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I. KITSEE.

METERING OF TELEPHONIC SERVICES.

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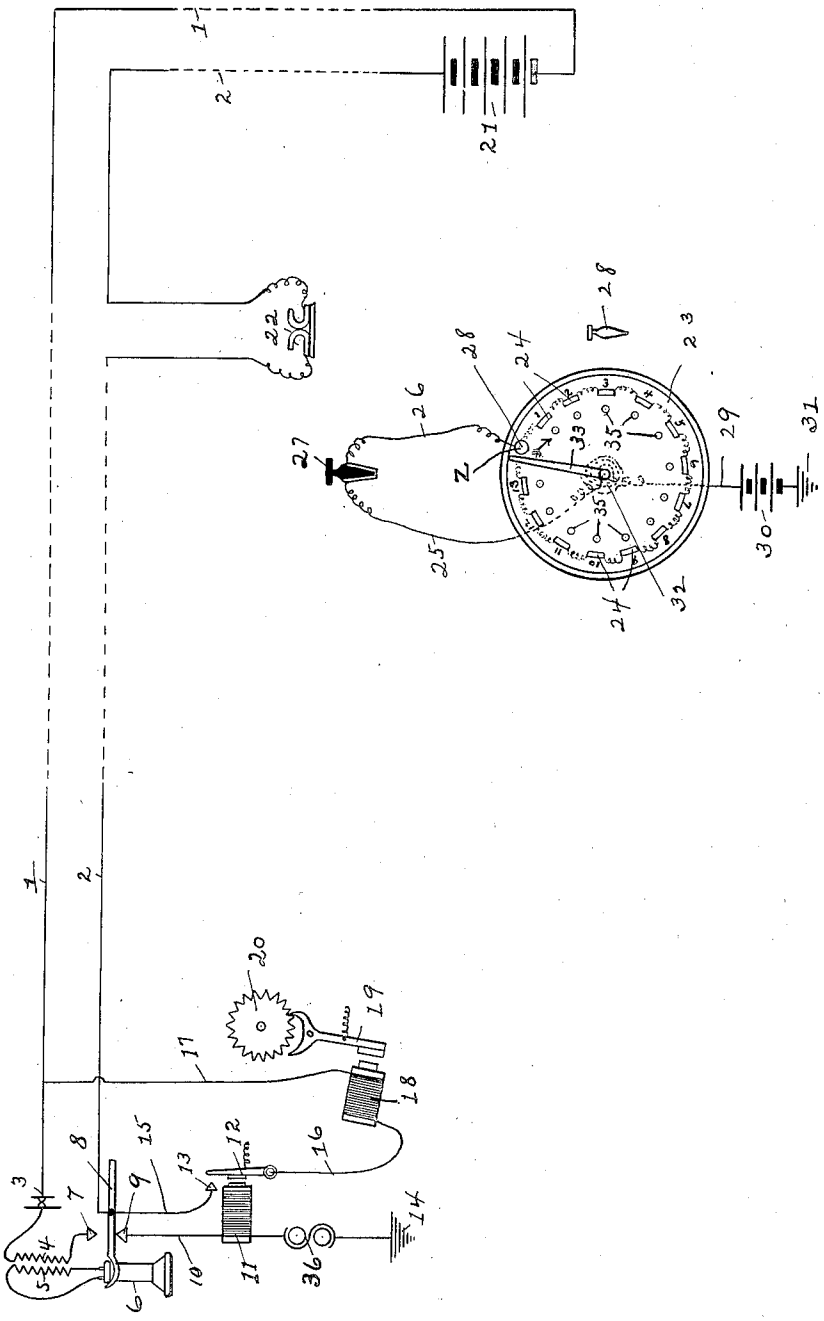

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METERING OF TELEPHONIC SERVICES.

No. 817,920. Specification of Letters Patent. Patented April 17, 1906.

Application filed October 29, 1904. Serial No. 230,587.

To all whom it may concern:

Be it known that I, ISIDOR KITSEE, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in the Metering of Telephonic Services, of which the following is a specification.

My invention relates to an improvement in telephony, and has more special reference to the metering of telephonic services.

Referring to the drawing, the figure illustrates in diagram a telephonic circuit embodying my invention.

1 and 2 are the line-wires connecting the central or exchange with an outlying-subscriber circuit.

3, 4, 5, and 6 are the usual telephonic devices placed at the subscriber's station, and as these devices do not form part of my invention I do not deem it necessary to go into detail as to the construction or working of same.

The line 2 is, as usual, connected with the movable lever or hook 8, and the wire 1 terminates, as is usual, with the point 7, which point is normally out of contact with the hook 8, but is brought in contact with said hook through the removing of the receiver 6 from said hook. The hook 8 rests, as is general, on the point 9 in electrical contact with the wire 10, grounded with the interposition of the usual annunciating device 36 at 14. So far the connection and arrangement do not need to differ from the connections and arrangements as are generally employed in the systems of to-day; but in the circuit consisting of the wire 10 is placed the electromagnet 11, provided with the armature 12, and to the lever 8 is connected the wire 15, terminating in the point 13. The armature 12 is connected, through wire 16, with the coil of the electromagnet 18, the other terminal of which is connected, through wire 17, with the wire 1.

Normally the armature is with the aid of its spring drawn away from the core of the electromagnet 11, and therefore out of contact with the point 13; but should the electromagnet 11 be magnetized then the armature 12 will be drawn toward its core and in contact with point 13, thereby closing a circuit in multiple arc as to the lines 1 and 2. The electromagnet 18 is provided with the armature 19, acting as the step-by-step device for the wheel 20. This wheel 20 is adapted to move the necessary wheels of the metering device, (not shown, as this part of a metering device is well understood by persons versed in the art.)

At the central or exchange is placed the common battery 21 and the spring-contacts 22. At this exchange is also placed the mechanism adapted to actuate the meter, consisting of the dial 23, provided with the contacts 24 and the contact-arm 33. The contacts 24 are connected with wire 26, and the contact-arm 33 is connected with wire 25, both wires terminating in contacting plates of the plug 27. The dial is also provided with the holes 35.

The battery 30, grounded at 31, is connected electrically through wire 29 with the contact-arm 33. The plug 28 is normally placed in the hole Z, and the contact-arm 33 rests against the plug in its zero position.

The *modus operandi* of practicing this my invention is as follows: The outlying subscriber in taking the receiver from the hook notifies in the usual manner the operator at the exchange that he wishes to communicate with one or the other of the subscribers centering in said exchange. The operator makes the usual connections and after the ceasing of the communication calculates the charge for same. After disconnecting the calling subscriber from the subscriber called she inserts the plug 27 between the spring-contacts 22. Through this insertion the circuit consisting of the wires 25 and 26, with their appended contacts and contact-arm, is inserted in series in the line 2; but at the same time the grounded battery 30 is also connected to that part of the line 2 which runs to the subscriber's station and is therein grounded at 14. Through this connection the electromagnet 11 becomes energized, and the armature 12 is drawn toward and in contact with the point 13, thereby closing the circuit consisting of wires 15, 16, and 17 and electromagnet 18. The operator now removes the plug 28 from the hole marked Z and inserts the same in the hole opposite the contact representing the value of the charge for the communication just ended, and the contact-arm 33 will, impelled by the spring or similar means 32, travel in the direction as indicated by the arrow, thereby making and breaking the contact till it reaches the hole wherein the plug 28 is inserted. It is supposed that the subscriber had a conversation with a second subscriber for a length of time for which, say, five cents are charged.

The operator, therefore, after removing the plug 28 from the hole Z inserts the same in the hole opposite the contact designated by the figure 5, and the arm 33 in traveling from its zero position to contact 5 will make in succession the circuit five times. Through this making and breaking of the circuit the electromagnet 18 at the subscriber's station will be magnetized five times, and the wheel 20 will be moved five teeth, which in turn will actuate the indicator in a manner so that the finger of same shall point to the number "5," thus showing the subscriber that he is charged five cents for his call.

It will be seen that the simple placing of the plug 27 between the contact-springs 22 and the simple removing of the plug 28 from its normal position to the position designating the charge for the call will effectually indicate the charge for said call at the subscriber's station, and, if it is desired, a similar arrangement as that placed at the subscriber's station can be placed at the exchange, so that the exchange, as well as the subscriber, may have means whereby the charge is indicated.

As the annunciating device 36, placed at the subscriber's station, is of the usual type answering only to an alternating current of high potential, it is obvious that the current of the battery 30, located in the exchange will not unduly affect the same; but I prefer that the electromagnetic device 11 12 and the electromagnetic device 18 19 should answer only to one polarity of a flowing current. In other words, I prefer that the armatures 12 and 19 should be polarized. The action of a polarized electromagnet is so well understood that its working does not need to be more specially pointed out here.

I have not in the figure shown any of the devices usually employed at the exchange—such, for instance, as jacks and plugs for same or operator's phones, annunciating-lamps, &c.—because these devices may differ in construction according to the particular system used and do not in the least affect the working of my invention, and such devices may be inserted in the circuit at the places designated by dotted lines.

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

1. In a telephonic system wherein the outlying subscriber centers through a circuit in an exchange, means at said exchange to register the value of the conversation at the outlying station, said means embracing at the exchange automatic means to make and break a circuit in accordance with the value to be registered, means to connect this make-and-break means to the circuit of the subscriber and a grounded source of current for said make-and-break means, and which embraces at the subscriber's station a registering device.

2. Means to register the service of a telephonic circuit connecting an outlying station to a center or exchange, said means embracing at the outlying station a branch circuit including electromagnetic means to actuate a registering device, a registering device, and electromagnetic means to open and close said branch circuit, and embracing at the exchange a source of current adapted to make operative said circuit-closing means, a series of contacts, movable contacting means, means to start the movement of said contacting means, means to estop said means, means to connect the terminals of the contacts and contacting means to the telephonic circuit and a source of current for said circuit.

3. In a telephonic system wherein the outlying station centers in an exchange, means at said exchange to register at said outlying station the value of a conversation, said means embracing at the central an automatic make-and-break device, a grounded source of current connected to said device, means to stop said automatic device at the will of the operator, means to connect said device to one leg of the circuit of the outlying station; the means at the outlying station embracing a registering device connected to one leg of the circuit and adapted to be connected to the other leg of said circuit through the operation of the armature of a grounded electromagnet.

In testimony whereof I hereby sign my name, in the presence of two subscribing witnesses, this 27th day of October, A. D. 1904.

ISIDOR KITSEE.

Witnesses:
EDITH P. STILLEY,
H. C. YETTER.