

No. 768,572.

PATENTED AUG. 23, 1904.

A. J. MUNDY.
SOUND TRANSMITTER AND RECEIVER.
APPLICATION FILED APR. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

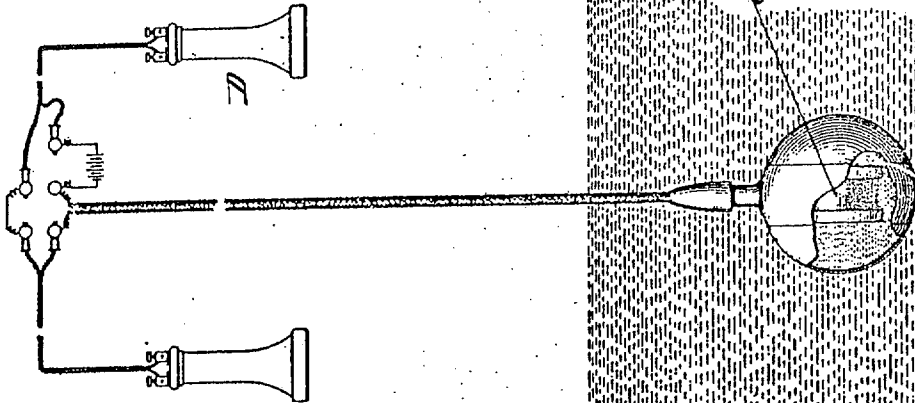
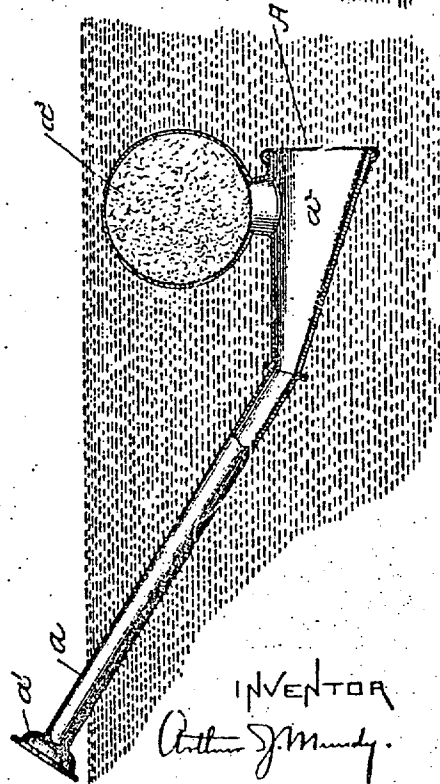


FIG 1.



WITNESSES:

J. M. Dulan.
Saul S. Sippert.

INVENTOR

Arthur J. Mundy.

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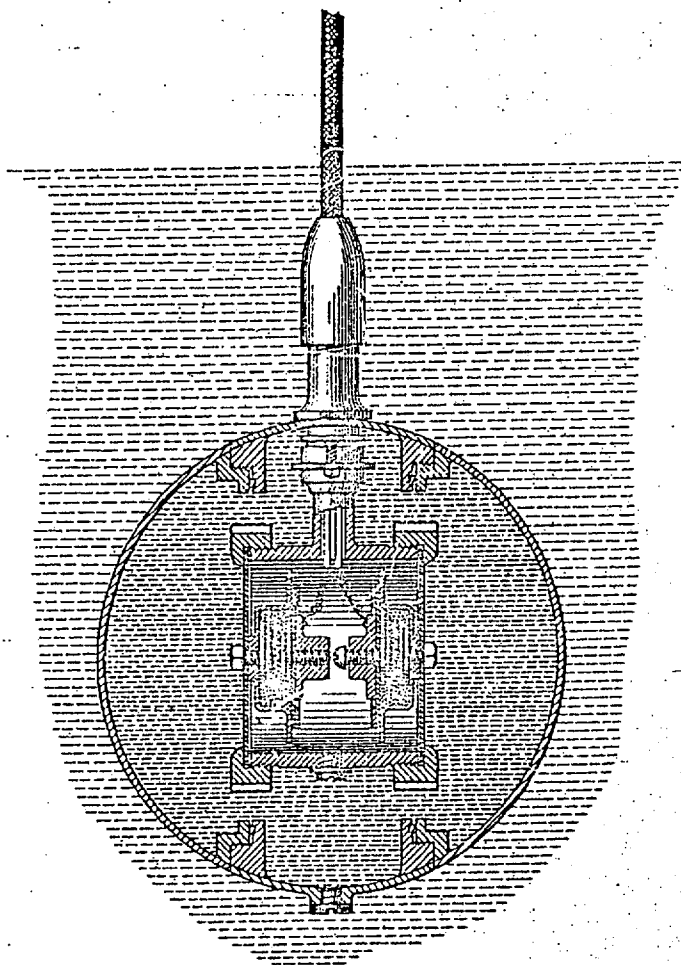


Fig. 2.

WITNESSES:

J. M. Dolan.
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UNITED STATES PATENT OFFICE

ARTHUR J. MUNDY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO SUBMARINE SIGNAL COMPANY, OF WATERTOWN, MAINE, A CORPORATION OF MAINE.

SOUND TRANSMITTER AND RECEIVER.

SPECIFICATION forming part of Letters Patent No. 768,572, dated August 23, 1904.

Application filed April 23, 1902. Serial No. 104,302. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. MUNDY, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Sound Transmitters and Receivers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to the transmission of articulate speech by water.

I have ascertained that an open body of water—like, for instance, the water of a pond, river, or sea—may be employed for receiving the vibrations of articulate speech, may transfer such vibrations, and deliver them to an electrical transmitter submerged in the water, by which they may be transmitted electrically to a receiver located out of the water and at any desired distance from the submerged transmitter.

In practicing the invention the vibrations of articulate speech are delivered by a submerged vibratory diaphragm with which the transferring water is in contact, and the vibrations thus transmitted to the water are received by a transmitter of peculiar construction which is submerged in the water and which transfers them electrically to a receiver.

In the drawings I have represented in a conventional way the means for practicing my invention.

Figure I is a view of my transmitting and receiving apparatus in partial cross-sectional elevation. Fig. II is a detail view, in cross-sectional elevation, of my receiving apparatus.

Referring to the drawings, A represents a vibratory diaphragm submerged in the water to any desired depth and upon one side in contact with the water. This diaphragm is vibrated by means of the sounds of articulate speech delivered to it through a speaking-tube *a* and from the mouthpiece *a'* thereof. I prefer that there be between the lower end

of the speaking-tube and the diaphragm A an enlarged chamber *a''*, from which opens a chamber *a'*, filled with a sound-absorbent and adapted to prevent excess of sound-reverberation in the chamber *a'*. The chamber *a'* has an enlarged end which is covered by the vibratory diaphragm, and thus permits of the employment of a diaphragm of any required size. The chamber *a'* may not be used. The chamber *a'* is somewhat in the nature of a megaphone, which acts to receive the sound and intensify it during its passage to its delivery end, so that the diaphragm is actuated with that intensity which this construction implies. The water in which the vibratory diaphragm is submerged may be, as I have said, any body of natural water—such as a pond, river, or sea or any other unconfined water—and the extent to which it will deliver the sound-vibrations depends upon the intensity with which they are delivered to the water and the sensitiveness of the sound-transmitter upon which the sound-vibrations thus imparted to the water operate or come into contact. B represents the water for so transmitting the vibrations of articulate speech.

C is the submerged transmitting device. It preferably comprises an electrical transmitter, one like that described in either of my applications for Letters Patent of the United States executed of even date herewith, Cases B and F, and contained in a sound-focusing shell like that described in my application for Letters Patent of the United States executed of even date herewith, Case E. The transmitter is electrically connected with the receiver D. A transmitter of this character intensifies the sound-vibrations delivered by it to the water both by focusing the vibrations upon the diaphragms by the direct contact of vibratory water with the diaphragms and by the simultaneous use of a number of sound-receiving diaphragms subject to the same influences and connected in series or multiple with the receiver, so that the transmitter is able to take from the water the vibrations of articulate

speech delivered to the water and to transmit them directly to the receiver by which articulate speech is delivered.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a system of submarine telephony, a means for imparting to water at a point beneath its surface the vibrations of articulate speech, and a submerged electric transmitter and receiver adapted to receive said vibrations so imparted to the water and to electrically transmit them to a sound-receiver.

2. In a system for submarine transmission of speech, a submerged means for imparting to water at a point below its surface the vibrations of articulate speech, and a submerged electric transmitter and receiver for taking said vibrations from the water and transmitting them comprising a submerged electric

transmitter, means for focusing sound-vibrations thereon, and a receiver electrically connected with the transmitter.

3. In a submarine telephonic system, means for imparting to the water at a point below its surface the vibrations of articulate speech and a means for taking such vibrations from the water, the same comprising a submerged electric transmitter of the character specified and a receiver in electric connection therewith.

4. In a submarine telephonic system, means for imparting to the water at a point below its surface the vibrations of sounds emitted without, and means for taking such vibration from the water at a distance.

ARTHUR J. MUNDY.

Witnesses:

F. F. RAYMOND, 2d,
J. M. DOLAN.