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(54) **External antenna for television**

(57) It comprises at least one grid (2, 3) and one boom (4) with their respective directive elements (5) that are separated by a predetermined distance and characterised in that it comprises at least one grid (2, 3) securing element (6), to the boom (4), which comprises: a stem-shaped body (7) that clamps the boom (4), and a grid prolongation (8, 9), with an interior passage (17, 18) in

the respective direction of each grid, attached to the stem-shaped body (7) so that, in the storage position, the at least one prolongation (8, 9) and the director elements (5) are in the same horizontal plane and, in the rotation position, the securing element (6) rotates with respect to the boom (4), causing the prolongation (8, 9) to rotate until it reaches the predetermined position.

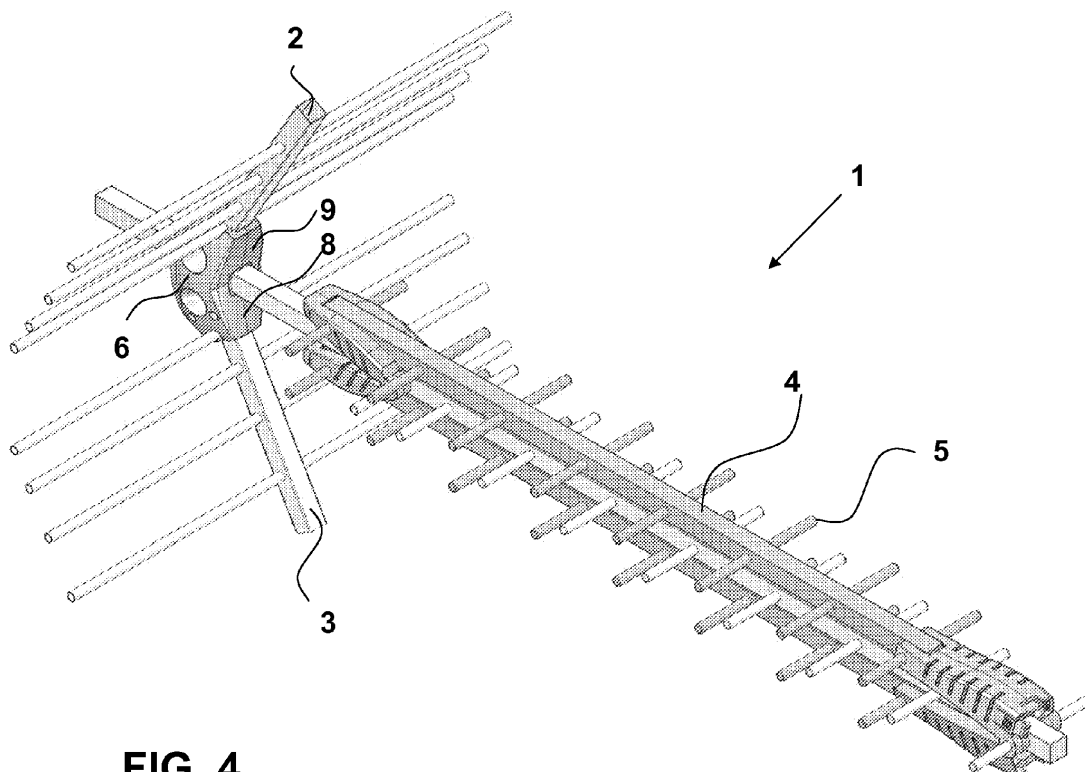


FIG. 4

Description

[0001] An external antenna for television, of the type that comprises at least one grid and one boom with their respective directive elements that are separated by a predetermined distance and characterised in that it comprises at least one grid-securing element, to the boom, which comprises: a stem-shaped body that clamps the boom and a grid prolongation, with an interior passage in the respective direction of each grid, attached to the stem-shaped body so that, in the storage position, the at least one prolongation and the directives elements are in the same horizontal plane and, in the rotation position, the securing element rotates with respect to the boom, causing the prolongation rotate until it reaches the predetermined position.

BACKGROUND OF THE INVENTION

[0002] Several external antennas for television are known in the state of the art.

[0003] Thus, Spanish Utility Model No 131427, "ANTENA PARA TELEVISIÓN DE BRAZOS ABATIBLES", is known in the name of Mr José PUCHOL PÉREZ, from 1967, which refers to an antenna for television with folding arms, characterised in that it comprises a hollow prismatic section against which, on the one hand, it receives the mast securing clamp and, longitudinally opposite, the elements arm and the connection to the receiver, which arm is telescopically plugged in and secured by threaded pins, of which one is in the centre of the prismatic section or support and also used to fix a flange, in which the sheets form a cross, the entrance elbows of which are fitted with support projections in its enforcement that vertically determine some coupling mortised and fixing of the arched arms that support the screen, for which reason longitudinal slots are determined at the adequate end for passing winged screws through that optionally apply pressure.

[0004] Spanish Utility Model No 150975 "ANTENA DE TELEVISIÓN PARA LA BANDA DE UHF" from 1969 is also known, in the name of ROBERT BOSCH ELEKTRONIK UND PHOTOKINO, G. M. B. H., which refers to a UHF television antenna with an active full-wave dipole radiator, arranged horizontally in front of a flat angular reflector, comprising two folding halves, articulately joined together, the two halves of which each have two branches arranged perpendicularly one over the other at a distance of approximately $\frac{1}{4}$, characterised in that each of the four dipole radiator branches has two rows of directors, located one above the other, in which each director is insulated from the other directors in its row, together with in relation to the directors in all the other rows, due to a longitudinal horizontal beam, which passes through the reflector approximately at its vertex and that with its rear end, which is behind the reflector, is fixed to an antenna mast with a normal mast securing, carries in its section, which is in front of the reflector, insulating

material supports for the director rows in front of the two upper full-wave dipole radiator branches and an auxiliary beam at a distance below parallel to it, with insulating material supports for the director rows in front of the two lower full-wave dipole radiator branches.

BRIEF DESCRIPTION OF THE INVENTION

[0005] This invention is an improvement on external antennas for television, because it allows for improved packaging and storage of the same.

[0006] The closest document is Utility Model 131427. In this document, with respect to the space problem, the antenna is configured so that the arms or prolongations are articulated and can be folded against the boom.

[0007] Thus, said solution involves the drawback that requires that the packaging takes into account the volume produced by the boom directors and that of the folded arms, so that, even when folded, the volume is still significant.

[0008] The fact of reducing packaging volume means that more antennas can fit inside a container or lorry which, in turn, reduces transport costs and results in cheaper antennas producing benefits for the seller and the purchaser.

[0009] Along this line, the inventors have developed a new antenna that allows only the volume of the actual boom and director elements to be employed, without requiring any more so that only the volume actually used by the structural needs of the antenna are necessary.

[0010] To this end, a securing element has been configured which, in a passive position, said element is orientated parallel to and in the same direction as the directors and, in the active position are arranged perpendicular to same as in the background to the invention, so that in the passive position no additional volume is occupied, only that required for the dimensions of the boom and directors, which then recover their ideal operational position when moved to the active position.

[0011] One objective of this invention is an external antenna for television, of the type that comprises at least one grid and one boom with their respective directive elements that are separated by a predetermined distance and characterised in that it comprises at least one grid-securing element, to the boom, which comprises: a stem-shaped body that clamps the boom and a grid prolongation, with an interior passage in the respective direction of each grid, attached to the body in form of a stem so that, in the storage position, the at least one prolongation and the director elements are in the same horizontal plane and, in the rotation position, the securing element rotates with respect to the boom, causing the prolongation rotate until it reaches the predetermined position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] In order to facilitate the description, this report is accompanied by four sheets of drawings in which a

practical embodiment example is shown, which is cited as an example that does not limit the scope of this invention:

- Figures 1a to 1d are assembly views between the passive and active positions,
- Figures 2a to 2d are views of inside the securing element, in the same assembly phases of Figures 1a to 1d,
- Figure 3 is a view of an antenna inside its packaging, and
- Figure 4 is a view of an assembled antenna.

SPECIFIC EMBODIMENT OF THIS INVENTION

[0013] Thus, Figures 1a to 1d illustrate an antenna 1, a boom 4, with its director elements 5, a securing element 6 with its prolongations 8, 9 and a flange 12.

[0014] Figures 2a to 2d show boom 4, then securing element 6 and its prolongations 8, 9 and passages 17, 18, a stem-shaped body 7 with flanges, a first 12 and a second 13, and notches 10, 11, and a slot 15.

[0015] Figure 3 se shows packaging 16, boom 4 and securing element 6 and its prolongations 8, 9.

[0016] Lastly, Figure 4 shows the antenna 1, securing element 6 with its prolongations 8, 9, grids 2, 3, boom 4 and its director elements 5.

[0017] In this way, in a specific embodiment example, when the antenna 1 is received by the installer, it will be as shown in Figure 3 (grids 2, 3 have been removed to facilitate the inside image of the claimable elements).

[0018] As can be seen in said Figure 3, the director elements 5 adopt a horizontal or vertical configuration with respect to boom 4. Securing element 6 is arranged in the same plane as director elements 5 so that it occupies just the space that is strictly necessary for the volume needs of the directors 5.

[0019] Thus, it allows many more antenna packages to be stored since, by reducing packaging height by, for example, 20 centimetres would mean being able to transport a large number of antenna packages inside a container or lorry, which means reducing transport costs and the price of the end product.

[0020] The antenna is assembled in the following manner. First, the procedure is described from the outside (Figs. 1a-1d) in order to subsequently provide details on how to work on the inside of the securing element 6 (Figs. 2a-2d).

[0021] In this way, when the antenna 1 is unpacked, the installer is faced with the image of Figure 1a. Then the installer moves the securing element forwards (Fig. 1 b) revealing first flange 12, which belongs to the stem-shaped body 7 (this is not shown in these figures because it is inside the securing element 6).

[0022] The installed then rotates securing element 6 through 90° (or whatever angle is predetermined) and leaves prolongations 8, 9 of the securing element 6 perpendicular to the director element 5 plane (Fig. 1c).

[0023] Finally, the installer pushes securing element 6 in the direction opposite to that of Figure 1b, positioning it at the first flange 12 on securing element 6.

[0024] The installation is completed by positioning grids 2, 3 on prolongations 8, 9, leaving the antenna 1 as shown in Figure 4.

[0025] The movement produced inside securing element 6 is described in Figures 2a-2d. Each movement made in said Figures 2a-2d relates to the respective explanation of Figures 1a-1d.

[0026] Thus, in the packaged position (Fig. 2a), slot 15 of rotating element 6, fits onto the second flange 13 (ring-shaped) of the stem-shaped body 7.

[0027] When rotating element 6 (Fig. 2b) is moved, the first flange 12 is left outside and, at the same time, the second flange 13 is removed from inside slot 15.

[0028] Securing element 6 is rotated (Fig. 2c) until the passages 17, 18 are facing notches 10, 11. Said passages 17, 18 are housings for grids 2, 3 and said notches 10, 11 are used as an end-stop for the referred grids 2, 3.

[0029] Finally, Figure 2d, securing element 6 is moved in the opposite direction to that made in Figure 2b, until first flange 12 is returned to securing element 6 and second flange 13 is positioned inside slot 15.

[0030] This invention patent describes a new external antenna for television. The examples described here do not limit this invention so that it may have various applications and/or adaptations, all of which are within the scope of the following claims.

Claims

1. An external antenna for television, of the type that comprises at least one grid (2, 3) and one boom (4) with their respective directive elements (5) that are separated by a predetermined distance and **characterised in that** it comprises at least one grid (2, 3) securing element (6), to the boom (4), which comprises:

- a stem-shaped body (7) that clamps the boom (4), and
- a grid prolongation (8, 9), with an interior passage (17, 18) in the

respective direction of each grid, attached to the stem-shaped body (7) so that, in the storage position, the at least one prolongation (8, 9) and the director elements (5) are in the same horizontal plane and, in the rotation position, the securing element (6) rotates with respect to the boom (4), causing the prolongation (8, 9) to rotate until it reaches the predetermined position.

2. A device, in accordance with claim 1, **characterised in that** it comprises two grids (2, 3) and two prolongations (8, 9).

3. A device, in accordance with claim 1 or 2, **characterised in that** it comprises a notch (10, 11) for each grid on the stem-shaped body (7), as an end-stop for the grid (2, 3). 5
4. A device, in accordance with any of the above claims, **characterised in that** the stem-shaped body (7) includes flanges, a first flange (12) and a second flange (13), at the ends of the stem-shaped body (7) which, in both the active and passive positions covers or blocks the securing element (6) and, while the securing element (6) is rotating, said flanges uncover the securing element (6). 10
5. A device, in accordance with claim 4, **characterised in that** the second flange (13) of the stem-shaped body (7), in both the active and passive positions, is fits into a slot (15) belonging to the securing element (6) and, while the securing element (6) is rotating, said second flange (13) is outside the slot (15). 15 20

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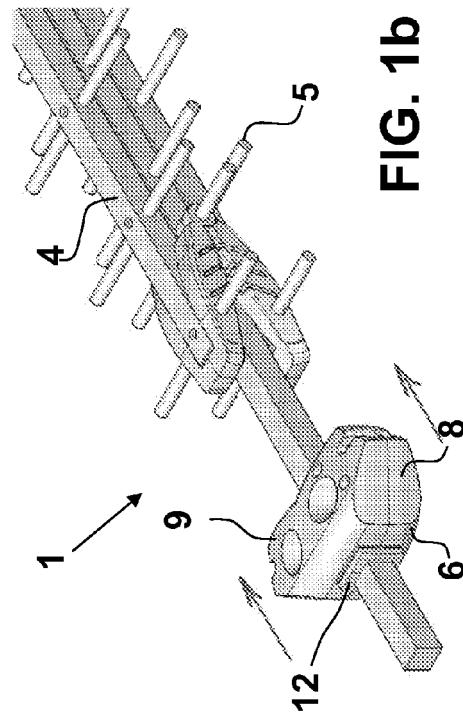
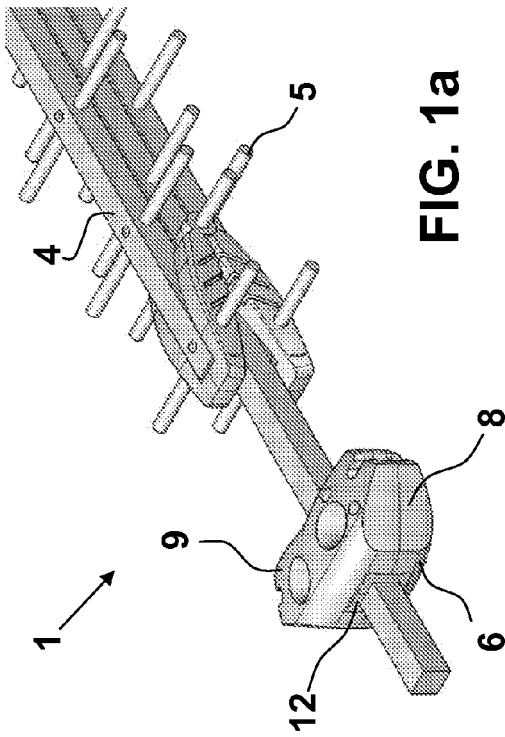
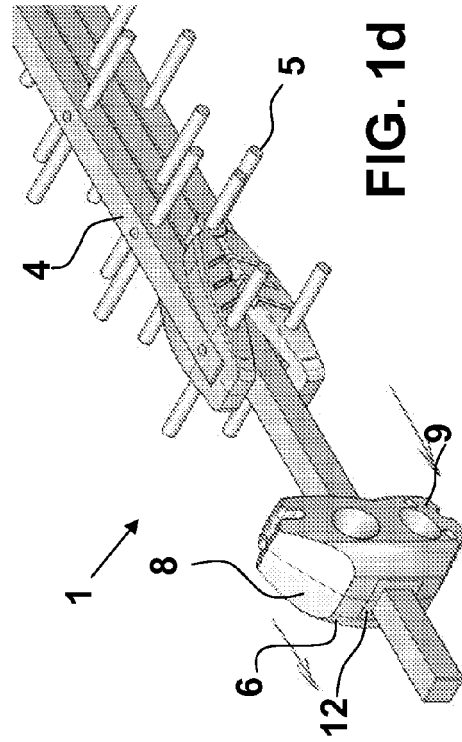
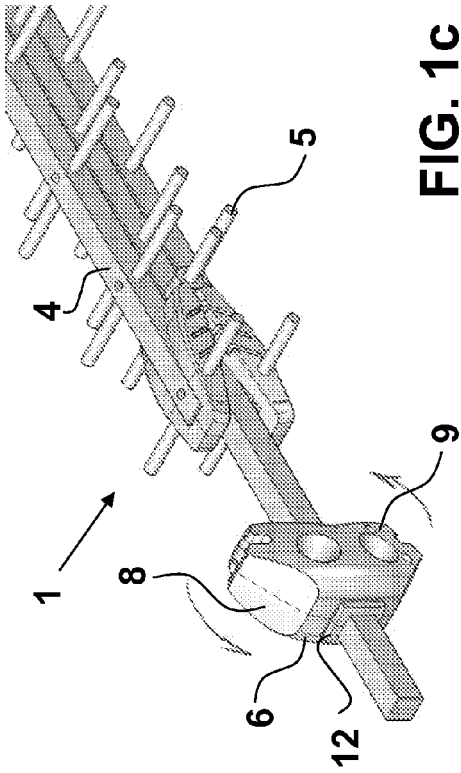
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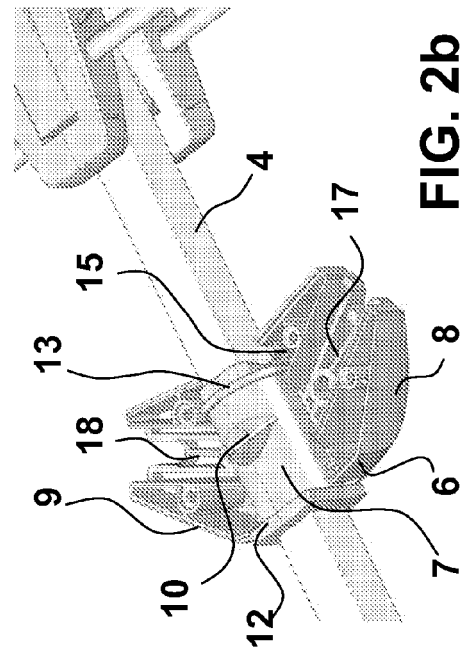
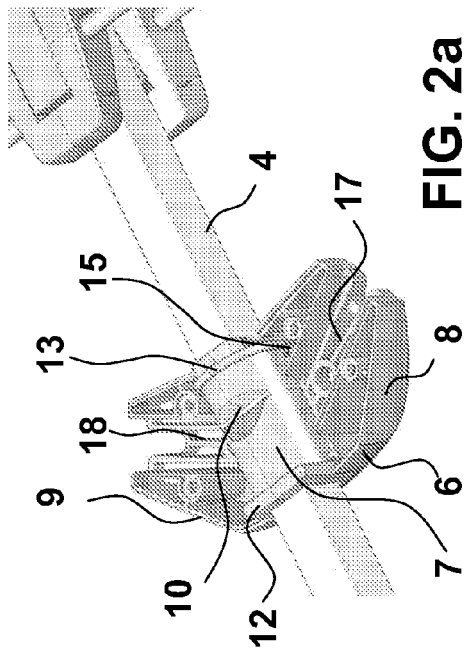
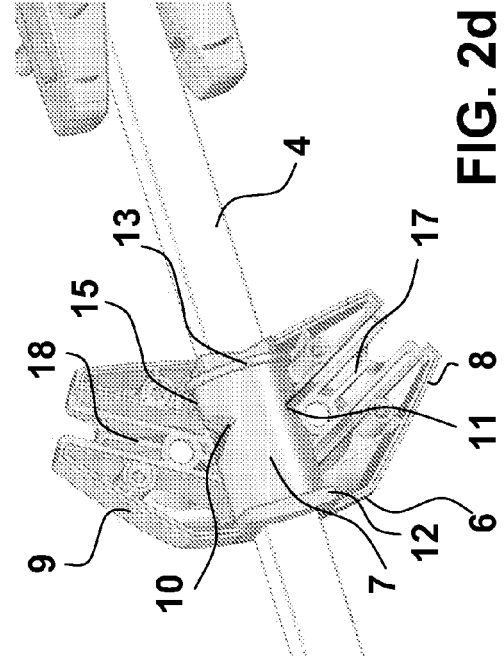
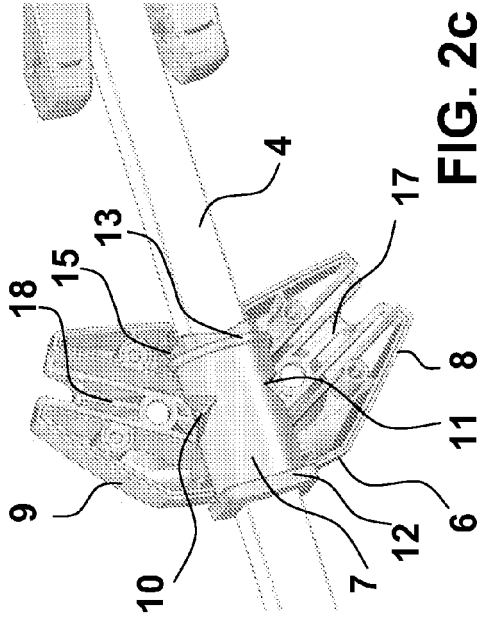
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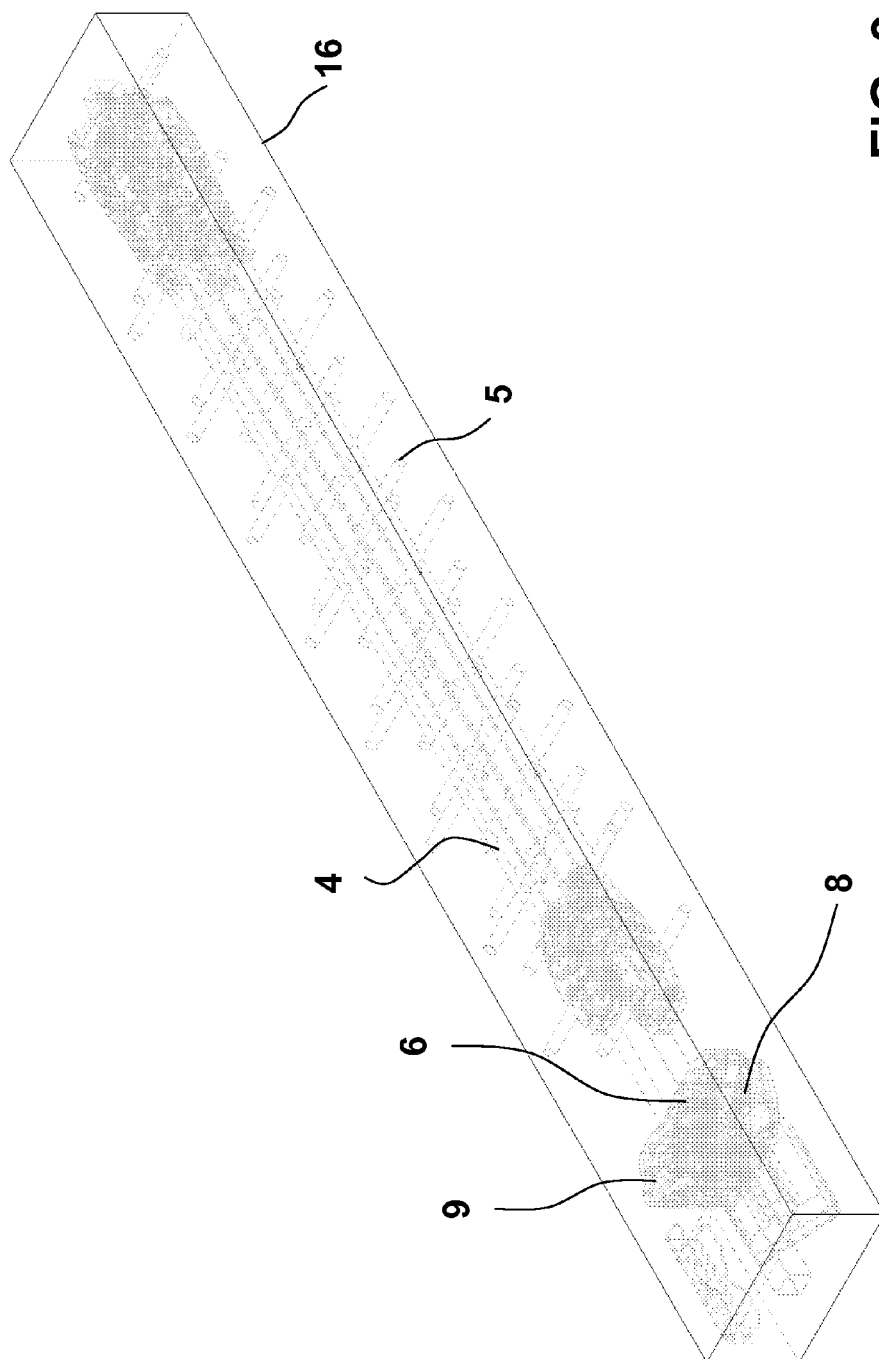


FIG. 3

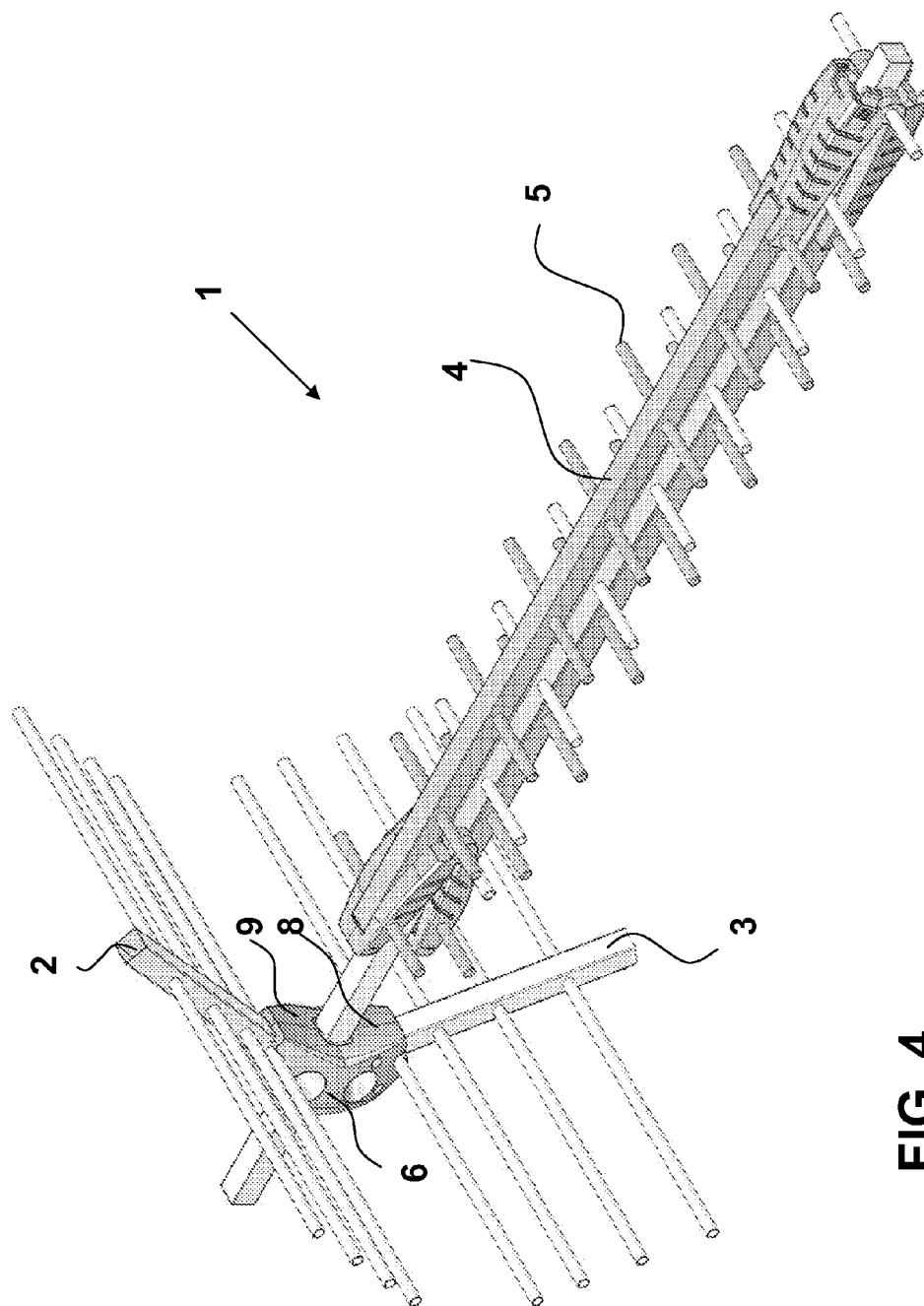


FIG. 4



EUROPEAN SEARCH REPORT

Application Number
EP 10 38 2161

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	US 2007/262912 A1 (ECKWIELEN BRADLEY L [US] ET AL) 15 November 2007 (2007-11-15) * the whole document *	1-5	INV. H01Q19/04 H01Q1/08
A	US 3 531 805 A (WINEGARD JOHN R ET AL) 29 September 1970 (1970-09-29) * figures 1-12 *	1-5	
A	US 4 265 690 A (LOWENHAR HERMAN) 5 May 1981 (1981-05-05) * abstract *	1-5	
E	EP 2 194 605 A1 (IGLESIAS ANGEL SA [ES]) 9 June 2010 (2010-06-09) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			H01Q
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		20 August 2010	Wattiaux, Véronique
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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EPO FORM 1503 03.82 (P04C01)

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

EP 10 38 2161

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
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20-08-2010

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US 3531805	A	29-09-1970	NONE	
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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 131427 [0003]
- ES 150975 [0004]
- WO 131427 A [0006]