

(19)



(11)

**EP 1 914 364 A2**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**23.04.2008 Bulletin 2008/17**

(51) Int Cl.:  
**E04H 15/48<sup>(2006.01)</sup>**

(21) Application number: **07118879.1**

(22) Date of filing: **19.10.2007**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
 HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE  
 SI SK TR**  
 Designated Extension States:  
**AL BA HR MK RS**

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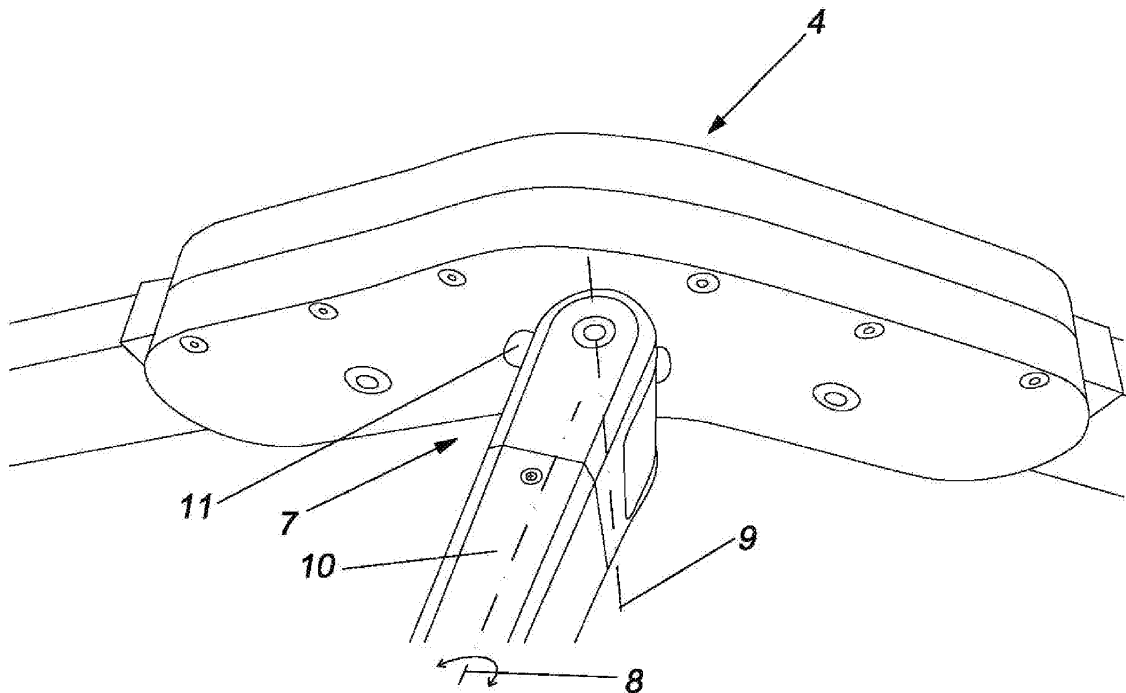
(30) Priority: **19.10.2006 ES 200602273 U**

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(54) **Foldable structure for the assembly of a tent**

(57) Folding structure for the assembly of a tent; which comprises a plurality of parallel arcs consisting of dividers with side branches articulated to an upper connecting part, said branches being connected by their ends or intermediate areas with those of other arcs by interlocking dividers, whilst the side branches of the dividers of the arcs are connected by a connecting part

also connected with the connecting parts of the adjacent arcs by lateral crossbars which can be fitted together, by an articulation of two perpendicular axes with stops implemented in the connecting parts of the branches of the arcs, implementing rollers carrying straps solidly joined to the canvas of the tent, to facilitate its assembly-dismantling.



**FIG. 3**

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**Description****OBJECT OF THE INVENTION**

[0001] The present invention relates to a folding structure for the assembly of a tent.

**BACKGROUND OF THE INVENTION**

[0002] At present folding structures are known for the assembly of tents, constituted by a plurality of parallel arcs interconnected by dividers which connect their side branches and which permit their approximation, and the arcs in turn being constituted by dividers with two side branches joined by an upper connecting part, side branches which can be single (constituted by a single profile) or multiple (constituted by several profiles). In turn, the upper connecting part of each arc is connected with those of the adjacent arcs by crossbars originating laterally and designed to meet and fit together by their free ends. These crossbars are articulated to the connecting parts wherefrom they originate by articulations of two perpendicular axes. One of the axes permits the folding of the crossbar towards the inside of the divider constituting the arc, whilst the other permits the axial rotation of the crossbar in unfolded position, this movement being limited by stops in order to stabilize the assembly of the structure on coupling each crossbar to its opposing member after reaching their respective stops counter-rotating. In this regard, for example, patent EP1493886 is known.

[0003] The drawback of the structure described is that it does not have the means which facilitate the lifting and assembly of the canvas, which turns it into a laborious task given the size of these tents, and therefore the weight of the canvas.

These drawbacks are resolved with the structure of the invention.

**DESCRIPTION OF THE INVENTION**

[0004] The folding structure of the invention has an optimum constitution, not only for its own rapid assembly and dismantling, but also to facilitate the suspended assembly of the canvas which constitutes the coverage of the tent.

[0005] The structure is, therefore, of the type constituted by parallel arcs which can be approximated to one another on connecting their side branches by dividers, which permits its folding. In turn, the arcs are constituted by dividers whose side branches may be single or composed of several profiles, branches which are interconnected by an upper connecting part.

[0006] Said connecting parts are connected with those of the adjacent arcs, when the structure is assembled, by crossbars originating from their sides which fit together by their free ends. These crossbars are articulated to the connecting parts wherefrom they originate by articula-

tions of two perpendicular axes, one of them which permits the folding of the crossbar towards the inside of the arc, and the other permit the axial rotation of the unfolded crossbar, limiting this movement with stops so that a crossbar laterally originating from a connecting part of an arc fits together with the crossbar originating from the connecting part of the adjacent arc after having counter-rotated both reaching their respecting stops, stabilizing the assembly of the structure.

[0007] The improvement that the invention proposes consists of implementing, at least in the connecting part of the divider constituting each arc, one or more appreciably vertical rollers designed to carry straps solidly joined to the canvas, straps which can be actuated from below for the lifting of the canvas, the roller acting as a pulley. This facilitates the lifting of the canvas and very particularly of canvases of considerable size and weight, such as those of military and sanitary use.

[0008] Furthermore, they are provided in some variants of the invention with self-braking means of the strap to maintain the lifting of the canvas, or simply to facilitate its lifting in phases.

[0009] These rollers, furthermore, can also be incorporated in the side branches of each arc, preferably in the articulations which interconnect each one of its portions if they are branches constituted by multiple portions.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0010]

Figure 1 shows a general view of the structure of the invention.

Figure 2 shows a view of the structure of the invention with the canvas assembled.

Figure 3 shows a detailed view of the upper connecting part of the two branches of the divider constituting an arc of the structure according to the invention.

Figure 4 shows a section detail of the part represented in figure 3.

**DESCRIPTION OF A PRACTICAL EMBODIMENT OF THE INVENTION**

[0011] The structure 1 of the invention comprises a plurality of lateral parallel arcs 2 constituted by dividers with side branches 3, single or multiple, articulated by an upper connecting part 4; and the arcs are also articulated by their ends or by intermediate areas by other dividers 5, which permits the folding of the structure by approximation of the arcs 2 to one another. In the case that the side branches 3 of the arcs are constituted by several portions 3a articulated together, the intermediate dividers can be articulated to the articulated joints 3b therebetween. Furthermore, and preferably, some or all of these articulations would be interlocking to stabilize the unfolding of the structure.

[0012] From the sides of the connecting parts 4 origi-

nate crossbars 10 which are articulated to the same by articulations 7 equipped with two perpendicular axes 8 and 9, one of them 8 being of axial rotation of the unfolded crossbar, and the other 9 of folding of the crossbar towards the inside of the arc. When each crossbar 10 is fitted by its free end with the end of the crossbar 10 originating from the connecting part of the adjacent arc, as seen in figures 1 and 2, they become connected. Furthermore, it provides stops 11 of the axial rotation around the axis 8 of both crossbars so that to find the locking position it is necessary to have reached their stops after having counter-rotated, which stabilizes the assembly of the structure. These stops are materialized according to the invention by depressions moulded in the parts 4.

**[0013]** Finally, to facilitate the assembly of the canvas, the invention proposes the implementation in the parts 4, and also in the connecting parts 3b between the different portions of the side branches of each arc if considered necessary, of rollers 12 on whose tracks run straps 13 solidly joined to the canvas 14, so that said rollers act as pulleys which facilitate the lifting of the canvas by the straps 13.

**[0014]** Optionally, whether to block the position of the canvas or to facilitate its lifting by phases, braking means of the straps have been provided as they run through the pulleys. Said braking means are appreciated in figure 4 and consist in this non-limitative example of the invention in a semicircular shoe 15 mounted eccentrically on the part which supports the roller, either connecting part 4 or connecting parts 3b between portions 3a, in the opposite direction to the lifting of the strap: the semicircular contour of the shoe joined to the suitable position of the eccentric articulation make the shoe increase pressure against the strap when the canvas descends, self-adjusting, whilst when it is pulled in the direction of the lifting of the canvas it is loosened. To release the brake a cable has been provided which is externally accessible and whereto the shoe has been fixed on an area opposite its eccentric articulation.

**[0015]** Having sufficiently described the nature of the invention and a practical embodiment thereof, it should be stated that the aforementioned provisions indicated and represented in the attached drawings can be modified in terms of details as long as they do not alter the fundamental principle.

## Claims

1. Folding structure for the assembly of a tent; of the type which comprises a plurality of parallel arcs constituted by dividers with side branches articulated to an upper connecting part, said branches being connected by their ends and/or intermediate areas with those of other arcs by other interlocking dividers which permit, on the one side, the folding of the structure by the approximation of the arcs, and, on the other, by the stabilization of the unfolding of the struc-

ture; whilst the side branches of the divider constituting each arc are connected by an upper connecting part, which is in turn connected to the connecting parts of the adjacent arcs by means of crossbars, laterally originating therefrom, and designed to meet and fit together by their free ends after having counter-rotated against said stops, these crossbars being laterally articulated to the connecting part wherefrom they originate by articulation of two parallel axes wherein said stops are implemented; **characterized in that**, at least, in the connecting parts of the branches of the arcs rollers are implemented, designed to carry straps solidly joined to the canvas of the tent, in order to facilitate the lifting and lowering in the assembly and dismantling thereof.

2. Structure according to claim 1, **characterized in that** optional self-braking means have been provided for the straps which run through the rollers.

3. Structure according to claim 1, **characterized in that** the optional self-braking means consists of a semicircular shoe mounted eccentrically in the opposite direction to the lifting of the canvas the part which supports the roller, having provided a cable releasing the shoe fixed by the area opposite the eccentric articulation.

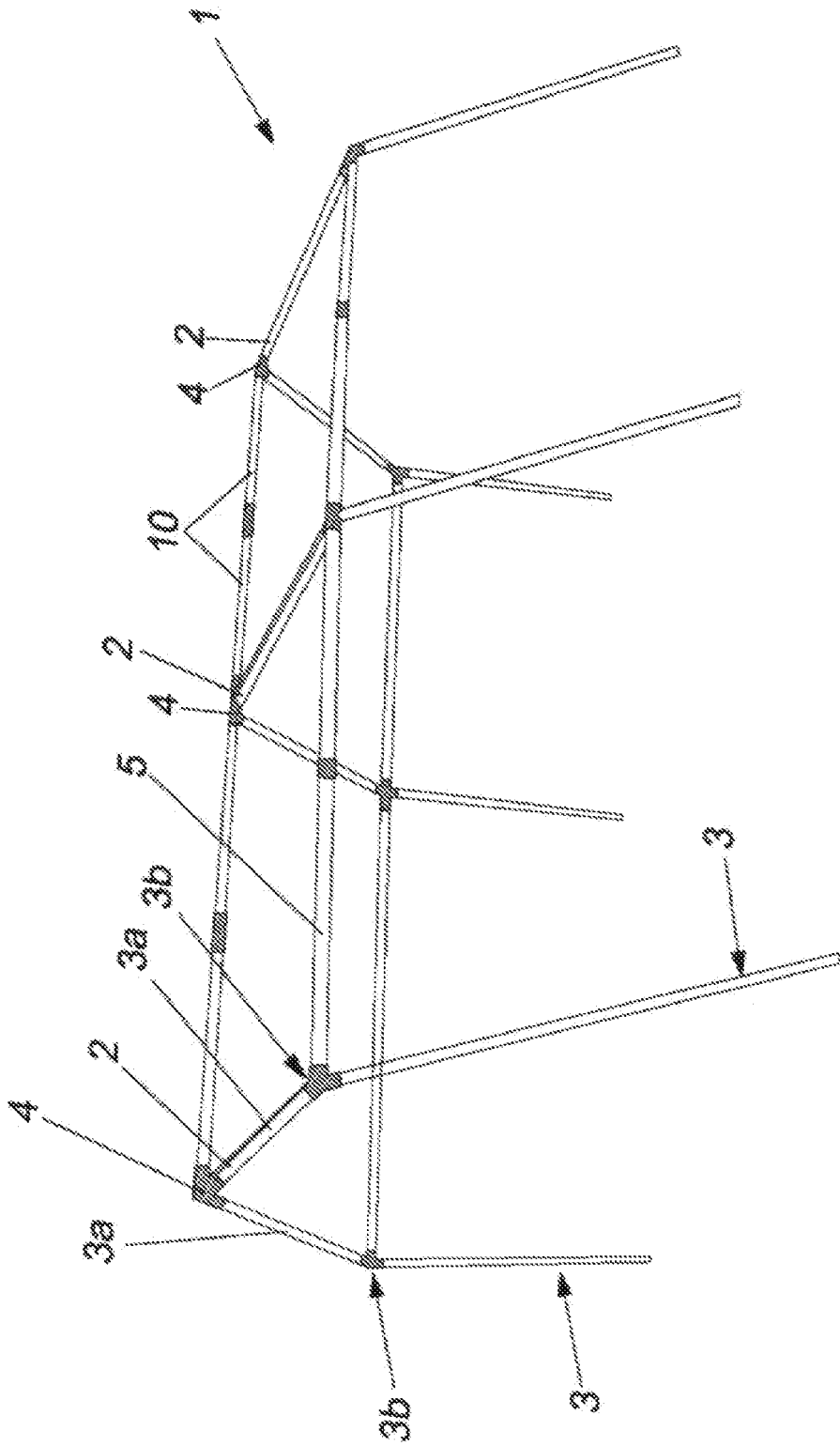


FIG. 1

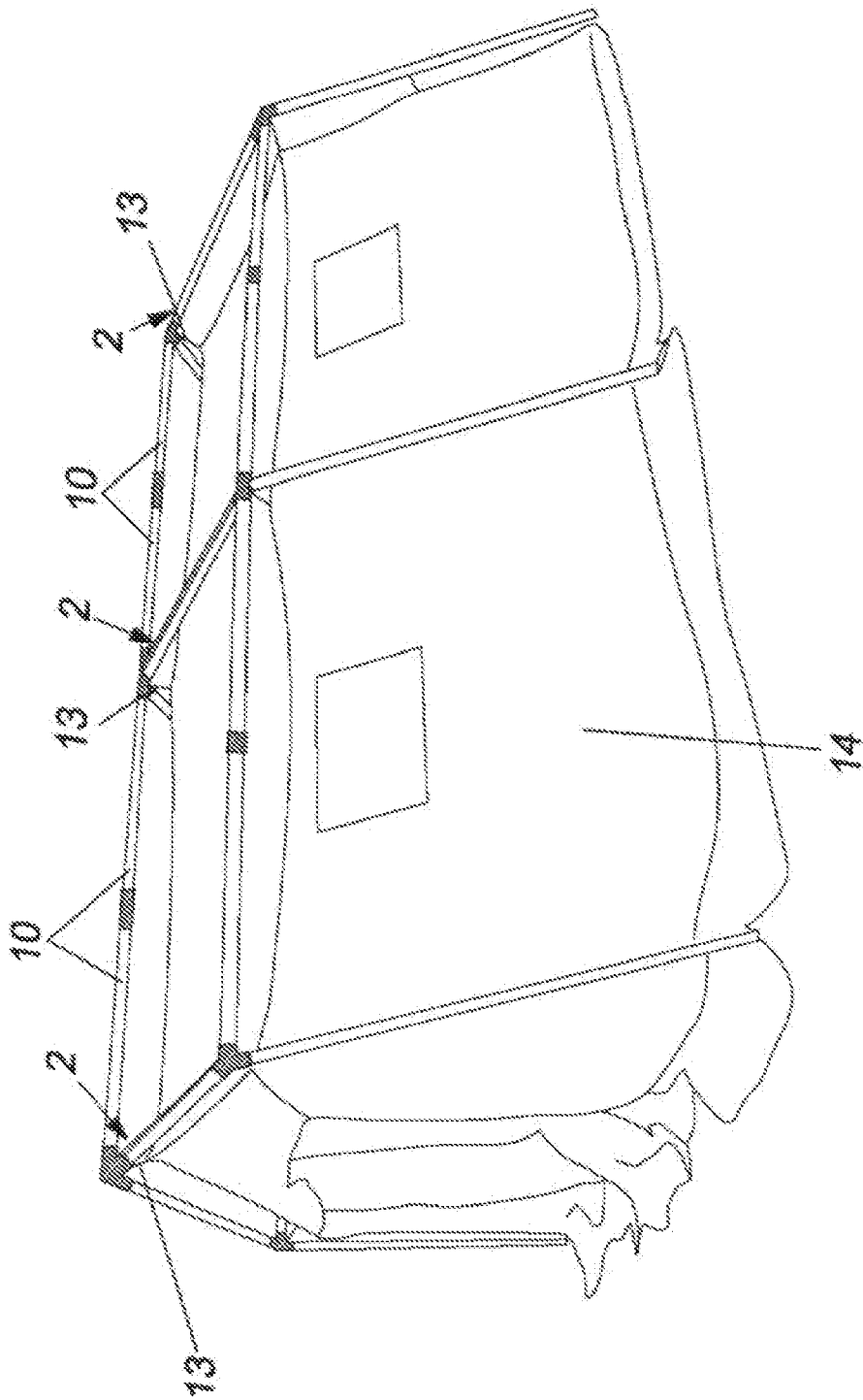


FIG. 2

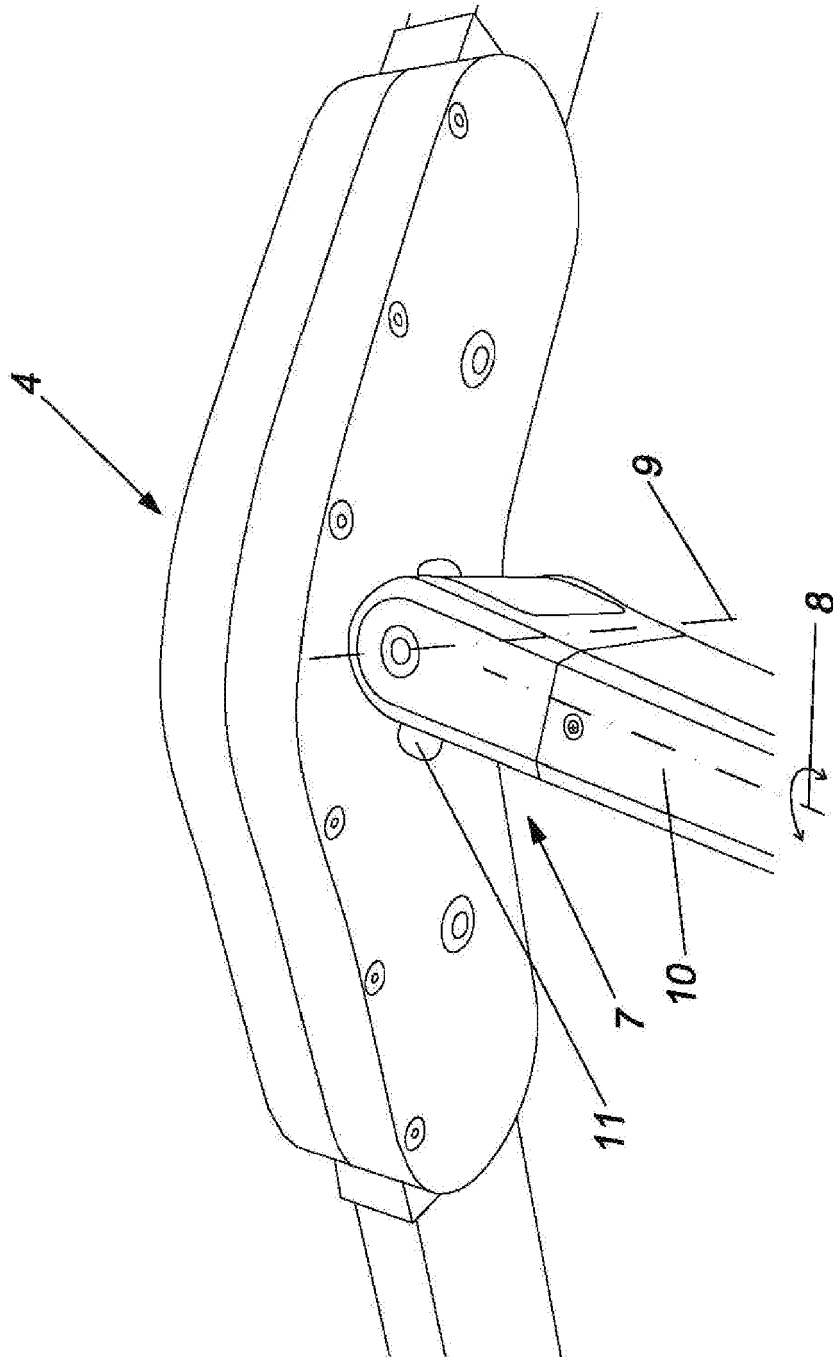


FIG. 3

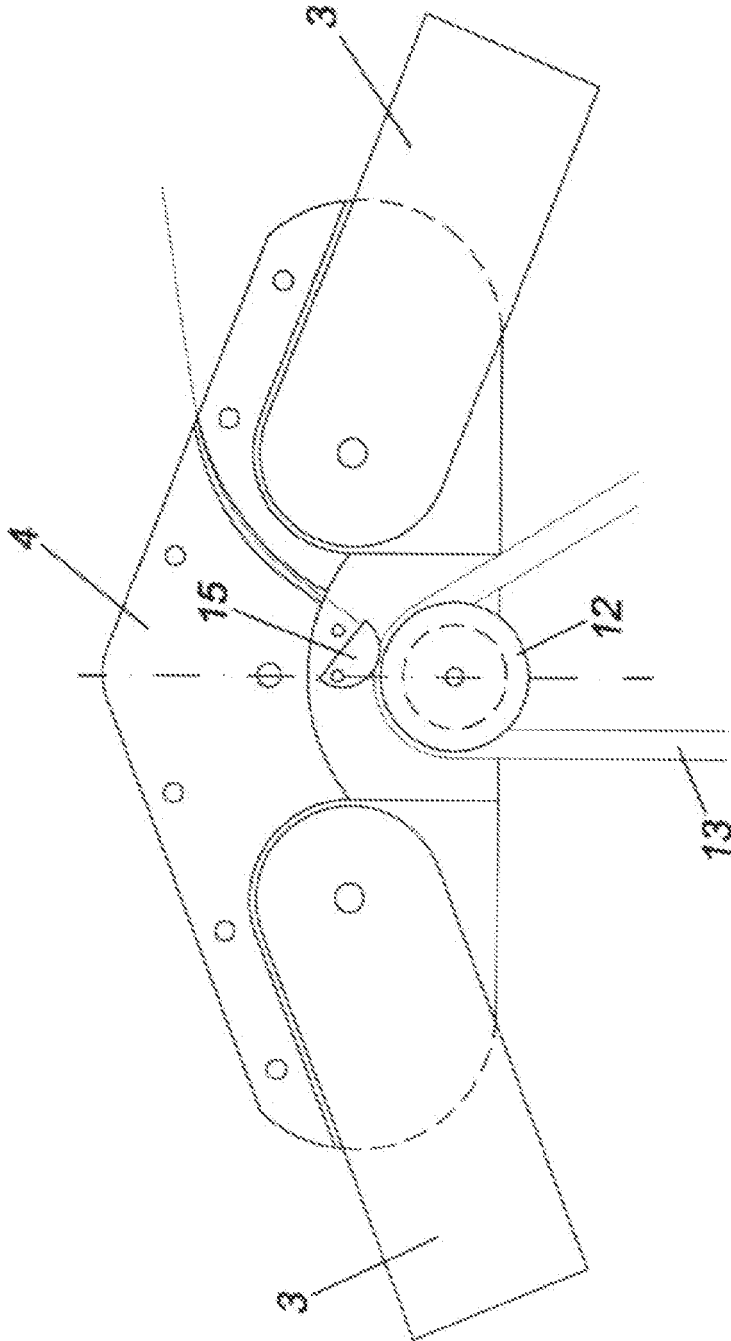


FIG. 4

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- EP 1493886 A [0002]