

No. 744,117.

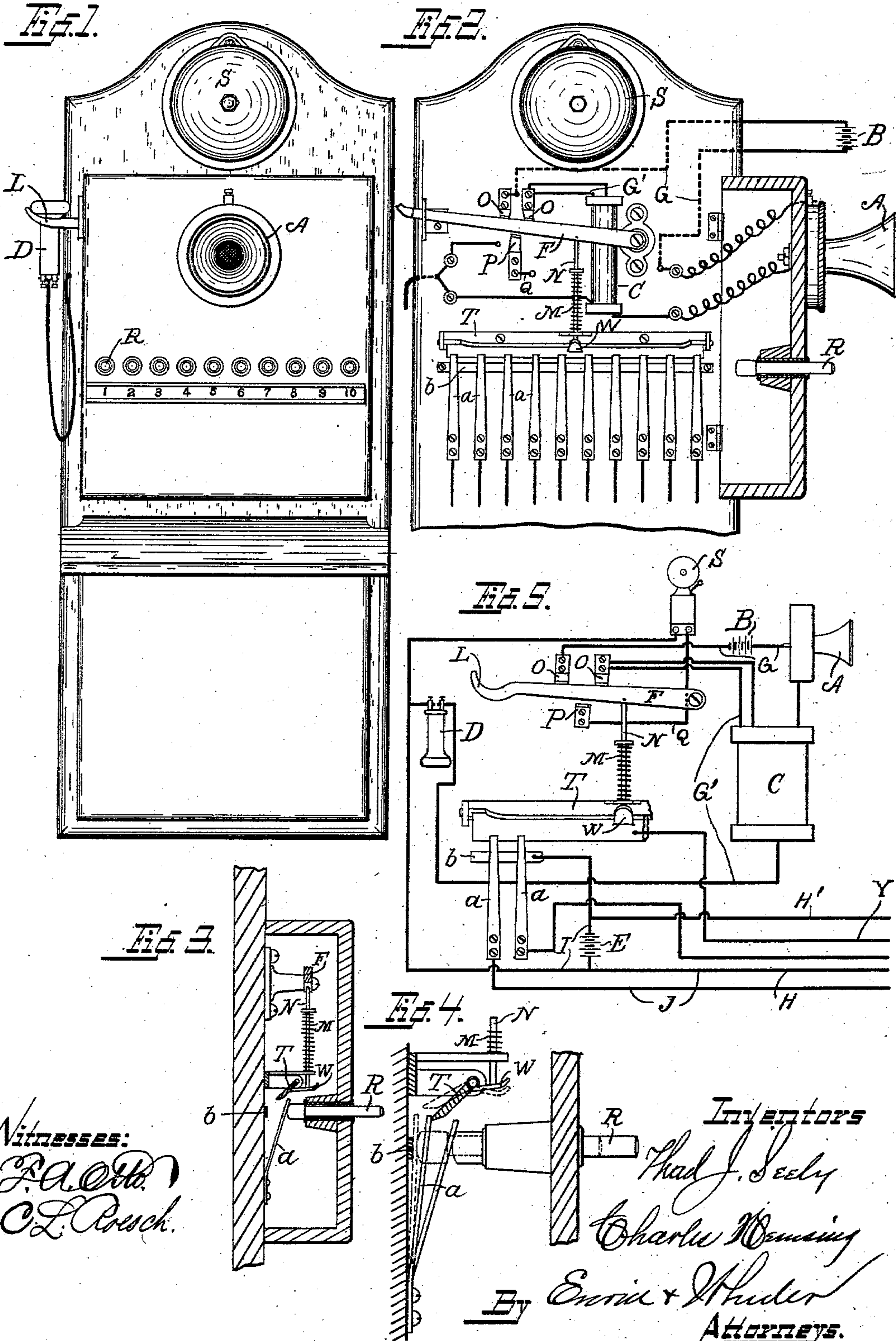
PATENTED NOV. 17, 1903.

T. J. SEELY & C. HEMSING.
PRIVATE TELEPHONE SYSTEM.

APPLICATION FILED OCT. 23, 1901. RENEWED APR. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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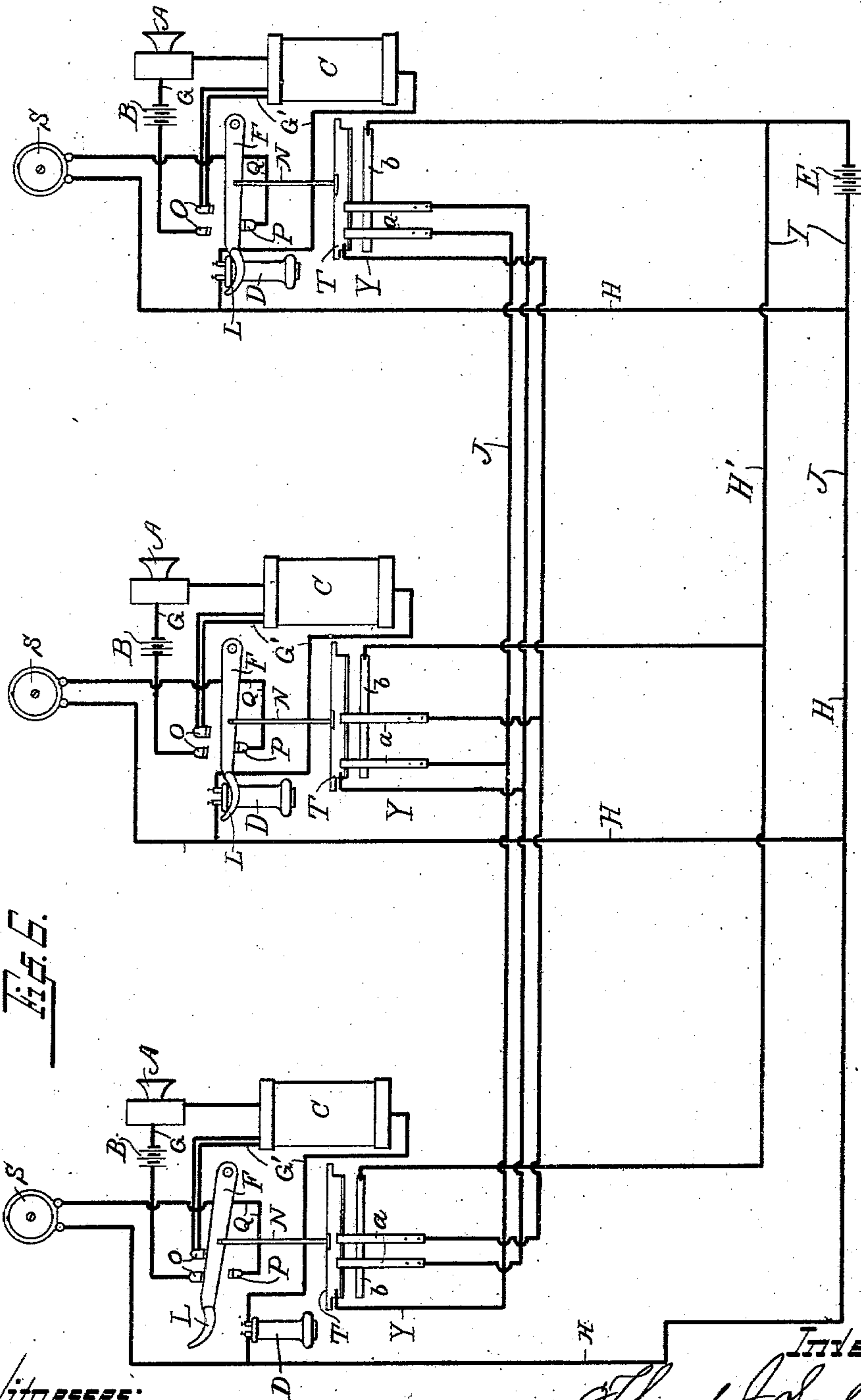
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

THAD J. SEELY AND CHARLES HEMSING, OF MILWAUKEE, WISCONSIN.

PRIVATE-TELEPHONE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 744,117, dated November 17, 1903.

Application filed October 23, 1901. Renewed April 23, 1903. Serial No. 150,472. (No model.)

To all whom it may concern:

Be it known that we, THAD J. SEELY and CHARLES HEMSING, citizens of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Private-Telephone Systems, of which the following is a specification.

Our invention relates to improvements in telephones for use in private-telephone systems where central stations are not employed; and it pertains to that class by which a person at any one of the telephones of a system may himself connect his telephone with any other telephone in the system.

Our invention relates more especially, first, to the means employed by the telephone user or operator for closing the circuit between his telephone and the call-bell of any of the telephones in the system; second, to the means employed for disconnecting the circuit of the local telephone with the call-bell of any other telephone at a distance and simultaneously closing the circuit between the local telephone and the receiver of a distant telephone or station with which it is desirable to communicate, and, third, to the means employed for automatically opening the circuit between the local telephone and the receiver of any other telephone in the system in two ways—either by hanging up the local receiver or by pushing another button and closing the circuit between the local telephone and any other telephone in the system.

The construction of our improved telephone is explained by reference to the accompanying drawings, in which—

Figure 1 represents a front view thereof with the case closed. Fig. 2 is also a front view with the case shown open and in section. Figs. 3 and 4 are details, part in section, showing the operative mechanism connected directly with the push-buttons. Fig. 5 is a diagrammatic view, showing the operative but not the actual relation of the parts. Fig. 6 is a diagrammatic view showing three stations connected together.

Like parts are identified by the same reference characters throughout the several views.

The transmitter A, talking-battery B, induction-coil C, receiver D, bell-battery E, circuit-closing lever F, and the electric circuits

are constructed and connected up in substantially the ordinary manner and need not here be more particularly described. It will be understood that when the local telephone is in its normal condition, having the receiver D suspended from the hooks L of the lever F, a call from any other telephone in the system will be received through the circuit comprising the following parts, to wit: the special or independent wire Y, tilting bar T, rod N, lever F, electrode P, wire Q, bell S, and the common return-wire H. The special or independent wire Y communicates with all the buttons of a given number of each telephone in the system. The so-called "common" return-wire H communicates through other branch wires with all the telephones in the system. It will be understood that the wire H, together with the special or independent wire Y, forms a circuit through which communication is made between any one telephone in the system and all the others.

When desirous to communicate from a local station with any other telephone in the system, it will be understood that the operator first takes down the receiver D from the lever F, when he next pushes in one of the buttons R of the series 2 to 10 corresponding with the number of the telephone or station with which he wishes to communicate. Presuming that the local station is No. 1 and that he wishes to communicate with Station No. 10, he pushes in the button R indicated by such figure, "10," whereby the circuit is closed and the bell is caused to ring at the distant Station 10 indicated. This end is accomplished as follows: When the receiver D is removed from the hook L, as stated, the lever F will be thrown up by the recoil of the spiral spring M acting through the rod N against the electrodes O O, whereby the circuits G and G' will be closed. When the button R is pushed forward, as indicated in Fig. 4, the circuit-closing arm *a* is brought in contact with the electrode *b*, which consists of a single stationary bar, which is arranged at right angles behind the several circuit-closing arms *a*, (shown in Fig. 2,) whereby the bell-circuit I, communicating from the battery E to the bell at the distant station, is closed, and said bell is caused to ring until said push-button is released. When the circuit-closing arm *a* is being pushed for-

ward to close the bell-circuit, it is brought in contact with the tilting bar T, whereby said bar is swung forward until said arm *a* passes beneath it, when the tilting bar drops back of its own gravity behind said arm *a*. When said arm *a* is released from pressure of said push-button, it is caught by said tilting bar T. The tilting bar T is electrically connected with the receiver at a distant station through the circuit J. This being done, conversation may be carried on between the local station and such distant station until said arm *a* is released from said tilting bar, when through communicating with the distant station the circuit between it and the local station is opened by swinging the lower edge of said tilting bar T forward, as indicated in dotted lines in Fig. 4. This end is accomplished in two ways—either by hanging up the receiver on the hook L or by pushing forward any other push-button in the series. When the receiver is placed upon the hook L of the lever F, motion is communicated from said lever to said tilting bar T through the rod N and arm W, whereby the lower edge of said bar T is thrown forward, so as to release the upper end of the arm *a*, when said arm *a* is thrown back into its normal position by its own elasticity. It is obvious that by this arrangement the liability of the operator neglecting to open the circuit when through using it, as might otherwise occur with ordinary switches, is avoided, as such circuit is automatically opened without the attention of the operator by the gravity of the receiver as it is hung upon the supporting-hooks of the lever F. It is also obvious that by this arrangement the circuit between the local and any one of the distant telephones in the circuit is automatically opened by the act of closing the circuit between such local telephone and any other telephone in the system. This end is accomplished by pushing any one of the other push-buttons, as follows: Presuming that one of the arms *a* has been released from the action of the push-button and that it is held in circuit through the tilting bar T, it will be thrown back to its normal position out of contact with said tilting bar T as soon as said bar is tilted forward. It follows that when said tilting bar is being pushed forward by the action of any of the other push-buttons in the series said arm *a* will be automatically released from said tilting bar and thrown back of its own elasticity, as stated, to its normal position.

It will of course be understood that a separate connecting-arm *a* is located in rear of each of the several push-buttons (shown in the series 1 to 10) in each of the telephones of the entire system, as shown in Fig. 2, and that each of said several arms *a* is electrically connected with corresponding arms in the telephones of the entire system through separate wires J. It will also be understood that the electrode *b* is so located in rear of the several arms *a* of the series that they are all

adapted to be brought into electrical contact therewith as they are pushed rearwardly and that said electrode *b* is electrically connected through the bell-battery E with the common return-wire H and is also connected with a corresponding electrode in each telephone throughout the system through the battery-wire H'. It will therefore be understood that when desirous to connect any one of the telephones in the system with any other telephone the operator has simply to push forward one of the buttons R corresponding in number with the number of the telephone or system which he is desirous to call until the call-bell has been caused to ring; that when said button is released communication will be automatically made from such first-mentioned telephone through the talking-circuit with the receiver of such distant station by simply releasing the pressure of the push-button; that when through conversing the circuit is again automatically opened by returning the receiver to the hook.

The diagrammatic view shown in Fig. 6 illustrates the relative position and arrangement of three separate telephone-stations, comprising a single system, and the manner of running the connecting-wires between such stations.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a telephone system of the class described, the combination with each telephone in the system of a plurality of contact-arms; an electric connection communicating from said arms with corresponding arms of every other telephone in the system; a single electrode located in the line of movement of the several contact-arms of the respective telephones; an electric connection communicating from such single electrode of each telephone with a corresponding electrode in all of the other telephones in the system; a single tilting bar pivotally suspended from one edge, and having its opposite edge located in the path of movement of the several contact-arms of each telephone in the system; an electric connection communicating from the tilting bar of each telephone in the system with a contact-arm of each of the other telephones in the system; a push-button located in close proximity to each of said contact-arms of the several telephones, adapted when moved in one direction, to bring said contact-arm into electric connection with said electrode, and when released to permit said contact-arm to bear against said tilting bar; and means for automatically releasing said contact-arm from said tilting bar, substantially as set forth.

2. In a telephone system of the class described, the combination with each telephone in the system of a plurality of contact-arms; an electric connection communicating from said arms with corresponding arms of every other telephone in the system; a single elec-

trode located in the line of movement of the several contact-arms of the respective telephones; an electric connection communicating from such single electrode of each telephone with a corresponding electrode in all of the other telephones in the system; a single tilting bar pivotally suspended from one edge in the path of movement of the several contact-arms of each telephone in the system; a vibratory lever for supporting the telephone-receiver; means for communicating motion from said vibratory lever to said tilting bar, and releasing said contact-arm as said vibratory lever is actuated by the gravity of the telephone-receiver; an electric connection communicating from the tilting bar of each telephone in the system with a contact-arm of each of the other telephones in the system; a push-button located in close proximity to each of said contact-arms of the several telephones, adapted, when moved in one direction, to bring said contact-arm into electric connection with said electrode, and when released to permit said contact-arm to bear against said tilting bar; and means for automatically releasing said contact-arm from said tilting bar, substantially as set forth.

3. In a telephone system of the class described, the combination with each telephone in the system of a plurality of contact-arms; an electric connection communicating from said arms with corresponding arms of every other telephone in the system; a single electrode located in the line of movement of the several contact-arms of the respective tele-

phones; an electric connection communicating from such single electrode of each telephone with a corresponding electrode in all of the other telephones in the system; a single tilting bar pivotally suspended from one edge in the path of movement of the several contact-arms of each telephone in the system; a vibratory lever for supporting the telephone-receiver; means for communicating motion from said vibratory lever to said tilting bar, and releasing said contact-arm as said vibratory lever is actuated by the gravity of the telephone-receiver; and additional means for communicating motion to said tilting bar, and releasing said contact-arm through one of the other push-buttons and any other contact-arm in the series; an electric connection communicating from the tilting bar of each telephone in the system with a contact-arm of each of the other telephones in the system; a push-button located in close proximity to each of said contact-arms of the several telephones, adapted, when moved in one direction, to bring said contact-arm into electric connection with said electrode, and when released to permit said contact-arm to bear against said tilting bar; all substantially as and for the purpose specified.

In testimony whereof we affix our signatures in the presence of two witnesses.

THAD J. SEELY.

CHARLES HEMSING.

Witnesses:

JAS. B. ERWIN,
C. L. ROESCH.