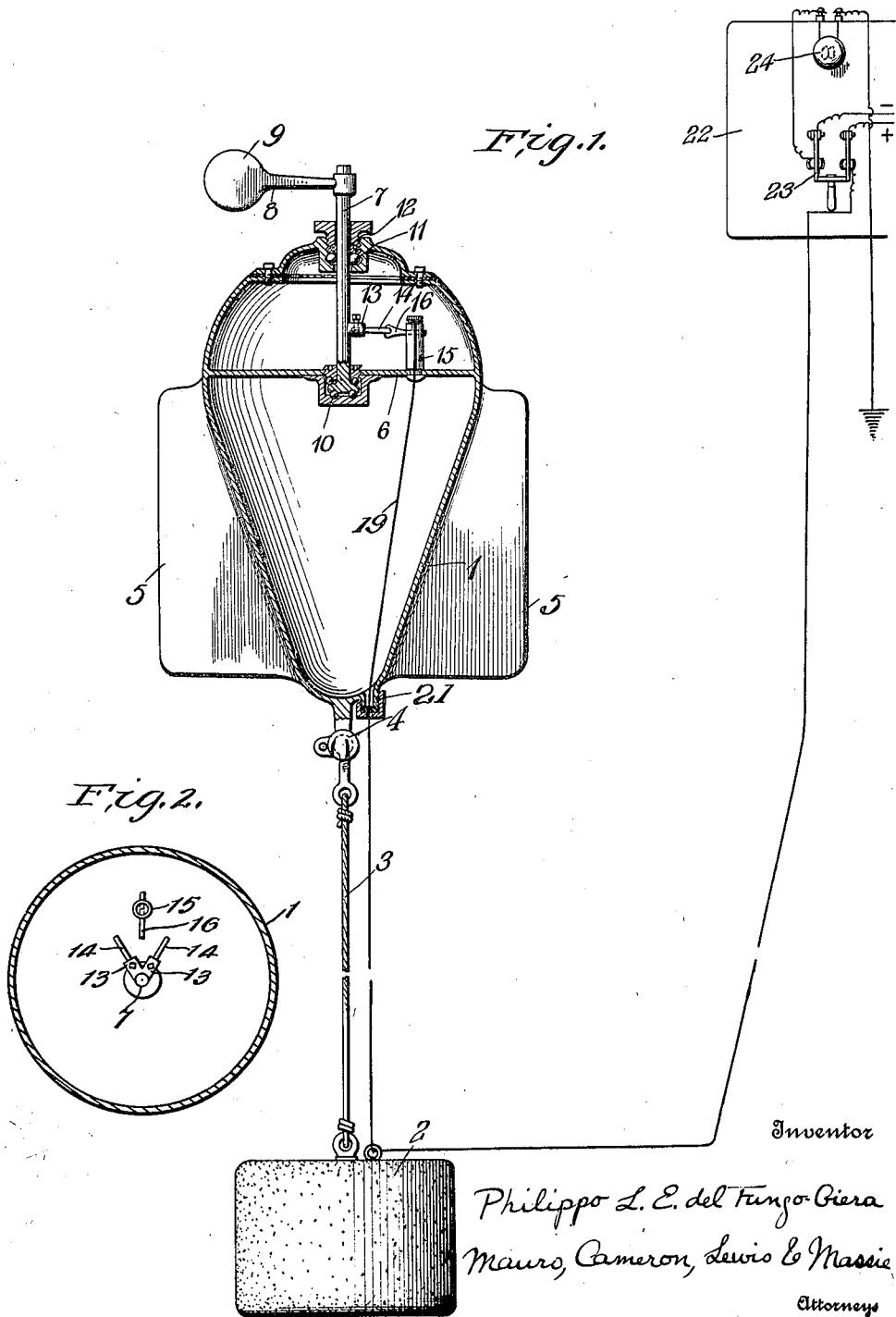


P. L. E. DEL FUNGO-GIERA.
 SIGNALING SYSTEM.
 APPLICATION FILED JUNE 16, 1916.

1,233,199.

Patented July 10, 1917.



UNITED STATES PATENT OFFICE.

PHILIPPO L. E. DEL FUNGO-GIERA, OF NEW YORK, N. Y.

SIGNALING SYSTEM.

1,233,199.

Specification of Letters Patent.

Patented July 10, 1917.

Application filed June 16, 1916. Serial No. 104,076.

To all whom it may concern:

Be it known that I, PHILIPPO L. E. DEL FUNGO-GIERA, a citizen of the Republic of Switzerland, and a resident of New York city, N. Y., have invented a new and useful Improvement in Signaling Systems, which invention is fully set forth in the following specification.

This invention relates to the art of signaling, and more particularly to a signaling system for indicating the location of a ship.

It has for an object to provide a signaling system which shall indicate with certainty and accuracy the position of a ship, and one enabling the direction and speed of such ship to be readily determined. It has for a further object to provide signal-actuating means of simple construction and reliable operation, and comprising means that may be positioned beneath the surface of the water where it will not be readily seen and avoided. Other objects will appear as the description proceeds.

Stated generally, the invention comprises a submerged-body provided with means adapted to be actuated by the passage of a vessel, such means preferably comprising a rotatable arm shaped to be actuated by the currents created by the vessel in passing; the aforesaid means operating signal-actuating means, preferably a make-and-break device electrically connected with a signal at a central station, as on the shore.

While for the purpose of illustration one embodiment of the invention has been shown in detail on the accompanying drawing, it is to be expressly understood that such drawing is for the purpose of illustration only and is not to be construed as a definition of the scope of the invention, reference being had to the appended claims for that purpose.

Referring to the accompanying drawing, which illustrates a preferred embodiment of the invention somewhat diagrammatically,

Figure 1 is an elevation, showing the buoy in vertical central section with the make-and-break device positioned in the plane of the fins for convenience of illustration; and

Fig. 2 is a horizontal cross section of the buoy, showing in plan a suitable arrangement of the contact members.

1 is a buoy of any suitable construction, anchored as at 2 through the intermediary of the cable 3 and, preferably, a swivel-joint

at 4. While a buoyant submerged-body is illustrated on the drawing, it is to be expressly understood that, if desired, any other suitable type of submerged-body may be used as a support for the signal-actuating means to be described; therefore the term "buoy" is to be construed as generic to any submerged-body or support for signal-actuating means of the type claimed. The buoy is preferably provided with a fin or fins as at 5 whereby it will maintain a definite relation to the current and be stabilized thereby. This buoy carries means to indicate the passage of a vessel near the same, such means comprising a device to operate signaling-means at a central station. While the means carried by the buoy may take a variety of forms, the preferred construction is as follows:

The interior of the buoy is provided with a partition 6. Rotatably mounted upon partition 6 is a shaft 7 which extends through the outer wall of the buoy and is provided at its outer end with a laterally extending arm 8 which is expanded into a blade-like extension, as shown at 9. Shaft 7 is journaled in any suitable way on partition 6 and in the outer wall of the buoy, and is preferably provided with ball-bearings as indicated at 10 and 11, to enable the shaft and arm to turn freely. A packing for the shaft 7 is indicated at 12.

Upon the lower end of shaft 7 are one or more sockets 13 adapted to receive and retain electric contact members 14. Mounted upon the partition 6, by means of an insulated binding-post 15, is a spring contact member 16, in the path of rotation of the contact or contacts 14. Wire 19 is in electrical connection with the spring-contact member 16, and is carried through the outer wall of the buoy 1, through any preferred form of electric-insulating plug 21, to a switch-board at a central station indicated diagrammatically at 22. Here the circuit wire is connected by any preferred form of switch 23 with any desired source of electric energy and with any desired form of signaling means such, for example, as a lamp as shown at 24, the second wire connecting with the lamp being grounded.

The buoy is placed in the water at such a depth that the rotatable arm 8 will be at some distance beneath the surface at low tide, but not so deep but that it will be readily acted upon by the currents produced

by passing vessels at high tide. The fin or fins upon the buoy cause it to take up a position in definite relation to the currents where the buoy is stationed, which relation to these currents will be maintained and the buoy made stable. The blade-like extension on the rotatable arm will also cause this arm to take up a normal position substantially in the plane of the fin or fins, until an abnormal movement of the water causes its rotation out of such plane. While for convenience of illustration both contact members 14 and 16 are shown as approximately in the plane of the fins 5, it is to be understood that in practice one of these contact members at least would be disposed in a radial plane angularly related to the plane of the fins, so that the contact members would be out of engagement when arm 8 is in its normal position of rest. Preferably one of the contact members is positioned in a radial plane at approximately 90° to the plane of the fins 5. When a vessel passes near the buoy the currents created by the hull of the vessel cause a rotation of the arm 8, operating the make-and-break device 14 and 16, and thereby switching on and off the current through the lamp 24. The intermittent flash of the lamp will indicate the proximity of the vessel to the particular buoy. Where a pair of contact members 14, suitably spaced, are employed as shown in Fig. 2, the make-and-break device will be operated by rotation of the shaft 7 in either direction from normal position. Obviously any other suitable arrangement of these contact members 14 and 16 could be employed as desired. Also the angle between the two contact members 14 shown in Fig. 2 could be suitably varied from a relatively small angle up to 180°. By observing the signals made by two or more of these buoys, the direction and speed of the vessel can be accurately calculated. The position of the vessel thus ascertained, this knowledge may be utilized for exploding or releasing mines, for determining the range of the vessel, or for any other desired purpose.

While the illustrated embodiment has been described with considerable particularity, the invention is not to be restricted to the specific form shown, as various modifications will readily suggest themselves to those skilled in the art. The scope of the invention is to be determined by reference to the claims appended hereto.

What is claimed is:

1. In combination, a buoy provided with means adapted to be actuated by the currents created by a passing vessel, signaling means, and operative connections between the said means whereby the signaling means is operated upon actuation of the first-said means.

2. In combination, a buoy provided with

electrical means adapted to be actuated by the currents created by a passing vessel, signaling means, and electrical connections between the said means whereby the signaling means is operated upon actuation of the first-said means.

3. In combination, a buoy provided with a make-and-break device adapted to be actuated by the currents created by a passing vessel, signaling means, and electrical connections between said device and said signaling means whereby the latter is operated upon actuation of said device.

4. In combination, a buoy provided with means adapted to be rotated by the currents created by a passing vessel, signaling means, and means operated by the rotation of said first-named means for operating said signaling means.

5. In combination, a buoy provided with means adapted to be rotated by the currents created by a passing vessel, signaling means, and electrical means operated by the rotation of said first-named means for operating said signaling means.

6. In combination, a buoy provided with means adapted to be rotated by the currents created by a passing vessel, electrical means actuated by the rotation of said means, signaling means, and electrical connections between said second-named means and said signaling means.

7. In combination, a buoy provided with means adapted to be rotated by the currents created by a passing vessel, a make-and-break device actuated by the rotation of said means, signaling means, and electrical connections between said make-and-break device and said signaling means.

8. In combination, a buoy provided with a rotatable arm shaped to be actuated by the currents created by a passing vessel, and signaling means operated by the rotation of said arm.

9. In combination, a buoy provided with a rotatable arm shaped to be actuated by the currents created by a passing vessel, and electric signaling means operated by the rotation of said arm.

10. In combination, a buoy provided with a rotatable arm shaped to be actuated by the currents created by a passing vessel, electrical means operated by said arm, signaling means, and electrical connections between said electrical means and said signaling means.

11. In combination, a buoy provided with a rotatable arm shaped to be actuated by the currents created by a passing vessel, a make-and-break device operated by said arm, signaling means, and electrical connections between said make-and-break device and said signaling means.

12. A buoy provided with means adapted to operate signaling means and means adapt-

ed to be actuated by the currents created by a passing vessel for operating said first-named means.

13. A buoy provided with means adapted to be rotated by the currents created by a passing vessel and signal-operating means actuated by the rotation of said first-named means.

14. A buoy provided with a rotatable arm shaped to be actuated by the currents created by a passing vessel, and signal-operating means actuated by the rotation of said arm.

15. A buoy provided with means adapted to be rotated by the currents created by a passing vessel and electric signal-operating means actuated by the rotation of said first-named means.

16. A buoy provided with means adapted to be rotated by the currents created by a passing vessel, a make-and-break device actuated by the rotation of said first-named means, and electrical connections from said make-and-break device.

17. A buoy provided with a rotatable arm shaped to be actuated by the currents created by a passing vessel and electric signal-operating means actuated by the rotation of said arm.

18. A buoy provided with a rotatable arm shaped to be actuated by the currents created by a passing vessel, a make-and-break device

operated by the rotation of said arm, and electrical connections from said make-and-break device.

19. A buoy provided with a fin and means carried by the buoy for actuating signaling means upon the passing of a vessel.

20. A buoy provided with a fin and means carried by the buoy for actuating signaling means upon the passing of a vessel, said last-named means comprising a rotatable arm provided with a blade-like extension and signal-operating means actuated by the rotation of said arm.

21. A buoy provided with a fin and means carried by the buoy for actuating signaling means upon the passing of a vessel, said last-named means comprising a rotatable arm provided with a blade-like extension and electric signal-operating means actuated by the rotation of said arm.

22. A buoy provided with a fin and means carried by the buoy for actuating signaling means upon the passing of a vessel, said last-named means comprising a rotatable arm provided with a blade-like extension, a make-and-break device operated by the rotation of said arm, and electrical connections from said make-and-break device.

In testimony whereof I have signed this specification.

PHILIPPO L. E. DEL FUNGO-GIERA.