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(71) Applicant: **C3 Systems, S.L.**
03203 Elche (Alicante) (ES)

(72) Inventor: **PLATA CARRETERO, Victor David**
E-03203 Elche (Alicante) (ES)

(74) Representative: **Capitán García, Maria Nuria**
Felipe IV no. 10, bajo iz.
28014 Madrid (ES)

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(54) **SEAL FOR UPPER AND/OR LOWER PROFILES OF CLOSURES**

(57) Watertight seal for upper and/or lower rails of enclosures that prevents the entry of water, wind or other elements, so that the dwelling in which it the seal is fitted does not have an entry of moisture, mainly, and other elements such as wind, dust, etc., comprising a first cap placed on the end of a first rail and a second cap placed

at the end of a second rail and facing the first cap; the first cap comprises a vertical housing over the entire length of said cap in which a gasket is placed which provides the seal when it is in contact with the facing side of the second cap.

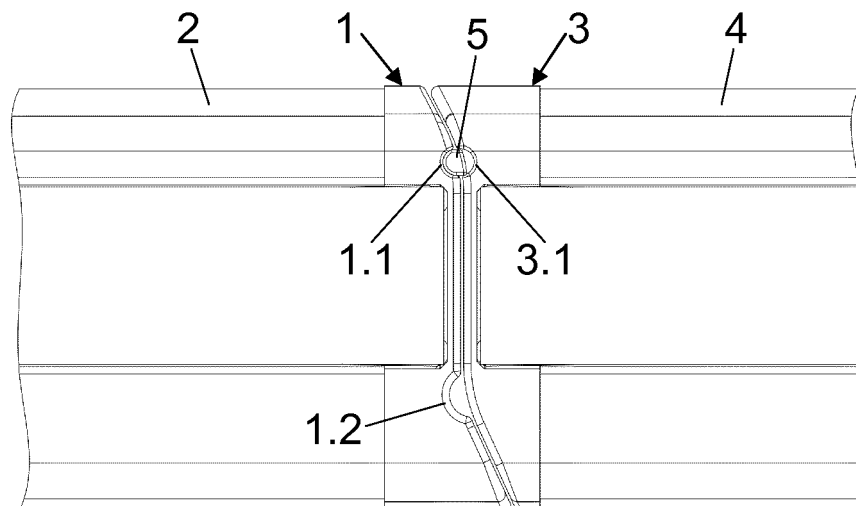


Fig. 1

Description

FIE9LD OF THE INVENTION

[0001] This invention relates to a watertight seal for the upper and/or lower rails of enclosures that prevents the entry of water, wind or other elements.

BACKGROUND OF THE INVENTION

[0002] In dwellings, the enclosures considered consist in several panels, typically made in glass, each finished at least on the top and bottom with rails that are currently made in PVC plastic or aluminium. Non-fixed panels move by sliding, runners or by pivoting, frames, and they have the problem that where the panels join there may be entry of water, wind, etc., either directly, by filtration, or when the seal is good against water, by capillarity.

[0003] Currently a vertical H-shaped joint is placed between two contiguous panels, which prevents in some way the entry of water, wind and other elements in a more or less horizontal direction and in the area of the panels themselves, but it is not prevented at the joint between the upper and lower rails of contiguous panels, and does not at all prevent the entry of water and moisture that occurs in all elements of the enclosure that are close to the joint between the panels.

[0004] This is why there is a need for a truly effective watertight seal.

[0005] This invention is a watertight seal for upper and/or lower rails of enclosures that meets such need and solves the drawbacks in the state of the art.

DESCRIPTION OF THE INVENTION

[0006] The present invention is established and characterised in the independent claims, while the dependent claims describe additional characteristics thereof.

[0007] The subject matter of the invention is a watertight seal for upper and/or lower rails of enclosures that prevents the entry of water, wind or other elements, so that the dwelling in which it the seal is fitted does not have an entry of moisture, mainly, and other elements such as wind, dust, etc. The technical problem to be solved is to configure the seal in order to achieve the aforementioned goal.

[0008] In view of the above, this invention relates to a watertight seal for upper and/or lower rails of enclosures, that is, the enclosures include upper and lower rails with respect to the central panel of said enclosures, the seal may be provided only between two contiguous upper rails, between two lower rails or between both upper and lower rails. With watertight we mainly refer to the entry of water and wind, although this could include other elements such as dust, dirt, etc. The rails are of the known kind, typically PVC or aluminium extrusions.

[0009] The seal, as is known, comprises a first cap placed at the end of a first rail and a second cap placed

at the end of a second rail and facing the first cap, in other words, the rails are capped at their ends by caps that are the elements that make contact when closing.

[0010] The invention is characterised in that the first cap comprises a vertical housing along the entire cap in which a gasket is placed that seals the enclosure when in contact with the facing side of the second cap. Moisture and wind are the main elements to be sealed out; in particular, with respect to moisture, even though it may cross the enclosure by direct incidence, for example when rain falls at a certain angle, almost horizontal, it is more problematic when water falls by dripping or and/or capillarity, and so crosses the vertical section of the enclosure by gravity. This is why the seal spans the entire length in the vertical direction, since it would otherwise not provide an effective watertight seal.

[0011] Optionally, the second cap comprises a housing to receive the gasket, thus ensuring the correct placing of the gasket in the enclosure, better than when it is simply pressed against the corresponding face of the cap.

[0012] Another option is for the first cap, although it could also be the second, comprises a vertical drainage channel along the entire cap, such that any moisture that penetrates by capillarity, which is usually very little, drains vertically along the closure, preferably all the way to the lower guide of the lower rail of the panel, which then evacuates it outward.

[0013] Preferably, and for greater efficacy as has been verified, the gasket and the drainage channel are placed each on one side of the panel of the enclosure.

[0014] Regarding materials, the most common option is for the rails to be made in aluminium, the caps in plastic and/or metal, and the gasket from thermoplastic elastomers, such as rubber and/or silicone compounds.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] This specification is supplemented with a set of drawings illustrating the preferred embodiment, which are never intended to limit the invention.

Figure 1 shows a plan view of the enclosure of the invention.

Figure 2 shows a perspective view of the first cap with the gasket in exploded view.

Figure 3 shows a perspective view of the enclosure.

Figure 4 shows another perspective view of the enclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0016] An embodiment of the invention based on the figures is provided below.

[0017] Figures 1, 3 and 4 show a watertight seal for upper and/or lower rails of enclosures comprising a first

cap (1) placed on the end of a first rail (2) and a second cap (3) placed on the end of a second rail (4) and facing the first cap (1), wherein the first cap (1) comprises a vertical housing (1.1) along the entire cap (1) in which a gasket (5) is placed that provides the watertight seal when in contact with the facing side of the second cap (3).

[0018] Figure 2 shows an exploded view of the first cap (1) and the gasket (5) such that it clearly shows the housing (1.1) for the same. The placing and fastening of the gasket (5) can be performed by over-moulding, although any other method is accepted, for example by glueing.

[0019] The embodiment shown shows the option of the second cap (3) comprising a housing (3.1) to receive the gasket (5), as well as the first cap (1) comprising a vertical drainage channel (1.2) along the entire cap (1).

[0020] It also shows that the housing (1.1) with the gasket (5) and the drainage channel (3.1) are placed one on either side of a panel (6) of the enclosure.

[0021] The caps (1, 3) can have a Z-shaped configuration, as shown in the figures, or they could also be flat or one concave and the other convex.

Claims

1. Watertight seal for upper and/or lower rails of enclosures comprising a first cap (1) placed on the end of a first rail (2) and a second cap (3) placed on the end of a second rail (4) and facing the first cap (1), **characterised in that** the first cap (1) comprises a vertical housing (1.1) along the entire cap (1) in which a gasket (5) is placed that provides the watertight seal when in contact with the facing side of the second cap (3).
2. Seal according to claim 1 wherein the second cap (3) comprises a housing (3.1) to receive the gasket (5).
3. Seal according to any of the previous claims wherein the first cap (1) comprises a vertical drainage channel (1.2) along the entire cap (1).
4. Seal according to claim 3 wherein the housing (1.1) with the gasket (5) and the drainage channel (1.2) are placed one on either side of a panel (6) of the enclosure.

Amended claims under Art. 19.1 PCT

1. Watertight seal for upper and/or lower rails of enclosures comprising a first cap (1) placed on the end of a first rail (2) and a second cap (3) placed on the end of a second rail (4) and facing the first cap (1), the first cap (1) comprises a vertical housing (1.1) along the entire cap (1) in which a gasket (5) is placed that provides the watertight seal when in contact with

the facing side of the second cap (3), **characterised in that** the first cap (1) comprises a vertical drainage channel (1.2) along the entire cap (1), the housing (1.1) with the gasket (5) and the drainage channel (1.2) are placed one on either side of a panel (6) of the enclosure.

2. Seal according to claim 1 wherein the second cap (3) comprises a housing (3.1) to receive the gasket (5).

Statement under Art. 19.1 PCT

Differences between the claims as filed and the claims as amended:

- claims 1 is modified, the preamble is the claim 1 as originally filed, the new characterizing portion are the claims 3 and 4 as originally filed;
- claims 3 and 4 are eliminated;
- claim 2 remain unchanged.

Basis for the amendments of the claims are:

- claims 3 and 4 as originally filed into claim 1 as originally filed: the features of the claims 3 and 4 as originally filed are disclosed as options in the embodiment of the invention, so these features can be combined in the manner expressed in the dependency of the claims as originally filed which is taken into account for the introduction into the new claim 1.

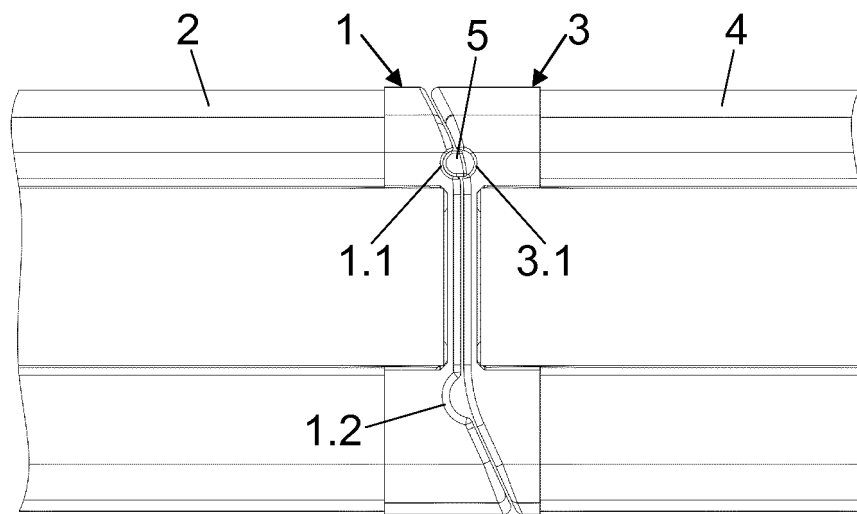


Fig. 1

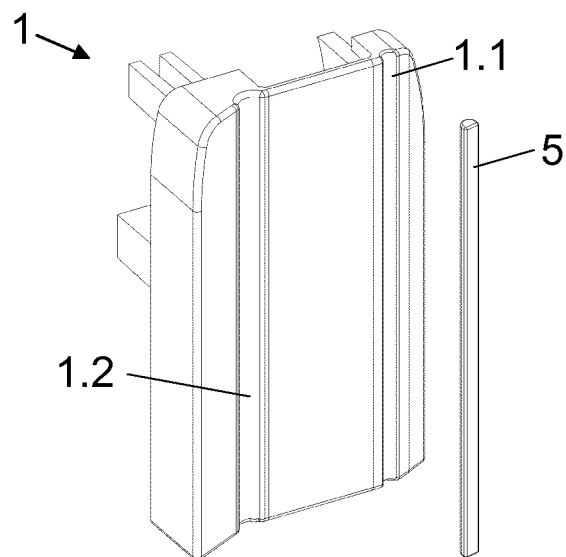


Fig. 2

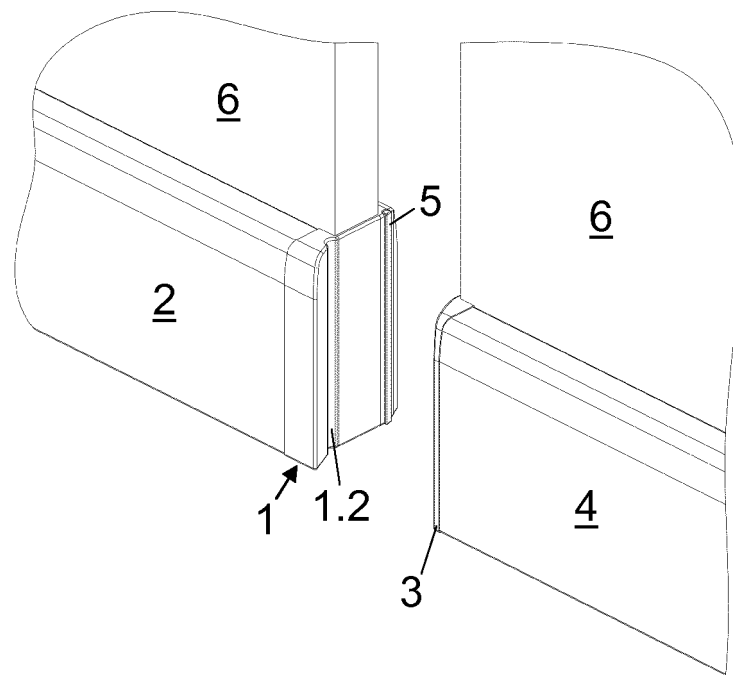


Fig. 3

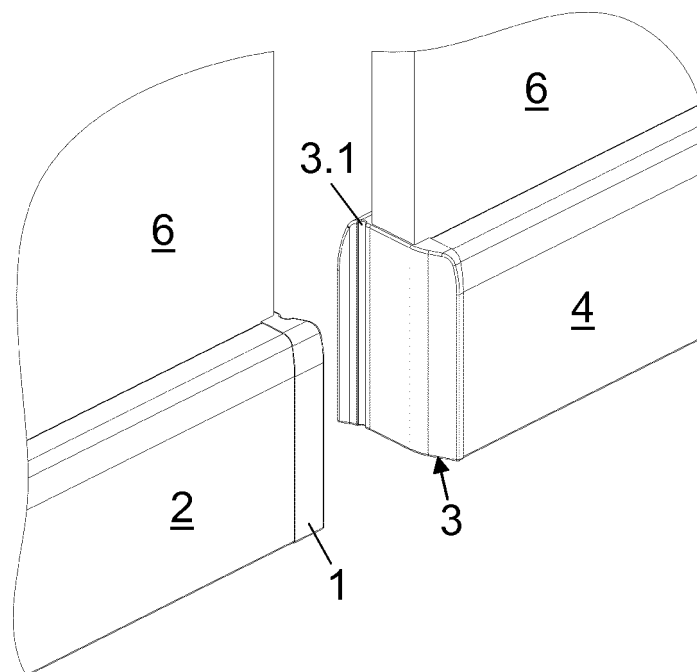


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2015/070517

A. CLASSIFICATION OF SUBJECT MATTER

E06B7/16 (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)
E06B

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	US 3309816 A (MALONE JR BENJAMIN D) 21/03/1967, column 4, line 73- column 5, line 17; figures 1,6,7.	1,3,4
X	WO 8101027 A1 (KENROSS NOMINEES PTY LTD ET AL.) 16/04/1981, page 2, lines 8-18; page 11, lines 7-10. figure 11.	1,2
X	ES 274043U U (WESTANCA,S.A.) 01/01/1984, page 9, lines 9-21; figures 3 and 5.	1
X	ES 267318U U (PIRINOLI GOMEZ) 01/08/1983, page 5, lines 21-28; figure 1.	1
X	ES 276751U U (DURAN ROMERO; MUÑOZ ESCRIBANO) 16/06/1984, page 12, lines 4-23; figures 2, 6 - 8.	1

☒ 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

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
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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. Sánchez Robles

Telephone No. 91 3495431

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2015/070517

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2487956 A (EUROCELL PROFILES LTD) 15/08/2012, abstract; page 6, lines 7-21; figures.	1,3
X	US 3177533 A (DAVIS LAWRENCE E) 13/04/1965, column 2, lines 5-16; column 3, lines 17-22; figures 1, 2,4.	1
X	US 2930086 A (GRIFFITHS EDWARD M) 29/03/1960, column 2, line 71- column 3, line 46; figures	1
A	ES 1072108U U (C3 SYSTEMS S L) 20/05/2010, figures	1
A	DE 202014001297U U1 (GLASS SYSTEM POLSKA SP Z O O) 24/03/2014, figures	1

Form PCT/ISA/210 (continuation of second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2015/070517

Information on patent family members

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US3309816 A	21.03.1967	NONE	
WO8101027 A1	16.04.1981	US4619095 A EP0036872 A1 EP0036872 A4	28.10.1986 07.10.1981 19.07.1982
ES274043U U	01.01.1984	ES274043Y Y	01.08.1984
ES267318U U	01.08.1983	NONE	
ES276751U U	16.06.1984	US4662108 A ES276751Y Y EP0148812 A2 EP0148812 A3 AU3736285 A AU578922B B2 AT40439T T	05.05.1987 16.01.1985 17.07.1985 25.06.1986 18.07.1985 10.11.1988 15.02.1989
GB2487956 A	15.08.2012	NONE	
US3177533 A	13.04.1965	NONE	
US2930086 A	29.03.1960	NONE	
ES1072108U U	20.05.2010	ES1072108Y Y	16.08.2010
DE202014001297U U1	24.03.2014	NONE	

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