(No Model.)

W. A. BELCHER.

TELEPHONIC APPARATUS.

No. 283,747. Patented Aug. 28, 1883.

Fig. 1.

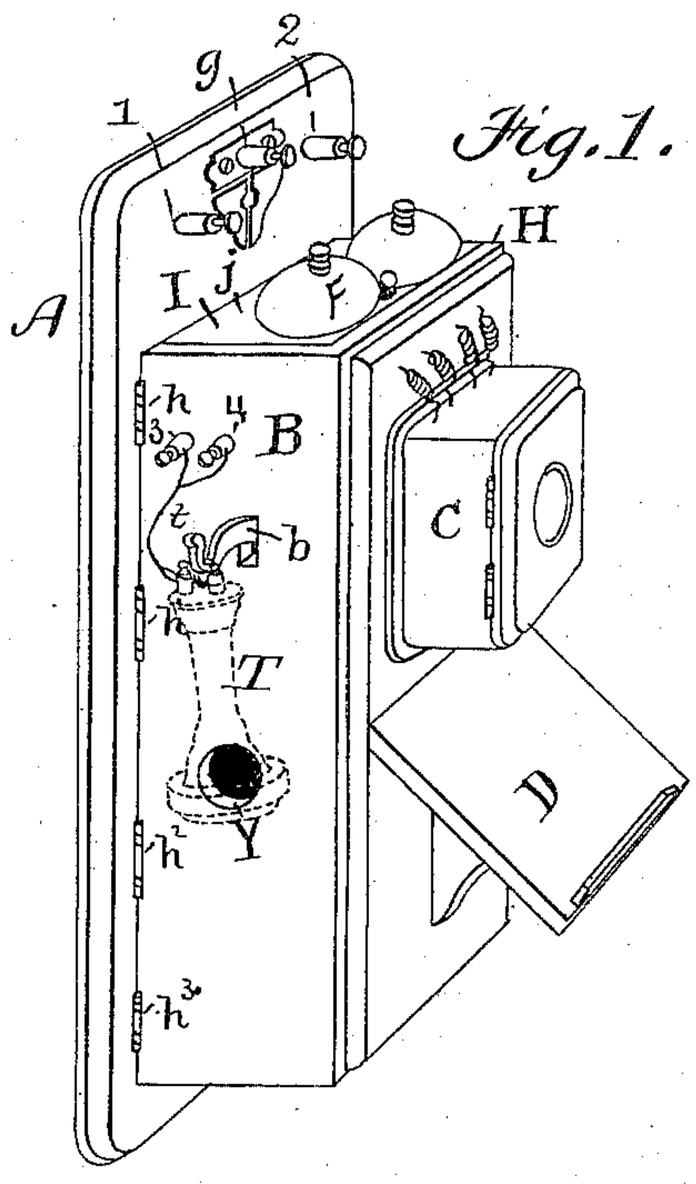


Fig. 2.

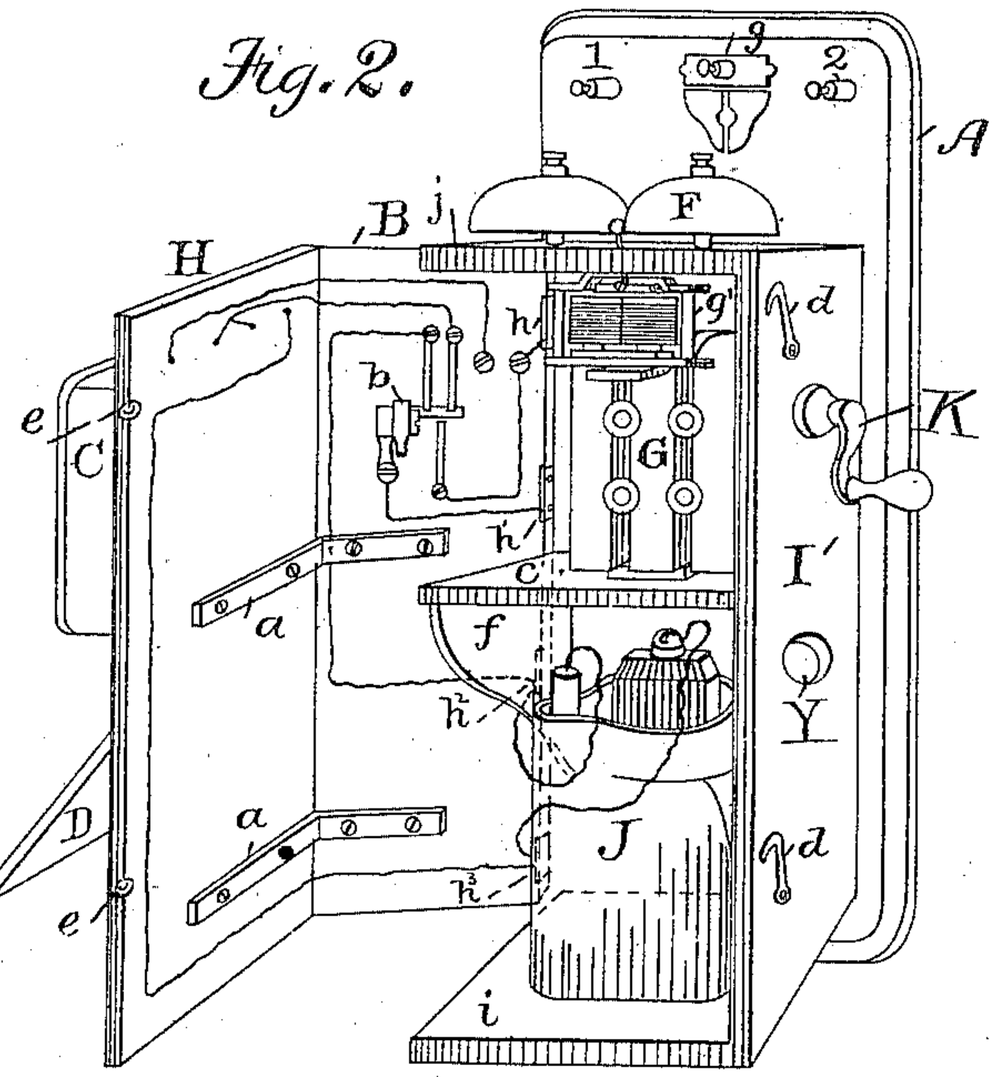
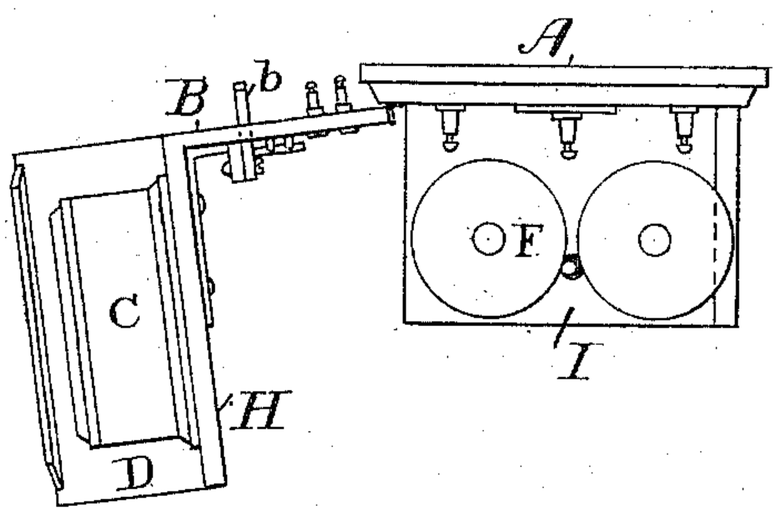


Fig. 3.



Witnesses.
J. H. Cheever.
Geo. Willis Pierce

Inventor:
Walter A. Belcher

UNITED STATES PATENT OFFICE.

WALTER A. BELCHER, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO FREDERICK TAYLOR, OF SAME PLACE.

TELEPHONIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 283,747, dated August 28, 1883.

Application filed June 4, 1883. (No model.)

To all whom it may concern:

Be it known that I, WALTER A. BELCHER, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Telephonic Apparatus, of which the following is a specification.

My invention relates to telephone-station apparatus, and particularly appertains to that class of signal-boxes which contain some form of electrical generator for sending a current over the line to operate a distant signal-receiving device to be operated by a distant generator, together with suitable arrangements of automatic switches, telephones, and a battery.

The objects of my invention are to provide a suitable and compact case adapted to inclose or support the whole of the necessary apparatus, and to so construct this case that it may readily be opened, and, furthermore, that when opened the entire contents shall be exposed in such a manner that every part or appliance can be inspected and easily reached for purposes of alteration, readjustment, or repairs. I also aim at reproducing an apparatus which may be set up by any one not having a special knowledge of its functions or of applied electricity. The other objects of this invention are to increase the strength of the electric currents used to energize the transmitting-telephone, and to employ a form of construction of the apparatus which, while bringing all the parts, including the battery, into close and compact proximity one to another, shall yet provide a means for the escape of gases generated by the said battery, and which would otherwise act detrimentally upon the working parts of the apparatus. It is also sometimes desirable, especially when testing lines, to hold the door or cover of the apparatus open while the testing, either by ringing a signal or by articulate speech, is going on. By the construction which I have devised, and which I shall hereinafter show, I accomplish this. All the objects hereinbefore specified I attain by my form of construction; and to this end my invention consists in forming a compact inclosing-case provided with upper and lower compartments, the upper being assigned to the signaling appliances and the lower to the battery. These are separated by a horizontal partition, which forms the base of the upper chamber and the top of the lower. The front and one side of this case are rigidly attached to each other; but the side is hinged to the base or back board of the case in such a manner that when swung back the internal arrangement of all the parts is fully exhibited. To the external surface of the front of the case I attach the transmitter, and preferably a small writing-desk, and I make the electrical connections between the front and side and the main part of the box by means of the hinges, no contact-spring being used. By reason of the close proximity of the battery, when placed as described, its circuit is very short and the current flowing therein is correspondingly strengthened. I also provide holes in the sides of the casing for the escape of gases generated by the battery. Since all possible electrical connections are made in the box between the several parts, the only remaining work for the person setting up the apparatus to do is that of fastening the telephone-cord to its screw terminals, and of fastening the line and ground wires to their respective binding-screws.

It has heretofore been customary to connect contact-springs between the edge of the bell-box and the flange of the cover thereof, whereby that portion of the apparatus attached to the base is electrically connected with that portion attached to the cover; but in that case it has been found impossible to operate the instrument at any time except when the cover is tightly closed. No such contacts are employed in my invention, and I may therefore, as occasion requires, utilize the instrument with the cover thereof swung open, which is often desirable in testing operations.

I will now describe in detail the construction I employ, reference being had to the accompanying drawings.

In the drawings, Figure 1 is a perspective view of my combination telephone-station apparatus. Fig. 2 is a front elevation with the side and front cover thrown open to show the mechanism. Fig. 3 is a plan or top view of the apparatus with the cover as in Fig. 2.

In the figures, A is a base-board, to which the greater part of the working parts, as more clearly shown in Fig. 2, are fastened. These

are covered by an oblong case, I, the top, bottom, and one side of which are rigidly attached to the base-board A.

The top is designated in the drawings by *j*, the bottom as *i*, and the fixed side as I′. Of the other walls of this case, the front, H, is fastened permanently by angle-irons *a* to the side B, and the homogeneous whole formed by this union is hinged at *h*, *h′*, *h²*, and *h³* to the base-board A, and may be closed up, as in Fig. 1, or thrown open, as in Fig. 2. In the latter figure the hooks *d* on the fixed wall I engage with and into the staples or eyes *e* on the edge of the cover H, and when closed the door may thereby be fastened.

C is the transmitting-telephone, screwed to the outside of the cover H; T, the receiving-telephone, which by the conducting-cord *t* is attached to the binding-screws 3 and 4; and D is a convenient desk, also attached thereto.

1 and 2 are binding-screws for the attachment of the in and out line-wires, or of the line and ground wires. *g* represents a separate ground-wire for the lightning-arrester; and 3 and 4 are binding-screws for the attachment of the conducting-cord leading to the receiving-telephone. Through the lower part of the sides B and I′ are bored holes Y, whereby any gases generated by the battery J, which stands on the bottom *i*, may escape. Immediately above this battery is a horizontal partition, *c*, supported at one side by the bracket *f*. This partition serves to completely separate the two compartments when the cover is closed.

The calling magneto-generator is placed in the upper chamber, and is operated by the crank K, which protrudes through the side I. A polarized bell-magnet, *g′*, whereby call-signals are received, surmounts the generator, and its hammer extends through the top *j*, and is adapted to strike the gongs F, which are fixed externally on the top of the case.

The telephone-hook *b* projects through the side B, and besides being adapted, as shown, for a support for the receiving-telephone when not in use, serves in a manner well understood as an automatic switch, whereby the line-circuit, which while the telephone remains on the hook passes through the magnet of the polarized bell, may be transferred to the telephone upon the removal of the same from the said hook, and whereby the transmitter local circuit may be simultaneously closed also by the removal of the telephone.

The line-circuit is of course restored to its normal course through the bell-magnet, and the local circuit opened upon the replacement of the receiving-telephone in the hook-support. The construction of the bell and generator form no part of my present invention, and it is therefore not essential that I shall describe their connections or details in this specification.

It will be observed that when the case is closed the battery J is on the inside, and that the transmitter C is affixed to the outside thereof, and that being thus near to one another the circuit of the said battery is very short, and the current flowing through its circuit and acting on the transmitter is maintained at its maximum.

Having now described my invention, I claim—

1. A telephone-station apparatus consisting of the combination of a magneto-generator and call-bell, a local battery, transmitting and receiving telephones, and an inclosing-case adapted to inclose the signaling apparatus and battery, and formed of two portions, one of which, comprising one side and the top and bottom, is permanently attached to the base-board, the other portion, comprising the second side and front, being hinged to the said base-board and capable of being opened out, whereby the internal mechanism may be easily reached for inspection and adjustment, substantially as described.

2. In a telephone-station apparatus, an inclosing-case comprising a base-board and a cover therefor, the said cover being made in two divisions, one of which is rigidly attached to the said base-board, and with the said base-board forms the back, top, bottom, and one of the sides of the said case, the other division constituting the front and the remaining side of the said case, and being hinged to the said base-board and adapted to be closed upon or opened away from the fixed division, as indicated, the entire case being adapted to inclose the signaling apparatus and battery and to form a support for the transmitter, as described, and for the purposes set forth.

3. The combination, in a telephone-station apparatus, of a battery, an inclosing-case therefor, furnished with holes for the escape of gases generated by the said battery, and a transmitting-telephone energized by the said battery and supported on the outside surface of the said case, whereby it is maintained in close proximity to the said battery for the purpose of being acted on thereby with greater strength.

4. In a telephone-station apparatus, an inclosing-case divided horizontally into two compartments, the upper one of which is adapted for the reception of the signaling apparatus, and the lower one having holes in its sides and adapted to contain the battery, a portion of the said case being fixed to the base-board, and the remaining portion hinged thereto and adapted to be opened out, as described, whereby the internal mechanism may be exhibited, substantially as described.

5. In a telephone-station apparatus, an inclosing-case consisting of a base-board, a portion affixed permanently thereto, and comprising the top, bottom, one side, and an intermediate partition dividing the said case horizontally into two compartments, and a second portion, consisting of the remaining side and the front of the case, hinged to the base-board, combined with a magneto-generator attached to the base-board in the upper compartment, a polarized bell attached to the top, an automatic

switch fixed in the hinged side, a transmitting-telephone fixed upon the foot of the said case, and a battery in the lower compartment, all substantially as and for the purposes described.

6. The combination, in a telephone-station apparatus, of signaling mechanism, a battery and a transmitting-telephone, and a rectangular case therefor, inclosing the signal mechanism and battery, but forming a support for the transmitting-telephone, the said case having two of its sides severed from the remaining sides, but hinged to a common base-board and adapted to serve as a door and to be swung back for the purpose of affording free access to the inclosed mechanism without interference with the electrical connections of the said mechanism, the battery, or the telephone, substantially as hereinbefore described, and for the purposes set forth.

7. A rectangular inclosing-case for a telephone-station apparatus, having its front board and one of its sides rigidly united to one another, but severed from the remaining sides of the case and hinged to the base-board thereof, constituting a cover or door adapted to be swung upon its hinges and back from the other sides of the case, whereby free access to the mechanism contained in the said case is afforded, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 31st day of May, 1883.

WALTER A. BELCHER.

Witnesses:
J. H. CHEEVER,
GEO. WILLIS PIERCE.