



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.11.2020 Bulletin 2020/47

(51) Int Cl.:
E04F 10/06 (2006.01)

(21) Application number: **19382393.7**

(22) Date of filing: **17.05.2019**

(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 MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(72) Inventors:
• **Guillen Chico, Francisco Vicente**
03630 Sax (Alicante) (ES)
• **Ballester Pérez, Ignacio**
03630 Sax (Alicante) (ES)
• **ALEJOS, Juan Antonio**
03630 Sax (Alicante) (ES)

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

(74) Representative: **Carlos Hernando, Borja Garrigues IP, S.L.P.**
Hermosilla, 3
28001 Madrid (ES)

(54) **CENTRAL FASTENING ELEMENT FOR A ROLLER AWNING WITH ARTICULATED ARMS**

(57) Central fastening element for a roller awning with articulated arms, relating to an element the purpose of which is to provide fastening means in the central part of roller awnings with articulated arms serving as a support for the rolling shaft of the awning and for absorbing

the reduction and/or increase in diameter thereof when said awning is let out and taken up. This element has a structural configuration which expands the regulation possibilities depending on the position of the awning and facilitates operations to effect said regulation.

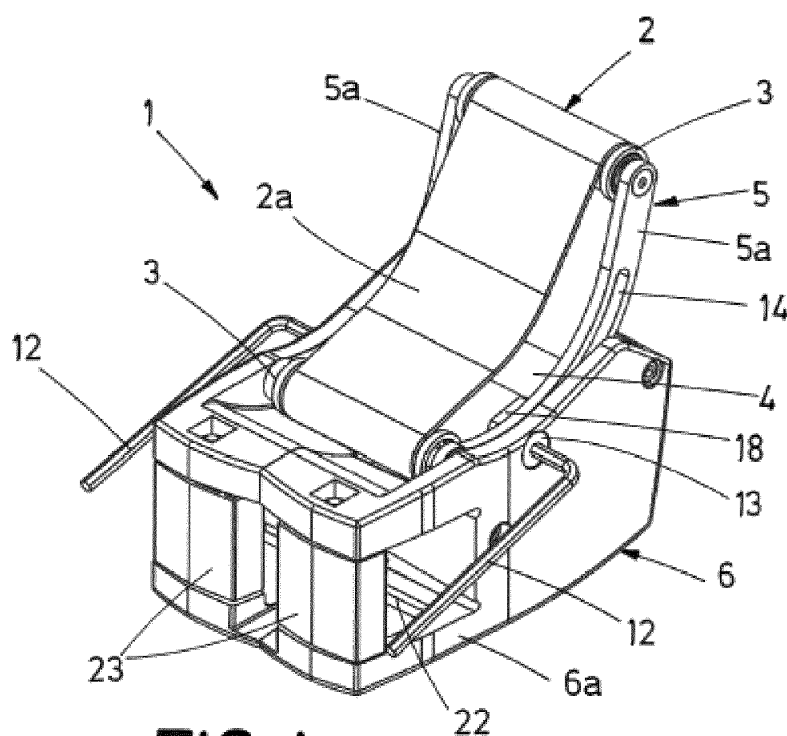


FIG.4

Description

OBJECT OF THE INVENTION

[0001] The invention, a central fastening element for a roller awning with articulated arms, relates to an element the purpose of which is to provide fastening means in the central part of roller awnings with articulated arms serving as a support for the rolling shaft of the awning and for absorbing the reduction and/or increase in diameter thereof when said awning is let out and taken up. This element has a structural configuration which expands the regulation possibilities depending on the position of the awning and facilitates the operations to effect said regulation.

[0002] The field of application of the present invention is comprised within the sector of the industry dedicated to the manufacture of awnings, particularly focusing on the field of accessory devices and mechanisms for roller awnings with articulated arms.

BACKGROUND OF THE INVENTION

[0003] As is known, there are already roller awnings on the market which, when the rolling shaft of the awning has a certain length, incorporate a part in the center serving as a support for said rolling shaft, as described in different documents from the state of the art.

[0004] For example, document GB492012A describes "supports for awning blind rollers", specifically an intermediate support for the roller blinds of awnings consisting of a bracket carrying rollers on which there is an endless band supporting the roll. The tension of the band may be adjusted by means of two screws acting on the spindle of the bottom roller. An additional guard - roller is mounted in slots of arms which are adjustably secured to the bracket by serrated faces and bolts. The top guard-roller may be carried in a U-shaped bracket slidably fixed on a member bolted to the bracket support. Although this is a similar element with the same function, unlike the object of the present invention, it does not regulate the angle of departure of the canvas and its structure requires two screws for tensing the band, which means that offsets may occur in the perpendicularity thereof with respect to the rollers on which it moves, causing the malfunctioning of the system.

[0005] Document US2220311A describes a "central support for roller awnings", comprising a supporting arm for attachment to a building front, a second arm movably related with the first arm, a plurality of parallel rollers, some journaled in the supporting arm and others in the movable arm, an endless belt encircling said rollers and adapted to support an awning roller on one of its runs, and means reacting in opposite directions against the supporting and movable arms to effect positioning of the latter to bodily shift the movable arm belt rollers under the load imposed by the awning roller while maintaining the axis of said belt roller parallel to the axes of the other

belt rollers. In this case, the difference with respect to the present invention is that it does not offer the possibility of regulating the angle of departure of the canvas and also requires using two screws for tensing the band. Furthermore, it is fixed to a wall and there is no square bar.

[0006] Document US2248414A describes an "awning center support" embodying a wall bracket, a cradle hingedly connected thereto, comprising, a pair of L-shaped members, a roller mounted in said members at each extremity thereof, another roller loosely journaled in said members intermediate the first named roller, a belt trained over the rollers, an awning roll supported thereby and spaced from said rollers, and means interposed between said members and the intermediate roller to effect a movement of said intermediate roller for tightening the belt as the diameter of the awning roll increases. In this case, again the difference with the present invention is that it does not offer the possibility of regulating the angle of departure of the canvas and uses two screws for tensing the band, in addition to being fixed to a wall, there is no square bar. It uses two screws for tensing the band and two screws for changing the inclination of the entire support.

[0007] Document US2326642A describes an awning center support including a wall bracket support adapted for attachment to a support, an overlying arm adjustably mounted thereon, a guide roller mounted on said arm for horizontal adjustment relative thereto, an underlying supporting arm pivotally mounted on said wall bracket, means for adjusting said supporting arm toward and away from said overlying arm, a belt roller cradle mounted in said supporting arm, rollers journaled in the ends of said cradle, an endless belt trained around said rollers for supporting an awning roll, and means securing said cradle in adjusting position on said arm. Unlike the present invention, the support of this patent does not have any system for tensing the band supporting support the shaft of the canvas.

[0008] Finally, document EP0337033A1 describes "an apparatus for supporting a intermediate portion of an awning sheet winding shaft", essentially comprising: a housing having an awning sheet entrance/exit opening portion; rollers rotatably mounted in the housing so as to be spaced apart from each other in a circumferential direction of the housing; an endless belt running around at least two of the rollers, an outer surface being brought into contact with at least a lower surface of the awning sheet wound on the shaft; and an annular groove on the outer peripheral surface of each of the rollers engaging with an annular ridge of the belt. The difference with the present invention is that it does not have means for regulating the band and regulating the height of the shaft of the canvas by tightening the band, moving the bottom roller cannot be effected. Furthermore, it is fixed to a wall and there is no square bar.

[0009] It can therefore be seen that unlike the object of the present invention, none of the mentioned documents describes a support or fastening which at the same

time has means for regulating the position of the shaft of the canvas and means for regulating the angle of departure of the canvas according to the angle of the articulated arm.

[0010] Moreover, the preceding assemblies are much more complex and include a large number of parts compared with the solution of the present invention, making them more expensive to manufacture and complicating their mounting and use.

DESCRIPTION OF THE INVENTION

[0011] The central fastening element for a roller awning with articulated arms proposed by the invention relates to central fastening means for roller awnings according to claim 1. Specifically, it relates to an element serving as a support for the rolling shaft of the awning, as it is located below same, and absorbing the reduction and/or increase in diameter thereof as the canvas forming said awning is let out and taken up, having a structural configuration which, between other advantages, expands the regulation possibilities depending on the position of the awning and facilitates the operations to effect said regulation.

[0012] More specifically, said element, comprises an endless band between two rollers coupled to the ends of a structure formed by said rollers connected by two side parts incorporated at a base of the element, said band determining a bearing surface, supporting and fastening the roll for the winding of the canvas of the awning around the shaft, and having:

- first regulating means for regulating the tension of said band comprising a single central screw and a guide; and
- second regulating means for regulating the position of said structure for modifying the inclination of the mentioned bearing surface of the band according to the position of the articulated arms of the awning and therefore the angle of the canvas with respect to the roll, each of said means comprising a side screw and a slot within which the side screw moves, said slot being located in the structure, allowing the rocking thereof with respect to the base.

[0013] Said first regulating means for regulating tension with a single central screw, preferably operable by means of an Allen® wrench, although other screws operable with wrenches of another type can also be used, represent a large advantage because the devices existing up until now have always required the adjustment of two screws to effect said regulation. Likewise, the second regulating means for regulating the position of said rocking structure for positioning the surface of the band bearing the roll such that it is inclined according to the position of the arms of the awning, and, therefore, the angle of the canvas with respect to the roll, has two side screws which are preferably operated with the same wrench as

the first regulating means, i.e., preferably an Allen® wrench, although another type of wrench could be used. Likewise, they could also be different screws regulated with different wrenches.

[0014] Said first regulating means preferably have a central roller coupled to the base and associated at the ends thereof with respective bearing sides of the guide part, which in turn, is linked to the thread of the central screw. Therefore, when this central screw is screwed in one direction or the other with respect to supports arranged at the base, said guide causes the lifting or lowering of the central roller and accordingly the tensing or slackening of the band. To facilitate access to the central screw of said first regulating means, said central screw is preferably accessible from the lower part of the base where it is housed.

[0015] Due to the use of a single central screw to effect said regulation of the tension of the band, the adjustment of the central roller which moves for that purpose is performed because said screw is always perpendicular to said band, whereby preventing the imbalance problem that occurs when there are two screws that are adjusted to cause said movement, and this is what happens in known systems today. This regulation of the tension of the band serves to correct the bending of the roll of the canvas.

[0016] Said second regulating means allow regulating the inclination of the surface of the band which bears the roll of the awning, as required by the angle of inclination imparted to the arms in the installation, with a range of up to 40°. This is achieved by means of modifying the position of the structure on which the band is arranged and rocking it with respect to the base, due to the adjustment of the two side screws which are inserted in said base and through respective curved slots running along the respective also curved parts forming the sides of said rocking structure. This regulation furthermore allows the band to be extracted and therefore be interchangeable.

[0017] Therefore, once the position of the rocking structure and the tension of the band have been regulated, said band has the tension required for enabling the roll of the canvas to be kept completely straight.

[0018] Other additional features of the present invention are included in dependent claims 2 to 7.

[0019] As set forth above, the rocking structure is made up of two preferably curved side parts that are identical and parallel to one another. Each part has the mentioned curved slot preferably running along the central area of the side part. The structure is fixed to the base through the slots using the side screws. Said side screws are inserted through the slots and through corresponding holes made for that purpose at the base, which thereby allows varying the inclination of the rocking structure and, accordingly, the position of the end rollers of the canvas which in turn determine the inclination of the bearing surface thereof. For retaining the side screws, the element object of the present invention comprises respective stop parts with two holes, one for screwing in the side screw

after it goes through the slot of the curved side part and another one for housing a lug emerging from the inside of the base after it goes through the mentioned slot.

[0020] The base has means for fixing the central element object of the invention in the transverse bar of the awning which connects both ends and supports the shaft of the roll of the awning. Likewise, said base has two preferably symmetrical parts having a preferably C-shaped prolongation and defining an open cavity having a shape in accordance with the shape of the section of the bar of the awning. Each of said C-shaped parts is preferably closed at the front, although it could also be closed on the side by a profile segment which is also fixed, preferably by bolting.

[0021] In summary, the main advantages provided by the element object of the invention are:

- It prevents the shaft of the canvas from bending, so the canvas is kept tensed at all times.
- The band is interchangeable, such that when perimeter thereof changes, the range of regulation may also vary in the event that the inclination of the arms varies in the future.
- The tension of the band can be regulated according to the position of the shaft of the roll.
- The position of the rocking structure of the band can be regulated according to the angle of inclination of the arms.

DESCRIPTION OF THE DRAWINGS

[0022] To complete the description of the present invention and facilitating understanding of the features thereof, the following non-limiting illustrative figures are attached:

Figures 1 and 2 show respective schematic exploded top and bottom perspective views, respectively, of an embodiment of the central fastening element for roller awnings object of the invention, where the main parts and the elements they comprise can be seen. Figure 3 shows another exploded rear perspective of the example of the fastening element shown in Figures 1 and 2.

Figures 4 and 5 show respective top and bottom perspective views, respectively, of the example of the element of the invention shown in Figures 1 to 3, in this case depicted once all its parts have been mounted, where its general configuration and the configuration and arrangement of its parts and elements can be seen.

Figure 6 shows a bottom perspective view of the fastening element once it is incorporated in the structure of the awning, where can be seen the arrangement thereof in the center of the roll can be seen.

Figures 7 and 8 show section views, according to a central vertical section, of the element of the inven-

tion, depicted in the usage position with the roll of the awning on the band thereof, depicted in the maximum and minimum ranges for regulating the position of the rocking structure.

Figures 9 and 10 likewise show section views, according to a central vertical section, of the element of the invention also depicted in the usage position with the roll of the awning on the band thereof, in this case depicted in the maximum and minimum ranges for regulating the position of the rocking structure and tensing the band.

PREFERRED EMBODIMENT OF THE INVENTION

[0023] A non-limiting preferred embodiment of the object of the present invention is described below in view of the mentioned figures.

[0024] Therefore, as can be seen in said figures, the central fastening element (1) for a roller awning with articulated arms comprises an endless band (2) rolling on rollers (3, 4) associated with a structure (5) incorporated in a base (6) for incorporation thereof in the center of a, awning (7), determining a bearing surface (2a) serving as a support for supporting and fastening the roll (8) for the winding around the shaft of the canvas (9) of said awning (7), where it is distinguished in that it comprises:

- first regulating means (10, 11) for regulating the tension of said band (2) comprising a single central screw (10), preferably adjustable by means of an Allen wrench (12), and a guide (11); and
- second regulating means (13, 14) for regulating the position of said structure (5) for modifying the inclination of the mentioned bearing surface (2a) of the band (2) according to the position of the arms (15) of the awning (7) and, therefore, the angle of the canvas (9) with respect to the roll (8), which comprise two side screws (13), preferably adjustable by means of the same Allen wrench (12), and respective curved slots (14) of the structure (5) allowing the rocking thereof.

[0025] To that end, said band (2) runs between two end rollers (3) coupled to the respective upper and lower ends of the rocking structure (5), and a central roller (4) coupled to the body of the base (6), this central roller (4) being associated at the ends thereof with respective bearing sides (16) of a guide part (11) linked, in turn, to the thread of the central screw (10) such that when this central screw (10) is, in one direction or the other, screwed in on supports (24) arranged at the base (6), said guide (11) causes the lifting or lowering of the central roller (4) and accordingly the tensing or slackening of the band (2).

[0026] Preferably, the head of the central screw (10) is accessible from the lower part of the base (6) where it is housed, facilitating the adjustment thereof from the lower area of the awning (7), without having to take it

apart.

[0027] In turn, the rocking structure (5) is made up of two curved side parts (5a) which are identical and parallel to one another, at the ends of which there are coupled end rollers (3) of the band (2), each of which is provided with a curved slot (14) running along the central area thereof, and through which they are fixed to the base (6) by means of respective side screws (13) which are inserted therethrough and through corresponding holes (17) of the base (6) made for that purpose, which allows varying the inclination of the rocking structure (5) and, accordingly, the position of the end rollers (3) of the canvas (2) which in turn determine the inclination of the bearing surface (2a) thereof.

[0028] For fixing said side screws (13) on the inner face of the base (6), there are included respective stop parts (18) with two holes with the corresponding washers (19), one for screwing in the screw (13) after it goes through the slots (14) of the curved side part (5a) and another one for housing a lug (20) emerging from the inside of the base (6) after it goes through the mentioned slot (14).

[0029] Moreover, the fastening element (1) is preferably designed for being fixed directly to the awning (7), specifically to the transverse bar (21) which connects both ends of the shaft of the roll (8) and bears said roll, for which purpose the body of the base (6) of the fastening element (1) is made up of two symmetrical parts having a C-shaped prolongation (6a) which defines a quadrangular-shaped open cavity (22) having a shape in accordance with the shape of the section of the mentioned bar (21) of the awning (7), with each one being closed at the front by a profile segment (23) which is fixed by bolting, thereby allowing the easy placement and extraction of the assembly for installing or removing the element (1) in the awning (7).

[0030] In Figures 7 and 8, the fastening element (1) can be observed with the roll (8) of the awning on the bearing surface (2a) of the band (2), respectively depicted with the rocking structure (5) in the maximum and minimum ranges for regulating its position, where it can be seen how said position varies by an angle (a) between 0° and 40° depending on the angle X of inclination of the awning. Said angles may vary depending on the closed length or perimeter of the band. Likewise, for modifying the angle X, in addition to the perimeter of the band, the rocking structure (5) and the length of the slot (14) therein, which also serves for modifying the angle "a" indicated in Figure 7, are also influencing factors. Therefore, by modifying the position of the slot (14) and the length of the perimeter of the band (2, 2a), the angle is modified, making it larger or smaller. The modification of these angles "a" and X affects the position of the roll (8) of the canvas. The perimeter of the band mainly depends on the awning canvas extension length, that is, the length of the canvas when it is unrolled, such that the perimeter of the canvas rolled is the diameter of the tube of the canvas. For example, for an unrolled canvas extension of 4 meters, the perimeter of the band is about 400 mm.

Therefore, if the unrolled canvas is smaller than 4 meters, the perimeter of the band will be less than 400 mm, and vice versa. This is because the smaller the canvas extension, the smaller the perimeter of the band because the canvas rolled on the shaft has a smaller diameter, and in contrast, the larger the canvas extension, the larger the perimeter of the band because the canvas rolled on the shaft has a larger diameter.

[0031] Figures 9 and 10 show the element of the invention in the usage position with the roll of the awning on the band thereof and located in the maximum and minimum ranges for regulating the position of the rocking structure and tensing the band.

Claims

1. A central fastening element for a roller awning with articulated arms, comprising an endless band (2) between two end rollers (3) coupled to the ends of two side parts (5a) which form a structure (5) incorporated in a base (6) arranged below the roll (8) for the winding of the canvas (9), said band (2) determining a bearing surface (2a), supporting and fastening the roll (8) for the winding of the canvas (9) of the awning (7) around the shaft thereof, **characterized in that** it comprises:

- first regulating means (10, 11) for regulating the tension of said band (2) with a single central screw (10) and a guide (11); and
- second regulating means (13, 14) for regulating the position of said structure (5) for modifying the inclination of the mentioned bearing surface (2a) of the band (2) according to the position of the articulated arms (15) of the awning (7) and therefore the angle of the canvas (9) with respect to the roll (8), each of said means (13, 14) comprising a side screw (13) able to move within a slot (14) located in the structure (5), allowing the rocking of the latter with respect to the base (6).

2. The element according to claim 1, **characterized in that** the first regulating means comprise a central roller (4) coupled at its ends to respective bearing sides (16) of the guide (11) linked to the base (6), and in turn, to the thread of the central screw (10) such that when this central screw (10) is, in one direction or the other, screwed in on supports (24) arranged at the base (6), said guide (11) causes the lifting or lowering of the central roller (4) and accordingly the tensing or slackening of the band (2).

3. The element according to claim 2, **characterized in that** the head of the central screw (10) is accessible from the lower part of the base (6).

4. The element according to any of the preceding

claims, **characterized in that** the structure (5) comprises the two curved side parts (5a) which are identical, and parallel to one another, the slot (14) of each part running along the curved side part (5a) also being curved.

5

5. The element according to any of the preceding claims, **characterized in that** the structure (5) is fixed to the base (6) by means of the side screws (13) which go through holes (17) made at the base (6) and also the slots (14), which thereby allows varying the rocking of said structure (5), and therefore varying the position of the rollers (3) which determine the inclination of the bearing surface (2a) of the canvas (9).
6. The element according to any of the preceding claims, **characterized in that** it comprises respective stop parts (18) with two holes, one for screwing in the screw (13) after it goes through the slots (14) of the curved side part (5a) and another one for housing a lug (20) emerging from the inside of the base (6) after it goes through the mentioned slots (14).
7. The element according to any of the preceding claims, **characterized in that** the base (6) comprises fixing means in the transverse bar (21) which connects both ends of the shaft of the roll (8) of the awning (7), supporting same.
8. The element according to any of the preceding claims, **characterized in that** the base (6) comprises two symmetrical parts having a prolongation (6a) which defines an open cavity (22) having a shape in accordance with the shape of the section of the bar (21) of the awning (7).

10

15

20

25

30

35

40

45

50

55

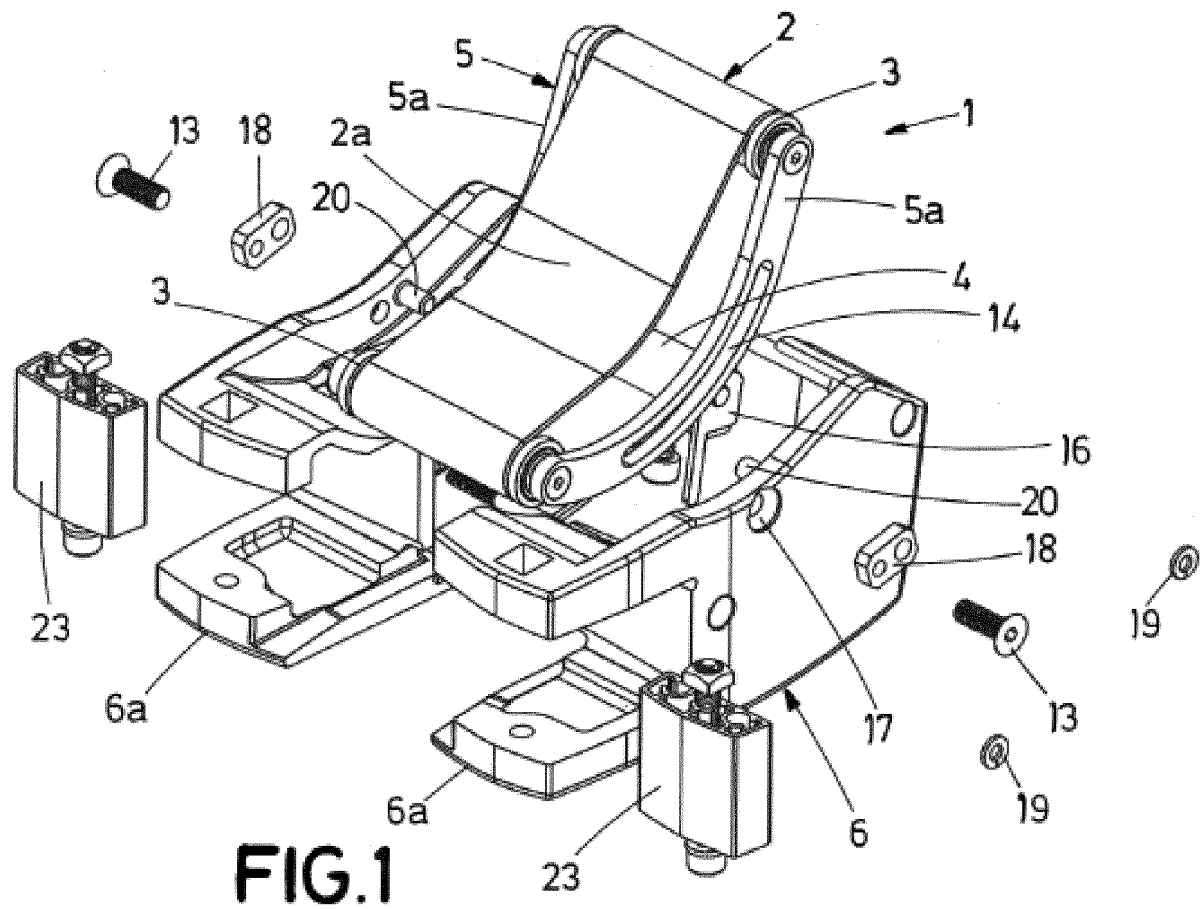


FIG.1

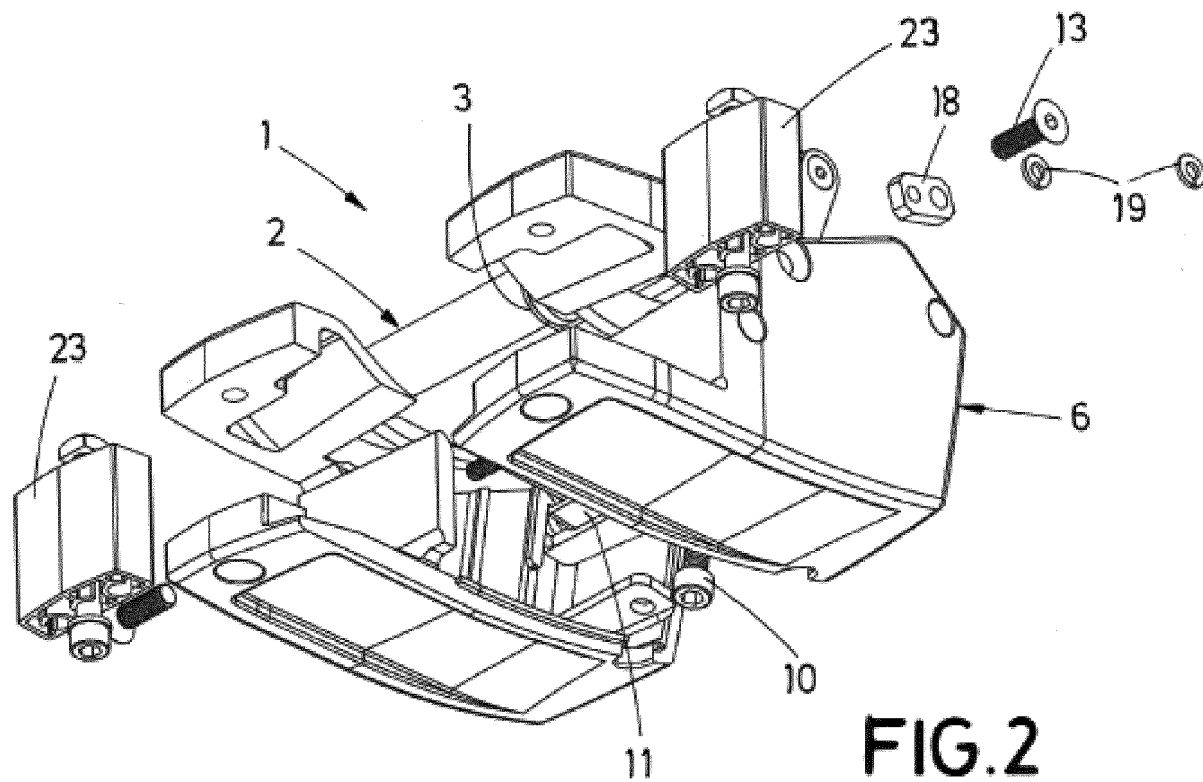


FIG.2

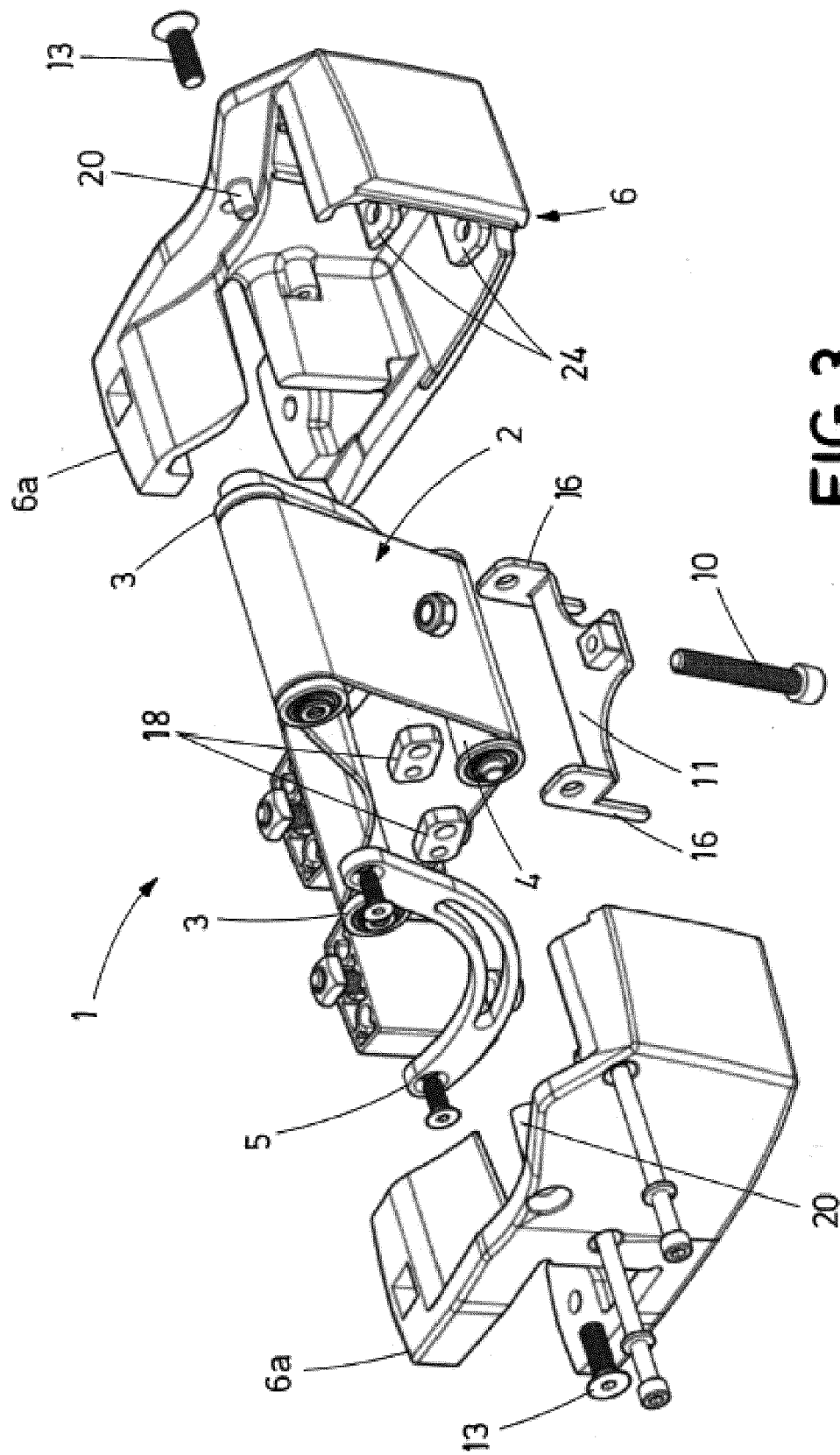


FIG. 3

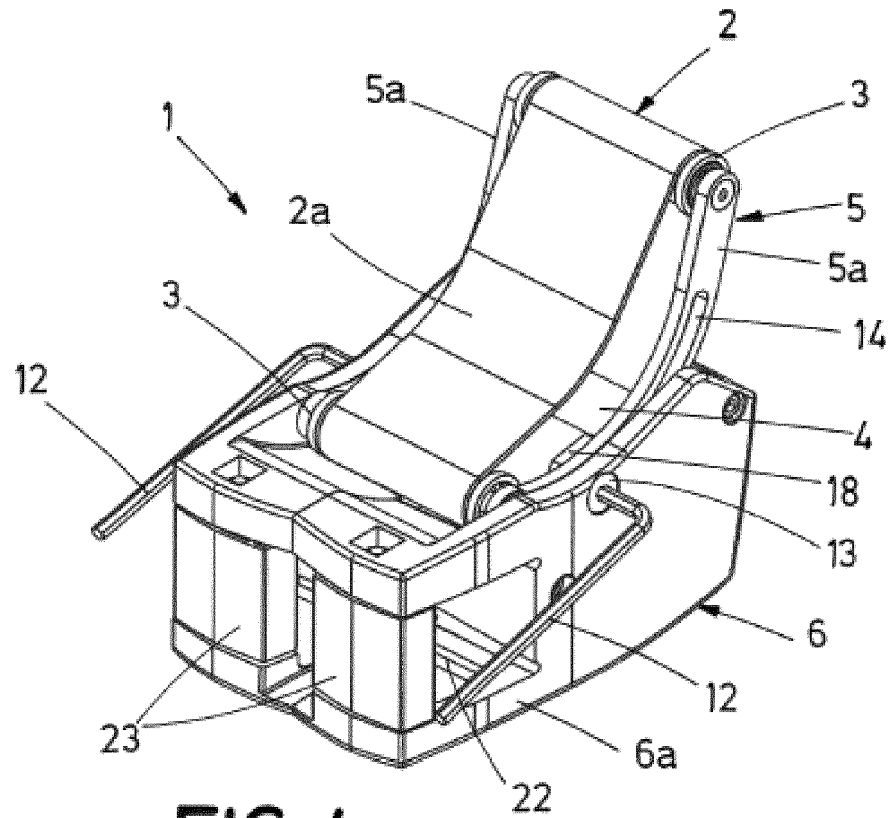


FIG.4

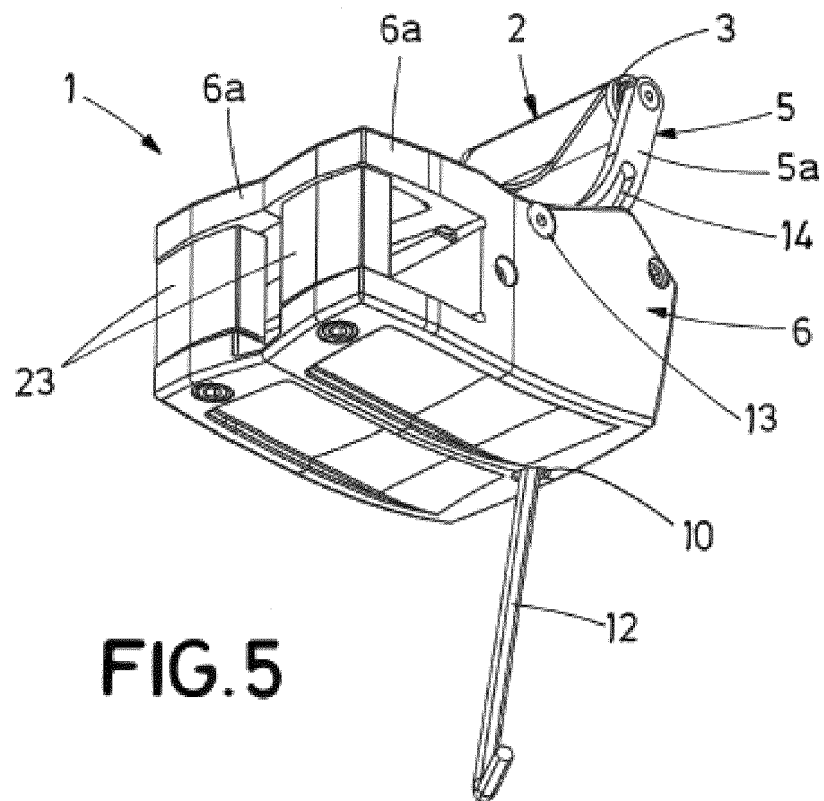


FIG.5

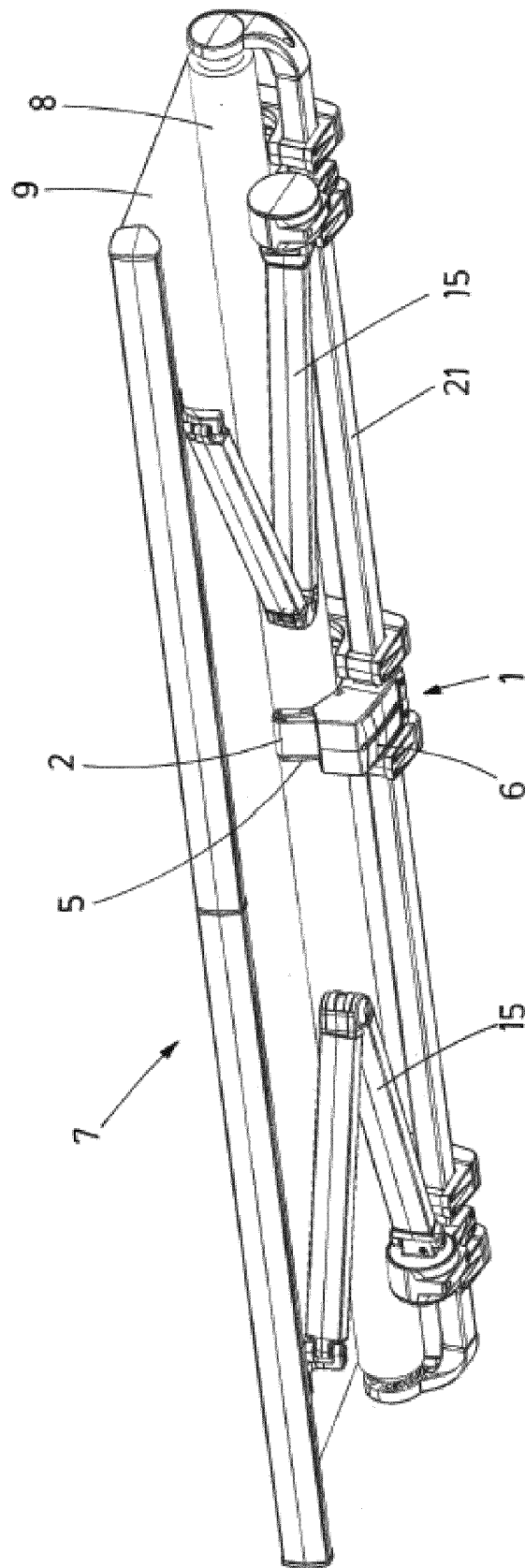


FIG. 6

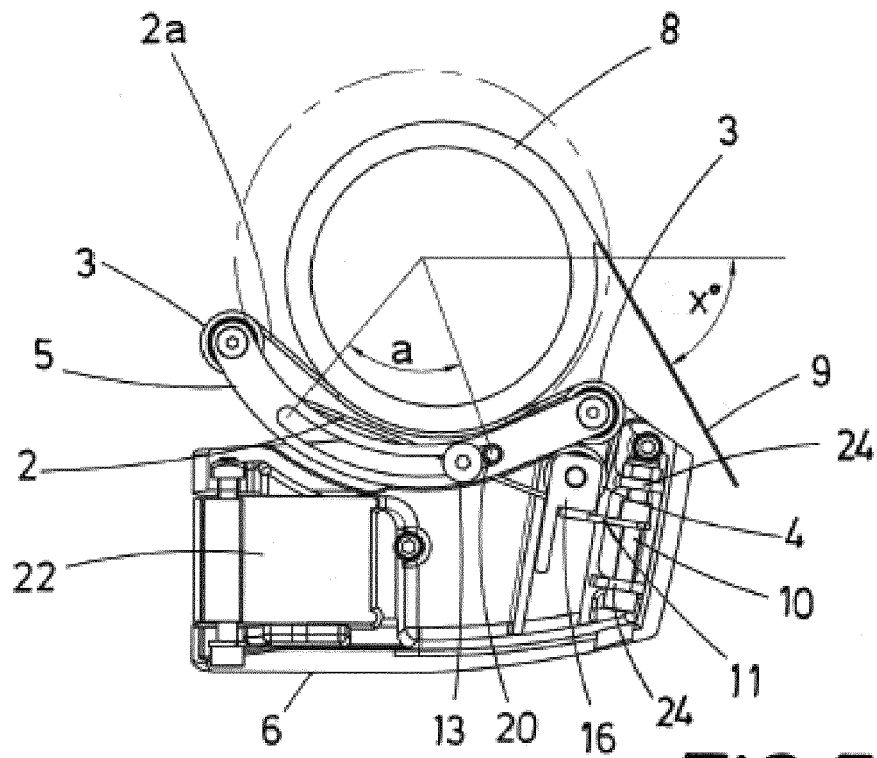


FIG. 7

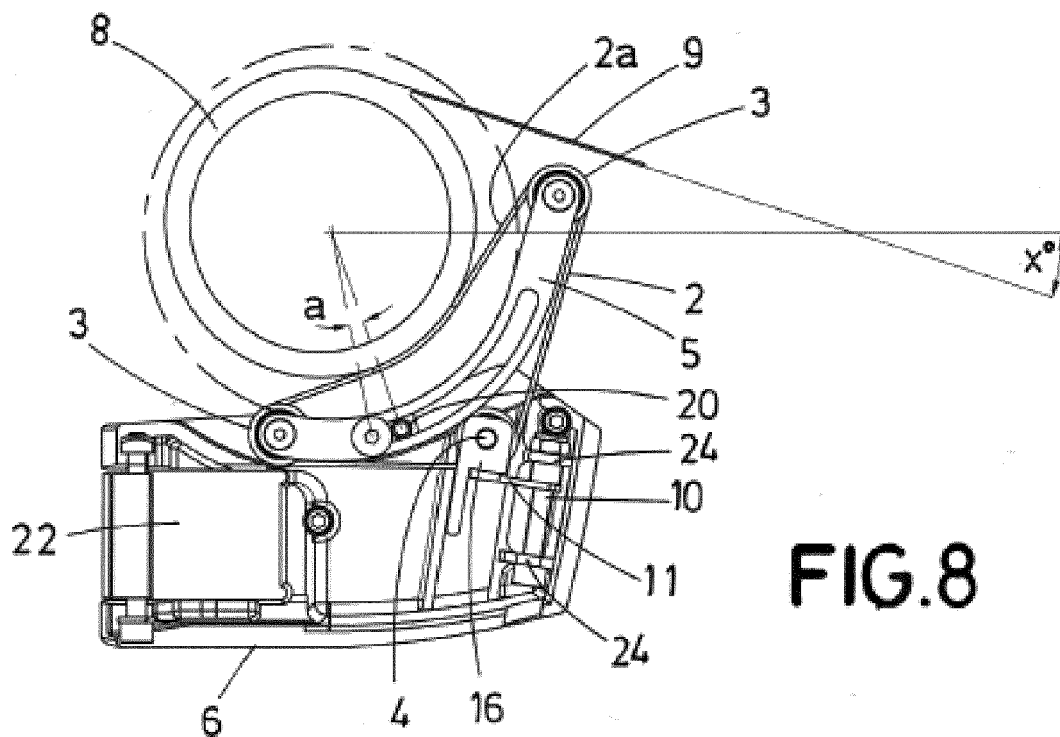


FIG. 8

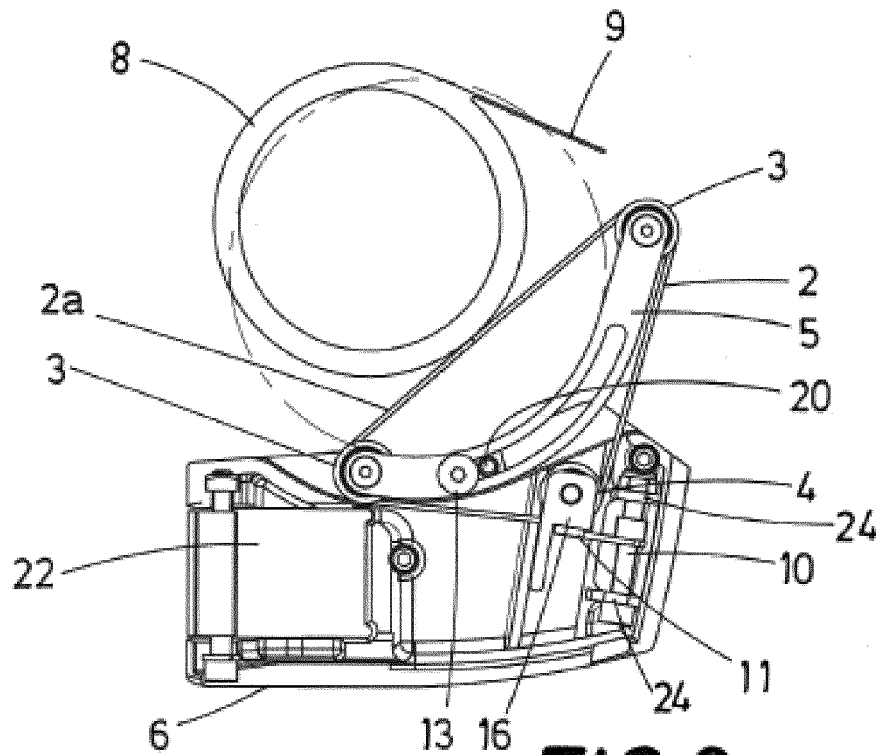


FIG.9

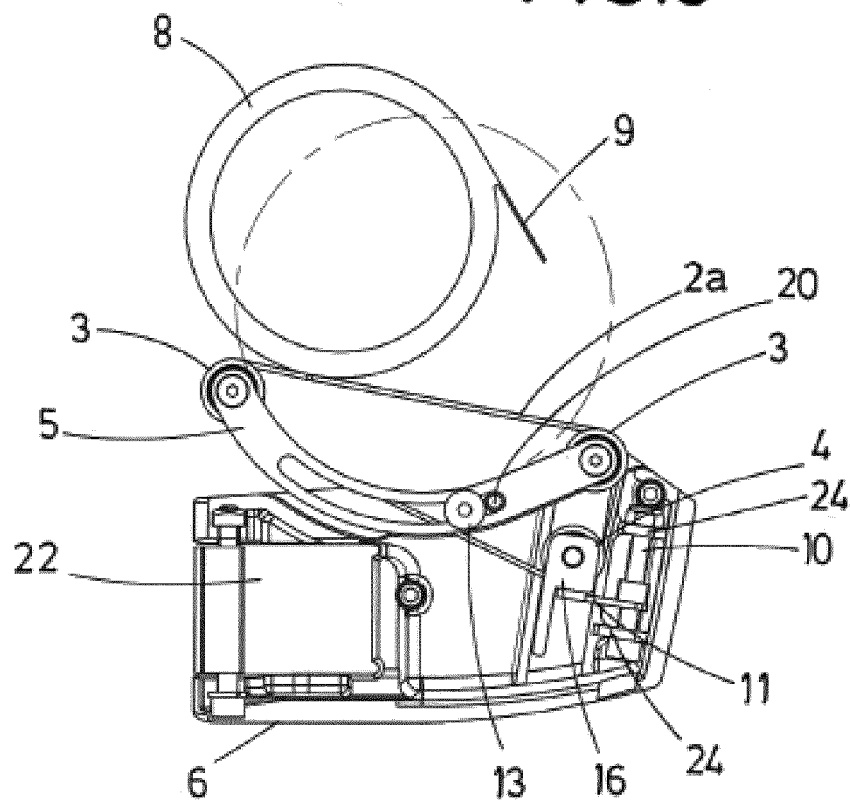


FIG.10



EUROPEAN SEARCH REPORT

Application Number
EP 19 38 2393

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	US 2 248 414 A (SCHANE EDWARD H) 8 July 1941 (1941-07-08) * the whole document *	1-8	INV. E04F10/06
A,D	US 2 326 642 A (HEISER HENRY C) 10 August 1943 (1943-08-10) * the whole document *	1-8	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04F E06B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 24 October 2019	Examiner Bourgoin, J
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			

 3
EPO FORM 1503 03.02 (P04C01)

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

EP 19 38 2393

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.

24-10-2019

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2248414	A	08-07-1941	NONE

US 2326642	A	10-08-1943	NONE

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

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- GB 492012 A [0004]
- US 2220311 A [0005]
- US 2248414 A [0006]
- US 2326642 A [0007]
- EP 0337033 A1 [0008]