

of an ether wave, it became comparatively a good conductor. This discovery rendered possible the so-called wireless telegraphy. Tubes were made containing filings of various metals, and after many trials certain metals appeared to offer better results than others. Nickle and silver filings are those usually employed. The tube which Professor Lodge has named the coherer, is thus made: a glass tube a quarter of an inch in diameter and two inches in length, in each end of the tube is sealed an electrode of silver or other

from the local battery passing through the circuit and recording a signal on any suitable instrument inserted for that purpose. The normal or non-conducting condition of the filings is brought about by a light tap with a spill of paper, or even with a feather, is sometimes sufficient.

In Signor Marconi's apparatus the tapper is worked automatically. The radiator at the transmitting station is actuated by a key making and breaking contact, by which it is easy to see that the dots and dashes of the

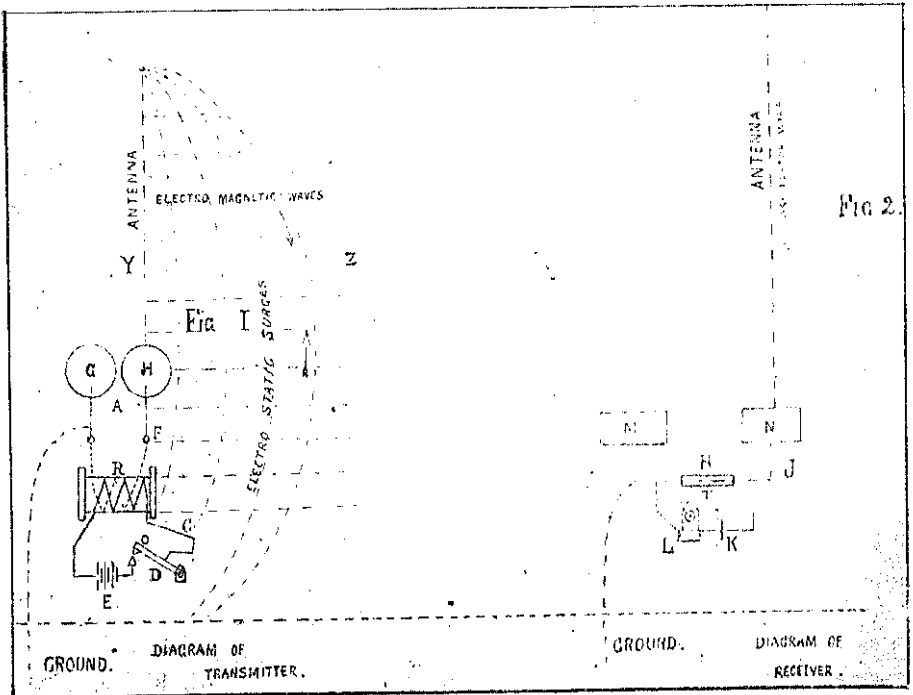


DIAGRAM 1.

wire; the electrodes are separated inside the tube by an air gap of about an eighth of an inch. This gap is filled loosely with filings of nickel and silver.

When such a tube is made to form part of an electrical local circuit, it offers, whilst undisturbed, a very high resistance, and little or no current goes through it. But when etheric or electric waves from any distant radiator reach the tube, the filings change, or it is thought become at their points of contact incipiently fused. The result of this action is to make the tube a comparatively good conductor, and so to admit of a current

Morse Code can be reproduced. The apparatus of Signor Marconi, who was the first to apply Hertz's discoveries to practical signalling, is in its essential principles illustrated in diagram No. 1.

TRANSMITTER.

G and H are two metallic spheres placed near enough to speak between; these are connected to the terminals of the secondary wire of an induction or Rhumkorff Coil R. The primary Coil C (fitted with the usual contact breaker) of the coil contains a battery, E, and a make and break key, D. When the