June 3, 1969 O. L. LANE 3,448,454

OMNIDIRECTIONAL CIRCULAR DIPOLE ANTENNA

Filed Sept. 29, 1966 Sheet 1 of 2

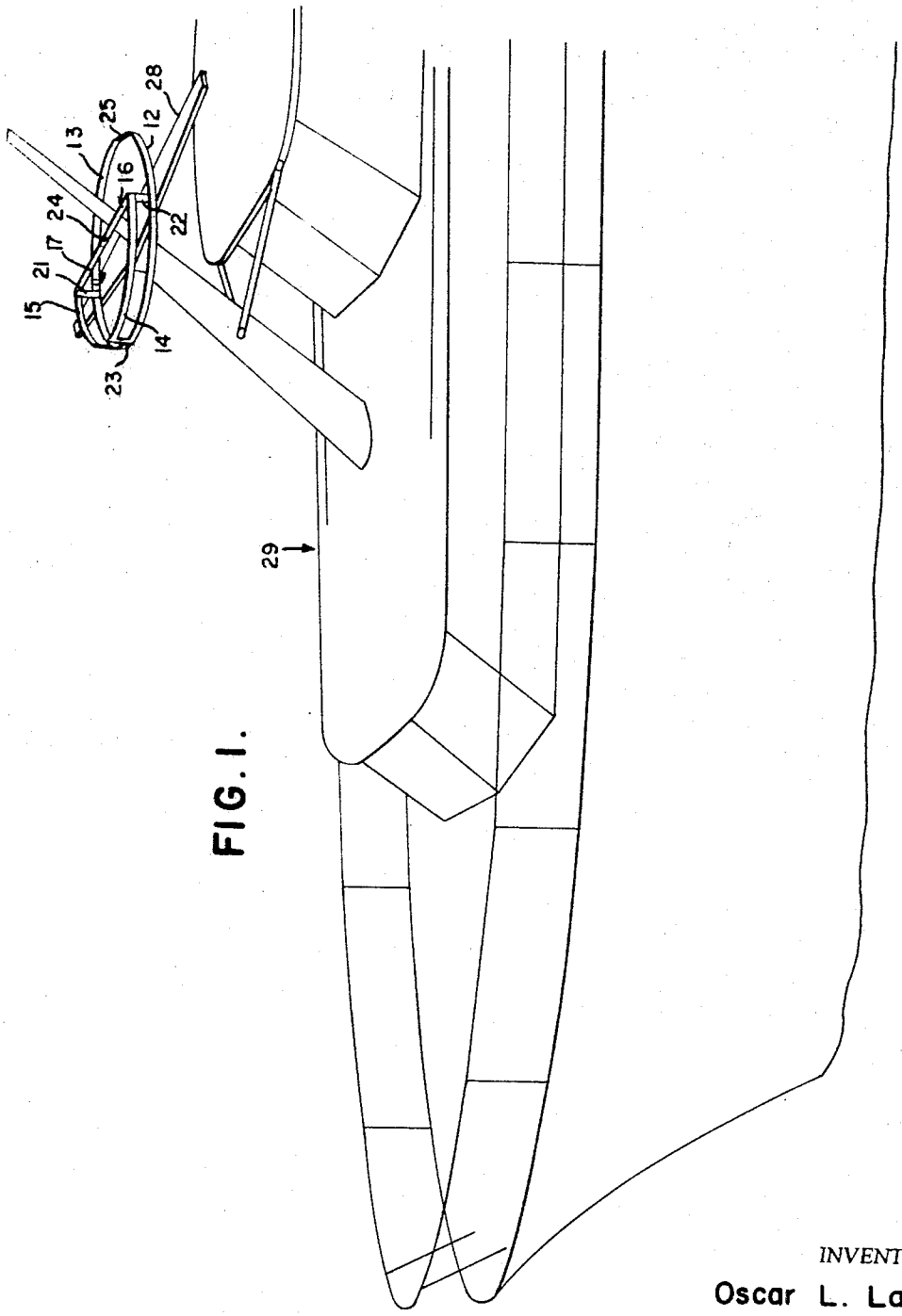


FIG. 1.

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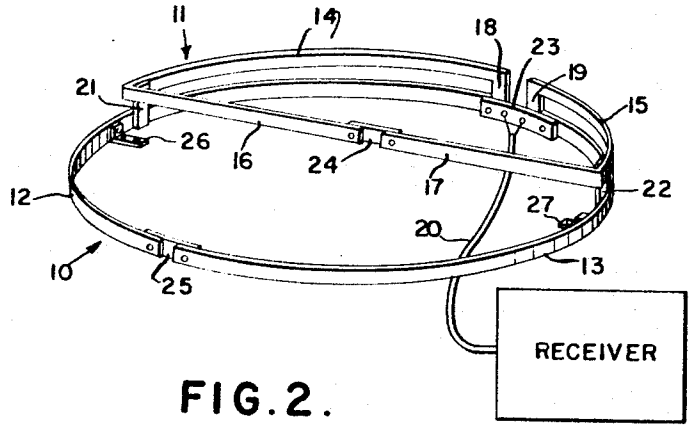


FIG. 2.

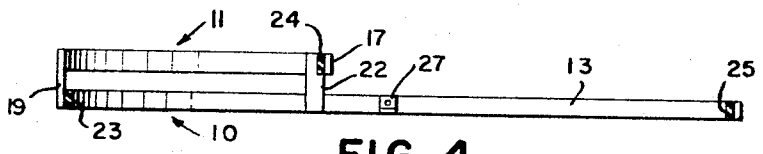


FIG. 4.

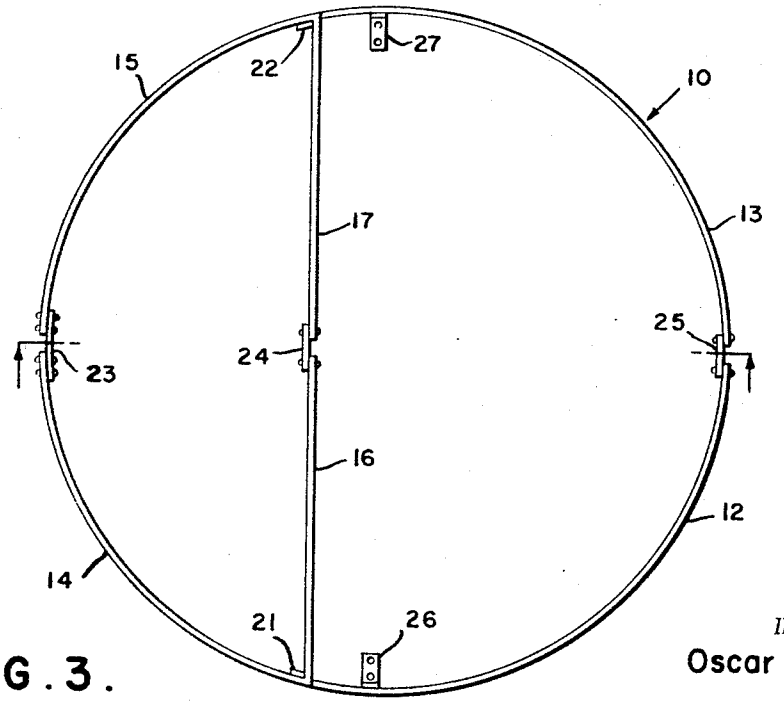


FIG. 3.

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OMNIDIRECTIONAL CIRCULAR DIPOLE ANTENNA

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Int. Cl. H01q 11/12, 9/16, 9/26

U.S. Cl. 343—742 3 Claims

The present invention relates to antennas and especially to antennas of the receiving type for use in the higher frequency ranges such as are now assigned to television and frequency modulated radio broadcasting and more particularly to antennas for use on water craft of the pleasure boat class.

Boats of the type mentioned have become very popular in recent years and a great number of them are owned by people with little capital who must resort to their own limited skills and "do it yourself" methods in fitting out and maintaining their craft. Obviously, many have fitted their craft with television or F.M. receivers in order to enjoy their favorite programs, sports events, etc. while cruising. It has been found, however, that television reception on a small boat is not satisfactory if the receiver is coupled to an antenna of the type readily available for home or "fixed station" use, as such antennas possess marked directional characteristics which cause fading of the signal as the boat changes course in cruising about. Resort must therefore be had either to a means for rotating the antenna, which has the disadvantage of requiring constant adjustment, or to an antenna which is highly "non-directional" in its characteristics.

It is a primary object of this invention, therefore, to provide an antenna which possesses the desired non-directional characteristics for the special use mentioned.

It is a further object to provide an antenna which can be cheaply manufactured and sold, is attractive in appearance, and which can easily be mounted on existing boat structure without special tools so as to appeal to the "do it yourself" boat owner.

These and other objects will become more apparent as this description proceeds, reference being had to the accompanying drawing forming a part of this specification and in which

FIGURE 1 is a fragmentary perspective view of a pleasure boat with the antenna according to the instant invention mounted thereon;

FIGURE 2 is a perspective view of the antenna;

FIGURE 3 is a top plan view; and

FIGURE 4 is a sectional view on line 4—4 of FIGURE 3.

The antenna physically comprises a lower substantially circular element **10** and an upper element **11** which is in the form of a segment of a circle of the same diameter as the lower element and somewhat less than a semicircle in size, spaced somewhat above the lower element and concentric therewith.

The lower circular element **10** is in reality a dipole antenna with its legs **12** and **13** folded substantially into semi-circular shape; while the upper element **11** is likewise a dipole antenna with its legs bent into circular arc portions **14** and **15** and then into inwardly directed straight portions **16** and **17**.

The legs **12**, **13**, **14**, **15**, **16** and **17** must necessarily be made of electrical conductive material such as aluminum, copper or the like and may be in the form of tubing or flat strip material as shown.

The upper and lower elements are electrically and mechanically connected at the adjacent points of the two dipoles by connector strap portions **18** and **19** which may be separate metal connector elements or may, as shown in the embodiment illustrated, be integral with the legs of the two dipole antennas. The two conductors of a conventional twin or coaxial lead-in **20** are also connected to the antenna dipoles at this point and brought in to the receiver as is well known.

The two dipole antennas are structurally reinforced and held in proper position with respect to each other by means of insulator blocks **21**, **22** and **23**. The blocks **21** and **22** are riveted or otherwise securely fastened to the legs of the upper and lower dipoles adjacent the outer ends of the straight portions **16** and **17** of the upper dipole and the block **23** spans and is similarly secured to adjacent ends of the lower dipole.

Similar insulator blocks **24** and **25** span and are securely fastened to the free ends of the legs of the upper and lower dipoles to mechanically stiffen and reinforce the entire antenna as shown.

Angle brackets **26** and **27** secured to the legs of the lower dipole at convenient points may be provided to secure the antenna unit to a desired spot, such as a mast cross arm, **28**, on the boat **29** as shown in FIGURE 1.

Having described a preferred embodiment of my invention I do not wish to be limited thereto but desire to cover all such modifications as fall fairly within the skill of the art and as defined by the appended claims.

I claim:

1. A high frequency antenna comprising a first dipole, the leg elements thereof extending from spaced terminal ends in substantially semi-circular arcs lying in the same plane, the free ends of said leg elements positioned adjacent but spaced from each other, a second dipole in a plane parallel to the plane of said first dipole, the leg elements of said second dipole extending from terminal ends adjacent the terminal ends of the first dipole in arcs of the same radius as the radius of the arcs of the first dipole for a portion of their length and then bent inwardly into straight leg portions, the free ends of which are positioned adjacent but spaced from each other, the terminal end of each leg of said first dipole being electrically connected to the corresponding terminal end of each leg of the second dipole and the thus connected terminal ends of said dipoles forming feeder connections for a transmission line.

2. The antenna defined in claim **1** in which the adjacent free ends of each dipole are joined by an insulating connector element.

3. The antenna defined in claim **2** in which there is a third insulating connector element between the terminal ends of the legs of the dipoles and fourth and fifth insulating connector elements between the legs of the first and second dipoles.

References Cited

UNITED STATES PATENTS

2,221,939 11/1940 Bennett ..... 343—744

ELI LIEBERMAN, *Primary Examiner.*

U.S. Cl. X.R.

343—804, 806