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Remarks:
MODULAR SEPARATOR OF BICYCLE LANES.

(54) MODULAR SEPARATOR OF BICYCLE LANES

(57) The invention relates to a modular separator of bicycle lanes, comprising: first parts (10a) for forming single-component modules; end parts (10b, 10c); and intermediate parts (10d) for forming multiple-component modules; said parts (10a-10d) being formed from vulcanised rubber and having a hollow triangular prismatic design which is closed by the opposite ends. Said parts (10a-10d) comprise: a first open face (101) forming a base for support on the ground; a second face (102) which is oriented towards the traffic lane and has a pronounced incline; and a third face (103) which is oriented towards the bicycle lane and has a slight incline. The parts (10a-10d) are provided on the inside with reinforcement ribs (105) and channels (106) for mounting screwed anchoring elements (2) for fastening to the ground.

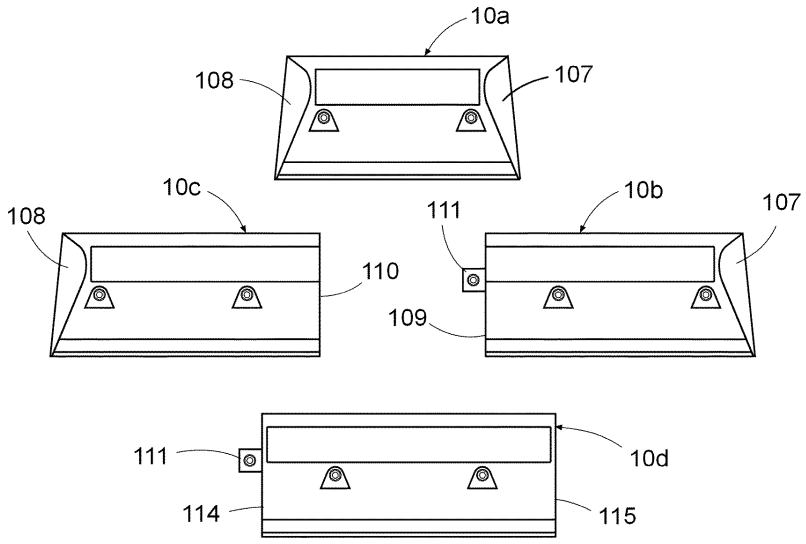

Fig. 1

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Description

Subject-matter of the invention

[0001] The present invention relates to a modular cycle lane delineator, suitable for segregating a cycle lane from other traffic lanes in order to ensure the safety of cyclists.

Field of application

[0002] This invention is applicable in the road safety element manufacture field, in this specific instance for segregating cycle lanes.

Prior art

[0003] At present, the number of lanes dedicated to bicycles is increasing, particularly in urban settings, and these cycle lanes are often found on roads shared with other traffic.

[0004] These cycle lanes are often marked by lines painted on the ground, which from a safety standpoint is entirely insufficient as drivers of vehicles can unintentionally encroach onto cycle lanes, posing a risk to cyclists.

[0005] Due to this problem, various delineator elements have been designed to be secured to the ground, either screwed or embedded, physically separating cycle lanes from lanes for other vehicles.

[0006] Some examples of these lane delineators for bicycles and other road traffic can be found in utility models U 201230280 and U 201231248.

[0007] In both cases, the modular delineator is formed by a cast iron body in a semi-cylindrical arrangement or with a semi-cylindrical stem, designed to be anchored to the ground; said delineators bearing the drawback of having the same characteristics on the sides pointing towards the cycle lane and the traffic lane. As a result, these delineators can prove effective when a vehicle starts to encroach on a cycle lane; however, they can prove particularly hazardous for cyclists if they accidentally ride into the delineators.

[0008] Cycle lane delineators, formed by a series of equal plastic or rubber parts that are secured to the ground, are also known. Said parts incorporate a flat surface resting on the ground and two side surfaces that are vertical or equally inclined, designed for one side to point towards the traffic lane and the other towards the cycle lane, indistinctly. Consequently, like the aforementioned delineators, these ones bear the same characteristics on opposite sides, and whilst they are a suitable barrier for vehicles they are unsafe for cycle lane users.

[0009] The applicant of this invention is unaware of the existence of any prior art that can effectively address these drawbacks.

Description of the invention

[0010] The modular cycle lane delineator addressed in this invention bears specific construction features intended to solve the aforementioned problem, and comprises multiple parts making it possible to form a continuous or discontinuous modular delineator, with different geometry on the side pointing towards the cycle lane from that on the side pointing towards the traffic lane in order to minimise the risk of an accident for cyclists and provide a more defined means of segregation for vehicles.

[0011] Another objective of the invention is for the parts of the modular delineator to be produced using a non-metallic material, preferably vulcanised rubber, to minimise the harm caused to cyclists in the event of an impact, and to incorporate recycled materials to bring down manufacturing costs and provide environmental benefits.

[0012] In order to meet the objectives proposed, this modular delineator comprises initial parts to form one-piece modules, and end and intermediate parts to form multi-piece modules of varying length, meaning a modular delineator can be put together with continuous or discontinuous segments, with gaps being left between consecutive modules to allow rainwater through.

[0013] All the aforementioned parts are made from vulcanised rubber and are shaped in the form of a hollow triangular prism that is closed at opposite ends.

[0014] The parts comprise: an initial open side, formed by a base resting on the ground; a second and third side that converge on a rounded upper corner, and along with the open side on the base they form angles of different sizes.

[0015] The second side of the parts, pointing towards the traffic lane, has a sharp gradient, while the third side, pointing towards the cycle lane, has a very gentle gradient, meaning that the delineator serves as a kerb on the side facing the traffic lane and on the opposite side, facing the cycle lane, serves as a gentle ramp.

[0016] All the parts of the delineator have reinforcement ribs on the inside and shafts for the screw bolts to be inserted to secure it to the ground.

[0017] These and other specific characteristics of the various parts of the delineator, shown in the claims, may be better understood in the invention embodiment example shown with the drawings below.

Description of the drawings

[0018] In order to add to the description made and to make it easier to understand the characteristics of the invention, enclosed with this descriptive report is a set of drawings depicting the following aspects by way of indication, without limitation:

- Drawing 1 shows a plan view from above of the various parts of the modular cycle lane delineator according to the invention.
- Drawing 2 shows a profile view of any of the parts, cut along a vertical plane, showing a cross-section of the parts, the inner ribs and the shafts for the screw

bolts to be inserted to secure it to the ground.

- Drawing 3 shows a plan view from below of the first part forming the one-piece modules.

- Drawing 4 shows a plan view from above of a possible embodiment of the modular delineator comprising several initial parts forming aligned one-piece modules set apart.

- Drawing 5 shows a plan view from below of two end parts forming multi-piece modules in the delineator.

- Drawing 6 shows a perspective view of the two parts from the previous drawing, cut across a horizontal plane, each of which has a clearly defined tongue and a groove so they can be linked together.

- Drawing 7 shows an elevation view of the two end parts of a multi-piece module, cut along a vertical plane and joined by the tongue-and-groove mechanism.

- Drawing 8 shows a plan view of a possible embodiment of the modular delineator comprising several multi-piece modules, each formed by two end parts joined together, with the successive modules set apart lengthwise.

- Drawing 9 shows a plan view from below of one of the intermediate parts forming multi-piece modules.

- Drawing 10 shows a possible embodiment of the modular delineator comprising a multi-piece module formed by two end parts and several intermediate parts, all joined by means of a tongue-and-groove mechanism.

Preferred embodiment of the invention

[0019] As shown in drawing 1, this modular delineator comprises initial parts (10a), end parts (10b, 10c) and intermediate parts (10d) forming the various modules.

[0020] As shown in the cross-section of drawing 2, said parts (10a - 10d) are shaped in the form of a hollow triangular prism with an initial open side (101), formed by a base resting on the ground, a second side (102) and a third side (103) that converge on a rounded upper corner (104).

[0021] The second side (102), pointing towards the traffic lane, has a sharp gradient while the third side (103), pointing towards the cycle lane, has a very gentle gradient.

[0022] As shown in drawing 2, the parts (10a - 10d) have vertical reinforcement ribs (105) on the inside and vertical shafts (106) for the screw bolts (2) to be inserted to secure it to the ground.

[0023] Drawing 3 shows the ribs (105) and the shafts (106) in the initial parts (10a) and on the opposite ends they show the oblique slanting planes (107, 108) referred to in drawing 1.

[0024] Drawing 4 shows a plan view from above of the delineator with several one-piece modules formed by initial parts (10a) secured to the ground and set apart lengthwise.

[0025] The end parts (10b, 10c) shown in drawing 1 and drawings 5 to 8 show oblique slanting planes (107, 108) in one end and vertical surfaces (109, 110) in the other end, with a tongue (111) and a shaft for a screw bolt (3) to be inserted to secure it to the ground, and a groove (113) so the tongue (111) on the adjoining part can be linked, specifically as shown in drawings 7 and 8, to another end part (10c, 10b). As shown in drawing 8, by joining the two end parts (10b, 10c) together they form multi-piece modules that are secured to the ground and set apart lengthwise.

[0026] The intermediate parts (10d) shown in drawings 1 and 9 have vertical surfaces (114, 115) at opposite ends, with a tongue (111) and a shaft (112) and a groove (113) similar to those on the end parts (10b, 10c), allowing the intermediate parts (10d) to be joined by means of a tongue-and-groove mechanism to other end or intermediate parts (10b, 10c, 10d), as shown in drawing 10, to form a continuous delineator.

[0027] Having described the nature of the invention and a preferred embodiment example in adequate detail, it is hereby stated for all pertinent purposes that the materials, shape, size and arrangement of the elements described may be modified, provided this does not involve altering the essential characteristics of the invention claimed below.

Claims

1. Modular cycle lane delineator; suitable for segregating a cycle lane from other traffic lanes; **characterised by** the fact that it comprises: initial parts (10a) to form one-piece modules; end parts (10b, 10c); and intermediate parts (10d) to form multi-piece modules; said parts (10a- 10d) being made from vulcanised rubber and shaped in the form of a hollow triangular prism, closed at each end; said parts (10a-10d) comprising: an initial open side (101) formed by a base resting on the ground; a second side (102) and a third side (103) that converge on a rounded upper corner (104) and along with the open side (101) on the base they form angles of different sizes; the second side (102), pointing towards the traffic lane, has a sharp gradient; and the third side (103), pointing towards the cycle lane, has a very gentle gradient; and said parts (10a-10d) have reinforcement ribs (105) on the inside and shafts (106) for the screw bolts (2) to be inserted to secure it to the ground.

2. A delineator, as claimed in claim 1, **characterised by** the fact that the initial parts (10a) for one-piece modules have oblique slanting planes (107, 108) at opposite ends.

3. A delineator, as claimed in claim 1, **characterised by** the fact that the end parts (10b, 10c) of multi-piece modules have oblique slanting planes (107, 108) at one end and vertical surfaces (109, 110) at the opposite ends, and consist of: a male tongue (111) with a shaft (112) for a screw bolt (3) to be inserted to secure it to the ground; and a groove (113) so the tongue (111) on the adjoining part can be linked.

4. A delineator, as claimed in claims 1 and 3, **characterised by** the fact that intermediate parts (10d) for multi-piece modules have vertical surfaces (114, 115) at opposite ends, with a tongue (111) and a shaft (112) and a groove (113) similar to those on the end parts (10b, 10c), allowing said intermediate parts (10d) to be joined by means of a tongue-and-groove mechanism to other end or intermediate parts (10b, 10c, 10d).

5. A delineator, as claimed in claim 1, **characterised by** the fact that the parts (10a - 10d) are made of black vulcanised rubber.

6. A delineator, as claimed in claim 1, **characterised by** the fact that the parts (10a - 10d) incorporate segments (116) of white vulcanised rubber on the upper rounded corner and on the third side (103).

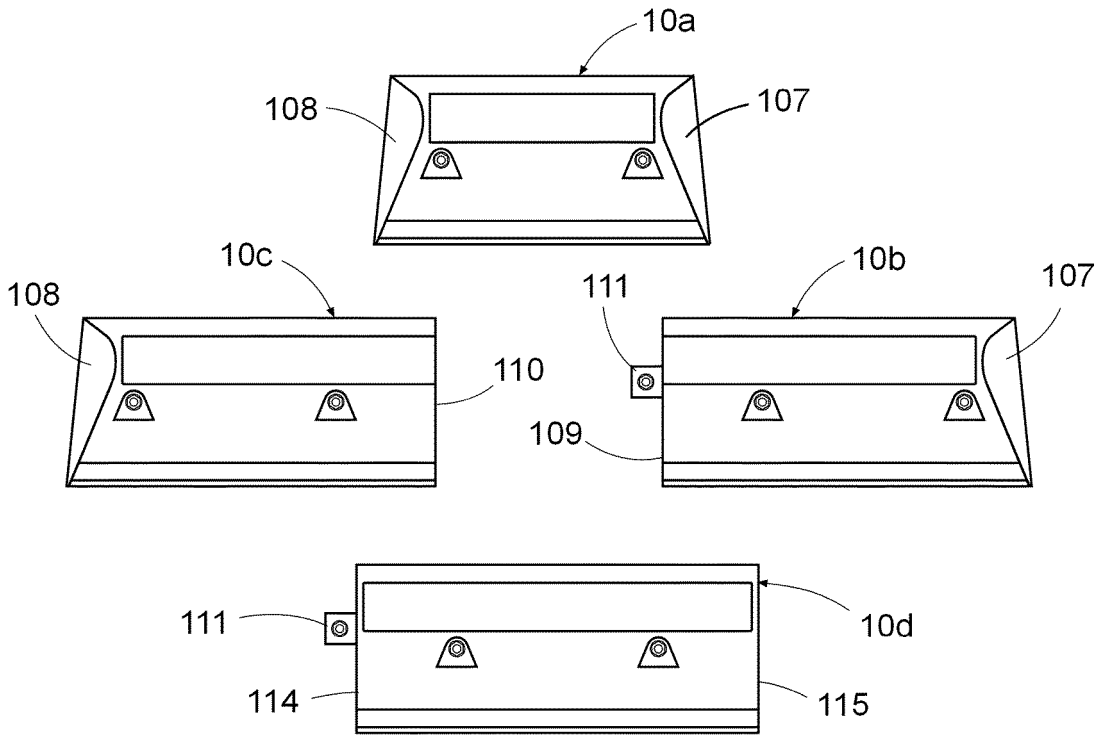
10a
108
107
10c
108
110
10b
111
107
109
111
10d
114
115

Fig. 1

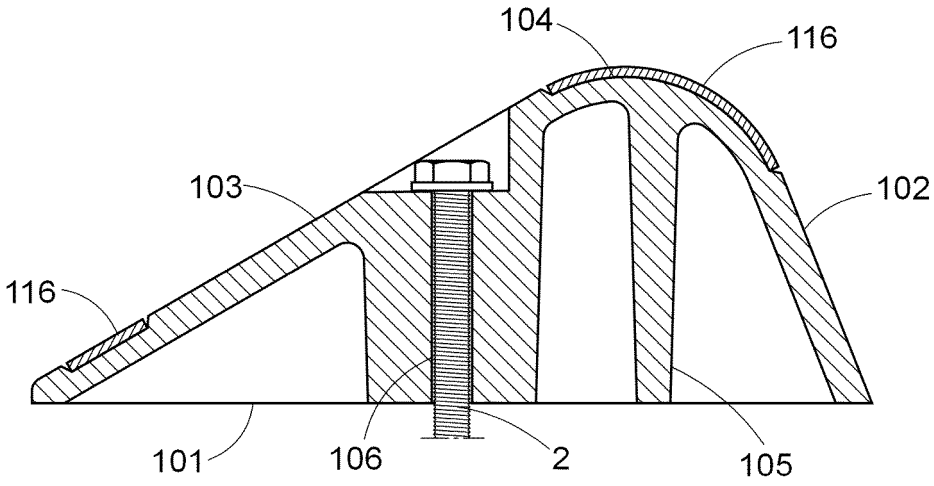
104
116
103
102
116
101
106
2
105

Fig. 2

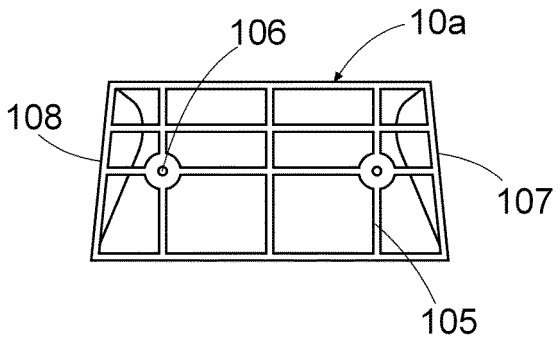

Fig. 3

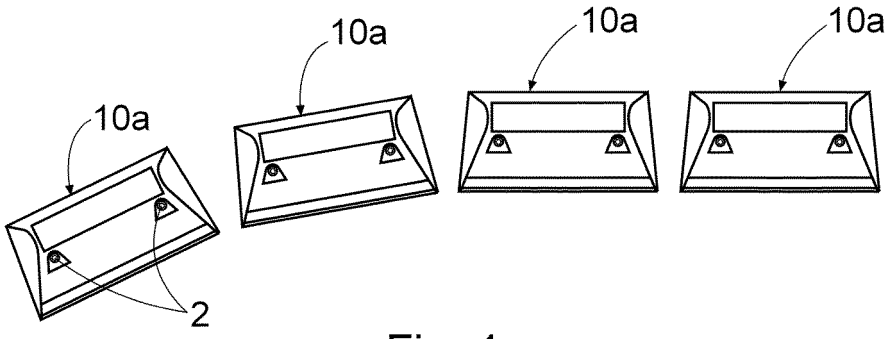

Fig. 4

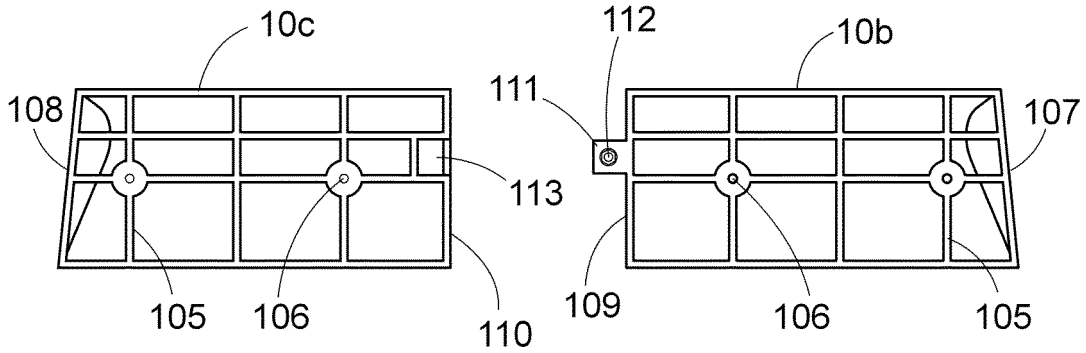

Fig. 5

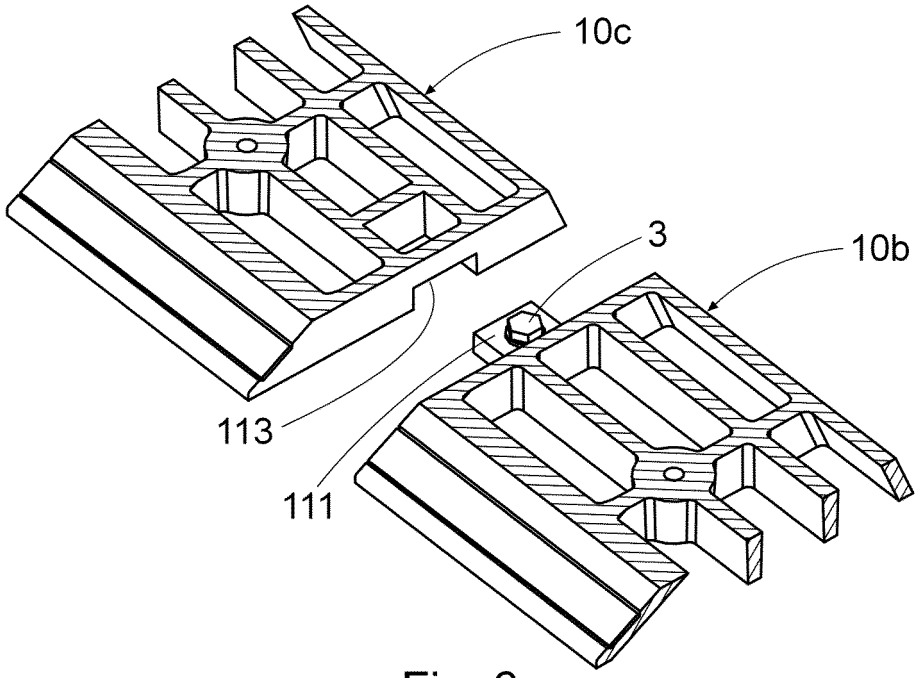

Fig. 6

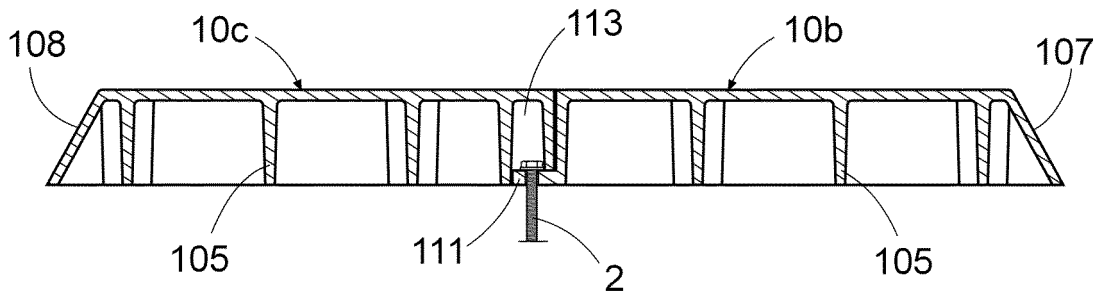

Fig. 7

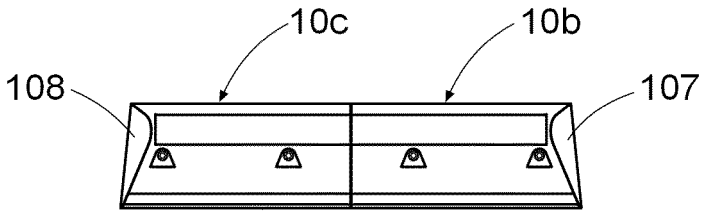

Fig. 8

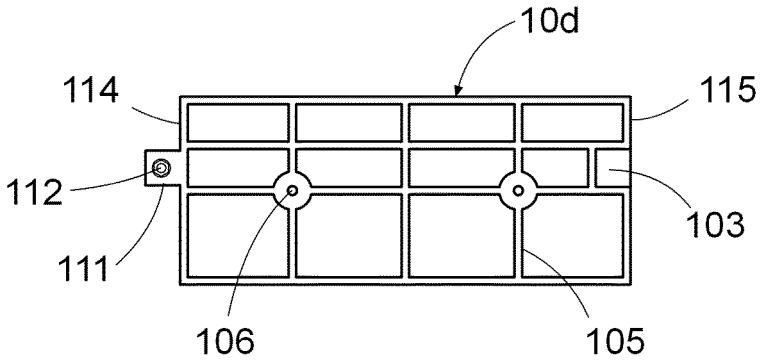

Fig. 9

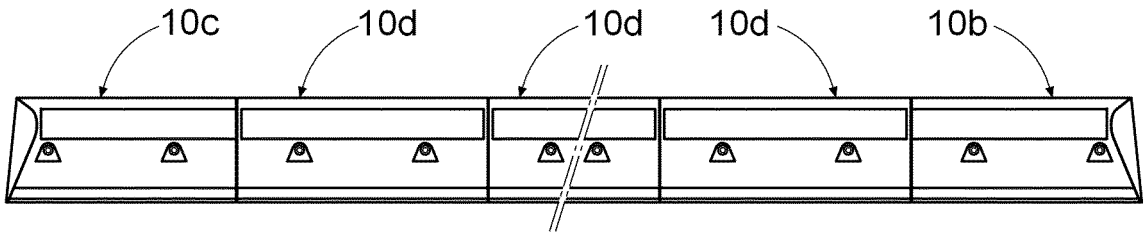

Fig. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2015/070262

A. CLASSIFICATION OF SUBJECT MATTER

E01F9/08 (2006.01)
E01F9/087 (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)
E01F

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

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ES 224229U U (JEAN NEUHAMS Y PNEUMATIQUES) 16/02/1977, pages 2 - 7; figures.	1-6
A	US 2931279 A (WISWELL GRANT A) 05/04/1960, column 1, line 15 - column 10, line 26; figures.	1-6
A	BR 8705876 A (SNOLINE SPA) 23/05/1989, pages 1 - 7; figures.	1-6
A	EP 1291465 A2 (LEDERER ADOLF) 12/03/2003, figures & Abstract from DataBase WPI. Retrieved of EPOQUE; AN 2003-250402.	1-6

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure use, exhibition, or other means.
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03/07/2015	**(06/07/2015)**
Name and mailing address of the ISA/ OFICINA ESPAÑOLA DE PATENTES Y MARCAS Paseo de la Castellana, 75 - 28071 Madrid (España) Facsimile No.: 91 349 53 04	Authorized officer M. Castañón Chicharro Telephone No. 91 3493261

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2015/070262

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
ES224229U U	16.02.1977	IT1020866 B	30.12.1977
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BR8705876 A	23.05.1989	NONE	
EP1291465 A2	12.03.2003	NONE	

Form PCT/ISA/210 (patent family annex) (July 2009)