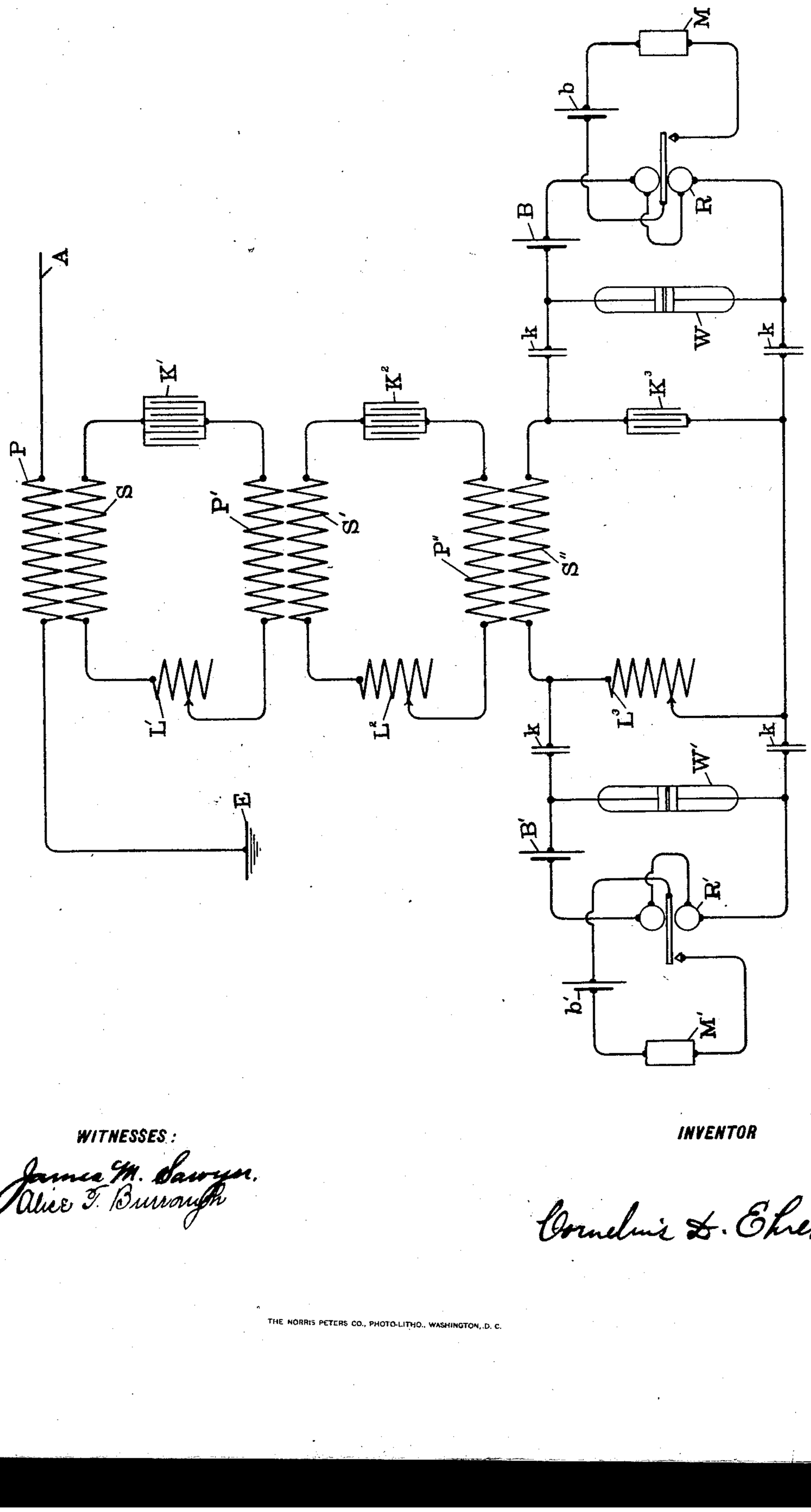
No. 734,048 PATENTED JULY 21, 1903.

C. D. EHRET.

WIRELESS SIGNALING SYSTEM.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.



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No. 734,048. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

CORNELIUS D. EHRET, OF ARDMORE, PENNSYLVANIA, ASSIGNOR TO CONSOLIDATED WIRELESS TELEGRAPH AND TELEPHONE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF ARIZONA TERRITORY.

WIRELESS SIGNALING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 734,048, dated July 21, 1903.

Application filed December 2, 1902. Serial No. 133,546. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS D. EHRET, a citizen of the United States, residing at Ardmore, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Wireless Signaling System, of which the following is a specification.

My invention relates to signaling systems, more especially those in which electroradiant energy is transmitted through the natural media and represents a signal or message.

More especially my invention relates to the arrangement of circuits of the receiver whereby very sharp selectivity is attained.

By my system the electroradiant energy is received upon a suitable receiving conductor or conductors and produces therein fluctuating electric currents of a frequency equal to that of the transmitted energy. The receiving-conductor is itself so adjusted as to its electrical constants as to be selective of energy of a predetermined frequency, and associated with such receiving conductor or circuit are one or more circuits, each of which is also adjusted as to its electrical constants as to be selective of currents of a frequency equal to that of the transmitted energy. These circuits are preferably arranged inductively in tandem with each other, and the capacity and inductance of the first circuit will produce a product equal to the product of the capacity and inductance of each succeeding circuit; but it is my intention to have a relatively great capacity in the circuit nearest the receiving conductor or circuit, while the inductance is relatively small. In the next circuit the capacity is relatively smaller and the inductance relatively greater, and so on in each succeeding circuit the capacity becomes relatively smaller, while the inductance becomes relatively greater, the product of the capacity and inductance being the same for each circuit.

Referring to the accompanying drawing, A represents the usual aerial conductor of a wireless signaling system, between which and the earth-plate E is connected the primary P of the transformer. A may, however, represent a metallic line conductor of an ordinary telegraphic or signaling system, upon which have been impressed alternating currents of a definite frequency and controlled to represent a signal or message.

S represents the secondary of the transformer, and in circuit therewith are the capacity or condenser K′, inductance L′, and the primary P′ of a second transformer.

S′ is the secondary associated with the primary P′, and in circuit therewith are the condenser K^2, inductance L^2, and the primary P″ of a third transformer. S″ is the secondary of this third transformer, in circuit with which are the condenser or capacity K^3 and the inductance L^3.

The circuits just described are inductively connected with each other in tandem, and, as shown, the capacity of the several circuits becomes progressively smaller, while the inductance becomes progressively greater. The product of capacity and inductance of each circuit is, however, equal to the product of capacity and inductance of every other circuit.

The resistance of each circuit is maintained as low as consistent with other requirements.

The inductances are shown as adjustable, and, in fact, these inductances are not the entire inductance of a circuit, inasmuch as the primary and secondary windings also constitute a portion of the total inductance of a circuit. The capacities are also adjustable.

In shunt to the inductance L^3 is connected the wave-responsive device W′, which controls the usual local circuit including the relay R′ and the source of energy B′. The relay R′ controls the local circuit including source of energy *b*′ and recording device M′.

In shunt to the condenser K^3 is the wave-responsive device W, which controls the local circuit embracing the source of energy B and the relay R. The relay R controls a local circuit including source of energy *b* and recording device M.

Condensers *k* are connected between the wave-responsive devices and the inductance L^3 and the condenser K^3 for the purpose of preventing the relay-batteries from normally energizing the relays.

With the product of the capacity and inductance K′ and L′ being adjusted the circuit including them becomes selective of a certain message or signal represented by electroradiant energy of a definite frequency. This selectivity is, however, not very sharp, because of the relatively great amount of capacity. With the product of the capacity and inductance remaining the same throughout the tandem circuits and progressively increasing the inductance and correspondingly decreasing the capacity the selectivity becomes sharper and sharper. In consequence in the circuit including the inductance L^3 and condenser K^3 the selectivity is the sharpest, and any stray or undesired harmonics will not produce effects in this most sharply selective circuit to produce any false or undesired signal.

It is of the essence of my invention, therefore, that the receiving-circuits become progressively more sharply selective, to the end that none but the desired electroradiant energy shall be able to influence the receiving apparatus.

Though I have shown a recorder controlled by both the inductance and capacity of the more sharply selective circuit, it is to be understood that only one is necessary, and it is of course preferred that the wave-responsive device in such case be connected in shunt to the inductance.

What I claim is—

1. In a wireless signaling system, a receiving-conductor, a plurality of circuits associated therewith, the circuits becoming more sharply selective as their association with the receiving-conductor becomes more remote, and signal-producing means controlled by the most sharply selective circuit.

2. In a signaling system, a receiving-conductor, a circuit associated therewith and selective of the transmitted energy, a further circuit associated therewith and more sharply selective of the transmitted energy, and a signal-producing means controlled by the more sharply selective circuit.

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Witnesses:
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