

No. 630,841.

Patented Aug. 15, 1899.

R. M. BAILEY.
COMBINED TELEGRAPH AND TELEPHONE.

(Application filed June 10, 1899.)

(No Model.)

Fig. 1.

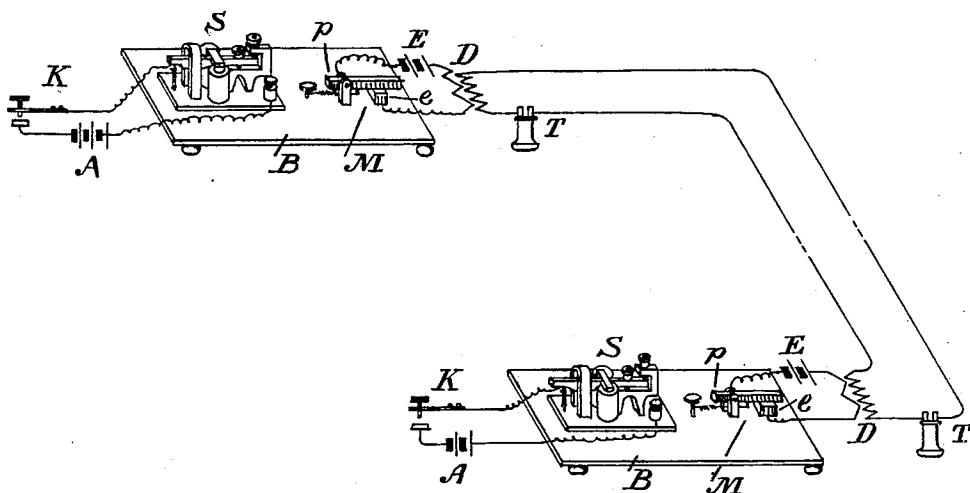
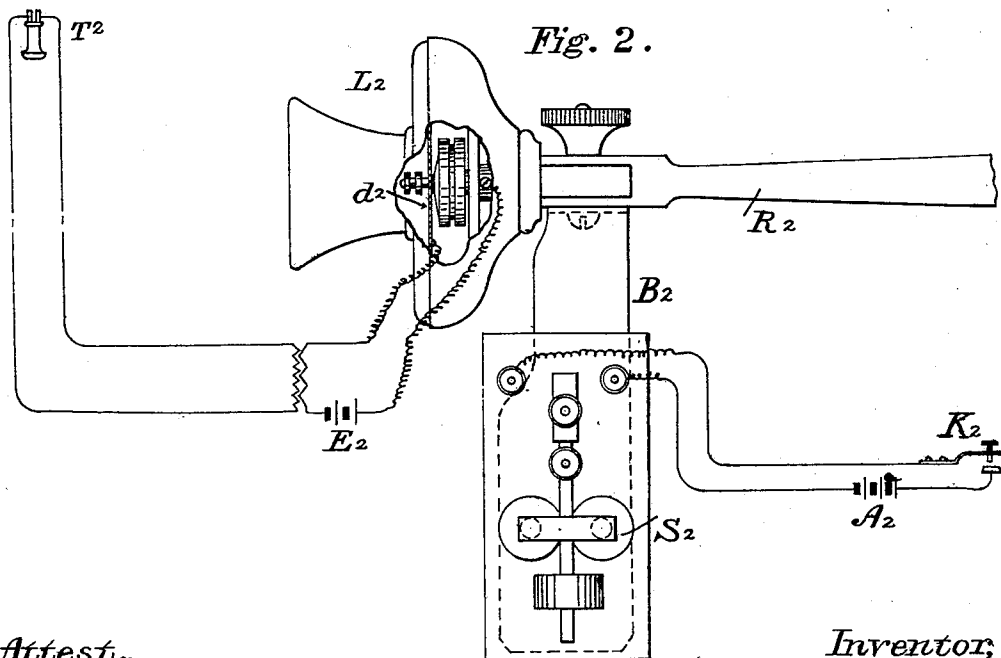


Fig. 2.



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COMBINED TELEGRAPH AND TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 630,841, dated August 15, 1899.

Application filed June 10, 1899. Serial No. 720,122. (No model.)

To all whom it may concern:

Be it known that I, ROBERT M. BAILEY, of Williamsport, in the State of Pennsylvania, have invented a new and useful Improvement in Telephony and Telegraphy, of which the following is a specification.

The object of the invention is to provide a microphone system of telephony with a device for transmitting signals with all the exactness of a system of telegraphy employing the Morse or a similar code, taking advantage of the fact that sounds are conveyed a greater distance or more forcibly through solids than through air. As is well known, it is difficult to telephone numbers with certainty, more or less confusion arising from similarity of sounds in different numbers. In some cases this fact almost prohibits the use of telephony. For instance, railroad men are reluctant to trust to mere articulation for sending numbers that are to govern the action of persons at a distance, and yet for most of their messages, and perhaps for a large part of any single message containing a number or numbers, the speed attending the use of telephony is highly desirable. It is highly desirable, then, that persons telephoning an order or instructions or information, a part of which consists of numbers, shall have at hand a convenient device for supplementing telephony with the more exact art of telegraphy; or, approaching the subject the other way, a person who has been accustomed to transmit messages containing numbers by the exact art of telegraphy will find it a convenience to be able to readily supplement telegraphy by telephony, and this may be done if only one or both of the electrodes of a microphone in a telephone-circuit containing a telephone-receiver at a distant station are mounted upon the same support or base as the sounder of a transmitting telegraph apparatus.

The invention accordingly consists in the combination at a transmitting-station, with a line-wire containing a telephone-receiver at a distant station, of microphone and telegraph apparatus, the sounder of said telegraph apparatus and one or both of the electrodes of said microphone apparatus being mounted on the same base or plate.

In carrying out the invention I use a local circuit for telegraph apparatus and another local circuit for the microphone apparatus. I also make use of an induction-coil between the microphone-circuit and the main line; but as in other systems of telephony involving the use of contact-transmitters such induction-coils are not necessary, and as is obvious to those acquainted with common battery systems of telephony, this combination of telephone and telegraph apparatus may readily be adapted to a common battery system.

In the drawings, Figure 1 is a representation, for a large part diagrammatical, of complete apparatus embodying my invention by which telephony or combined telegraphy and telephony may be practiced between two stations. Fig. 2 is a modification representing a telegraph-sounder attached to an ordinary long-distance telephone to be used according to my invention at a transmitting-station with a telephone-receiver at the distant station.

The same letters represent corresponding parts in the two figures, but the numeral "2" subscript is written with every letter in Fig. 2.

Confining further description for the present to Fig. 1, at both stations there represented B is a base-plate, of wood or any suitable material. M is a microphone mounted thereon, *e* being one of the electrodes, a carbon block resting directly on base-plate B, and *p* being the other, a carbon pencil resting at one end on block *e* and pivoted near the other end in supports that are fixed upon base-plate B. These two electrodes are connected by wires, as shown, to a battery E in a local circuit. K is a telegraph-key, and S a telegraph-sounder, the latter being mounted directly upon the base-plate B, and the said key and sounder being in a local circuit with battery A, as shown. D represents an induction-coil, and T a receiving-telephone in the main line connecting the two stations.

In the operation of the apparatus illustrated at Fig. 1 articulate speech will be transmitted by causing the sound-waves of the voice to fall directly upon the plate B, which thus serves as the sounding-board of an early form of microphone. When signals or messages are sent telegraphically, the vibrations of the telegraph-sounder S are taken up by the elec-

trodes *e p* and cause similar variations in the local telephone-circuit. When articulate speech is transmitted, the telegraph apparatus is at rest; but when the telegraph apparatus is operated the electrodes of the microphone, as well as the distant telephone-receiver, take part in the operation, and within the invention it is necessary that one or both of the electrodes be mounted upon the same base as the telegraph-sounder, for, as stated in substance above, it is an object of the invention to obtain for the microphone-electrodes the sharp and distinct signal-sounds of the telegraph-sounder that will be communicated to them through a rigid connection between telegraph-sounder and themselves as distinguished from communication through air. The vibrations of the telegraph-sounder are felt in the common support of the sounder and the microphone electrode or electrodes and are directly communicated thereto. Within my invention, however, it is not necessary, when the electrodes of the microphone are employed for transmitting articulate speech, as distinguished from taking up and transmitting the signals of the telegraph-sounder, that the sound-waves of the voice shall fall directly upon the common base or plate upon which the telegraph-sounder and one of the microphone-electrodes are mounted. For ordinary telephonic conversation by the apparatus, if more convenient, an ordinary telephone-diaphragm may be connected in the ordinary way with one of the electrodes of the microphone, usually known as the "movable" or "hammer" electrode, while the other—the "anvil-electrode" only, as it is often called—is fixed upon the same base or plate as the sounder of the telegraph apparatus. Thus my invention can be readily applied to the long-distance microphone in ordinary use by rigidly attaching a bracket to the supporting

base or arm which carries the back or fixed electrode of the microphone and rigidly supporting the sounder of a telegraph apparatus upon such bracket.

At Fig. 2, L^2 is the common long-distance transmitter, rigidly supported upon a metallic arm R^2 in the ordinary manner. d^2 is the diaphragm, carrying one of the electrodes, while the other electrode is rigidly supported by the case of the transmitter L^2 and the arm R^2 . These two electrodes are not shown, the construction being well known. B^2 is a metallic bracket rigidly screwed to the arm R^2 , and thus becoming a part or essentially one piece with the rigid support of the long-distance transmitter. S^2 is a telegraph-sounder rigidly mounted on the said bracket B^2 . K^2 is a telegraph-key. A^2 is the battery of the local telegraph-circuit, and E^2 is the battery of the local telephone-circuit. T^2 is the distant telephone.

Further description of the mode of operation is unnecessary.

By my invention in cases where it is desirable to employ both telegraph and telephone, as instanced above, the necessity of a switch to bring one instrument into circuit with the line and throw the other out is avoided, and thus the same receiving apparatus is made to serve for both forms of transmitting apparatus without switches.

I claim—

The combination with a telegraph-sounder, of the electrodes of a microphone in a telephone-circuit, the said telegraph-sounder and one or both of the electrodes of said microphone being mounted upon the same base or plate, substantially as described.

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Witnesses:

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CLARA J. HULL.