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

Gelenkarmstruktur für Markisen mit integrierter Beleuchtung

Structure de bras articulé pour les stores avec éclairage intégré

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

[0005] Prior art document FR2989399A1, describes an arm with sections connected together to pivot by a hinge for allowing the arm to pass from folding position to deployed position. The hinge has a hooding formed by parts mounted to move the sections and these parts have concave and convex profiles on a portion of circumference of the parts to slide along each other during displacement of the arm. Said parts delimit a cavity with the hinge at mounted state to partially cover the hinge. These parts are connected to the sections by means that do not guarantee the immobilisation of the parts respect to the sections.

[0006] 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.

[0007] 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.

[0008] 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

[0009] 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.

[0010] 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.

[0011] 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

[0012] 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

[0013] 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.

[0014] 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.

[0015] 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.

[0016] 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).

[0017] 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), said joint (3) having 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, **characterized 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).

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 claim 1, **characterised in that** the ridges (10) fit into complementary slots (11) situated in the centre of the joint (3).

5. 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).

6. 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).

7. 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.

8. The structure, according to claim 7, **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).

9. The structure, according to preceding claims, **characterised in that** the lighting system is a strip (4) of LEDs.

Patentansprüche

1. Gelenkarmstruktur für Markisen mit integrierter Beleuchtung der Art, die anhand von geraden Profilen oder Segmenten (2) konfiguriert ist, die über eine Gelenkverbindung (3) miteinander verbunden sind, wobei jedes der beiden Segmente einen Arm bildet, der in Kombination mit einem anderen ermöglicht, dass eine Markise geöffnet und geschlossen wird, wobei deren Plane durch die Bewegung einer Tragstange um eine Achse gerollt wird, wobei die Rollachse und die Stange an gegenüberliegenden Enden der zuvor genannten Arme (2) liegen, wobei die Verbindung (3) zwei Führungsteile (61, 62) aufweist, ein aufnehmendes Kabelschutzteil (61) und ein vorstehendes Kabelschutzteil (62), welche einen Abschnitt der Verkabelung (5) zwischen den beiden Profilen verstecken und führen, die einen Arm (2) ausbilden, wodurch der Durchgang derselbigen innerhalb der Verbindung (3) integriert während den Gelenkbewegungen mit den Profilen (2), d. h. während des Öffnens und Schließens der Markise, sichergestellt wird, **dadurch gekennzeichnet, dass** das aufnehmende Kabelschutzteil (61) ein Loch (81) zum Aufnehmen eines Befestigungsmittels (7) und einen kronenförmigen Vorsprung (9), der auf der Innenseite davon mit Erhöhungen (10) zum Befestigen desselbigen an der Verbindung (3) bereitgestellt ist, aufweist.

2. Struktur nach Anspruch 1, **dadurch gekennzeichnet, dass** das aufnehmende Kabelschutzteil (61) eine flache kreisförmige Ausbildung gemäß der Ausbildung der Verbindung (3) mit einem Vorsprung (610) auf dem Umfang davon aufweist.

3. Struktur nach Anspruch 1, **dadurch gekennzeichnet, dass** das vorstehende Kabelschutzteil (62) des Führungsteils (6) eine Ausbildung mit einer gekrümmten Seite aufweist, die komplementär zu dem aufnehmenden Kabelschutzteil (61) ist, wobei es einen Vorsprung (620) an einer der Seiten davon aufweist.

4. Struktur nach Anspruch 1, **dadurch gekennzeichnet, dass** die Erhöhungen (10) in komplementäre Schlitze (11) passen, die in dem Zentrum der Verbindung (3) liegen.

5. Struktur nach einem der vorherigen Ansprüche, **dadurch gekennzeichnet, dass** das vorstehende Kabelschutzteil (62) ein Loch (82) zum Aufnehmen eines Befestigungsmittels (7) und einen Vorsprung (621) zum Befestigen desselbigen an dem Profil des Arms (2) aufweist.

6. Struktur nach einem der vorherigen Ansprüche, **dadurch gekennzeichnet, dass** der Bereich der Verbindung (3), der zur Aufnahme des Führungsteils (6) und Unterbringen des Durchgangs der Verkabelung (5) gestaltet ist, eine Nut (12) aufweist, die eine Route bereitstellt, um den zuvor genannten Durchgang der Verkabelung (5) sicherzustellen und zu führen.

7. Struktur nach Anspruch 1, **dadurch gekennzeichnet, dass** jedes der Profile (2) eine Anzahl an Längsnuten aufweist, die eine Anzahl an Aufnahmen (13) bestimmen, die geeignet sind, um ein Beleuchtungssystem einzupassen.

8. Struktur nach Anspruch 7, **dadurch gekennzeichnet, dass** die Aufnahmen (13) der Profile zum Einpassen des Beleuchtungssystems sowie einer transparenten oder lichtdurchlässigen Schutzabdeckung (14), die über dem Beleuchtungssystem liegt, so dass die Baugruppe eingepasst ist und mit der Oberfläche der Profile (2) fluchtet, geeignet sind.

9. Struktur nach den vorherigen Ansprüchen, **dadurch gekennzeichnet, dass** das Beleuchtungssystem ein Streifen (4) von LEDs ist.

Revendications

1. Structure de bras articulé pour stores avec éclairage intégré, du type configuré à partir de deux profils droits ou segments (2) qui sont reliés ensemble via un joint (3) articulé, chacun des deux segments constituant un bras qui, en combinaison avec un autre, permet à un store d'être ouvert et fermé, dont la toile est enroulée autour d'un axe, via le mouvement d'une barre de charge, ledit axe d'enroulement et ladite barre étant situés aux extrémités opposées des bras (2) susmentionnés, ledit joint (3) ayant deux pièces de guidage (61, 62), une pièce femelle protectrice de câble (61) et une pièce mâle protectrice de câble (62), qui dissimulent et guident une section de câbles (5) entre les deux profils qui configurent un bras (2), en garantissant ainsi le passage de celle-ci intégrée dans le joint (3) pendant les mouvements d'articulation avec les profils (2), autrement dit pendant l'ouverture et la fermeture du store, **caractérisée en ce que** la pièce femelle protectrice de câble (61) a un trou (81) pour loger des moyens de serrage (7) et une protubérance en forme de couronne (9) pourvue sur la face interne de celle-ci de crêtes (10) pour la serrer au joint (3).

2. Structure, selon la revendication 1, **caractérisée en ce que** la pièce femelle protectrice de câble (61) a

une configuration plate et circulaire conformément à la configuration du joint (3) avec une saillie (610) sur le périmètre de celle-ci.

3. Structure, selon la revendication 1, **caractérisée en ce que** la pièce mâle protectrice de câble (62) de la pièce de guidage (6) a une configuration avec un côté courbé qui est complémentaire à la pièce femelle protectrice de câble (61), ayant une saillie (620) sur l'un des côtés de celle-ci.

4. Structure, selon la revendication 1, **caractérisée en ce que** les crêtes (10) sont insérées dans des fentes (11) complémentaires situées au centre du joint (3).

5. Structure, selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la pièce mâle protectrice de câble (62) a un trou (82) pour loger des moyens de serrage (7) et une saillie (621) pour la serrer au profil du bras (2).

6. Structure, selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la zone du joint (3) conçue pour recevoir la pièce de guidage (6) et loger le passage des câbles (5) a une rainure (12) qui fournit une voie pour assurer et conduire le passage desdits câbles (5) susmentionnés.

7. Structure, selon la revendication 1, **caractérisée en ce que** chacun des profils (2) a un nombre de mortaises longitudinales qui déterminent un nombre de logements (13) adaptés pour insérer un système d'éclairage.

8. Structure, selon la revendication 7, **caractérisée en ce que** les logements (13) des profils sont adaptés pour y insérer le système d'éclairage, de même qu'un cache protecteur transparent ou translucide (14) qui est situé au-dessus dudit système d'éclairage, de telle sorte que l'assemblage est inséré dedans et au niveau de la surface desdits profils (2).

9. Structure, selon les revendications précédentes, **caractérisée en ce que** le système d'éclairage est une bande (4) de LED.

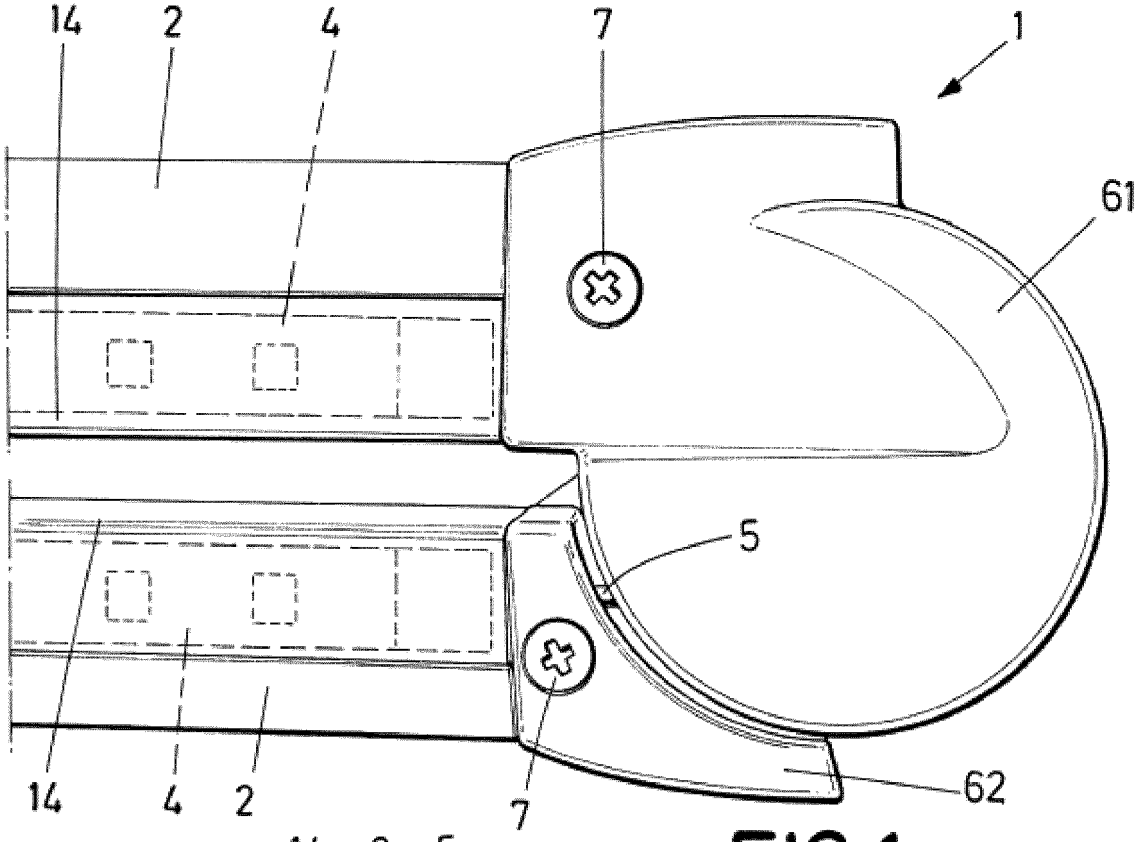


FIG.1

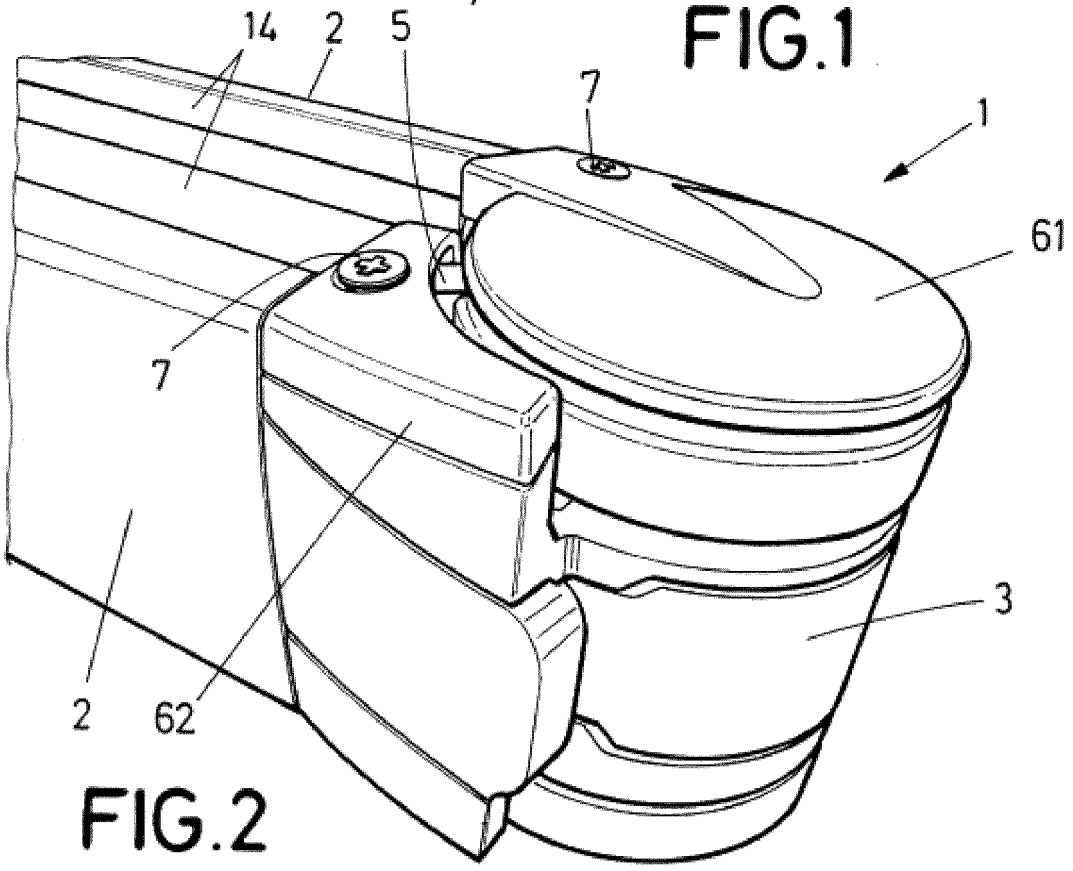


FIG.2

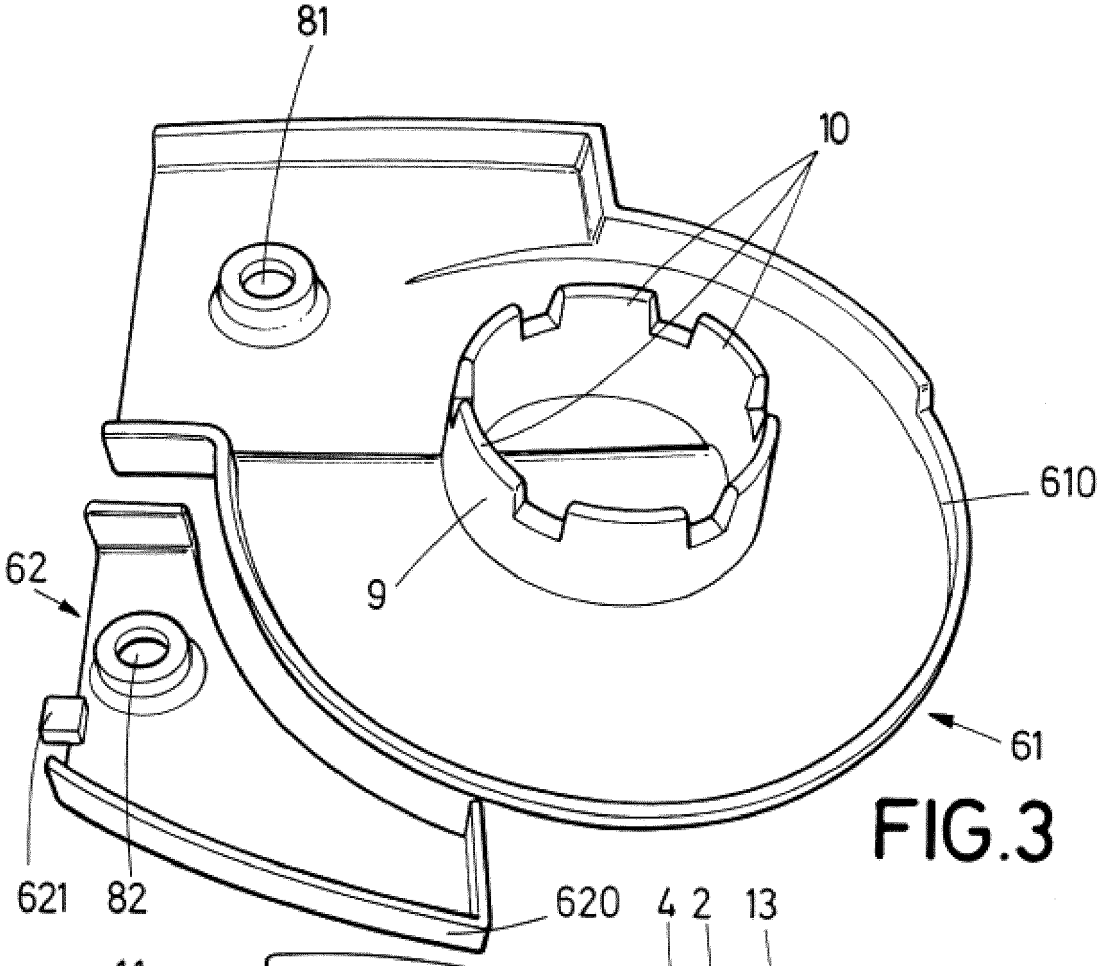


FIG.3

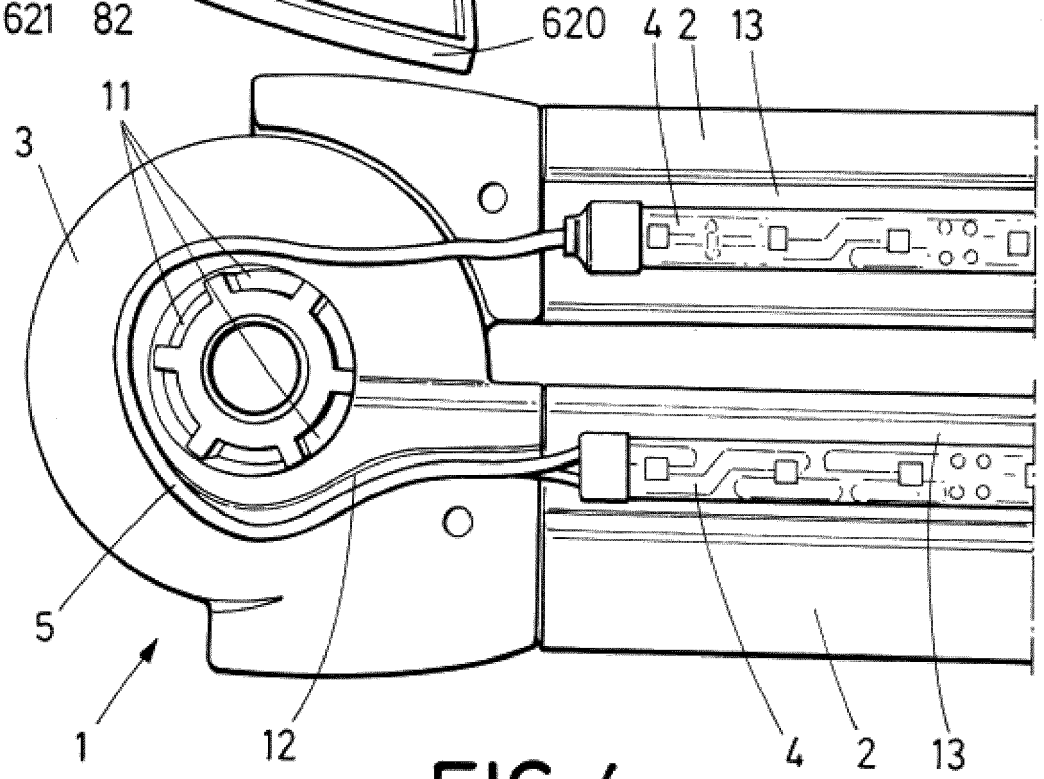


FIG.4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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