H. M. SILVEIRA.

BATTLESHIP.

APPLICATION FILED MAY 10, 1912.

1,080,490.

Patented Dec. 2, 1913.

6 SHEETS—SHEET 1.

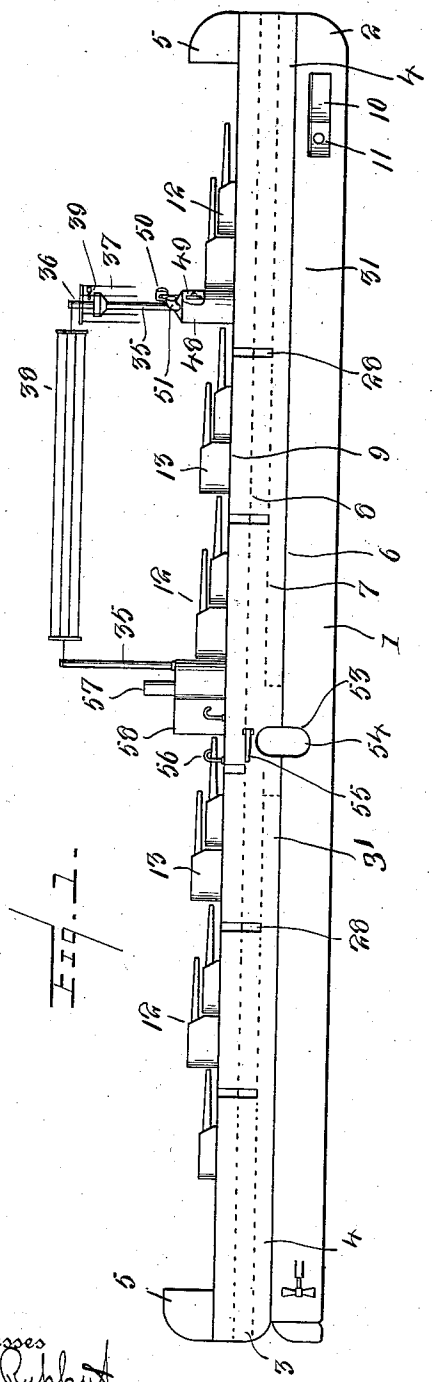


Fig. 1.

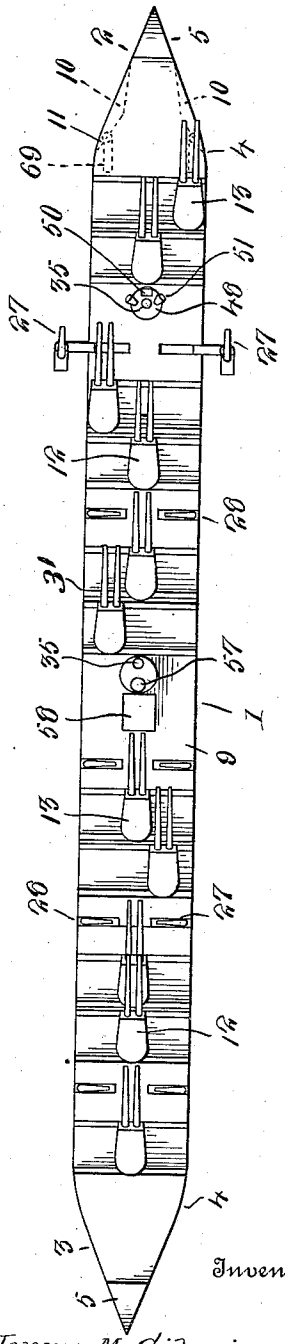


Fig. 2.

Witnesses

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6 SHEETS—SHEET 2.

Fig. 3.

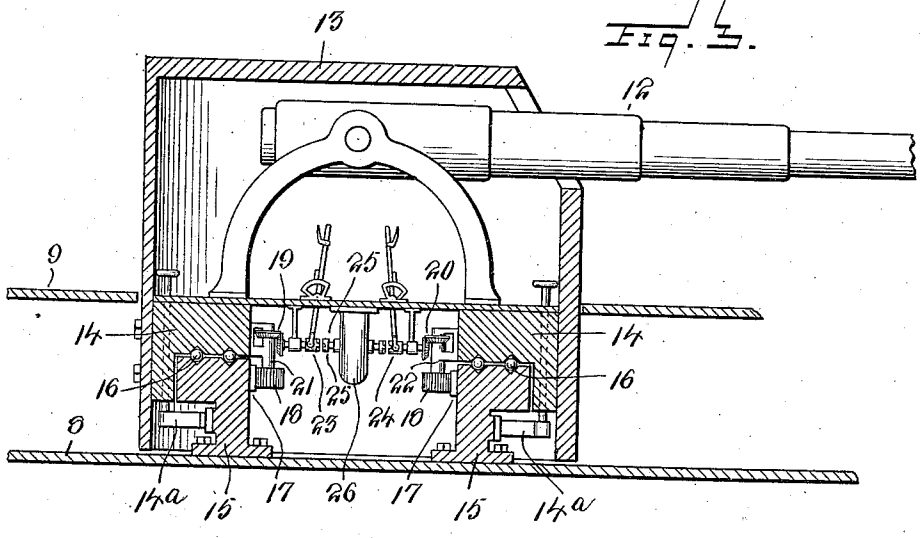
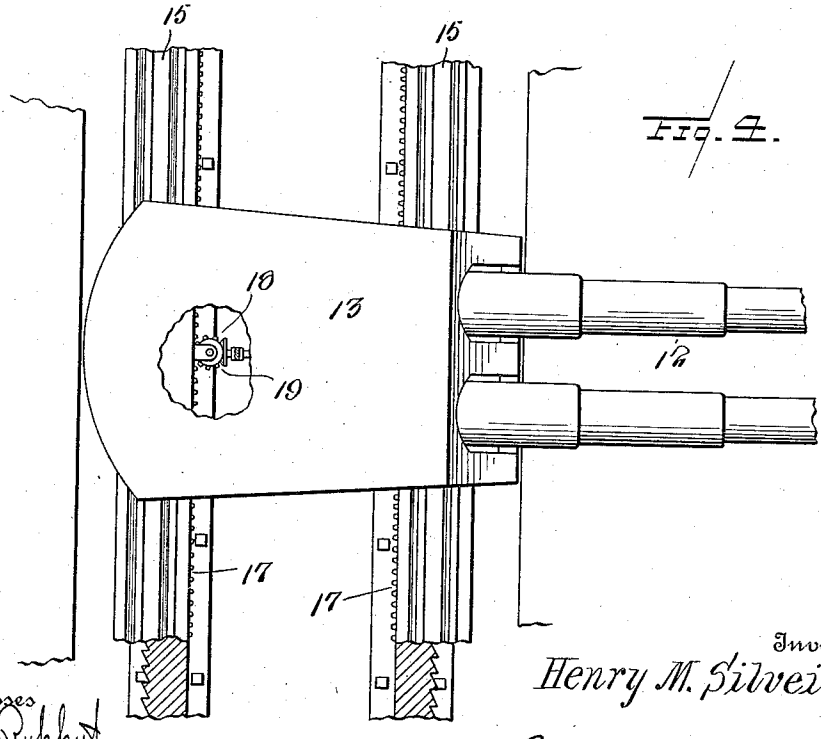


Fig. 4.



Witnesses

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6 SHEETS—SHEET 3.

Fig. 5.

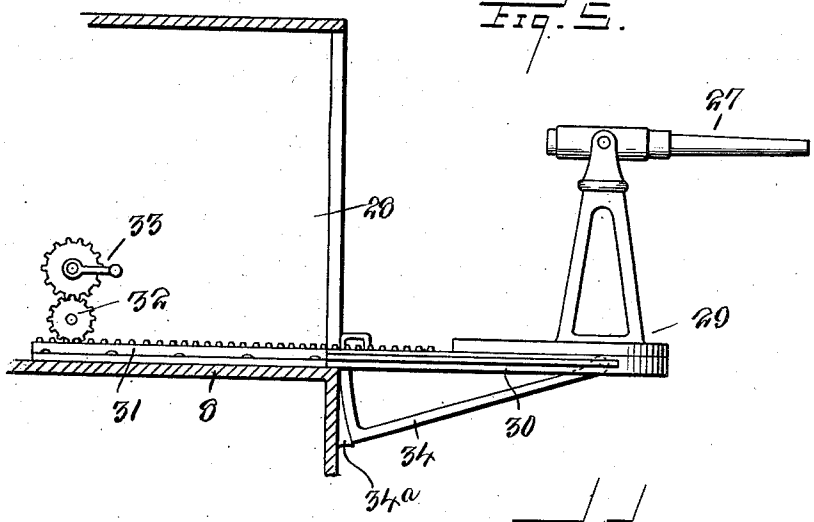


Fig. 6.

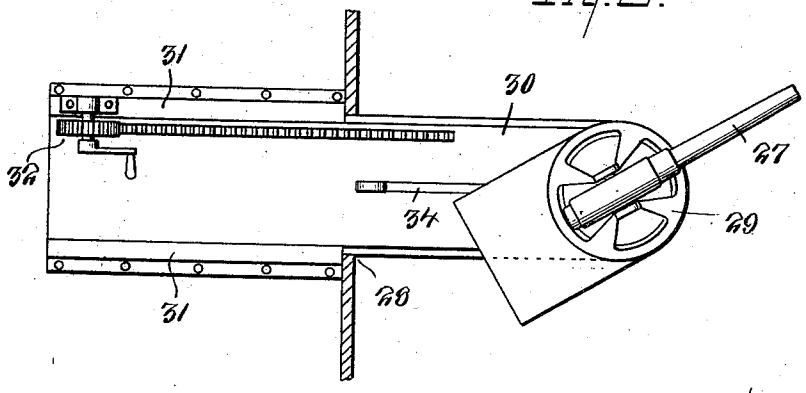
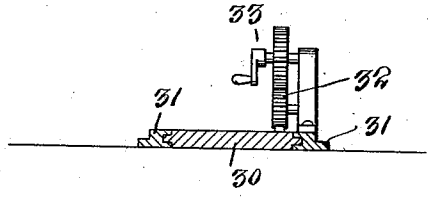


Fig. 7.



Witnesses

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6 SHEETS—SHEET 4.

Fig. 8.

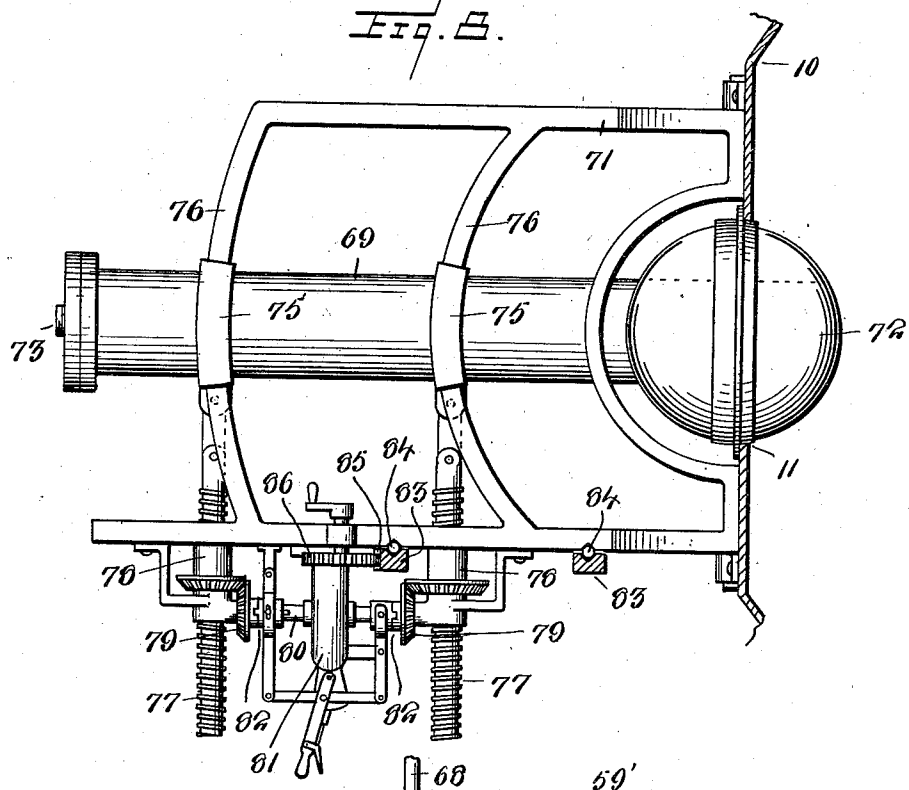
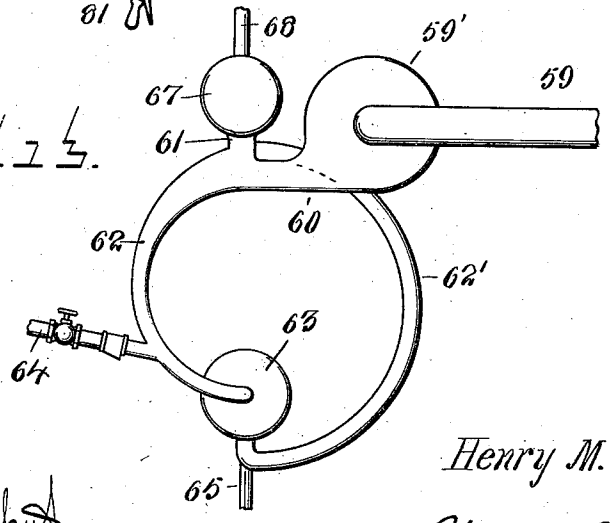


Fig. 13.



Witnesses

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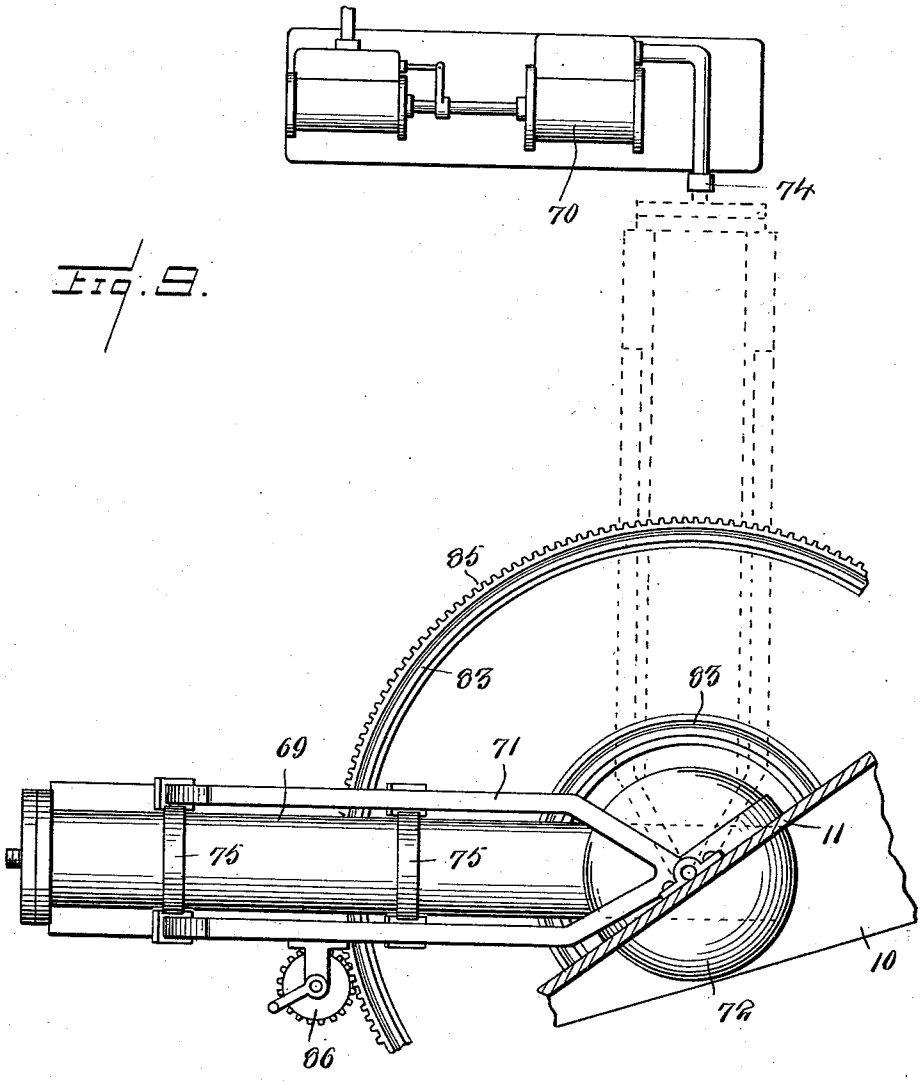
APPLICATION FILED MAY 10, 1912.

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6 SHEETS—SHEET 5.

Fig. 9.



Witnesses

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6 SHEETS—SHEET 6.

Fig. 10.

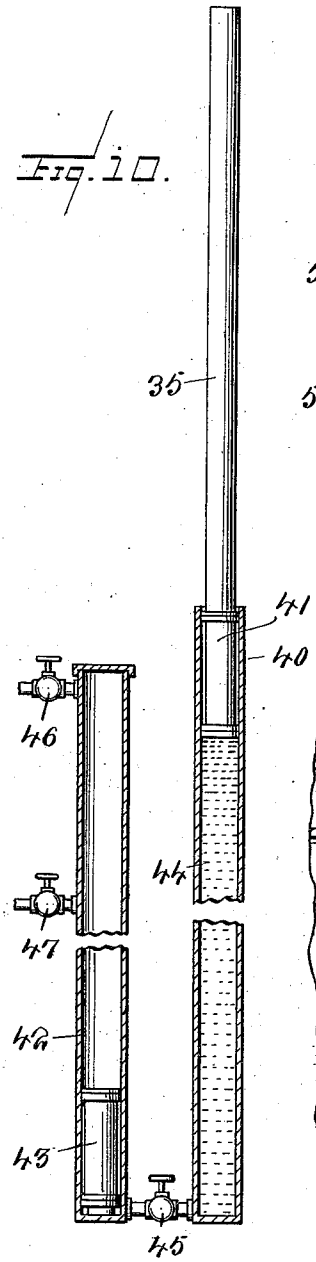


Fig. 11.

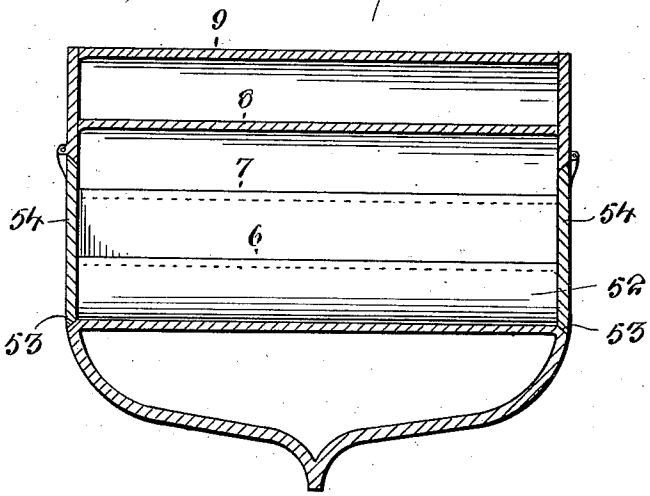
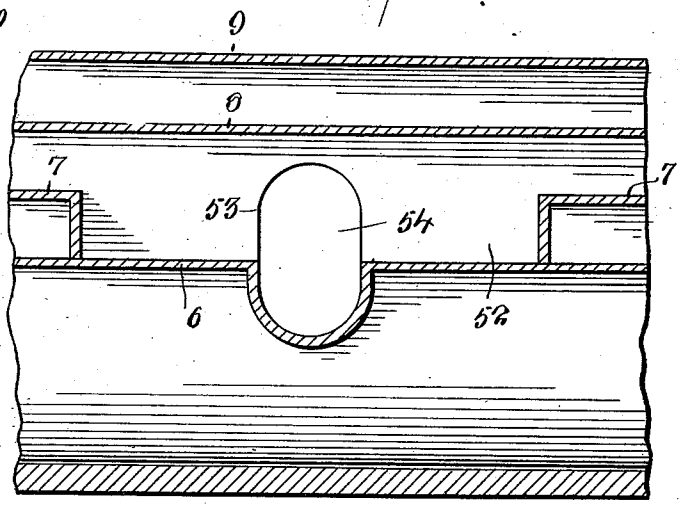


Fig. 12.



Witnesses

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UNITED STATES PATENT OFFICE.

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BATTLESHIP.

1,080,490. Specification of Letters Patent. Patented Dec. 2, 1913.

Application filed May 10, 1912. Serial No. 696,495.

To all whom it may concern:

Be it known that I, HENRY M. SILVEIRA, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Battleships, of which the following is a specification.

This invention relates to battleships, and its primary object is to provide a novel construction of ship and arrangement of guns, whereby the ship may be constantly maneuvered to fight bow or stern on, thus decreasing to the minimum the amount of surface exposed to the range of the enemy's guns.

A further object of the invention is to provide a battery of guns which may be shifted from a normal keel line position to fire from either port or starboard side, and which when in normal position will be protected by their turrets and the ship's armor while they are being loaded.

A still further object of the invention is to provide an arrangement of guns whereby the guns may be fired in regular order and in such manner that while one or more guns are being fired others will be protected and in position for loading and still others protected and in position to be run out for firing, whereby a constant discharge of projectiles may be kept up from either side or alternately from both sides of the ship when it is in action.

A still further object of the invention is to provide a construction whereby the destruction of the exposed part of a turret will not render the gun inoperative, and to provide means whereby the general offensive and defensive efficiency of the ship is increased and a high-speed type of battleship produced.

A still further object of the invention is to provide fighting masts which are adapted to be telescoped into the body of the ship when not in use or when it is desired to stow them out of the way for protection, as in close fighting.

A still further object of the invention is to provide small gun batteries, the individual guns of which are normally arranged inside of the ship and protected and which may be projected beyond the sides of the ship for use.

A still further object of the invention is to provide mechanism for adjusting the turrets of the large guns whereby said turrets may be readily and expeditiously operated.

A still further object of the invention is to provide means whereby torpedoes may be discharged from the bow on a straight line toward the enemy.

A still further object of the invention is to provide means for launching and taking aboard small boats, said means including an internal well or basin of water adapted to be brought into communication with the body of water in which the ship floats through suitable doors in the sides of the latter.

A still further object of the invention is to provide means for ventilating the ship and discharging the smoke and gases in the event of the smokestacks being shot away.

With these and other objects in view, which will appear in the course of the subjoined description, the invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a side elevation of a battleship embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal section through one of the main turrets. Fig. 4 is a sectional plan view of the same. Fig. 5 is a vertical transverse section through one side of the ship, showing one of the small guns projected for use. Fig. 6 is a sectional plan view of the same, showing the gun turned to firing position. Fig. 7 is a detail section showing parts illustrated in Figs. 5 and 6. Fig. 8 is a side elevation of the torpedo launching mechanism. Fig. 9 is a fragmentary sectional top plan view thereof, showing respectively in full and dotted lines, the torpedo tube in position for loading or firing the torpedo and for supplying the charge of compressed air. Fig. 10 is a vertical section through the mast and means for raising and lowering the same. Fig. 11 is a vertical transverse section through the ship on the line of the well. Fig. 12 is a vertical longitudinal section of the same. Fig. 13 is a view of the smoke and gas separator.

Referring to the drawings, 1 designates the body or hull of the ship, which is suitably partitioned interiorly to provide any desired number and arrangement of engine rooms, bunkers, food supply storage compartments, magazines, and quarters for the officers and crew, etc. This body or hull is constructed of metal in any suitable man-

ner and may be of any desired length and breadth. It is, however, preferably provided above the water line with straight parallel sides and terminating in pointed or wedge-shaped bow and stern portions 2 and 3. The sides of the body or hull are protected by an armor plate 3′ extending from below the water line up to the fighting deck. The ship is designed in battle to fight as far as possible head or bow on, and the bow and stern portions are accordingly provided with heavy armor plate 4 of sufficient thickness and strength to withstand the impact of heavy projectiles. Rising from the bow and stern portions are heavily armored shields 5 which are designed to intercept and ward off all projectiles traveling in a plane parallel with the keel line of the ship and within a certain elevation above the fighting deck. By this arrangement of armored surfaces, and the contemplated method of maneuvering the ship when in action against the enemy, but a minimum amount of broad side surface will be presented to the guns of the enemy, thus greatly diminishing liability of the ship being struck and seriously damaged. In the illustrated construction the ship is provided with decks 6, 7, 8 and 9 arranged at suitable elevations, the first or lower deck 6 being disposed practically in the plane of the water line and the top or fighting deck 9 at a desired elevation depending upon the size and equipment of the ship. The bow portion is provided in its sides with recesses or clearance spaces 10, in the rear walls of which are provided openings 11 for the exposure of the torpedo tubes, hereinafter described, whereby torpedoes may be directly launched from the ship straight toward the enemy when the ship is positioned bow on in action. If desired, similar clearance spaces and torpedo discharging mechanism of the type hereinafter disclosed may also be arranged at the stern of the ship.

Arranged above the fighting deck is a battery of main guns 12, of a size and caliber varying according to the size of the ship, which guns when at rest or being loaded lie longitudinally along the center of said deck or parallel with the keel line, so as to be protected from the shells of the enemy by the bow and stern shields 5. These guns are mounted in pairs upon turrets or shields 13 which are supported by the third deck 8 and extend upwardly through openings in the fighting deck 9. Each turret is supported by a carriage 14 provided with any preferred type of mechanism for adjusting and sighting the guns and for taking up the shock of discharge, said carriage being mounted to travel transversely from side to side of the ship on bed rails 15, between which and the carriage are interposed suitable anti-friction bearings 16. The inner faces of the rails, which latter are securely fastened to the deck 8, are provided with rack teeth 17 with which mesh gears 18 suitably supported from the carriage and connected respectively by sets of beveled gearing 19 and 20 with driving shafts 21 and 22. These shafts are adapted to be thrown by means of clutches 23 and 24 into and out of engagement with the shaft 25 of an electric or other suitable motor 26 supported by the carriage. One of said sets of gearing is adapted for driving the carriage in one direction, and the other set of gearing is adapted for driving the carriage in the opposite direction, so that the turrets may be shifted from a central, neutral or loading position to either side of the ship for action and back again. Where the sets of guns are arranged in close relation, the turret of one set may be higher than the turret of the adjacent set, so that each turret and its guns may be shifted without interfering with the adjacent turret and its guns. When one set of guns is shifted to firing position laterally beyond the keel line in either direction, a clear range is afforded for the discharge of the projectiles beyond the line of the shield 5, while when the guns are in normal position they will lie within a narrow longitudinal path or zone protected by the shield from projectiles traveling in a plane above the fighting deck and along the central longitudinal line of the ship. Projectiles striking the bow or stern of the ship beyond and in rear of the shield will be warded off by the heavy armor plating 4. The carriage 14 is provided with suitable locking devices 14ª to engage the rails 15, whereby said carriage and the turret may be held firmly fixed in any position of adjustment.

As stated, the ship is designed to be maintained as closely as possible when in action bow and stern on to the enemy, so as to reduce to the minimum the amount of surface exposed to the enemy's guns. By properly sheering the ship within determined limits, the guns may be shifted without undue exposure of the vessel to fire from either side thereof or alternately at sides thereof, while the guns which are in normal position are being protected. Under such conditions, there will be a practical impossibility of any of the guns being damaged or the turrets being injured, beyond the possibility of the top of a turret being carried away by a shell traveling at an angle and sufficiently low to strike the top of the turret, which may be damaged to a certain extent without putting the guns out of service. The arrangement of the train of guns is such that they may be fired rapidly in regular order from bow to stern or vice versa, and in such manner that while one or more guns are being discharged, others will be in loading position and protected, and still others loaded and protected

while they are being made ready to be shifted into firing position. Owing to this contemplated method of operation and mode of mounting, adjusting and protecting the guns, the ship is much less liable to be seriously damaged or its fighting equipment put out of operation than battle ships of ordinary construction. The ship is also provided with any desired number of smaller calibered guns 27 which are arranged in batteries upon the second and third decks 7 and 8 and normally lie within the vessel. As shown, said guns 27 are arranged in transversely alined pairs on opposite sides of the keel line and are adapted to be projected for action and withdrawn through port holes 28 in the sides of the vessel, and to normally lie lengthwise transversely of the vessel or at right angles to the keel line. Each gun 27 is mounted upon a carriage supported by a turn-table 29 carried by a rack bar 30 adjustable in longitudinal guide rails 31. Meshing with said rack bar is a gear 32 adapted to be operated by a wheel or other actuating device 33, by which the bar may be moved outwardly to project the gun and inwardly to retract it. The outer end of the rack bar is provided with a pivoted stop and brace 34, which drops by gravity when the gun is projected through the port hole against an abutment 34ª on the side of the ship, whereby the gun is braced and a support provided to enable the operator to sight and fire the gun. All the small guns may thus be housed from injury during a storm or while they are being loaded when the ship is in action, as will be readily understood. The ship is provided with one or more masts 35 to either support a fighting top, or to carry yard arms 36 for the suspension of flag ropes 37 and the aerials 38 of a wireless system, and at a suitable point upon the mast a telescope 39 may be arranged. The mast 35 is telescopically mounted so that when the ship is not in action or its use is not desired it may be loaded to a protected position. For this purpose the mast is arranged to slide within a tube or cylinder 40 extending down into the body of the hull, and carries at its lower end a piston member 41 which slidably engages said tube in a liquid and air-tight manner. The tube is in communication at its lower end with a second tube or cylinder 42 in which is disposed a weighted piston member 43. Within the said tubes or cylinder is inclosed a balancing column 44 of oil, water or other liquid, which is adapted to flow from one tube to the other through a bottom port controlled by a valve 45. The piston 41 rests upon the top of that portion of the column within the tube 40, whereby the mast is supported and its position regulated according to the height of the column. The weighted piston member 43 is adapted in conjunction with the body of liquid 44 to approximately balance the weight of the mast, so that when said piston member 43 is relieved from pressure the mast will descend slowly within the tube 20 and force the liquid into the tube 42, in which said liquid and the piston rise. Communicating with the tube 42 is a valved inlet 46 for the supply of fluid from a suitable source, and also communicating with said tube are one or more valved discharge or drain outlets 47, whereby the liquid may be withdrawn from said tube. Assuming the mast to be in its lowest position, in which its weight predominates over the head on the column of liquid, it will be understood that by admitting liquid through the inlet 46 the head on the column may be increased and the piston member 43 forced down to force the fluid into the tube 44 to elevate the mast. By opening the valve or valves 47 this excess of liquid pressure may be removed to allow the mast to descend to a protected position. Each mast may consist of one or more telescopic mast sections proper, as desired, according to the length of the mast employed and its range of movement.

The forward mast 35 may project through a cabin or conning tower 48 positioned between the first and second sets of main guns, in which cabin or tower a steering wheel 49 may be arranged, so that when the ship is in action the steersman may be in a proper position to maneuver the ship. Said cabin may support a search light 50, of which any number may be employed at different points on the ship, and through said tower may also extend ventilators 51 leading from the fire room. Other ventilators may be disposed wherever their use is necessary or desirable.

Formed within the body or hull at a point amidships is a water containing compartment or well 52 which extends from side to side of the hull and is adapted to communicate with the exterior below the water line through openings 53 normally closed by water-tight bulkhead doors 54. This well forms a basin of sufficient depth to float the launches and other small boats carried by the ship, which may thus be launched through the side of the ship in a ready and convenient manner. By the provision of the doors 54, the boats may also directly enter the ship without the necessity of hauling the same on deck, and may be launched or taken aboard on the lee side in case of rough weather. The walls of the well or basin may serve as wharves to which a number of boats may be moored for immediate use when the ship is at anchor. In practice, it is contemplated to carry the launches and small boats on the second and third decks in proximity to the basin, to enable them to be handled with greater expedition and facility. The well may further be used as a

bath quarter or pool, and in the winter the doors may be closed and the water heated by steam to a proper temperature for such use. Launches and small boats may also be carried on the fighting deck and handled by means of cranes 55. Davits 56 are provided at suitable points for supporting life rafts and preservers. The smoke stacks 57 may be arranged amidships or at other suitable points, and if desired the galley or kitchen 58 may be disposed immediately in rear of the casing inclosing the mizzen mast, at a point where the cook may work with convenience even in hot weather and be protected to a large extent when the ship is in action. One or more smoke consumers or purifying and discharge devices may be employed to handle the smoke and products of combustion from the boiler and furnaces. Each of these devices comprises a smoke box 59, communicating with a fan 59′ which draws the smoke into the box and discharges it into a purifying chamber 60. Communicating with this chamber are pipes or conductors 61 and 62 and communicating with the conductor 62 is a pipe 62′, each conductor 61 and 62′ communicating at its proximate end with a centrifugal pump 63. Connected with the conductor 61 is a valved water supply pipe 64 and leading from the casing of the centrifugal pump is a water discharge or drain pipe 65. The conductor 61 connects with a drum 67 from which extends a gas outlet pipe 68. The pump 63 draws the smoke and products of combustion from the chamber 60, and mixes it with a charge of water drawn through the pipe 64, in which the solid constituents of the smoke are precipitated and then discharged therewith through the pipe 65. The smoke and gas with a portion of the water then flow through the pipe 62′ into the conductor 61, the water discharging into the chamber 60 and flowing back to the centrifugal pump, while the gas and smoke flow out into the drum 67 and discharge therefrom through the pipe 68. This pipe 68 may lead to the atmosphere or carry the gases back to the furnaces for consumption. By the use of this device the solid particles of the products of combustion may be discharged below the water line, and the gases either exhausted or consumed in the furnaces, thus preventing the emission of smoke or vapor of any kind liable to disclose the position of the ship to the enemy.

Disposed within the bow for coöperation with the respective port holes 11 are torpedo launching devices 69 comprising tubes adapted to be charged with compressed air from pumps or other charging devices 70. Each launching tube 69 is pivotally mounted at its forward end at a point in line with the adjacent port 11 upon a carriage 71, such pivotal connection comprising a universally jointed ball or head 72, adapted to permit said tube to be adjusted vertically and laterally. The tube is adapted to be swung laterally within a radius of 90° with the carriage from a charging position substantially at right angles to the bow, and from such position to a firing position parallel with the plane of the vessel, as indicated in full and broken lines in Fig. 9. The rear or free end of the tube is provided with a suitable closure 73 adapted to be connected with the air pump or discharge device by a suitable coupling union 74, suitable means being provided for holding the torpedo against discharge and releasing it for discharge at the proper time. The tube is connected intermediate of its length with cross heads 75 movable on arcuate guides 76 in the carriage, whereby the tube may be adjusted vertically to discharge the torpedo at the desired angle. Pivotally coupled to these cross heads are screw shafts 77 engaged by gear nuts 78 operated by gears 79 on shafts 80 journaled on the carriage, which shafts are adapted to be thrown into and out of connection with the shaft of a motor 81 by suitable clutch devices 82 whereby the screw shafts may be respectively thrown into operation to raise or lower the torpedo tube and thrown out of operation to permit said tube to remain in adjusted position. The carriage 71 is pivoted at its forward end, as indicated, to travel upon segmental track rails 83 by which the tube may be adjusted from a launching to a charging position and vice versa, suitable anti-friction bearings 84 being provided between the carriage and rails to secure ease of adjustment. One of the rails is provided with rack teeth 85 for connection with a gear 86 on the carriage whereby the latter may be adjusted in its arc of movement. This gear 86 may be operated by manual or motive power as desired. It will thus be seen that the torpedoes may be launched through the ports 11 directly at the enemy in a plane parallel with the longitudinal plane of the vessel, thus increasing the efficiency of this part. As hereinbefore stated, the torpedo mechanism described may be duplicated at the stern of the vessel for use when the vessel fights stern on.

Having thus described the invention, what I claim as new is:—

1. A battleship having a fighting deck extending on a continuous horizontal plane from bow to stern, a shield extending upwardly from the armored sides at the bow above the plane of the fighting deck, and a battery of guns arranged along the deck normally in the longitudinal plane of the shield and movable from side to side of the deck, said guns being arranged in overlapping pairs.

2. A battleship provided with a fighting

deck and with a bow having its sides tapering to a point, a solid triangular shield at the apex of the bow rising above the fighting deck in the median line of the vessel, leaving clear spaces along the inclined sides of the bow between the same and the points of intersection of said sides of the bow with the sides of the body of the hull, and a longitudinal series of longitudinally disposed guns arranged in overlapping pairs and normally in the median line of the vessel and shield and mounted on tracks for movement athwart-ships to fire across the clear spaces of the inclined sides of the bow on either side of the plane of the shield.

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

HENRY M. SILVEIRA.

Witnesses:
JOHN BORGES,
OLVARO A. NUNES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."