

W. W. MASSIE,
COHERER.
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Fig. 1.

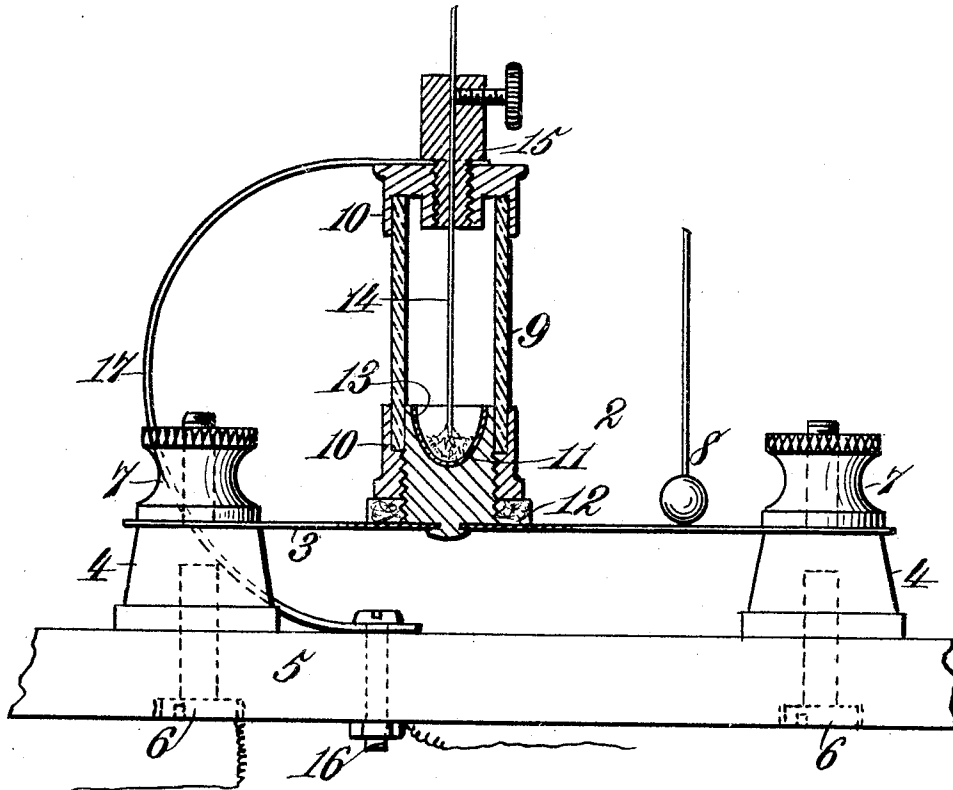
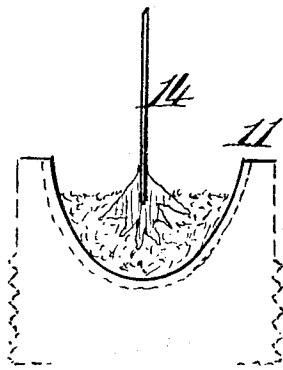


Fig. 2.



Witnesses:
Robert Smith,
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By James L. Morris,
Att'y.

UNITED STATES PATENT OFFICE.

WALTER W. MASSIE, OF PROVIDENCE, RHODE ISLAND.

COHERER.

No. 800,119.

Specification of Letters Patent.

Patented Sept. 19, 1905.

Application filed March 27, 1905. Serial No. 252,361.

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.

This invention relates to coherers for use in wireless telegraphy.

One of the objects of the invention is the provision of means for securing a wide range of adjustment by having the filings-containing cup so shaped or formed as to obtain a variation of resistance. This I do in the present case by making the cup of progressively-increasing cross-sectional area from its bottom toward the top, so as to provide for a variation in upper surface area of the mass of filings and naturally for a variation in resistance.

Another object is to provide a simple device of this character which is effective in operation and wherein the parts can be readily assembled to present an operative organization and as easily separated when occasion requires.

In the drawings accompanying and forming a part of this specification I illustrate a form of embodiment including my invention, which I will set forth in detail in the following description; but I do not restrict myself to the precise disclosure thus made, for certain variations may be adopted within the scope of my claims succeeding said description.

In said drawings, Figure 1 is a sectional elevation of a coherer involving my invention. Fig. 2 is an enlarged detail view of a filings-containing cup, showing a relation of the magnetic and non-magnetic filings therein.

Like characters refer to like parts in both figures.

The coherer (represented in full in Fig. 1) is denoted in a general way by 2 and is supported by a bridge, as 3, of some suitable conducting material. The bridge 3 is detachably mounted, so that it, with the coherer, can be bodily separated from the supports for the bridge. The supports for the bridge are designated each by 4, and they may be associated in any desirable way with a base or board, as 5, of some suitable non-conducting material. The supports 4, one of which, or the one shown at the left in Fig. 1, constitutes a terminal for the coherer, are shown as consisting of studs, and they may be held to the base or board 5 by screws, as 6, extending through the board

or base from the under side thereof and tapped into the supports or studs. A wire or conductor (not shown) in practice will be connected to one of the screws 6, or the one shown at the left in said Fig. 1. The bridge 3 rests near its opposite extremities upon the upper sides of the bodies of the studs 4, reduced threaded extensions rising from the studs being adapted to receive jam-nuts, as 7. The threaded upward extensions of the two studs pass through perforations near the opposite ends of the bridge, and the nuts 7, when run down, engage the bridge near the opposite ends thereof to hold the same in firm solid relation with its supports. A tapper, as 8, of ordinary construction may operate against the bridge 3 to decohere the metallic filings in the coherer 2.

The coherer 2 is shown as including in its make-up a tube, as 9, preferably of glass, and the opposite ends of which fit in upper and lower metallic collars, each denoted by 10, the collars having a sealed or equivalent connection with the tube. Sealing-wax may be satisfactorily employed to connect the collars and tube.

A cup, as 11, is adapted to contain the filings of the coherer. This cup is surrounded by the glass tube 9, lower collar 10, and a washer 12, of felt, cork, or other equivalent material. The washer 12 is interposed between the lower collar 10 and the bridge 3. The cup 11 is represented as being of stud form and as rigidly connected with the bridge 3. This rigid connection may be a rivet one, the cup being represented as having a projection upon its under side, which initially can be passed through a perforation in the bridge and afterward upset. The cup 11 contains therein a lining, as 13, which may be of silver, in which the filings are situated.

The coherer involves a magnetized needle, as 14. The carrier for the needle, which is of some suitable conducting material, is designated by 15 and is represented as of cylindrical form, the needle-carrier having a bore entirely therethrough to receive the needle. The said needle-carrier has a reduced extension externally threaded to fit an opening in the upper collar or sleeve 10. The needle, like that disclosed in Letters Patent No. 775,113, of November 15, 1904, granted to me, is capable of longitudinal adjustment, and is held in its adjusted relation by means of a binding-screw, as in the patent.

The magnetization of the needle may be

secured in several ways. For example, the needle itself may be magnetized, or its carrier 15 may be made in the form of a permanent magnet, or a permanent magnet can be placed 5 in juxtaposition with the coherer with one pole near the needle-carrier and the other under the cup 11. The same effects can be secured in other ways, which need not be specified.

The filings of the coherer, as previously 10 stated, are situated in the lining 13 of the cup 11. The interior of the lining 13 is preferably of progressively-increasing cross-sectional area from its bottom to its top, (a parabolic form is quite satisfactory and is illustrated,) as thereby I can very readily vary 15 the resistance of the coherer by a variation in superficial area of the top of the filings mass in the cup. This variation, as will be obvious, will be in accord with the amount of filings in the cup. As in the patent, the non-magnetic 20 filings rest directly in the cup or in the lining 13 thereof, while the magnetic filings are supported from the needle and are embedded upon or in the non-magnetic filings. They serve 25 the same office in connection with the needle as set forth in said patent and their proportions may be as desired.

It will be remembered that one of the studs 4 has been described as one of the terminals 30 of the coherer. The other terminal is denoted by 16 and consists of a screw extending through the base or board 5. Between the head of the screw 16 and the board 5 one end of the conducting-strip 17, of resilient con- 35 ducting metal, is fitted, the opposite end of said conducting-strip 17 having a notch or slot to receive the reduced portion of the needle-carrier 15. When the conducting-strip is in electrical connection with the needle-carrier, 40 the latter will be run down to cause the upper end of the conducting-strip to fit solidly against the upper sleeve 10, which is in electrical connection with the needle-carrier. By running the needle-carrier out of its 45 threaded seat in the upper sleeve 10 the upper end of the conducting-strip 17 can be readily separated from said needle-carrier, following which the tube 9 can be unscrewed from the lower sleeve 10 to reach the cup 11 50 to clean it or regulate the amount of filings therein, or by removing the jam-nuts 7 the bridge 3 and coherer 2 can be bodily separated from the supports or studs 4.

Having described the invention, what I 55 claim is—

1. A coherer involving a filings-containing cup, a needle to enter the cup, and non-magnetic and magnetic filings superimposed in the cup, the latter being shaped to secure a variation in the upper surface of the mass of 60 filings.

2. The combination of two supports, each having a threaded extension, a bridge resting at its ends upon said supports and perforated for the passage of said threaded extensions, 65 jam-nuts on the threaded extensions to clamp the ends of the bridge against the supports, and a coherer supported by the bridge.

3. The combination of two supports, a bridge removably clamped to said supports, 70 and a coherer involving a filings-containing cup permanently connected to the bridge.

4. The combination of two supports, a bridge removably clamped to said supports, 75 a coherer involving a filings-containing cup and a needle-carrier, the filings-containing cup being connected with the bridge, a conducting-strip having a notch to receive the needle-carrier, and a terminal to which the 80 conducting-strip is connected, one of said supports also constituting a terminal.

5. The combination of a coherer having a cap and a needle-carrier extending through the cap, a conducting-strip notched to fit the 85 needle-carrier and the latter serving to bind the conducting-strip against said cap, a bridge for supporting the coherer, supports for the bridge, one of which constitutes a terminal, and a second terminal to which said conduct- 90 ing-strip is connected.

6. The combination of a coherer involving a tube, a collar fitted to one end of the tube, a needle extending into the tube, and a carrier for the needle, having a threaded engagement with said collar, a conducting-strip 95 clamped to the collar by the needle-carrier and notched to receive the latter, a bridge to which the coherer is permanently connected, supports to which the bridge is detachably connected, one of the supports constituting a 100 terminal, and a screw constituting another terminal, electrically connected with said conducting-strip.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 105 nesses.

WALTER W. MASSIE.

Witnesses:

JOHN G. MASSIE,
FRANKLIN D. FORD.