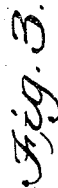
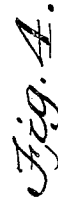


1,037,519.

6 SHEETS—SHEET 1.



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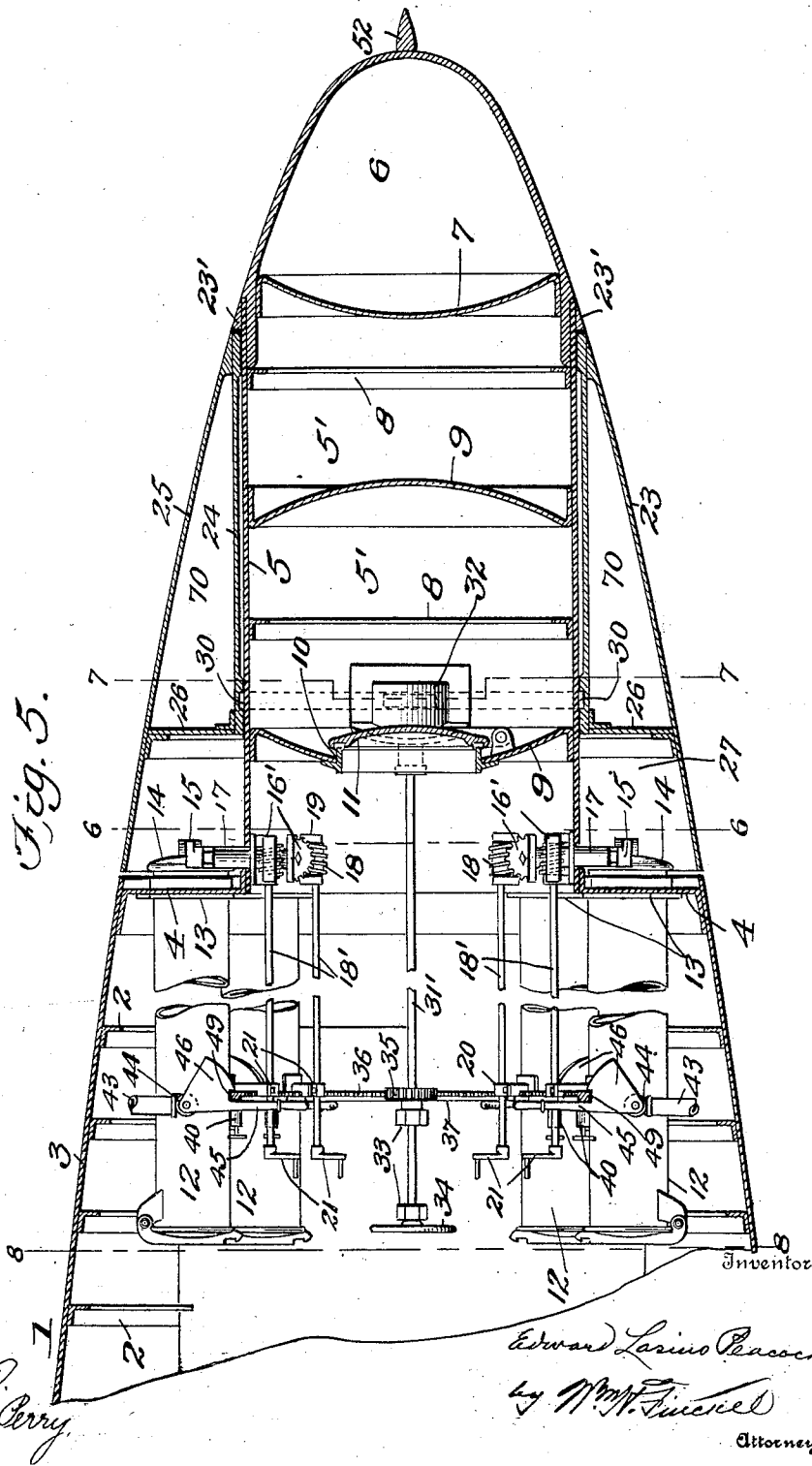


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 SUBMARINE OR SUBMERGIBLE BOAT.
 APPLICATION FILED JULY 17, 1911.

1,037,519.

Patented Sept. 3, 1912.
 6 SHEETS—SHEET 2.



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6 SHEETS—SHEET 3.

Fig. 7.

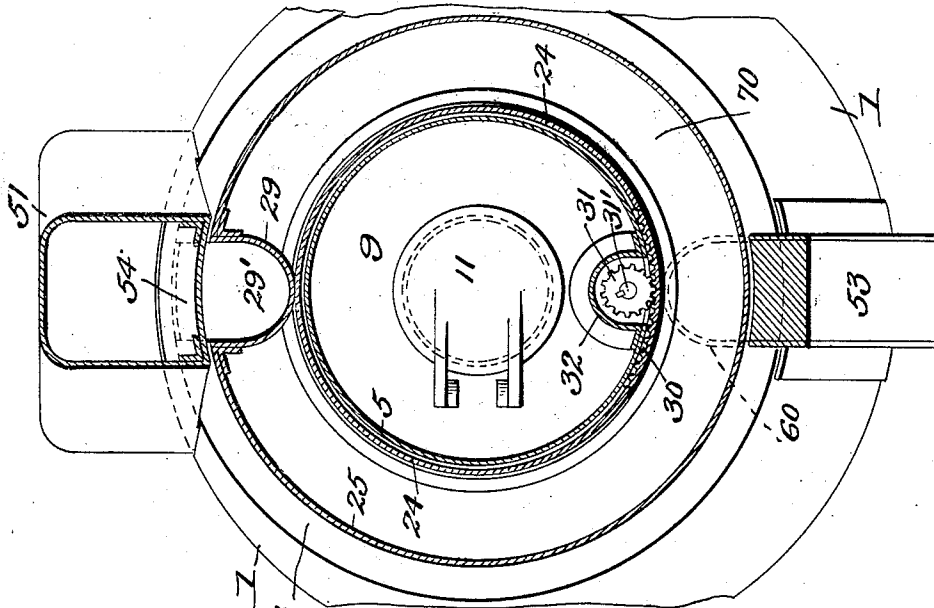
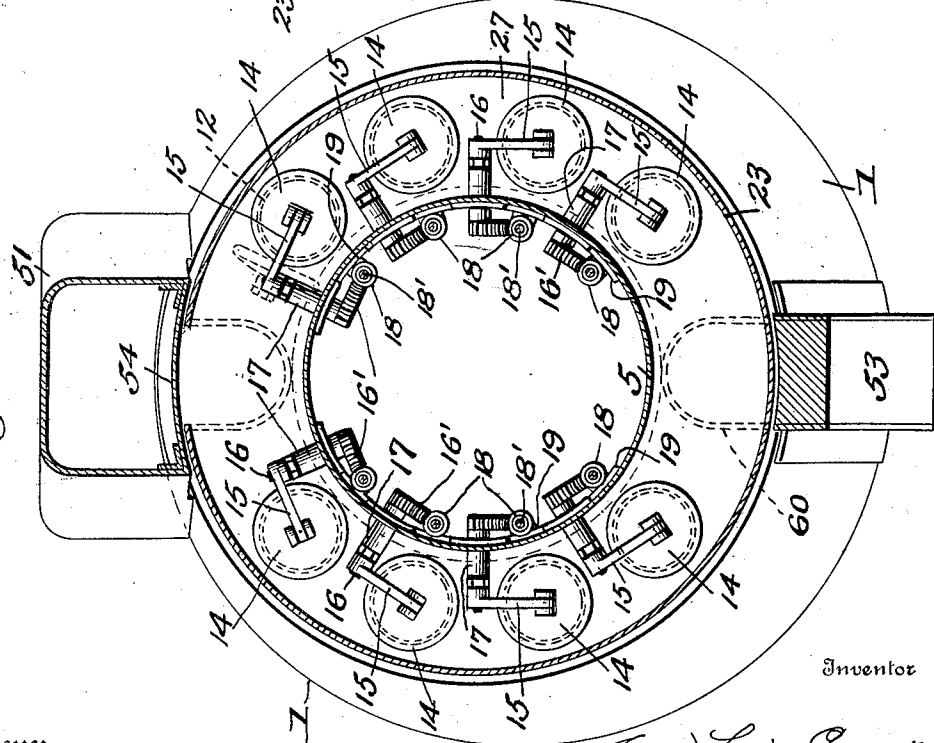


Fig. 6.



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Witnesses

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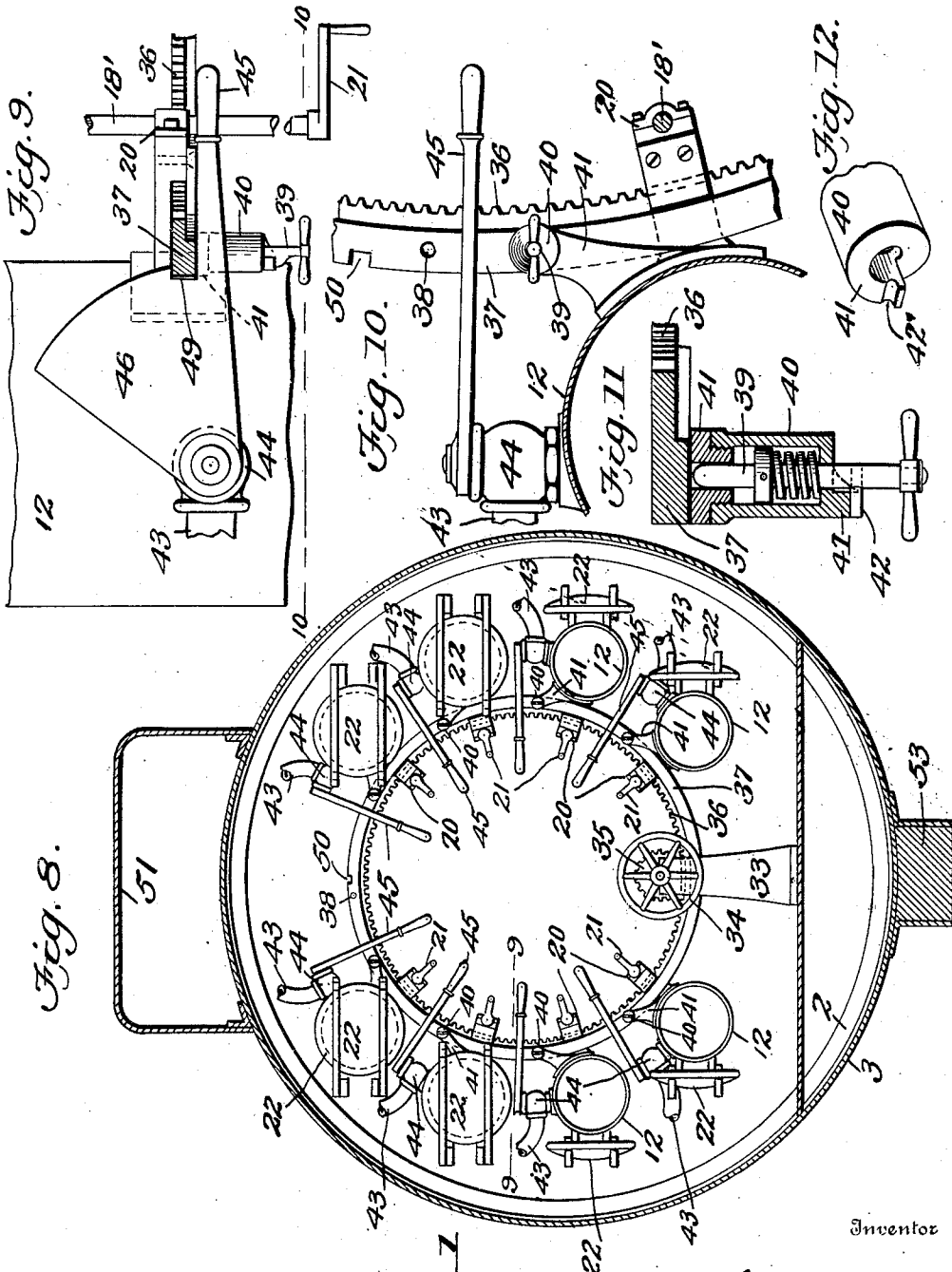
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Witnesses

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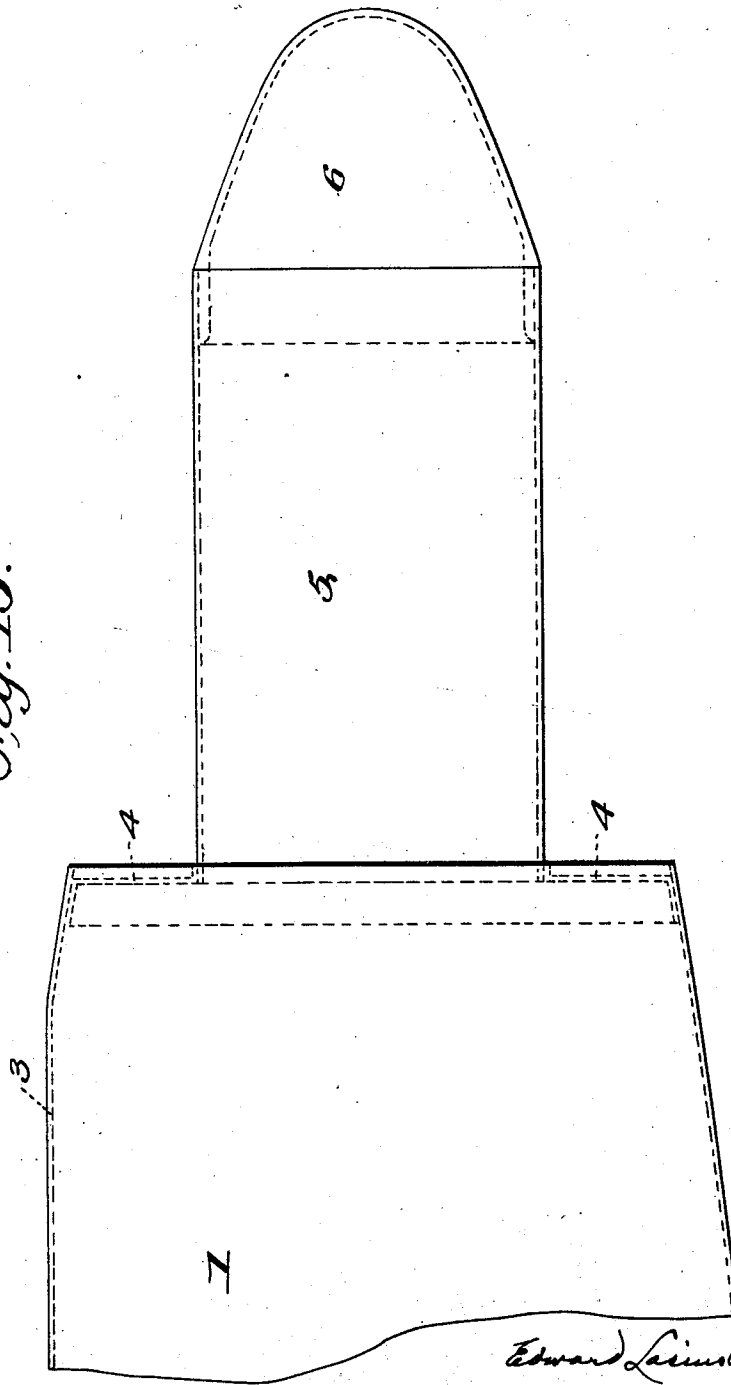
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APPLICATION FILED JULY 17, 1911.

1,037,519.

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6 SHEETS—SHEET 5.

Fig. 13.



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1,037,519.

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6 SHEETS—SHEET 6.

Fig. 15.

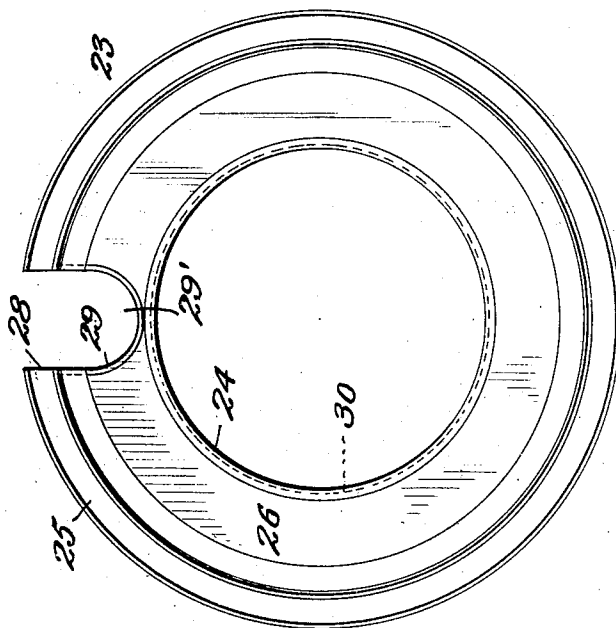
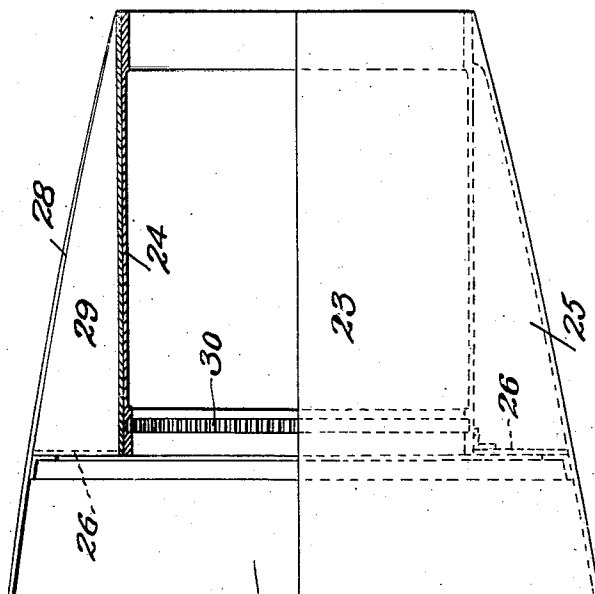


Fig. 14.



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UNITED STATES PATENT OFFICE.

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SUBMARINE OR SUBMERGIBLE BOAT.

1,037,519.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed July 17, 1911. Serial No. 638,884.

To all whom it may concern:

Be it known that I, EDWARD LASIUS PEACOCK, a subject of the King of Great Britain, at present residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Submarine or Submergible Boats, of which the following is a specification.

The object of the invention is to construct a submarine or submergible torpedo boat whereby a greater number of torpedoes and torpedo expulsion tubes may be carried within the hull than has heretofore been possible in this class of vessels.

In attaining this object I provide an end, usually the bow, of the boat with eight, more or less, torpedo tubes, and a rotary sleeve, in the nature of a casing or cover for the outboard ends of the tubes and their covers that shall preserve the true lines of the hull and avoid all speed resisting surfaces or projections, said sleeve being revolvably mounted upon the hull and provided with one or more torpedo exits which are protected or housed when the boat is operating under normal conditions, thereby providing a smooth even hull surface which is essential in attaining high speeds both upon and below the surface of the water. This sleeve is rotatable so as to provide for adjustment of its exits into alinement with the torpedo tubes when the torpedoes are to be discharged, the said sleeve being also constructed so that the outboard covers for the torpedo tubes may be separately or collectively opened to permit ready expulsion of the torpedoes and also the admission of water to the tubes to compensate for the weight of the expelled torpedoes and thus avoid any tendency to disturb the buoyancy or the center of gravity of the boat when the torpedoes are launched.

The invention consists in the novel features of construction, combination and arrangement of parts, as hereinafter fully described and claimed.

In the accompanying drawings, illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a side elevation of the forward end of a submarine or submergible torpedo boat embodying my improvements. Fig. 2 is a front view, and Fig. 3 is a plan view of the same. Fig. 4 is a diagrammatic side

elevation of the boat on a greatly reduced scale illustrating my improvement arranged at both ends of the hull. Fig. 5 is a horizontal section of the forward end of the boat, the central portions of the torpedo tubes and the shafts for operating the outboard covers for the tubes being broken away and their after ends moved forwardly. Fig. 6 is a transverse section drawn on the line 6—6 of Fig. 5. Fig. 7 is a transverse section drawn on the line 7—7 of Fig. 5. Fig. 8 is a transverse section drawn on the line 8—8 of Fig. 5, the inboard covers of the four lower torpedo tubes being shown in open position. Fig. 9 is a horizontal section drawn on a larger scale on the line 9—9 of Fig. 8 illustrating the locking mechanism of the firing levers. Fig. 10 is a vertical transverse section drawn on the line 10—10 of Fig. 9. Fig. 11 is a detail section drawn through one of the locking pin cylinders illustrating one of the locking pins for holding the revoluble sleeve carried by the hull of the boat in its adjusted position and which pins automatically arrest the movement of said sleeve at any particular tube. Fig. 12 is a perspective view of the outer end of one of the pin supporting cylinders, illustrating the cams carried by said cylinders for holding the locking pins in inactive position. Fig. 13 is a diagrammatic side elevation of the forward end of the hull of the boat. Fig. 14 is a sectional side elevation of the revoluble sleeve carried by the hull. Fig. 15 is an end view of the inner end of the sleeve.

1 designates the hull of a submarine or submergible torpedo boat which is constructed of a series of circular ribs or frames 2 throughout its amidships section over which is arranged the skin or shell plating 3, said ribs or frames being of gradually diminishing diameter from the amidships section of the hull toward its ends with their tops arranged on substantially the same level so that the top or deck of the hull will lie in a substantially horizontal plane.

Adjacent to the forward rib or frame 2 at the end of the tapering section of the hull is secured a frame plate 4 from the forward side of which extends the cylindrical section 5 of the hull of smaller diameter than the tapering end section of the hull and whose axial center is arranged

in horizontal alinement with the center of the frame plate 4 thereby forming an annular shoulder of even width around the entire hull of the boat. To the forward end of the cylindrical section 5 is connected a hollow substantially conoidal casting 6 which forms the end or nose of the boat. Within the nose portion 6 is arranged a strengthening bulk-head 7.

The cylindrical section of the hull is strengthened by suitable ribs or frames 8 and by bulk-heads 9, the latter dividing the space in said section into several compartments 5' which may be utilized as storage compartments for fuel or water or, if desired, as compressed-air-supply tanks. The inner bulk-head 9 is provided with a man-hole 10 that is controlled by a cover 11 whereby access may be had to the inner compartment 5' for the purpose as will hereinafter appear.

Arranged within the hull and upon either side thereof, are series of stationary torpedo expulsion tubes 12 whose forward ends extend through openings formed in the frame plate 4 and held water-tight therein by suitable flanged rings 13 which are secured to said tubes and to said frame plate. The outer ends of said torpedo tubes are controlled by outboard caps 14 which are carried by levers 15 that extend from the outer ends of short shafts 16 which are journaled in cylindrical bearings 17 that extend radially through the cylindrical section 5 of the hull adjacent to the frame plate 4. The outer ends of the bearings 17 are fitted with packing glands to prevent leakage around the shafts. The inner ends of the shafts 16 are provided with segmental worm wheels 16' which are meshed by worms 18 carried at the forward ends of operating shafts 18' which are journaled at their outer or forward ends in suitable bearings 19 and at their inner ends in bearings 20 extending from base plates which are secured to the inner ends of the torpedo expulsion tubes 12. The inner ends of the shafts are provided with crank handles 21, or if desired with hand wheels, by which the shafts are revolved. It will be evident that by revolving the shafts 18' in one direction motion will be imparted to the shafts 16 to adjust the caps 14 to open the outboard ends of the tubes 12 and when revolved in the opposite direction the caps will be moved to close the said tubes. The inner ends of the tubes 12 are closed by the usual form of caps shown diagrammatically in Figs. 5 and 8 and designated by the reference numeral 22.

Upon the cylindrical section 5 of the hull is revolubly mounted a hollow sleeve 23 which provides a fair-water cover or shield for the outer ends of the torpedo tubes 12 and their caps or covers 14 and which also serves to fill in the space or depression

formed in the hull by the reduced cylindrical section 5 thereby preserving the even tapering form of the hull from the end of the hull plating to the nose of the boat.

The sleeve 23 is of truncated conoidal profile; it has an inner cylindrical member 24 by which it is revolubly mounted upon the cylindrical section 5 of the hull 1, and an outer member 25 which is of gradually increasing diameter from its forward end toward its rear end and of a shape to conform to the contour of the tapering end 6 of the hull 1. The outer member 25 is securely connected at its forward end to the forward end of the cylindrical member 24 and its inner or after end is extended beyond the after end of the said member 24 and is connected to said after end of the member 24 by a circular plate 26 thus providing an annular space 27 between the inner end of the member 25 and the inner end of the cylindrical hull section 5 into which the outboard caps of the torpedo tubes open when said caps are adjusted to uncover the ends of said tubes. The outer member 25 of the sleeve is provided with a longitudinal opening 28 to the edges of which are connected the edges of a curved plate 29 which extends from the plate 26 to the forward end of the sleeve providing an exit 29' that is adapted to be adjusted into alinement with the torpedo tubes to permit the free passage or escape of the torpedoes when expelled from said tubes. As shown the plate 26 is cut to fit the shape of the inner end of the plate 29, and said plates are connected in any suitable manner.

Adjacent to its inner end the cylindrical member 24 is formed with an annular rack section 30 which is meshed by a pinion 31 carried at the outer end of a shaft 31' which is journaled in the hull 1. The pinion 31 extends through an opening or slot formed in the cylindrical hull portion 5 and is incased in a suitable housing 32 that is connected air- and water-tight to the said section 5 and to the forward side of the inner bulk-head 9 which prevents ingress of water to the hull of the boat. The shaft 31' extends through the bulk-head 9 and through a stuffing box surrounding the shaft and has its inner end journaled in a bearing 33 mounted within the main hull 1, the extreme inner end of the shaft being provided with a hand wheel 34 by which the shaft is revolved to rotate the sleeve 23 so as to bring the exit 29' into alinement with any one of the torpedo tubes.

In order to indicate to the occupants of the boat the position of the exit 29' and to insure its perfect alinement with the torpedo tubes I provide the following mechanism: Mounted upon the inner end of the shaft 31' in advance of the hand wheel 34, is a pinion 35 of the same diameter as the

pinion 31, which meshes an annular rack bar 36 of the same diameter as the rack section 30, which rack bar 36 is formed on a ring 37 that is revolvably supported by the bearings 20 employed for the inner ends of the shafts 18, as shown most clearly in Figs. 8, 9, and 10. The ring 37 is formed with a socket 38 which is adapted to receive spring actuated locking pins 39 carried by and operating through short cylinders 40 which are supported at the outer ends of short arms 41 extending from the base plates of the bearings 20. By this arrangement as the sleeve 23 is rotated the ring 37 will be correspondingly rotated and the moment the exit 29' of the sleeve is brought into register with the torpedo tube from which the torpedo is to be expelled, the locking pin 39 co-acting with the tube will be forced into the socket 38 and thus hold the sleeve against further movement. In order to hold the pins from engagement with the ring 37 so that the exit 29' of the sleeve may be moved past any one or more of the torpedo tubes or be completely rotated I form the outer ends of the cylinders 40 with cam surfaces 41 which are engaged by detents 42 carried by the locking pins 39 so that by revolving the locking pins the detents will ride up on the cam surfaces and be drawn away from the ring against the tension of their springs thereby permitting the free movement of the sleeve as will be readily understood by reference to Figs. 11 and 12. The apex of each cam surface is formed with a locking notch 42' into which the detents fit to hold the pins against accidental displacement when they have been adjusted to their inactive positions. It will be understood that when any one of the pins 39 is revolved so that its detent will lie at the base of the cam surface its spring will force it into engagement with the ring 37 and into the socket 38 the moment the latter is brought into register with the pin when the sleeve 23 and the ring 37 are rotated.

Air is supplied to the torpedo expulsion tubes for expelling the torpedoes through pipes 43 which extend from suitable high pressure air-tanks (not shown) and are connected to controlling valves 44 which in turn are connected to the torpedo tubes adjacent to their inner ends. The valves are operated by firing levers 45 which extend from said valves toward the center of the ring 37. To prevent the accidental operation of any one of the firing levers 45 and to permit the operation only of the lever controlling the admission of air to the tube with which the exit of the revoluble sleeve is aligned, I provide each lever 45 with a segmental locking plate 46 each having a notch 49 in which the peripheral edge of the ring fits and in order to permit the levers being operated when the exit 29' is in the proper

position I provide the peripheral edge of the ring 37 with a notch 50 which is designed to be brought into register with the lever to be operated when the movement of the sleeve 23 and the ring 37 are arrested.

51 designates the superstructure of the boat which extends to the extreme end or nose of the hull and is connected at its lower side edges to the skin or plating of the hull in the usual manner and at its forward end to the nose casting 6 and to a skeleton frame 52 that is also connected to said nose casting and to the forward end of the keel 53 as shown in dotted lines in Fig. 1. The lower edges of the sides of the superstructure that extend over the revoluble sleeve 23 are connected by an arcuate plate 54 whose forward and rear ends are also connected to the nose casting 6 and the skin or plating 3 of the hull respectively, thereby closing the opening in the lower side of the superstructure above the sleeve 23. The keel of the boat is also connected to the skin or plating 3 of the hull and to the nose casting 6 and the skeleton frame 52 and between the after end of the nose casting and the forward end of the skin or plating 3 the keel is slightly recessed upon its upper side to permit of the free movement of the sleeve 23 when it is revolved. The sleeve 23 is held upon the cylindrical section of the hull by a ring 23' of substantially wedge-shape in cross-section which also serves the purpose of fairing up the abutment at the forward end of the sleeve.

By extending the superstructure to the extreme forward end of the boat I provide a housing for the exit 29' when the boat is operating under normal conditions which avoids all speed resisting recesses or obstructions and leaves the hull perfectly smooth and as the outer surface of the sleeve is of the same contour as the hull section 1 it will be observed that an unbroken surface is provided throughout the length of the boat which tends to lessen the speed resistance to the boat when operating both upon the surface and submerged.

When the boat is engaged in hostile pursuits, and it is desired to expel one or more of its torpedoes from either side of the boat, the outboard cover or cap of the tube from which the torpedo is to be expelled is first opened, or if desired all of the outboard caps may be opened in the event of more than one torpedo being expelled; the locking pin of the tube to be fired is then released to arrest the movement of and lock the sleeve in position the moment the exit 29' of said sleeve is brought into alinement with the particular tube. The sleeve is then rotated by revolving the shaft 31' to adjust the exit 29' in position which movement also rotates the ring 37 so as to bring its socket 38 opposite the locking pin 39, and the notch 50 op-

posite the firing lever of the tube to be "fired." The lever is then free to be operated the moment the command is given. It will be observed that when the lever is operated to open the valve to expel the torpedo, the segmental locking plate of the lever will be moved outwardly in the notch 50 which thus holds the ring against movement until the operating lever has been returned to its closed position and the locking pin has been withdrawn thus preventing the operation of any of the other firing levers and guarding against the accidental "firing" of the torpedoes. Now should it be desired to "fire" a second torpedo, the locking pin of the tube to be "fired" is first set, the lever that has been operated returned to its position and the sleeve then rotated as before described.

From the foregoing it will be seen that I not only provide an exceedingly simple construction and arrangement whereby a greater number of torpedoes and torpedo expulsion tubes may be carried in the hull of submarine or submergible torpedo boats than has been possible heretofore, but also a construction that provides a perfectly smooth hull surface when the boat is operating under normal conditions, a construction whereby all of the outboard caps of the torpedo tubes may be open at the same time which permits of the more rapid expulsion of the torpedoes, and a construction whereby the firing levers are locked against accidental operation.

If desired the rotatable sleeve 23 may be constructed with two exits 29' which may be arranged at diametrically opposite points so that they may be completely housed except when the sleeve is adjusted to permit the expulsion of the torpedoes. In such construction one exit would be housed under the superstructure and the other exit in the keel as shown in dotted lines at 60 in Figs. 6 and 7.

In practice the space 70 between the inner and outer members of the sleeve 23 will be filled with a light weight cement such as paraffin or paraffin and cork, or with a resilient material which avoids the necessity of bracing the outer member by ribs or frames thereby producing a light weight construction and also one that will take up the shock and avoid injury to the circular section 5 of the hull in the event of a head-on collision with an object.

I desire it understood that I do not limit myself to the minor details of construction as shown in the drawings as slight changes therein may be made without departing from the scope of the invention. I further desire it understood that I do not limit myself to the shape of the cylindrical section 5 of the hull as this section may be made of varying diameters, that is to say, of grad-

ually tapering diameter from its inner toward its outer end in order to give greater clearance for the torpedoes as they are expelled from the tubes.

What I claim is:—

1. The combination with a submarine or submergible boat having torpedo expulsion tubes, of a rotatable sleeve mounted on and surrounding a portion of said hull and providing a fairwater for the outer ends of said tubes and having an exit for the torpedoes, and means for rotating said sleeve to expose the outboard ends of said tubes for the discharge of the torpedoes.

2. The combination with a submarine or submergible torpedo boat having torpedo expulsion tubes extending through the hull thereof, of a sleeve rotatably mounted on the hull between the ends of the boat providing a fairwater for the outboard ends of said tubes and having an exit that is adapted for alinement with said tubes, and means for rotating said sleeve, for the purpose specified.

3. The combination with a submarine or submergible boat having a torpedo expulsion tube or tubes and caps for closing the outboard end or ends of said tube or tubes, of a sleeve rotatably mounted on the hull of the boat providing a fairwater for the outboard end or ends of said tube or tubes and its or their cap or caps, said sleeve having an exit that is adapted to be alined with said tube or tubes, and means for rotating said sleeve.

4. The combination with a submarine or submergible boat, of torpedo expulsion tubes extending through the hull of the boat, caps for closing the outboard ends of said tubes, means operable from within the hull for opening and closing said caps, a rotatable sleeve mounted on said hull providing a fairwater shield for said outboard ends of said tubes and said caps and having an exit for the torpedoes, and means for rotating said sleeve to expose said outboard ends of said tubes for the discharge of the torpedoes.

5. The combination with a submarine or submergible boat having torpedo tubes extending through the hull thereof, caps for closing the outboard ends of said tubes, and mechanism operable from within the boat for opening and closing the said caps, of a sleeve rotatably mounted on and surrounding a portion of said hull providing a fairwater for the outboard ends of said tubes and their caps, said sleeve having a longitudinally arranged torpedo exit, and means operable from within the boat for rotating said sleeve to move said exit into alinement with said tubes.

6. The combination with a submarine or submergible boat having a plurality of torpedo expulsion tubes arranged within and

opening through the hull of the boat, caps for closing the outboard ends of said tubes, and mechanism operable from within the boat for opening and closing said caps, of
 5 a sleeve rotatably mounted on said hull providing a fairwater for the outboard ends of said tubes and their caps, said sleeve having a longitudinally arranged exit adapted to be
 10 aligned with the tubes, mechanism operatively connected to said sleeve for rotating said sleeve, for the purpose specified, and mechanism operatively connected to said rotating mechanism for locking said sleeve against rotation.

15 7. The combination with a submarine or submergible boat having a superstructure, of torpedo expulsion tubes carried within and opening through the hull of the boat, caps for closing the outboard ends of said tubes,
 20 means for opening and closing said caps, a sleeve rotatably mounted on said hull providing a fairwater for said tubes and their caps, said sleeve having a longitudinal exit which is adapted to lie under the said super-
 25 structure when the boat is operating under normal conditions, and mechanism operable from within the boat for rotating said sleeve to move said exit into alinement with said torpedo tubes.

30 8. The combination with a submarine or submergible boat, of a plurality of stationary torpedo expulsion tubes arranged within and opening through the boat, caps for closing the outer ends of said tubes, a sleeve
 35 rotatably mounted on said hull providing a fairwater for the outer ends of said tubes and their caps, said sleeve having a normally protected exit that is adapted for alinement with the torpedo tubes when the said sleeve
 40 is rotated, and means for rotating said sleeve.

9. The combination with a submarine or submergible boat having a plurality of torpedo
 45 expulsion tubes and caps for closing the outboard ends thereof, of a sleeve rotatably mounted on the hull of the boat providing a fairwater for the outboard ends of said tubes and their caps, said sleeve having
 50 an exit that is adapted to align with said tubes when said sleeve is rotated, means for rotating said sleeve, and means co-acting with said sleeve to indicate the position of said exit.

10. A submarine or submergible boat hav-
 55 ing a reduced hull section providing a shoulder, torpedo expulsion tubes arranged in said hull and opening through said shoulder, caps for closing the outboard ends of said tubes, a sleeve rotatably mounted on
 60 said hull providing a fairwater for said tubes and their caps, said sleeve having a torpedo exit and means for rotating said sleeve to adjust its exit into alinement with said torpedo tubes.

65 11. A submarine or submergible boat hav-

ing a shoulder formed on the hull between the ends thereof, torpedo expulsion tubes arranged in said hull extending through said shoulder, a sleeve rotatably mounted on and
 70 surrounding a portion of said hull providing a fairwater for said shoulder and said torpedo tubes and having an exit that is adapted to register with said tubes when said sleeve is rotated.

12. A submarine or submergible boat hav-
 75 ing a shoulder formed on the hull thereof, a plurality of torpedo expulsion tubes fixedly arranged in said hull and opening through said shoulder, caps for closing the outboard ends of said tubes, a sleeve rota-
 80 bly mounted on said hull providing a fairwater for said shoulder and said torpedo tube caps, said sleeve having a torpedo exit to register with said torpedo tubes when the torpedoes are to be expelled,
 85 means for rotating said sleeve, means for locking said sleeve, and means for indicating the position of said exit.

13. A submarine or submergible boat hav-
 90 ing a plurality of torpedo expulsion tubes opening through the hull thereof adjacent to one end, caps for closing the outboard ends of said tubes, a sleeve rotatably mounted on said hull and covering the discharge
 95 ends of said tubes and their caps, and having an exit for the discharge of the torpedoes, and mechanism for rotating said sleeve to adjust its exit into alinement with the discharge ends of said tubes.

14. A submarine or submergible boat hav-
 100 ing a plurality of torpedo expulsion tubes arranged within and extending through the hull thereof, said tubes opening through the hull adjacent to one end thereof, caps for closing the discharge ends of said tubes, a
 105 sleeve rotatably mounted on said hull providing a fairwater for the outer ends of said tubes and their caps, said sleeve having a normally protected torpedo exit that is adapted to be aligned with said torpedo
 110 tubes when the said sleeve is rotated, and means for rotating said sleeve.

15. A submarine or submergible boat hav-
 115 ing a superstructure arranged thereon, torpedo expulsion tubes arranged within and opening through the hull of the boat adjacent to one end thereof, a sleeve rotatably mounted on the hull providing a fairwater for the discharge ends of said tubes, said sleeve having a torpedo exit that is nor-
 120 mally covered by said superstructure, and means for rotating said sleeve to align the said exit with said torpedo tubes, for the purpose specified.

16. A submarine or submergible boat hav-
 125 ing a reduced hull section, torpedo expulsion tubes arranged in said hull and opening over the said reduced section, caps for closing the discharge ends of the tubes, a superstructure arranged upon the hull and
 130

over the reduced section thereof, a sleeve rotatably mounted on the said reduced section of the hull providing a fairwater for said tubes and their caps, said sleeve having a torpedo exit that is adapted for alinement with said torpedo tubes, and means for rotating said sleeve to adjust said exit into alinement with said torpedo tubes.

17. A submarine or submergible boat having one end of its hull reduced to provide an annular shoulder on said hull, torpedo expulsion tubes opening through said shoulder, a sleeve rotatably mounted on said reduced section of the hull providing a fairwater for said shoulder and said torpedo tubes, said sleeve having a torpedo exit that is adapted for alinement with said torpedo tubes, and means for rotating said sleeve to expose the discharge ends of said tubes.

18. A submarine or submergible boat having one end of its hull terminating in a cylindrical section of less diameter than the amidships section thereof providing an annular shoulder on said hull, torpedo expulsion tubes arranged in said hull and opening through said shoulder, caps for closing the discharge ends of said tubes, a sleeve rotatably mounted on the said cylindrical hull section providing a fairwater for said shoulder and said torpedo tube caps and having a torpedo exit, and means for rotating said sleeve to expose the discharge ends of said tubes.

19. A submarine or submergible boat having one end of its hull terminating in a cylindrical section of less diameter than the amidships section of the hull providing an annular shoulder on said hull, torpedo expulsion tubes arranged in the hull and opening through said shoulder, caps for closing the discharge ends of said tubes, a sleeve rotatably mounted upon said cylindrical section of the hull, said sleeve comprising an inner cylindrical hub member and an outer member of gradually increasing diameter from its forward end toward its after end to conform to the lines of the hull, a torpedo exit formed in said sleeve, and means for rotating said sleeve to adjust said exit into alinement with the torpedo tubes, for the purpose specified.

20. A submarine or submergible boat, having one end of its hull terminating in a cylindrical section of smaller diameter than the amidships section of the hull providing an annular shoulder on said hull, torpedo expulsion tubes arranged in said hull and opening through said shoulder, caps for closing the outboard ends of said torpedo tubes, a sleeve rotatably mounted on said cylindrical section and having a torpedo exit, said sleeve comprising a hub member and an outer member of gradually increasing diameter from the forward end of said sleeve to the after end and of greater length

than said hub member thereby providing, with said shoulder, an annular space at the after end of said sleeve into which said torpedo tube caps open, and means for rotating said sleeve to adjust its exit into alinement with said torpedo tubes.

21. A submarine or submergible boat, having a superstructure arranged thereon, torpedo expulsion tubes arranged in and opening through the hull of the boat, a sleeve rotatably mounted on said hull providing a cover for the outboard ends of said torpedo tubes, said sleeve having a torpedo exit which is normally positioned under said superstructure, and means for rotating said sleeve to adjust its exit into alinement with said torpedo tubes when the torpedoes are to be expelled.

22. A submarine or submergible boat, having its hull provided with a reduced section adjacent to one end providing an annular shoulder on said hull, a plurality of torpedo expulsion tubes arranged in said hull and opening through said shoulder, caps for closing the outboard ends of said tubes, a sleeve rotatably mounted on said reduced section and having a profile conforming to the lines of the hull and whose after end is located immediately adjacent to the outer edge of said shoulder to provide an annular space at said after end into which said torpedo tube caps open and also having a torpedo exit, and means for rotating said sleeve to adjust said exit into alinement with its torpedo tubes.

23. A submarine or submergible boat, having one end of its hull terminating in a cylindrical section of smaller diameter than the amidships section thereof providing an annular shoulder on said hull, torpedo expulsion tubes arranged in said hull and opening through said shoulder, caps for the outboard ends of said tubes, firing levers for said tubes, a sleeve rotatably mounted on said reduced section of the hull providing a fairwater for the outboard ends of said tubes and their caps, a torpedo exit formed in said sleeve, a rack section on said sleeve, a shaft journaled in the hull of the boat having a pinion engaging said rack section for rotating said sleeve to adjust said exit into alinement with said torpedo tubes, mechanism operatively connected to said shaft for locking the said firing levers against accidental operation, mechanism for arresting the rotation of said sleeve whereby said exit may be positively held in alinement with said tubes, and mechanism for operating said caps to open and close the outboard ends of said tubes.

24. A submarine or submergible boat, having a reduced section formed on its hull providing an annular shoulder on said hull, torpedo launching tubes arranged in said

hull and opening through said shoulder, caps for the outboard ends of said tubes, a sleeve rotatably mounted on the reduced section of the hull providing a fairwater for the outboard ends of said tubes and their caps, a torpedo exit formed in said sleeve, mechanism operable from within the boat for rotating said sleeve to adjust said exit into alinement with said tubes, mechanism for limiting the rotary movement of said sleeve, and mechanism for adjusting said caps to open and close the outboard ends of said tubes.

25. A submarine or submergible boat, having torpedo tubes arranged within and opening through the hull thereof, firing levers arranged at the inner ends of said tubes, caps for closing the outboard ends of said tubes, a sleeve rotatably mounted on the hull thereof providing with said hull an annular space into which the said caps open, said sleeve having a torpedo exit that is designed to register with said tubes when torpedoes are to be expelled from said tubes, mechanism for rotating said sleeve to align its exit with said tubes, mechanism operated by said rotating mechanism for indicating the location of said exit with respect to the said tubes, and mechanism for operating said caps to open and close the outboard ends of said tubes.

26. In a submarine or submergible boat, a hull having an annular shoulder thereon, torpedo expulsion tubes arranged in the hull and opening through said shoulder, a superstructure arranged upon the hull and extending over said shoulder, a sleeve rotatably mounted on the hull providing a fairwater for said shoulder and the outboard ends of said tubes and having a torpedo exit therein which is normally protected by said superstructure, and mechanism operable from within the hull for rotating said sleeve to align its exit with said torpedo tubes when torpedoes are to be expelled from or inserted in said tubes.

27. A hull for submarine or submergible torpedo boats, having one end terminating in a substantially cylindrical section of smaller diameter than the amidships section of the hull providing an annular shoulder through which the outboard ends

of the torpedo tubes extend, and a sleeve rotatably mounted on said substantially cylindrical section the profile of which conforms to the lines of the hull to provide a fairwater for said shoulder and said outboard ends of the torpedo tubes, said sleeve having a recess adapted to be registered with said torpedo tubes.

28. The combination in a submarine or submergible boat, of torpedo expulsion tubes, caps for closing the outboard ends of said tubes, a rotatable sleeve mounted on and surrounding a portion of the hull and providing a fairwater shield for the outboard ends of said tubes and their caps and having a torpedo exit, said caps opening within said shield when the torpedoes are to be expelled from said tubes, and means for revolving said sleeve to expose the outboard end of any one of said tubes.

29. The combination in a submarine or submergible boat, of torpedo expulsion tubes, caps for closing the outboard ends of said tubes, a rotatable sleeve mounted on and surrounding a portion of the hull of the boat and providing a fairwater shield for the outboard ends of said tubes and their caps into which said caps open, and having a torpedo exit, means for opening and closing said caps, and means for rotating said sleeve to bring its exit opposite a torpedo tube that is to be discharged.

30. The combination with a submarine or submergible boat, having torpedo expulsion tubes extending through the hull thereof, and caps for closing the outboard ends of said tubes, of a sleeve rotatably mounted on and surrounding a portion of said hull and providing a fairwater shield for the outboard ends of said tubes and their caps and having a torpedo exit, and means for rotating said sleeve to cause its exit to align with said tubes successively when the torpedoes are to be expelled.

In testimony whereof I have hereunto set my hand this 13th day of July, A. D. 1911.

EDWARD LASIUS PEACOCK.

Witnesses:

J. A. SCHOFIELD,
M. D. BLONDEL.