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J. A. STEINMETZ.

SUBMERSIBLE TORPEDO DISCHARGING TURRET.

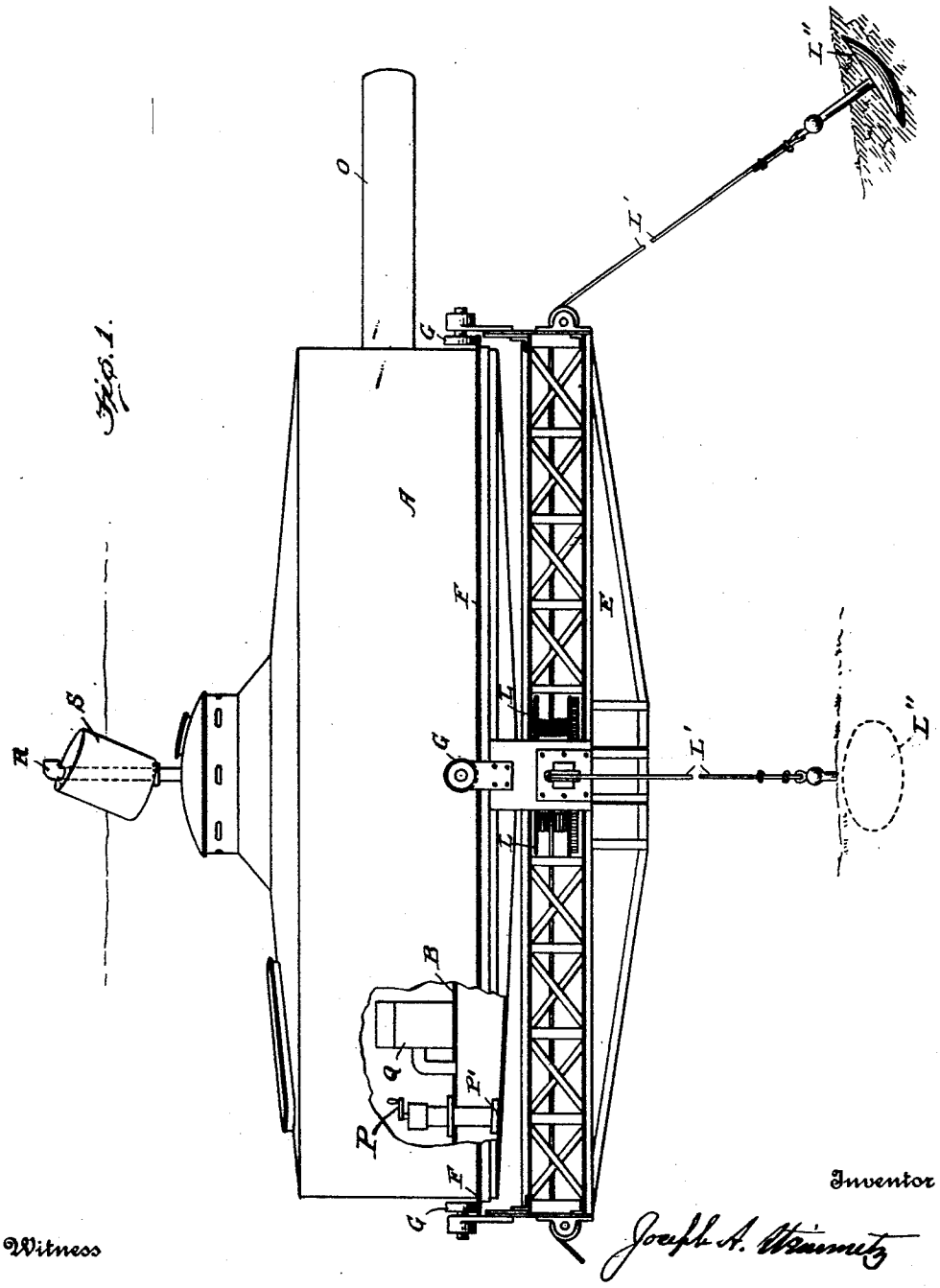
APPLICATION FILED NOV. 25, 1916.

1,247,889.

Patented Nov. 27, 1917.

3 SHEETS—SHEET 1.

Fig. 1.



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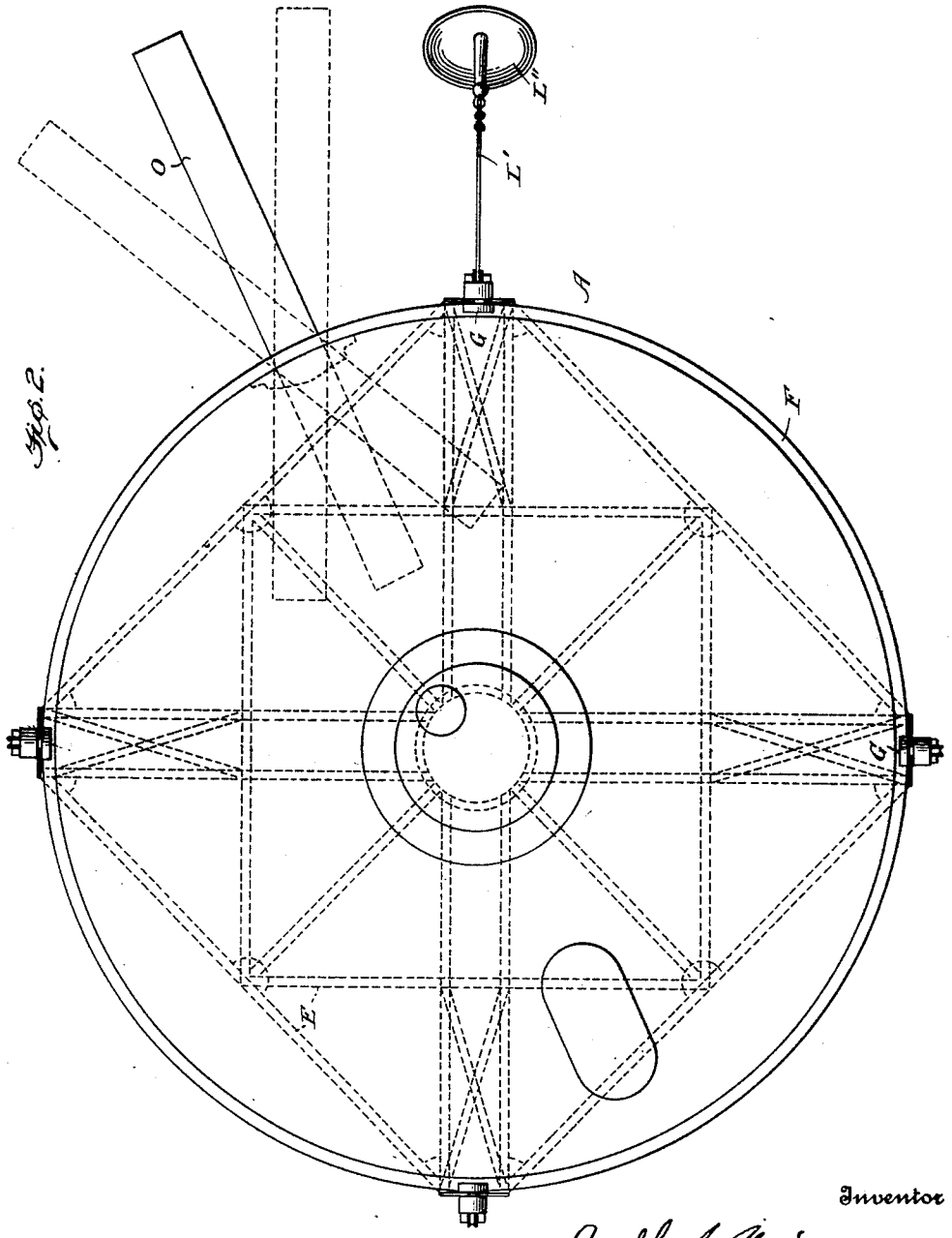

Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 3.

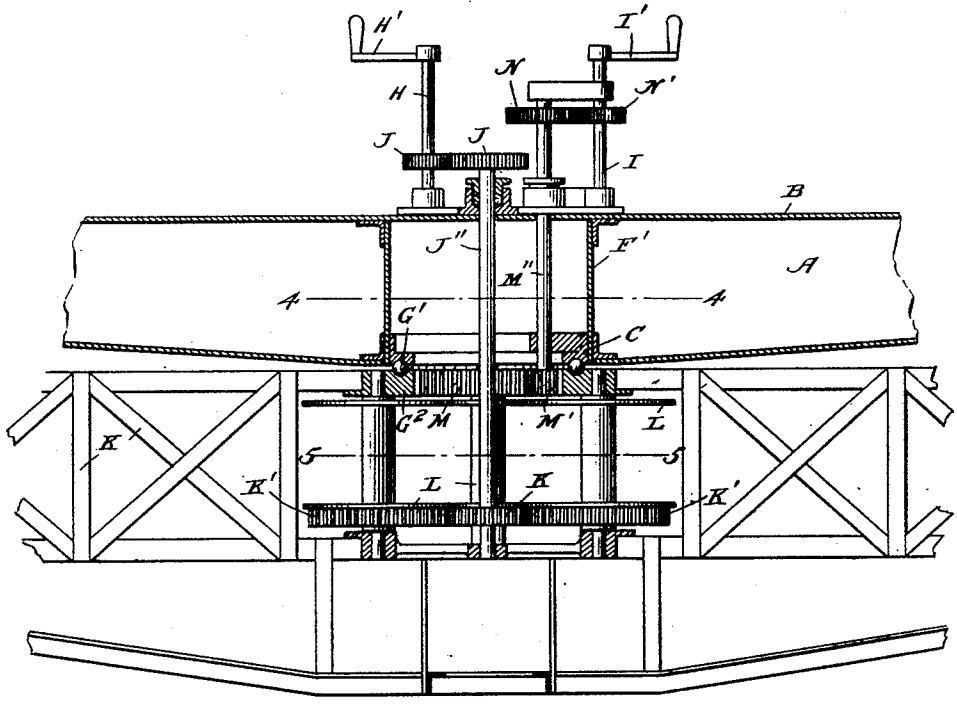


Fig. 4.

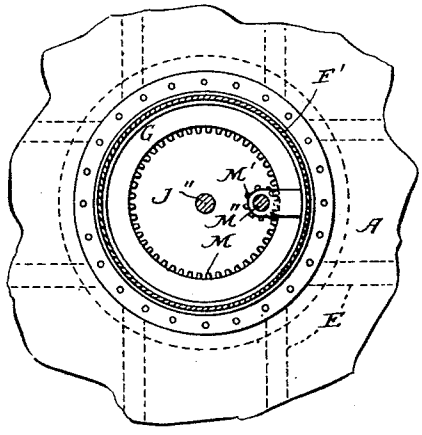
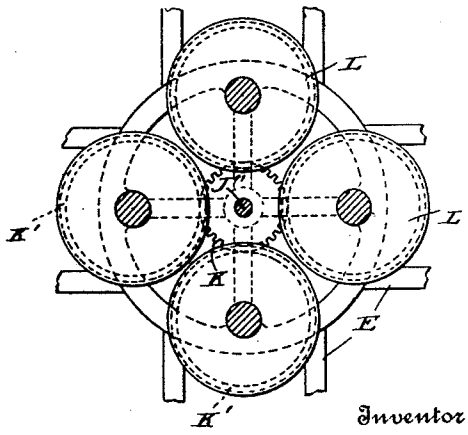


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH A. STEINMETZ, OF PHILADELPHIA, PENNSYLVANIA.

SUBMERSIBLE TORPEDO-DISCHARGING TURRET.

1,247,889. Specification of Letters Patent. Patented Nov. 27, 1917.

Application filed November 25, 1916. Serial No. 133,423.

To all whom it may concern:

Be it known that I, JOSEPH A. STEINMETZ, a citizen of the United States, and resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Submersible Torpedo-Discharging Turrets, of which the following is a specification, reference being had therein to the accompanying drawing.

In general terms this invention involves a floating submersible metal shell without propelling mechanism and adapted to be towed from place to place and provided with anchoring devices, a periscope, torpedo discharging devices, and means whereby persons within may rotate or submerge it.

As illustrated, the shell is a closed cylinder connected to and supporting below a strong anchored framework in which are mounted drums operated by persons in the shell above to take up and pay out anchor cables and thereby submerge the shell or to allow it to rise to the surface. The shell is also provided with means for admitting water and expelling it, this being a second means for submerging, or aiding in submerging, the shell.

In the drawings, which are diagrammatic, Figure 1 is a side elevation of the apparatus, parts being broken away.

Fig. 2 is a plan view of the same devices.

Fig. 3 is an enlarged side elevation, partly in section, showing the central portion of the apparatus.

Figs. 4, 5 are sections on the lines 4—4, 5—5, respectively.

In these figures, A represents a metal shell of circular cross section adapted to sustain water pressure when submerged to moderate depth and provided in its lower part with a horizontal partition B dividing the shell into compartments into the lower of which water may be admitted by means of a seacock or from which water may be expelled by devices for forcing air into the compartment. The shell is revolubly connected to and supports a strong frame E, the circular shell being provided with a circumferential horizontal flange F upon which run rollers G mounted on and supporting the frame E. The shell is provided with a central, upwardly and laterally closed tubular structure F′ extending vertically through the lower compartment, and with an annular race member G to receive bearing balls G′ running in a coacting annular race member G″ fixed in the frame E. In the compartment above the partition B are mounted vertical shafts H, I, independently rotated, as shown, by cranks H′, I′, respectively. The shaft H bears a pinion J which engages a gear J′ upon a vertical shaft J″ in the axis of the apparatus. This shaft has at its lower end a bearing in the frame E and carries near this end a pinion K which engages gears K′ upon the shafts of drums L upon which wind the cables L′ of anchors L″; whereby the cables, which are preferably of adjustable length, may be wound or paid out equally and simultaneously to vary the height of the apparatus in the water.

In the frame E is mounted a central internal gear M and with this engages a pinion M′ upon a shaft M″ rotated by a gear N and pinion N′ on the crank-operated counter-shaft I. By forcibly rotating the pinion M′ the entire shell rotates about its own vertical axis.

The shell is provided with suitable hatches, a lookout and periscope, and with at least one torpedo tube O, which is of course, carried around with the shell in its rotation. Within the upper compartment are a device P for opening a seacock P′ in the lower compartment, and an air-pump device Q for forcing air into the lower compartment, to expel water therefrom and thus cause the apparatus to rise, or seek to rise, in the water. Since the apparatus is of material much heavier than water it is a simple matter to provide for admitting enough water to cause total or approximate submergence, and when gravity nearly submerges the devices the slight force exerted in winding the anchor cables will quickly complete submergence.

For coast or harbor defense, the apparatus has very many advantages. Its cost compared with the cost of submarines or war vessels is trifling, and at very slight expense a harbor may be supplied with as many such units as may seem desirable. The shells are not deeply submerged, and so may be light. There is no danger to ordinary commerce, and none like that from floating or detached mines; the torpedo is rarely lost; a fair "hit" destroys any vessel whatever; and the station of each device may be changed from time to time so that it is practically impossible for an enemy to know, even by treachery, the location of the units.

Obviously, a plurality of torpedoes or firing tubes, periscopes, water compartments, &c., may be used, and preferably on the periscope R is revolubly mounted a structure S simulating a can buoy and not suggestive of a periscope when seen at some distance.

The torpedo tube O is arranged in any suitable manner for small changes of angle in aiming independently of movements of the shell or turret, and it may also be noted that the pinion K may, if desired, be disengaged from the cable drums to allow each to rotate independently.

What I claim is:

1. The combination with a submersible floating chamber of a series of anchors in different vertical planes for holding the chamber level and preventing chance rotation, and means within the chamber for at will varying the distance of the chamber from such anchoring devices while they engage the bottom.

2. The combination with a submersible floating chamber to be moved from place only by towing and provided with torpedo discharging devices, of anchors in different vertical planes for securing the chamber to the bottom or earth and holding it in a substantially horizontal position, and means operable by persons within the chamber for rotating the latter at will while the firing plane is held in approximately horizontal position by the anchors.

3. The combination with a floating submersible shell or chamber, of a frame below and suspended from the chamber by devices permitting relative rotation of the chamber, anchors in different vertical planes for engaging the bottom and holding the frame approximately horizontal, and means operable from within the chamber for winding and paying out the anchor cables.

4. The combination with a frame, of anchor cable drums revolubly mounted in the frame, a floating submersible chamber revolubly connected to and supporting the frame, means within the chamber for rotating it with respect to the frame, and means within the chamber for winding and paying out the anchor cables.

5. The combination with a submersible torpedo discharging turret horizontally divided to form a lower water compartment and an upper operator's compartment, or chamber, of means operable from within said chamber to admit water to and expel it from said water compartment, a series of anchors in different vertical planes for securing the chamber to the sea bottom and in horizontal position, and means operable from within said chamber for taking up and paying out the anchor cables.

6. The combination with a submersible circular turret having an external circumferential flange in a normally horizontal plane, of a rigid anchor-carrying frame suspended from said flange by devices allowing relative rotation of the frame and turret, anchors for holding the frame fixed at an adjustable depth, and means, operable from within the turret, engaging the frame and adapted to compel rotation of the turret with respect to the fixed frame.

In testimony whereof I hereunto affix my signature.

JOSEPH A. STEINMETZ.