Jan. 2, 1923. 1,440,577

H. L. BOESCH.
TORPEDO.
FILED DEC. 15, 1919.

FIG. 1

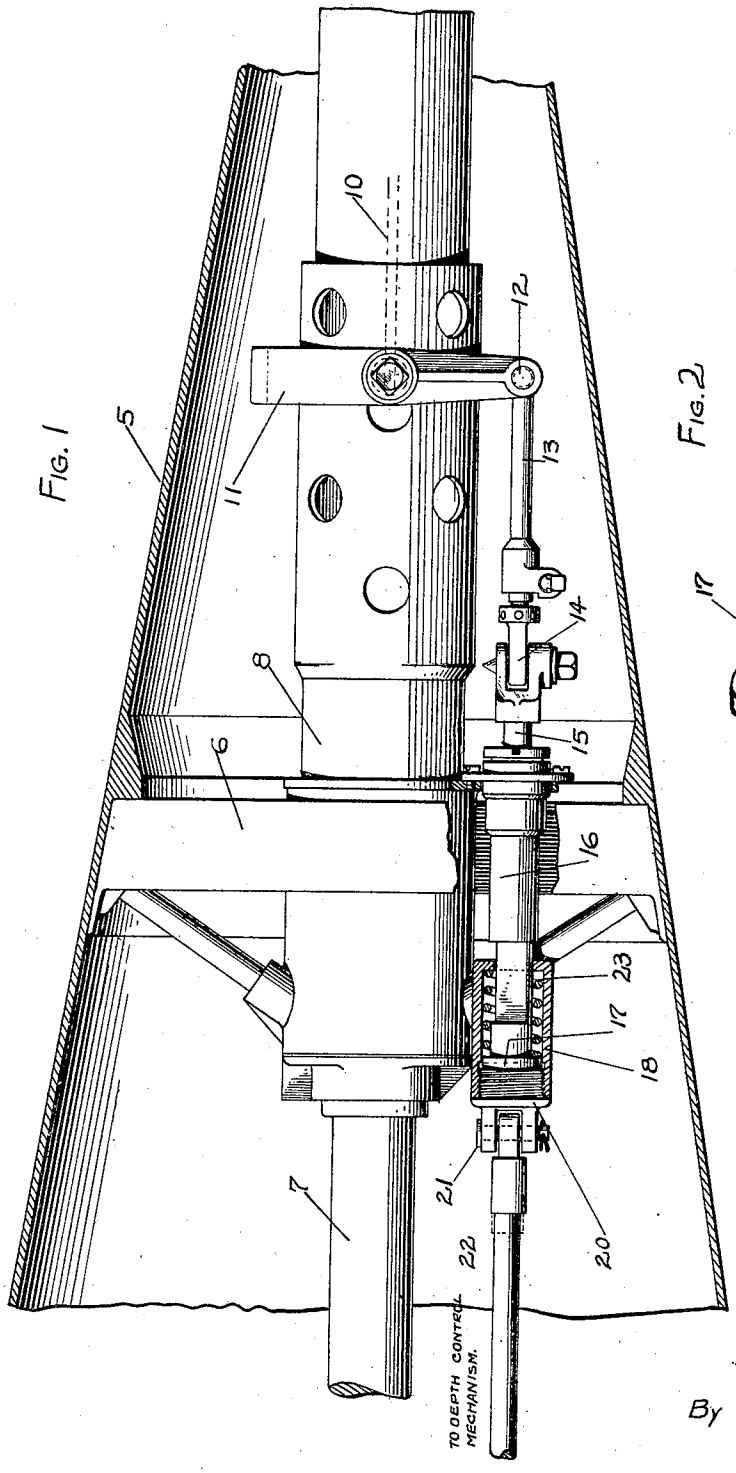
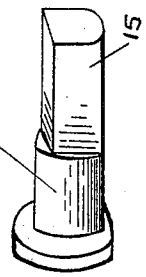


FIG. 2



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Patented Jan. 2, 1923. 1,440,577

UNITED STATES PATENT OFFICE.

HARRY LUTHER BOESCH, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE GOVERNMENT OF THE UNITED STATES.

TORPEDO.

Application filed December 15, 1919. Serial No. 345,164.

To all whom it may concern:

Be it known that I, HARRY LUTHER BOESCH, a citizen of the United States, residing at Washington, District of Columbia, have invented new and useful Improvements in Torpedoes, of which the following is a specification.

This invention relates to torpedoes and more particularly to improvements in the horizontal rudder control now used in the automobile torpedoes for the Navy.

When the torpedo is launched from a destroyer, for example, it is generally shot out over the side of the boat from a suitable gun and drops six to twenty feet flat into the water. This shock of launching and striking the water places a severe strain on the horizontal or depth controlling rudders of the torpedoes and frequently dislocates the internal delicate mechanism as to prevent subsequent operation of the torpedo during its run.

It is, therefore, one of the objects of the present invention to provide a simple and practical mechanism associated with the horizontal steering rudder adapted to take up this shock experienced during the launching of the torpedo and prevent the objections above noted.

A further object is to provide a mechanism of the above character which may be easily and quickly applied to the torpedoes now in use without material alteration or increase in the weight of the torpedo.

Other objects will be in part obvious from the annexed drawings and in part indicated in connection therewith by the following analysis of this invention.

This invention accordingly consists in the features of construction, combination of parts and in the unique relations of the members and in the relative proportioning and disposition thereof; all as more completely outlined.

To enable others more skilled in the art so fully to comprehend the underlying features thereof that they may embody the same by the numerous modifications in structure and relation contemplated by this invention, drawings depicting a preferred form have been annexed as a part of this disclosure, and in such drawings, like characters of reference denote corresponding parts throughout all of the views, of which:—

Figure 1 is a longitudinal sectional view of the tail of a torpedo showing such parts thereof as are necessary to fully understand the present invention.

Figure 2 is a detail perspective view of one of the parts.

Referring now to the drawings in detail, 5 denotes the extreme end of the after-body or tail of the torpedo provided with a transverse supporting member or partition 6 adapted to center the propeller shaft 7 which passes through a suitable sleeve 8. At each side of the stern of the torpedo is a horizontally disposed rudder 10 adapted to be actuated by suitable depth controlling means in the central body of the torpedo for maintaining the torpedo at a predetermined desired depth throughout its run. These horizontal rudders 10 are actuated by means of a yoke member 11 locked over the bearing 8 of the propeller shaft, the lower end 12 of one side of the yoke member being pivotally connected to one end of a rod 13 extending forwardly therefrom. This rod is flexibly connected in any desired manner as indicated at 14 with a member 15 passing through a sleeve or supporting member 16 and terminating in a plunger 17 within a housing 18. This housing is of general cylindrical shape provided with a threaded interior forward surface adapted to receive a screw block 20 flexibly connected at 21 with rod or shaft 22 extending forwardly to the depth control mechanism. Interposed between the right hand end wall of the casing 18 and the rear side of the piston head 17 is a spirally wound compression spring 23 normally holding the parts in the position shown.

The operation of this mechanism is substantially as follows:—

When the torpedo is launched and drops flat into the water from a considerable height, there will naturally be a great stress exerted on the free end of the horizontal rudders 10. When this occurs the rudders will yield upwardly, moving the rod 13 relatively towards the rear or right as shown in Figure 1 and compressing the spring 23 within the housing 18, as the piston head is free to slide relatively to the housing and compress the spring therein. As soon as a condition of equilibrium is established and the strain relieved from the horizontal rudder it naturally returns to normal position under the action of the expansion of the spring 23

which moves the piston 17 relatively towards the left within the housing. Thereafter the depth control mechanism will operate the rods 13, 15 and 22 as a unit and positively and accurately control the depth of the torpedo during the balance of its run.

It is thus seen that the present invention provides a simple and practical mechanism adapted to take up the shock exerted on the horizontal rudder during the moment of launching.

The invention comprises relatively few parts which are not likely to get out of order and may be easily and quickly and inexpensively assembled and installed in torpedoes now in use without materially affecting the mechanisms now employed.

It is believed that the construction, method of use and operation of mechanism of this character will be clear to those skilled in the art and a further description is, therefore, believed to be unnecessary.

Without further analysis, the foregoing will so fully reveal the gist of this invention that others can, by applying current knowledge, readily adapt it for various applications without omitting certain features that, from the standpoint of the prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalency of the following claim:—

What I claim is:—

In a torpedo, in combination, a horizontal depth rudder provided with a yoke and actuating rod, a second rod adapted to be connected with the depth control mechanism, a cylindrical member pivotally connected with said second rod and a headed sliding member pivotally connected with said first rod, a spring within said cylindrical member reacting between the end wall thereof and the headed end of said sliding member, said parts being located within the torpedo shell and so positioned and arranged that when the torpedo is launched the shock exerted upon the horizontal rudders will be taken up by said sliding spring retained member.

Signed at Washington, District of Columbia, this 21st day of July, 1919.

HARRY LUTHER BOESCH.