J. KUHAJDA.

SUBMARINE VESSEL.

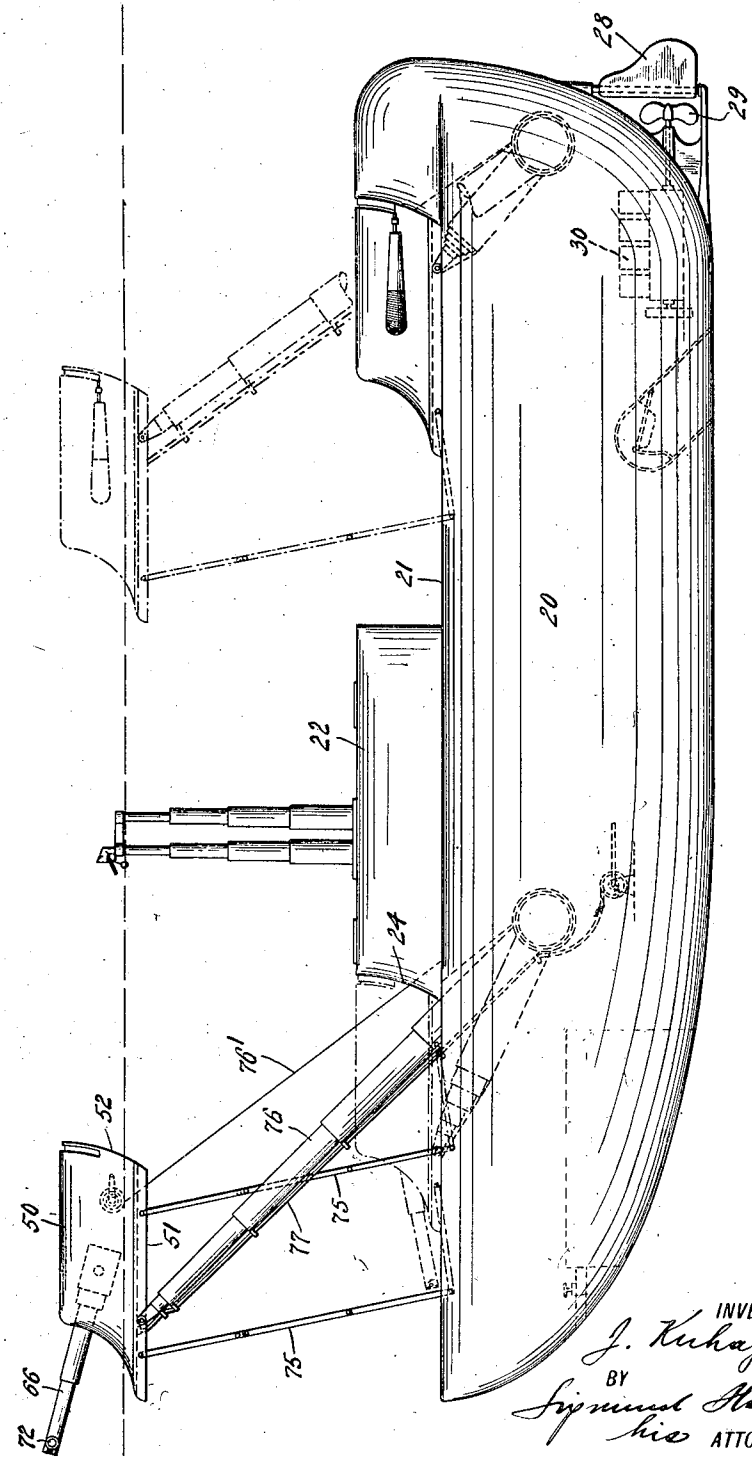
APPLICATION FILED DEC. 17, 1918.

1,356,294.

Patented Oct. 19, 1920.

2 SHEETS—SHEET 1.

Fig 1



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2 SHEETS—SHEET 2.

Fig. 2.

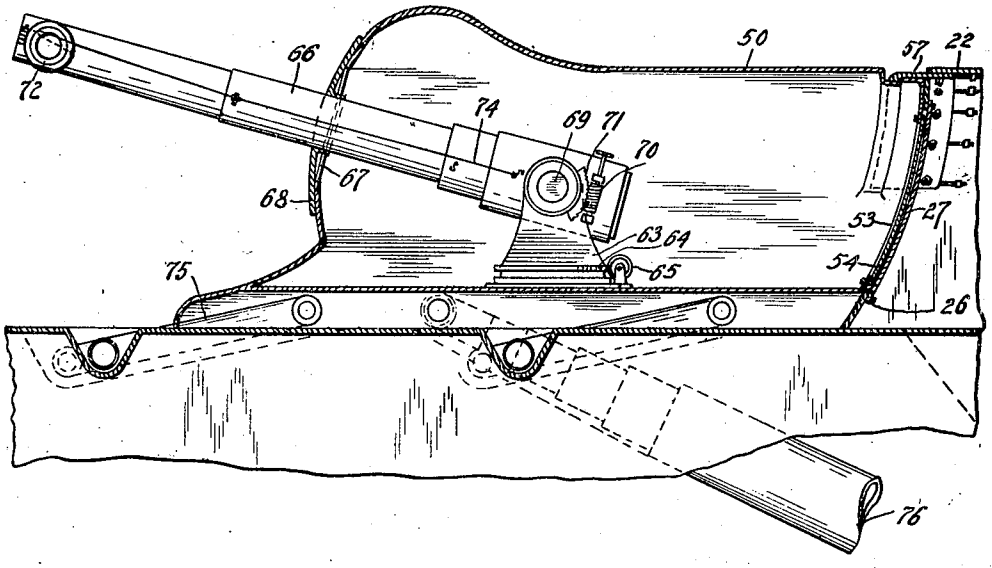


Fig. 3.

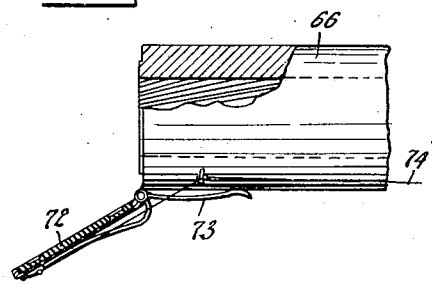
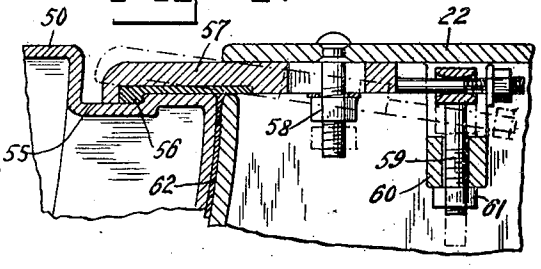


Fig. 4.



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JOSEPH KUHAJDA, OF NEW YORK, N. Y.

SUBMARINE VESSEL.

1,356,294. Specification of Letters Patent. Patented Oct. 19, 1920.

Application filed December 17, 1918. Serial No. 267,171.

To all whom it may concern:

Be it known that I, JOSEPH KUHAJDA, a subject of the King of Hungary, and a resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Submarine Vessels, of which the following is a specification.

The present invention relates to submarine vessels, and one of the main objects of the invention is to provide a vessel of this type which may serve for offensive and defensive purposes.

Another object of the invention is to so mount the guns upon the deck of the submarine vessel that the same may be projected above the surface of the water and operated while the submarine itself is beneath the water surface.

Another object of the invention is to provide the submarine with a gun carrying tank, having steadying means that serve at the same time to take up or check the force of the recoil.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a submarine vessel constructed in accordance with the present invention; Fig. 2 is a vertical longitudinal section taken through the gun-tank thereof, showing the gun diagrammatically in elevation; Fig. 3 is a front elevation, partly in section, of the forward end of the gun barrel with a cover thereon, to be actuated from within the said tank; Fig. 4 is a vertical section taken through a detail of construction, showing the communication between the gun tank and the submarine hull.

In the drawings, the numeral 20 indicates the hull of the vessel, that may be of any suitable shape, its deck 21 being flat, for a purpose hereinafter to be mentioned. The hull is divided into a plurality of compartments, which are not shown as the same do not form part of this invention.

From the deck rises a conning tower 22, the front face 24 of which forms part of a cylindrical surface, and being provided with an opening 26, that is normally closed by an inwardly opening door 27. For steering the vessel in a horizontal plane, there is provided a rudder 28, the means for submerging or raising the vessel being not shown, as they do not form part of the present invention. The propelling means of the vessel includes a screw propeller 29, that is preferably actuated by an internal combustion engine 30 of any suitable type.

In front of the conning tower is disposed a closed tank 50, having a flat bottom 51, that is adapted to rest on the deck 21. The rear wall 52 of this tank is curved, its curvature corresponding to that of the front face 24 of the conning tower. This tank is provided in its rear wall with an opening 53, closed by a door 54, that is somewhat smaller than the door 27 above mentioned and is clamped onto the said tank so as to be detached therefrom from either inside or outside. Adjacent the opening 53, the tank is provided in its outer face with a groove 55, into which is adapted to be lowered a packing strip 56, that is carried by a plate member 57. This plate member extends through the conning tower in a horizontal plane and is adapted to swing around a fulcrum 58 within the conning tower. The means for swinging the plate member 57 around this fulcrum includes a screw bolt 59, that extends through a bracket 60, its threads meshing with those of a nut 61, abutting against said bracket. When the tank is resting on the deck 21, the plate member 57 is swung downward, so that its packing strip is seated within the groove 55 of the said tank. Around the opening 53 of the tank there is provided on the rear curved surface of the said tank a packing material 62, abutting against the conning tower. When the plate member 57 is in its packing position (Fig. 4), both the doors 27 and 54 of the conning tower and tank, respectively, may be removed, thereby opening a communication between said conning tower and the tank, to permit the gun crew to enter the tank or to leave the same while the vessel is submerged. To release the

tank, the clamping plate 57 is moved into the dotted position shown in Fig. 4 of the drawings, after, obviously, both doors 27 and 54 have been closed.

Within the gun tank is disposed a gun mount 63, that is adapted to turn around a vertical axis, and is provided for this purpose with a worm gear 64, in mesh with a worm 65. On this mount is disposed a gun 66, the barrel of which extends through an opening 67 in the gun tank and carries a shield 68, which prevents ingress of water through the opening 67 into the gun tank. The trunnions 69 of the barrel are mounted in the gun mount 63, and for swinging the gun in a vertical plane there is rotatably mounted upon the same a worm 70, in mesh with a worm gear segment 71, that is attached to the gun mount 63. Adjacent to the mouth of the gun barrel, there is hinged a cover 72, closing the said mouth under the action of a spring 73. For bringing the cover to its open position, any suitable means may be used, for instance a cable 74, that is attached to the cover and extends into the gun tank.

The connection between the gun tank and the submarine vessel is made by two pairs of parallel bars 75, which are pivoted to the said tank and vessel to permit the said tank to be raised into firing position, maintaining the same always in horizontal position. One pair of these bars is provided on the forward part of the tank and the other pair on the rear part thereof, and each consists, preferably, of a plurality of links, which may be properly folded when the tank is brought from the position shown in full lines in Fig. 1 of the drawings into the position shown in dotted lines in the said figure.

The tank is of such dimensions that it is buoyant with the gun crew and gun thereon. When, therefore, released by the plate member 57, it rises from the dotted position shown in Fig. 1 of the drawings to the position shown in full lines therein. However, to aid the ascent of the tank, and also to steady the same, a pair of telescoping tubes 76 is provided, said tubes being pivoted to the gun tank and to the hull of the submarine vessel. Compressed air is used to extend these tubes. On one of the tubes 76 is led from the interior of the submarine vessel to the gun tank a flexible tube 77, serving to supply air to the said tank and also as a means through which electric wires, telephone wires, etc., may be led.

The recoil of the gun on the tank 50 is checked by closing the air inlet to the telescoping tube 76, thereby causing a compression of the air within the said tube by the downward motion of the tank 50.

From the foregoing it appears that the gun of the submarine, being mounted upon a buoyant tank, may be projected above the surface of the water and operated while the submarine itself is beneath the water. The recoil of the gun causes the gun tank to submerge, by properly predetermining the quantity of compressed air within the telescoping supports 76 thereof. After the compressed air is fully exhausted from the said supports, the gun tank is brought into the position shown in dotted lines in Fig. 1 of the drawings, in which it rests upon the deck of the submarine, to be held in such position by the plate member 57 above described, or by additional clamping means, if necessary.

A cable 76′ is attached to the submarine hull and leads into the tank 50. By means of this cable the tank is adapted to be lowered onto the deck of the submarine in case the gun is not fired.

What I claim is:

1. A submarine vessel including a hull having a hollow elevation on its deck, said elevation being provided with a curved wall, a buoyant tank adapted to rest on said deck provided with a wall having a configuration corresponding to that of the curved wall of said elevation and being adapted to abut against the same, said elevation having an opening covered by an inwardly opening door, the curved wall of said tank having also an opening normally closed by an inwardly opening door, thereby permitting a communication between said hull and tank when the latter abuts against said elevation, and parallel bars pivoted to said hull and said tank to keep the latter always in horizontal position.

2. A submarine vessel according to claim 1, including telescoping tubes pivoted to said hull and tank.

Signed at New York, in the county of New York, and State of New York, this 18th day of November, A. D. 1918.

JOSEPH KUHAJDA.