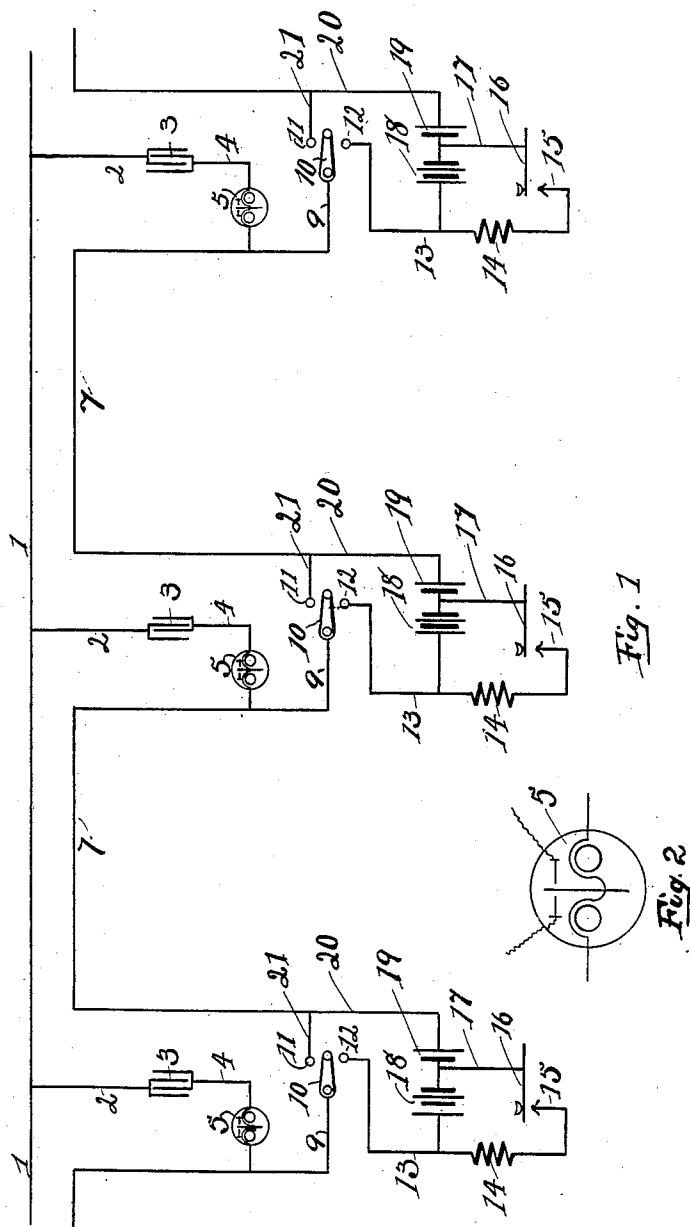


No. 890,661.

PATENTED JUNE 16, 1908.

I. KITSEE.
TELEGRAPHY.

APPLICATION FILED APR. 23, 1906.



WITNESS:
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.

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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 Telegraphy, of which the following is a specification.

My invention relates to an improvement in telegraphy. One of its objects is to produce means whereby with the aid of reversals telegraphic messages may be received simultaneously at a series of stations connected to one circuit.

It is well known that lines of transmission inclosed in a cable cannot well be operated by a straight current and it was proven in actual service that reversals are best suited for such lines. Reversals require polarized receiving instruments and such instruments, especially if they are to be used with a small electric energy, have to be of high resistance; the employment of a large number of such instruments connected in series as to the line is not practicable and I have devised a system whereby with the aid of condensers the receiving instruments may be placed in multiple arc as to the circuit. I have carefully tested the efficiency of the arrangement, as illustrated in the drawing accompanying this specification, and I have found that the same works over a line having more than two-hundred thousand K. R., with three cells.

Referring to the drawing, which illustrates in Figure 1 in diagrammatic view my invention, 1 and 7 are the lines of transmission. These lines embrace three stations, each equipped with the necessary transmitting and receiving devices; the transmitting devices embrace the batteries 18 and 19 and the key 15 and 16. With the aid of this key the battery 18 can be shunted through wire 17 and resistance 14. The wire 7 terminates at each station with the movable switch lever 10 and in juxtaposition thereto are the contact points 11 and 12. The contact 12 is connected through wire 13 with one terminal of the battery 18, the contact 11 connects through wire 21 with the line wire 7 and through wire 20 with one pole of the battery 19.

In the drawing the switch 10 of each of the stations is open, but in practice the switch 10 connects normally with the point 11 and it can readily be seen, that if the switches of

the different stations connect with this contact, the continuity of the line 7 is uninterrupted, but the transmitting battery is cut out of the line. If an operator of any of these stations should desire to transmit messages, he first of all breaks the contact of switch 10 with point 11 and moves this switch, so as to connect with point 12. Through this manipulation the transmitting batteries 18 and 19 are inserted in series as to the line. As the battery 18 consist of a larger number of cells than the battery 19, an impulse will flow over the line from the positive pole of said battery charging the condensers in one direction, thereby actuating the receiving devices. When the key is depressed and the battery 18 thereby short-circuited, an impulse will flow over the line from the positive pole of this battery, that is in opposition to the former impulse. The condensers will be charged in opposite direction and the receiving instrument will thereby be operated in a direction opposite to the former direction. The receiving instrument has to be polarized and is designated by the numeral 5, and is connected with one terminal to line 7 and with the other terminal through wire 4 with condenser 3. This condenser is connected through wire 2 with the line. It has to be stated that the condenser 3 should be of comparative small capacity. I have found, in practice, that one-half a microfarad answers the purpose well where the instruments are wound to a resistance of about three-thousand ohms.

Fig. 2 is a diagrammatic view of the receiving device provided with means to connect the same to a localized circuit, so as to translate the incoming impulses.

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

1. In combination with a line of transmission comprising two metallic legs, means for one of said legs to transmit true reversals and means connected in multiple arc to both of said legs to receive the same said first means comprising two sources of current connected in opposition as to each other, one source of greater E. M. F. than the second source.

2. In telegraphy an all metallic line, a series of transmitting and receiving devices connected each at a different point to said line, the receiving devices connected in multiple arc with the interposition of condensers

as to the line, the transmitting devices embracing sources of current and a transmitting key and means to insert said sources in series as to the line.

5 3. In combination with a line of transmission comprising two metallic legs, means inserted in series at different points in one of said legs to transmit reversals, means in multiple arc to both of said legs to receive said
10 reversals, said means comprising a polarized receiver in series with a condenser, and means to connect electrically said two legs without the interposition of one or the other of said transmitting means.

15 4. In telegraphy a transmitting line, a

series of stations more or less apart, for such line, each station embracing means to transmit true reversals, means to connect the line directly or with the interposition of said transmitting means; and means to receive 20 true reversals, said receiving means embracing a polarized relay and a condenser connected in multiple arc as to the line.

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

ISIDOR KITSEE.

Witnesses:

ALVAH RITTENHOUSE,
MARY C. SMITH.