

No. 741,581.

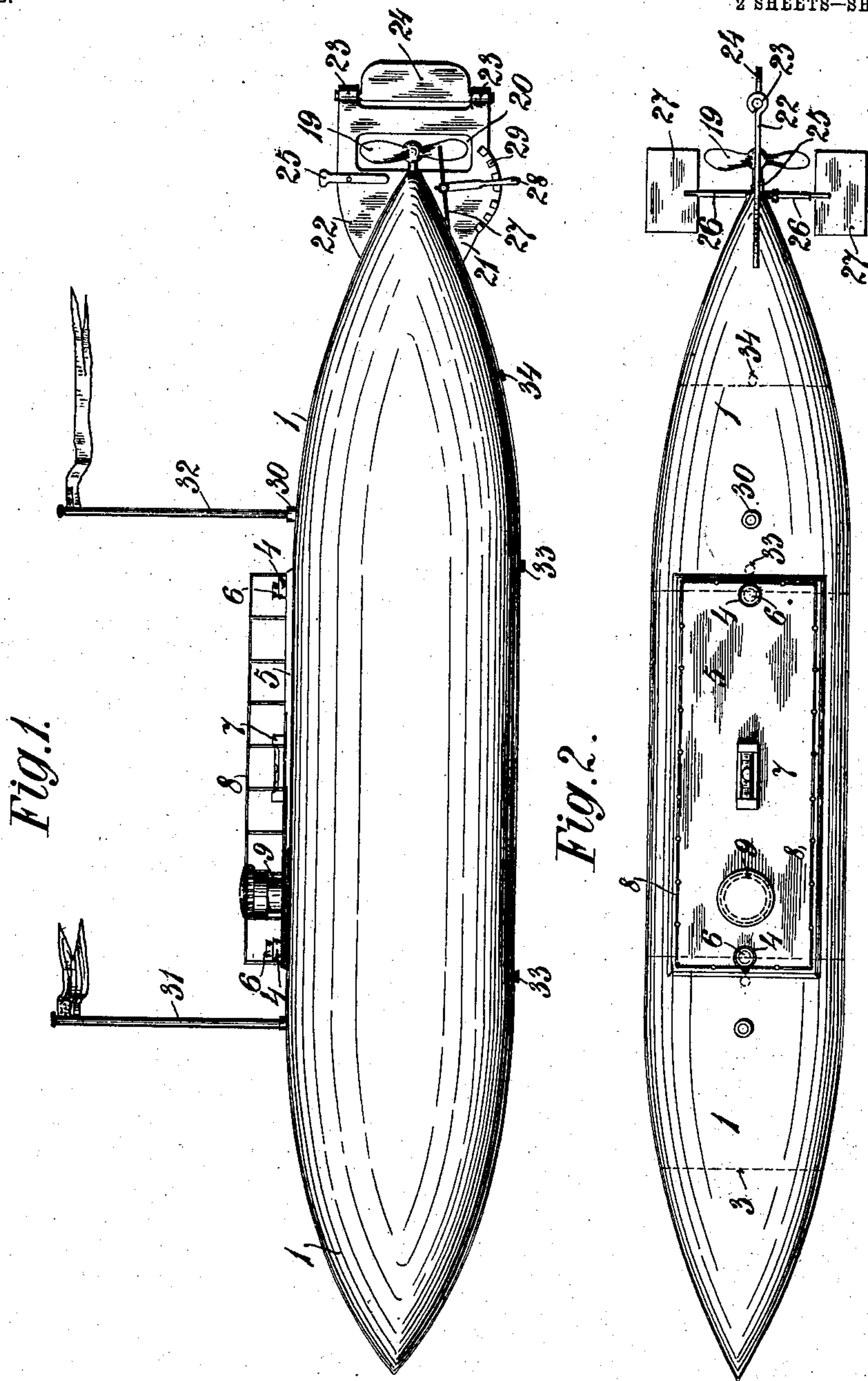
PATENTED OCT. 13, 1903.

A. F. HUMPHREY.  
MINIATURE OR TOY SUBMARINE BOAT.

APPLICATION FILED JAN. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
*Handwritten signature*  
*E. E. Potter*

Inventor  
A. F. Humphrey.  
by *Handwritten signature*  
Attorneys

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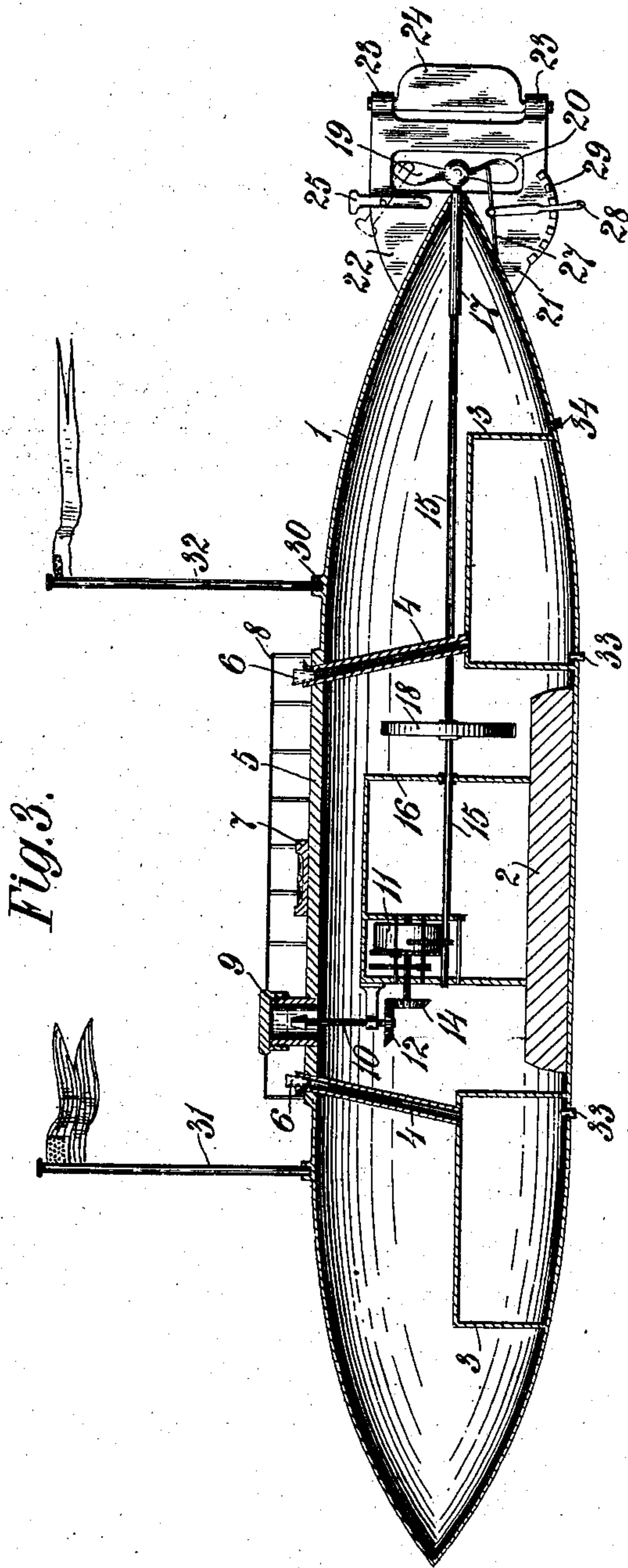
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Witnesses  
Hans J. L. L. L.  
C. E. Potter.

Inventor  
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# UNITED STATES PATENT OFFICE.

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OF ONE-HALF TO CHARLES R. BUCHHEIT, OF PITTSBURG, PENNSYLVANIA.

## MINIATURE OR TOY SUBMARINE BOAT.

SPECIFICATION forming part of Letters Patent No. 741,581, dated October 13, 1903.

Application filed January 23, 1903. Serial No. 140,257. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER F. HUMPHREY, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Miniature or Toy Submarine Boats, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in miniature or toy submarine boats, the primary object of the invention being to provide means for the submersion of the boat in the water to any desired depth and the propelling of the same after it has been submerged in the water.

Briefly described, my present invention comprises a hollow hull in which there are provided fore and aft water-receiving chambers, in which the sufficient quantity of water may be placed to give the desired flotation to the boat prior to its submersion. Means is provided whereby this water may be introduced into the water or ballast chambers from the top or deck of the boat and also whereby it may be drained from the water or ballast chambers from the bottom of the boat after the latter has been removed from the water. In my present invention I provide movable rudders, which may be placed at any desired inclination and so held to obtain the desired downward movement of the boat when the propelling mechanism is operated. Suitable propelling mechanism is provided, and all of the above construction will be hereinafter more fully described and then specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a detail side elevation of my improved toy submarine boat. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal sectional view thereof.

To put my invention into practice, I provide a suitably-shaped hull 1, having tapering ends, whereby the desired diving of the boat

may be effected and also its ready rise to the surface of the water after the propelling mechanism has ceased to operate. This hollow hull I will construct of one piece of metal, though other desirable material may be employed in its manufacture. I preferably construct the same with a weighted portion 2 on the bottom, forming sufficient ballast to give the proper flotation to the boat when it is placed in the water. Within the hull fore and aft of the stationary ballast 2 I provide the ballast-receiving chambers 3. In this invention I contemplate the introduction of water into the ballast-chambers 3 in order to obtain the desired submersion. The water is introduced through tubes or pipes 4, extending through the deck 5 of the vessel. These tubes or water-inlets are normally closed by plugs or the like 6, and when it is desired to introduce water into the chambers 3 these plugs are removed, and a small funnel (not shown) may be placed in the upper ends of the tubes, into which the water will be poured for introducing the same into the chambers 3. To this end I preferably construct the upper ends of the tubes flared on one side, whereby when the funnel-spout is introduced an air-space will be left along one side thereof, so that the air within the chamber 3 may be exhausted as the water flows in. Centrally of the deck 5 I preferably mount a small spirit-level 7, whereby the operator may readily determine the level of the boat, and for the purpose of imparting to the boat a better appearance may provide a deck-rail 8 and also a conning-tower 9. This conning-tower is made to serve a double purpose, as a winding-shaft 10 of the spring-motor 11 projects into the same, whereby when the cap of the conning-tower is removed a suitable key (not shown) may be engaged with the shaft and through the medium of the beveled gears 12 14 the spring of the motor be wound, whereby to operate the propeller-shaft 15. This propeller-shaft is suitably journaled in the casing 16, which surrounds the operating-motor 11, and extends through the bearing-sleeve 17 at the rear end of the hull. On the propeller-shaft is mounted a suitable fly-wheel 18, and a propeller 19 is carried by the shaft on its rear



end. This propeller operates in a cut-away portion 20 of the stationary rudders 21 22, carried by the hull at the rear end thereof. These rudders 21 22 may be made of a single  
 5 piece of metal and provided at their rear ends with loops or eyes 23 to receive the pintle-pins of the rear rudder 24. When the motor is wound, the propeller-shaft is held against rotation to unwind the motor until such time  
 10 as the boat has been placed in the water and is ready to start by means of the lever 25, pivoted to the vertical rudder 22. Journaled in the rear end of the hull is a shaft 26, which carries rudders 27 on its ends, these  
 15 rudders being adapted to be inclined to any desired point and being operated by means of the lever 28, connected to the shaft and which is engaged in the notch or teeth 29, carried by the vertical rudder 21. These  
 20 teeth may be formed by bending over the lower edge of the rudder 21 and notching the same, and the lever 28 may be made of spring metal, whereby it may be sprung outwardly when it is desired to change the inclination  
 25 of the rudders 24. The hull carries suitable receiving-sockets 30 for the flagpole 31 and pennant-pole 32.

In operation the motor is wound, the lever 25 being in engagement with one of the  
 30 blades of the propeller-shaft, whereby to prevent the operation of the motor until the desired time. When the boat is placed in the water, the chambers 3 are then filled or partially filled to obtain the desired submersion  
 35 of the boat, and the upper ends of the tubes 4 are then closed by the plugs 6. The lever 28 is set so as to give the desired inclination to the rudders 27, and when the lever 25 is moved out of engagement with the propeller  
 40 the boat is free to be propelled. The submersion given to the boat will be determined by the inclination which has been given to the rudders 27. After the motor has run down or has exhausted itself the boat will  
 45 rise to the surface. The water from the ballast-chambers 3 may be drained through ports in the bottom of the hull, which are normally closed by plugs 34, and any water  
 50 peller-shaft may be drained from said hull

through port near the rear thereof, normally closed by the plug 34.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my 55 invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A submarine toy boat having a hollow 60 hull provided with a ballast in the bottom thereof, chambers formed in the hull near the forward and rear ends thereof for receiving the necessary weight for submersion of the boat, a spring-motor mounted in the hull, 65 means leading to the deck of the hull for winding the same, a shaft connected to the motor, a propeller secured thereto, means for locking the same during the winding of the motor, adjustable rudders secured at the 70 stern of the boat and means for locking the same in an adjusted position, substantially as described.

2. In a toy submarine boat a hollow hull having a fixed ballast therein, chambers 75 formed in the hull near the forward and rear ends thereof for receiving the necessary weight for the submersion of the boat, means for driving the boat mounted in the said hull, means for locking the driving mechanism, 80 adjustable rudders secured at the stern of the boat and means for locking the same in an adjusted position, substantially as described.

3. A submarine toy boat comprising a hollow hull having a fixed ballast therein, auxiliary ballast-receiving chambers provided 85 in the hull near the forward and rear ends thereof, propelling means for the boat, a spring-motor for actuating said propelling means, means leading to the deck of the hull 90 for winding the same, adjustable steering means secured to the stern of the boat, and means for locking the same in an adjusted position.

In testimony whereof I affix my signature 95 in the presence of two witnesses.

ALEXANDER F. HUMPHREY.

Witnesses:

A. M. WILSON,  
 E. E. POTTER.