

(No Model.)

M. BROOKS & H. R. MASON.

TELEPHONE CIRCUIT.

No. 323,269.

Patented July 28, 1885.

Fig. 1.

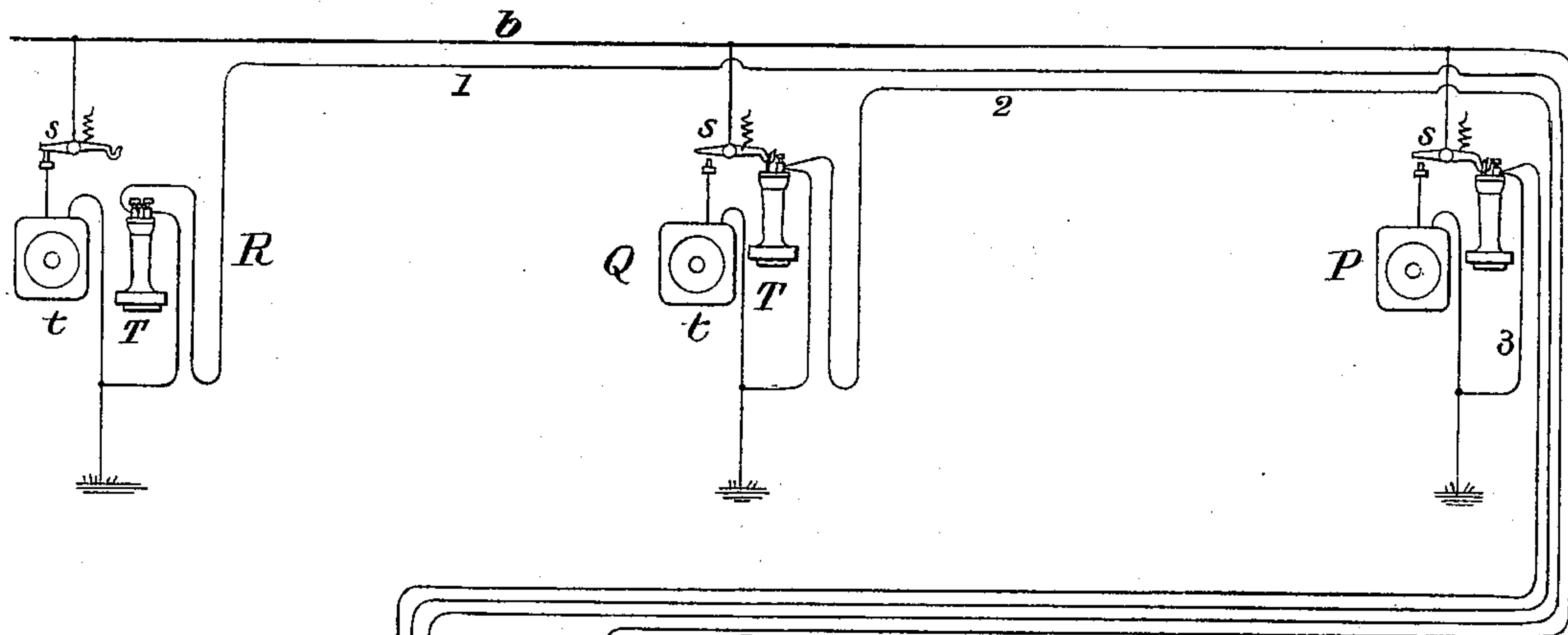
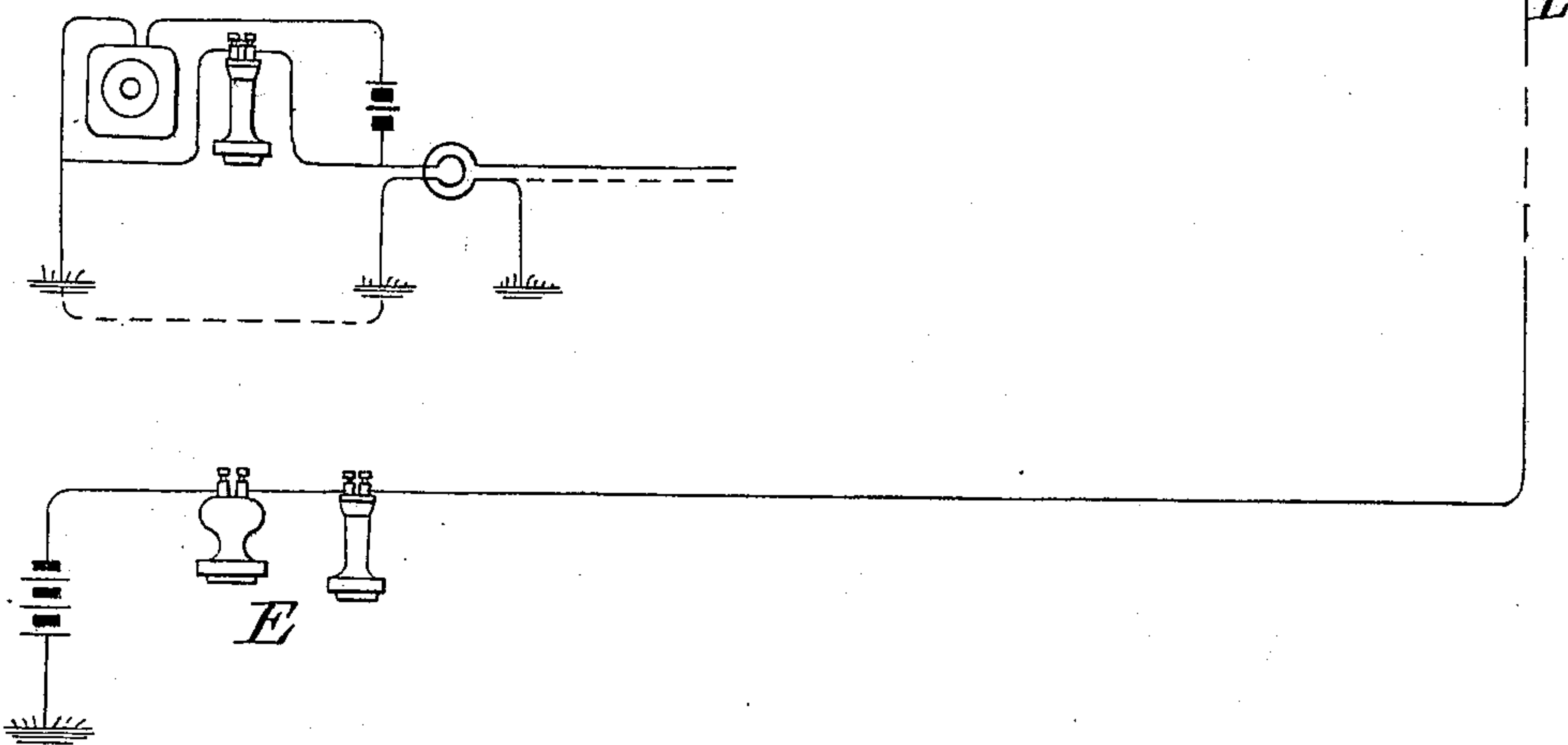


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

MORGAN BROOKS AND HOWELL R. MASON, OF BOSTON, MASSACHUSETTS.

TELEPHONE-CIRCUIT.

SPECIFICATION forming part of Letters Patent No. 323,269, dated July 28, 1885.

Application filed April 20, 1885. (No model.)

To all whom it may concern:

Be it known that we, MORGAN BROOKS, residing at Boston, in the county of Suffolk and State of Massachusetts, and HOWELL R. MASON, of Boston, in said county and State, have invented certain Improvements in Telephone-Circuits, of which the following is a specification.

The object of our invention is to render a single centrally-located set of telephone-instruments available for use by a series of surrounding or sub stations.

The telephone set in a hotel, for instance, is usually located in the hotel office, and is in connection with the telephone-exchange. Calls are frequently received for guests having rooms in the hotel, and a means of putting such guests into direct telephonic communication with a correspondent is very desirable. It is not always convenient or economical to locate a complete telephone-set at each room and carry the main wire to each and every sub-station. To avoid this difficulty, and afford the desired facilities in applying our invention to a hotel, for instance, we provide means at each room or sub-station for connecting the telephone receiver and transmitter there located into the primary of an induction-coil forming part of the telephone-set located at the office or main station. Each room or sub-station is connected with the office by an individual or separate wire. There is a common battery-circuit embracing a suitable battery located at the office and having normally-open branches to each room. We find it most advantageous to use a receiving-telephone of comparatively low resistance connected into one branch with the battery, and variable contact-points in a second branch, and the primary coil in a third branch. The circuit of the receiving-telephone in each room is controlled by a switch located at the office. Overhearing between rooms is thus prevented.

In the accompanying drawings, Figure 1 illustrates our invention. Fig. 2 is a theoretical diagram.

In Fig. 1, O is a telephone-set, as here shown, having a direct-working transmitter located in the office of a hotel and connected with the telephone-exchange E by a wire, L. At the

office, and forming part of the set, there is an induction-coil, I, the secondary of which is in line L. At each of a series of rooms or apartments, P Q R, there is a receiving-telephone, T, and battery-transmitter *t*, of any known or desired form. One terminal of the primary coil *p* is connected to the ground or a return-wire. The opposite terminal leads to a switch, *k*, from which a series of wires, 1 2 3, lead one to each room or sub-station. From the same terminal of coil *p* a battery-wire; *b*, includes a suitable battery, B, and has normally-open branches connected to the gravity-switches in each room. At each sub-station the battery-transmitter has one terminal connected to ground or a return-wire. The opposite terminal is connected to a contact-stop, upon which the gravity-switch rests when in a retracted position. We connect the individual wire through the receiving-telephone at a sub-station to a point between the transmitter and ground or return wire. This arrangement results in the connections of circuits theoretically delineated in Fig. 2, where there are three branches, one containing the receiving-telephone, the second containing the battery and transmitter, and the third the primary of the induction-coil. In practice we arrive at the best results by making the resistance of the receiving-telephone branch intermediate between the other two. The primary-coil branch, however, should have the lowest resistance.

An alarm bell or indicator should form part of the set at each sub-station, so arranged that when the telephone is on the hook the bell will be in the circuit of the individual wire. A similar arrangement should be made for the office.

When a call is received at the office for communication with a sub-station—as, for instance, station R—the sub-station is notified, and upon removing his telephone from the hook, circuits are formed as follows: first, from ground through primary coil *p*, battery B, wire *b*, switch *s*, transmitter *t* to ground or return wire; second, from primary *p*, via switch *k*, line I, receiving-telephone T to a point between the transmitter and its return or ground. There are thus formed three branch circuits between the primary coil of a telephone-set located at some central point and a receiving and transmitting

telephone at a sub-station, the use of the receiving-telephone being entirely under control of the attendant at the central point, whereby overhearing is avoided between sub-stations, and communication may be had by the sub-station over line L with the same facility as if the correspondent were at the main-office telephone-set.

What we claim, and desire to secure by Letters Patent, is—

1. The combination of a main line containing the secondary of an induction-coil the primary of which is connected with a circuit composed of three branches, the first of which contains the said primary coil, the second the transmitter and battery, and the third a receiving-telephone.

2. The combination of a main line containing the secondary of an induction-coil the primary of which is connected with a circuit composed of three branches, the first of which contains the primary coil and is of the lowest resistance, the second the transmitter and battery and is of the highest resistance, and the third the receiving-telephone having an intermediate resistance.

3. The combination of a set of telephonic communicating-instruments located in the main line at one station and a sub-station equipped with a telephone and transmitter connected with the primary of the induction-coil located at the main station by three branches containing, respectively, the receiving-telephone, the battery and transmitter, and the said primary coil.

4. The combination of a line for telephonic communication containing the secondary of an induction-coil with a circuit connecting with a second station and composed of three branches, the first of which contains a battery-transmitter and a battery with a controlling-switch located at the sub-station, the second a telephone with a controlling-switch at the

main station, and the third the primary of the said induction-coil.

5. In a system of telephonic communication, the combination of a telephone located in a circuit composed of three branches connecting two stations and an induction-coil having its primary in one of the multiple-arc branches and its secondary in a line extending to a third station.

6. The combination of a main line with a receiving and transmitting telephone and the secondary of an induction-coil located therein, the primary of said coil having one terminal connected to a return-wire or the ground and having the other terminal connected to two or more branches extending to sub-stations.

7. In a system arranged for telephonic communication, the combination, at one station, of a receiving-telephone, a transmitting-telephone, and an induction-coil having its secondary in the main line and its primary extending to one or more sub-stations, each of which is equipped with a transmitting-telephone, a receiving-telephone, and suitable battery power.

8. A telephone-line containing the secondary of an induction-coil, and a local circuit containing the primary of said coil, a battery-transmitter, and battery combined with a receiving-telephone in a branch circuit the terminals of which are respectively connected to the local circuit at points upon opposite sides of the said transmitter, substantially as described.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 17th day of 80 April, 1885.

MORGAN BROOKS,
HOWELL R. MASON.

Witnesses:

WM. B. VANSIZE,
GEO. WILLIS PIERCE.