

No. 775,113.

PATENTED NOV. 15, 1904.

W. W. MASSIE.
COHERER.

APPLICATION FILED MAR. 4, 1904.

NO MODEL.

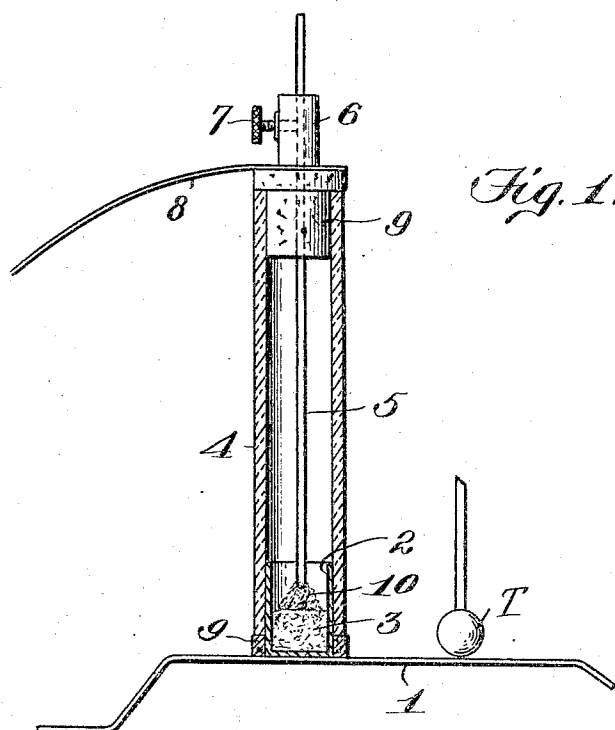


Fig. 1.

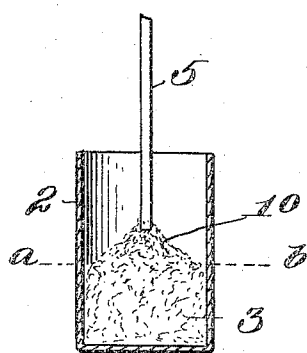


Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

WALTER W. MASSIE, OF PROVIDENCE, RHODE ISLAND.

COHERER.

SPECIFICATION forming part of Letters Patent No. 775,113, dated November 15, 1904.

Application filed March 4, 1904. Serial No. 196,588. (No model.)

To all whom it may concern:

Be it known that I, WALTER W. 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 Coherers, of which the following is a specification.

My invention relates to improvements in coherers for wireless telegraphy, and has for its object to facilitate cohering and increase the sensitiveness of the coherer.

Heretofore in coherers utilizing a magnetized steel needle connected with one terminal the needle has been embedded in the filings (usually iron and silver) and the other terminal is arranged under the filings. In such arrangements the oscillatory current is required to cohere the whole mass of filings and also to overcome the weight or force of gravity on the filings to form a conducting link or bridge in the filings from the needle to the tin-foil terminal arranged beneath the filings. Furthermore, the tapping device is required to do considerable work to decohere the filings. The arrangement referred to tends to and in practice actually does decrease the sensitiveness of the coherer.

To attain the object of my invention—that is to say, to facilitate cohering and increase the sensitiveness of the coherer—I have provided a coherer in which the magnetized needle is combined with means by which it is supported with its end out of or free of the non-magnetic filings, as distinguished from being entered into the mass of filings, and, furthermore, whereby the needle may be adjusted to meet particular necessities to various degrees of nearness to the mass of filings.

The invention embodies other improvements which will be hereinafter set forth.

My improved coherer may be utilized in existing systems of wireless telegraphy and in connection with existing or any suitable type of tapping means. My invention relates to the coherer and does not concern the tapping device or system generally, and as such devices and systems are well known they are not herein described or illustrated, not being essential to an understanding of my invention.

My invention is illustrated in its best known

embodiment in the accompanying drawings, in which—

Figure 1 is an elevation, partly in section; and Fig. 2, an enlarged or exaggerated detail.

In the said drawings the reference-numeral 1 designates a metallic bridge constituting one terminal of the coherer and supporting a metallic cup 2, which serves as a conductor and contains a mass of non-magnetic—say silver—filings 3 within an insulating-tube 4, preferably of glass.

The numeral 5 designates the magnetized needle adjustably arranged in a metallic holder 6 in connection or combination with means, such as a thumb-screw 7, for maintaining it in adjusted position. In the example of my invention shown the needle-holder 6 is connected to a support 8, which support serves as a conductor to the needle. The adjustment of the needle with respect to the filings, as will be well understood, is necessarily very delicate, and to prevent the adjustment being disturbed vibration-dissipators 9, preferably of cork, are provided to take up the vibration caused by the action of the tapping device and prevent such vibration from reaching and disturbing the adjustment of the needle.

In the drawings the reference-letter T designates a tapping device which may be of any suitable description.

The needle, as stated, is adjustable, and it is arranged with its end free of or out of the non-magnetic filings to hold in suspension the magnetic filings 10, (such as iron or nickel or nickel-iron,) so that the latter will just rest on the mass of non-magnetic filings 3 in the cup 2. The relation of the magnetized needle to the mass of non-magnetic filings and the magnetic filings suspended therefrom is clearly shown in the enlarged view, Fig. 2.

My invention is not concerned with the particular character of filings nor the proportion of metals composing the same. In practice I have found a mass of silver filings in the cup and iron filings suspended to or by the needle satisfactory. These may be varied within the scope of equivalency.

In practice the mass of filings 3 is poured into the cup 2 and then the filings 10 are placed

on top thereof, so that when the magnetized needle is adjusted in proper nearness to, but not embedded in, the non-magnetic filings the filings 10 are attracted and held up by the
 5 needle and just in contact with the mass of filings 3 in the cup 2. The magnetic filings 10 are thus cohered at all times, leaving nothing for the oscillatory current to do but to cohere said magnetic filings to the non-magnetic filings contained in the cup along the
 10 line *a b*, Fig. 2 of the drawings, which line of non-magnetic filings constitutes a surface presenting a multitude of small faces to facilitate the cohering action. It is not material what
 15 be the mass of non-magnetic filings contained in the cup. It is sufficient that a surface having numerous sharp edges and small faces to facilitate the cohering action shall be presented. It is not necessary that the current
 20 pass through the non-magnetic filings. The many-faced surface presented by the top layer of such filings and the sides of the cup 2 are conductors. The mass of non-magnetic filings shown in the drawings need not be and are
 25 not cohered. All that is necessary is to cohere the magnetic filings to the many-faced surface presented by the top layer of the non-magnetic filings, as explained. The result is great facility in the cohering action and an increase
 30 in the sensitiveness of the coherer.

The oscillatory currents according to my invention have materially less work to do than with prior coherers.

Having thus described my invention, what
 35 I claim is—

1. A coherer comprising a mass of non-magnetic filings, a magnetized needle supported with its end free of such mass of filings, and a mass of magnetic filings suspended from the
 40 needle and making contact with the non-magnetic filings.

2. A coherer comprising a mass of filings, arranged within an insulating-tube, an adjust-

able, magnetized needle, means for supporting said needle in adjusted position with relation to said mass of filings, and means for dissipating vibration caused by the tapper of wireless-telegraphy systems.

3. A coherer comprising an insulating-tube containing a mass of filings, a support for a
 50 magnetized needle, a magnetized needle adjustably arranged in said support, means for maintaining the needle in different positions of adjustment with relation to the mass of filings, and a vibration-dissipator interposed
 55 between the insulating-tube and the means for maintaining the adjusted position of the needle.

4. A coherer comprising a surface having a multitude of faces, a magnetized needle supported with its end free of such surface, and magnetic filings suspended from said needle and making contact with said surface.

5. A coherer comprising a surface having a multitude of faces, an adjustable, magnetized
 65 needle, and means for supporting said needle with its end free of such surface, and magnetic filings suspended from said needle and making contact with said surface.

6. A coherer comprising a surface having a
 70 multitude of faces, an adjustable magnetized needle, means for supporting said needle in adjusted position with relation to said many-faced surface, a mass of magnetic filings suspended from said needle and making contact
 75 with said surface, an insulating-tube, and means for dissipating vibration caused by the tapper of a wireless-telegraphy system.

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

WALTER W. MASSIE.

Witnesses:

JOHN G. MASSIE,
 PHILIP S. CHASE, Jr.