



(11)

EP 4 509 689 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
19.02.2025 Bulletin 2025/08

(51) International Patent Classification (IPC):
E06B 9/17 (2006.01) **E06B 1/70** (2006.01)

(21) Application number: **24186103.8**

(52) Cooperative Patent Classification (CPC):
E06B 9/17; E06B 1/342; E06B 2009/2476

(22) Date of filing: **02.07.2024**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
 GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
 NO PL PT RO RS SE SI SK SM TR**
 Designated Extension States:
BA
 Designated Validation States:
GE KH MA MD TN

(71) Applicant: **Gaviota Simbac, S.L.**
03630 Sax Alicante (ES)

(72) Inventors:

- **Guillen Chico, Francisco**
03630 Sax (Alicante) (ES)
- **García Sánchez, Javier**
03630 Sax (Alicante) (ES)

(30) Priority: 21.07.2023 ES 202331352 U

(54) SOLAR POWER SUPPLY SYSTEM FOR AN ELECTRIC MOTOR OF A MOTORISED BLIND

(57) A solar power supply system for the electric motor of a motorised blind relates to a modular assembly for blinds, of both doors and windows, of those that have a motorised drive via an electric motor.

as a means of autonomous power supply using solar energy, is integrated into a lower casing, preferably arranged perpendicular in the lower portion of the door or window where the blind is installed as a shelf.

The system comprises at least one solar panel that,

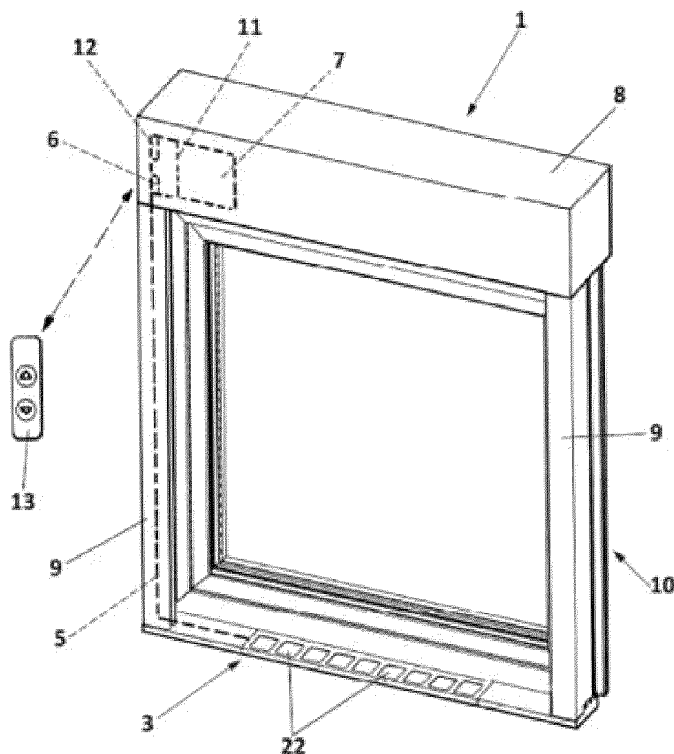


FIG. 2

Description

OBJECT OF THE INVENTION

[0001] The invention, a solar power supply system for the electric motor of a motorised blind, relates to a modular assembly for blinds, of both doors and windows, of those that have a motorised drive via an electric motor. The system comprises at least one solar panel that, as a means of autonomous power supply using solar energy, is integrated into a lower casing, preferably arranged perpendicular in the lower portion of the door or window where the blind is installed as a shelf.

[0002] The system makes it possible to adapt blinds that roll manually using a belt or blinds that have an electric motor connected to an electrical grid installation to a solar power supply system. This thus avoids the need to provide installations to carry the power supply wiring of the motor from a power outlet of the electrical grid. Preferably, the system comprises all the elements for the installation of a new blind, but without ruling out its installation on doors or windows with existing blinds, in which case the system comprises at least the lower casing with the solar power supply means.

[0003] The field of application of the present invention falls within the sector of the industry dedicated to the manufacture of blinds, focusing particularly on the field of blinds with automatic drive via an electric motor.

BACKGROUND OF THE INVENTION

[0004] Blinds are known that have, instead of a manually driven belt or crank, an automatic drive mechanism that allows the blind to be raised and lowered due to the work of a small electric motor normally incorporated in the upper drawer of the door or window where the shaft or drum on which the blind is rolled is located.

[0005] Blinds of this type, although much more practical than manually driven blinds since an effort does not need to be made, have the drawback that they require the existence of an electrical installation that carries the wiring that must power the motor from the electrical panel of the home or premises, which, in addition to being financially costly, can sometimes be complicated, depending on each case.

[0006] Therefore, the objective of the present invention is to solve this problem by developing a new type of motorised blind that has completely autonomous installation and operation and does not have the need to depend on any electrical wiring installation to connect it to an electrical panel or power outlet.

DESCRIPTION OF THE INVENTION

[0007] The object of the present invention is a solar power supply system for an electric motor of a motorised blind according to claim 1.

[0008] In particular, the system of the invention comprises

a casing with a grooved lower profile that can be coupled to an upper closing cover used to protect at least one solar panel located between said profile and said cover, said solar panel having a connector also located inside the casing to connect the solar panel to the motor.

[0009] Thus, the system is a modular assembly for blinds, of both doors and windows, for the motorised drive thereof via an electric motor. As mentioned, it comprises at least one or more solar panels, as a means of autonomous power supply using solar energy, integrated into a casing that, as a shelf, is coupled to the lower portion of the door or window on which the blind is installed. The blind is preferably integrated into a frame with respective hollow lateral vertical profiles through which the wiring of said panels is passed so that it remains hidden, and which, in turn, are coupled to the motor inside the upper drawer that houses said motor, the roller shaft of the blind, as well as any mechanism for rolling and unrolling the blind. Furthermore, the system may also comprise the motor and even the blind itself, so that it has all the elements for the installation of a new blind, but without ruling out its application to install it on doors or windows with existing blinds that are to be motorised. In this case, the system comprises at least the casing that houses the at least one solar panel, arranged as a lower shelf with the solar power supply means and, preferably, also the electric motor with the electrical charging battery.

[0010] Thus, and more specifically, the object of the invention is a solar power system for a door or window blind that comprises one or more solar panels that are installed on the lower portion of the door or window, housed in a specific flat and hollow casing in the form of a shelf where they are protected inside a lower grooved profile with an upper closing cover and through which the wires that extend to the blind motor located in the upper drawer run. The wires are preferably inserted into at least one of the two vertical profiles used to guide the blind and that are internally hollow for this purpose, forming part of a frame. Said frame, with the vertical profiles and the casing, is coupled under the upper drawer where the motor and the rolling mechanism of the blind are housed.

[0011] Furthermore, the motor, in a preferred embodiment, also has an external electrical connection in case there is a problem with solar charging. In any case, preferably, the motor comprises a control board, which allows the motor to be activated via a remote control, although the use of push button panels is not ruled out, in which case, preferably, they are included integrated into the aforementioned profiles of the frame.

[0012] Thus, in a first preferred embodiment, the system mainly comprises the following elements:

- Lower casing, which comprises a grooved lower profile to house the panels and an upper closing cover used to protect said panels, and
- Solar panel or panels with wiring and a connector plug to connect to a battery and/or to an electric

motor.

[0013] Additionally, the system may comprise:

- An electric motor,
- A blind,
- An upper drawer on a door or window, wherein the electric motor and the blind are housed, and
- the casing arranged in the lower portion of the door or window and perpendicular thereto.

[0014] Claims 2 to 14 refer to the following features or others of the invention, which are incorporated in the present description.

[0015] The solar panel or panels are therefore arranged on the lower casing, so that light will shine directly on them to capture solar energy and such that when the blind is in the closed position, it is located on the casing, preferably in middle or in front of the panel or panels, preventing (or making it difficult) for someone to steal or damage them.

[0016] It should be noted that although the invention is eminently intended to provide new installations, it is not ruled out that it may also be intended to refurbish doors or windows with existing blinds, in which case the system comprises at least the lower shelf-type casing with the solar panels. However, preferably, even if the door or window already has a blind, the system will comprise all the aforementioned elements, with the exception of the blind itself, adapting the upper drawer with the electric motor, the new frame with the profiles and the lower shelf casing with the solar panels to the dimensions of the window and to the type of existing blind.

[0017] In any case, said lower casing, as noted, is made up of a lower profile having a length corresponding to the width of the door or window and having a grooved configuration, such that it defines a space to incorporate the solar panel or panels, and an upper closing cover that is coupled to said lower profile protecting the solar panels, and that preferably comprises one or more perforated sections, which are located in correspondence with the position of the panels, normally located in the centre of the lower profile, to allow light to pass therethrough. Likewise, it may comprise one or two lateral blind cover sections that cover the rest of the lower profile, hiding the wiring that runs through the same. Furthermore, to facilitate the passage of said wires towards the hollow lateral vertical profiles, said lower profile of the shelf has specific lateral caps provided for this purpose.

[0018] On the other hand, it should be noted that, preferably, the electric motor of the blind at the time of installation has a pre-charged battery and has a connection to charge the battery externally and a connection to connect the solar panel.

[0019] In any case, the main advantage of the system object of the invention is that installations to carry wires from the electrical panel of the home or premises are avoided. The lower system with the panel or panels can

even be installed on windows and doors with existing blinds that are to be converted into electric blinds.

[0020] The invention allows the solar panel or panels to be integrated as a construction element of the window or door. Likewise, it can be integrated not only into windows but also into doors, for example, sliding doors, for which the shelf-type casing of the grooved profile with the panels is incorporated into the floor, preferably embedded in a recess made for this purpose, so that it remains flush with said floor.

DESCRIPTION OF THE DRAWINGS

[0021] To complete the description of the present invention and make it more readily understandable, the following figures are included for illustrative and non-limiting purposes:

Figure 1 shows a perspective view, from an external point of view, of an exemplary embodiment of the solar power supply system for a motorised blind object of the invention, in its complete version, showing the main parts and elements it comprises, except for the photovoltaic solar panels of the lower casing of the frame.

Figure 2 shows a perspective view of the frame and upper drawer assembly of the system of the invention, in this case without including the blind but having the solar panels of the lower casing, where dashed lines are also used to schematically represent the wiring that connects them to the electric motor.

Figures 3-A and 3-B show, respectively, a schematic perspective view in figure 3-A of the frame that comprises the system of the invention, represented herein without the upper drawer, showing the configuration of the hollow vertical lateral profiles through which the connection wire runs between the panels and the motor, and figures 3-A and 3-B show an enlarged view of the detail A indicated in figure 3-A that concerns the end of one of said hollow lateral profiles.

Figure 4 shows an enlarged view of the lower profile of the casing with the photovoltaic solar panels represented without covering them with the protective cover.

Figure 5 shows an enlarged view of the lower casing with the photovoltaic solar panels incorporated into the grooved lower profile, in this case represented already protected with the protective cover.

Figure 6 shows a perspective view of a portion of the lower profile of the casing where the solar panels are located, showing its grooved configuration and its holes for draining water.

Figure 7 shows a perspective view of one of the caps that close the ends of the lower profile of the lower casing.

Figure 8 shows a perspective view of the lower profile

with one of the closing caps placed at its end.

Figure 9 shows one of the perforated sections that comprises the closing cover of the lower casing and is used to protect the solar panels.

Figures 10 and 11 show respective perspective views of one of the blind sections of the upper closing cover of the lower profile that comprises the lower casing.

Figure 12 shows a side perspective view of the lower casing as a shelf formed by the lower profile and upper closing cover assembly.

PREFERRED EMBODIMENT OF THE INVENTION

[0022] In view of the aforementioned figures, and in accordance with the numbering adopted, a non-limiting exemplary embodiment of the solar power supply system for a motorised blind object of the invention is shown.

[0023] Thus, the system (1) of the invention comprises at least one or more solar panels (2) housed in a casing (3) suitable for installation thereof in the lower portion and perpendicular to the door or window with the blind (4) for which it is intended as a shelf, and through the inside of said casing (3) the wires (5) run hidden with the corresponding connector (6) to an electric motor (7) that provides the rolling movement to raise and lower the blind (4) located in an upper drawer (8).

[0024] Preferably, said casing (3) that can be installed as a lower shelf comprises at least a grooved lower profile (30), in which the solar panel or panels (2) inserted snugly and an upper closing cover (31) used to protect said panels (2) fit.

[0025] Preferably, the lower profile (30) has a length corresponding to the width of the door or window on which it is installed and a grooved configuration determined by the existence of at least one longitudinal partition (301), such that it defines at least one elongated space (302) suitable for snugly incorporating one or more aligned solar panels (2) so that once the casing (3) is installed as a shelf and with the blind (4) in the lowered position, said blind (4) is located with its lower edge resting on said panel or panels (2).

[0026] Preferably, said lower profile (30) has one or more water drainage holes (303) distributed along the same.

[0027] Preferably, the lower profile (30) is closed at its ends by means of caps (32) of a complementary configuration to fit snugly at said ends, as shown in figures 7 and 8.

[0028] For its part, preferably, the upper closing cover (31) that is coupled to said lower profile (30) protecting the solar panels (2) comprises one or more perforated sections (311), which are located in correspondence with the position of the panels (2), normally located in the centre of the lower profile (30), such that they define windows (312) that allow light to pass therethrough so that the panels (2) can capture solar radiation, and one or two blind cover sections (313), in other words, without

said windows, which cover the rest of the lower profile (30) hiding the connection wires (5).

[0029] Preferably, the system (1) further comprises respective lateral vertical profiles (9) that define the lateral guides (90) for the blind (4) and that, together with the lower casing (3), form a frame (10) that can be coupled under the upper drawer (8) where the motor (7) and the rolling mechanism of the blind (4) are housed, which lateral profiles (9) are internally hollow and through the inside of which, in at least one of them, the connection wires (5) of the panels (2) run hidden, as shown schematically in figure 2, in figure 3-A and in the enlarged detail of figure 3-B.

[0030] Preferably, in addition to a recharging battery (11) with the connection to the connector (6) of the wires (5) of the solar panel or panels (2), the electric motor (7) also has an external electrical connection (12) for recharging said battery (11). In any case, preferably, the motor (7) is activated via a remote control (13) and, optionally, also by a push button panel (not shown), in which case, preferably, it is included integrated into one of the lateral profiles (9) of the frame (10), on the inside of the door or window.

[0031] In one embodiment, applicable for the installation of new blinds, the system (1) comprises all the previously described elements, including the blind (4) itself, as a complete assembly, in other words:

- one or more solar panels (2) with wiring (5) and a connector (6) to a charging battery (11) of an electric motor (7);
- a lower casing (3), as a shelf, where the solar panels (2) are incorporated, which in turn comprises a grooved lower profile (30) to house the panels (2) and an upper closing cover (31) used to protect said panels (2);
- a frame (10) with respective internally hollow lateral vertical profiles (9) that in turn integrate the guides (90);
- an upper drawer (8), where the rolling mechanism of the blind (4) and the electric motor (7) are housed;
- the blind (4); and
- the electric motor (7) with a recharging battery (11).

Claims

1. A solar power supply system for an electric motor of a motorised blind, **characterised in that** it comprises a casing (3) with a grooved lower profile (30) that can be coupled to an upper closing cover (31) used to protect at least one solar panel (2) located between said profile (30) and said cover (31), said solar panel (2) having a connector (6) also located inside the casing (3) to connect the solar panel (2) to the motor (7).
2. The system, according to claim 1, **characterised in**

that the lower profile (30) defines at least one elongated space (302) suitable for snugly incorporating a solar panel (2) or at least two aligned solar panels (2).

3. The system, according to any of the preceding claims, **characterised in that** the lower profile (30) comprises at least one water drainage hole (303). 5
4. The system, according to any of the preceding claims, **characterised in that** the lower profile (30) comprises at each of its two ends a closing cap of the profile (32), where the configuration of the profile and of the closing caps is complementary to snugly fit together. 10
5. The system, according to any of the preceding claims, **characterised in that** the cover (31) comprises one or more perforated sections (311) located in correspondence with the position of the panels (2) defining windows (312) that allow light to pass there-through so that the panels (2) can capture solar radiation. 20
6. The system, according to any of the preceding claims, **characterised in that** the panel (2) is located in the centre of the lower profile (30). 25
7. The system, according to claim 1, **characterised in that** it further comprises an electric motor (7) and a blind (4) located in an upper drawer (8) on a door or window, the casing (3) being arranged in the lower portion of the door or window and perpendicular to the same, said motor (7) providing the rolling movement to raise and lower the blind (4). 30
8. The system, according to claim 7, **characterised in that** it comprises wiring that connects the motor (7) to the connector (6) of the solar panel (2) that runs partially inside the casing (3). 35
9. The system, according to claim 8, **characterised in that** it comprises at least two lateral vertical profiles (9), one on each side of the window or door, and that define the lateral guides (90) running along the blind (4) and that, together with the lower casing (3), form a frame (10) under the upper drawer (8), said lateral profiles (9) being hollow. 40
10. The system, according to claim 9, **characterised in that** the connection wiring of the panel (2) with the motor (7) runs through at least one of said vertical profiles (9). 45
11. The system, according to any of claims 7 to 10, **characterised in that** the motor (7) comprises a battery (11) with an external electrical connection (12) through the drawer (8) to recharge said battery 50

(11).

12. The system, according to any of claims 7 to 11, **characterised in that** the motor has a control board connected to a remote control (13) or a push button panel. 55
13. The system, according to claim 12, **characterised in that** the push button panel is integrated into one of the profiles (9) of the frame (10), on the inside of the door or window.
14. The system, according to any of claims 7 to 12, **characterised in that** the blind (4) in the lowered position rests on the cover (31).

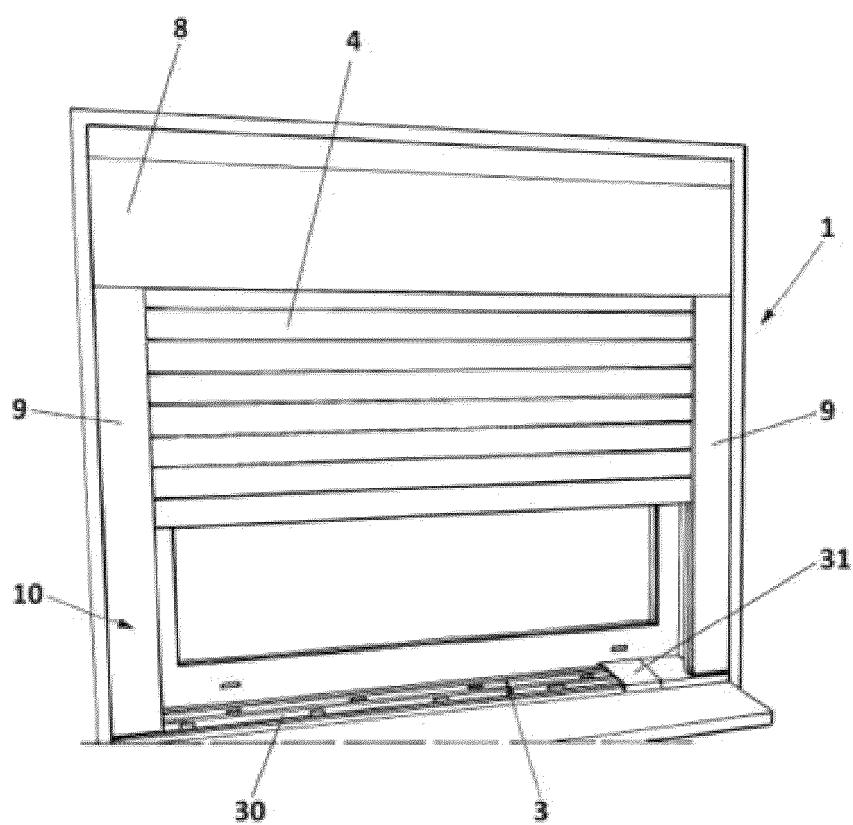


FIG. 1

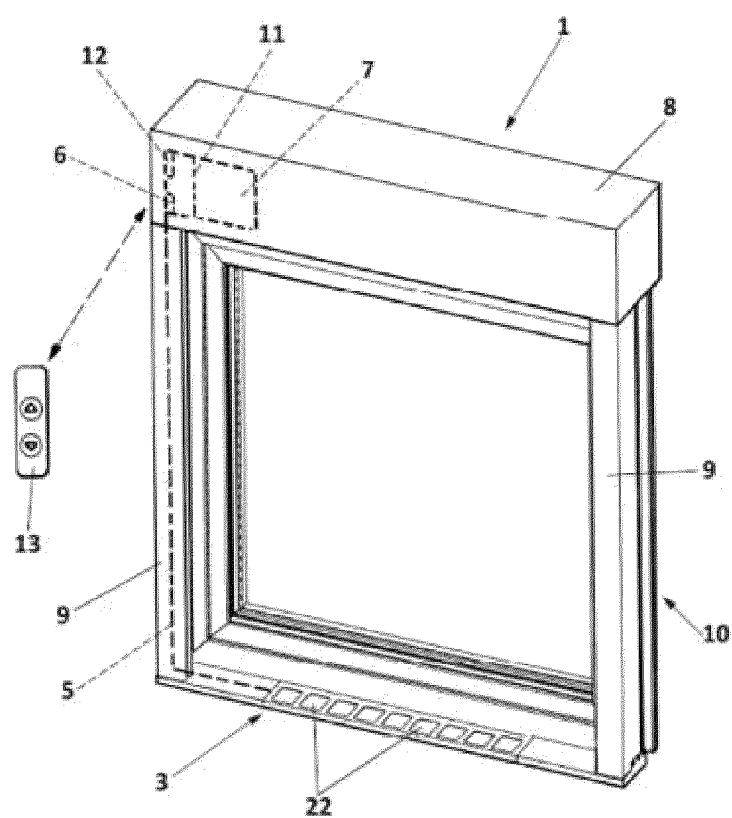
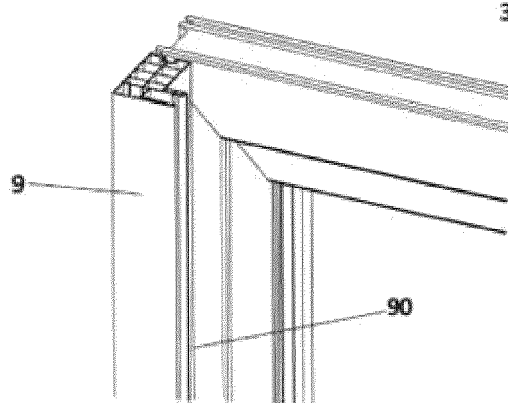
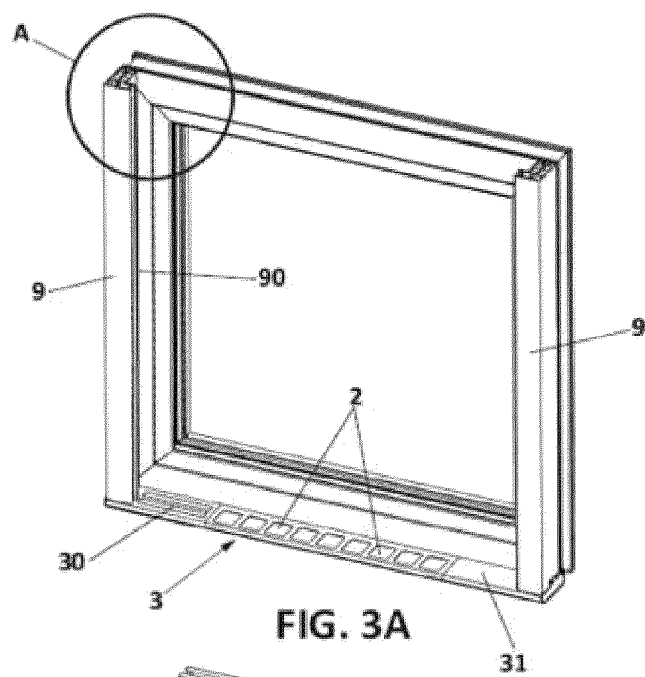
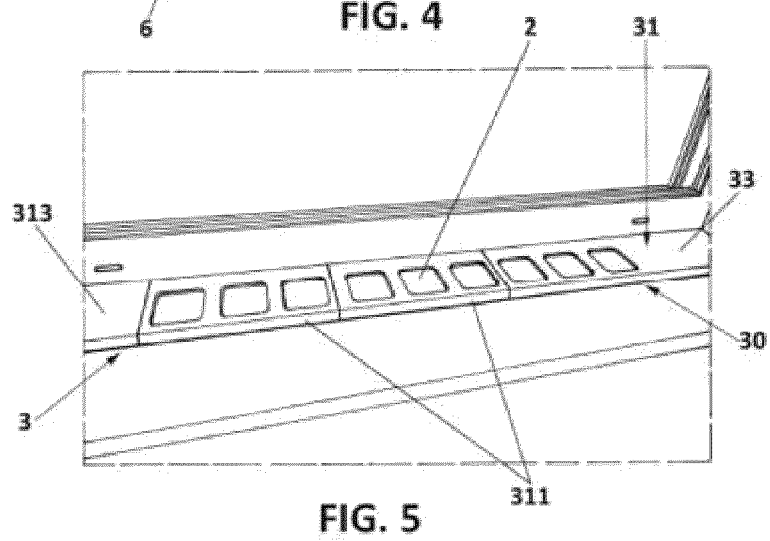
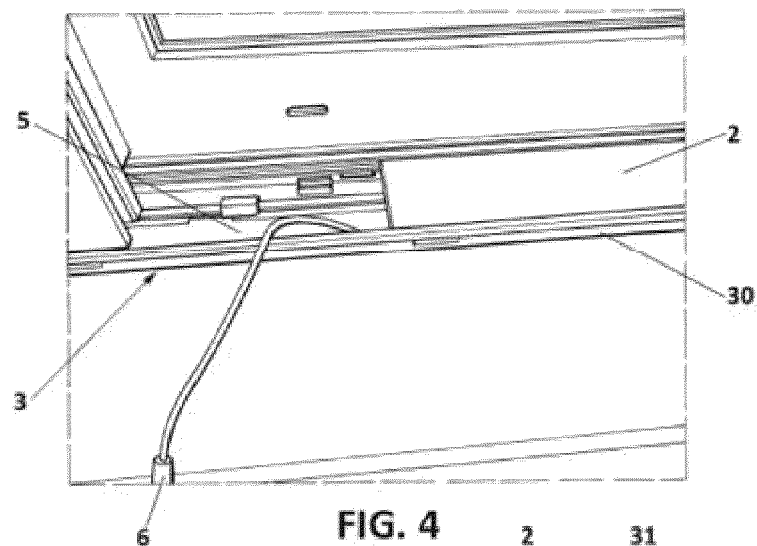
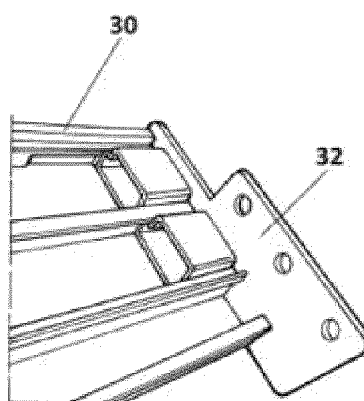
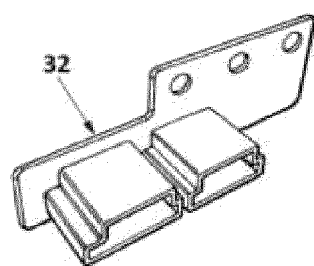
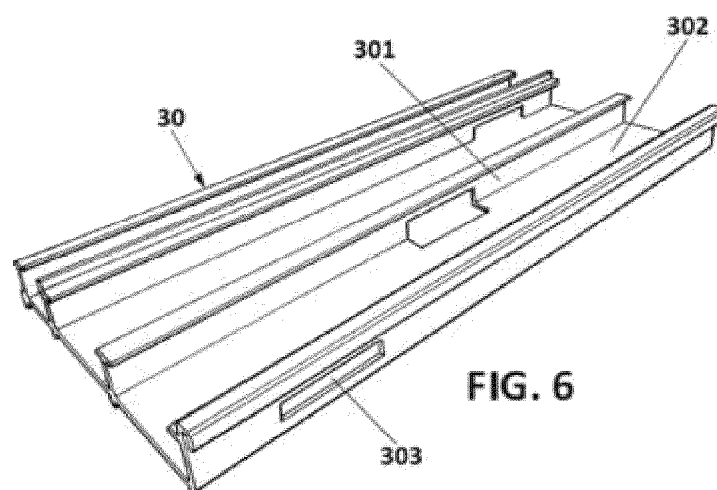
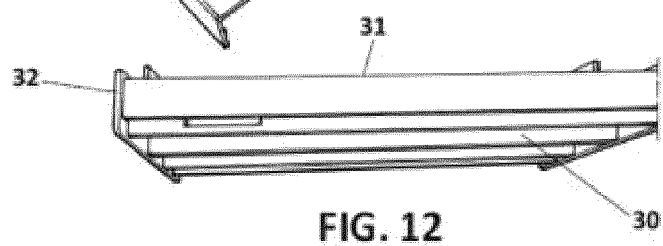
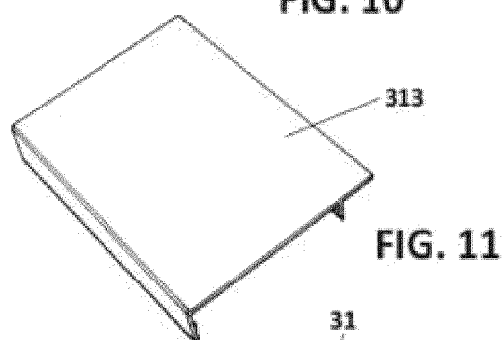
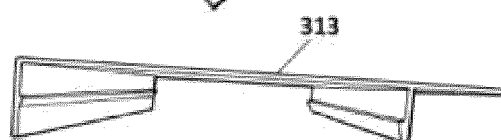
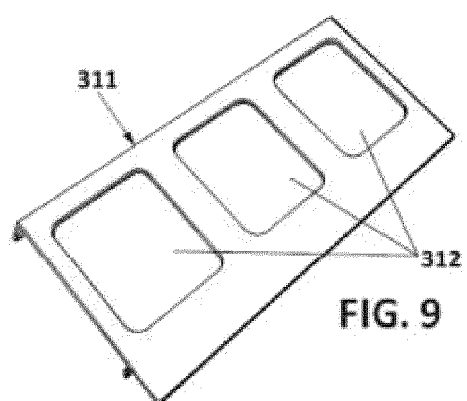


FIG. 2











EUROPEAN SEARCH REPORT

Application Number

EP 24 18 6103

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	DE 20 2021 103295 U1 (ST EXTRUDED PRODUCTS GERMANY GMBH [DE]) 22 September 2022 (2022-09-22)	1-6,8	INV. E06B9/17 E06B1/70
Y	* abstract *	7,9-14	
	* paragraph [0001]; figures 3-6 *		

X	DE 85 04 238 U1 (ALUTEAM BAUTECHNIK GMBH) 13 June 1985 (1985-06-13)	1-5,8	
Y	* abstract; figure 1 *	7,9-14	
	-----		TECHNICAL FIELDS SEARCHED (IPC) E06B
X	GB 2 419 935 A (ROBINSON SUSAN [GB]) 10 May 2006 (2006-05-10)	1-5,8	
Y	* abstract; figure 1 *	7,9-14	

X	DE 203 19 217 U1 (HIRO SOLARBAUELEMENTE GMBH [DE]) 19 May 2004 (2004-05-19)	1-5,8	
Y	* abstract; figures 1,5 *	7,9-14	

Y	EP 3 175 072 B1 (RINN FRIEDRICH KARL [DE]) 19 December 2018 (2018-12-19)	7,9-14	
	* abstract; figures 1,5 *		

The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 19 December 2024	Examiner Wehland, Florian
CATEGORY OF CITED DOCUMENTS		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	
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			

EPO FORM 1503 03.82 (P04C01)

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

EP 24 18 6103

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19 - 12 - 2024

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202021103295 U1	22-09-2022	DE 102021126387 A1	22-12-2022
		DE 202021103295 U1	22-09-2022

DE 8504238 U1	13-06-1985	NONE	

GB 2419935 A	10-05-2006	NONE	

DE 20319217 U1	19-05-2004	DE 20319217 U1	19-05-2004
		DE 202004005797 U1	16-09-2004

EP 3175072 B1	19-12-2018	DE 102014011171 A1	04-02-2016
		DE 112015003525 A5	08-06-2017
		EP 3175072 A1	07-06-2017
		WO 2016015704 A1	04-02-2016

15

20

25

30

35

40

45

50

55

EPO FORM P0459

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