

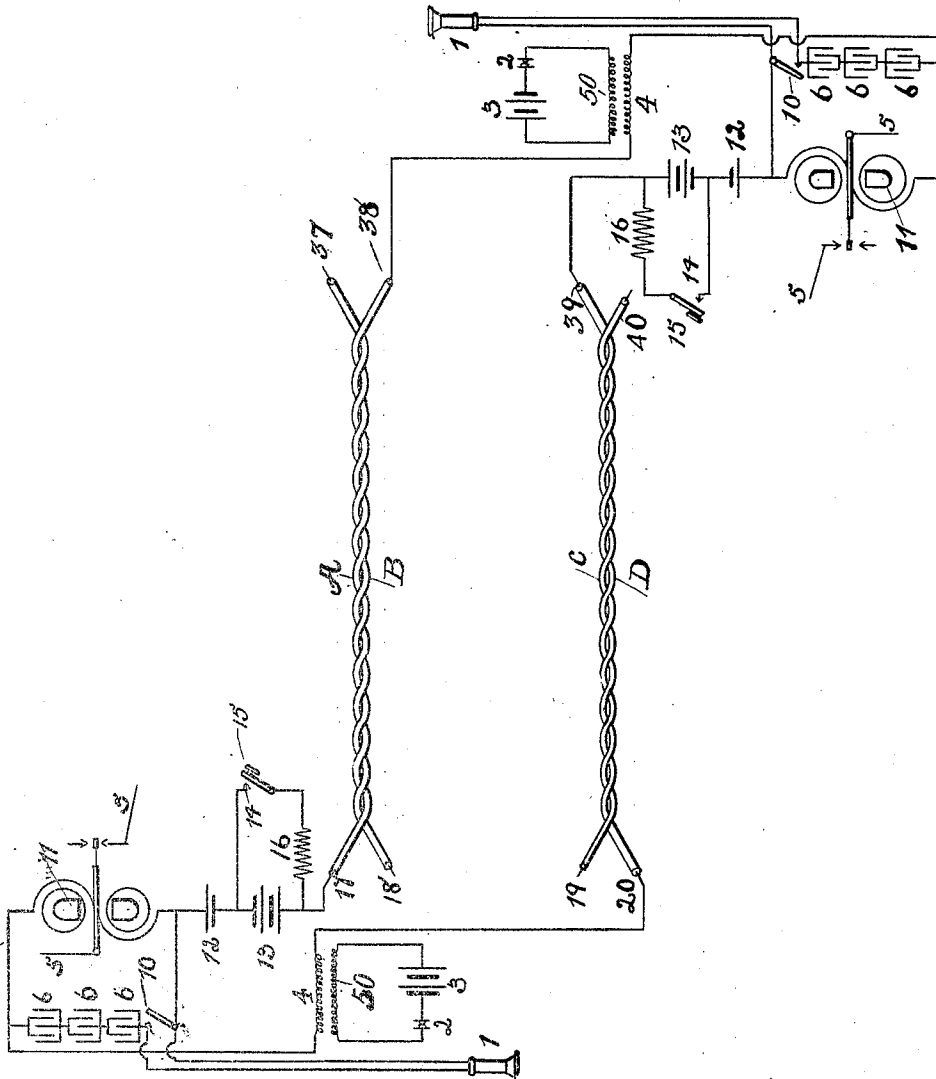
I. KITSEE.

ELECTRIC TRANSMISSION OF INTELLIGENCE.

APPLICATION FILED MAR. 3, 1906. RENEWED JUNE 5, 1912.

1,050,663.

Patented Jan. 14, 1913.



Witnesses
Abraham Rittenhouse
Mary C. Smith

Inventor
I. Kitsee

UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
WILLIAM J. LATTA, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRIC TRANSMISSION OF INTELLIGENCE.

1,050,663.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Transmission of Intelligence, of which the following is a specification.

My invention relates to an improvement in electric transmission of intelligence and has more special reference to an arrangement whereby telegraphic and telephonic messages may be transmitted simultaneously over one circuit.

In another application for which Letters Patent were granted to me in the United States October 31st, 1905, No. 803,110, I have described a method whereby telephonic messages may be transmitted inductively from one station to a second station.

In my experiments I have found that it is possible to telegraph over such lines with the aid of true reversals and that simultaneous telegraphing and telephoning is practical over these lines.

In the drawing which illustrates in diagrammatic view my invention, I have shown the preferred arrangement to obtain the necessary results. In this drawing, the line of transmission consists of two pairs of wires, the wires of each pair related inductively as to each other and two stations, operatively connected to said line of transmission, one pair of wires embraces the wires A and B, and the second pair of wires embraces the wires C and D. The wire A is connected with its terminal 17 to the left hand station; its terminal 37 remaining free and unconnected at the right hand station. The terminal 38 of wire B is connected to the right hand station and the other terminal 18 is left free and unconnected at the left hand station. Of the second pair, the terminal 39 of wire C is connected to the right hand station and its terminal 19 left free at the left hand station; of wire D the terminal 20 is connected at the left hand station and the terminal 40 left free at the right hand station. Each station embraces telephonic transmitting and receiving devices comprising the transmitter 2, source of current 3, primary 50 of inductorium, the secondary connected to the line of transmission. It also comprises the receiver 1. Each station is also provided with a telegraphic receiving

and transmitting device. In this drawing, I have illustrated one method of transmitting true reversals and the transmitting device, therefore, is illustrated here as to consist of the two sources of current 12 and 13, a shunt around the source 13, a resistance 16 in said shunt, and a transmitting key for said shunt; the transmitting key embracing the stationary point 14 and the lever 15. The receiving device embraces the polarized relay 11 and the condensers 6. These condensers are connected in shunt as to said polarized relay and are provided with the switch 10, with the aid of which the telephonic receiver 1 may be shunted at the will of the operator. The polarized relay 11 is provided with means 5 to relay the transmitted impulses to a local circuit. In this drawing, I have only shown the wires adapted to be connected to said local circuit.

In a system wherein the lines of transmission are inductively related to each other, as is illustrated in the accompanying drawing, the transmitted impulses will flow over the circuit as follows: It is supposed that the telegraph operator at the left hand station transmits a message and that the same message is to be received by the operator at the right hand station. The transmitting operator closes the key in accordance with the impulses to be transmitted. Normally, that is, when the key is open, an impulse will flow over the line from the battery 13, because this battery is of higher E. M. F. than the battery 12; but when the key is closed, the battery 13 is short circuited and an impulse will flow over the line from the battery 12, and as soon as the key is opened, the battery 13 will again come in play. Each impulse is only momentary and each impulse impressed upon the conductor 17, will induce an impulse in the conductor 18 and this impulse will actuate at the receiving station, the polarized receiving relay and will return through induction by the other conductors. The same holds good for telephonic impulses. When through the operation of the microphonic diaphragm 2, impulses are generated in the secondary 4, these impulses flowing over the conductor 17, will induce impulses in 18 and these impulses will be received by the telephonic receiver 1 on the right hand side.

In experiments made,—in lines of about fifty miles,—it was found, that when the

relay is shunted by condensers of small capacity (I have used three condensers in series, each of $\frac{1}{2}$ of a M. F.) a telephonic receiver inserted between these condensers will receive the telephonic messages clear and distinct; the telegraphic impulses not interfering with the transmitted speech.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A system for electrically transmitting intelligence comprising at least two stations connected together through lines of transmission, each station equipped with transmitting and receiving organisms, the transmitting organism comprising generators of electricity normally connected to the line and adapted to impress upon said line impulses of opposite polarity and embracing a telephonic transmitter; the receiving organism embracing for each station a polarized relay, a series of condensers in shunt to said relay and a telephonic receiver in series with said condensers.

2. A system for electrically transmitting intelligence comprising at least two stations connected inductively together through lines

of transmission, each station comprising a telegraphic transmitter and a telephonic transmitter, and comprising as a telegraphic receiver a polarized relay and as a telephonic receiver a series of condensers in shunt to said relay, and a telephonic receiver in series to said condensers.

3. In combination with a line of transmission, means to simultaneously telegraph and telephone, said means comprising for the telegraph means to impress upon said line alternating impulses of opposite polarity and a polarized relay as receiver, and comprising for the telephone a microphonic transmitter, source of current and inductorium, the primary connected to said source of current, the secondary connected to the line and comprising condenser and telephonic receiver connected in shunt as to the telegraphic receiver as the means to receive the telephonic impulses.

In testimony whereof I affix my signature in presence of two witnesses.

ISIDOR KITSEE.

Witnesses:

MARY C. SMITH,
ALVAH RITTENHOUSE.