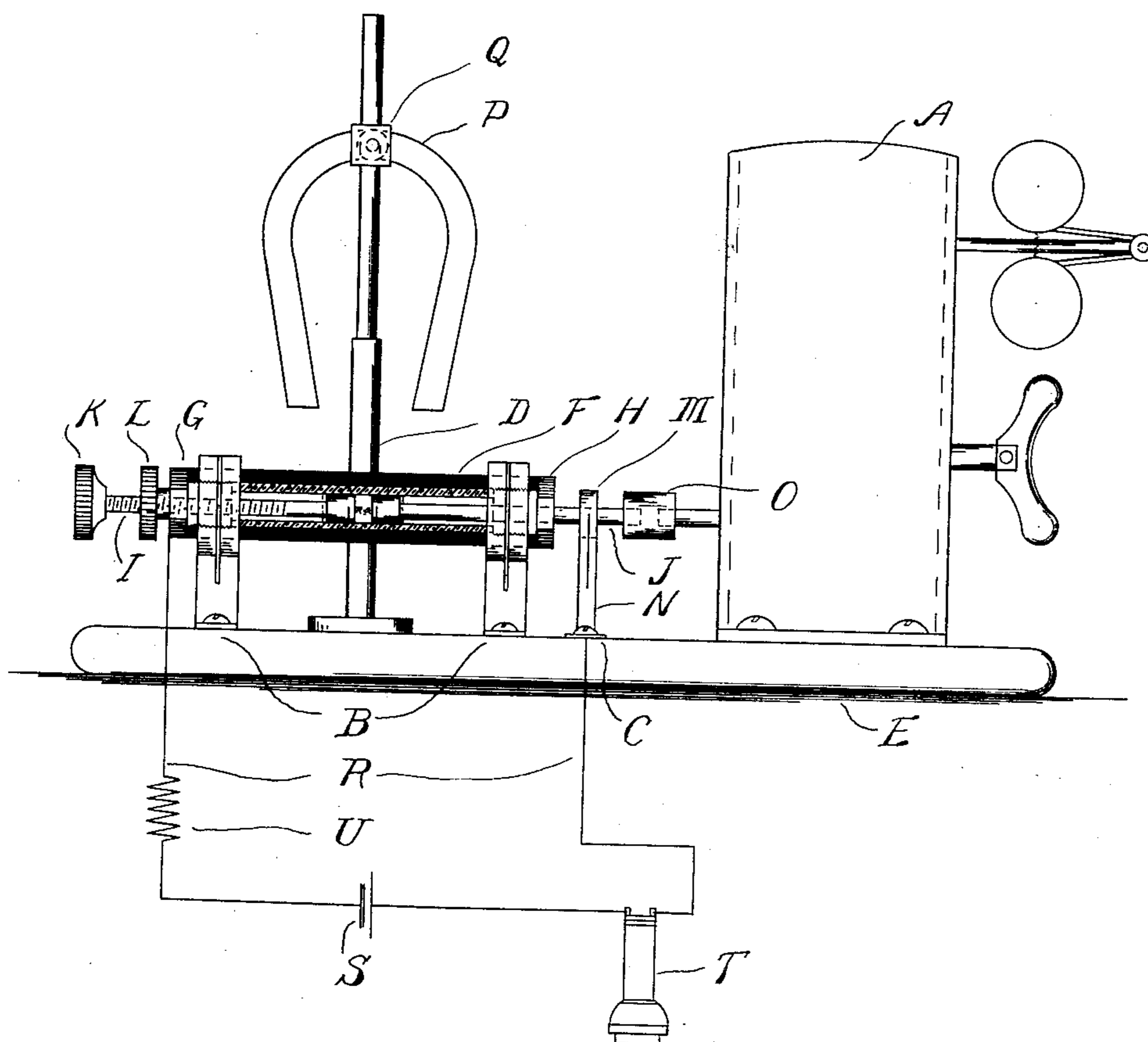


No. 811,654.

PATENTED FEB. 6, 1906.

T. J. MURPHY.  
ELECTRIC WAVE DETECTOR.  
APPLICATION FILED DEC. 17, 1904.



Witnesses:  
E. Murphy  
A. Murphy

Inventor:  
Thomas J. Murphy

# UNITED STATES PATENT OFFICE.

THOMAS J. MURPHY, OF NEW YORK, N. Y.

## ELECTRIC-WAVE DETECTOR.

No. 811,654.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed December 17, 1904. Serial No. 237,206.

*To all whom it may concern:*

Be it known that I, THOMAS J. MURPHY, a subject of the King of Great Britain, residing in the city of New York, county of New York, and State of New York, have invented a new and useful Electric-Wave Detector, of which the following is a specification.

My invention consists, broadly, in magnetizable electrodes suitably arranged in respect to one another and bridged by magnetically-suspended conducting particles. For restoring the detector to its normal condition of high resistance means is provided for a movement relatively between the electrode forming part of the detector in question, (although in some cases the latter is not necessary, as the vibration of the air and surrounding objects due to noises, &c., is found to be sufficient.) For the purposes of my invention an adjustable magnet is arranged in proximity to the device. A telephone-receiver or sensitive relay, or both, with battery and potentiometer is connected to the detector in the usual way. I attain these objects by the mechanism illustrated in the accompanying drawing, in which the figure is a side elevation and sectional view in part of detector.

Similar letters refer to similar parts throughout the drawing.

In the figure the spring-motor A, spring-clips B, and contact-brush C, together with non-magnetic metal column D, are securely fastened to insulating-base E. The clips B support the detector proper, which consists of an ebonite tube F and threaded at both ends, into which metal plugs G H are screwed. A thin glass tube is fitted into ebonite sleeve F. Both plugs in question are drilled longitudinally for the reception of stems of electrodes I J. Electrode I is adjustable by means of knurled head K and jam-nut L. To insure a reliable contact, stem J is fitted with a wheel M, upon which brush N bears. O is an insulating-coupling between motor and detector. Column D supports magnet P, rendered adjustable by clamping device Q. Leads R connect battery S and telephone-receiver T in series with detector. In practice a resistance U may be used to advantage as a current-regulator.

The operation of the detector is as follows: Assuming that one at least of the electrodes

is in motion, it is found that the filings, which are preferably of magnetic metal, forms a conducting-bridge across the electrodes under the influence of electric waves, and which is immediately rendered non-conducting automatically by the movements between the conducting particles, thereby effecting the telephone receiver or relay, as the case may be.

I do not wish to limit myself to the means as shown in the accompanying drawing of decohering my detector—as, for example, where the incoming waves are not powerful no apparent motion is necessary at all between the electrodes or particles, and if it does exist must be microphonic. Decoherence or state of high resistance is also arrived at by the approach of a magnet or magnetism of opposite polarity to existing residual magnetism in electrodes; nor do I confine myself to the construction or disposition shown in drawing, as the detector may be operated most efficiently in a vertical position.

The sensitiveness and practicability of my invention as a current detector will be of great utility in the arts. I therefore do not wish to limit its uses to wireless-telegraph work alone.

The detector herein described may be used also in the arts as an instrument for the detection and measurement of minute currents of electricity. I therefore do not confine or wish to limit its uses to wireless-telegraph work.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an electric-wave detector, electrodes in a magnetic field and bridged by magnetizable conducting particles, with means of producing motion between the said electrodes.

2. In an electric-wave detector, the combination of magnetizable electrodes in a magnetic field and bridged by magnetic conducting particles, together with means of restoring the "detector" to its normal condition of high resistance, by a movement of the electrodes relative to one another as set forth.

In testimony whereof I have signed my name in the presence of two subscribing witnesses.

THOMAS J. MURPHY.

Witnesses:

E. MURPHY,  
M. MURPHY.