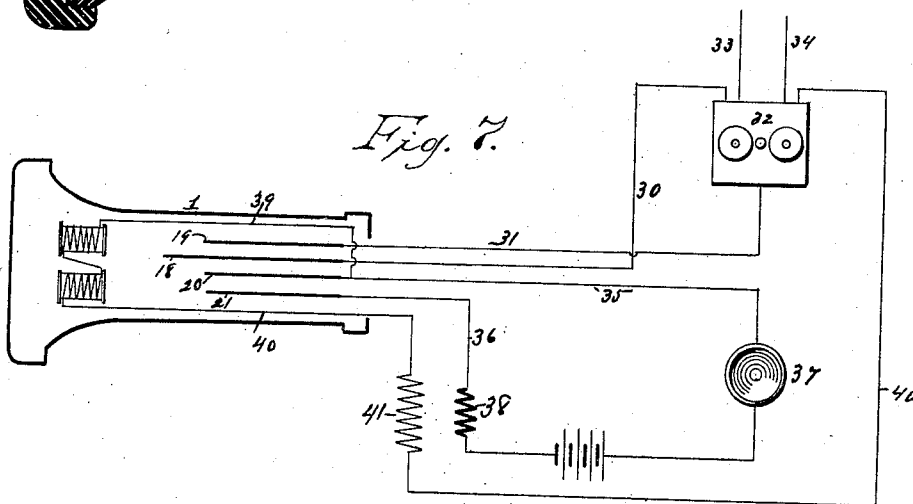
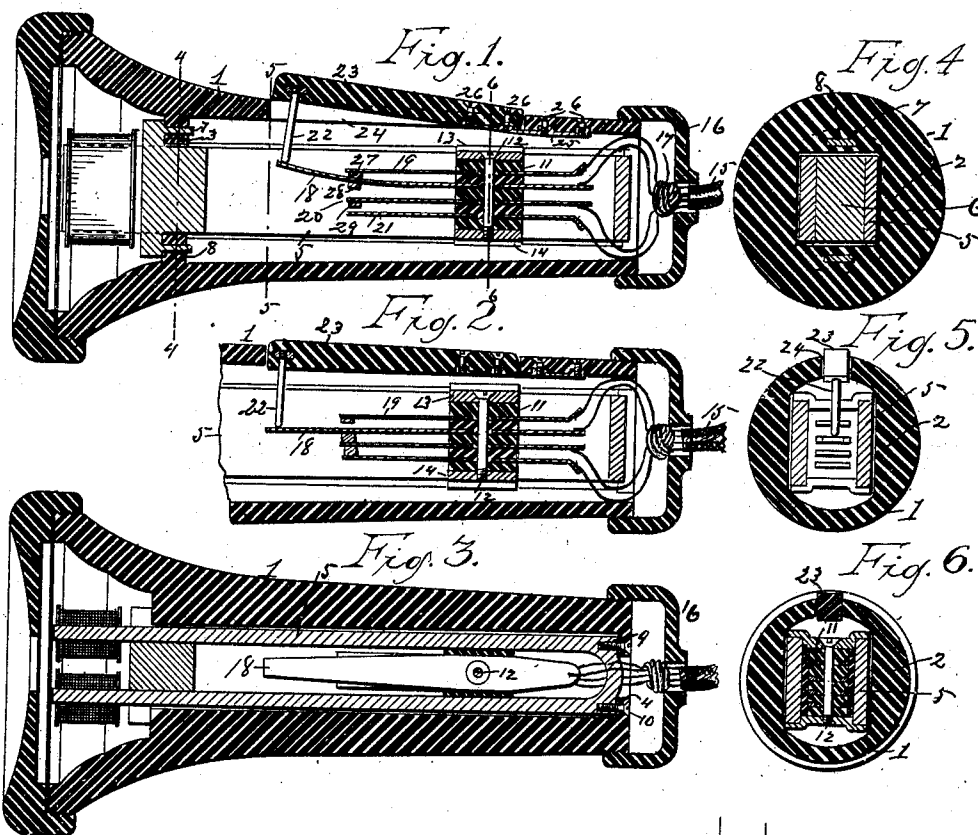


No. 836,202.

PATENTED NOV. 20, 1906.

J. McMAHON.
TELEPHONE RECEIVER SWITCH.
APPLICATION FILED JULY 24, 1905.



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UNITED STATES PATENT OFFICE.

JAMES McMAHON, OF OAKDALE, CALIFORNIA.

TELEPHONE-RECEIVER SWITCH.

No. 836,202.

Specification of Letters Patent.

Patented Nov. 20, 1906.

Application filed July 24, 1905. Serial No. 270,988.

To all whom it may concern:

Be it known that I, JAMES McMAHON, a citizen of the United States, residing at Oakdale, in the county of Stanislaus and State of California, have invented certain new and useful Improvements in Telephone-Receiver Switches, of which the following is a specification.

In using telephones on party-lines in which the circuit is broken or interrupted beyond any subscriber using the instrument the break is often prolonged beyond the actual time consumed in conversation by intentional or thoughtless failure to hang up the receiver. To reduce the interruption of the line to the actual time in which the receiver is being held in the hand, and thereby limit the break to the very least possible moment, I have devised a switch mechanism that is located within the receiver instead of in the box, as now generally used, whereby the talking-circuit will be open or normal beyond any subscriber using the instrument except when the receiver is actually held in the hand. In this manner it makes no difference whether the instrument be suspended from the hook or not. The ringing-circuit will be closed, and the through talking-circuit will be normally open at all times except when the receiver is being held in the hand, in which case the pressure of the hand will open the ringing-circuit and close the talking-circuit.

In the accompanying drawings I have shown the preferred form of embodying my invention; but it is evident that changes can be made, and I reserve the right to make all such variations and modifications as will come within the scope of my invention.

Figure 1 is a central longitudinal sectional view of a telephone-receiver embodying my invention, with the operative parts shown in their normal position. Fig. 2 is a broken view showing the parts in their operative position. Fig. 3 is a similar view of the receiver, taken at right angles to Fig. 1. Figs. 4, 5, and 6 are views of cross-sections, taken, respectively, on lines 4 4, 5 5, and 6 6. Fig. 7 is a diagrammatic view showing the receiver with its connections.

Referring more particularly to the drawings, 1 indicates the case or body of the receiver of a telephone, which is preferably made of rubber in the usual manner and of the usual shape and size, except that its sides may be made thicker opposite each other on the interior, as shown at 2, and provided

with the inwardly-extending projections 3 and 4. This causes the interior of the handle portion of the receiver to be substantially rectangular in cross-section, as shown in Figs. 5 and 6, within which is placed the magnet 5. The forward ends of the magnet are preferably separated by the usual di-magnet-block 6, as of lead, which is provided with lugs 7 7, which fit in suitable recesses 8 in the projections 3 3 to hold it and the magnet in position. Secured to or formed upon the rear end of the magnet on opposite sides of the bend, so as to register with the projections 4, are two projections or shoulders 9, by means of which the magnet is held in position by means of screws 10.

Mounted between the legs of the magnet near the rear end is a plurality of blades which form contact points or terminals and which are insulated from each other at the point of securement by suitable material 11. A bolt or screw 12 passes through perforations in the material and through plates 13 and 14 on opposite sides of the magnet-legs and holds the parts rigidly against movement. The forward ends of the blades extend far enough in front of the insulating material to be so flexible as to be readily moved into or out of contact for forming the circuits, and to the rear ends are attached the conducting-wires 15, which enter the cavity in the handle through a perforation in the cap 16 and pass over and under the end of the magnet, respectively. A knot 17 is formed in the wires 15 to prevent their withdrawal through the cap.

One of the blades, as 18, is longer than the others and is adapted to contact with the one, 19, upon one side to form the ringing-circuit and with one of the others, 20, upon the other side and force it into contact with the remaining one, 21, to form the talking-circuit. The movement of the longer blade is effected by means of a pin 22, which projects inward from the free end of a lever or finger-piece 23, which is pivotally secured at its rear end in a slot 24 in the side of the case 1. The hinge of the lever is preferably formed from a flat plate 25, which is secured to the inner face of the instrument and of the lever, respectively, by means of screws 26, which engage with bosses on the plate.

The forward end of the longer blade 18 is preferably slightly curved toward the slot 24 and normally engages with the blade 19 to close the ringing-circuit at all times, except

when the lever is pressed in to close the talking-circuit. The blade is stiff enough to normally engage with the blade 19 and to hold the lever or finger-piece with its outer surface projecting far enough beyond the surface of the case to permit of the fingers of the hand engaging therewith and forcing it in to bend the blade 20 out of contact with 19 and into contact with 21, and thereby open the ringing-circuit and close the talking-circuit when the receiver is held to the ear for listening. Contact-points 27, 28, and 29 may be attached to the blades for permitting of contact with but very slight movement of the finger-piece through the side of the case.

When the receiver is not being used, the blade 18 is in contact with 19 and the ringing-circuit is through wires 30 and 31, bell 32 to the line-wires 33 and 34; but as soon as the receiver is taken from its support to answer the call the lever 23 is pressed in and two circuits are formed, one of which includes the blades 20 and 21, wires 35 and 36, transmitter 37, and the primary coil 38. The other circuit includes the blades 20 and 18, the magnet-wires 39 and 40, and wire 30, the wire 30 being connected with one of the line-wires 33 and the wire 40 being provided with the secondary coil 41 and connected with the other line-wire 34.

From the foregoing it will be seen that when the finger-piece on the receiver is not pressed in the line will not be interrupted, whether it is a main line or a party-line and whether the receiver is upon its regular hook or any other support. This avoids the delay and trouble caused by leaving the ordinary receiver off the hook, as is so frequently the case with the instruments now in use, and permits of the normal use of the single instrument in a main line and of any instrument of a party-line. It also prevents the exhaustion of the battery where a magneto-generator is used.

As the complete switch is placed within the receiver, the present telephone systems can be provided with my invention by simply changing the present terminal connections in the box to direct connections and substituting my receiver for those in use and connecting it with the proper wires. In case it should be

desirable to remove the magnet from the case the caps at the ends are removed and the screws in the rear end of the magnet taken out and the entire interior mechanism slipped out through the front end of the case, the conducting-wires readily following by slipping through the rear cap. In this manner the switch mechanism is readily accessible for any purpose and can be quickly replaced.

Having described my invention, I claim—

1. A telephone-receiver switch comprising a case, a magnet therein, a plurality of flexible blades between the legs of the magnet, insulating material between the blades and the legs of the magnet respectively, part of said points being normally in contact and part of them out of contact, and means upon the exterior of the case for automatically separating the closed contacts and closing the separated ones.

2. A telephone-receiver switch comprising a case with a perforated cap on each end; a magnet therein, means at each end for securing each end of the magnet in position so as to be removable through the forward end, contact-points between the legs of the magnet, means for actuating said points and wires connected with the rear ends of said points and extending through the rear cap and provided with means for preventing the rearward movement beyond a predetermined point.

3. A telephone-receiver switch comprising a case having inward projections at each end, a magnet in the case, the rear end of which is provided with projections, screws for securing said projections to the rear projections of the case, a block at the forward end of the magnet provided with rearward-extending projections for engaging with the projections at the forward end of the case, switch mechanism mounted on the magnet, and wires connected with said mechanism and passed loosely through the rear end of the case.

In testimony whereof I affix my signature, in presence of two witnesses, this 11th day of July, 1905.

JAMES McMAHON.

Witnesses:

M. R. SEELY,
W. S. BOYD.