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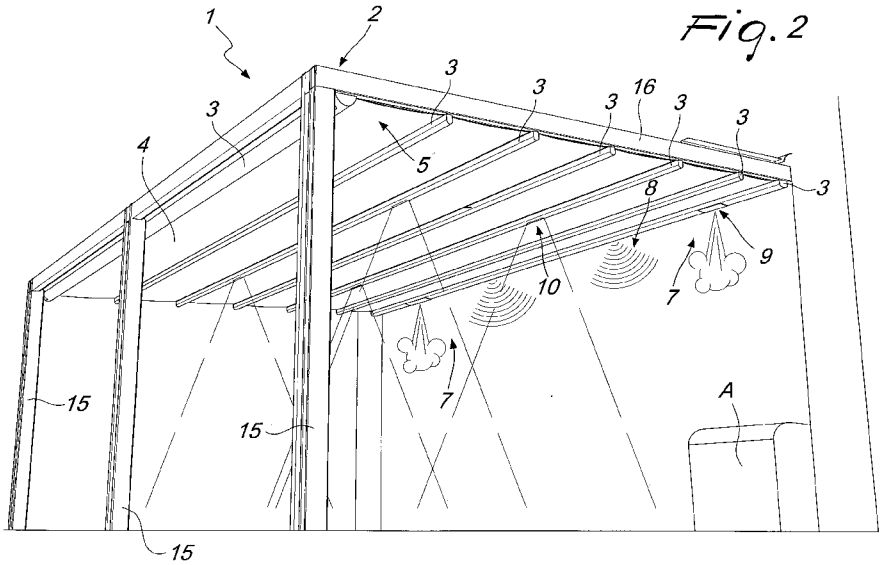
(54) Title: FOLDING OUTDOOR AWNING

Fig. 2



(57) Abstract: A folding outdoor awning (1), comprising a fixed supporting structure (2) for a series of cross-members (3). The cross-members (3) can move longitudinally on guides defined in the fixed structure (2), for the opening and closing of the awning (1). Moreover, each one of the cross-members (3) is connected rigidly to the lower face (4) of a canopy (5). The structure (2) is provided with a fixed roof (6) for covering the canopy (5) in the closed folded configuration. The awning (1) further comprises at least one auxiliary unit (7) of the type of a speaker (8), a dispenser of volatile substances (9) and a source of luminous radiation (10), which is connected by means of cables to at least one power supply unit (11).

FOLDING OUTDOOR AWNING

The present invention relates to a folding outdoor awning.

Various types of awning, sunshade and other covering elements, particularly for outdoor use (gardens, open air spaces and the like), are known.

In the environment covered by these supporting structures there is the need to generate particular conditions or atmospheres: this is achieved by installing more or less bulky accessories, which often compromise the overall design of the structure.

The aim of the present invention is to solve the problems described above, by proposing a folding outdoor awning suitable to recreate in the covered environment particular conditions and atmospheres without any modification of its appearance and design.

Within the scope of this aim, an object of the invention is to propose a folding outdoor awning suitable for diffusing sounds in the covered environment without any modification of its appearance and design.

Another object of the invention is to propose a folding outdoor awning suitable for diffusing luminous radiation in the covered environment without any modification of its appearance and design.

Another object of the invention is to propose a folding outdoor awning suitable for diffusing volatile substances in the covered environment without any modification of its appearance and design.

Another object of the present invention is to provide a folding outdoor awning that has a low cost, is relatively simple to provide in practice and is safe in application.

This aim and these and other objects which will become better apparent hereinafter are achieved by a folding outdoor awning, comprising a fixed supporting structure for a series of cross-members, which can move longitudinally on guides defined in said fixed structure, for the opening and closing of the awning, each one of said cross-members being connected

rigidly to the lower face of a canopy, said structure being provided with a fixed roof for covering said canopy in the closed folded configuration, characterized in that it comprises at least one auxiliary unit of the type of a speaker, a dispenser of volatile substances and a source of luminous radiation, which is connected by means of cables to at least one power supply unit.

Further characteristics and advantages of the invention will become better apparent from the description of a preferred but not exclusive embodiment of the folding outdoor awning, according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a side perspective view from above of the folding outdoor awning according to the invention;

Figure 2 is a side perspective view from below of the folding outdoor awning according to the invention;

Figure 3 is a partially sectional side view from below of a possible embodiment of the cross-members of the folding outdoor awning according to the invention;

Figure 4 is a transverse sectional view of one of the cross-members of Figure 3;

Figure 5 is a partially sectional side view from below of a further embodiment of the cross-members of the folding outdoor awning according to the invention;

Figure 6 is a transverse sectional view of one of the cross-members of Figure 5;

Figure 7 is a partially sectional side view from below of a further embodiment of the cross-members of the folding outdoor awning according to the invention;

Figure 8 is a partially sectional side view from below of a further embodiment of the cross-members of the folding outdoor awning according

to the invention;

Figure 9 is a transverse sectional view of one of the cross-members of Figure 8;

Figure 10 is an enlarged-scale transverse sectional view of the cross-members of the folding outdoor awning according to the invention.

With reference to the figures, the reference numeral 1 generally designates a folding outdoor awning which comprises a fixed structure 2 for supporting a series of cross-members 3.

The structure 2 can comprise one or more infilling elements so as to define removable side walls for the awning 1.

The infilling elements can be of the type of a railing, a sliding panel and the like.

The infilling is intended to close the structure 2 completely, confining the environment covered by the awning 1 and thus allowing an effective isolation from the outside environment. This makes any heating, cooling and/or humidity control system (such as for example the component A shown in the accompanying figures, which is a schematic view of an air treatment unit intended to provide climate control of the environment covered by the structure 2) more effective.

The cross-members 3 can move longitudinally along guides defined in the fixed structure 2 in order to open and close the awning 1.

Moreover, each one of the cross-members 3 is connected rigidly to the lower face 4 of a canopy 5.

The structure 2 is provided with a fixed roof 6 for covering the canopy 5 in the closed folded configuration.

According to the invention, the folding outdoor awning 1 can comprise at least one auxiliary unit 7, such as a speaker 8, a dispenser of volatile substances 9 and a luminous radiation source 10, which is connected by means of adapted cables to at least one power supply unit.

Moreover, the folding outdoor awning 1 can comprise a control and

management element which is provided with at least one memory unit, at least one transceiver unit, for supervising and coordinating the auxiliary units 7 and the movement means of the awning 1.

The transceiver unit can be of the type preferably chosen among radio frequency units, wired units, units of the type known as "Bluetooth®" (in telecommunications, "Bluetooth®" is an industrial specification for personal wireless networks), Wi-Fi units, infrared units, for connection to at least one user interface device.

Such device can be of the type preferably chosen among a remote control, a radio set, an audio media player, a control panel, a smartphone and the like.

In particular, the control panel can be of the type of a screen, a touchscreen, a display and the like.

The control and management element can thus communicate, via the transceiver unit, with one or more interface devices, receiving from them the information (user commands) for managing the operation of the awning 1 and sending the corresponding commands to the auxiliary units 7 and to the movement means of the awning 1.

The user can thus manage, via the interface devices, simply and intuitively, all the functionalities of the auxiliary units 7 and of the movement means of the awning 1.

For example, by means of the keypad of a remote control or a particular graphical interface displayed on the touchscreen, it is possible to control the full or partial closing or opening of the awning 1 and the power-on or power-off of the speaker 8 and, if available, select from an adapted memory unit (of the control and management element or of one of the interface devices) the music content to be played.

It is also possible to control the power-on or power-off of the source 10 and in particular to adjust according to the requirements the intensity of the emitted luminous radiation.

Moreover, the user can manage, by means of the interface devices, also the operation of the volatile substance dispenser 9, selecting the frequency and duration of the dispensing.

The presence of the control and management element makes it possible in particular to provide the integrated and coordinated operation of the various auxiliary units 7.

For example, the control element can adjust the intensity of the radiation emitted by the source 10 in relation to the particular music emitted by the speaker 8.

The control and management element can be associated functionally with at least one frequency tuner and amplifier which drives the speaker 8 for the emission of sounds, melodies and the like.

The speaker 8 can be of the type of a vibration generator suitable for use and utilization of the cross-member as a sound box.

This generator, by causing the vibration of the surface with which it is placed in contact, makes it possible to make the surface act as a sound source capable of diffusing and propagating sound without requiring the presence of a speaker provided with a membrane.

The possibility to use a speaker of the traditional type as a speaker 8, however, is not excluded.

At least one dispenser of volatile substances 9 can be arranged in one between the first and the last of the series of cross-members 3.

This arrangement of the dispenser 9 causes its jet to be unable to inconvenience those who are in the area covered by the awning 1 by striking them directly.

The volatile substances can be of the type preferably chosen among aromas, perfumes, essences, essential oils, insect repellents and the like.

The source of luminous radiation 10 can be multicolored with selective and adjustable emission, functionally associated with the control and management element, in order to change the color emitted by the source

10, making it possible to recreate particular scenes and light effects.

According to this solution, the control element can adjust, in relation to the particular music emitted by the speaker 8, not only the intensity of the radiation emitted by the source 10, but also its coloring.

The luminous radiation source 10 can comprise at least one white light emitting diode 11 known as LED.

The luminous radiation source 10 can have the purpose of lighting the area covered by the awning 1 or can be intended for luminous signals (such as a business sign and the like).

This second application is particularly interesting if the structure 1 is used to define an external environment that is available to customers in public establishments, such as for example bars, restaurants, discotheques and the like.

The roof 6 can comprise at least one photovoltaic module 12 for receiving solar energy and converting it into electric power by photovoltaic effect.

Each one of the modules 12 can have a plurality of photovoltaic cells 13, which are mutually electrically connected. Each one of the photovoltaic cells 13 in turn can comprise at least one layer of polycrystalline silicon which is mounted on a membrane made of polymeric material which is connected electrically to an external conductor.

The photovoltaic cells 13 furthermore can be provided with a protective film, arranged above the polycrystalline silicon layer, also made of polymeric material, to facilitate the draining of rainwater.

The modules 12 thus provided have a flexibility which allows their adaptation and therefore their installation also on surfaces which are slightly curved or irregular.

According to a solution of unquestionable interest in practice and in application, the awning 1 according to the invention can comprise at least one pair of contiguous fabric strips coupled detachably by means of a

respective coupling element.

Such element can be chosen preferably among buttons that can be coupled to adapted buttonholes, press-studs, strips of Velcro®, zip fasteners and the like.

The lateral end of the strips, which is opposite to the one connected to the coupling element, is coupled to the canopy 5.

The strips of fabric define, with respect to the canopy 5, an accommodation duct for at least one electric power supply cable 14 for the auxiliary units 7.

According to another constructive solution which is particularly simple and effective, the awning 1 according to the invention can comprise a strip of fabric which is partially coupled to the canopy 5 and is folded onto itself so as to define, with its internal walls, an accommodation duct for at least one electric power supply cable 14 for the auxiliary units 7.

The strip is thus arranged so that its lateral ends are in mutual contact and are coupled by means of a connecting element.

Such element can be chosen preferably among buttons that can be coupled by means of adapted buttonholes, press-studs, strips of Velcro®, zip fasteners and the like.

In this manner, therefore, the presence of external cables, which would compromise significantly the design and the aesthetic appearance of the structure 1, is eliminated.

According to a different constructive solution, which is particularly practical, the supporting structure 2 is constituted by at least two columns 15, which are surmounted by upper beams 16, which can be coupled to a contoured plate 17 that lies longitudinally along the structure 2.

The plate 17 has a portion which is coupled to the upper beams 16 and at least one lower portion which is substantially cantilevered and faces the canopy 5 proximate to a band 18.

The band 18 can be constituted by a lower tape 19, which is coupled

to the upper surface of the canopy 5 and is surmounted by a rib 20, which is provided with an internal cavity 21 in which the cable 14, connected to the power supply unit, can be accommodated.

The plate 17 and the band 18 constitute an effective barrier against rainwater splashes.

The cross-member 3 can have an internal cavity for accommodating at least one auxiliary unit 7.

At the lower portion of the cross-member 3 it can have at least one opening 22 for the passage of luminous radiation and of the volatile substances emitted respectively by the luminous radiation source 10 and by the volatile substance dispenser 9.

Once assembly has occurred, the auxiliary units 7 are fully integrated in the cross-member 3 and, according to some particular constructive solutions, are substantially invisible (or in any case at least partially concealed) to those who view the cross-member 3.

Advantageously, the folding outdoor awning 1 is suitable to recreate in the covered environment particular conditions and atmospheres without any modification of its appearance and design.

Positively, the awning 1 according to the invention is suitable to diffuse sounds in the covered environment without any modification of its appearance and design.

Conveniently, the folding outdoor awning 1 is suitable to diffuse luminous radiation in the covered environment without any modification of its appearance and design.

Conveniently, the folding outdoor awning 1 is suitable to diffuse volatile substances in the covered environment without any modification of its appearance and design.

In practice it has been found that the folding outdoor awning 1 according to the invention fully achieves the intended aim and objects, since it is suitable to recreate, in the covered environment, particular conditions

and atmospheres without any modification of its appearance and design.

The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims; all the details may furthermore be replaced with other technically equivalent elements.

In the exemplary embodiments shown, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other exemplary embodiments.

In practice, the materials used, as well as the dimensions, may be any according to requirements and to the state of the art.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

CLAIMS

1. A folding outdoor awning, comprising a fixed supporting structure (2) for a series of cross-members (3), which can move longitudinally on guides defined in said fixed structure (2), for the opening and closing of the awning (1), each one of said cross-members (3) being connected rigidly to the lower face (4) of a canopy (5), said structure (2) being provided with a fixed roof (6) for covering said canopy (5) in the closed folded configuration, characterized in that it comprises at least one auxiliary unit (7) of the type of a speaker (8), a dispenser of volatile substances (9) and a source of luminous radiation (10), which is connected by means of cables to at least one power supply unit.

2. The folding outdoor awning according to claim 1, characterized in that it comprises at least one control and management element provided with at least one memory unit, at least one transceiver unit, for the supervision and coordination of said auxiliary units (7) and of the means for moving said awning (1).

3. The folding outdoor awning according to one or more of the preceding claims, characterized in that said transceiver unit is of the type chosen among radio frequency units, wired units, units of the type known as "Bluetooth®", Wi-Fi units, infrared units, for connection to at least one user interface device.

4. The folding outdoor awning according to one or more of the preceding claims, characterized in that said at least one device is of the type chosen among a remote control, a radio set, an audio media player, a control panel, a smartphone and the like.

5. The folding outdoor awning according to one or more of the preceding claims, characterized in that said control panel is of the type of a screen, a touchscreen, a display and the like.

6. The folding outdoor awning according to one or more of the preceding claims, characterized in that said control and management

element is functionally associated with at least one frequency tuner and amplifier which drives said speaker (8) for emitting sounds, melodies and the like.

7. The folding outdoor awning according to claim 1, characterized in that said speaker (8) is of the type of a vibration generator suitable for the use and utilization of said cross-member (3) as a sound box.

8. The folding outdoor awning according to claim 2, characterized in that in at least one between the first and the last of said series of cross-members (3) there is at least one dispenser of volatile substances (9).

9. The folding outdoor awning according to one or more of the preceding claims, characterized in that said volatile substances are of the type chosen among aromas, perfumes, essences, essential oils, insect repellents and the like.

10. The folding outdoor awning according to one or more of the preceding claims, characterized in that said luminous radiation source (10) is multicolored with selective and adjustable emission, functionally associated with said control and management unit, for modifying the color emitted by said source (10).

11. The folding outdoor awning according to one or more of the preceding claims, characterized in that said luminous radiation source (10) comprises at least one white light emitting diode (11) known as LED.

12. The folding outdoor awning according to one or more of the preceding claims, characterized in that said roof (6) comprises at least one photovoltaic module (12) for receiving solar energy and converting it into electric power by photovoltaic effect.

13. The folding outdoor awning according to one or more of the preceding claims, characterized in that each one of said modules (12) is provided with a plurality of photovoltaic cells (13), which are mutually connected electrically, each one of said photovoltaic cells (13) comprising at least one layer of polycrystalline silicon which is mounted on a membrane

made of polymeric material which is connected electrically to an external conductor.

14. The folding outdoor awning according to one or more of the preceding claims, characterized in that it comprises at least one pair of contiguous fabric strips, said fabric strips defining, with respect to said canopy (5), a duct for accommodating at least one electric power supply cable (14) for said auxiliary units.

15. The folding outdoor awning according to one or more of the preceding claims, characterized in that it comprises at least one fabric strip , which is partially coupled to said canopy (5) and is folded onto itself so as to define, with its internal walls, a duct (15) for accommodating at least one electric power supply cable (14) for said auxiliary units (7).

16. The folding outdoor awning according to one or more of the preceding claims, characterized in that said at least one cross-member has an internal cavity for accommodating said at least one auxiliary unit (7), at the lower portion (17) of said cross-member (3) there being an opening (22) for the passage of the luminous radiation and of the volatile substances emitted respectively by said luminous radiation source (10) and said dispenser of volatile substances (9).

AMENDED CLAIMS
received by the International Bureau on 14 June 2013 (14.06.2013)

1. A folding outdoor awning, comprising a fixed supporting structure (2) for a series of cross-members (3), which can move longitudinally on guides defined in said fixed structure (2), for the opening and closing of the awning (1), each one of said cross-members (3) being connected rigidly to the lower face (4) of a canopy (5), said structure (2) being provided with a fixed roof (6) for covering said canopy (5) in the closed folded configuration, **characterized in that** it comprises at least one auxiliary unit (7) of the type of a speaker (8), a dispenser of volatile substances (9) and a source of luminous radiation (10), which is connected by means of cables to at least one power supply unit and is arranged in an internal cavity of a said cross-member (3).

2. The folding outdoor awning according to claim 1, characterized in that it comprises at least one control and management element provided with at least one memory unit, at least one transceiver unit, for the supervision and coordination of said auxiliary units (7) and of the means for moving said awning (1).

3. The folding outdoor awning according to one or more of the preceding claims, characterized in that said transceiver unit is of the type chosen among radio frequency units, wired units, units of the type known as "Bluetooth®", Wi-Fi units, infrared units, for connection to at least one user interface device.

4. The folding outdoor awning according to one or more of the preceding claims, characterized in that said at least one device is of the type chosen among a remote control, a radio set, an audio media player, a control panel, a smartphone and the like.

5. The folding outdoor awning according to one or more of the preceding claims, characterized in that said control panel is of the type of a screen, a touchscreen, a display and the like.

6. The folding outdoor awning according to one or more of the preceding claims, characterized in that said control and management element is functionally associated with at least one frequency tuner and amplifier which drives said speaker (8) for emitting sounds, melodies and the like.

7. The folding outdoor awning according to claim 1, characterized in that said

speaker (8) is of the type of a vibration generator suitable for the use and utilization of said cross-member (3) as a sound box.

8. The folding outdoor awning according to claim 2, characterized in that in at least one between the first and the last of said series of cross-members (3) there is at least one dispenser of volatile substances (9).

9. The folding outdoor awning according to one or more of the preceding claims, characterized in that said volatile substances are of the type chosen among aromas, perfumes, essences, essential oils, insect repellents and the like.

10. The folding outdoor awning according to one or more of the preceding claims, characterized in that said luminous radiation source (10) is multicolored with selective and adjustable emission, functionally associated with said control and management unit, for modifying the color emitted by said source (10).

11. The folding outdoor awning according to one or more of the preceding claims, characterized in that said luminous radiation source (10) comprises at least one white light emitting diode (11) known as LED.

12. The folding outdoor awning according to one or more of the preceding claims, characterized in that said roof (6) comprises at least one photovoltaic module (12) for receiving solar energy and converting it into electric power by photovoltaic effect.

13. The folding outdoor awning according to one or more of the preceding claims, characterized in that each one of said modules (12) is provided with a plurality of photovoltaic cells (13), which are mutually connected electrically, each one of said photovoltaic cells (13) comprising at least one layer of polycrystalline silicon which is mounted on a membrane made of polymeric material which is connected electrically to an external conductor.

14. The folding outdoor awning according to one or more of the preceding claims, characterized in that it comprises at least one pair of contiguous fabric strips, said fabric strips defining, with respect to said canopy (5), a duct for accommodating at least one electric power supply cable (14) for said auxiliary units.

15. The folding outdoor awning according to one or more of the preceding claims, characterized in that it comprises at least one fabric strip , which is partially

coupled to said canopy (5) and is folded onto itself so as to define, with its internal walls, a duct (15) for accommodating at least one electric power supply cable (14) for said auxiliary units (7).

16. The folding outdoor awning according to one or more of the preceding claims, characterized in that said at least one cross-member has an internal cavity for accommodating said at least one auxiliary unit (7), at the lower portion (17) of said cross-member (3) there being an opening (22) for the passage of the luminous radiation and of the volatile substances emitted respectively by said luminous radiation source (10) and said dispenser of volatile substances (9).

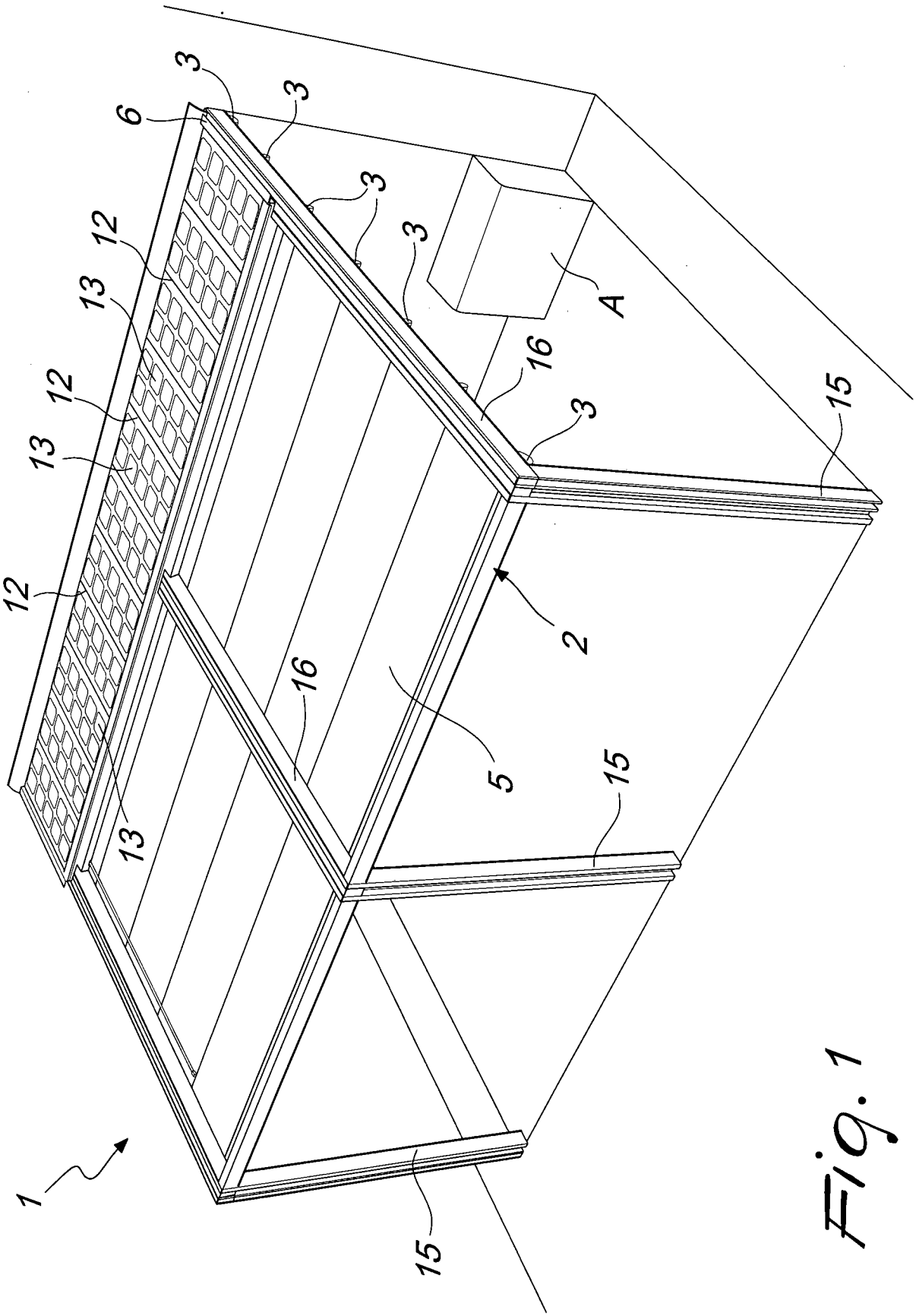


Fig. 1

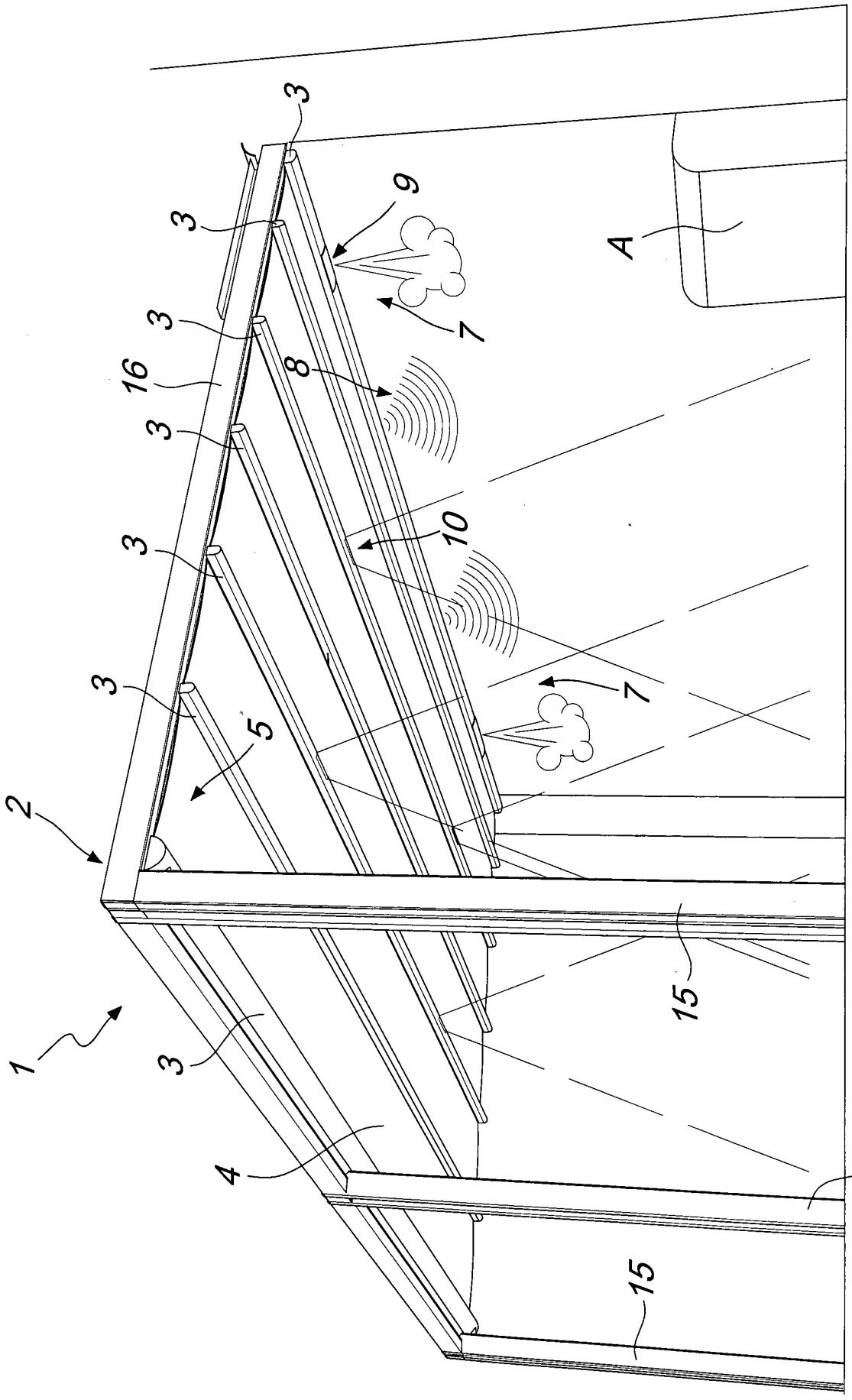


Fig. 2

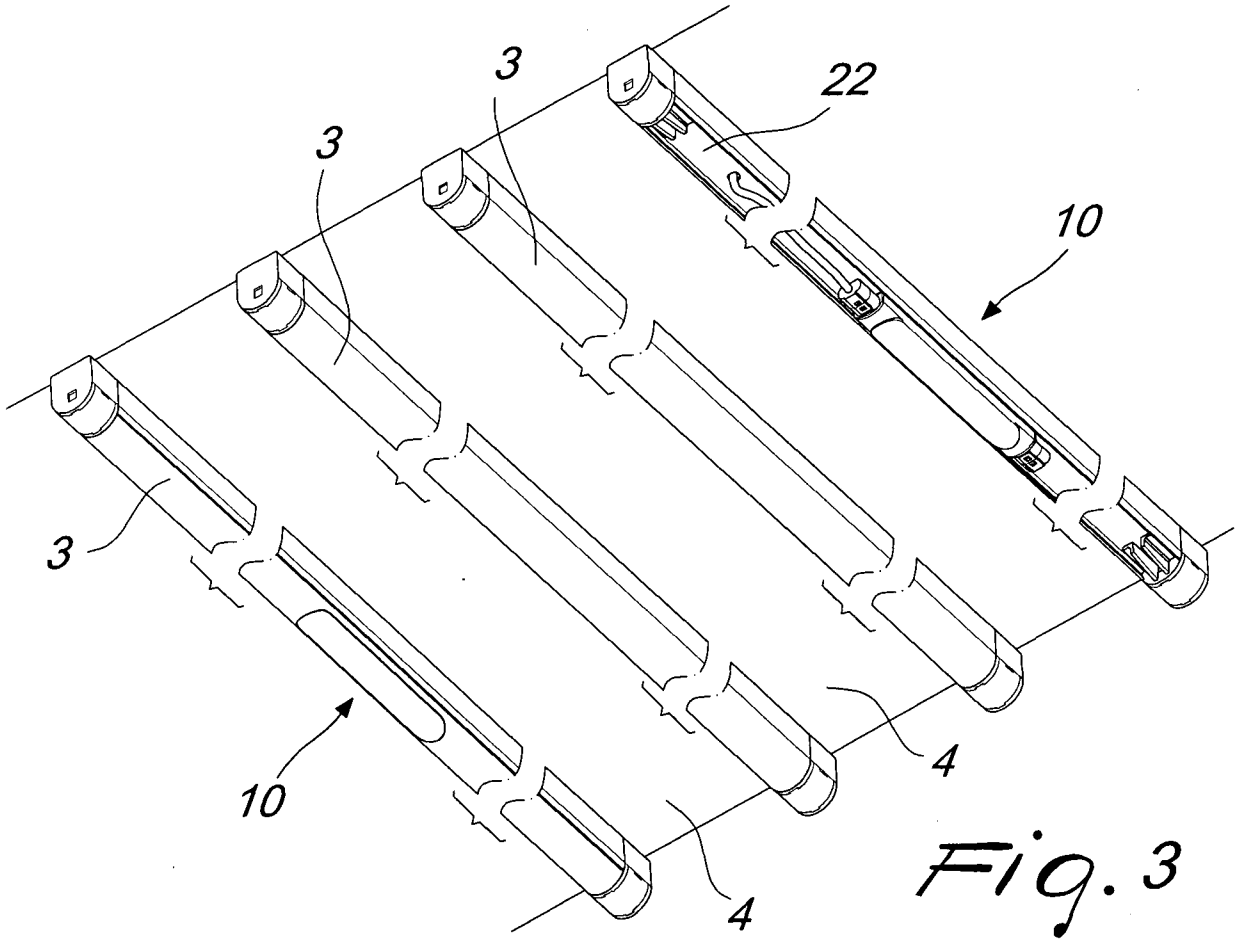


Fig. 3

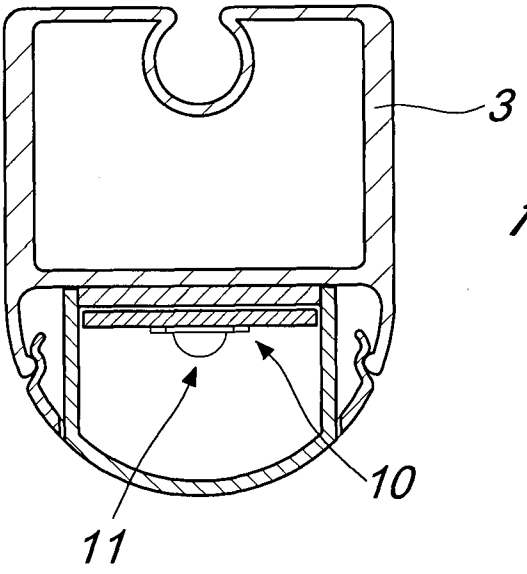


Fig. 4

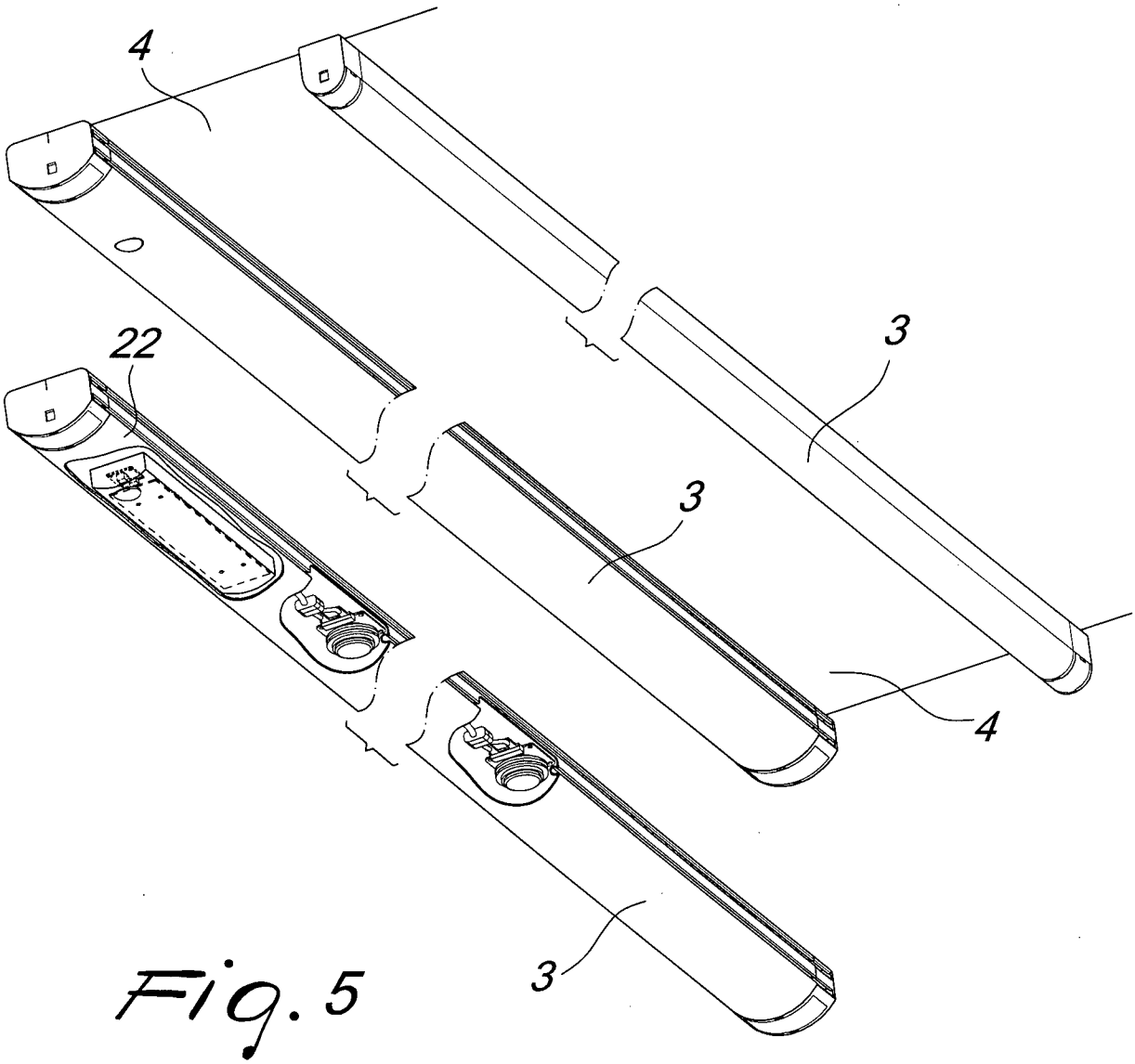


Fig. 5

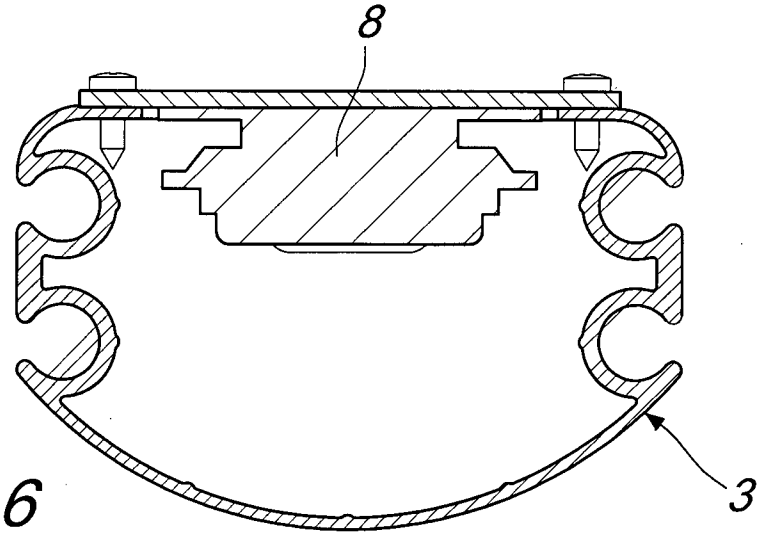


Fig. 6

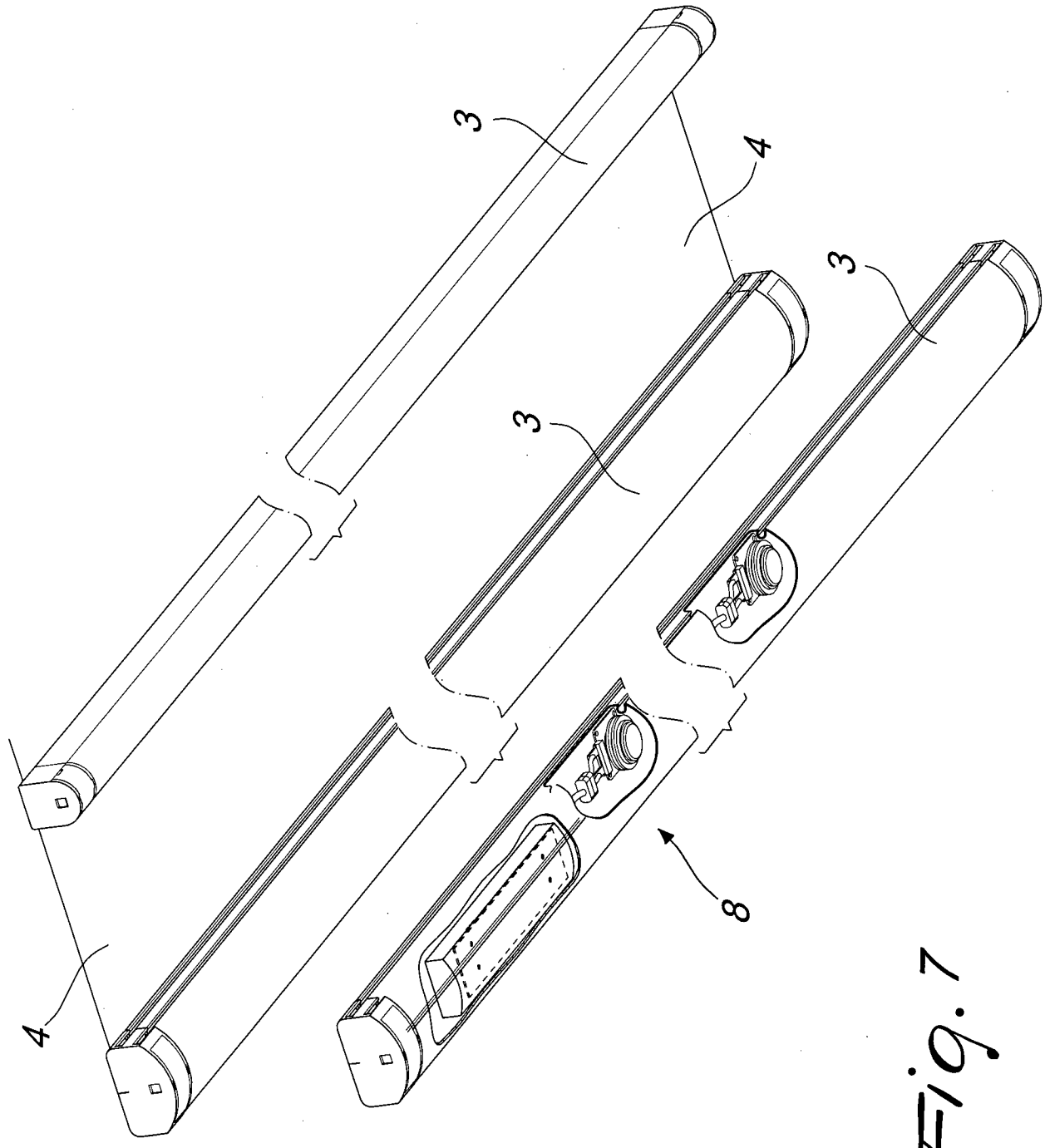


Fig. 7

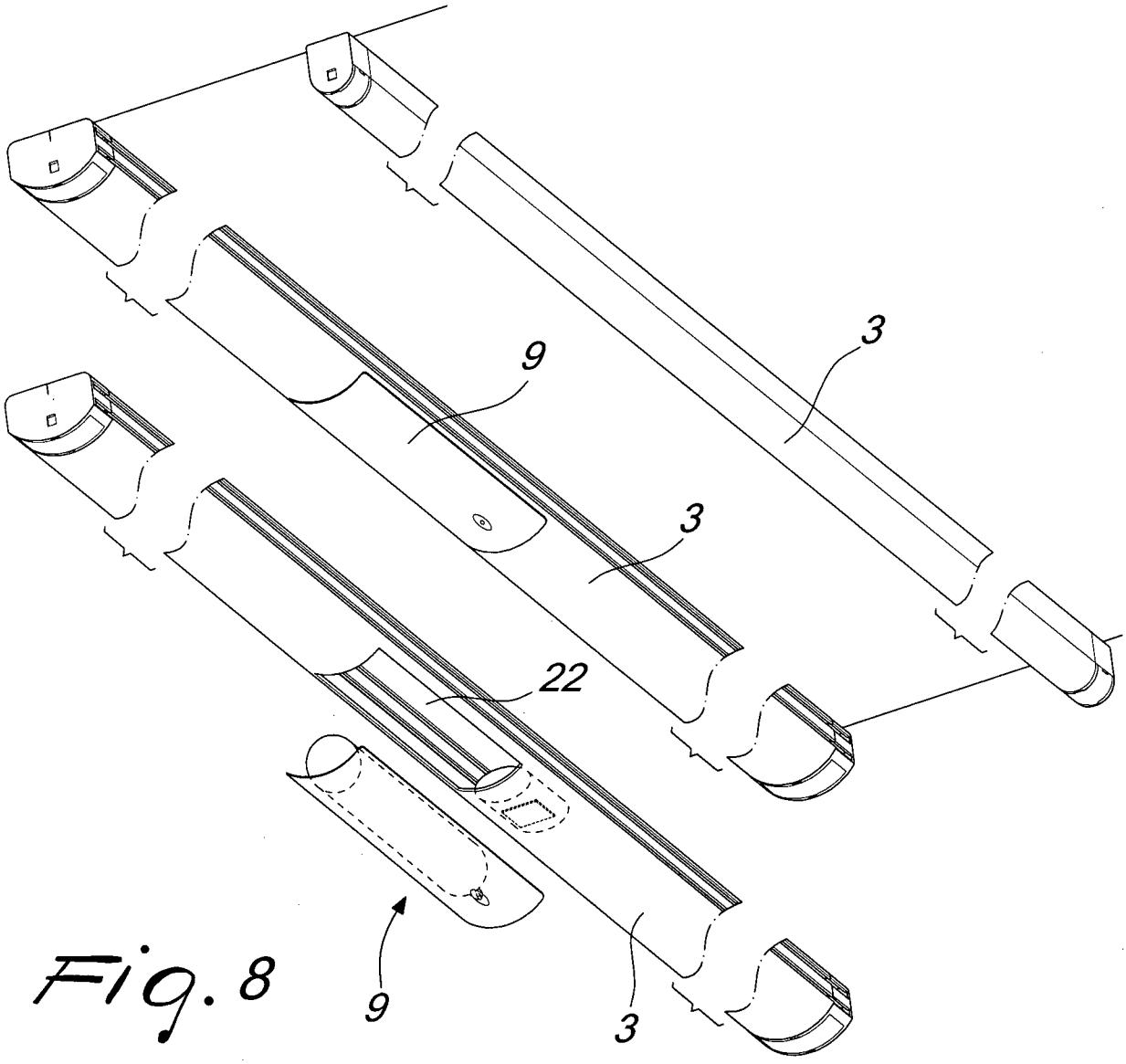


Fig. 8

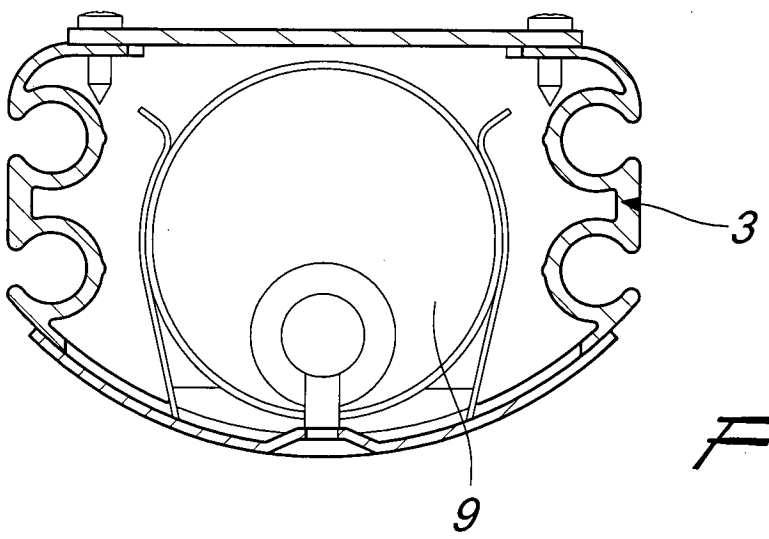


Fig. 9

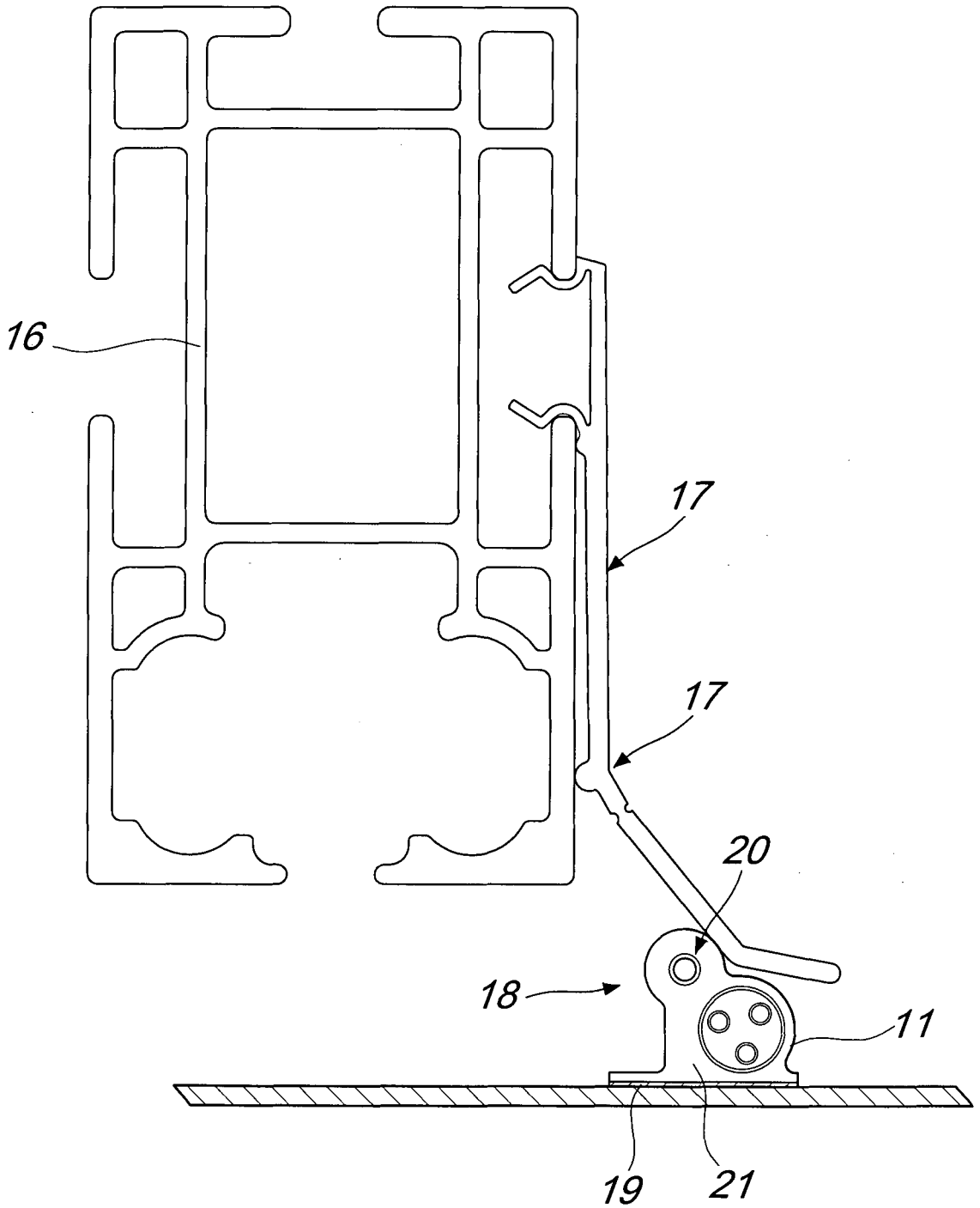


Fig. 10

INTERNATIONAL SEARCH REPORT

International application No
PCT/IT2012/000047

A. CLASSIFICATION OF SUBJECT MATTER
INV. E04F10/02
ADD.

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)
E04F

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)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 2 020 467 A1 (CORRADI S R L [IT]) 4 February 2009 (2009-02-04) abstract; figure 3	1-7, 10-13,16
Y	DE 20 2010 008856 U1 (ZUBKOV ALEXEY [DE]) 30 December 2010 (2010-12-30) paragraphs [0020], [0025], [0027]; claims 1,13-15; figure 4	1-6, 10-13,16
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☐ Further documents are listed in the continuation of Box C.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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