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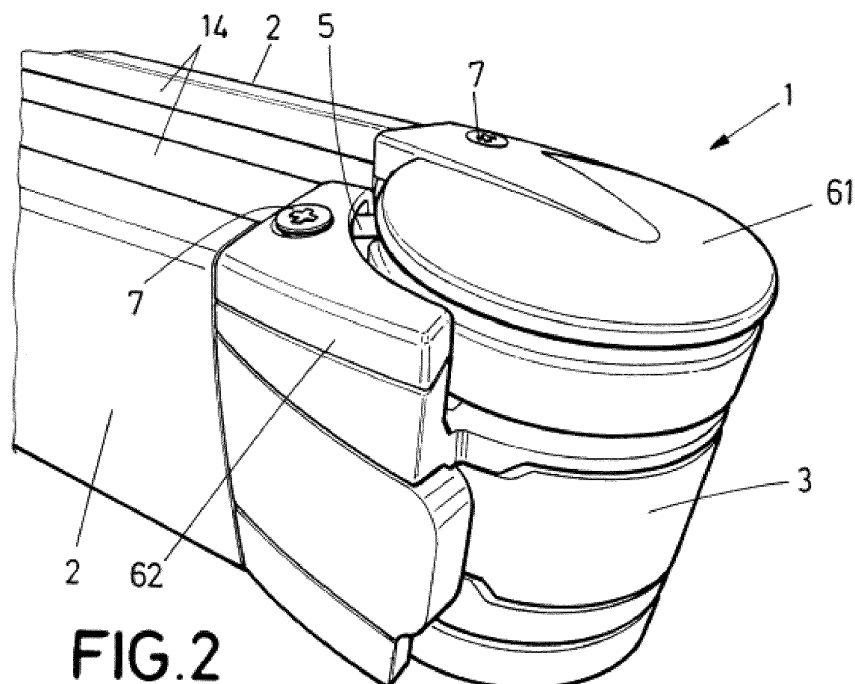
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(54) **ARTICULATED ARM STRUCTURE FOR AWNINGS WITH INTEGRATED LIGHTING**

(57) An articulated arm structure for awnings with integrated lighting, relating to a metal structure with articulated arms of the type that enables the canvas of an awning, which may be rolled around an axle, to be opened and closed and that, being of the type that includes a lighting system or lighting element, preferably made from LEDs (Light-Emitting Diode), in both profiles that make up the two articulated segments of the arms,

it has the particular feature of having a structural configuration that improves and facilitates the installation of said lighting system, for which reason it comprises, on the one hand, a guide piece to hide and ensure the passage of the wiring in the articulation joint between said segments and, on the other hand, a number of specific housings for fitting the lights into the profiles that constitute said segments.



**FIG.2**

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## Description

### OBJECT OF THE INVENTION

[0001] The present invention, an articulated arm structure for awnings with integrated lighting, relates to a metal structure with articulated arms of the type that enables the canvas of an awning, which may be rolled around an axle, to be opened and closed and that, being of the type that incorporates a lighting system or lighting element, preferably made from LEDs (Light-Emitting Diode), in both profiles that make up the two articulated segments of the arms, it has the particular feature of having a structural configuration that improves and facilitates the installation of said lighting system, for which reason it comprises, on the one hand, a guide piece to hide and ensure the passage of the wiring in the articulation joint between said segments and, on the other hand, a number of specific housings for fitting the lights into the profiles that constitute said segments. Likewise, the present structure enables wires to be channelled between the two ends of an arm without lighting in any of the two segments thereof, but for example, with lighting in the load bar situated between the two arms or for a motor in said load bar or for speakers of the same.

[0002] The field of application of the present invention focuses on the industry sector dedicated to manufacturing awnings, being particularly focused on the sector that manufactures structures that support them and, in particular, those that include LED lighting systems.

### BACKGROUND OF THE INVENTION

[0003] In reference to the state of the art, it is worth mentioning that the use of lighting systems is increasingly widespread, preferably of the LED type incorporated into the awning, both to externally illuminate the latter serving as a purely decorative, advertising element or to highlight a brand and to be able to illuminate the area covered by said awning when in its open position, especially on terraces, whether they are private or they belong to catering establishments. In the latter case, the incorporation of lighting elements is known, usually strips of LEDs on the articulated arms that ensure the extension and folding of the canvas of the awning that may roll up with respect to an axle, since these are just below the same and are a perfect support point to illuminate the lower portion of the awning where the users of the aforementioned terraces are found.

[0004] The problem arises due to the fact that, when two strips of LEDs are incorporated into said arms, such that one is fixed on each one of the two profiles that constitute the articulated segments of each arm, these strips are joined to each other by a section of wiring that must have sufficient slack so as to enable the joint that joins both segments or "elbow" of the arm to move and rotate, which, as well as not being unsightly, it makes said section of wiring susceptible to being pinched or rubbed dur-

ing the opening and closing operations of the awning, as well as the accumulation of dirt and other damage due to being exposed.

[0005] Furthermore, the incorporation of said LED strips is often carried out such that they are incorporated stuck to and superimposed on the profile that makes up each one of the two segments that make up each articulated arm of the awning, which may also produce, as well as the purely aesthetic aspect, problems with rubbing and the accumulation of dirt that damage the optimal operation of the system.

[0006] The LEDs arranged on the arms may cause glare when they are stuck directly onto the profile, for which reason the present structure enables a lid to be included incorporated into the profile itself, preferably translucent, which covers the LEDs with the aim of softening the light and resolving the problem of the aforementioned glare.

[0007] Thus, the object of the present invention is to develop an articulated arm structure that enables the previous drawbacks to be avoided, preventing the wiring from being seen and guiding it at the point of articulation, and integrating lighting that is fitted into the profiles, preferably a strip of LED lighting.

### SUMMARY OF THE INVENTION

[0008] The articulated arm structure for awnings with incorporated lighting of the present invention relates to a metal structure of the type that, normally comprising a pair of articulated arms, enables an awning that may be rolled up to be opened and closed, which incorporates a lighting system, preferably made from LEDs, which illuminates the lower portion of the awning when it is in an open position, for which reason each one of the two profiles that makes up the two articulated segments of each arm incorporates at least one lighting system, preferably a strip of LED type lights. It is also possible that only one of the segments incorporates the lighting elements. The present structure also enables wires to be channelled between the two ends of an arm, but without including lighting in any of the two segments thereof, but for example, with lighting in the load bar situated between the two arms or for a motor in said load bar or for speakers in the same. Clearly, it is also possible to include the lighting of the arms with any of the other aforementioned options.

[0009] Based on this configuration, the structure of the present invention has the particular feature of having structural improvements designed, on the one hand, to hide, guide and ensure the passage of the wiring that joins said two strips of each segment of the arm in the articulation joint of the same, via the incorporation of a number of guide pieces, male wire protectors and female wire protectors, which by way of a lid are coupled to said joint, and on the other hand, designed to obtain the flush fit of the lighting element or elements, preferably of the LED light strips, in each one of the profiles that constitute

said segments, via the creation of a number of mortises made for this purpose in the profiles and that determine specific corresponding housings with the appropriate dimensions to fit said strips therein. Said mortises may incorporate a number of lids, preferably translucent, in the profile itself of the segment of the arm in order to prevent the glare that the lighting may cause.

**[0010]** As such, the proposed structure enables the lighting system to be fully integrated into each one of the articulated arms of the awning, the assembly thus being free of exposed elements and that, therefore, do not suppose any risk of damage, both regarding the wire, as it remains hidden and is prevented from coming out of place due to the opening and closing operations of the awning, and regarding the strips of LEDs that are fitted flush in the profiles that make up each segment of the arms, thus making them have a continuous rectilinear shape without added protruding elements.

## DESCRIPTION OF THE DRAWINGS

**[0011]** In order to complement the present description, with the aim of aiding a better understanding of the characteristics of the invention, the present specification is accompanied by the following figures, which are represented in an illustrative and non-limiting way:

Figures number 1 and 2 respectively show a plan view and a perspective view of an exemplary embodiment of the articulated arm structure for awnings with integrated lighting, object of the invention, only one portion thereof having been represented in both cases that, in any case, enables the main parts and elements that it comprises to be seen, as well as the particular configuration and arrangement thereof.

Figure number 3 shows a perspective view of the inner face of the guide pieces, male wire protectors and female wire protectors, which are coupled as a lid in the joint of the structure, according to the invention shown in figures 1 and 2, and the elements that said piece has may be seen.

Figure number 4 shows a plan view of the structure of the invention, represented the same as in figures 1 and 2, only in one portion thereof, in this case without the guide piece of the joint, enabling the wiring arrangement of the lighting system and the mortises of the profiles for the lighting or strips of LEDs to be seen therein.

## PREFERRED EMBODIMENT OF THE INVENTION

**[0012]** With reference to the aforementioned figures, an exemplary embodiment of the invention is described below. Thus, as seen in figure 1, the structure (1) is configured based on both straight profiles (2) that are joined to each other, with the possibility of relative angular movement, via an articulated joint (3) to which they are joined at one end, such that each one of the two segments

or profiles makes up an arm that, in combination with another, enables an awning (not shown) to be opened and closed. Said arms are joined at one end to the sides of the rolling axle of the canvas that makes up the awning, usually rolled up in a box or cassette, where the canvas of the awning itself is housed, said rolling axle normally being secured to a wall or roof, and at the opposite end to the sides of a load bar that moves away from or closer to the rolling axle of the canvas of the awning depending on the extended or folded position of the aforementioned arms when the awning is opened/extended or closed/folded.

**[0013]** Each of said profiles (2) further incorporates a strip (4) of LEDs, the respective ends of which, those that coincide with the join of the profiles (2) in the joint (3), are electrically connected to each other via a section of wiring (5), it having been provided that said joint (3) has a number of guide pieces (61, 62), a female wire protector (61) and a male wire protector (62) that, by way of a lid or cover, are coupled onto the joint (3) or onto one of the profiles of an arms (2), such that they hide and guide said section of wiring (5), thus ensuring the passage of the same integrated within the joint (3) during the articulation movements thereof with the profiles (2), i.e., during the opening and closing of the awning. These guide pieces may also be used to hide the wiring when a wire is extended from the box of the awning to the load bar, which is a place where lighting, a motor, speakers or any other device that requires electric energy in order to operate may be arranged.

**[0014]** Preferably, one of said guide pieces, the female wire protection (61), has a flat, circular configuration in accordance with the configuration of the joint (3), and is fastened to the latter via a screw (7) or similar fastening that passes through the corresponding hole (81) provided for this purpose in a side area of the piece (61), and via a crown-shaped protrusion (9) provided on the inner face thereof (which may be seen in figure 3), the ridges (10) of which fit into a number of complementary slots (11) of the centre of the joint (3) that determine an inner circular space, between the protrusion (9) and the perimeter of the piece (61), which is equipped with a projection (610) for the passage of the wiring (5). Said projection (610) prevents the wiring (5) from coming out from underneath the female wire protector (61). The combined action of the protrusions (9) and the screw (7) prevent the wire protector piece (61) from turning when the joint (3) moves.

**[0015]** The other guide piece, the male wire protector (62) has an approximately triangular configuration, with one curved side that is complementary to the shape of the female wire protector piece (61), in particular, the longest side thereof is complementary to the curve of the female wire protector piece (61). The male wire protector piece (62) is fastened to one of the profiles of one of the arms (2) via a projection (621) that is inserted into the profile of the arm (2) and a screw (7) or similar fastening that passes through the corresponding hole (82) provided

in the piece for fastening it to said profile of the arm (2). Via this dual fastening, projection (621) and screw (7), the movement of the male wire protection piece (62) is prevented when the joint moves. Therefore, this male wire protector (62) is situated between the female wire protector piece (62) and the profile of the arm (2), thus guiding the wiring (5) through the same, and having a projection (620), which prevents the wiring from coming out (5) from underneath the male wire protector piece (62), on the side that is not complementary to the male wire protector piece (61) and the profile of the arm (2).

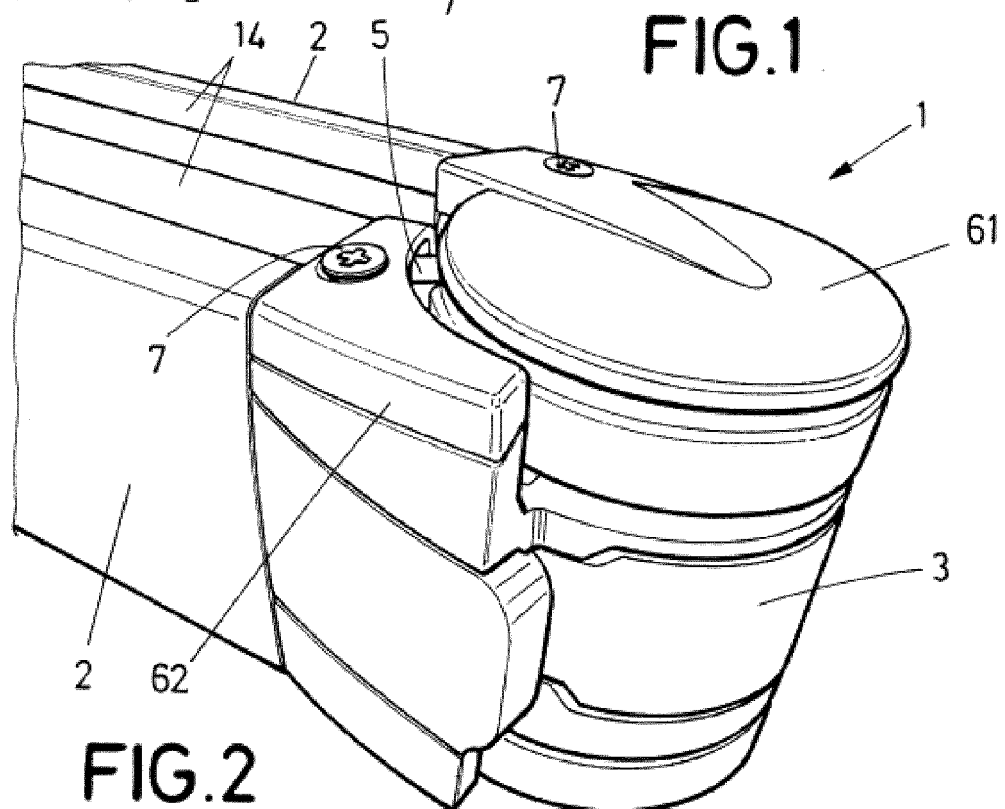
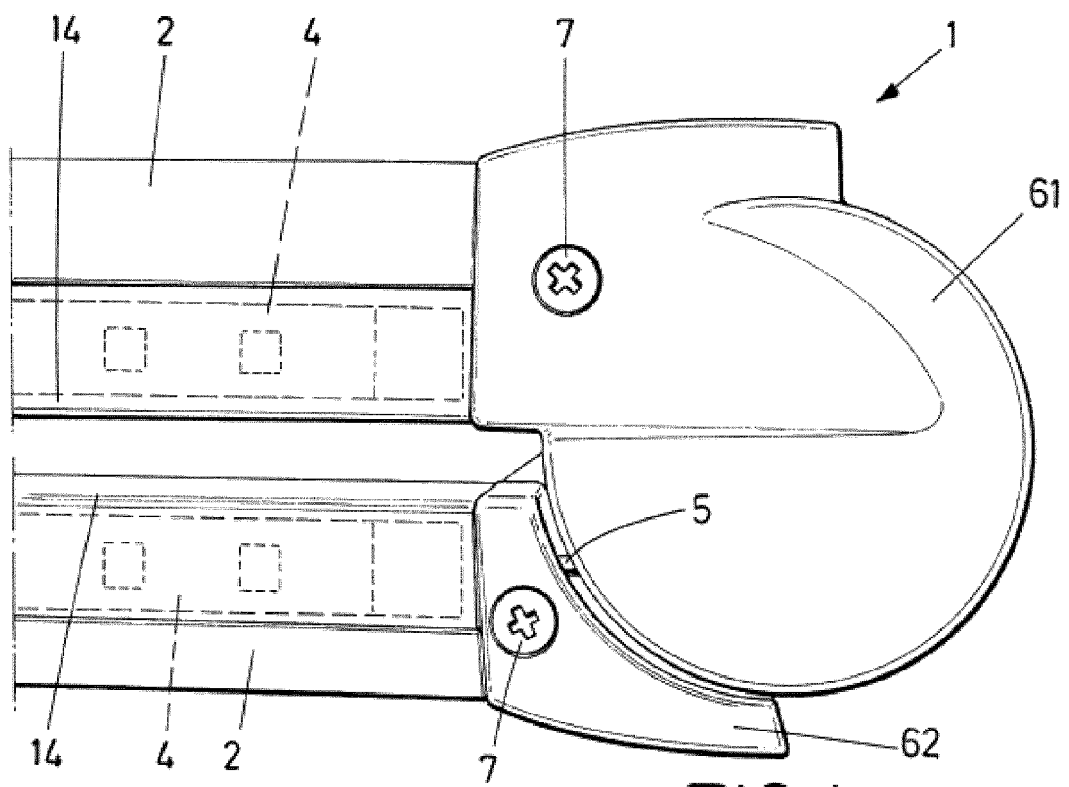
[0016] Likewise, and also preferably, the area of the joint (3) designed to receive the female wire protector guide piece (61) and house the passage of the wiring (5), may have a groove (12) around the aforementioned slots (11) that provides an additional route to ensure and suitably lead the aforementioned passage of said wiring (5) between the joint (3) and the female wire protector guide piece (61), as seen in figure 4. Furthermore, it must be noted that, also preferably, each one of the profiles (2) has a number of longitudinal mortises that, with dimensions in accordance with the size of the lighting, preferably the strips (4) of LEDs, determine a number of housings (13) suitable for fitting the same in, as well as for incorporating the transparent or translucent protective lid or cover (14) that is incorporated into the profile itself of the arm (2) and that is situated over the strips of LEDs, such that the assembly is fitted into and flush with the surface of said profiles (2). Said cover (14) may be seen in figures 1 and 2, whilst figure 3 shows the strips (4) of LEDs placed in the housings (13) of the profiles (2) but not covered by said covers (14).

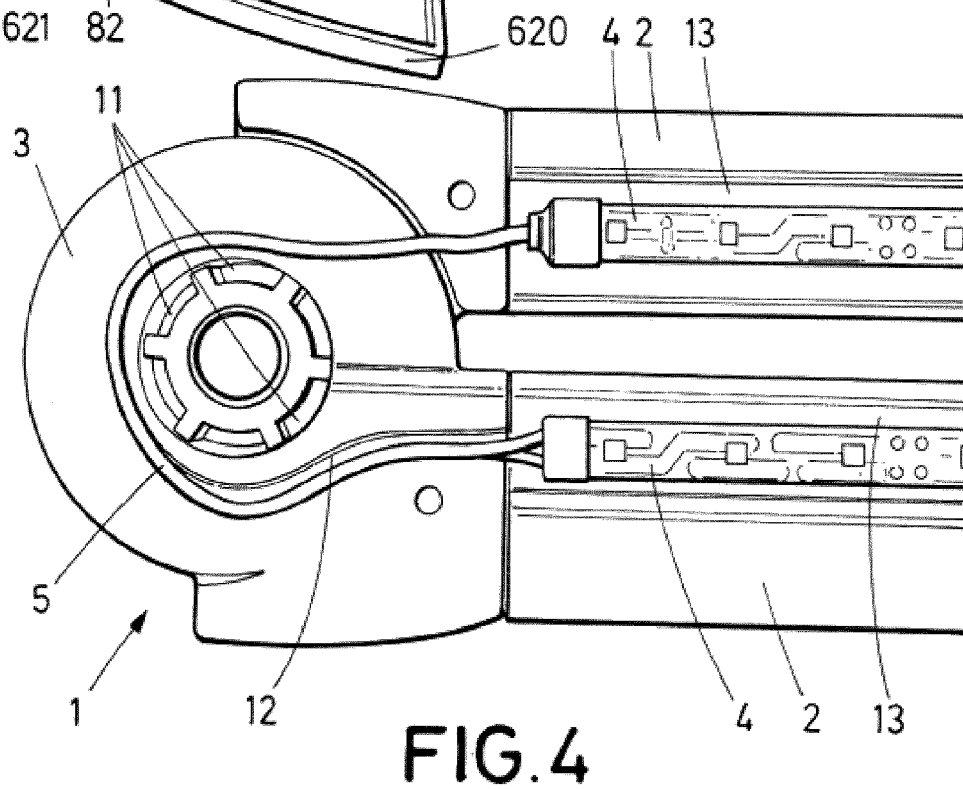
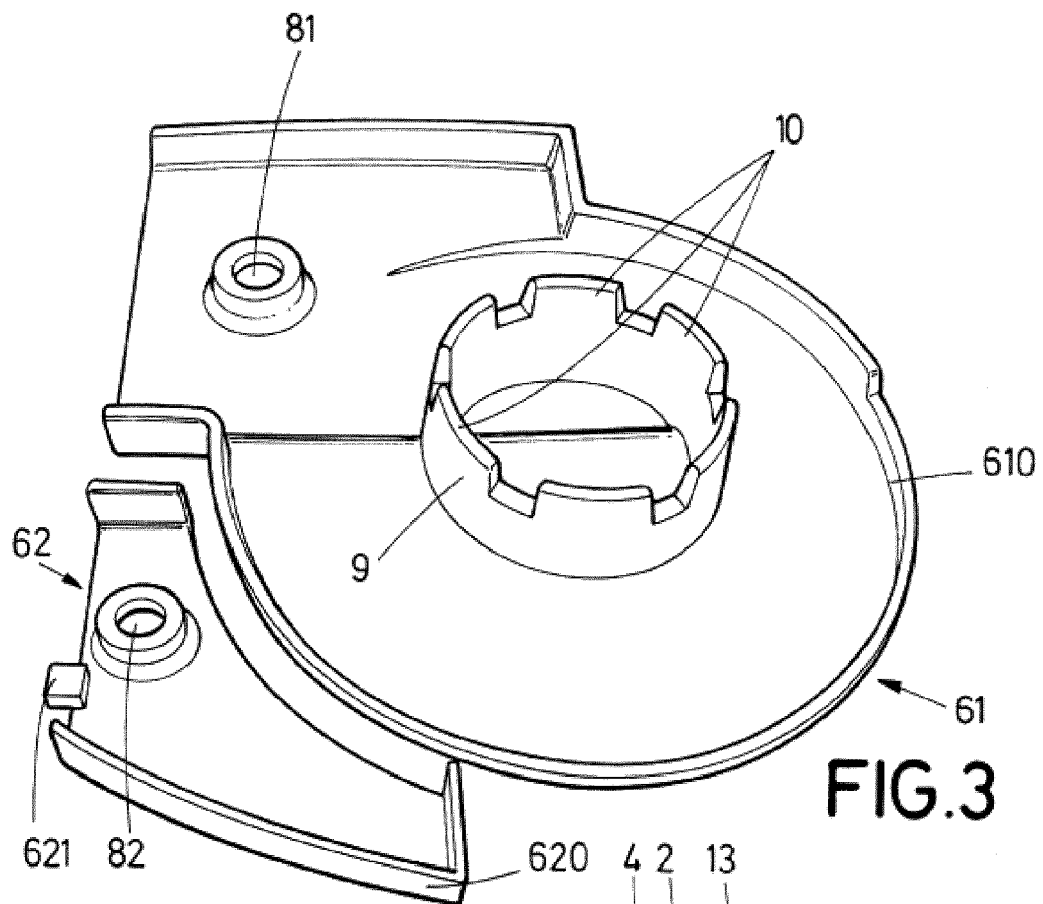
## Claims

1. An articulated arm structure for awnings with integrated lighting, of the type configured from both straight profiles or segments (2) that are joined together via an articulated joint (3), each one of the two segments making up an arm that, in combination with another, enables an awning to be opened and closed, the canvas of which is rolled around an axle, via the movement of a load bar, said rolling axle and said bar being situated at opposite ends of the aforementioned arms (2), **characterised in that** said joint (3) has two guide pieces (61, 62), a female wire protector piece (61) and a male wire protector piece (62), which hide and guide a section of wiring (5) between the two profiles that configure an arm (2), thus ensuring the passage of the same integrated within the joint (3) during the articulation movements with the profiles (2), i.e. during the opening and closing of the awning.
2. The structure, according to claim 1, **characterised in that** the female wire protector piece (61) has a flat, circular configuration in accordance with the

configuration of the joint (3) with a projection (610) on the perimeter thereof.

3. The structure, according to claim 1, **characterised in that** the male wire protection piece (62) of the guide piece (6) has a configuration with one curved side that is complementary to the female wire protector piece (61), having a projection (620) on one of the sides thereof.
4. The structure, according to any of the preceding claims, **characterised in that** the female wire protector piece (61) has a hole (81) for housing fastening means (7) and a crown-shaped protrusion (9) provided on the inner face thereof with ridges (10) for fastening it to the joint (3).
5. The structure, according to claim 4, **characterised in that** the ridges (10) fit into complementary slots (11) situated in the centre of the joint (3).
6. The structure, according to any of the preceding claims, **characterised in that** the male wire protector piece (62) has a hole (82) for housing fastening means (7) and a projection (621) for fastening it to the profile of the arm (2).
7. The structure, according to any of the preceding claims, **characterised in that** the area of the joint (3) designed for receiving the guide piece (6) and housing the passage of the wiring (5) has a groove (12) that provides a route to ensure and lead the aforementioned passage of said wiring (5).
8. The structure, according to claim 1, **characterised in that** each one of the profiles (2) has a number of longitudinal mortises that determine a number of housings (13) suitable for fitting a lighting system.
9. The structure, according to claim 8, **characterised in that** the housings (13) of the profiles are suitable for fitting the lighting system in, as well as a transparent or translucent protective cover (14) that is situated over said lighting system, such that the assembly is fitted into and flush with the surface of said profiles (2).
10. The structure, according to preceding claims, **characterised in that** the lighting system is a strip (4) of LEDs.







## EUROPEAN SEARCH REPORT

 Application Number  
EP 15 38 2014

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 2 989 399 A1 (SOLISO EUROP [FR]) 18 October 2013 (2013-10-18)	1-3,6-10	INV. E04F10/06
A	* page 6, line 24 - page 8, line 31; figures 1B, 2, 4, 5 *	4,5	
A	----- EP 2 071 982 A1 (LLAZA SA [ES]) 24 June 2009 (2009-06-24) * abstract; figures 1-6 *	1-10	
A	----- WO 2006/021608 A2 (GAVIOTA SIMBAC SL [ES]; GUILLÉN CHICO FRANCISCO [ES]) 2 March 2006 (2006-03-02) * abstract; figures 1B-2D *	1-10	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
The present search report has been drawn up for all claims			
Place of search <b>Munich</b>		Date of completion of the search <b>19 June 2015</b>	Examiner <b>WeiBbach, Mark</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 15 38 2014

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19-06-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2989399 A1	18-10-2013	NONE	
EP 2071982 A1	24-06-2009	EP 2071982 A1	24-06-2009
		US 2009301664 A1	10-12-2009
		WO 2008037815 A1	03-04-2008
WO 2006021608 A2	02-03-2006	NONE	

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