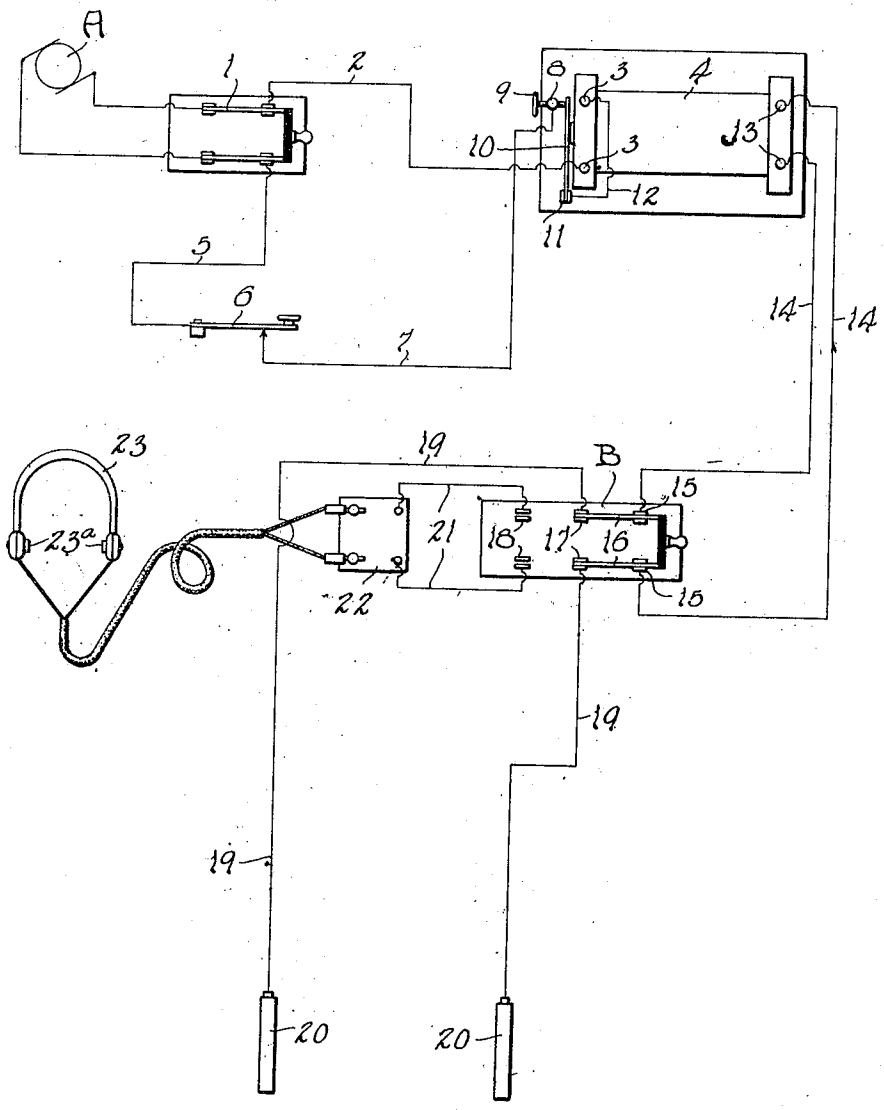
F. P. FISHER & H. DEHART.

DEVICE FOR TELEGRAPHING UNDER WATER.

APPLICATION FILED JAN. 17, 1916.

1,233,211. Patented July 10, 1917.



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DEVICE FOR TELEGRAPHING UNDER WATER.

1,233,211. Specification of Letters Patent. Patented July 10, 1917.

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To all whom it may concern:

Be it known that we, FRANK P. FISHER and HUGH DEHART, both citizens of the United States, residing at Radford, in the county of Montgomery, State of Virginia, have invented a new and useful Device for Telegraphing Under Water; and we 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.

The present invention relates to a device for telegraphing under water, and has for its object to provide a device of this character which embodies novel features of construction whereby messages can be transmitted through a body of water as a carrying medium without the necessity of a wire or metallic connection between the sending and receiving stations.

Further objects of the invention are to provide an under-sea telegraph which is simple and compact in its construction, which is easily operated, and which within certain limits will enable communication to be established with a submarine boat.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which:—

The figure is a diagrammatic view of an under-sea telegraph constructed in accordance with the invention.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

Referring to the drawings, and specifically describing one of the stations, it being understood that both the sending and receiving stations are the same, the reference character A designates a source of electrical supply, and 1 a switch for controlling the same. A wire 2 leads from one of the terminals of the switch 1 to one of the low tension terminals 3 of a telephone induction coil 4. The other terminal of the switch 1 is connected by a wire 5 to one of the terminals of a telegraph key 6, the other terminal of the said key being connected by a wire 7 to a post 8 having a vibrator contact screw 9 threaded thereon. A vibrator 10 extends transversely across one end of the induction coil 4 so as to be attracted toward the core of the coil 4 when the coil is energized. This vibrator 10 is mounted upon a post 11 which is connected by a wire 12 to the opposite primary terminal 3 of the induction coil. The contact screw 9 is adjusted to obtain a rapid action of the vibrator, and with this construction it will be obvious that when the telegraph key 6 is manipulated to close the circuit the vibrator 10 will be actuated.

The secondary terminals 13 of the induction coil are connected by wires 14 to end terminals 15 of a double throw switch B. The switch blades 16 are mounted upon posts 17 and adapted to be swung into engagement with the end contacts 15 at one side of the switch or the end contacts 18 at the opposite side of the switch. The middle posts 17 are connected by the wires 19 to carbon electrodes 20 which are submerged in the water and arranged a suitable distance apart. In practice it has been found that about twenty feet apart is the proper distance to set the electrodes for an apparatus having a radius of from five hundred to one thousand feet. The other set of end terminals 18 of the double throw switch B are connected by the wires 21 and board 22 to a telephone receiving device 23 adapted to be fitted upon the head of the operator with the receivers 23^a arranged over the ears.

When sending a message the switch blades 16 of the double throw switch B are swung into engagement with the contact posts 15 and the telegraph key 6 manipulated in the proper manner. Each time the key 6 closes the circuit a high tension current is produced in the secondary coil of the induction coil, the terminals of said secondary coil being connected to the carbon electrodes 20. This results in the transmission of a certain form of energy from the zone of the carbon electrodes 20, said energy radiating in all directions so as to act upon the carbon electrodes 20 of a receiving station, which are within the effective radius of the sending station. At the receiving station the switch blades 16 are swung into engagement with the end posts 18 so that the action of the energy from the sending station upon the electrodes 20 of the receiving station will

be audible to the operator who has the receivers 23ª at his ear. Any suitable code, such as the ordinary Morse code may be used for sending messages, and within a certain radius, depending upon the size of the apparatus and the strength of the coil, messages can be transmitted in this manner without the necessity of a wire connection between the two stations. The device could be used for establishing communication between two submarine boats, or between a submarine boat and the surface of the water, and might be very useful in locating a sunken or disabled submarine vessel.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent, is:—

A device for telegraphing under water, including a pair of spaced and submerged electrodes, a double-throw switch including spaced switch blades and two sets of contacts, either set of the contacts being adapted to be engaged by the switch blades, wires connecting the switch blades to the respective submerged electrodes, an induction coil having the secondary terminals thereof connected to one set of switch contacts, a telegraph key controlling the primary circuit of the induction coil, and a telephone receiver connected to the opposite set of switch contacts.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK P. FISHER.
HUGH DEHART.

Witnesses:
J. H. CARPER,
E. COOPER.