No. 850,231. PATENTED APR. 16, 1907.

I. KITSEE.

TELEGRAPHY.

APPLICATION FILED APR. 24, 1906.

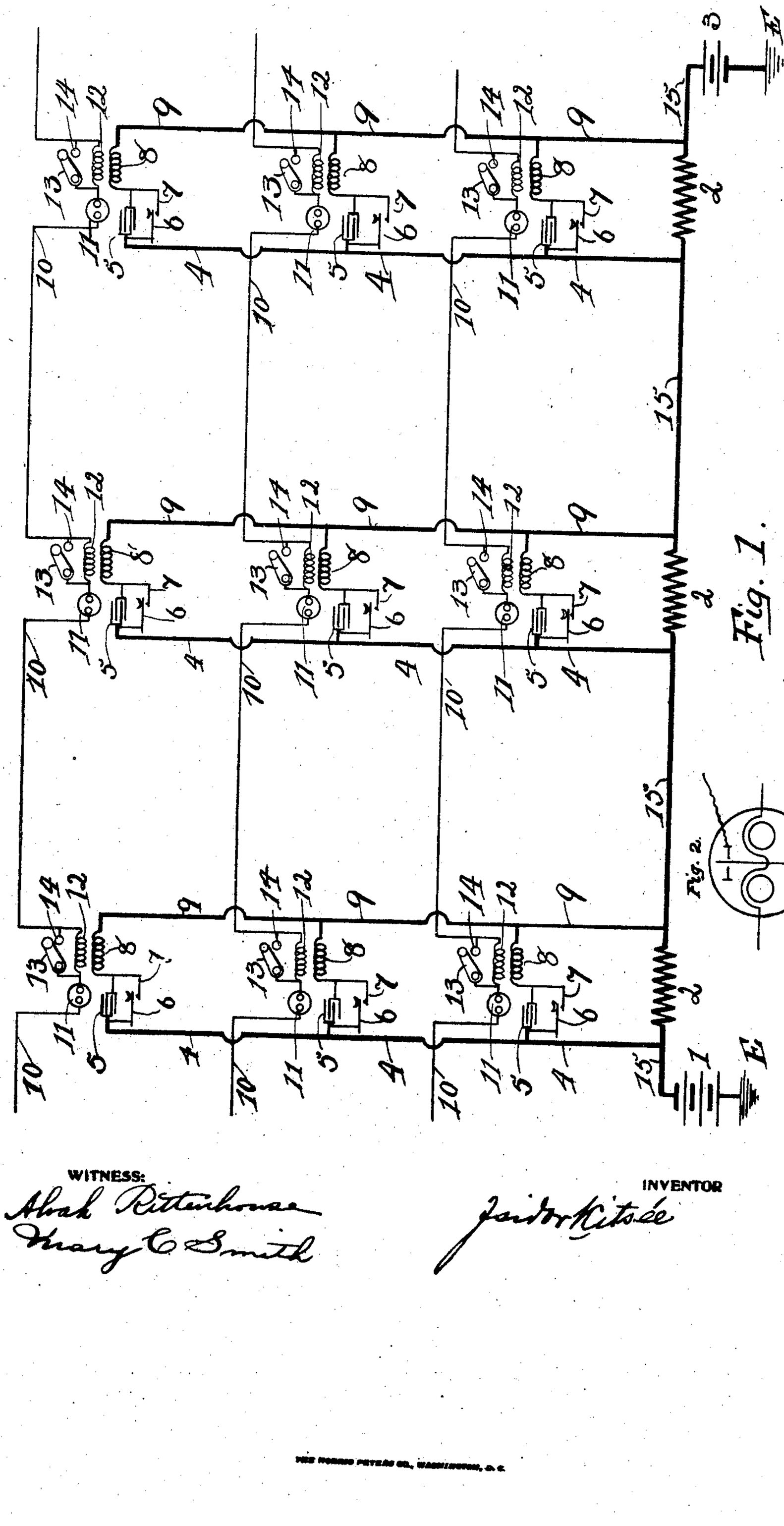

Fig. 1.

Fig. 2.

WITNESS:

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TELEGRAPHY.

No. 850,231. Specification of Letters Patent. Patented April 16, 1907.

Application filed April 24, 1906. Serial No. 313,420.

To all whom it may concern:

Be it known that I, ISIDOR KITSEE, a 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, and has more special reference to the electric energy of such lines.

Telegraphic lines strung overhead have the source of current, generally batteries, connected to their terminals. Each station is equipped with a transmitting-key. The line is normally closed, but when the operator desires to telegraph he opens the line and then closes the same through the lever of the key for each impulse to be transmitted. In this case the line remains open for the spacing of the impulses. As long as the key is depressed all the receiving instruments of the different stations are energized, but when the key is relased the line is broken. The instruments are therefore deënergized. With this system the energy is easily applied, as only the terminals of each line are connected to the batteries.

In a system where the lines of transmission are inclosed in a cable the working of the ordinary Morse with a straight current is into practical, for the reason that the line chokes after a short working time. Telegraphing with reversals has to be substituted in such cases; but the change of polarity of the transmitting-current requires that at each station and for each line the necessary amount of batteries should be present. To obviate such difficulty is the aim of my invention.

In the drawings, Figure 1 is a diagrammatic view of the herein-described invention. Fig. 2 is a similar view of the receiving device.

To obviate misunderstanding, I name the circuit containing or supplying the source of current the "feed-circuit" or "feed-wire" and the circuit adapted for telegraphic purposes the "working circuit" or "working line."

I have illustrated one feed-wire and three working lines, each working line provided with three stations, all the stations and all the working lines receiving their electric energy from the one common feed-wire.

Similar numbers indicate similar parts in the drawings.

15 is the feed-wire provided with the resistances 2 and the sources of current 1 and 3. These sources are shown in the drawings as grounded at E; but it is obvious that for this ground a return-wire may be substituted. One of the resistances 2 is placed at each of the three stations.

I will describe one station of one of the working lines, it being understood that the other stations of the same, as well as the other working lines, are only duplicates thereof. The terminals of the resistances 2 are connected to the wires 4 and 9, and in multiple arc to these wires is connected the primary 8 of an inductorium with the interposition of the condenser 5. This condenser has in shunt a transmitting-key consisting of the stationary point 7 and the movable lever 6. The secondary 12 of this inductorium is connected in series to the working circuit, and in series thereto is also connected the polarized receiving device 11. The working lines are designated by the numeral 10. As the secondary of an inductorium is of considerable resistance and as some of the working lines are in practice provided with a great number of stations, each necessarily including a secondary, it is best to cut these secondaries out of the line if the same are idle, and I have provided for this purpose a switch embracing the movable part 13 and the stationary part 14. Normally—that is, when the station is idle—the current will flow over the feed-wire, and therefore through the resistances 2, but no current will flow through any of the primary coils 8, for the reason that the condenser 5 is an effectual bar to the flow of a unidirective current. Normally also all the secondaries 12 are shunted or short-circuited through the switch 13 and 14. When now the operator desires to telegraph messages, he first of all opens the switch-handle 13 and then manipulates the lever 6 of the key in the same manner as he manipulates the transmitting-key of to-day. He depresses the key for a short time to denote a dot and for a long time to denote a dash. Through the depression of the lever 6 the condenser 5 is short-circuited or shunted, and the current from the feed-wire can now flow through the primary 8, thereby inducing a current of oppo-

site direction in the secondary 12 of the working line. The receiving device 11 is a polarized relay, and this impulse will move the armature to one or the other of the contact-points. The relay is so constructed that the armature will rest against this contact-point till an impulse of opposite polarity will remove the armature from this point and will bring it in contact with the opposite point. The receiving device—a polarized relay—is provided with means to operate a local circuit containing a sounder or other translating device. When the operator desires to transmit a dot, he depresses the key for a short time, which sends an impulse of one polarity over the line and releases the key after this short impulse, which inducing again an impulse, but of opposite polarity, over the working line removes the armature from its former resting-place and brings it to the opposite resting-place. The receiving device is so organized that it closes a local circuit when resting at one point, but opens the local circuit when resting at the opposite point. It is therefore obvious that the operator has it in his power to allow the translating device to be energized for any period he wishes to designate.

As clearly shown in the drawings, the feed-wire 15 furnishes the current for three stations, each station having three working lines; but it is obvious that any reasonable amount of working lines provided with a reasonable number of stations can be fed from this one wire.

In Fig. 2 I have shown in diagrammatic view the receiving device and the means whereby the same may be connected to a local circuit.

The value of the resistance 2 should be greater than the value of the resistance of the primary coil 8, as otherwise very little current would flow through this coil.

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

1. In telegraphy, a feed-circuit, a source of current therefor, a working circuit associated with said feed-circuit and deriving its energy solely from said feed-circuit, a transmitting device connected in parallel with the feed-circuit and including a converter the primary of which is connected to the feed-circuit and the secondary of which is connected to the working circuit, means associated with the primary to normally prevent flow of the current therethrough, and means to shunt said means in accordance with the characters to be transmitted.

2. In telegraphy, a feed-circuit, a source of current therefor, a working circuit associated with said feed-circuit and deriving its energy solely from said feed-circuit, a transmitting device connected in parallel with the feed-circuit and including a converter the primary of which is connected to the feed-circuit and the secondary of which is connected to the working circuit, a condenser connected in series with said primary to normally prevent flow of the current therethrough, and a key connected around said condenser to shunt the latter in accordance with the characters to be transmitted.

3. In telegraphy, a feed-circuit, a source of current therefor, a working circuit associated with said feed-circuit and deriving its energy solely from said feed-circuit, a transmitting device connected in parallel with the feed-circuit and including a converter the primary of which is connected to the feed-circuit, and the secondary of which is connected to the working circuit, a resistance device arranged in the feed-circuit and bridging the terminals of the transmitting device, said resistance device having a greater resistance value than said primary to deflect the current to the transmitting device, means associated with the primary to normally prevent flow of the current therethrough, and means to shunt said means in accordance with the characters to be transmitted.

4. In telegraphy, a feed-circuit, a source of current therefor, a working circuit associated with said feed-circuit and deriving its energy solely from said feed-circuit, a transmitting device connected in parallel with the feed-circuit and including a converter the primary of which is connected to the feed-circuit and the secondary of which is connected to the working circuit, a resistance device arranged in the feed-circuit and bridging the terminals of the transmitting device, said resistance device having a greater resistance value than said primary to deflect the current to the transmitting device, a condenser connected in series with said primary to normally prevent flow of the current therethrough, and a key connected around said condenser to shunt the latter in accordance with the characters to be transmitted.

5. In telegraphy, a feed-circuit, a source of current therefor, a working circuit associated with said feed-circuit, and deriving its energy solely from said feed-circuit, a transmitting device connected in parallel with the feed-circuit and including a converter the primary of which is connected to the feed-circuit and the secondary of which is connected to the working circuit, means associated with the primary to normally prevent flow of the current therethrough, means to shunt said means in accordance with the characters to be transmitted, and a polarized receiving device connected in the working circuit with the secondary of said converter.

6. In telegraphy, a feed-circuit, a source of current therefor, a working circuit associated with said feed-circuit and deriving its energy solely from said feed-circuit, a transmitting device connected in parallel with the feed-

circuit and including a converter the primary of which is connected to the feed-circuit and the secondary of which is connected to the working circuit, means associated with the primary to normally prevent flow of the current therethrough, means to shunt said means in accordance with the characters to be transmitted, a polarized receiving device connected in the working circuit with the secondary of said converter, and a switch connected around said secondary to short-circuit the latter when the same is idle.

7. In telegraphy, the combination with a feed-circuit, and a source of current therefor, of a series of branch circuits leading from said feed-circuit, resistance devices included in said feed-circuit and bridging the terminals of the branch circuits, a series of working circuits associated with the feed-circuit and deriving their energy solely from the feed-circuit, a series of stations for each of said working circuits, an inductorium at each of said stations, a condenser connected with the primary of said inductorium and bridged across the branch circuit, the secondary of said inductorium being connected in series with the working circuit, and means to shunt said condenser in accordance with the characters to be transmitted.

8. In telegraphy, the combination with a feed-circuit, and a source of current therefor, of a series of branch circuits leading from said feed-circuit, resistance devices included in said feed-circuit and bridging the terminals of the branch circuits, a series of working circuits associated with the feed-circuit and deriving their energy solely from the feed-circuit, a series of stations for each of said working circuits, an inductorium at each of said stations, a condenser connected with the primary of said inductorium and bridged across the branch circuit, the secondary of said inductorium being connected in series with the working circuit, and a key arranged around said condenser to shunt the latter in accordance with the characters to be transmitted.

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

ISIDOR KITSEE.

Witnesses:
MARY C. SMITH,
ALVAH RITTENHOUSE.

Corrections in Letters Patent No. 850,231.

It is hereby certified that in Letters Patent No. 850,231, granted April 16, 1907, upon the application of Isidor Kitsee, of Philadelphia, Pennsylvania, for an improvement in "Telegraphy," errors appear in the printed specification requiring correction, as follows: In line 23, page 1, the word "released" should read *released*, and in line 30, same page, the word "into" should read *not;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of April, A. D., 1907.

[SEAL.]

F. I. ALLEN,

Commissioner of Patents.