March 19, 1929. J. H. HAMMOND, JR 1,705,474

ANTENNA MOUNTING FOR TORPEDOES

Original Filed March 19, 1921

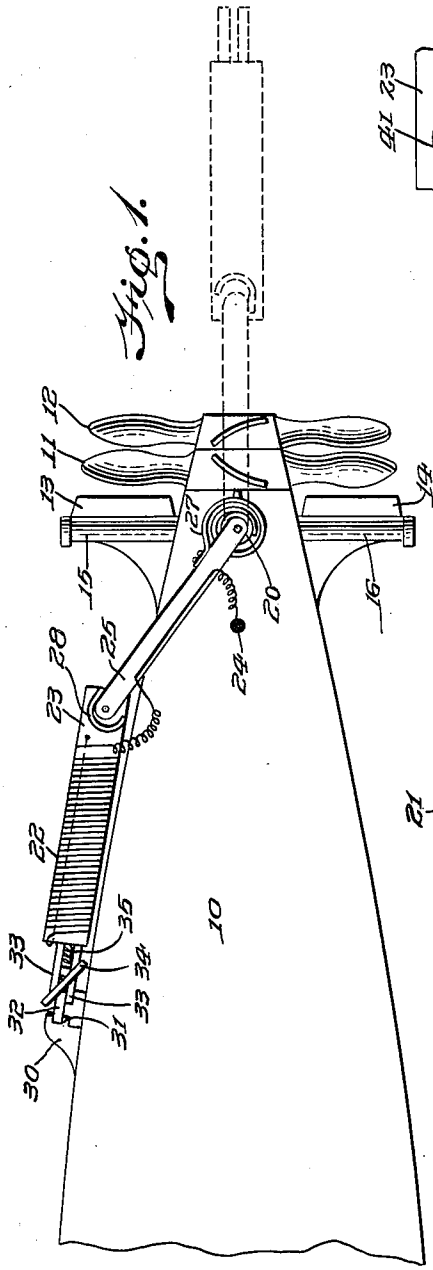


Fig. 1.

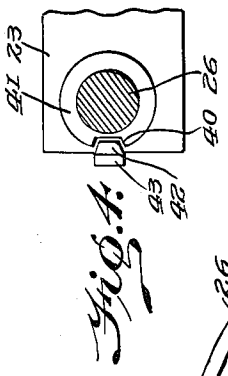


Fig. 4.

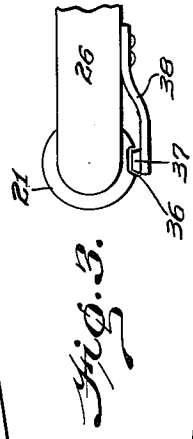


Fig. 3.

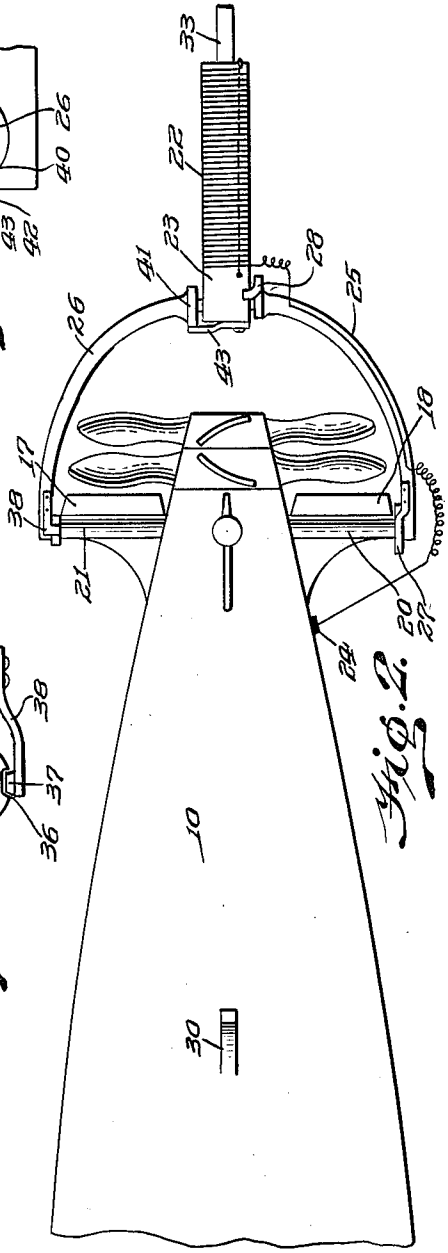


Fig. 2.

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ANTENNA MOUNTING FOR TORPEDOES.

Application filed March 19, 1921, Serial No. 453,637. Renewed October 12, 1927.

Some of the objects of the present invention are to provide means for causing an antenna to assume an operative position behind the torpedo after the torpedo has been launched; to provide means for supporting an antenna upon a torpedo in a normally inoperative position whereby the launching of the torpedo acts to release the antenna for movement to its operative position; to provide self-releasing and self-locking means for an antenna of a torpedo; and to provide other improvements as will hereinafter appear.

In the accompanying drawings, Fig. 1 represents a fragmentary side elevation of a torpedo equipped with one form of the present invention showing the antenna in its inoperative position; Fig. 2 represents a top plan showing the antenna in operative position; Fig. 3 represents a detail of the antenna frame locking means; and Fig. 4 represents a detail of the antenna locking means.

Referring to the drawings, one form of the present invention is shown in Figs. 1 and 2 consisting of the after body of a torpedo 10 having the usual sets of propellers 11 and 12 which are arranged to be driven in the customary manner. For steering the torpedo 10 in a horizontal plane, vertical rudders 13 and 14 are provided, these being supported respectively by posts 15 and 16 which are rigid with the torpedo body 10. For controlling the torpedo 10 in a vertical plane, rudders 17 and 18 are provided, these being supported respectively by posts 20 and 21 rigid with the torpedo body 10.

For the purpose of receiving signals of any suitable character from a distant point or station, the torpedo 10 is provided with an antenna 22, here shown in the form of a coil of wire covered by suitable insulating material which will not be affected by being immersed in sea water. This wire is coiled about a tubular member 23 of insulating material, one of its ends passing within said member 23, to be made fast thereto, and the other end passing through an insulating block 24 into the interior of the torpedo 10 where it is connected to the wireless apparatus.

In order to support the antenna 22 upon the torpedo 10, when the latter is not in operation, and yet in a manner whereby the antenna 22 automatically assumes a position at the rear of the torpedo 10 as soon as the torpedo 10 is launched, a yoke is provided comprising two arms 25 and 26 pivoted respectively to the opposite ends of the posts 20 and 21 curving rearwardly around the propeller structure. The outer juxtaposed ends of these arms 25 and 26 receive between them an end of the antenna member 23, which is there pivoted to swing relative to the yoke.

For swinging the yoke from the inoperative to operative position, a coil spring 27 is provided having one end fast to the post 20 and its other end fast to the yoke arm 25. A similar construction provides for the swinging of the antenna 22 to its operative position, there being a coil spring 28 one end of which is fast to the outer end of arm 25 while its other end is secured to the antenna member 23. The spring 28 is preferably stiffer than the spring 27 so that, when the parts are in the position shown in Fig. 1, the antenna structure will be held close to the torpedo body 10.

In order to provide self-releasing means for locking the antenna member 23 in its inoperative position, the torpedo body 10 is provided with a rigid bracket 30 having a recess 31 arranged to receive a keeper 32, which is slidably mounted in open ended guides 33 carried by and projecting axially from the member 23. The keeper 32 is fixed to laterally projecting inclined vanes 34 which permit axial sliding movement but prevent lateral movement. A spring 35 seats within the guides 33 and presses the keeper 32 outwardly into locking engagement with the recess 31.

As a means for locking the yoke arms 25 and 26 in their operative rearwardly extending position, the post 21 has its outer end provided with a recess 36 within which a lug 37 is arranged to seat, being snapped therein by the action of a spring 38. Normally the lug 37 rides upon the end of the post 21 and only seats in the recess 36 when the yoke has swung to operative position to bring the lug 37 into register with the said recess 36.

A similar means is applied to the antenna member 23 comprising a recess 40 formed in the circular end portion 41 of the arm 26 with which a lug 42 cooperates under the action of a spring 43. In inoperative position of the parts, the lug 42 rides upon the surface of the portion 41 and the parts are not locked together.

In the operation of the form of the invention shown the antenna member 23 is normally held in the position shown in Fig. 1, the keeper 32 holding the parts locked by being seated in the recess 31, the other locking elements, the spring pressed lugs 37 and

42 being out of their respective recesses. The antenna member 23 rests flush with the torpedo body 10 by the action of the stronger spring 28.

When the torpedo is launched in any well known manner and enters the water to be driven forward by the propellers 11 and 12, the water will strike the vanes 34 forcing them backward to thus withdraw the keeper 32 and releasing the antenna member 23. When this happens the yoke arms 25 and 26 will be rotated in a clockwise direction as seen in Fig. 1, by the action of the springs 27 and 28 and also by the action of the torpedo travelling through the water. This rotation continues until the member 23, and the arms 25 and 26, reach the position shown in Fig. 2, and by dotted lines in Fig. 1, whereupon the spring lugs 37 and 42 snap into the respective recesses 36 and 40, thus locking the parts in operative position. The keeper 32 with the vanes 34 and the spring 35 will slip out of the guides 33 and be lost, while the torpedo 10 will continue to the end of its run with the antenna 22 in the operative position.

Having thus described my invention what I claim is:—

1. The combination with a torpedo, of an antenna carried thereby and movable with respect thereto from a position upon one side of said torpedo to a position in the rear of said torpedo, said antenna being arranged to be moved from said first mentioned position to said second mentioned position as a result of the movement of said torpedo.

2. In an antenna support, the combination of a torpedo, a yoke pivoted to said torpedo, an antenna pivoted to said yoke, means including a spring pressed keeper for locking said antenna in inoperative position, means including a vane exposed to contact with the water around said torpedo for releasing said keeper, and means for swinging said yoke and antenna to operative position when said keeper is released.

3. In an antenna support, the combination of a torpedo, a yoke pivoted to said torpedo, an antenna pivoted to said yoke, means including a spring pressed keeper for locking said antenna in inoperative position, means including a vane exposed to contact with the water around said torpedo for releasing said keeper, means for swinging said yoke and antenna to operative position when said keeper is released, and means for locking said yoke with said antenna in its operative position.

4. In an antenna support, the combination of a torpedo, a yoke pivoted to said torpedo, an antenna pivoted to said yoke, means including a spring pressed keeper for locking said antenna in inoperative position, means including a vane exposed to contact with the water around said torpedo for releasing said keeper, means for swinging said yoke and antenna to operative position when said keeper is released, and means for locking said antenna to said yoke in its operative position.

5. In an antenna support, the combination of a torpedo, a yoke pivoted to said torpedo, an antenna pivoted to said yoke, means including a spring pressed keeper for locking said antenna in inoperative position, means for holding said antenna in its inoperative position in close abutting relation to said torpedo, means for automatically releasing said keeper, and means for swinging said yoke to bring said antenna to its operative position.

6. The combination with a torpedo, of an antenna pivotally carried thereby and movable with respect thereto, means for swinging said antenna to operative position, and means releasable by the movement of the torpedo through the water for retaining the antenna in inoperative position.

7. The combination with a torpedo, of an antenna carried thereby and movable with respect thereto, means for moving said antenna to operative position, means releasable by the movement of the torpedo through the water for retaining the antenna in inoperative position, and means for locking said antenna in operative position.

8. In combination with a torpedo, a pivoted antenna, means for causing said antenna to assume a horizontal position when released and detent means for normally holding said antenna in an inoperative position, said detent means being releasable by the movement of said torpedo through a liquid medium.

Signed at New York, in the county of New York, and State of New York, this 16 day of March, 1921.

JOHN HAYS HAMMOND, Jr.