No. 769,005. PATENTED AUG. 30, 1904.

W. W. MASSIE.

OSCILLAPHONE.

APPLICATION FILED JULY 14, 1904.

NO MODEL.

Fig. 1.

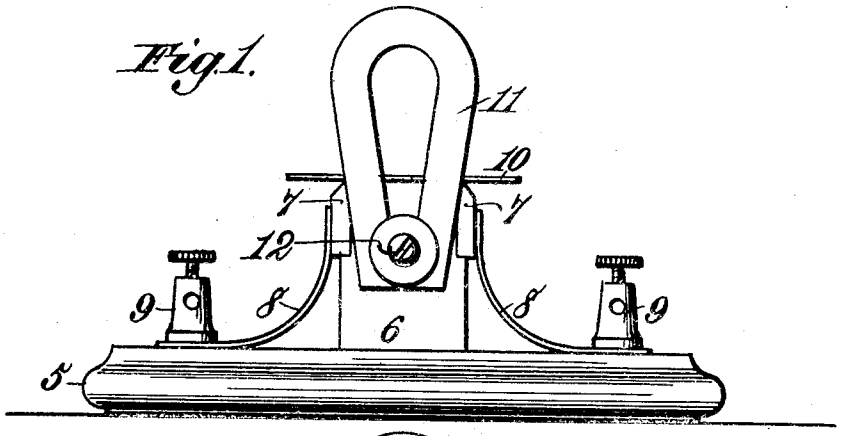


Fig. 2.

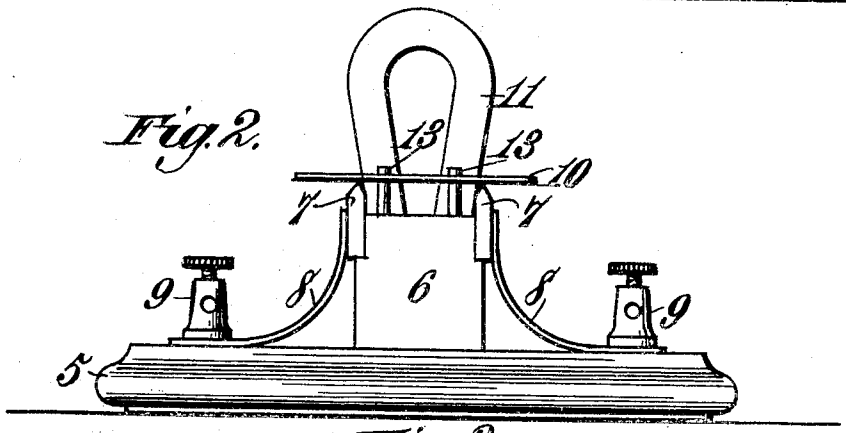
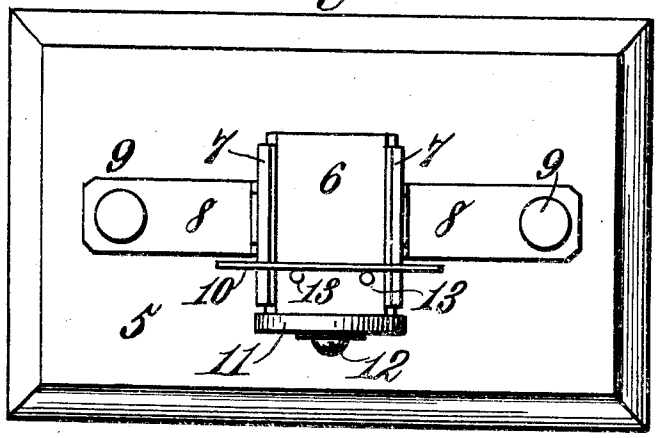


Fig. 3.



Witnesses.
Robert Everett.
J. B. Keedy

Inventor.
Walter W. Massie.
By James L. Norris.
Atty.

No. 769,005. Patented August 30, 1904.

UNITED STATES PATENT OFFICE.

WALTER WENTWORTH MASSIE, OF PROVIDENCE, RHODE ISLAND.

OSCILLAPHONE.

SPECIFICATION forming part of Letters Patent No. 769,005, dated August 30, 1904.

Application filed July 14, 1904. Serial No. 216,541. (No model.)

To all whom it may concern:

Be it known that I, WALTER WENTWORTH MASSIE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Oscillaphones, of which the following is a specification.

This invention relates to a wave-responsive device, or, as I term it, an "oscillaphone," especially adapted for use in wireless signaling systems.

I do not limit the improved device to any particular use. It was devised primarily, however, for use on shipboard and other places where it would be subjected to jars or shocks. With a wave-responsive device of the ordinary construction involving carbon or other terminals and a needle or equivalent element bridging the same said needle when the device is subjected to oscillation will accidentally roll from place, and in this event the effectiveness of the instrument would be destroyed. By my invention this difficulty is overcome. My wave-responsive device involves terminals and a conducting element freely supported by and bridging said terminals and having magnetized means associated therewith for preventing the accidental displacement of the said conducting element from its working position or from the terminals. In the present instance said magnetized means is of a permanent character, although this is not essential. These terminals may be made from any suitable material, and I will hereinafter refer to them as "carbon terminals," although preferably they consist of carbon and heavy oil, while the needle ordinarily is composed of steel, although this is not essential.

I do not of course limit myself to any particular form of permanently-magnetized means in conjunction with the conducting terminal bridging element, to which reference has been made; but in the drawings accompanying and forming a part of this specification I illustrate a simple and convenient arrangement for maintaining the needle or needles, if there be more than one, against abnormal movement or accidental displacement from the terminals when the device as a whole is subjected to shocks or jars due, for example, to the rolling or vibratory motion of a ship or from any other cause.

Referring to said drawings, Figure 1 is a front elevation of a wave-responsive device involving my invention. Fig. 2 is a rear elevation, and Fig. 3 is a top plan view of the same.

Like characters refer to like parts in the different views.

The wave-responsive device represented in the drawings has a base 5, which may be of any suitable material—for example, wood. There is shown as mounted upon the upper side of the base a block, as 6, of some suitable insulating material, which constitutes a direct support for the terminals 7 of the instrument. The terminals 7, as previously indicated, are conveniently designated as "carbon terminals," although, preferably, they consist of a composition of carbon and heavy oil. The terminals may be prepared in any suitable way. For example, the carbon can be powdered and mixed with oil in suitable sufficiency to make a plastic mass, after which the same can be molded to the proper shape and baked or otherwise hardened. A terminal composed of a mixture of carbon and heavy oil I find is quite satisfactory in that it presents an antifriction-surface to the needle or equivalent conducting bridging element extending across the gap between the same. The term "needle," it will be apparent, is used in its broad sense to cover any suitable conducting element serving to connect the two terminals 7.

The opposite sides of the block 6 have rabbets to freely receive the terminals, they being held in operative relation with each other by the bowed springs 8. The outer ends of the bowed springs are held to the base or bed 5 by binding-posts, each designated by 9 and to which conductors constituting part of the local circuit in which the wave-response device is located are connected. The springs, it will be apparent, constitute not only conducting means between the binding-posts and terminals, but also a means for maintaining the carbon terminals 7, seated in the rabbets in the block 6. By the construction described it will be evident that the terminals 7 may be

readily removed should occasion require, while at the same time the springs 8 properly maintain them in working relation, said springs in practice having a sufficient tension or pressure against the terminals for this purpose.

The conducting bridging element for the terminals 7 is designated by 10 and is of some suitable material, such as metal. In some cases the needle may be permanently magnetized for a reason that will hereinafter be obvious. To hold the needle 10 against accidental displacement from the terminals 7, I represent a permanent magnet 11, which is of the familiar horseshoe shape. Between the branches or legs of the magnet is located a screw 12, tapped into what is represented as the front face of the terminal-supporting block 6 and between the head of which screw and the magnet a washer is interposed. By tightening up the screw the magnet 11 will be held in an adjusted position, for, as will be apparent, it may be adjusted perpendicularly of the base 5 or up and down to regulate its influence upon the stops 13, carried by the block 6. There are two of these stops represented and as consisting of pins, their tops being located above the upper knife-edges of the carbon terminals, on which knife-edges the needle 10 rests. These stops or pins are within the field of the permanent magnet 11 and are so positioned with respect to said magnet as to be magnetized thereby in order to attract the needle and hold it firmly against the upper edges of the carbons and against rolling from place when the instrument is subjected to vibration.

In practice the pins are just magnetized sufficiently to hold the needles thereagainst and at the same time to permit the needles to roll down and rest on the terminals. The sensitiveness of the instrument, as will be apparent, can be readily regulated by the adjustment of the magnet. I might readily dispense with the magnet 11 and secure the same advantages with my invention by either permanently magnetizing the needle itself or the stops 13 against which the needle abuts. Ordinarily, however, I prefer to employ the construction illustrated, as I have found it thoroughly satisfactory. In such construction the pins serve to hold the needle out of direct contact with the magnet.

Having thus described my invention, what I claim is—

1. A wave-responsive device comprising terminals, and a conducting element freely supported by and bridging said terminals and having permanently-magnetized means associated therewith for preventing accidental displacement of the bridging element from the terminals.

2. A wave-responsive device comprising carbon terminals, and a metallic bridging element therefor, having magnetized means associated therewith for preventing said bridging element from being accidentally displaced from said terminals.

3. A wave-responsive device comprising a rabbeted insulating-block, carbon terminals set in the rabbets in the block, conducting-springs serving to hold the terminals in place, and a conducting bridging element freely supported by said terminals.

4. A wave-responsive device comprising terminals, a conducting element freely supported by and bridging said terminals, a permanent magnet, and metallic stops arranged to be magnetized by the permanent magnet and to be engaged by the bridging element and to hold the latter in contact with and against displacement from said terminals.

5. A wave-responsive device comprising terminals, a conducting element freely supported by and bridging said terminals, and suitably permanently magnetized stops arranged to attract said conducting element and to hold the same in contact with and against accidental displacement from said terminals.

6. A wave-responsive device comprising an insulating-block, terminals supported thereby, a conducting element freely supported by and bridging said terminals, and suitably-magnetized stops supported by the block and arranged to attract said conducting element and hold the same against the terminals and from accidental displacement therefrom.

7. A wave-responsive device comprising terminals, and permanently-magnetized means associated therewith for holding a bridging element for said terminals against accidental displacement therefrom.

8. A wave-responsive device comprising terminals, stops for a bridging element for the terminals, and a permanent magnet arranged in operative relation with and serving to magnetize said stops.

9. A wave-responsive device comprising a block, carbon terminals supported by the block, a permanent magnet also supported by the block, and stop-pins for a bridging element for the terminals, arranged to be magnetized by said magnet.

10. A wave-responsive device comprising terminals, a conducting element freely supported by and bridging said terminals, a magnet, and stops arranged to be magnetized by said magnet and to be engaged by the bridging element and to hold the latter in contact with and against accidental displacement from said terminals.

11. A wave-responsive device comprising terminals, and a conducting element freely supported by and bridging said terminals and having magnetized means associated therewith for preventing accidental displacement of the bridging element from the terminals.

12. A wave-responsive device comprising terminals, a conducting element freely supported by and bridging said terminals, and

magnetizable means independent of the terminals for preventing accidental displacement of the bridging element from said terminals.

13. A wave-responsive device comprising terminals arranged to be bridged by a conducting element, and means separate from the terminals for preventing accidental displacement of the conducting element therefrom.

14. A wave-responsive device comprising terminals, a bridging conducting element freely supported by the terminals, a magnet, and means between the magnet and the conducting element controlled by the magnet and arranged to prevent accidental displacement of the said element from the terminals.

15. A wave-responsive device comprising a body of insulating material, terminals supported by said body, a bridging conducting element supported freely by the terminals, and means supported by said body separate from the terminals for limiting the motion of said element.

16. A wave-responsive device comprising terminals, a conducting bridging element freely supported by said terminals, and means insulated from the terminals for limiting the motion of said element.

17. A wave-responsive device comprising terminals, a conducting bridging element freely supported by said terminals, and means insulated from the terminals for preventing the accidental movement of the element therefrom.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER WENTWORTH MASSIE.

Witnesses:

JOHN G. MASSIE,

WILLIAM J. SMITH.