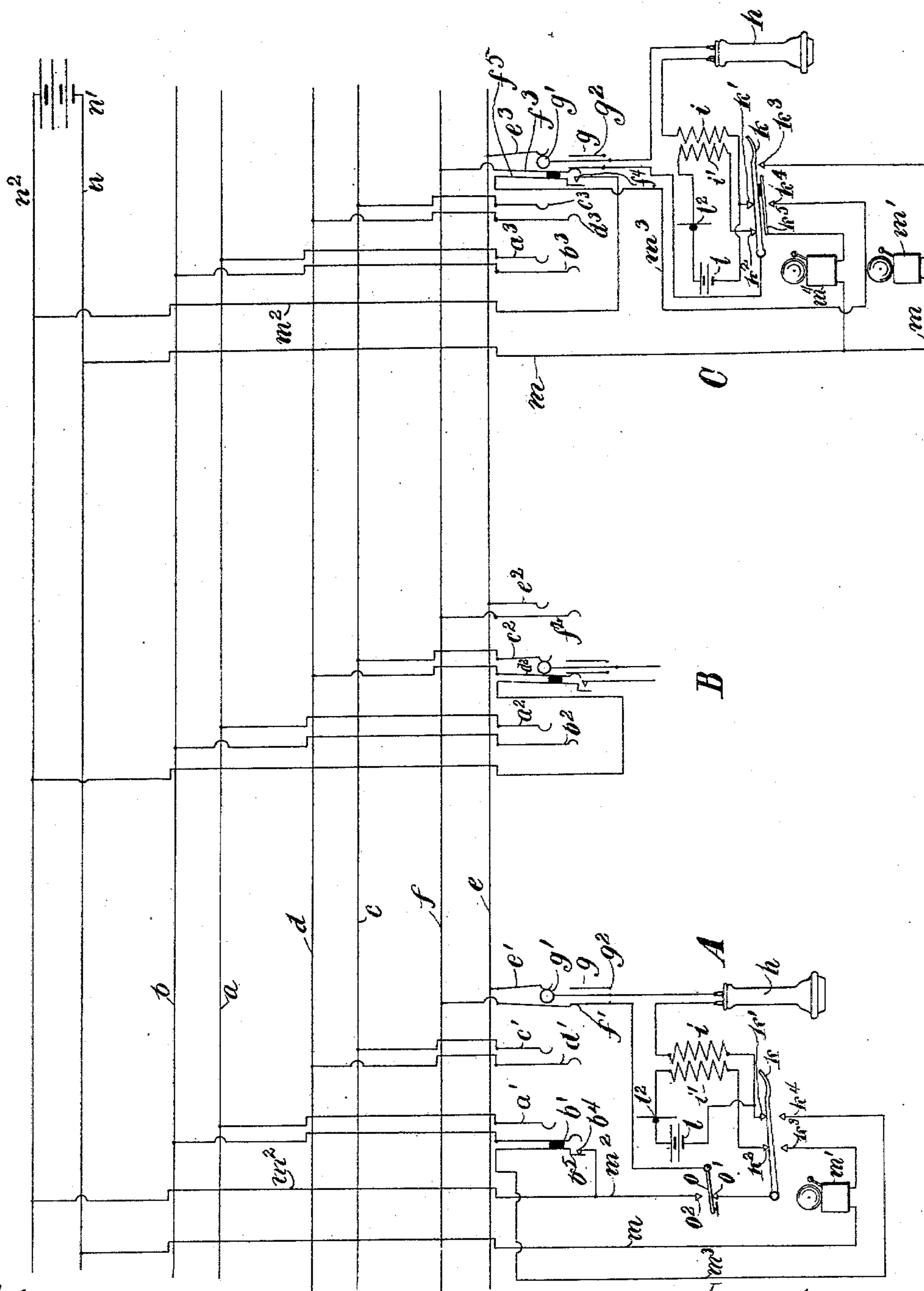


(No Model.)

E. G. HOVEY.
VILLAGE OR HOUSE TELEPHONE SYSTEM.

No. 566,762.

Patented Sept. 1, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

ELWYN G. HOVEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN
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VILLAGE OR HOUSE TELEPHONE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 566,762, dated September 1, 1896.

Application filed May 4, 1895. Serial No. 548,176. (No model.)

To all whom it may concern:

Be it known that I, ELWYN G. HOVEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Village or House Telephone Systems, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to a village or house telephone system, and more particularly to systems of that class in which a line-circuit is provided for each substation of the system, all of the line-circuits extending to each of the substations and being provided thereat with switch-sockets whereby a connection may be made with any of the line-circuits at any of the substations. The telephone set at each substation terminates in a plug which normally rests in a switch-socket connected with the line-circuit belonging to the particular substation, the telephone set being thus normally in circuit with its own line. By inserting the plug in the switch-socket belonging to any other line the substation may be connected in talking-circuit with any of the other substations of the system.

It is the object of my invention to insure the return of the plug to the switch-socket belonging to the line-circuit of the particular substation after each conversation, and to accomplish this object I provide a signaling device, preferably a bell, adapted to be sounded when the subscriber hangs up his telephone if he has neglected to return the plug to its individual switch-socket, that is, the socket connected with its own line-circuit. When the plug rests in its individual switch-socket, the hanging up of the telephone does not sound the bell.

In an application of William R. Patterson, filed January 21, 1896, Serial No. 576,256, is described a system of the general class to which my invention relates, and my invention is to be considered subsidiary thereto.

I will describe my invention by reference to the accompanying drawing, which illustrates diagrammatically a number of substations connected together in accordance with my invention.

I have illustrated my invention in connection with three substations A B C, the substation apparatus at station B being omitted for clearance. Between the several substations extend the line-circuits ab, cd, ef . The limbs ab are connected, respectively, with the line-springs $a' b'$ at substation A, with line-springs $a^2 b^2$ at substation B, and with line-springs $a^3 b^3$ at substation C. Likewise the limbs cd are connected with the line-springs $c' d', c^2 d^2, c^3 d^3$ at the respective substations A B C. The limbs ef are similarly connected with the line-springs $e' f', e^2 f^2, e^3 f^3$. Considering the apparatus at substation C, the plug g is adapted to normally rest in its individual switch-socket with the tip g' of the plug in contact with the line-spring e^3 , and the sleeve g^2 in contact with the line-spring f^3 . The telephone-receiver h , the secondary winding i of the induction-coil, and the switch-hook k are included in circuit between the tip g' and the sleeve g^2 of the plug g , the switch-hook k being adapted to close against contact-anvil k' when the receiver is removed from the hook. The local battery l , the microphone l^2 , and the primary winding i' of the induction-coil are included in circuit between the contact-anvils k' and k^2 , which are closed together when the telephone is removed from its hook. When the telephone is hung upon its hook, the hook rests against contact-anvil k^3 , which is connected by conductor m , through bell m' , with conductor n , which extends through all of the substations and is connected with one side of a calling-battery n' , the opposite side of the battery being connected with a conductor n^2 , which likewise extends through all of the substations. The conductor n^2 is connected by a conductor m^2 with contact-point f^4 , against which the spring f^5 is adapted to rest when the plug g is removed from its socket, the spring f^5 being held out of contact with the contact-point f^4 so long as the plug remains in the socket. The spring f^5 is connected by a conductor m^3 with a contact-point k^4 , against which spring k^5 , carried upon but insulated from the switch-hook k , is adapted to rest when the telephone is hung up. The spring k^5 is connected through a bell m^4 with the conductor m .

At substation A, I have illustrated similar apparatus, a single bell m' , however, being adapted to serve the functions of the two bells m' m^4 . In the cord-circuit uniting the tip g' and the sleeve g^2 of the plug g at substation A is provided a switch-arm o , normally resting against contact o' , but which may be moved against contact o^2 to connect conductor n^2 of the calling-circuit with the sleeve of the plug to send a calling-current over the line, as will be hereinafter described. The conductor m^2 is connected with contact-point b^4 , adapted to rest against spring b^5 when the plug is withdrawn from the switch-socket, spring b^5 being connected with the conductor m^3 .

Normally all of the plugs g rest in their individual switch-sockets. Supposing subscriber "A" desirous of conversing with subscriber "C," he removes plug g from its individual socket and inserts it in the switch-socket of subscriber "C," that is, between the springs $e' f'$. The removal of the plug g from between the springs $a' b'$ permits the spring b^5 to make contact with contact-point b^4 , and circuit is thus closed from calling-battery n' through conductors $n^2 m^2$ to contact-point b^4 , thence to spring b^5 , conductor m^3 to contact-point k^4 , switch-hook k , (the telephone being on the hook,) sleeve g^2 of the plug, line-spring f' , limb f , line-spring f^3 at substation C, sleeve g^2 of the plug g thereat, switch-hook k , contact-point k^3 , bell m' , conductors $m n$ to the opposite side of the battery n' . Circuit is thus closed through bell m' , the attention of the subscriber "C" being thus called. The subscribers remove their telephones from the hooks and are in conversation. The talking-circuit may be traced from the telephone set of subscriber "A" to the tip g' of the plug, line-spring e' , limb e of the line-circuit, line-spring e^3 , tip g' of the plug g , through the telephone set of subscriber "C" to the sleeve g^2 of the plug, thence to line-spring f^3 , limb f , line-spring f' , sleeve g^2 , back to the telephone set of subscriber "A."

Should subscriber "A" desire to send a subsequent calling-current over the line, he may do so by moving the switch-arm o into contact with the contact-anvil o^2 , circuit being thus closed from the calling-battery n' through the conductors $n^2 m^2$, contact o^2 , switch-arm o , sleeve g^2 , spring f' , limb f , line-spring f^3 , sleeve g^2 , switch-hook k , contact k^3 , through the bell m' , and through conductors m and n to the opposite side of the calling-battery n' . The calling-current may thus be sent automatically by the removal of the plug from its individual socket and its insertion into the socket of the called subscriber, the calling subscriber's telephone remaining on the hook, or the calling-signal may be sent manually by depressing the key o .

When the calling subscriber is through conversing, his plug, which has been inserted in the switch-socket of the called subscriber's line, should be returned to its individual

switch-socket, in order that the substation apparatus may be in a position to receive a call sent from another substation. If the calling subscriber neglects to return the plug to its individual switch-socket, a signal will be actuated when he hangs up his telephone without returning the plug g to its individual switch-socket. Circuit will be closed from the calling-battery n' over conductors $n^2 m^2$ to contact b^4 , spring b^5 , conductor m^3 , contact k^4 , through the switch-hook k to contact k^3 , thence through the bell m' and conductors m and n to the opposite side of the battery n' . Circuit through the battery n' is thus closed and the bell is rung to notify the subscriber that he has neglected to return the plug to its individual switch-socket. The insertion of the plug g in its individual switch-socket separates spring b^5 from contact b^4 , thus opening circuit through the bell m' .

In the circuit arrangement, as illustrated at substation A, the bell m' serves for the calling-signal and also serves to sound the signal when the subscriber fails to return the plug to its individual socket. As illustrated in connection with substation C, separate bells m' and m^4 are provided, the former adapted to sound the calling-signal and the latter to convey the signal to the subscriber when he neglects to return the plug to its individual socket.

While I have described my invention in connection with switching devices in the form of a plug adapted to be inserted into a switch-socket, it is evident that my invention is equally applicable to other forms of switching devices, and I therefore do not limit myself in this particular.

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

1. In a village or house telephone system, the combination with a number of telephone-lines extending to each of a number of substations, each telephone-line being provided at each substation with a switch-socket, of a plug connected with the telephone set at each substation and adapted to be inserted into the switch-socket of any telephone-line to connect the telephone set in circuit therewith, a local signal or alarm circuit at each substation, said local circuit including a battery, a signal device, the switch-contacts operated by the telephone-hook, and a pair of contacts provided in connection with the individual switch-socket, that is, the switch-socket in which the plug is adapted to normally rest, said contacts being separated when the plug is inserted and closed together when the plug is removed, the circuit being thus open at two points during conversation, that is, at the contacts controlled by the telephone-hook and at the contacts controlled by the insertion of the plug; whereby when the plug is not in the individual socket the contacts upon the switch-socket are closed and the local circuit is completed through the contacts

controlled by the telephone-hook when the telephone is hung up, while if the plug be returned to the individual socket the local circuit is not completed when the telephone is hung up; substantially as described.

2. The combination with a number of telephone-lines extending to a number of substations, of a switching device or socket for each of said lines provided at each of said substations, a plug normally resting in the individual or home switch-socket belonging to its particular line, a signal device in circuit with said plug, whereby the signal device at each of said substations is normally in circuit with its line, a calling-battery, and

switch-contacts adapted to be closed together by the removal of the plug from its home switch-socket, and the subsequent insertion of the plug in the switch-socket of another telephone-line for closing the circuit of said calling-battery through the signal device of the telephone-line with which connection is made; substantially as described.

In witness whereof I hereunto subscribe my name this 15th day of April, A. D. 1895.

ELWYN G. HOVEY.

Witnesses:

DE WITT C. TANNER,
W. CLYDE JONES.