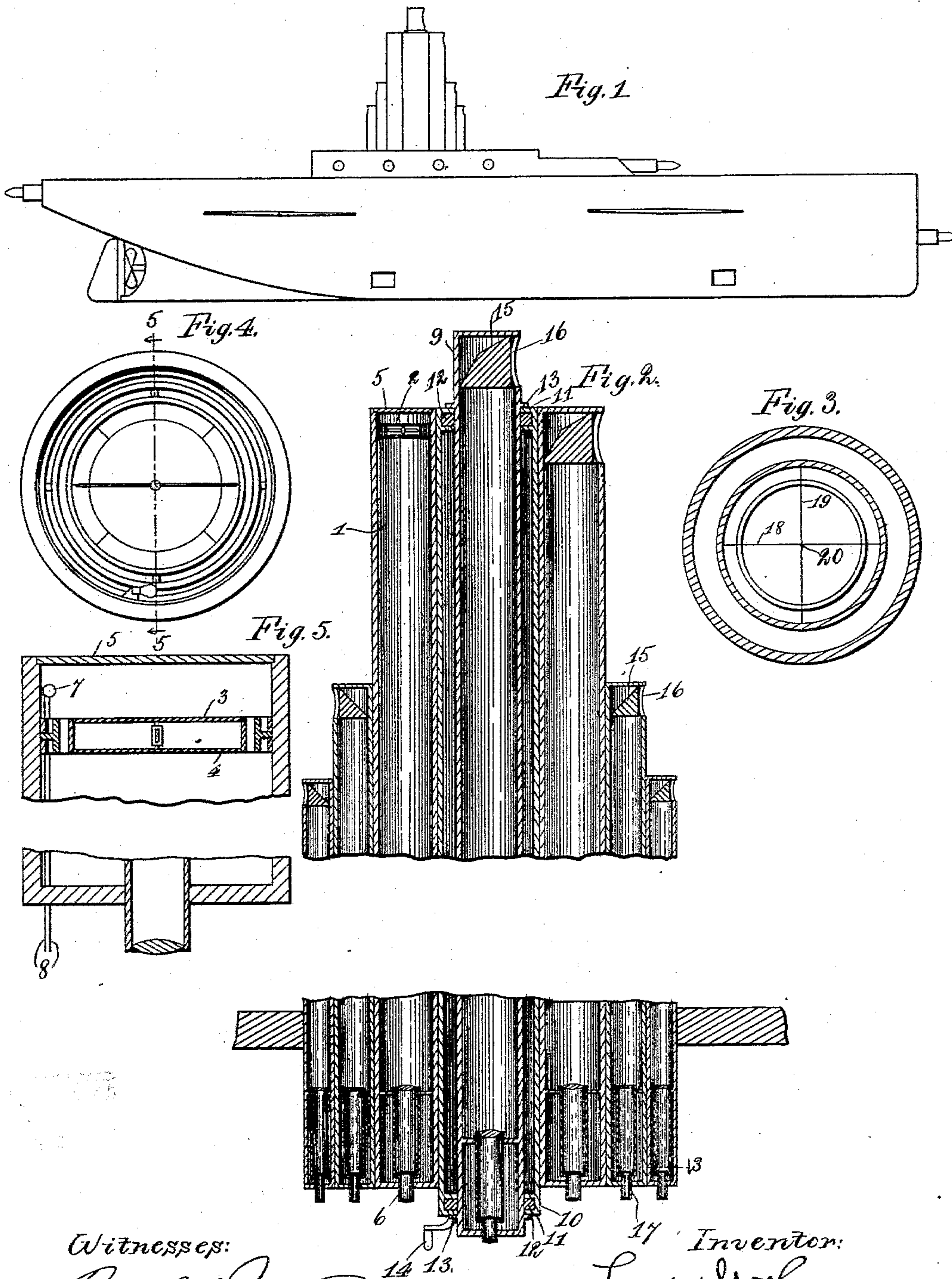


(No Model.)

L. GATHMANN.
SUBMARINE VESSEL.

No. 563,714.

Patented July 7, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

LOUIS GATHMANN, OF CHICAGO, ILLINOIS.

SUBMARINE VESSEL.

SPECIFICATION forming part of Letters Patent No. 563,714, dated July 7, 1896.

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To all whom it may concern:

Be it known that I, LOUIS GATHMANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Submarine Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction in submarine vessels, and more especially to novel devices by means of which the course of a vessel can be ascertained and regulated while it is submerged.

The object of the invention is to provide a substantial and sea-going boat that can be submerged to render it inaccessible to an enemy's fire, while at the same time its course can be regulated and controlled with certainty by the pilot.

The invention consists in the features of construction and combinations of parts herein-after fully described and specifically claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a side elevation of a vessel constructed in accordance with my invention. Fig. 2 is a detail view showing the sighting and compass tubes in central vertical section. Fig. 3 is a plan view of one of the lenses in a telescope of a sighting-tube. Fig. 4 is a top plan view of the compass-tube in detail. Fig. 5 is a detail vertical section of said compass-tube, taken on the line 5 5 of Fig. 4.

The vessel forming the subject of this invention is of that class navigable with a portion of its hull exposed or above the water-line, or with the entire hull submerged for the purpose of concealment and protection. The vessel has, furthermore, ordnance for throwing projectiles carrying large quantities of high explosives, which ordnance is rigid with the vessel, and these pieces are usually carried pointing toward the bow or stern, so that the projectiles are fired when the vessel is advancing toward or retreating from the point to be attacked.

The construction of the vessel and its armament is not a part of my invention, and I contemplate applying the invention to any submarine vessel.

This invention relates more especially to the mechanism for controlling the boat, that is to say, for ascertaining and regulating its course, as well as to enable the commander to have a vision of the surrounding scene when the vessel is submerged, or partially so, without being exposed to the attack of an enemy.

In accordance with my invention I provide a series of tubes or passages leading from a point below the deck of the vessel and in the pilot-house or conning-tower up above the deck, to any suitable distance. One of these tubes or passages, or more, if found convenient, such as 1, carries at its upper end a compass 2, said compass having transparent upper and lower sides 3 and 4. The upper end of this tube is also provided with a transparent top piece 5, while the lower end of the tube is provided with a telescope 6. At the upper end of the tube, and between the compass 2 and the top piece 5, is a lamp or lighting device 7, such as an incandescent electric light connected by means of wires with a battery or dynamo, said wires running down the side of the tube. When the vessel is submerged, this tube or mast 1 will carry the compass above the water-line. This is done as it is well known that a compass below the water-line is not reliable.

The light in the upper end of the compass-tube will make the compass visible at night, and in the daytime sufficient light will be given to ascertain the position of the compass through the telescope 6 at the lower end of the tube 1. The said tube 1 can be of any desired height to permit the vessel to be submerged to the requisite depth to make the vessel effective. From the foregoing it will be seen that I provide devices whereby the vessel can be navigated in the usual manner, and I will now proceed to describe the devices by which the navigator can ascertain the surrounding scene as well as guide the vessel and sight the ordnance at the point of attack.

A hollow mast or tube 9 extends from below the deck to a point above the upper end of the tube 1. This tube 9 is revoluble and is located within a sleeve 10, rigid with the vessel and provided at its upper and lower ends with suitable bearings 11 and packing 12 to make the same true and water-tight.

The said tube 9 is provided above and below the sleeve 10 with collars 13 to hold the same in place, and at its lower end is provided also with a handle 14, by means of which the said tube 9 can be rotated. In the upper end of this tube 9 is a prism 15, and opposite one of the faces of the prism is an opening 16 to permit the entrance of light. In the lower end of the tube 9 is a telescope 17, upon the object-lens of which the image reflected by the prism will be thrown, so that the navigator can view the scene in front of the prism. By turning this tube 9 it will be noted that the prism can be directed toward any point, to thus enable the navigator to ascertain the entire scene around the vessel.

I also arrange a plurality of fixed sighting-tubes rigid with the vessel and arranged in front of and in the rear of the observation and compass tubes, or in any other convenient position. These sighting-tubes are constructed the same as the observation-tubes, that is to say, with prisms 15, openings 16, and telescope 17, but are so arranged that the prisms reflect the scene exactly in front of the different ordnance-pieces. For instance, in the instance illustrated I have shown two pieces of ordnance pointing toward the bow of vessel, and three sighting-tubes pointing in the same direction, while there is one ordnance-piece at the stern of the vessel and two sighting-tubes pointing in the same direction. The number of sighting-tubes is immaterial and can be increased or diminished according to the will of the builder of the vessel. The said sighting-tubes are conveniently of different heights, and, for instance, in a vessel where the highest sighting-tube is, say, fifteen feet in length, it would be desirable to make four or more tubes gradually decreasing in size, so that should the highest tube be disabled by the shock, or otherwise, the vessel would still be navigable. As before stated, the guns are sighted by means of these sighting-tubes. For instance, I make one of the lenses of the telescope into what I term the "telescopic sight," that is to say, I provide one of the lenses of the telescope in each of these tubes with cross-lines crossing at the center of the lens, as shown in Fig. 3, where the lines are marked 18 and 19 and the angle 20. The line 18 is in alinement with the longitudinal line of the gun, so that when the image thrown by the prism is on this line a projectile fired would go in the direction of this image, while the cross-line 19 is employed to ascertain the inclination to which the vessel must be brought to bring the ordnance-piece in the direct position, it being noted that the guns are di-

rected with relation to the sighting devices, so that when the image is thrown upon the angle 20 a projectile fired by the gun will be sent in the desired direction. The navigator, therefore, so controls the direction of the vessel that the point of attack will be thrown at the angle 20 and then fires the projectile.

The vessel, as before described, can be provided with any convenient devices for submerging, bringing it to the surface, and varying its position while submerged, so as to bring the gun in a direct position.

I claim as my invention—

1. A submergible vessel provided with an upright tube or hollow mast extending from below the deck of the same and having a transparent upper end, a compass in the upper end portion of said tube or mast having transparent upper and lower sides, and a telescope in the lower end portion of the tube or mast, substantially as described.

2. A submergible vessel provided with an upright tube or hollow mast extending from below the deck of the same and having a transparent upper end, a compass located in the upper end portion of said tube or mast and having transparent upper and lower sides, a lighting device above said compass, and a telescope in the lower end portion of said tube or mast, substantially as described.

3. A submergible vessel provided with an upright tube or hollow mast extending from below the deck of the same, a compass situated in the upper end portion of said tube or hollow mast, and means for observing said compass, substantially as described.

4. The combination with a submergible vessel provided with ordnance-pieces having a fixed position with relation to the vessel, of an upright sighting-tube rigid with said vessel and provided at its upper end portion with a reflector and at its lower end portion with a telescope to receive the light reflected there-through, one of the lenses of said telescope being a telescopic sight, substantially as described.

5. In a submergible vessel, a plurality of rigid sighting-tubes situated approximately midway between the ends of the vessel, said sighting-tubes varying in height and provided at their upper end with reflectors and at their lower end with telescopes, substantially as described.

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

LOUIS GATHMANN.

Witnesses:

HARRY COBB KENNEDY,
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