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(54) **ANTI-BLOCKING ACCESSORY FOR ROLL-UP SWIMMING POOL COVERS**

(57) Anti-blocking accessory for roll-up swimming pool covers, linkable to the transversal strap (1) of a flexible cover made up of a plurality of joined slats (2). It is made up of a flat and elongated casing (4) that covers the end of the transversal strap (1) closest to the last slat (2) of the cover, wherein the casing (4) comprises:
- a rear sector (5), adjustable towards the last slat (2) of the cover:
- a front sector (6) in the form of a beveled tip, opposite the rear sector (5);
- an internal housing (7) intended to house the end of the transversal strap (1); and
- hooks (8) located in the rear sector (5) for engagement with the last slat (2) of the cover.

In a preferred embodiment, the casing (4) comprises a first portion (9) and a second portion (10), complementary and interconnectable with each other.

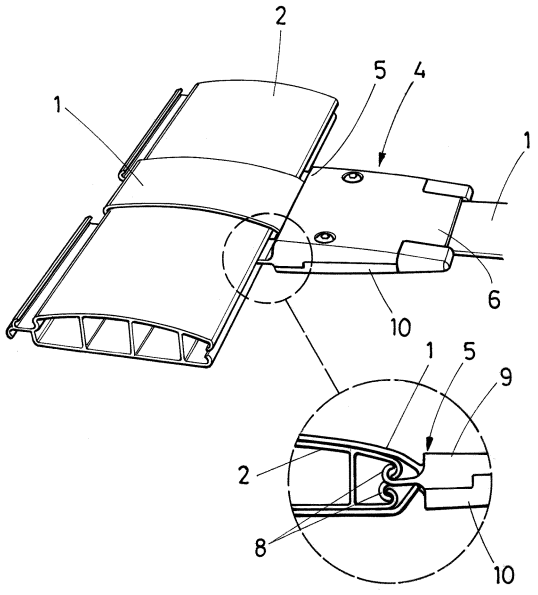

FIG.1

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Description

Object of the invention

[0001] The present invention falls within the technical field of swimming pool covers made up of rigid elements, as well as that of accessories for swimming pool covers, and relates in particular to an anti-blocking accessory for roll-up swimming pool covers.

Background of the invention

[0002] Swimming pool covers are an auxiliary element whose function is to temporarily cover the basin of said swimming pool when it is not in use. Thanks to this coating, falls to the interior are avoided as well as the conditions of the contained water are preserved, mitigating the action of external elements. Among swimming pool covers, those of the flexible and floating type are known, made up of a plurality of slats joined together, said slats being made of a material with floating capacity.

[0003] These flexible covers typically comprise a motorized rotating drum submerged at one end of the swimming pool and onto which the cover is rolled up. The drum is located inside a receptacle that isolates and separates said motorized drum and its mechanisms from the rest of the swimming pool, as well as hides the cover from view when it is in the retracted position, rolled up on the drum. The drum can rotate in one direction and in the opposite, driven from the outside.

[0004] Said receptacle, located at the end of the swimming pool where the drum is located, has a closed interior housing and is connected to the rest of the swimming pool through a longitudinal slot, which allows the cover to pass through it during unfolding movements and folding over the drum. The cover floats up and unfolds to cover the swimming pool basin in the event of unfolding, and enters the receptacle and rolls over the drum in the event of folding.

[0005] The receptacle is delimited by the following elements:

- a vertical wall of the basin, corresponding to the end where the drum is located, for rear closing of the receptacle;
- a sector of the bottom of the basin, specifically the one closest to the aforementioned vertical wall, for lower closure of the receptacle;
- a vertical partition parallel to the wall of the basin, for front closure of the receptacle; and
- a horizontal partition that extends between the vertical partition and the vicinity of the vertical wall, for upper closure of the receptacle.

[0006] The horizontal partition is arranged in a plane lower than the minimum height of the sheet of water contained in the basin, so that it is always submerged, and is also known as a submerged beach. In this way, the longitudinal slot for the passage of the cover remains submerged and delimited between said submerged beach and the vertical wall of the basin. It is necessary to mention at this point that the edges of this slot are usually straight.

[0007] On the other hand, the covers comprise transversal straps, linked at one end to the rotating drum and at the opposite end to the last slat of the cover. Their functions are, among others, to keep the cover attached to the drum when it is fully unfolded, as well as to transmit some traction movements generated by the rotation of the drum in one direction and in the opposite direction to carry out the folding and unfolding of said cover on the sheet of water of the basin.

[0008] It is common that during the folding and unfolding operations of the cover, jams and entrapments occur when passing through the straight edges of the longitudinal slot through which it enters and leaves the receptacle where the drum is located, on which it is rolled and unrolled. Said entrapments can cause breaks in the cover that make it necessary to replace the damaged elements or even to completely change the entire cover, including the slats and straps.

[0009] In the current state of the art, there is no known patent document relating to elements specifically configured to prevent these entrapments of the cover during unfolding and folding operations.

[0010] Document FR2990715 describes a swimming pool cover having a rigid peripheral frame adapted to run along an internal side of a swimming pool. A cover element is fixed to the frame and adapted to cover the swimming pool. Adjustable suspension rod straps are adapted to hang the cover at a periphery of the swimming pool. The cover element is provided with a cover portion that is equipped with a water drainage grid. The cover element comprises a net. The suspension rod straps are hung with protected fixings at the periphery of the swimming pool.

[0011] The straps are secured to the edge of the swimming pool to prevent the cover from rising, by means of bridges fixed to the net, the straps here sliding under the bridges. However, it is an element that does not prevent the aforementioned entrapments.

[0012] Document WO2019224483 describes a swimming pool cover device comprising a canvas attached to a receiving structure and designed to adopt an unfolded position in which it is intended to cover at least partially the swimming pool and a folded position in which it folds inside the receiving structure.

[0013] This device includes some tension and anti-blocking elements, but they are different from the object of the invention.

[0014] In view of the above, it is understood that there is a need for an anti-blocking accessory for roll-up swimming pool covers that allows overcoming the current objections of the state of the art in a simple, economical, and effective way and without implying a decrease in the security of fixing the cover to the swimming pool.

Description of the invention

[0015] The object of the invention consists of an anti-blocking accessory for roll-up swimming pool covers, designed for the case of floating flexible slat covers and being roll-up on a drum.

[0016] The accessory is intended to be linked to the transversal strap of a flexible cover formed by slats and is configured to cooperate with said strap and with the edges of the longitudinal slot through which the cover shall pass during unfolding/folding on the sheet of water, so that snags, blockages and other undesired interactions do not occur.

[0017] The anti-blocking accessory embraces and covers the end of the transversal strap that is in contact with the final slat of the cover. The accessory has a rear sector, intended to face the final slat, and a front sector in the form of a beveled tip.

[0018] It also includes elements for engagement with the final slat of the cover, in order to ensure that the accessory is correctly positioned and immobilized, avoiding possible misalignments and movements during the successive cover unfolding and folding.

[0019] Therefore, it is said accessory, and not the final end of the strap, the element that directly contacts the straight edges of the slot. Its configuration gives the accessory a profile that helps the slat cover to pass smoothly, fluidly and without blocking the straight edges of the slot, thereby avoiding the aforementioned snags, breaks and other inconveniences.

[0020] Likewise, it protects the strap from wear to which it is subjected due to friction with the edges of the slot, prolonging its useful life. As an additional advantage, it is also worth mentioning the possibility of replacing the accessory in case of deterioration, without the need to disassemble the rest of the elements of the cover.

[0021] In a preferred embodiment, the anti-blocking accessory is made up of two interconnectable pieces that cover the end of the transversal strap like a casing.

[0022] The anti-blocking accessory for roll-up swimming pool covers thus described represents a simple and economical solution that helps to overcome the aforementioned technical problem in an advantageous way.

Description of drawings

[0023] In order to complement the description that is being made and in order to help a better understanding of the features of the invention, according to a preferred example of its practical embodiment, a set of drawings is attached as an integral part of said description, wherein, with an illustrative and non-limiting nature, the following has been represented:

Figure 1.- Shows a perspective view of the accessory installed on the transversal strap of the cover, as well as a detailed cross section made in the sector where the accessory, the final slat of the cover and the strap join.

Figure 2.- Shows an exploded perspective view of the accessory, together with the strap and the final slat of the cover.

Figure 3.- Shows a side view of the accessory installed on the cover and its interaction with the slot during its unfolding.

Figure 4.- Shows a detail in frontal perspective of the accessory installed on the cover and its interaction with the slot.

Preferred embodiment of the invention

[0024] A detailed explanation of a preferred embodiment of the object of the present invention is provided below, with the help of the aforementioned figures.

[0025] The described anti-blocking accessory for roll-up swimming pool covers is intended to be linked to the transversal strap (1) of a flexible cover made up of slats (2) joined together consecutively and is configured to cooperate with said transversal strap (1) and with the edges (3) of a longitudinal slot through which the cover shall pass during unfolding and folding of said cover on the sheet of water.

[0026] The anti-blocking accessory, shown in figure 1, is made up of a flat and elongated casing (4) that covers the end of the transversal strap (1) closest to the last slat (2) of the cover.

[0027] The casing (4) comprises a rear sector (5), intended to be oriented towards the last slat (2) of the cover, and a front sector (6) in the form of a beveled point, intended to be oriented opposite the rear sector (5), that is, towards the end of the transversal strap (1) by which it is linked to a winding drum.

[0028] The casing (4) also comprises an internal housing (7) and hooks (8), the latter being located in the rear sector (5) for coupling with the last slat (2) of the cover. The internal housing (7) is intended to house the end of the transversal strap (1), and in this preferred embodiment it is made up of a longitudinal central slot passing through the casing (4).

[0029] In the preferred embodiment shown in the attached figures, the casing (4) comprises a first portion (9) and a second portion (10), complementary and interconnectable to embrace and cover the end of the transversal strap (1).

[0030] Both the first portion (9) and the second portion (10) are made up of an essentially flat piece that comprises:

- an internal face (11), intended to be in contact with the transversal strap (1) and with the corresponding internal face (11) of the other portion;
- an external face (12), intended to face outwards; and
- couplings (13) that cooperate with the corresponding

couplings (13) of the other portion to keep both portions together;

[0031] As shown in figure 2, in this preferred embodiment the couplings (13) consist of lateral wings with a through hole. In this way, by superimposing the first portion (9) and the second portion (10), with the transversal strap (1) between them, the through holes face each other and allow the passage of some connecting screws.

[0032] Figures 3 and 4 illustrate the accessory installed on a cover, during its folding on the drum. It can be seen that it is the accessory, and not the end of the transversal strap (1) which it covers, that is in direct contact with the edges (3).

[0033] The beveled tip of the front sector (6) of the casing (4) collaborates in the smooth introduction of the transversal strap (1) through the slot, thus avoiding friction on the transversal strap (1) that would occur in its absence and as indicated, cause wear and tear.

Claims

1. Anti-blocking accessory for roll-up swimming pool covers, linkable to the transversal strap (1) of a flexible cover made up of a plurality of joined slats (2), **characterized in that** it is made up of a flat and elongated casing (4) that covers the end of the transversal strap (1) closest to the last slat (2) of the cover, wherein the casing (4) comprises:

    - a rear sector (5), adjustable towards the last slat (2) of the cover:
    - a front sector (6) in the form of a beveled tip, opposite the rear sector (5);
    - an internal housing (7) intended to house the end of the transversal strap (1); and
    - hooks (8) located in the rear sector (5) for engagement with the last slat (2) of the cover.

2. Anti-blocking accessory according to claim 1, wherein the casing (4) comprises a first portion (9) and a second portion (10), complementary and interconnectable with each other.

3. Anti-blocking accessory according to claim 2 wherein each of the portions (9,10) is made up of a flat piece comprising:

    - an internal face (11), intended to be in contact with the transversal strap (1) and with the corresponding internal face (11) of the other portion;
    - an external face (12), intended to face outwards; and
    - couplings (13) that cooperate with the corresponding couplings (13) of the other portion to keep both portions together;

4. Anti-blocking accessory according to claim 3 wherein the couplings (13) consist of lateral wings with a through hole for introduction of a connecting screw.

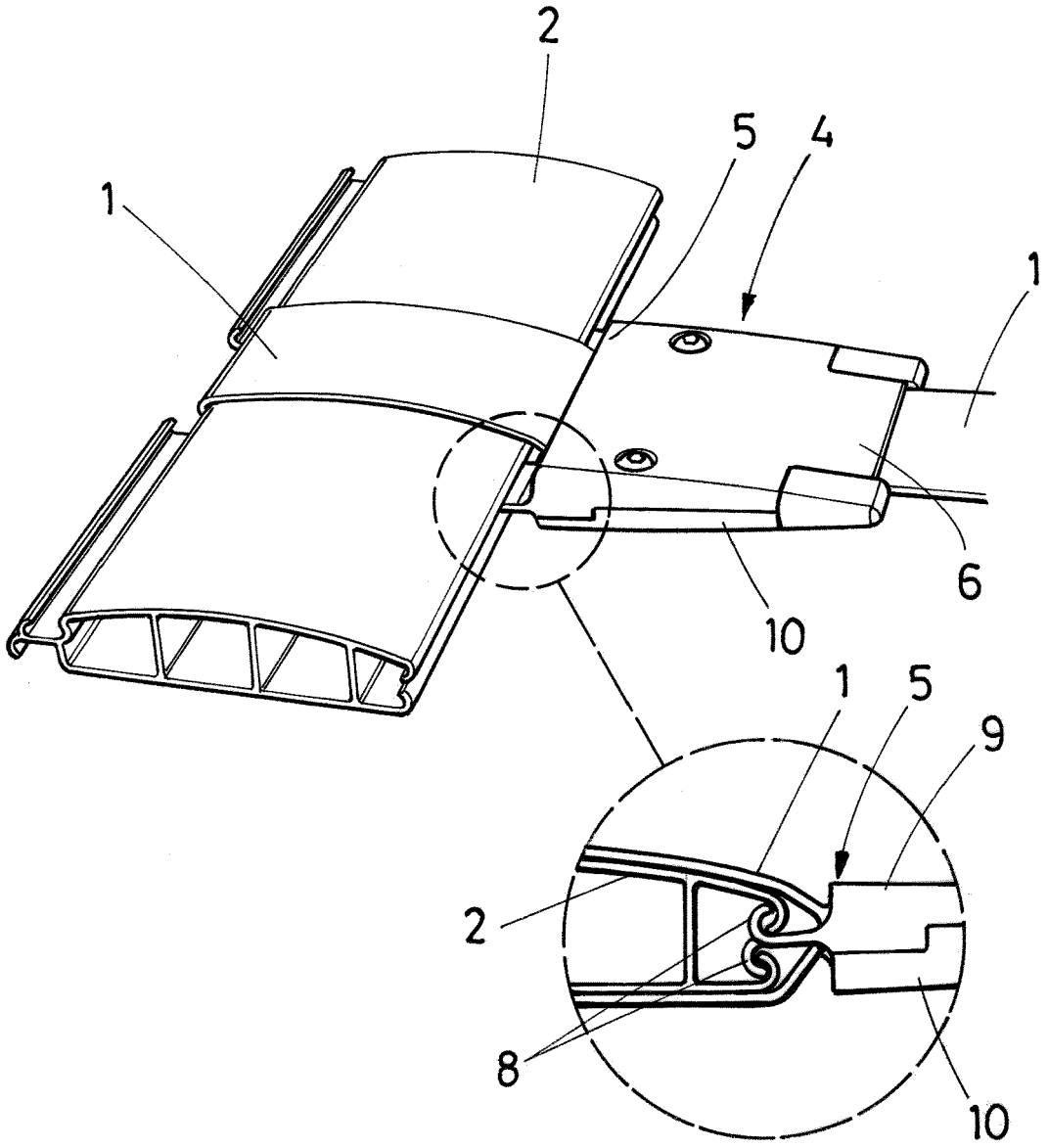

FIG.1

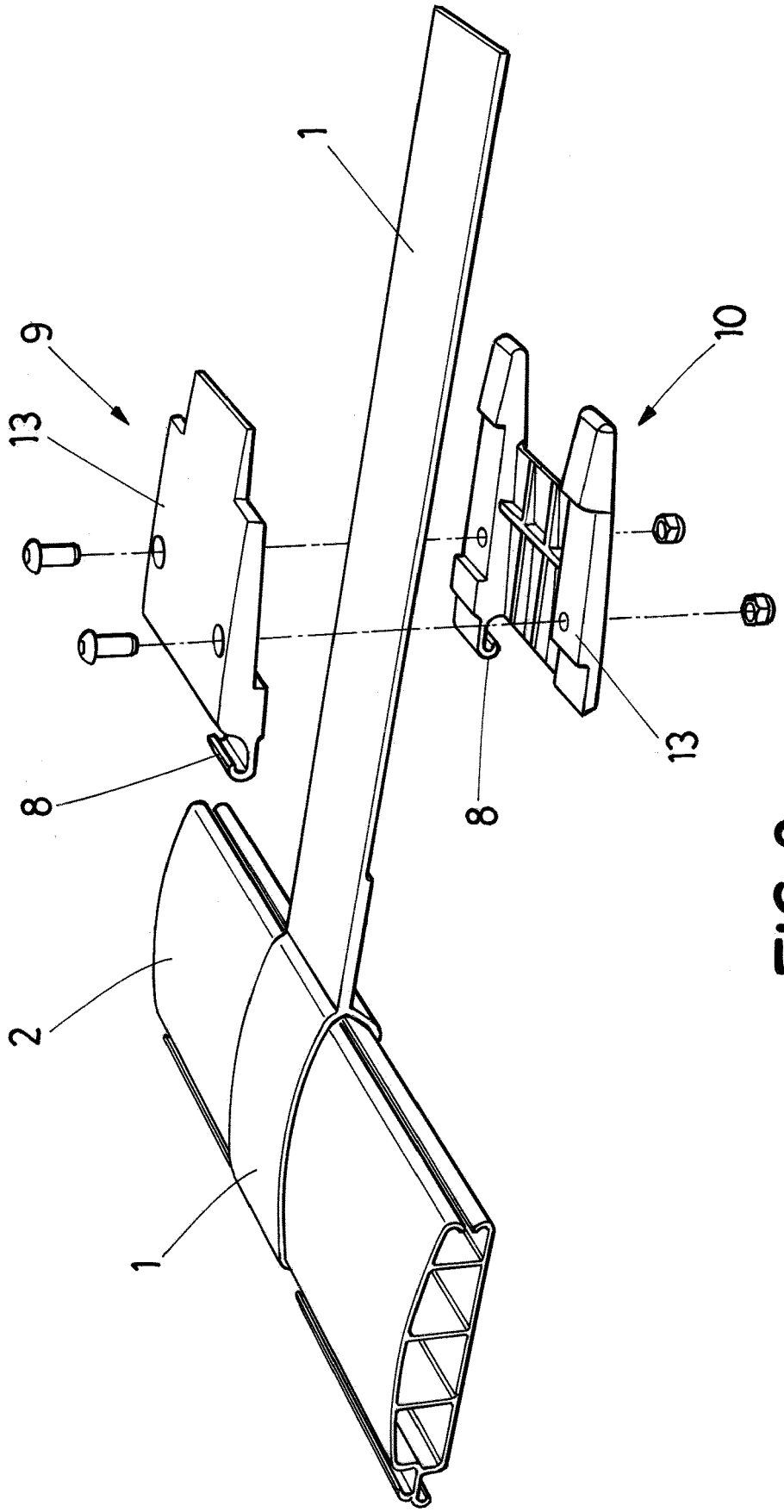

FIG.2

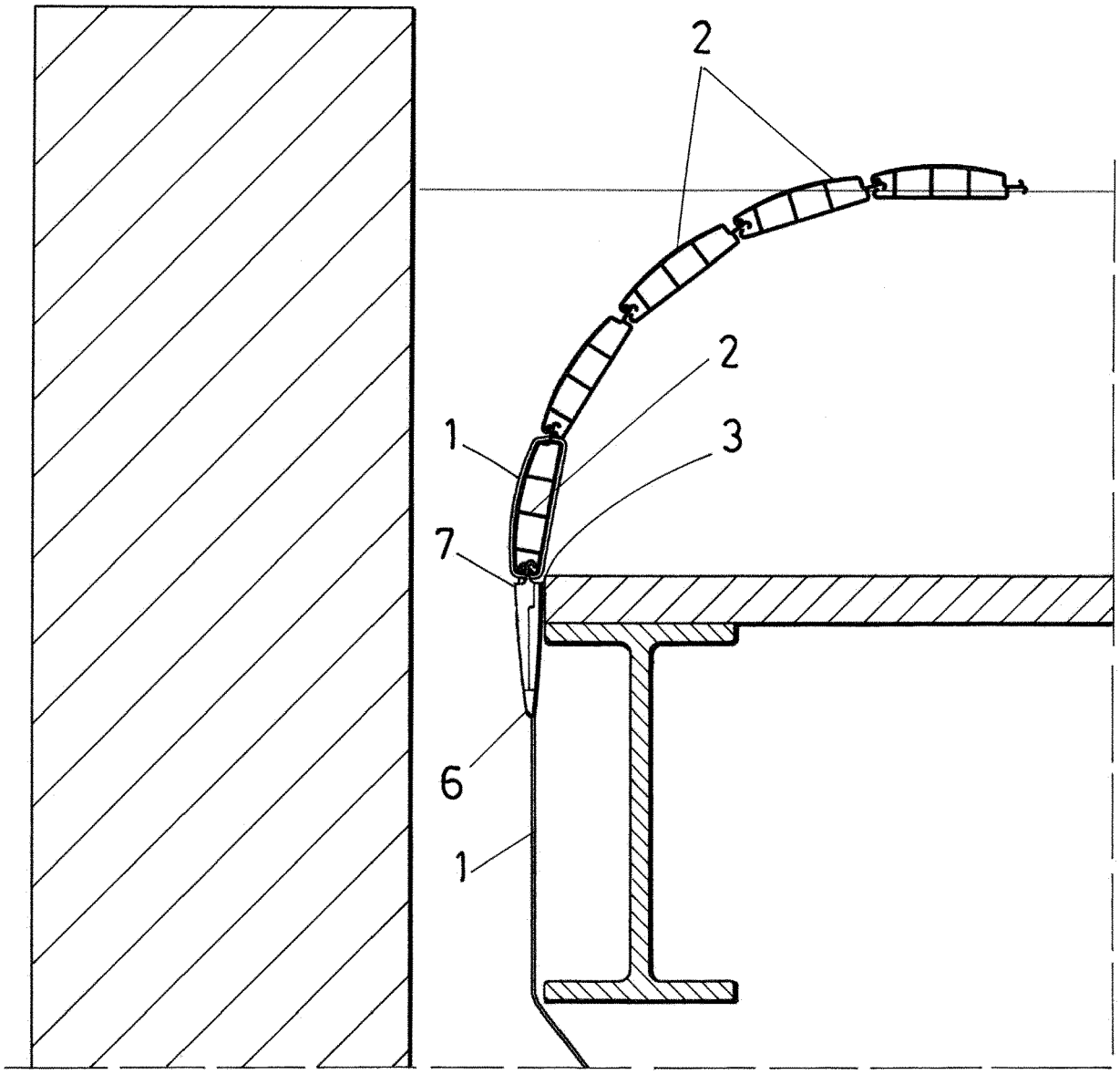

FIG.3

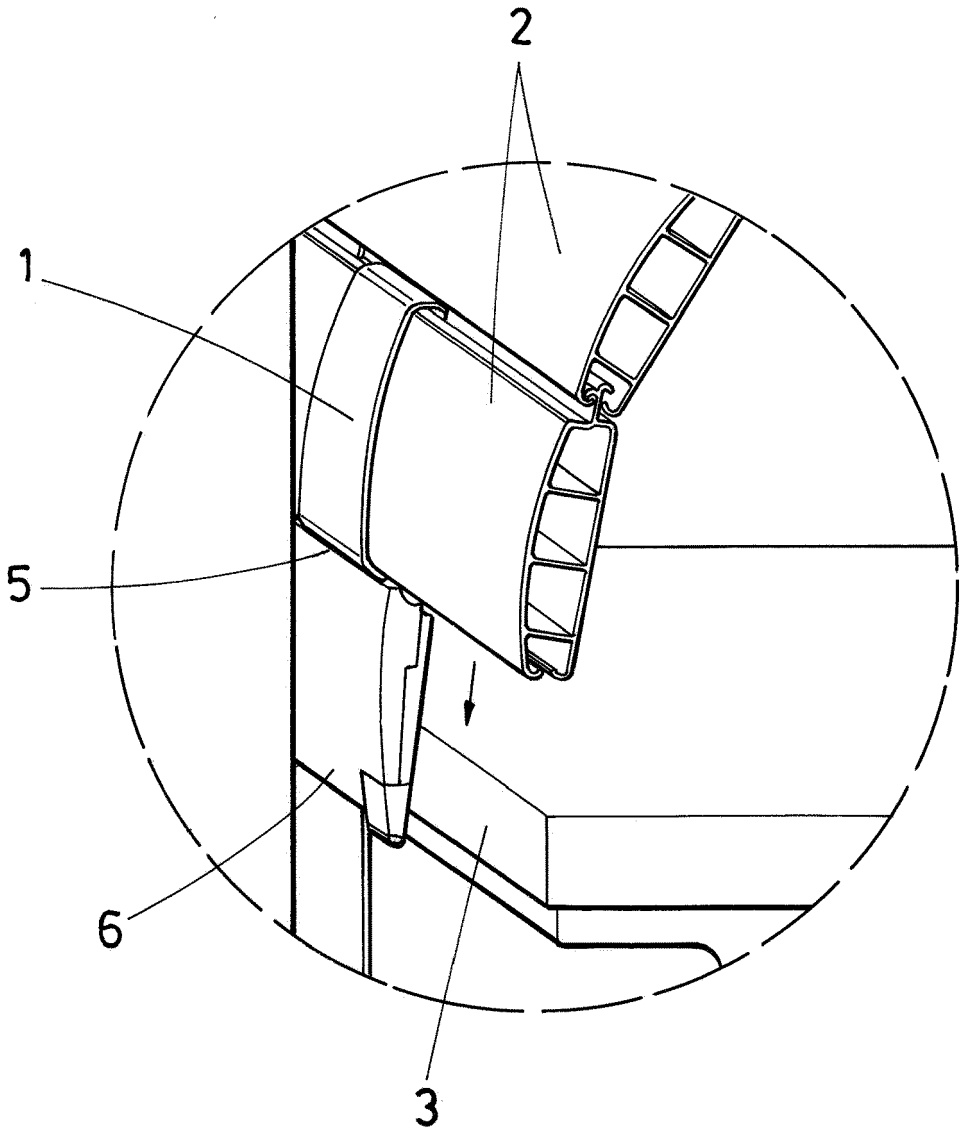

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 22 38 3189

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2022/090398 A1 (PROPULSION SYSTEMS [BE]) 5 May 2022 (2022-05-05) * claim 19; figures 12A-D *	1-4	INV. E04H4/08
A	FR 2 646 870 A1 (CARVALHO MANUEL DE [FR]) 16 November 1990 (1990-11-16) * claim 1; figures 1-3 *	1-4	
A	DE 298 16 307 U1 (BLITZ M SCHNEIDER WERKZEUG UND [DE]) 26 November 1998 (1998-11-26) * paragraph [0031]; figures 1,2 *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	11 May 2023	Rosborough, John

CATEGORY OF CITED DOCUMENTS

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11-05-2023

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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- FR 2990715 **[0010]**
- WO 2019224483 A **[0012]**