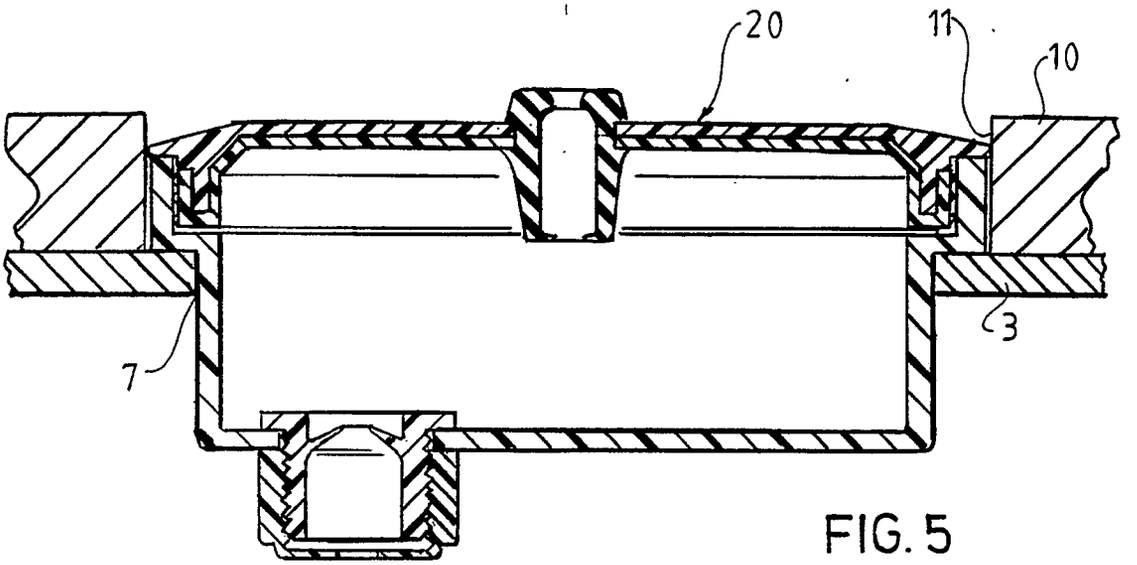


FIG. 5

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# EUROPEAN SEARCH REPORT

Application Number

EP 88 20 2893

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.4) |
|---|---|---|---|
| X | US-A-3 563 502 (DAYSON) * Column 1, lines 57-60; column 2, lines 1-40; figures 1-4 * | 1-3,6, 12,13 | E 04 H 12/22 |
| X | EP-A-0 101 984 (GRÜNERT) * Page 15, lines 27-36; page 16, lines 1-33; page 17, lines 1-35; page 18, lines 1-33; page 19, lines 1-9; figures 7-9 * | 1-3,11 | |
| A | US-A-3 187 175 (LANG) * Column 2, lines 52-72; column 3, lines 1-46; column 6, lines 3-67; figures 1,3,4,5 * | 14,17 | |
| A,D | CA-A- 888 457 (LEWIS) * Page 2, lines 21-30; page 3, lines 1-21; page 4, lines 1-16; figures 1-4 * | 1 | |
| A,D | DE-A-2 228 381 (ZSCHAGE) | | |
| A,D | DE-A-2 264 468 (ZSCHAGE) | | |

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

E 04 H
E 01 F
H 02 G

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| THE HAGUE | 25-03-1989 | SCHOLS W.L.H. |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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