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(54) **Screen construction with improved cable passage**

(57) The present invention relates to a screen construction (1) comprising a roof construction (2) with at least two inclined roof construction elements (2a;2b;2c) and a supporting structure (3) for said roof construction (2), wherein the roof construction (2) comprises at least one essentially horizontally extending screen casing (4) which is provided with an internal space for a screen roller (13) for a screen (5) which can be rolled up and unrolled and by means of which the roof construction (2) can be closed off at least partly, and wherein the roof construction (2) furthermore comprises at least two support elements (6) which are provided in order to receive the respective ends of the screen roller (13) and which are provided in line with said inclined roof construction elements (2a;2b;2c) and are connected to said inclined roof construction elements (2a;2b;2c), wherein at least one support element (6) comprises a passage (9) for one or more power supply cables (8) through the support element (6). Such a screen construction (1) makes it possible to pass the cables (8) from various apparatus like lighting, heating or loudspeakers through the screen construction (1) in an invisible manner.

ments (6) which are provided in order to receive the respective ends of the screen roller (13) and which are provided in line with said inclined roof construction elements (2a;2b;2c) and are connected to said inclined roof construction elements (2a;2b;2c), wherein at least one support element (6) comprises a passage (9) for one or more power supply cables (8) through the support element (6). Such a screen construction (1) makes it possible to pass the cables (8) from various apparatus like lighting, heating or loudspeakers through the screen construction (1) in an invisible manner.

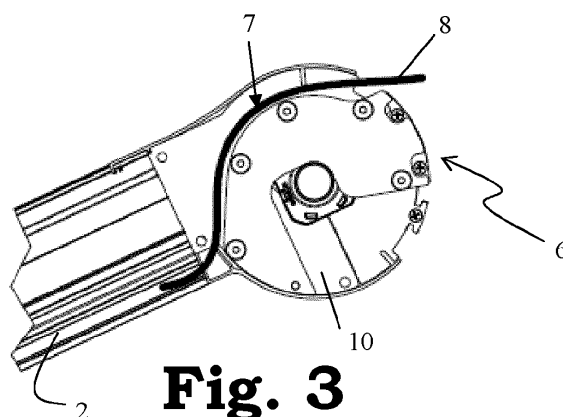


Fig. 3

Description

[0001] The present invention relates to a screen construction comprising a roof construction with at least two inclined roof construction elements and a supporting structure for said roof construction, wherein the roof construction comprises at least one screen casing which extends essentially horizontally and is provided with an internal space for a screen roller for a screen which can be rolled up and unrolled and by means of which the roof construction can be closed off at least partly, and wherein the roof construction furthermore comprises at least two support elements which are provided in order to receive the respective ends of the screen roller and which are provided in line with said inclined roof construction elements and are connected to said inclined roof construction elements.

[0002] Such screen constructions are generally erected to protect an outdoor location from adverse weather conditions. Thus, screen constructions of this type are often set up at domestic dwellings, restaurants, shops and the like in order to protect an outdoor terrace or a location where goods for sale have been set up from sun, precipitation and wind. For this purpose, the known screen constructions comprise a screen that can be rolled up and unrolled and depending on the weather conditions may be unrolled completely, partially or not at all. Said screen constructions may be in the form of awnings, pergolas, terrace coverings and the like having the abovementioned features.

[0003] A screen construction of this type comprises a roof construction. Said roof construction is provided with one or several roof construction elements and with a single-part or multi-part, essentially horizontally arranged beam on the front and rear sides, wherein each of the beams is connected to said roof construction elements. The roof construction, and therefore also the roof construction elements which form part thereof, are inclined.

[0004] If the screen construction is configured to be fitted on an existing wall, then the rear beam is attached to the existing wall by means of securing elements. The front beam is at that point supported or borne by one or more columns which form a supporting structure. Preferably, such a column is present at each of the ends of the front beam for supporting these ends. If the screen construction is free-standing, the rear beam is then also supported by one or more columns, and preferably two columns which are each positioned at an end of the rear beam for supporting said ends.

[0005] If one or more screens which can be rolled up and unrolled are fitted in line with said roof construction elements and are moved to and fro between said roof construction elements, the abovementioned upper beam is then configured either as a single-part screen casing which extends essentially horizontally or as a number of essentially horizontally extending screen casings which are arranged in line with one another and which are provided with a space for accommodating a screen roller to

which the screens which can be rolled up and unrolled are fitted.

[0006] In the case of such screen constructions, the roof and/or supporting structure are often provided with lighting elements which are ideal to be used as atmospheric lighting, for example in the evening. It is also possible to provide heating devices, such as for example electric reflector heaters. It is likewise possible to fit loudspeakers.

[0007] In many cases, these apparatus comprise a number of cables, for example power supply cables for providing electricity to the apparatus. Obviously, the presence of such cables is not aesthetical and therefore attempts are made to hide them by providing the cables in a cable duct or in the roof construction elements, which is not visible per se as the single-part screen casing or multi-part screen casings which are arranged in line with the roof construction elements, is arranged between the roof construction elements and the wall situated behind it, as a result of which said screen casing, which accommodates one or more screen rollers, forms an obstacle for the cables. As a result thereof, the cables always remain visible at the location of the screen casing.

[0008] Belgian patent publication BE 1015368 shows a screen construction provided with a device for driving awnings which is installed on a veranda or the like by means of support elements. However, such a device has the drawback that an intermediate space is provided between the central support elements for a cardan shaft. Such an intermediate space results in a much less compact screen construction. Moreover, due to said intermediate space it is no longer possible to arrange the central support elements in line with the inclined roof construction elements and to attach them thereto.

[0009] It is an object of the present invention to provide a compact screen construction which makes it possible to pass the cables from various apparatus through the screen construction in an invisible manner.

[0010] The object of the invention is achieved by providing a screen construction comprising a roof construction with at least two inclined roof construction elements and a supporting structure for said roof construction, wherein the roof construction comprises at least one essentially horizontally extending screen casing which is provided with an internal space for a screen roller for a screen which can be rolled up and unrolled by means of which the roof construction can be closed off at least partly, and wherein the roof construction furthermore comprises at least two support elements which are provided in order to receive the respective ends of the screen roller and which are provided in line with said inclined roof construction elements and are connected to said inclined roof construction elements, wherein at least one support element comprises a passage in the form of a recess for one or more cables through the support element.

[0011] By now configuring the support elements in this manner, it becomes possible to hide the cables of the

apparatus which are fitted to the screen construction, regardless of the angle of inclination of the roof construction. As the cables are passed through a recess, no additional space has to be provided and the screen construction can be compact.

[0012] The passage mentioned above is preferably situated inside the section of a rolled-up screen.

[0013] According to a preferred embodiment of the screen construction according to the present invention, said passage is formed by providing said recess in the outer side of the support element. The outer side of the support element is the side which is turned away from the screen roller.

[0014] In a more preferred embodiment of the screen construction according to the present invention, said recess extends along at most half the periphery of the support element.

[0015] In a more preferred embodiment of the screen construction according to the present invention, said support element comprises a removable locking element, wherein said passage is formed by providing the recess in the non-removable part of the support element. The recess is therefore not provided in the removable locking element. Preferably, the support element is composed of two parts.

[0016] According to a more particular embodiment of the screen construction according to the invention, the roof construction comprises at least two essentially horizontally extending screen rollers which are in line with one another and are accommodated in a single-part or multi-part screen casing by means of which the roof construction can be at least partly closed off with a screen which can be rolled up and unrolled, wherein the roof construction furthermore comprises at least four support elements which are provided to receive the respective ends of the respective screen roller, wherein both the support element of the one screen roller and the adjacent support element of the other screen roller are provided with a recess, as a result of which a passage is formed in the space between the two screen rollers for one or more cables to be passed through the support element. As said passage is formed by the respective recesses of the adjacent support elements, the outer sides of said support elements can essentially adjoin one another and therefore practically no intermediate space is present between these two adjacent support elements, thus contributing to a compact screen construction.

[0017] Preferably, said passage is provided for passing through cables associated with apparatus fitted to the roof and/or supporting structure

[0018] By using support elements provided with such a recess, an additional space (passage) is formed between the screen rollers as it were through which cables can be passed in a simple manner. This is in contrast with the existing screen constructions with screen casings and screen rollers in line with the inclined roof construction elements, where the screen casings and screen rollers often formed an obstacle for the cables and the

cables had to be passed below or above the screen casing, as well as screen rollers, or via a construction element situated underneath.

[0019] In a more advantageous embodiment of the screen construction according to the invention, said screen construction comprises securing means which are provided to attach the screen casing to an existing wall situated behind it or to a vertically arranged support structure situated behind it and forming part of the screen construction. The vertically arranged support structure preferably consists of one or more vertically arranged columns or construction posts.

[0020] The present invention will now be explained in more detail below with reference to the following detailed description of a preferred embodiment of a screen construction according to the present invention. The sole aim of this description is to give illustrative examples and to indicate further advantages and features of this screen construction, and can therefore not be interpreted as a limitation of the area of application of the invention or of the patent rights defined in the claims.

[0021] Reference numerals are used in this detailed description to refer to the attached drawings, in which:

- **Fig. 1** shows a perspective view of a screen construction according to the present invention;
- **Fig. 2** shows a side view of a support element provided with a recess;
- **Fig. 3** is a representation of a support element which is provided with a removable locking element on its lower side and with a recess for the cables on its upper side;
- **Fig. 4** is a representation of a support element which is provided with a removable locking element on its upper side and with a recess for the cables on its lower side;
- **Fig. 5** shows a perspective view of two supporting plates which adjoin one another, thus forming a passage for the cables between two screen parts;
- **Fig. 6** shows a top view of the figure illustrated in Fig. 5;
- **Fig. 7** shows that the resulting passage is situated inside the section of a rolled-up screen.

[0022] The screen construction (1) according to the invention as illustrated in Fig. 1 comprises a roof construction (2) which is provided with three inclined roof construction elements (2a;2b;2c), in particular two inclined roof construction elements (2a and 2c) which, when the screen construction (1) is viewed in front view, are arranged on the left-hand and right-hand side of the roof construction (2), and one (central) roof construction element (2b) which is provided in between, wherein, between said roof construction elements (2), for every two roof construction elements (2), a screen (5) which can be rolled up and unrolled extends which is guided on its lateral sides in slat guides and/or screen guides which either form an integral part of the roof construction ele-

ments (2a;2b;2c) or form separate parts and are connected to said roof construction elements (2a;2b;2c). In the case of screen guides, this can be achieved by providing the lateral sides of said screens (5) with a flexible thickening, for example a half zip (not shown in the figures), which is provided in an elongate recess in the screen guides and can be moved up and down.

[0023] However, it is also possible to fit, between said inclined roof construction elements (2a;2b;2c), screens (5) which can be rolled up and unrolled and which are not guided in said inclined roof construction elements (2) or to fit fixed plates between said inclined roof construction elements (2a;2b;2c).

[0024] Each of the screens (5) can be rolled up onto and unrolled from a screen roller (13) which, depending on the number of screens (5), are accommodated in a single-part or several adjacent screen casings (4) which are provided on the upper side of the roof construction (2), and which extend in a direction at right angles to the direction in which the inclined roof construction elements (2a;2b;2c) extend and are arranged in line with the inclined roof construction elements (2a;2b;2c). If the screen casings (4) form part of a detached screen construction (1) (i.e. a screen construction (1) which is not fitted against a wall), then said screen casings (4) are supported, at least on both ends thereof, by means of a column (not shown in the figures). In this case, the screen casings (4) are preferably attached to said columns by means of a securing system. However, if said screen casings (4) form part of a screen construction (1) which is fitted against an (existing) wall (101), then this is preferably fitted to the existing wall (101) by means of a securing system (11). In order for the screen (5) to be able to roll up and unroll automatically, the screen construction (1) furthermore comprises a motor which is suitable for driving the screen roller (13).

[0025] Furthermore, the screen construction (1) according to the invention is provided with an essentially horizontally extending front girder. Said front girder can be made as a single part or as several parts. As can be seen in Fig. 1, the front girder is supported by columns, preferably at both ends thereof.

[0026] Said front girder furthermore comprises a gutter profile which is suitable for collecting rainwater and passing it in the direction of the columns to which the front girder is connected. This gutter profile may form an integral part with the front girder or may also form a separate profile which is connected to the front girder in the fitted position. In this case, this gutter profile is provided with an end piece on one or both of its ends.

[0027] As has already been mentioned, the screen roller (13) is contained in a screen casing (4) which, to this end, is provided with an internal space for said screen roller (13). In order to secure the screen roller (13) in the screen casing (4), the roof construction (2) comprises at least two support elements (6) which are provided in order to receive the respective ends of the screen roller (13) (shaft of the screen roller). These support elements

(6) will, on the one hand, secure the screen roller (13) and, on the other hand, engage with the inclined roof construction elements (2a;2b;2c) and thus ensure a correct position of the screen roller (13) and screen (5) with respect to the slat and/or screen guides. The support element (6) is in turn secured in an adjustable bracket (15). As can inter alia be seen in Figs. 3 and 4, the support elements (6) comprise a removable locking element (10) which has to be removed in order to be able to take the screen roller (13) out of the screen casing (4). Thus, once said locking element (10) has been removed, the screen roller (13) can be placed in and removed from the internal space via the resulting opening. Depending on the position, either at the upper or at the lower side of the support element (6), of said removably attached locking element (10), the screen roller (13) can be placed in and removed from the internal space of the screen casing (4) via the upper and lower side, respectively. The recess (7) of the support element (6) is preferably arranged on that side which is situated opposite the position of the removably attached locking element (10). Said removable locking element (10) is preferably detachably connected to the support element (6) via one or more screw or bolt connections. The support elements (6) are hidden from view by a cover (not shown in the figures) when the screen construction (1) is viewed in side view.

[0028] It is often the case with such screen constructions (1) that various (electrical) apparatus are fitted to the roof and/or supporting structure, such as for example lighting elements which are ideal for providing atmospheric light in the evening. Heating devices, such as for example electric reflector heaters, may also be provided. Other possible apparatus include loudspeakers, sockets, fans, etc. In these cases, it is important that the cables (8) of the various apparatus are hidden from view in order to achieve a visually attractive screen construction (1).

[0029] As the screen casing (4), for cost-saving and aesthetic reasons, closely adjoins the screen roller (13) containing the rolled-up screen (5), there is often no free space available between the screen roller (13) and the screen casing (4) to fit cables (8) or pass them through. In addition, it is not advisable to fit the cables (8) in the space where the screen roller (13) and the elements associated therewith (strap disc, screen roller bearing, etc.) as the screen roller (13) and the associated elements are mainly rotating elements. This could result in the cables (8) co-rotating with the rotating elements which may cause damage, such as rupture of the strap, damage to the screen, etc.

[0030] With the screen construction (1) according to the present invention, the cables (8) are concealed in the inclined roof construction elements (2a;2b;2c), preferably in the central one (2b), which are partly hollow for this purpose. As the screen casings (4) and screen rollers (13) are often an obstacle for the cables (8), the support elements (6) comprise a passage (9) which is suitable for guiding one or more cables (8). This passage (9) is formed by providing a recess (7) (guide edge) on the

outer side of the support element (6). The recess (7) will preferably extend along approximately half the periphery of the support element (6). No recess (7) is provided where the removable locking element (10) is situated. In principle, the recess (7) should comprise at least the maximum visible arc section of the bottom part (denoted by reference numeral 12) of the screen casing (4), together with an outlet to the inclined roof construction elements (2a;2b;2c). Depending on the angle of inclination and the depth of the adjoining finishing profile, the bottom part (12) of the screen casing (4) is visible to a greater or lesser extent.

[0031] According to the present invention, said passage (9) is situated inside the section (14) of a rolled-up screen (5). What this is intended to mean is clear from Fig. 7, which shows a screen (5) which is rolled up on a screen roller (13) and a cable (8) which is passed through the support element (6) via a passage (9). The rolled-up screen (5) has a certain diameter (section) (14). As Fig. 7 shows, the passage (9) (not shown in the figure) for the cables (8) is inside the section (14) of the rolled-up screen (5).

[0032] With the screen construction (1) according to the present invention, the cables (8) of the apparatus will preferably be passed through the central roof construction element (2b). The reason for this is that both the support element (6) of the one screen roller (13) and the adjacent support element (6) of the other screen roller (13) are provided with a recess (7), resulting, as can inter alia be seen in Figs. 5 and 6, in a passage (9) being formed in the space between the two screen rollers (13) which offers sufficient space for passing one or more cables (8) through the support element. In this way, no intermediate space is required either between the two adjacent support elements (6).

[0033] As can be seen from Figs. 3 and 4, the cables (8) can run either via the upper side (Fig. 3) or via the lower side (Fig. 4) of the support element (6). The choice is essentially determined by the position of the removable locking element (10) in the support element (6). If the removable locking element (10) is situated on the lower side, the recess (7) will be on the upper side and vice versa.

Claims

1. Screen construction (1) comprising a roof construction (2) with at least two inclined roof construction elements (2a;2b;2c) and a supporting structure (3) for said roof construction (2), wherein the roof construction (2) comprises at least one essentially horizontally extending screen casing (4) which is provided with an internal space for a screen roller (13) for a screen (5) which can be rolled up and unrolled by means of which the roof construction (2) can be closed off at least partly, and wherein the roof construction (2) furthermore comprises at least two sup-

port elements (6) which are provided in order to receive the respective ends of the screen roller (13) and which are provided in line with said inclined roof construction elements (2a;2b;2c) and are connected to said inclined roof construction elements (2a;2b;2c), **characterized in that** at least one support element (6) comprises a passage (9) in the form of a recess for one or more cables (8) through the support element (6).

2. Screen construction (1) according to Claim 1, **characterized in that** said passage (9) is situated inside the section (14) of a rolled-up screen (5).
3. Screen construction (1) according to Claim 1 or 2, **characterized in that** said passage (9) is formed by providing said recess (7) in the outer side of the support element (6).
4. Screen construction (1) according to one of the preceding claims, **characterized in that** said support element comprises a removable locking element, wherein said passage (9) is formed by providing the recess (7) in the non-removable part of the support element.
5. Screen construction (1) according to one of the preceding claims, **characterized in that** said recess (7) extends along at most half the periphery of the support element (6).
6. Screen construction (1) according to one of the preceding claims, **characterized in that** the roof construction (2) comprises at least two essentially horizontally extending screen rollers which are in line with one another and are accommodated in a single-part or multi-part screen casing (4) by means of which the roof construction (2) can be at least partly closed off with a screen (5) which can be rolled up and unrolled, wherein the roof construction (2) furthermore comprises at least four support elements (6) which are provided to receive the respective ends of the respective screen roller (13), wherein both the support element (6) of the one screen roller (13) and the adjacent support element (6) of the other screen roller (13) are provided with a recess (7), as a result of which a passage (9) is formed in the space between the two screen rollers (13) for one or more cables (8) to be passed through the support element (6).
7. Screen construction (1) according to one of the preceding claims, **characterized in that** said passage (9) is provided for passing through cables (8) associated with apparatus fitted to the roof (2) and/or supporting structure (3).
8. Screen construction (1) according to one of the pre-

ceding claims, **characterized in that** said screen construction (1) comprises securing means which are provided to attach the screen casing (4) to an existing wall (101) situated behind it or to a vertically arranged support structure situated behind it and forming part of the screen construction (1). 5

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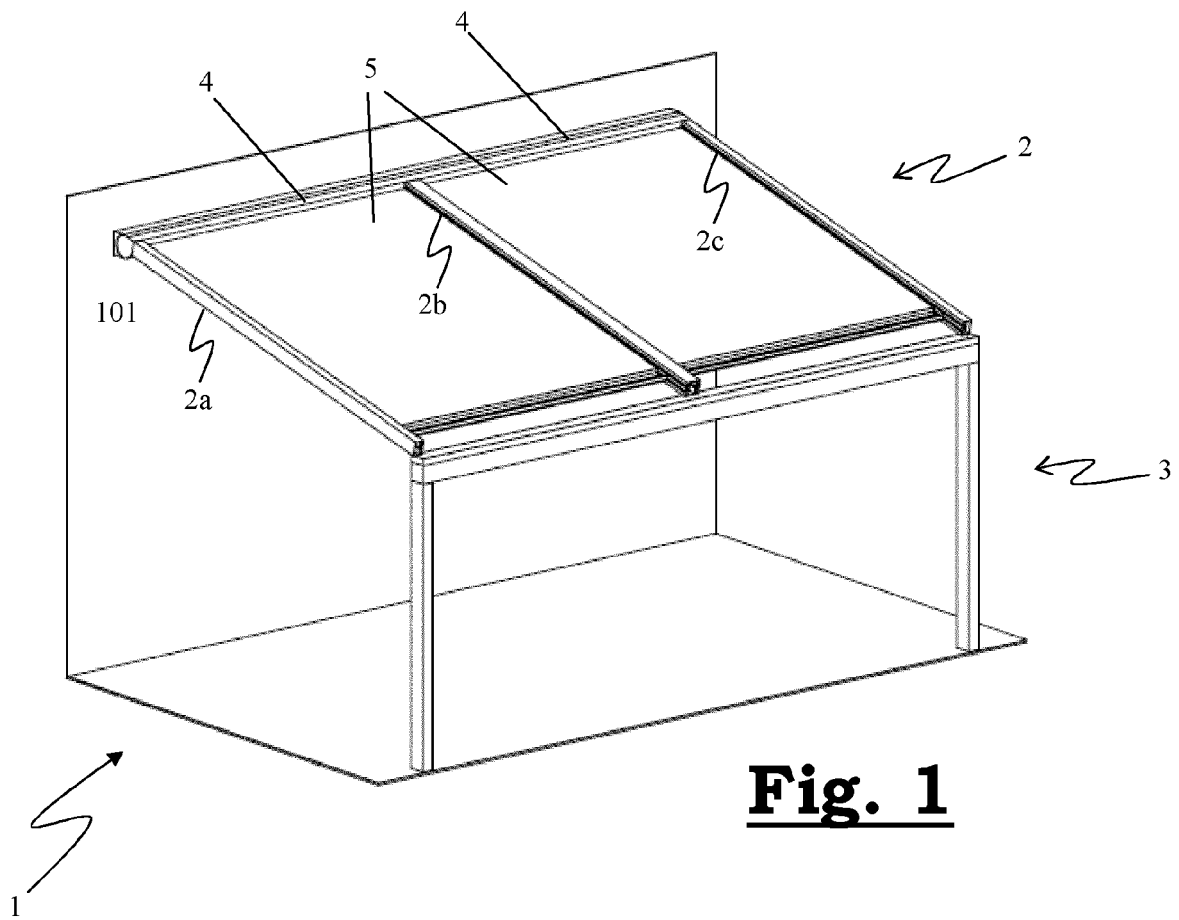
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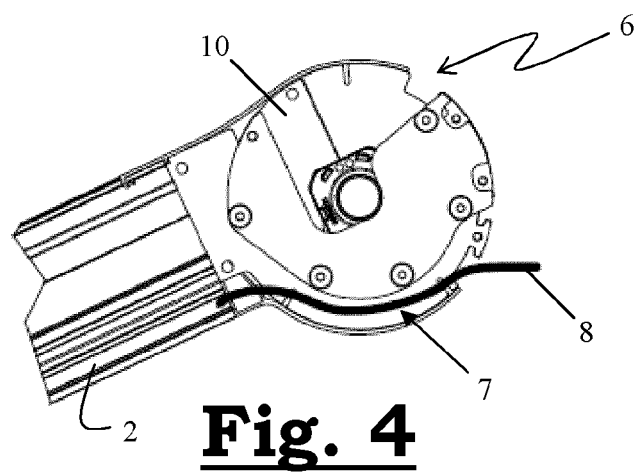
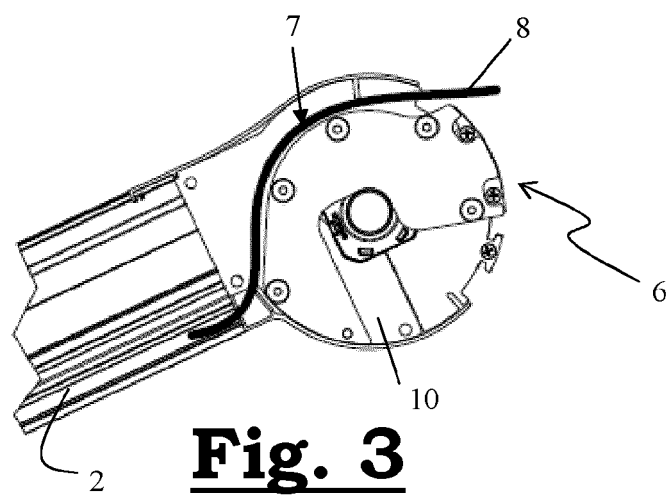
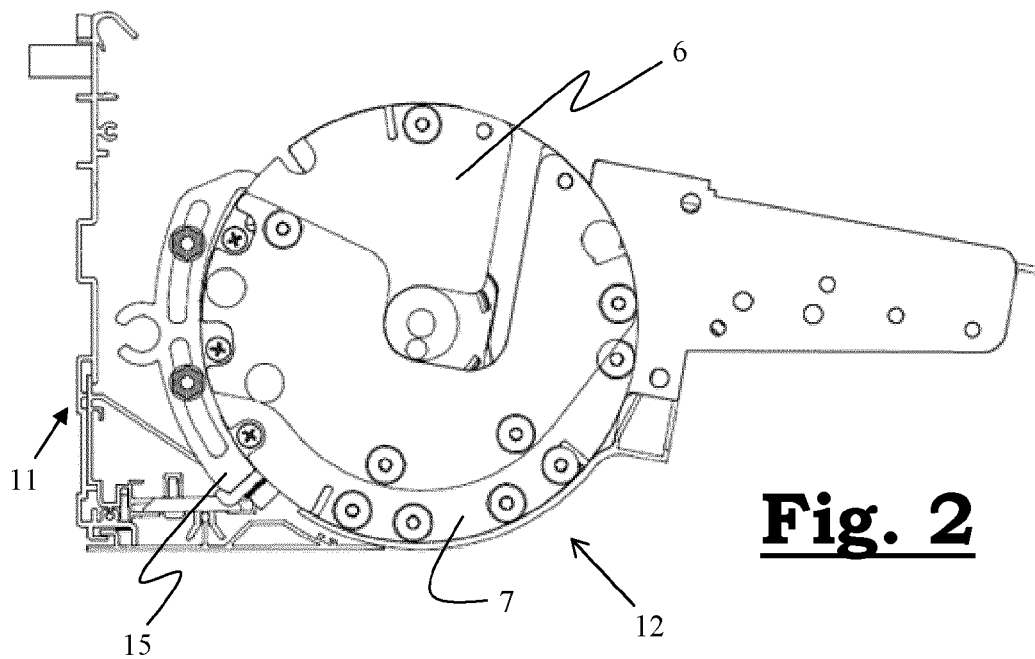
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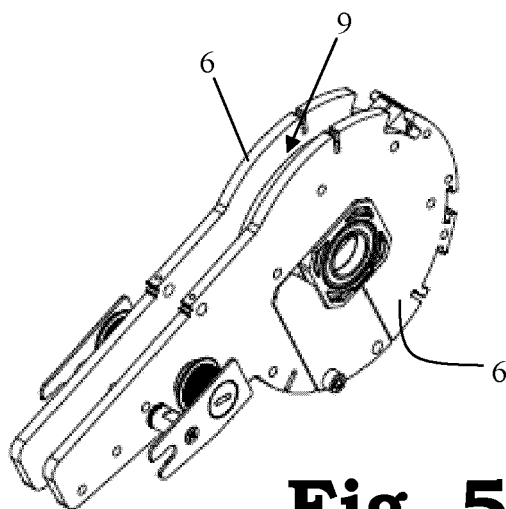


Fig. 5

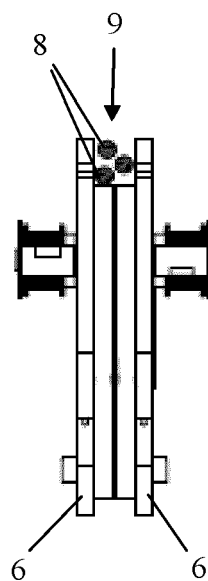


Fig. 6

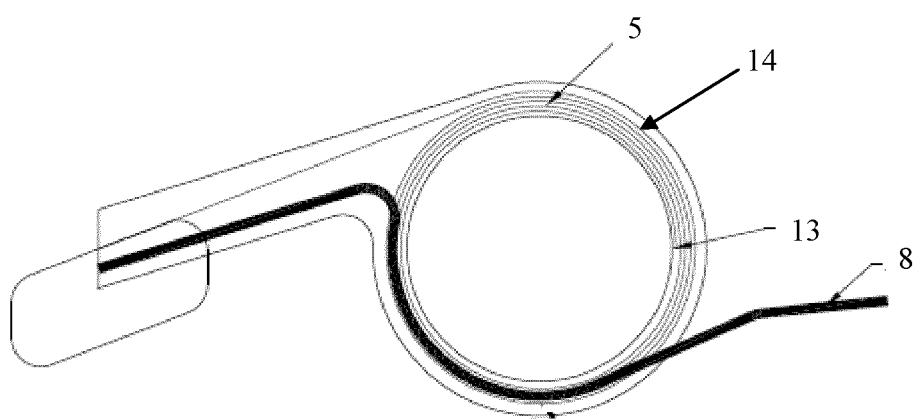


Fig. 7



EUROPEAN SEARCH REPORT

Application Number
EP 11 18 9409

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	EP 0 841 442 A1 (WHITE HALL N V [BE]) 13 May 1998 (1998-05-13) * figures 1,3,4 *	1-8	INV. E04F10/06
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			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 11 July 2012	Examiner Tänzler, Ansgar
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	

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

EP 11 18 9409

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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11-07-2012

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REFERENCES CITED IN THE DESCRIPTION

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