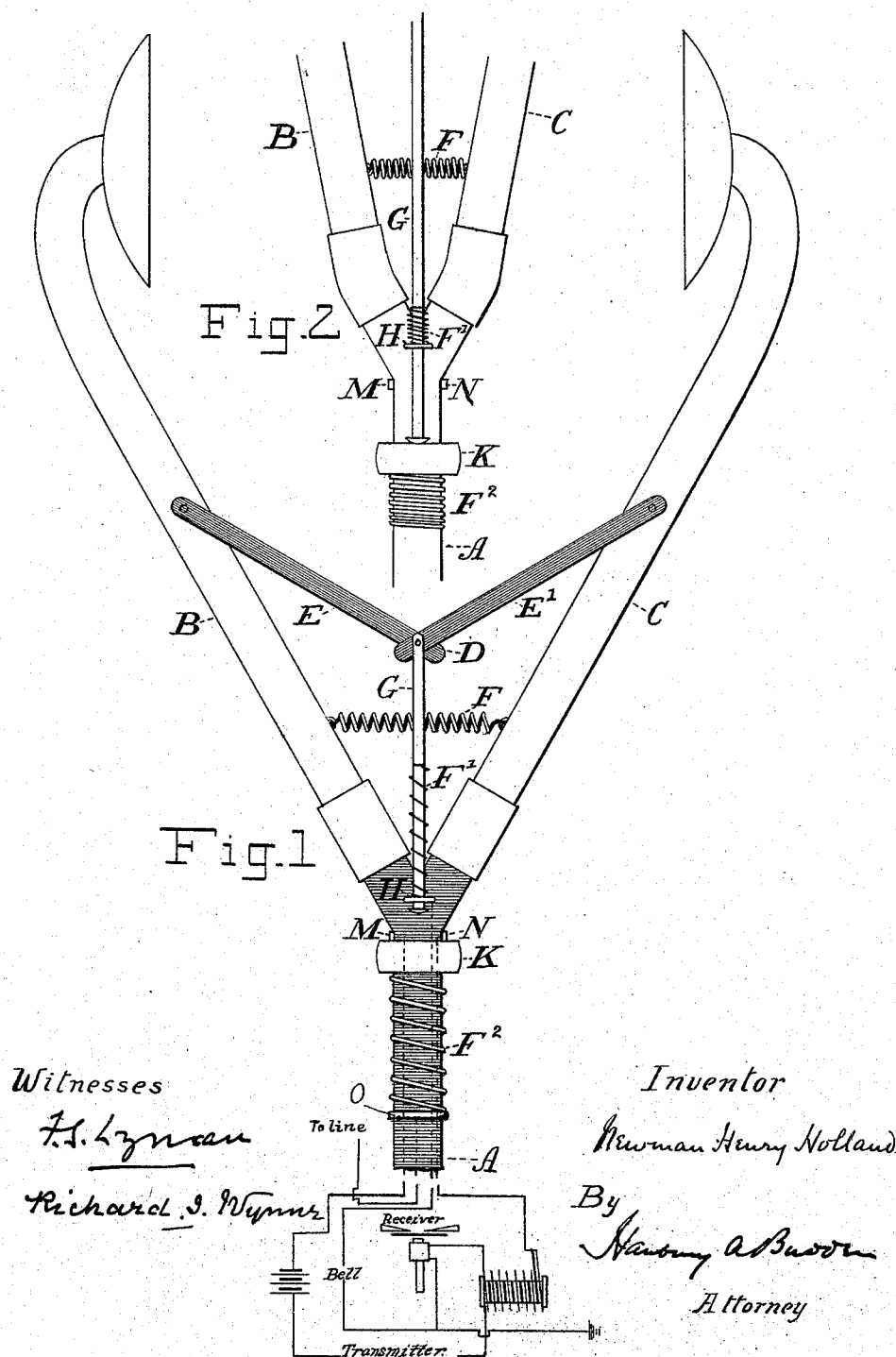


(No Model.)

N. H. HOLLAND.
AUTOMATIC TELEPHONE SWITCH.

No. 535,540.

Patented Mar. 12, 1895.



UNITED STATES PATENT OFFICE.

NEWMAN H. HOLLAND, OF MONTREAL, CANADA.

AUTOMATIC TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 535,540, dated March 12, 1895.

Application filed August 10, 1894. Serial No. 519,954. (No model.)

To all whom it may concern:

Be it known that I, NEWMAN HENRY HOLLAND, a subject of Her Majesty the Queen of Great Britain, residing at Montreal, in the Province of Quebec, in the Dominion of Canada, have invented a new and useful Improvement in Automatic Telephone-Switches, of which the following is a specification.

My invention relates to an automatic telephone switch which operates in such a way that when a person takes the instrument attached to the receiver, and applies it to his ears, he thereby connects the talking circuit to line, and cuts in the battery circuit when there is one, while the action of leaving the instrument free cuts out the talking circuit and battery circuit when present, and cuts in the bell, or signaling circuit.

The switch is operated by two tubular ear-pieces, connected to a single tube leading to the receiver. The two ear-pieces are so flexibly jointed that they can fold together, and are held in this position when free, by the tension of a spring, or equivalent device. In this position the bell or signal circuit is connected with line, the other circuits being cut out.

To use the receiver, the two ear pieces are separated, in order to allow the head of the operator to be inserted and to adjust the terminals of the ear-pieces to the ears. The action of spreading or separating the ear-pieces causes the bell circuit to be cut out, at the same time the transmitter circuit and battery circuit, if there be one, are cut in, and the connections are complete for intercommunication.

The objects of this method of actuating a telephone switch are the following:

First, the receiver itself being stationary, can be made with a stronger permanent magnet, and with a more complete magnetic circuit.

Second, the magnet used for the generator of the bell circuit can thus be used for the receiver. There is no shell required for the receiver, as it can be placed in the magneto-cabinet, thus economizing space and materials.

Third, the certainty in the connections of the bell circuit when not in use and the avoidance of wasting the battery, which occurs with the lever switch, when the hand telephone is not replaced in its proper support, but with

this switch the battery circuit being always cut out when the instrument is not in use.

Fourth, the ear-pieces reaching both ears will enable the operator to hear better than with the single hand telephone, while at the same time local noises will be better excluded. The injurious result of using one ear only will also be avoided.

Fifth, the fatigue and inconvenience of holding the receiver to the ear are avoided, and the hands are thereby left free for other purposes.

For the purpose of illustrating the invention, I shall describe one arrangement of a switch so actuated, which I have found to work well.

Reference being made to the annexed drawings, Figure 1 shows the instrument when in use; Fig. 2, part of the instrument at rest.

A is a tube attached to the receiver at one end, and dividing into two tubes at the other end.

B and C are tubes connected respectively to the two ends of A by flexible joints, and at their other ends fitted with suitable ear-pieces. These tubes are pivoted at D by means of the arms E and E'. The tubes are drawn close together by the tension of the spring F, or equivalent device, when free and not in use, the bar G attached to the pivot D, passing through a ring, H, with which it has a sliding contact by means of the spring F'. The ring K, sliding on the tube A, is pressed toward the contact points M and N by the spring F².

The connections are as follows: The ring H is in contact with a wire to bell, or signaling circuit. The ring K through the spring F² and a collar O, is in contact with a wire leading to line. The contact point M is the terminal of a wire leading through transmitter to line, or if there be an induction circuit to primary and secondary of induction coil. The contact point N is the terminal of battery circuit, when there is one. When at rest the spring F holds the tubes B and C close together, pushing ring K by means of bar G free from contact points M and N, and closing circuit through H—F'—G—K—F² thereby cutting in bell or alarm circuit. By separating tubes B and C to adjust the instrument to the ears, the bar G is drawn from the ring K, which is forced by the spring F² against

the contact points M and N, thereby cutting out the bell or signaling circuit, and cutting in the transmitter or talking circuit.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an automatic telephone switch the combination of flexibly jointed tubular ear-pieces, attached to the receiver by a single tube, suitable switch pieces or contacts mounted thereon and cooperating therewith by the movement of the ear pieces and a spring adapted to hold the ear pieces together, substantially as and for the purposes set forth.

2. In an automatic telephone switch the combination of flexibly jointed ear-pieces attached to the receiver by a single tube and circuit changing switch pieces or contacts

mounted thereon, co-operating with the said ear-pieces by their movement, substantially as and for the purposes set forth.

3. The improved automatic telephone switch hereinbefore described, consisting of the combination of flexibly jointed tubular ear-pieces, a spring holding them together, a single tube attaching them to the receiver, suitable contact points or terminals mounted thereon, and contact springs or pieces co-operating with the said ear-pieces, adapted to be moved thereby, as and for the purposes set forth.

Montreal, August 1, 1894.

NEWMAN H. HOLLAND.

Witnesses:

MEREDITH S. SETHUNE,
HANBURY A. BUDDEN.