Sept. 30, 1947. E. ALTERIO 2,428,191

TORPEDO

Filed Feb. 15, 1944

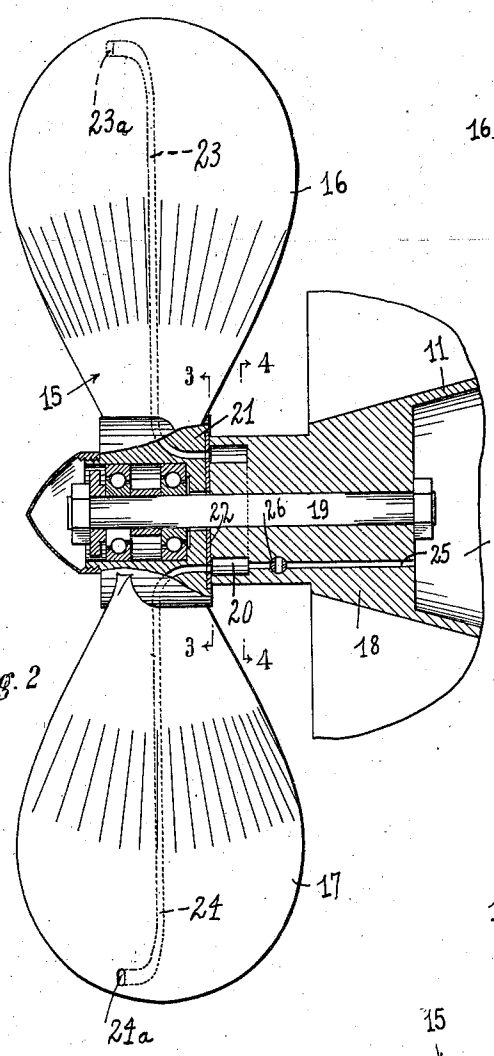


Fig. 2

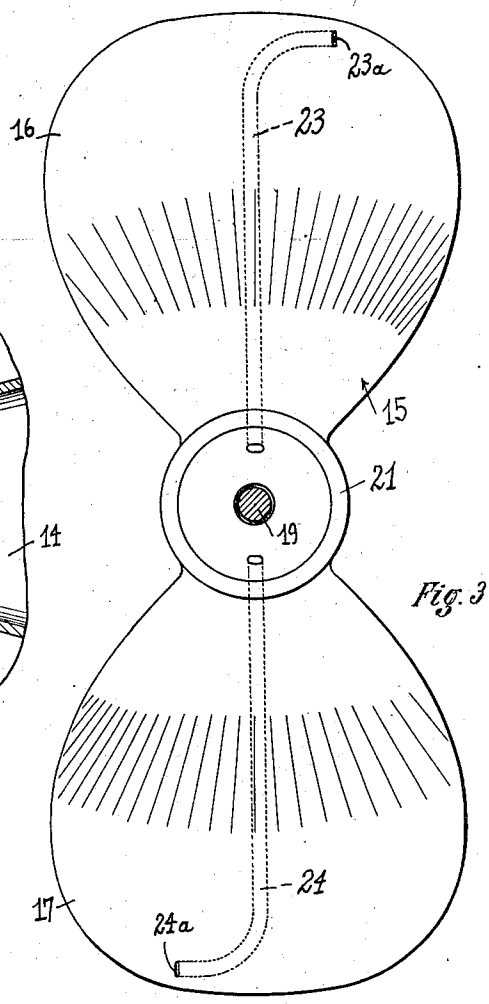


Fig. 3

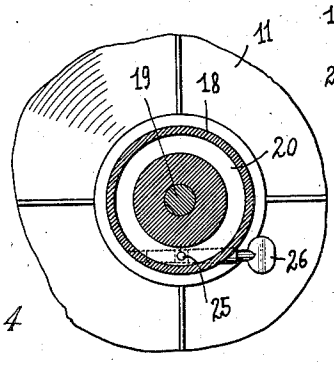


Fig. 4

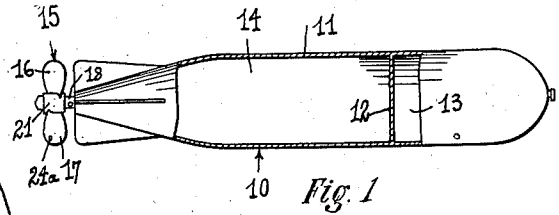


Fig. 1

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Patented Sept. 30, 1947 2,428,191

UNITED STATES PATENT OFFICE

2,428,191

TORPEDO

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Application February 15, 1944, Serial No. 522,428

3 Claims. (Cl. 114—20)

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The main object of my invention is to provide a novel torpedo moved directly by the action of compressed air on a propeller, substantially without any other machinery.

Other objects of this invention will be apparent as the specification of the same proceeds.

In the drawings forming a part of this specification and accompanying the same:

Fig. 1 is a diagrammatic side elevational view of a torpedo constructed according to my invention, partly in section;

Fig. 2 is a detail view of the rear portion of my invention, on a much larger scale than Fig. 1, portions of the same being in section;

Fig. 3 is a sectional view, the section being taken on the line 3—3 of Fig. 2, while

Fig. 4 is a fragmentary sectional detail, the section being taken on the line 4—4 of Fig. 2.

Referring now to the drawings, more in detail by characters of reference, the numeral 10 indicates my novel torpedo, in general, the same being in the form of a hollow body 11, as usual, but according to my invention, it is divided, as by the partition wall 12, into the front compartment 13 and a rear compartment 14.

According to my invention, the front compartment 13 will contain the explosive charge, as usual, the rear compartment 14 will have nothing of the usual complicated machinery therein, but in my invention it will be filled with a gaseous medium under high pressure, like compressed air.

The motive power for my novel torpedo will be provided by a propeller, generally indicated by the numeral 15, which will be of the same general design as now used on torpedoes, and in the drawings it is shown as having two blades 16 and 17.

The underlying idea of my invention is to cause the compressed gaseous medium to escape through appropriate channels in the propeller blades and thereby through the reaction caused by such escape, rotate the propeller and drive the torpedo without the usual complicated machinery.

For this purpose, and in the embodiment selected to be shown in the drawings, the rear end of the torpedo casing is formed by a member 18 through which passes, and to which is secured, a short shaft 19, and the propeller 15 may rotate on said shaft, as clearly shown in Fig. 2.

In the body or member 18 a ring shaped slot or space 20 is provided at the rear end thereof, and the hub 21 of the propeller 15 may be slidingly but substantially sealingly arranged over the rear surface 22 of said member 18 thereby closing said ring space 20 in a substantially air and water tight manner.

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A channel 23 is, however, provided in the propeller blade 16, and a similar channel 24 in the blade 17, the inner openings of said channels being in registering relation with the ring space 20, while their outer openings 23a and 24a are arranged adjacent to the outer tips of the respective propeller blades, and in such a manner that a high pressure gaseous medium escaping through said openings 23a and 24a, will cause the propeller to rotate, as will be understood.

A bore or channel 25 connects the gas filled space 14 of the propeller body with the ring shaped space 20, and any appropriate closure means, like the valve 26, may be arranged in said communication bore 25.

The use and operation of my device will be obvious from the herein description.

The communication channel or bore 25 normally is closed. However, when the torpedo is launched, the valve 26 will be opened, by any appropriate means, and the highly compressed air, or other gas, will flow from the space 14 in the torpedo body through the channel 25 into the ring space 20, and from there through the channels 23 and 24 to the escape openings 23a and 24a, having the indicated effect of turning the propeller through the reaction of its escape.

It will be seen that during the rotation of the propeller the channels 23 and 24 in its blades will constantly be connected to the source of the compressed air or other gas through the ring shaped space 20, and the torpedo will be driven as long as the pressure of the compressed gaseous medium in the space 14 will not drop below a certain minimum.

It will be seen that in my novel torpedo, no specific machinery is needed to translate the force in the compressed air into motion, as is the case with the present torpedo, whereby great simplicity, ease, speed and cheapness in manufacture, will be attained, and, at the same time, a larger space of it can be used for compressed air, and also a larger space will be available for the explosive charge.

The same principle of propelling a weapon by compressed air or other fluid medium under pressure, through my novel propeller, may also be used in other cases like propelling bombs through the air.

As has been indicated hereinbefore, it also has been noted that the exit or ejection openings for

the compressed air in the blades of the propeller may be set as near as possible to the outer tip of the blade, whereby a greater leverage will be attained for rotating the propeller.

What I claim as new and want to protect by Letters Patent of the United States is:

1. A torpedo, comprising a shell divided into two, a front and a rear, compartments, an explosive charge in the front compartment, a charge of compressed air in the rear compartment, a rotatable propeller for propelling the torpedo, channels in the body of the propeller terminating in ejection openings of predetermined location on its blades, and means to permit the escape of the compressed air through said channels and ejection openings whereby said propeller will be rotated, said propeller being located at the rear end of the torpedo, and said means to permit the escape of the compressed air through the channels in the propeller including a circular ring channel in the rear end of the torpedo, rearwardly open, connections between said ring channel and the compressed air, cooperating surfaces on the hub of the propeller and of the rear end of the torpedo, whereby said propeller may be rotated but keep said channels in the propeller, in said surface thereof, registering with said ring channel, to provide a constant connection between the channels in the propeller and the compressed air in the torpedo during the rotation of the propeller.

2. A torpedo, comprising a shell divided into two, a front and a rear, compartments, an explosive charge in the front compartment, a charge of compressed air in the rear compartment, a rotatable propeller for propelling the torpedo, channels in the body of the propeller terminating in ejection openings of predetermined location on its blades, and means to permit the escape of the compressed air through said channels and ejection openings whereby said propeller will be rotated, said means to permit the escape of the compressed air through the channels in the propeller including a circular ring channel in the torpedo, connections between said ring channel and the compressed air, cooperating surfaces on the hub of the propeller and on the margins of said ring channel in the torpedo, whereby said propeller may be rotated but keep said ring channel substantially fluid sealed, and openings for said channels in the propeller in said surface thereof, registering with said ring channel, to provide a constant connection between the channels in the propeller and the compressed air in the torpedo during the rotation of the propeller.

3. A torpedo, comprising a shell divided into two, a front and a rear, compartments, an explosive charge in the front compartment, a charge of compressed air in the rear compartment, a rotatable propeller for propelling the torpedo, channels in the body of the propeller terminating in ejection openings of predetermined location on its blades, and means to permit the escape of the compressed air through said channels and ejection openings whereby said propeller will be rotated, said means to permit the escape of the compressed air through the channels in the propeller including a circular ring channel in the torpedo, connections between said ring channel and the compressed air, cooperating surfaces on the hub of the propeller and on the margins of said ring channel in the torpedo, whereby said propeller may be rotated but keep said ring channel substantially fluid sealed, and openings for said channels in the propeller in said surface thereof, registering with said ring channel, to provide a constant connection between the channels in the propeller and the compressed air in the torpedo during the rotation of the propeller, and means in said connection normally closing the same, but being adapted to be opened when the torpedo is launched.

EUGENE ALTERIO.

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