

(No Model.)

2 Sheets—Sheet 1.

T. J. PERRIN.
TELEPHONIC APPARATUS.

No. 306,514.

Patented Oct. 14, 1884.

Fig. 5.

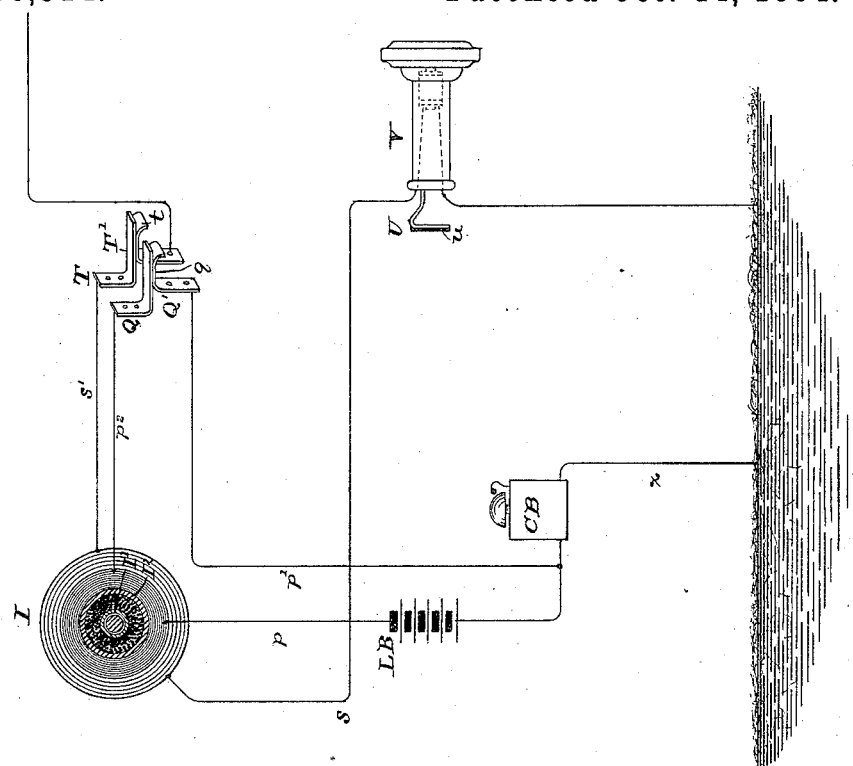


Fig. 4.

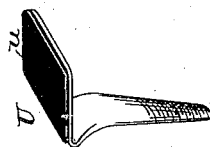
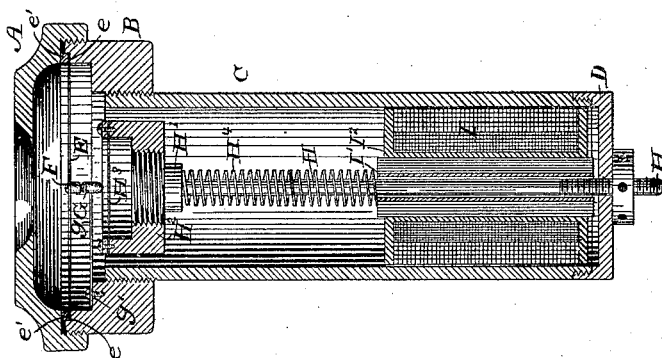


Fig. 1.



WITNESSES

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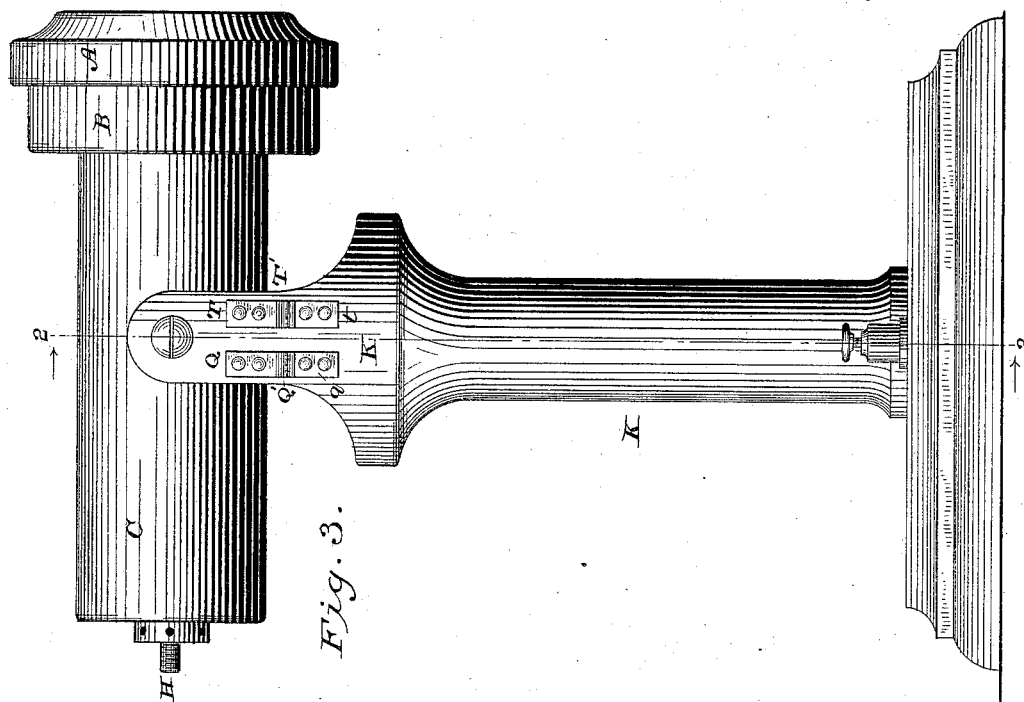


Fig. 3.

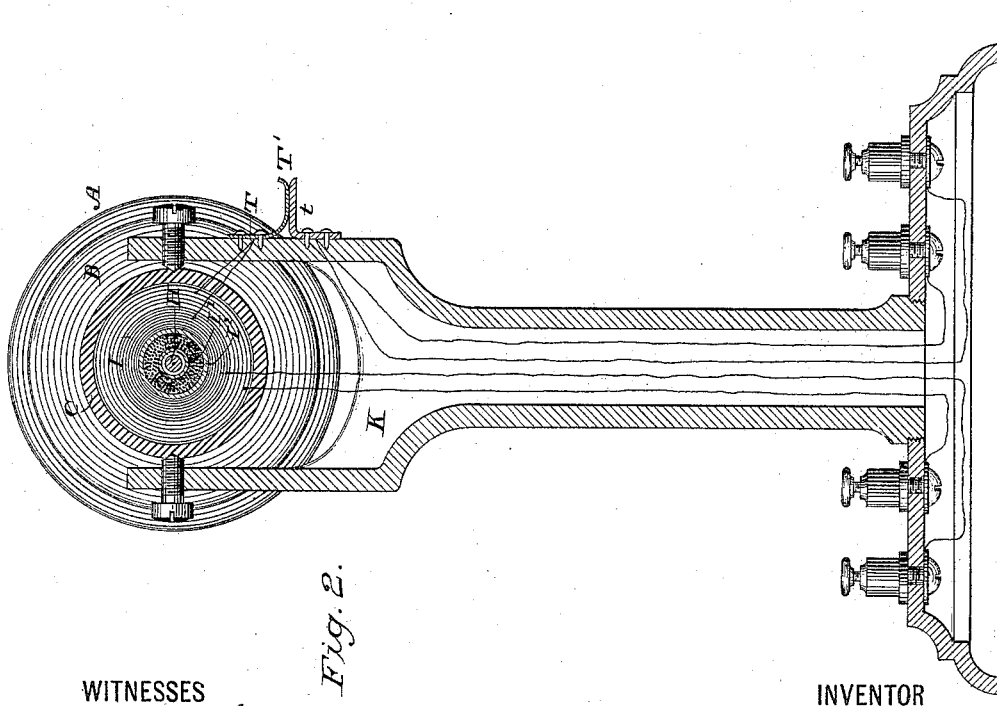


Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS J. PERRIN, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NATIONAL IMPROVED TELEPHONE COMPANY, OF NEW ORLEANS, LOUISIANA.

TELEPHONIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 306,514, dated October 14, 1884.

Application filed March 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. PERRIN, of the city, county, and State of New York, have invented certain new and useful Improvements in Telephonic Apparatus, of which the following is a specification.

My invention relates to the construction of the transmitter and its organization in connection with the transmitting induction-coil.

In the accompanying drawings, Figure 1 is a transverse longitudinal section through my improved transmitting apparatus. Fig. 2 is a transverse section through my improved instrument on the line 2 2 of Fig. 3, shown as mounted in its support or stand. Fig. 3 is a side elevation of the transmitting-instrument and its supporting-stand. Fig. 4 is a detail view of the switch plate or plug carried in the end of the receiving-telephone, and Fig. 5 is a diagram view illustrating the circuit-connections.

In Fig. 1 the case of the instrument is shown as composed of four sections which are united by screw-joints. A is the mouth-piece; B, the enlarged end or head-piece of the cylindrical portion of the case on which the mouth-piece A is screwed. C is the cylindrical body of the case, and D the cap or cover for the end of the part C. The construction of the case in sections in this manner is of very great utility, as it affords a ready way for assembling the different parts of the instrument and of readily reaching them for inspection or repair, as more fully appears below. The diaphragm E is seated in a depression or annular socket, *e*, in the upper face of the section B of the casing. Over the diaphragm an elastic washer, *e'*, is laid, and the mouth-piece screwed down upon it. One of the transmitting-electrodes, F, is carried centrally upon the diaphragm in the ordinary way, while the other electrode, G, is carried on the end of a spring-arm, *g*, which is shown as bolted on an annular ledge or shoulder, *g'*, formed in the section B below the diaphragm. The section B is secured upon the end of the cylindrical section C, as shown.

The electrodes F G are maintained in proper contact, and are adjusted by means of the following apparatus: A rod, H, projects through

the end piece, D, of the casing, its projecting end being screw-threaded and provided with an adjusting-nut. The inner end of this rod carries an enlarged head, H', which screws into an enlarged block, H², formed with a socket or recess in its upper face. An elastic device, H³, is stretched or secured across the depression or socket in the top of the piece H², as illustrated. This device may be an elastic or yielding bar or diaphragm of any ordinary elastic material. The head or block H² is normally pressed forward toward the electrode G by a coil-spring, H⁴, which encircles the rod H, as clearly shown. By adjusting the nut on the threaded extension of the rod H the yielding device H³ may be adjusted against the electrode G, which is supported upon the spring-arm *g*, so as to bring the electrodes F G in suitable contact. These electrodes are to be included in the primary circuit of an induction-coil in the usual well-known way.

The manner of adjusting the electrodes and maintaining their contact is such that the integrity and efficiency of the contact will not be impaired by the movement of the instrument into different positions.

The induction-coil I of the transmitter is mounted in the end of the section C of the casing, as illustrated in Fig. 1. The core I' of the induction-coil is made tubular and envelops the adjusting-rod H, while the coils of the induction-coil are wound in the ordinary way on a spool or bobbin, I², which is provided with strong end pieces or heads, which fit tightly within the casing C. The coil-spring H⁴, which actuates the head H², which serves to maintain the contact of the electrodes, bears at one end against the core of the induction-coil. The instrument thus constructed is very compact, and the parts may be made with greater economy and facility than where the induction-coil is formed separate from the transmitter, and by making the casing in sections, as shown, the parts may be assembled with facility.

The instrument described may be placed in varying positions, as above remarked, without impairing the contact between the electrodes. As it also carries the induction-coil,

however, it would perhaps be too heavy and inconvenient to handle. In order, therefore, that the position of the mouth-piece may be changed to suit the different heights of the persons using the instruments, I pivot it in bearings in an upright supporting-frame, K, as clearly illustrated in the drawings. The supporting-frame is made hollow, and can be constructed of hard rubber, vulcanized fiber, or any other suitable material.

I will also here remark that the casing of the telephone above described may be constructed of any of the materials ordinarily employed for that purpose, and owing to the simple structure of the several parts of the casing they may be made with facility and economy, so that the several parts will fit with accuracy.

In order that the receiving-telephone may be carried on the same support as the transmitter, so that all the parts will be compactly organized for convenience of use on desks or in other places without securing them against a wall or support, as is usually the case, I employ the following switch devices and circuits, which are represented quite fully in Figs. 2, 4, and 5: The primary circuit of the induction-coil is connected by a wire, *p*, with the ordinary local battery, LB; thence by wire *p'* to the under plate, *q*, which normally and elastically rests in contact with the upper plate or jaw, Q, of the spring-jack Q'. From the jaw Q a wire, *p*², connects with the other end of the induction-coil. The secondary coil is connected on one side with the earth by a wire, *s*, in which the receiving-telephone V is placed, and on the other side by a wire, *s'*, with the upper plate, T, of a spring-jack, T'. The lower plate or jaw, *t*, of this spring-jack is normally in yielding contact with the plate T, and is connected directly to the main line. With this condition of circuits and the apparatus as illustrated in Fig. 5, the primary circuit will be closed, and sounds uttered in the mouth-piece of the transmitter will be electrically transmitted through the secondary circuit to line in the ordinary way.

The telephone V is furnished with a hooked plate or plug, U, in its end, of a width sufficient to plug to both switches Q T simultaneously, these switches being arranged side by side for that purpose. The upper surface of this plate, *u*, is covered with insulating material, while its under side is a conductor. If the plug U be thrust between the jaws Q *q* and T *t* of the spring-switches Q' T', the primary transmitting-circuit will be interrupted by the insulating-face *u*, and the main line will be connected through the under face of the plug, jaw *q*, and line *p'*, through the call-bell CB, and then to earth by the line *x*. In this condition the station illustrated in the drawings may be called.

The switches Q' T' are shown in Fig. 3 as secured upon the upper part of the supporting-frame K, and the circuit-connections are made within the hollow frame, as fully illustrated in Fig. 2.

The receiving-telephone, when not in use, is suspended by the switches Q' T', into which the hook or plug U is thrust. When the plug is thrust into the switch T' only, the station is cut out of circuit altogether.

No claim is made in this application to the arrangement of the supporting frame or stand or to the switch devices.

I claim as my invention—

1. The combination, substantially as set forth, of a sectional casing composed of the parts A B C D, the diaphragm, the electrode carried or acted upon by the diaphragm, the other electrode mounted on a yielding support, the adjusting-rod H, and the elastic device actuated by the movement of said rod to adjust the contact of the electrodes.

2. The combination, substantially as set forth, of the casing, the diaphragm, the electrode carried or acted upon by the diaphragm, the other electrode carried by a yielding support, the rod H, mechanism for adjusting it toward or from the electrodes, the enlarged head H², carried by said rod, and the elastic device H³.

3. The combination, substantially as set forth, of the casing, the diaphragm, the electrode carried or acted upon by the diaphragm, the other electrode carried by a yielding support, the adjusting-rod H, the yielding device for acting upon the electrodes, a spring which normally presses said yielding device toward the electrodes, and a nut or device for adjusting the rod H.

4. The combination, substantially as set forth, of the casing, the diaphragm, the electrode carried or acted upon by the diaphragm, the other electrode mounted upon a yielding support, the induction-coil with a hollow core carried in the casing, an adjusting-rod which passes through said hollow core and is provided upon its extension with adjusting devices, and a yielding device carried or controlled by said adjusting-rod for acting upon the electrodes.

5. The combination, substantially as set forth, of the casing, the diaphragm, the electrode carried or acted upon by the diaphragm, the other electrode mounted upon a yielding support, an induction-coil having a hollow core carried in the casing, an adjusting-rod provided with adjusting devices extending through the hollow core of the induction-coil, a coil-spring surrounding said rod, which normally tends to press said rod toward the electrodes, and a yielding device carried by said rod for acting upon the electrodes.

In testimony whereof I have hereunto subscribed my name this 14th day of February, A. D. 1884.

THOS. J. PERRIN.

Witnesses:

E. H. QUANTIN,
J. CHARLES KUTZ.