No. 690,651. Patented Jan. 7, 1902.

H. I. HAUXHURST.

TELEPHONE ATTACHMENT.

(Application filed Sept. 11, 1900.)

(No Model.)

Fig. 1.

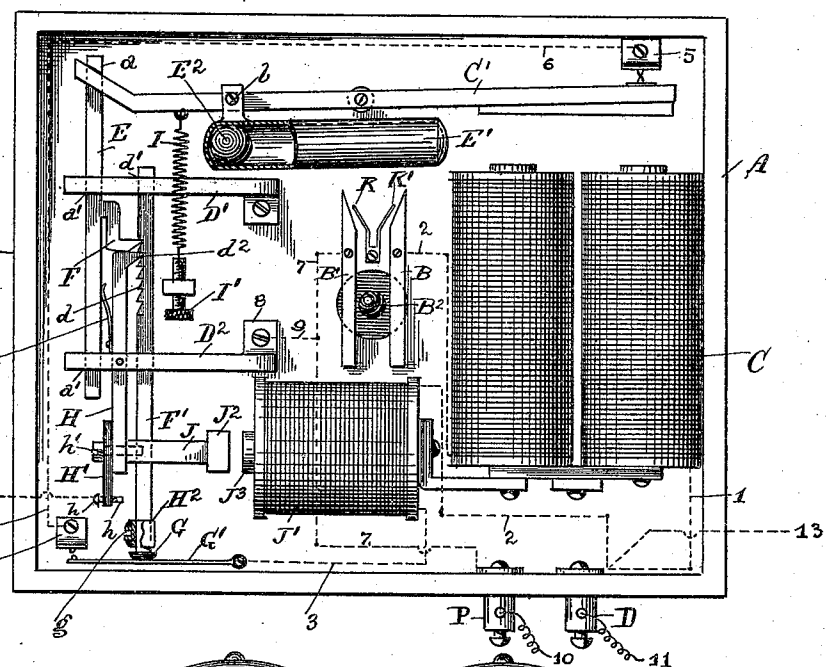
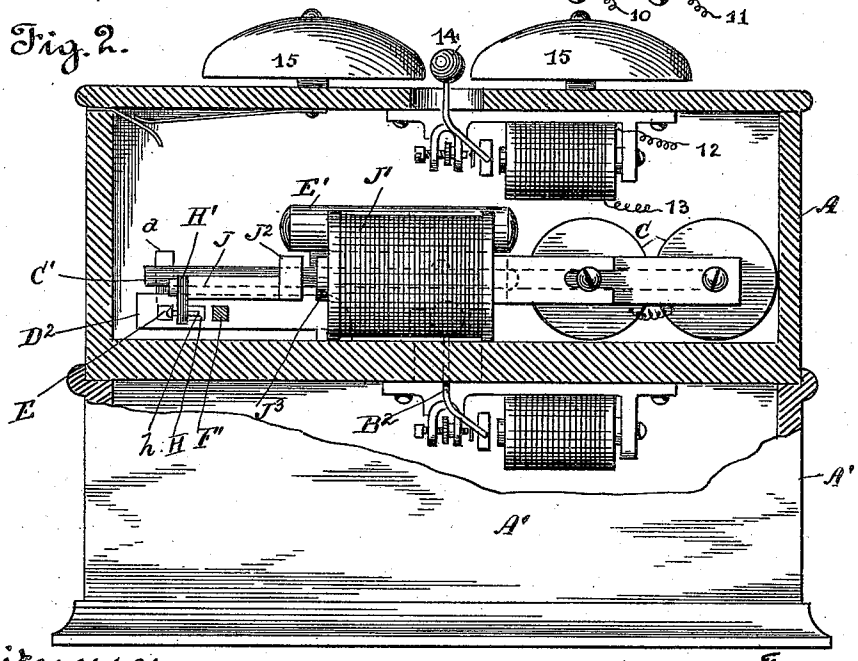


Fig. 2.



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UNITED STATES PATENT OFFICE.

HARRY I. HAUXHURST, OF OAKLAND, CALIFORNIA.

TELEPHONE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 690,651, dated January 7, 1902.

Application filed September 11, 1900. Serial No. 29,695. (No model.)

To all whom it may concern:

Be it known that I, HARRY I. HAUXHURST, a citizen of the United States, residing at Oakland, county of Alameda, and State of California, have invented certain new and useful Improvements in Telephone Attachments; and I do hereby declare the following to be a full, clear, and exact description of the same.

The present invention relates to what may properly be termed "auxiliary" means for denoting calls in connection with what are known as "party-line" telephones. As is well known, in this class of telephones a call from the exchange for any one subscriber sounds the bell of every other subscriber on that particular line. For instance, if five parties are on the same line and central rings five bells, the same being the signal for the fifth party on the line, the telephone-bell of the other four subscribers on said line also rings five bells. This creates considerable confusion to the subscribers, as it is difficult for many to discern the difference in the calls. Consequently it frequently happens that the call is answered by the wrong subscriber.

The object of the present invention is to dispense with this difficulty and to provide means by which only the call-bell of the subscriber desired by central will sound an alarm when a call is made, thus indicating to the subscriber that when his telephone call-bell is rung he is desired to answer by central. To this extent a party-line telephone is converted into an individual line in so far as it relates to the sounding of the call-bell.

The actuating mechanism for the auxiliary telephone-call is preferably located within a box or casing which is attached to the box of the telephone.

In order to comprehend the invention, reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a vertical sectional view of the box or casing of my attachment, disclosing the mechanism therein for actuating the call-bells; and Fig. 2 is a cross-section top plan view illustrating my attachment secured to the box of an ordinary house or wall telephone.

In the drawings the letter A is used to indicate the box or casing within which the operating mechanism is located, said box or casing being secured to the box A′ of the telephone proper. To the wall of the box or casing A are fulcrumed the levers B B′, between which rests the ordinary clapper B^2. This clapper protrudes from the telephone-box A′ and works within the box or casing A, between the fulcrumed levers B B′. The set of electric magnets is represented by the letter C, the wires 1 2 of which are connected, respectively, to binding-post D and fulcrumed lever B. Above the electric magnets C is fulcrumed the lever C′, which, as hereinafter explained, is actuated by said magnets. One end of this lever extends beneath a flange *a*, projecting from the upper end of the slide-rod E, which works through guide-openings *a′* in brackets D′ D^2. To the fulcrumed lever C′ is adjustably secured by set-screw *b* the tube E′, within which works a steel ball E^2. This ball rolls within its tube as the lever C′ is moved up or down and aids in holding the said lever in proper position, as will be explained. From the slide-rod E extends the dog F, which engages with the teeth *d* in the face or edge of slide-rod F′. This slide-rod works through guide-opening *d′* in bracket D′, its lower end G being insulated and resting upon the spring-contact plate G′, when the said rod is lowered, Fig. 1. This toothed slide-rod F′ is also acted upon by the lever H, which works between the slide-rods E and F′. This lever is fulcrumed to the bracket D^2, and its upper end is provided with an inwardly-projecting tooth d^2, which engages with the teeth *d* of slide-rod F′. The upper end of said fulcrumed lever, therefore, acts as a dog for holding the slide-rod F′ against downward movement until released from engagement therewith. To the lower end of said fulcrumed lever H is adjustably secured an insulated plate H′, which at its lower end carries a platinum point *h*. This insulated plate H′ is held in place by means of the set-screw *h′*, which passes through an elongated opening in the plate H′, said opening not being shown, and screwed into a screw-threaded opening in the lower end of fulcrumed lever H. Said set-screw *h′* not only serves to secure the plate H′ in its adjusted

position, but likewise answers to unite the inwardly-projecting arm J thereto, which when the magnet J′ is energized forms a connection between the fulcrumed lever H and armature J^2 of magnet J′. To the lower end of slide-rod F′ is secured the notched plate H^2, into the notched portion *g* of which the platinum point *h* enters when the lower end of fulcrumed lever H is thrown inward. The edges of plate H^2 are insulated in order that the circuit will not be closed in case point *h* comes in contact therewith during the movement of the slide-rod F′.

The fulcrumed lever C′ is normally held downward at its outer end by means of spring I, attached thereto at one end. The opposite end of the said spring is connected to the adjusting-screw I′, by means of which the tension of the spring is regulated.

Connection is made between contact-plate G′ and magnet J′ by wire 3, and between contact-points 4 and 5 by wire 6. Connection is also made from lever B′ and binding-post P by wire 7, which wire is connected to plate 8 of bracket D^2 by short connection 9. Wires 10 11 connect with the battery of the telephone, while wires 12 and 13 connect with a suitable magnet for actuating clapper 14, in order to ring call-bells 15, secured to the outside of the box or casing A.

In securing the described attachment to the ordinary telephone the bells are unscrewed from the telephone-box and my box or casing secured to the face thereof, so as to place the clapper B^2, ordinarily used to ring the bells, between the levers B and B′. The removed bells are then secured to box or casing A and sounded by clapper 14, actuated by the described mechanism. The position of the bells when thus arranged will be understood by reference to Fig. 2 of the drawings.

The operation of my auxiliary call mechanism may be briefly stated to be as follows: Suppose three bells indicate the call for the subscriber of the party line to whose telephone the attachment is applied. In such case the insulated plate H′ on fulcrumed lever H is so adjusted that its platinum point *h* will be directly in line with notch *g* of plate or collar H^2 when the slide-rod F′ has been raised three notches or teeth by the step mechanism. Being thus adjusted or "set," so to speak, central, desiring to call the subscriber, rings three bells. The vibration of clapper B^2 between the fulcrumed levers B B′ is so rapid that it forces the levers B B′ against the platinum points K K′, interposed therebetween, as though one continuous pressure. The circuit is thus connected through the coils C, which draws the inner end of the fulcrumed lever C′ downward. As moved downward toward coils C the ball in tube E′ rolls to the inner end, throwing its outer end upward. As carried upward it acts against flange *a* and raises the slide-rod E, the dog of which engaging the first tooth of slide-rod F′ elevates the same one notch or tooth, in which position it is held by dog of fulcrumed lever H. One bell has been rung, after which fulcrumed lever C′ moves away from the coils C, which lowers its outer end and permits rod E to drop or fall downward one tooth. As the current is broken after each ring the attraction of lever C′ toward coils C ceases, and the lever C′ is moved away by the tension of spring I. While it does not return to its normal position or into contact with point 5, it does move upward a sufficient distance to start the ball within tube E′ to return to its starting-point. However, the pauses between the rings are so short that before the ball can roll its full distance the clapper B′ will again be agitated so as to complete the circuit and again draws the lever downward, elevating the rod E one notch or tooth, and the rod F′ therewith. After the third ring from central a full stop is made and vibration of clapper B^2 ceases. The outer end of the lever C′ is then drawn downward by the spring I its full distance and the ball within tube E′ returned to its starting-point. This full downward movement of the lever C′ moves its inner end upward until contact with point 5 is made. It will be understood that with the third ring from the central office rod F′ is raised its third notch or tooth. This places the notched collar H^2 in line with point *h*. As the lever C′ is at this time in contact with point 5, connection is made with magnet J′ and the armature J^2 drawn inward against core J^3 of magnet J′, thus drawing lower end of fulcrumed lever H inward and moving point *h* into notch *g* of collar H^2. The upper end of the fulcrumed lever H being released from slide-rod F′, said rod is permitted to fall downward its full distance. While the circuit is completed through magnet J′ the clapper 14 is vibrated so as to ring bells 15, thus sounding the call-bells. During the operation of the call-circuit the circuit through magnets C′ is cut out, so to speak. The call-bells will continue to ring until the circuit is broken by slide-rod F′ moving down upon plate G′, which breaks its connection with point 4. The moment this circuit, or what may be termed the "auxiliary" circuit, is broken the pressure of spring 16 forces the upper end of fulcrumed lever H inward, thus throwing its outer end outward and drawing the armature J^2 away from magnet J′. As the lower end of the fulcrumed lever H is moved outward contact-point *h* is withdrawn from within notched collar H^2, thus releasing slide-rod F′ and permitting it to fall upon G′, so as to break connection at point 4. As the call-circuit is in this manner broken or destroyed the ringing of the subscriber's bell thus ceases and the parts remain in a state of rest, Fig. 1, until called into operation by the central again making a call for three bells. The call-circuit will not

be completed or the subscriber's bell sounded by any subsequent telephone-call from the central office unless it be three bells, due to the fact, first, if the telephone-call is under three bells the slide-rod F′ will not be raised such a distance as to permit of the point *h* moving into notch-collar H^2, and, second, if the telephone-call is more than three bells, the pause made between the call or bell at the third ring is not sufficient to permit the lever C′ to move its full upward stroke in order to make contact with point 5, so as to energize magnet J′ and draw armature J^2 against core J^3. It requires a full pause or stop of the central-office call in order that the lever C′ may move upward so as to contact with point 5, and until this takes place the subscribers' call-bell circuit is not completed.

It will thus be observed that the operation of the auxiliary alarm is actuated by the vibration of the clapper B^2 and that said mechanism does not cause an alarm or call to be sounded until after the central office has ceased to ring for the subscriber.

By the foregoing mechanism it is absolutely impossible for the subscriber's call or bell to sound unless said subscriber's number is rung up by the central office.

I am well aware that the mechanism herein described may be varied as to details of construction without creating a departure from the nature and scope of the invention, which consists, broadly, in auxiliary means attached to the telephone-box for sounding the call-bells of the subscriber only at such times as the central office rings for such particular call.

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

1. The combination with the call mechanism of a party-line telephone, of auxiliary means attached thereto for sounding only the bell or call of the subscriber desired by central, the same comprising a step-by-step mechanism actuated by the vibration of the telephone-clapper, devices for adjusting the step mechanism and setting the auxiliary means for the subscriber's call or telephone number, of connections for operating the auxiliary means after the call from central office has ceased and of means for breaking the connections after the sounding of the subscriber's call.

2. The combination with the call mechanism of a party-line telephone, of auxiliary means for sounding only the bell of the desired subscriber, the same comprising connections whereby said means are actuated after the call from central office has ceased, and of devices for destroying the connections after the call has been made.

3. In auxiliary means for actuating the call-bell of only the subscriber of a party-line telephone desired by the central office, the combination with the magnets, of a fulcrumed lever actuated thereby, of step mechanism actuated by the fulcrumed lever, adjusting devices for regulating the step mechanism and setting the same for the call or telephone number, fulcrumed levers actuated by the vibration of the clapper of the telephone, means actuated after the central call ceases by means of which an electrical circuit is completed in order to operate the auxiliary means so as to sound the call and of devices whereby the circuit is broken after the call has been made.

4. The combination with the call mechanism of a party-line telephone, of auxiliary means for sounding the call of only the telephone of the subscriber desired by central, said auxiliary means being actuated by the vibration of the telephone call mechanism, said auxiliary means comprising electrical connections whereby said auxiliary means are operated after the central call has ceased and said connections are broken after the subscriber's call has been made.

5. In a party-line telephone, the combination with the call mechanism thereof, of electrically-controlled auxiliary means connected therewith whereby only the telephone call or number of the subscriber desired by central is made, said auxiliary means comprising means whereby the auxiliary means are actuated after the central call ceases and whereby the operating-current therefor is broken after the subscriber's call has been made.

6. In a party-line telephone, the combination with the call mechanism, of electrically-controlled means interposed between the call mechanism and the telephone-bell whereby only the bell of the subscriber desired by central is actuated after the central call ceases, and of means for breaking the current of said electrically-controlled means after the subscriber's call has been made.

7. The combination with the auxiliary means for actuating the call-bell of party-line telephones, of the toothed slide-rod, a notched collar secured to the lower end thereof, a spring-pressed fulcrumed dog-lever which engages said slide-rod, a slide-rod carrying a dog which engages and lifts the toothed slide-rod, an insulated adjustable plate secured to the fulcrumed dog-lever, said plate carrying a contact-point, of electrically-actuated devices for imparting movement to the slide-rod, of means for drawing the contact-point of the insulated plate into the notch of the collar of the toothed rod, when said rod has raised the notched collar in line therewith, and of electrical connection for sounding the call-bell of the telephone upon the contact-point moving into said notched collar and continuing the alarm until the connection is broken.

8. The combination with the coils C, of the fulcrumed lever C′, the tube attached thereto,

a movable device secured therein, a tension-regulated spring connection for the outer end of the fulcrumed lever, the step mechanism actuated by the movement of the fulcrumed lever, electrically-controlled releasing mechanism for said step mechanism, adjustably-set devices by means of which an electrical circuit is completed when the step mechanism has moved upward a given distance and of means for breaking said circuit after the release of said step mechanism.

In witness whereof I have hereunto set my hand.

HARRY I. HAUXHURST.

Witnesses:
N. A. ACKER,
WALTER F. VANE.