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(54) **Antenna**

(57) An antenna, self-mountable and articulated, characterized because it consists of a basic structure (1) made up of a central bar (11) and an articulated quadrilateral defined by corresponding reflectors (12) which can swing on said central bar (11) on a fixed point of articulation (A), corresponding lateral bars (14) which can swing on the respective reflectors (12) on fixed points of

articulation (B) and a pointer flange (15) on which both the respective lateral bars (14) can swing on fixed points of articulation (C) and the central bar can move(11) on positioning itself at a point (D) of any of a number of aligned articulation points (D); and a dipole (2), made up of two identical pieces (21) positioned symmetrically on a central box (22), mounted, in turn, on the aforementioned central bar (11) of the basic structure (1).

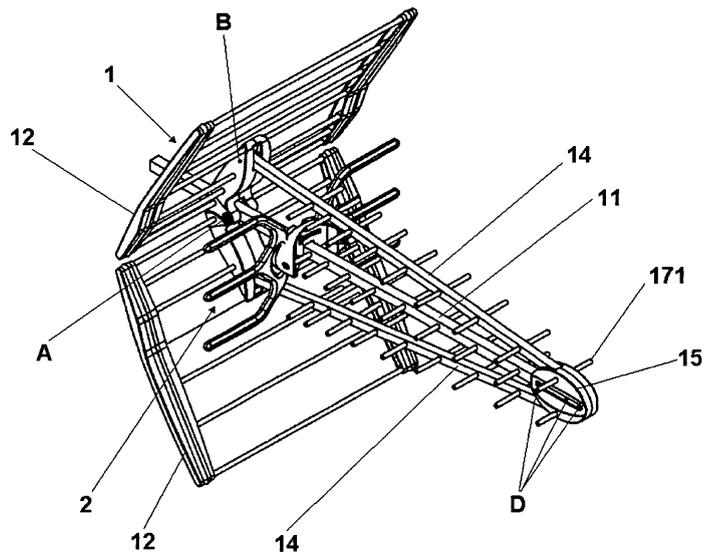


Fig. 1a

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Description

[0001] This invention refers to a new antenna, self-mounting and articulated.

[0002] In the current state of the art, a number of widely used antennas are already known. The known conventional antennas are not self-mounting or articulated and need handling, tightening and adjustment prior to installation on the mast.

[0003] Moreover, most antennas have a single position for opening of reflectors.

[0004] The self-mounting, articulated antenna which is the object of this invention is characterized because it consists of

- A basic structure made up of a central bar and an articulated quadrilateral defined by: (a) corresponding reflectors which can swing on said central bar around a fixed point of articulation; (b) corresponding lateral bars which can swing on the respective reflectors on fixed points of articulation; (c) a pointer flange on which both the respective lateral bars can swing on fixed points of articulation and the central bar can move, on positioning itself at any of a number of aligned articulation points.
- A dipole, made up of two identical pieces positioned symmetrically on a central box, mounted, in turn, on said central bar of the basic structure.

[0005] It is also characterized because each of the aforementioned pieces consists of three arms with an opening at the level of the central arm, forcing the signal received by said central arm to travel the necessary distance to be emphasized with the signals received by the end arms.

[0006] It is also characterized because, the central bar being equipped with directors, the first director fastens the dipole, lodging itself in corresponding holes of the central box which, in turn, make up a housing to be positioned on the bar itself and because of having a spring button on the other end of the bar which consists of a positioner of the multipositionable articulation.

[0007] It is also characterized because, the lateral bars being equipped with directors, on each lateral bar the last director consists of a shaft of the respective fixed articulation.

[0008] The advantages of this new antenna are evident in the description and figures:

[0009] This antenna is unique in that it is supplied totally assembled, and the antenna can be opened up by lightly pressing the spring button and it is then ready for its installation. No tools are needed. Moreover, due to its variability in opening angle, it allows adaptation to the environmental characteristics with different radiation diagrams.

[0010] This new antenna utilizes a self-tightening system, by which on effecting the opening movement, it self-tightens.

[0011] Therefore, the aforementioned self-mounting antenna constitutes a new invention which involves inventive activity, and can be applied in industry.

[0012] To better understand the object of this invention, a preferential way of practical realization is shown in the diagrams, subject to supplementary changes which do not fundamentally alter it.

Figure 1 shows a general view in perspective of the antenna which is the object of the invention to view its components and operating position in an example of realization unfolded, in position for use -figure 1a- and folded, in position for transport/storage -figure 1b.

Figure 2 shows a general elevated view of the antenna unfolded, corresponding to figure 1a.

Figure 3 represents a perspective view and dipole close-up view (2), without the rest of the antenna.

Figure 4 shows an elevated and close-up view of one of the pieces of the dipole (21), without the rest of the dipole (2).

The following is an example of practical, non-limiting realization of this invention. Other types of realization are not, by any means, ruled out, in which supplementary changes are introduced which do not fundamentally alter it; on the contrary, this invention also encompasses all its variations.

[0013] This invention involves a new antenna which consists of at least the following components:

1. - basic structure
11. - central bar
12. - reflectors
14. - lateral bars
15. - Flange
161. - central bar directors
171. - lateral bars directors
2. - dipole
21. - dipole elements
22. - central box
- 211a, 211b, 211c. - arms
212. - opening
221. - holes
222. - housing
- A, B, C. - fixed points of articulation
- D. - aligned points of articulation

[0014] According to the invention, the aforementioned antenna consists of:

- a basic structure (1) made up of a central bar (11) and an articulated quadrilateral which makes it self-mounting, and
- One dipole (2) mounted on said basic structure and, more specifically, on said central bar (11).

[0015] According to the realization illustrated, the

aforementioned articulated quadrilateral is made up of:

- Corresponding reflectors (12) which can swing on said central bar (11) on a fixed point of articulation(A)
- Corresponding lateral bars (14) which can swing on the respective reflectors (12) on both fixed points of articulation (B), and
- A pointer flange (15) on which, firstly, the respective lateral bars can swing (14) on the corresponding fixed points of articulation (C) and secondly, the central bar can move (11) on being positioned at any point (D) of a number of aligned articulation points (D).

[0016] According to the invention, the aforementioned dipole (2) consists of corresponding identical pieces (21) positioned symmetrically on a central box (22). The unit is, in turn, mounted on the aforementioned central bar (11) of the base structure (1).

[0017] According to the realization illustrated, each piece (21) presents a peculiar configuration, with three arms (211a), (211b), (211c) and an opening (212) made at the level of the central arm (211b) forcing the signal received by said central arm (211b) to travel the necessary distance (d) -see figure 3- to be emphasized with the signals received by the end arms (211c), (211c).

[0018] According to the realization illustrated, the central box (22) has lateral holes (221) and centered housing (222) to be mounted on the basic structure (1) in the manner to be described later.

[0019] The central bar (11) is equipped with directors.

[0020] According to the invention, the first director (161) fastens the dipole (2) lodging itself in the holes (221) of its central box (22) which, at the same time as its housing (222) positions the unit on the bar itself (11)

[0021] According to the invention, a spring button (162) is made of a shaft for fastening of the multipositionable articulation (D), lodging itself in one of the different aligned holes which determine said number of aligned points of articulation (D).

[0022] The lateral bars (14) are equipped with directors.

[0023] According to the invention, the last director (171) of each lateral bar (14) is made of a shaft of the respective fixed articulation (C).

[0024] The antenna is supplied totally factory-assembled: Starting from a position of storage/transport -illustrated in figure 1b- the working position is reached -illustrated in figure 1a- by simply lightly pressing on the spring button causing the antenna to unfold, without the use of tools. Said movement consists of moving the central bar (11) with respect to the flange (15) and insert the spring button (162) in the desired point of articulation (D).

[0025] Any realization of the basic structure (1) defined by a central bar (11) linearly movable with respect to a flange (15) in which said movement opens/closes the reflectors (12) and lateral bars (14) is without distinction from and supplementary to the effects of the invention,

and is included in its purpose.

[0026] Also without distinction from and supplementary to the effects of the invention, and included in its purpose is any realization of the dipole (2) defined by corresponding identical pieces (21) positioned symmetrically on a central box (22), independently of, for example, the number of emphasized arms (211) of each piece (21)

[0027] Moreover, it is without distinction from and supplementary to the effects of the invention, and included in its purpose that in the fastening (161) of the dipole (2) and/or in the shafts (171) of the articulations (C), elements different from the directors (17) are used.

15 Claims

1. An antenna, self-mounting and articulated, **characterized** because it consists of:

a) A basic structure (1) consisting of a central bar (11) and an articulated quadrilateral defined by

- corresponding reflectors (12) which can swing on said central bar (11) on a fixed point of articulation (A)

- corresponding lateral bars (14) which can swing on the respective reflectors (12) on fixed points of articulation (B)

- a pointer flange (15) on which both the respective lateral bars can swing (14) on fixed points of articulation (C) and the central bar can move (11) on positioning itself at a point (D) of any of a number of aligned articulation points (D).

b) A dipole (2), made up of two identical pieces (21) positioned symmetrically on a central box (22), mounted in turn on the aforementioned central bar (11) of the basic structure (1).

2. An antenna, according to claim 1, **characterized** because each of the aforementioned dipole pieces (21) consists of three arms with an opening (212) made at the level of the central arm (211b); forcing the signal received by said central arm (211b) to travel the necessary distance (d) to be emphasized with the signals received by the end arms (211a), (211c).

3. An antenna, according to claim 1, **characterized** because, the central bar (11) being equipped with directors, the first director (161) fastens the dipole (2), lodging itself in corresponding holes (221) in the central box (22) which, in turn, makes up housing (222) to be positioned on the bar itself (11); and a spring button of the other end (162) consists of a multipositionable fastening shaft (D).

4. An antenna, according to claim 1, **characterized** because, the lateral bars (14) being equipped with directors, on each lateral bar (14) the last director (171) consists of a shaft of the respective fixed articulation (C).

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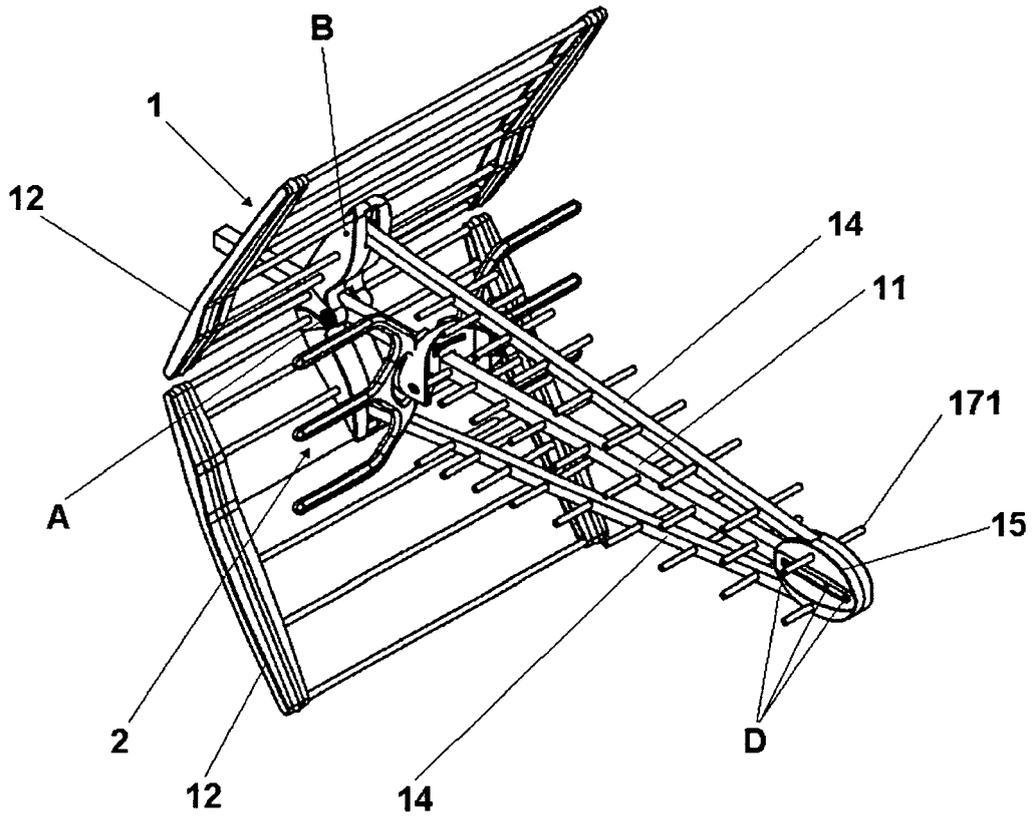
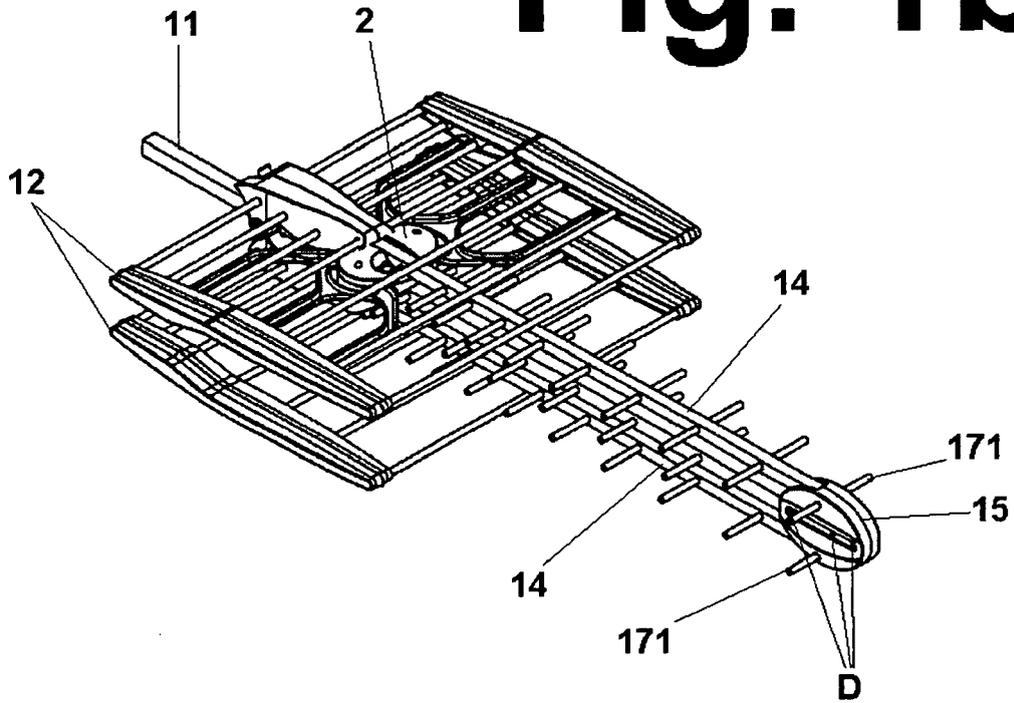


Fig. 1a

Fig. 1b



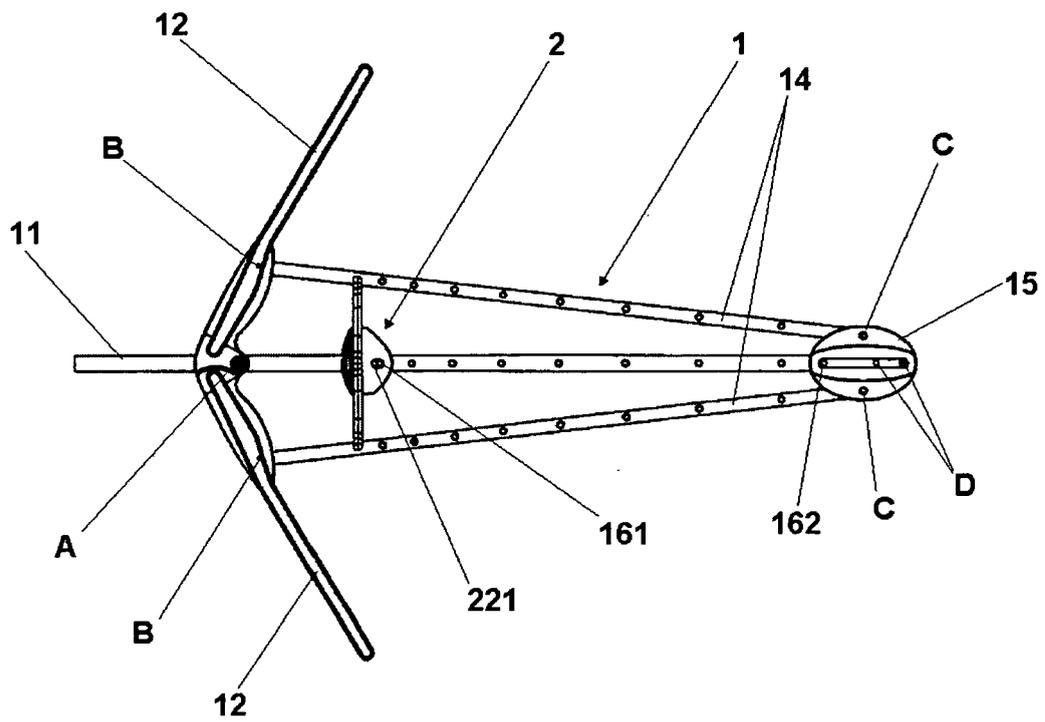


Fig. 2

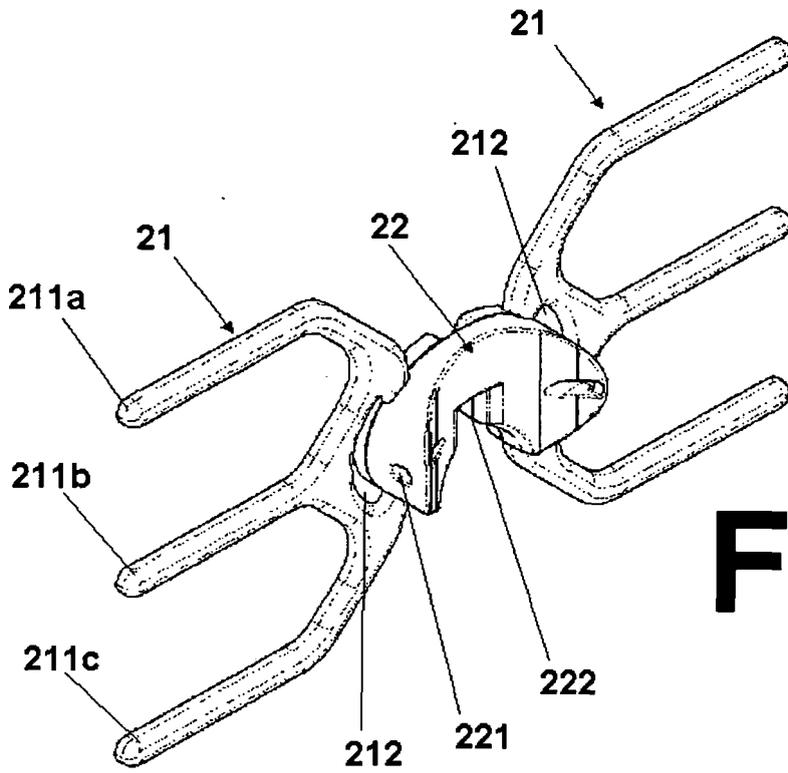
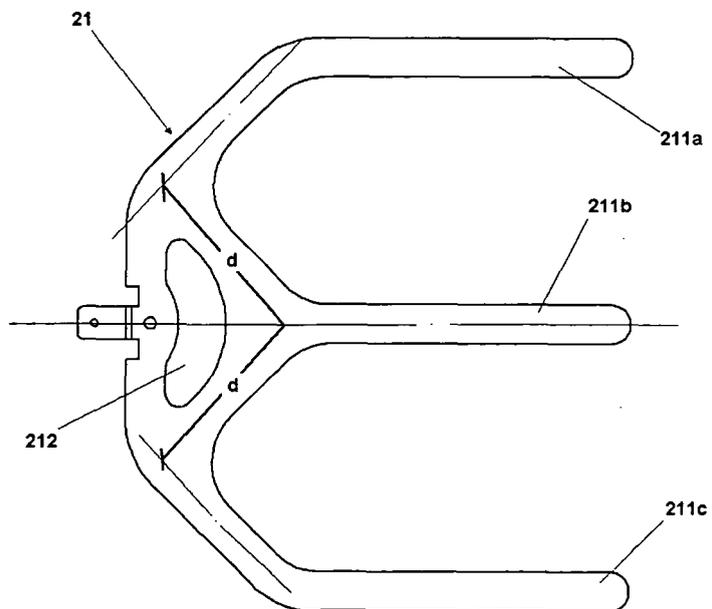


Fig. 3

Fig. 4





EUROPEAN SEARCH REPORT

Application Number
EP 09 38 0174

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	JP 55 171107 U (UNKNOWN) 8 December 1980 (1980-12-08) * figures 1,2,4 *	1	INV. H01Q19/04 H01Q19/30 H01Q1/08
A	DE 66 02 057 U (SIEMENS AG [DE]) 24 April 1969 (1969-04-24) * pages 5-7; figure 1 *	1-4	
A	DE 17 66 041 A1 (BOSCH ELEKTRONIK GMBH) 27 May 1971 (1971-05-27) * pages 4-8; figures 1-4 *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC)
			H01Q
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 March 2010	Examiner Kaleve, Abraham
CATEGORY OF CITED DOCUMENTS		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	
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			

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

EP 09 38 0174

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03-03-2010

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 55171107	U	08-12-1980	NONE	

DE 6602057	U	24-04-1969	NONE	

DE 1766041	A1	27-05-1971	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82