

No. 608,076.

Patented July 26, 1898.

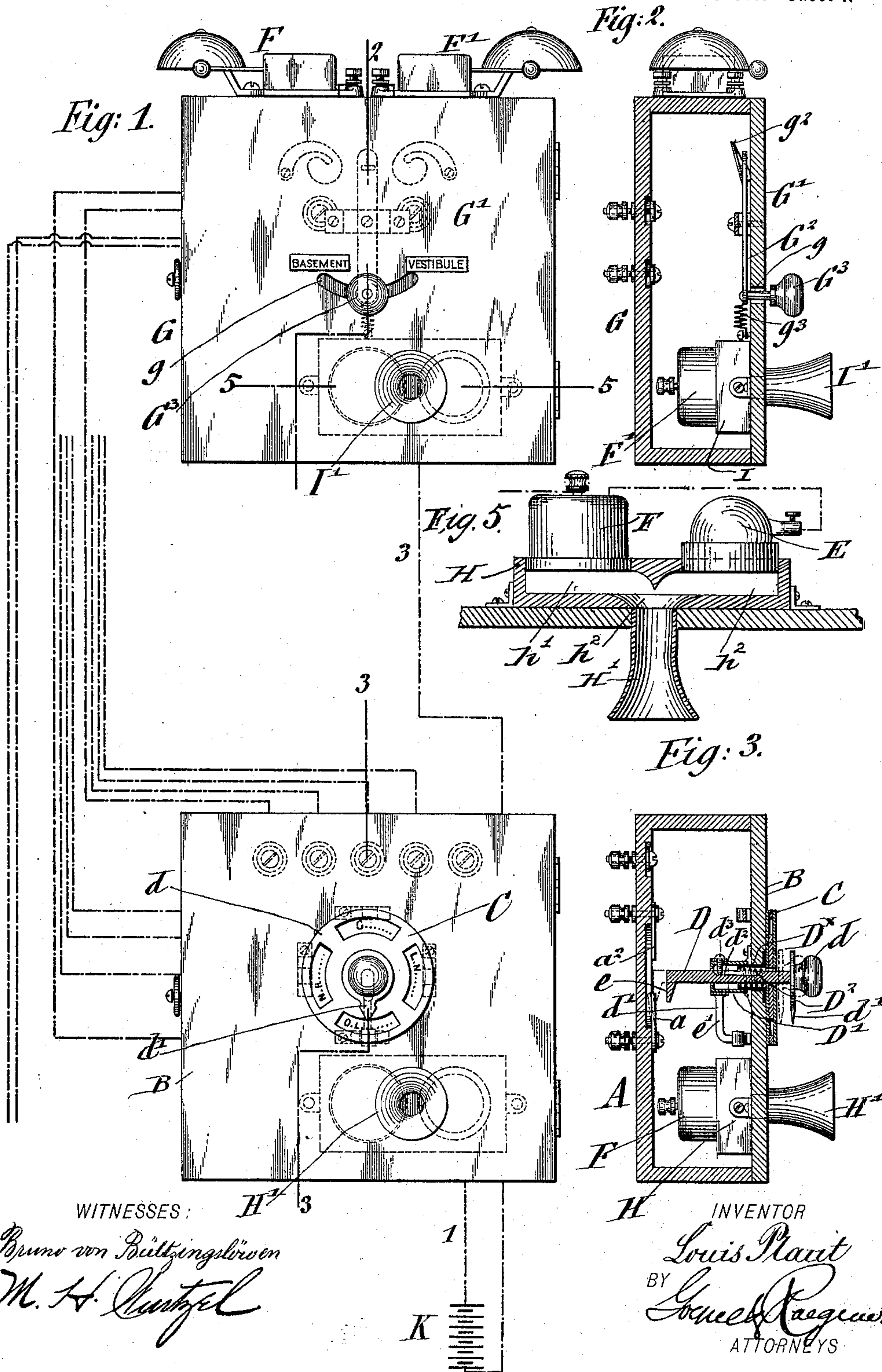
L. PLAUT.

ELECTRIC TELEPHONE SYSTEM FOR HOUSES.

(Application filed Sept. 9, 1897.)

(No Model.)

2 Sheets—Sheet I.



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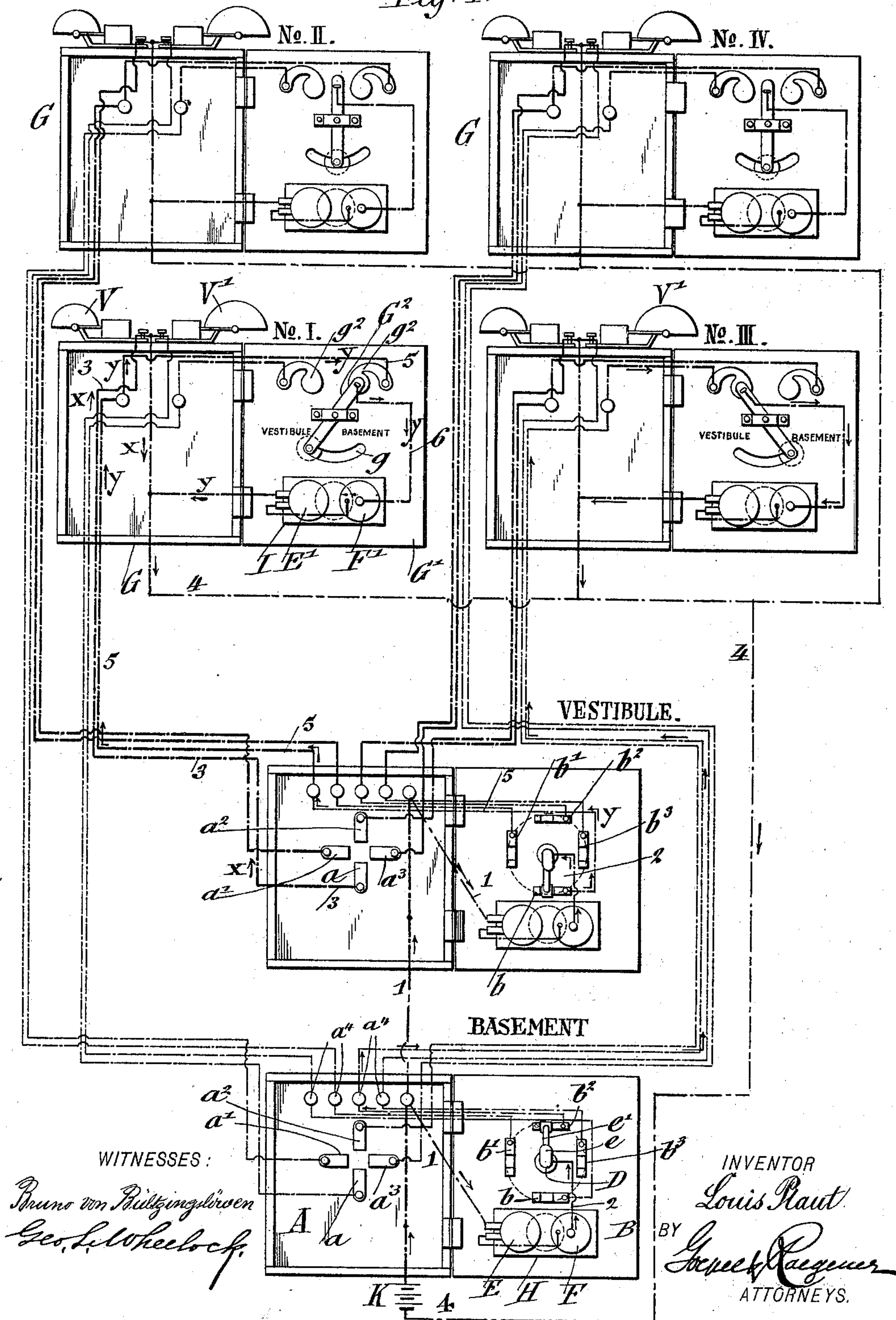
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Fig: 4.



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UNITED STATES PATENT OFFICE.

LOUIS PLAUT, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO ELIAS KOCH AND ALPHONSE KOCH, OF SAME PLACE.

ELECTRIC-TELEPHONE SYSTEM FOR HOUSES.

SPECIFICATION forming part of Letters Patent No. 608,076, dated July 26, 1898.

Application filed September 9, 1897. Serial No. 651,030. (No model.)

To all whom it may concern:

Be it known that I, LOUIS PLAUT, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Electric-Telephone Systems for Houses, of which the following is a specification.

The object of this invention is to furnish a simplified electric house-telephone for private and apartment houses by which the different floors can be quickly communicated with from the basement or vestibule, so as to dispense with the present speaking-tubes and call-bells and substitute in place thereof a more reliable and satisfactory means of communication; and the invention consists of an electric house-telephone system which comprises a calling station provided with a switch device for switching in the call-bells of the instruments on the different floors, a transmitter and a receiver arranged and fixed alongside of each other, being combined together so that one tube serves as a mouthpiece and ear-tube for the transmitter and receiver, and a number of local stations, each provided with a call-bell, with a transmitter and a receiver combined like the transmitter and receiver of the calling station and having a common tube and with a spring-actuated switch that can be placed, against the tension of its spring, in circuit with the call-box, so as to establish communication, such latter switch automatically cutting the telephones out of circuit when it is released.

The invention also consists of other features, which will hereinafter more fully appear.

In the accompanying drawings, Figure 1 represents a front elevation of my improved electric house-telephone system, showing the call or signaling box, the receiving-box, and the connecting-wires between the two. Figs. 2 and 3 are respectively vertical transverse sections of the receiving-box and the calling-box on lines 2 2 and 3 3, Fig. 1. Fig. 4 is a diagram of my improved electric house-telephone system, showing the call-boxes and the receiving-boxes in addition and open so as to show the instrumentalities of the same in their mounted positions; and Fig. 5 is a detail section of the combined speaking and

ear tube for the transmitter and receiver of each box.

Similar letters and numerals of reference indicate corresponding parts.

Referring to the drawings, A represents a main signal or call box, of which preferably two are arranged in each system, one in the kitchen or basement and the other in the vestibule, according as to whether the system is applied to private or apartment houses. The call-box A is made, preferably, of rectangular shape and closed by a hinged or movable cover B, to which latter is applied my improved switch device, by which both the call-bell as well as the telephone systems are switched into circuit. The switch device is composed of a number of metallic contact-plates $a a' a^2 a^3$, which are arranged in the box A and which are electrically connected with a series of binding-posts a^4 , arranged at the upper part of the back of the box A. The number of contacts and binding-posts can be varied according to the number of receiving-boxes arranged on the different floors of the building. In front of the metallic contacts on the back of the box A is arranged on the cover B a circular dial C, provided with as many numbers of floors or names of tenants as there are receiving-boxes in the system. A push-spindle D is guided in a sleeve D^x , arranged in the cover, said spindle being provided with a knob d , a pointer d' at its outer end, and with two contact-arms, one, e , at the inner end, adapted to be placed in contact with the contact-plates $a a' a^2 a^3$, and a second arm e' , that is adapted to make contact with plates $b b' b^2 b^3$, which are arranged on the inner surface of the cover B, concentrically with the push-spindle D, but in such position as to correspond with the contacts on the back of the box A. The arms $e e'$ on the push-spindle are arranged in line with each other and with the pointer d' , the push-spindle D being provided with a longitudinal groove d^2 , into which engages a set-screw d^3 , which passes through the hub D' of arm e' and guides the push-spindle without moving the arm e' , while it permits the arms to be rotated together by the spindle. By pushing the spindle inwardly against the action of spring D^2 and rotating the same

its contact-arm e can be made to touch either one of the contact-plates a a' a^2 a^3 , arranged on the back of the box A, while by simply turning the spindle D without compressing the spring its contact-arm e' is placed in contact with either one of the plates b b' b^2 b^3 . The push-spindle can therefore be placed either in contact with the contact-plates on the back of the box or with the contact-plates on the cover of the box, as desired.

Each call-box A is provided on its cover B with any approved transmitter E, preferably a carbon or microphone transmitter. Alongside of same is arranged a receiver F, likewise of any approved construction, both being inclosed and applied to the back of a common block H, which is provided with two channels h h' , that lead from the transmitter and receiver toward a central opening h^2 in the cover B, to which a frusto-conically-shaped tube H' is applied, which acts as a common tube for the transmitter and receiver. The use of one centrally or intermediately arranged tube that serves as a speaking-tube and hearing-tube combined dispenses with the use of a separate movable receiver that has to be held to the ear and imparts to this telephone system more the characteristics of an ordinary speaking-tube system, without, however, losing the clearness of sound.

The cover G' of the receiving-box G is also provided with a transmitter E' and receiver F', which are arranged sidewise and adjacent to each other in the same manner as in the call-box just described and which are also provided with a common block I, having channels that communicate with a frusto-conical tube I'. In addition thereto the cover G' of the box G is provided with a fulcrumed switch-lever G², the lower end of which is guided in an arc-shaped slot g , at the ends of which are arranged, respectively, the words "Basement," "Vestibule." The upper end of the fulcrumed switch-lever G² is arranged to form contact with either one of two contact-plates G², which are applied to the inner surface of the cover G', so as to close either the telephone-circuit with the basement or with the vestibule call-box as the switch-lever G² is moved in the slot to one end or the other of the same. To the lower end of the switch-lever G² is applied a helical spring g^3 , which is connected at its lower end at any suitable point with the cover and which serves for the purpose of returning the switch-lever G² as soon as the conversation is ended and the hand released from the knob G³ of the switch-lever G², so that the receiving-box is automatically cut out of the telephonic circuit without any positive movement by the party called, the only movement by such party being the positive placing of the switch in the telephonic circuit.

The call-box and the receiving-box are connected by two separate electric circuits—namely, the circuit of the call-bell and the circuit of the telephone transmitters and re-

ceivers. The wire connections, however, are made in such a manner that the same return-wire is used for both the call-bell system and the telephone system, no matter how many receiving-boxes may be embraced in the system. Also the wire connections for the transmitters and receivers of each call-box, with the battery and with the push, are used for both the bell-circuit and the telephone-circuit, so that the said transmitters and receivers are never out of circuit. The electric current is preferably obtained from a battery of suitable strength which is located at a suitable point. This battery supplies the current for the call-bell circuit as well as for the telephone-circuit, so that local batteries for the receiving-boxes are dispensed with. The contact-plates a a' a^2 a^3 for the call-bell circuit are electrically connected with the call-bells of the different receiving-boxes G, while the contact-plates b b' b^2 b^3 are connected with the binding-posts a^4 of the call-box, and the latter by conducting-wires with the binding-posts arranged on the back of the receiving-boxes G. From the binding-posts for the call-bells the wires communicate with the contact-plates on the cover of the receiver, also with the transmitter and receiver upon said cover, while the return-wire returns to the negative pole of the battery. The circuit is clearly indicated in Fig. 4 in the direction of the arrows.

My improved electric house-telephone system is used as follows: When it is desired to call up one of the receiving-boxes, the push-spindle D is turned and its pointer set to the number of the floor or the name of the tenant wanted and then pushed inwardly, so that the inner arm e of the same touches the corresponding contact-plates a , a' , a^2 , or a^3 , whereby the bell of the corresponding receiving-box is switched into circuit and the call-bell is sounded, the current passing to the electromagnet of the call-bell and back to the battery in the well-known manner. Accordingly as the call is made from the basement or vestibule box either of the call-bells V and V' is sounded and the person called is, by the different tones of the bells, directly informed from which of the two call-boxes the call has been sent. The person called up then moves the switch-lever of the receiving-box to either end of the slot, against the tension of the spring g^3 , according as the call comes from the basement or from the vestibule, holds it in this position while using the instrument, and thereby switches the telephone instruments into circuit. As the current is supplied to the transmitters of the call-boxes, as well as of the receiving-boxes, conversation can be carried on in the usual manner, the replies being readily understood without the use of a special removable receiver, inasmuch as the sounds are passed from the receivers to the mouthpieces with equal distinctness as in ordinary receivers.

It is a most important consideration in this

system that the person calling merely has to press in the push after turning it to the proper point to place himself or herself, as far as he or she is concerned, in condition for transmitting and receiving messages, for the reason that the transmitter and receiver are permanently attached to parts of the same and are in a telephonic circuit controlled by the party called up, the telephonic connection at the call-box never being broken when the index-hand is properly set. Hence the extra motion of taking down the receivers from the hooked arms is thereby avoided and the system rendered simpler and less liable to disorder, so that a child can easily manipulate it. When the conversation is ended, the switch-lever g^2 is released and returned by its spring into normal position at the center of the slot, as shown in Fig. 1, whereupon by this automatic return of the switch-lever the telephonic circuit is broken.

The bell-circuit, assuming that the receiving-box No. I, Fig. 4, is to be called up from the vestibule, is as follows: The current passes from the battery K through wire 1 to the transmitter and receiver E F, through the wire 2 to push D, from whence the current passes by way of the arm e , then touching the contact a , through line-wire 3 to the vestibule-bell V of the receiving-box, and from said bell by way of the return-wire 4 back to the battery, as indicated by the arrows x . When the party called up has moved the switch G^2 , as before described, so as to touch the proper contact, the telephonic connection is established and conversation can be carried on. The course of the current will then be from the battery through the wire 1 to the transmitter and receiver E F, through wire 2 to push D, and by way of the contact-arm e' to contact b , from whence the current passes to telephone-wire 5 and through the latter, spring-contact g^2 , switch G^2 , wire 6, receiver and transmitter F' E, and return-wire 4 back to the battery, (see the arrows y .)

The basement call-box is shown as in telephonic connection with the receiving-box No. III, the switch G^2 at the latter substation having been shifted as required. The bell and telephonic circuit can be traced, as before, without further explanation. In Fig. 4 the stations II, III, and IV are not fully lettered, as they are identical with station No. I and will be readily understood.

By the double function of the push-spindle, which serves first for closing the call-bell circuit and then for switching the telephone instrument of the call-box into the telephone-circuit until the circuit is closed by the switch-lever of the receiving-box, any loss of battery-power is prevented. Only one circuit—the call-bell circuit or the telephone-circuit—can be placed in use at one and the same time from one calling and one receiving station, although conversation can be carried on at one and the same time between both the call-boxes and any two receiving-boxes, as indicated in

Fig. 4. A call can be made from the second call-box while the telephone instruments of the receiving-box are in circuit and then alternately be spoken with one or the other call-box by simply switching the shifting lever from one end of the slot to the other, and thereby different conversations can be kept up from the receiving-box to the two call-boxes alternately, which prevents interference of the calls. As the covers of the call-boxes and the receiving-boxes can be readily opened, the interior mechanisms can be easily inspected and repaired in case it should be necessary.

Among the advantages of my improved electric house-telephone system are the following:

First. The simplicity of the construction in which the call-bell circuit is combined in one instrument with the transmitter and receiver and the switch device for switching these instruments into the telephone-circuit.

Second. Communication can be carried on in perfect secrecy, as none of the other receiving-boxes in the circuit can be placed in connection with the receiving-box in use except at the call-boxes.

Third. As the entire system is comprised, practically, in two boxes, the instruments can be readily placed in position and electrically connected by wires, so that the system can be quickly put in place and connection be made with any desired number of floors or tenants by arranging a corresponding number of receiving-boxes on the system.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electric house-telephone system, the combination of a call-box, provided with contact-plates for a call-bell system and with contact-plates for a telephone system, a fixed telephone transmitter and receiver at said call-box, a combined mouth and ear piece for both of said instruments, means for closing either the call-bell or the telephone circuit, both of said circuits having a single return-wire leading to the source of electricity, one or more receiving-boxes placed in circuit with the call-box and provided with a call-bell for the call-bell circuit, a telephone transmitter and receiver at said receiving-box arranged in the telephone-circuit, a combined mouth and ear piece for the transmitter and receiver of the receiving-box, a manually-operated switch-lever at the receiving-box that is adapted to place the telephone instruments in the latter in circuit with the instruments of the call-box, and means for automatically returning the switch-lever to its normal open position, substantially as set forth.

2. In an electric house-telephone system, the combination of several call-boxes provided with contact-plates for a call-bell system and with contact-plates for a telephone system, a fixed telephone transmitter and receiver for each of said call-boxes, a combined

mouth and ear piece for both of said instruments of each call-box, means at each of said call-boxes adapted to close either the call-bell or the telephone circuit, one or more receiving-boxes placed in circuit with the call-boxes, and said receiving-box being provided with several call-bells of different tones, a telephone transmitter and receiver at said receiving-box, a combined mouth and ear piece for its telephone instruments, contact-springs at said receiving-box connected with the circuits of the respective call-boxes, a manually-operated switch-lever that is adapted to place the instruments of the receiving-box in circuit with the instruments of either of the call-boxes, by touching either of said contact-springs, and means for automatically returning the switch-lever to its normal position, so as to cut the receiving-box out of circuit with the call-boxes, substantially as set forth.

3. In an electric house-telephone system, the combination with a call-box provided with contact-plates for the call-bell system, and a cover for said call-box provided with contact-plates for the telephone system, of a spring-actuated push-spindle guided in the cover of the box and provided with two contact-arms adapted respectively to form contact with the contact-plates of the call-bell system in the box and with the plates of the telephone system, on the cover, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

LOUIS PLAUT.

Witnesses:

PAUL GOEPEL,
GEO. L. WHEELLOCK.