(No Model.)

2 Sheets—Sheet 1.

J. LOWTH.

TELEPHONE.

No. 309,476. Patented Dec. 16, 1884.

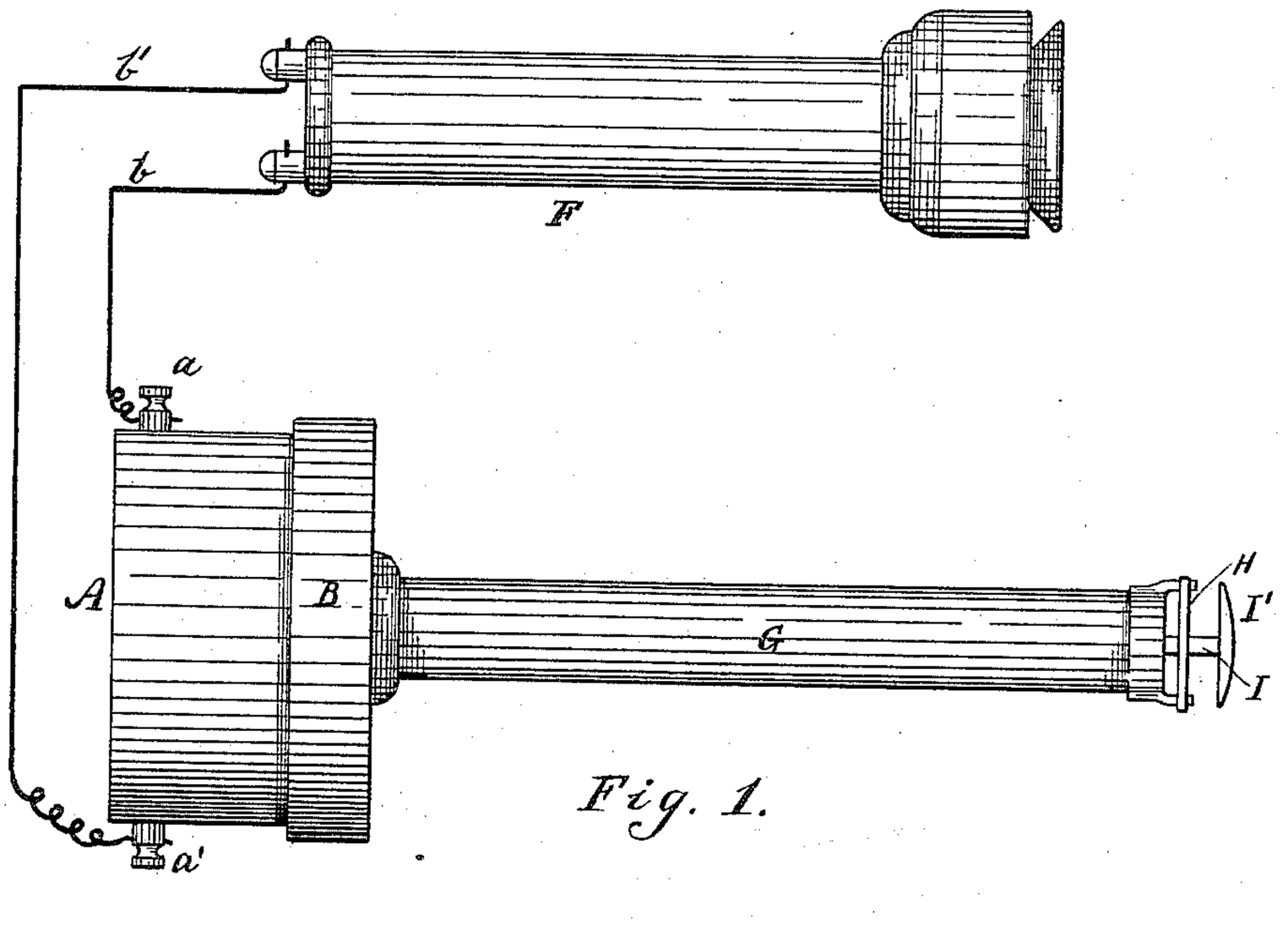

Fig. 1.

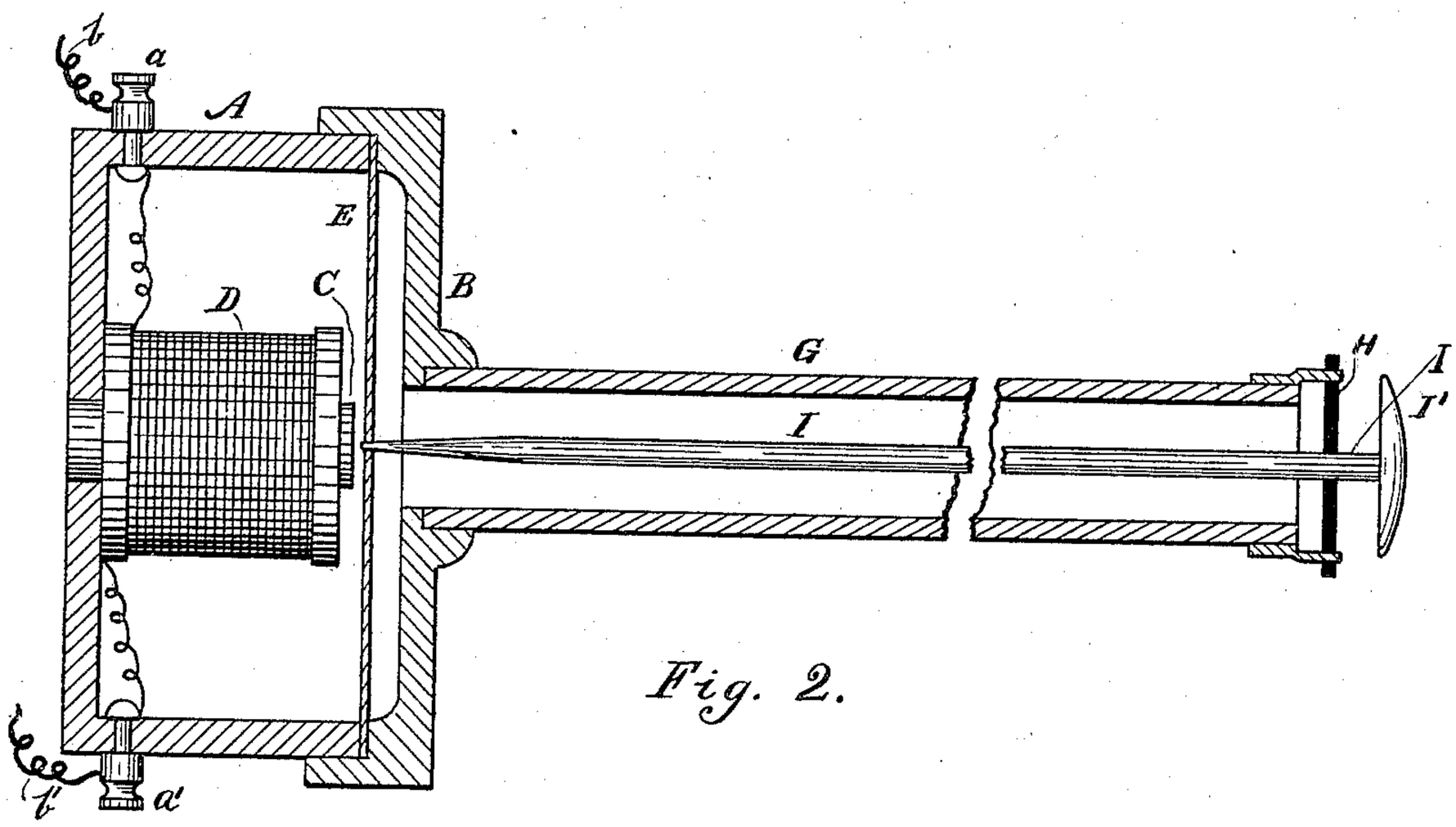

Fig. 2.

Witnesses:
J. B. Halpenny
F. F. Morse

Inventor:
James Lowth.
per F. F. Harris.
his Attorney.

(No Model.)

2 Sheets—Sheet 2.

J. LOWTH.

TELEPHONE.

No. 309,476.

Patented Dec. 16, 1884.

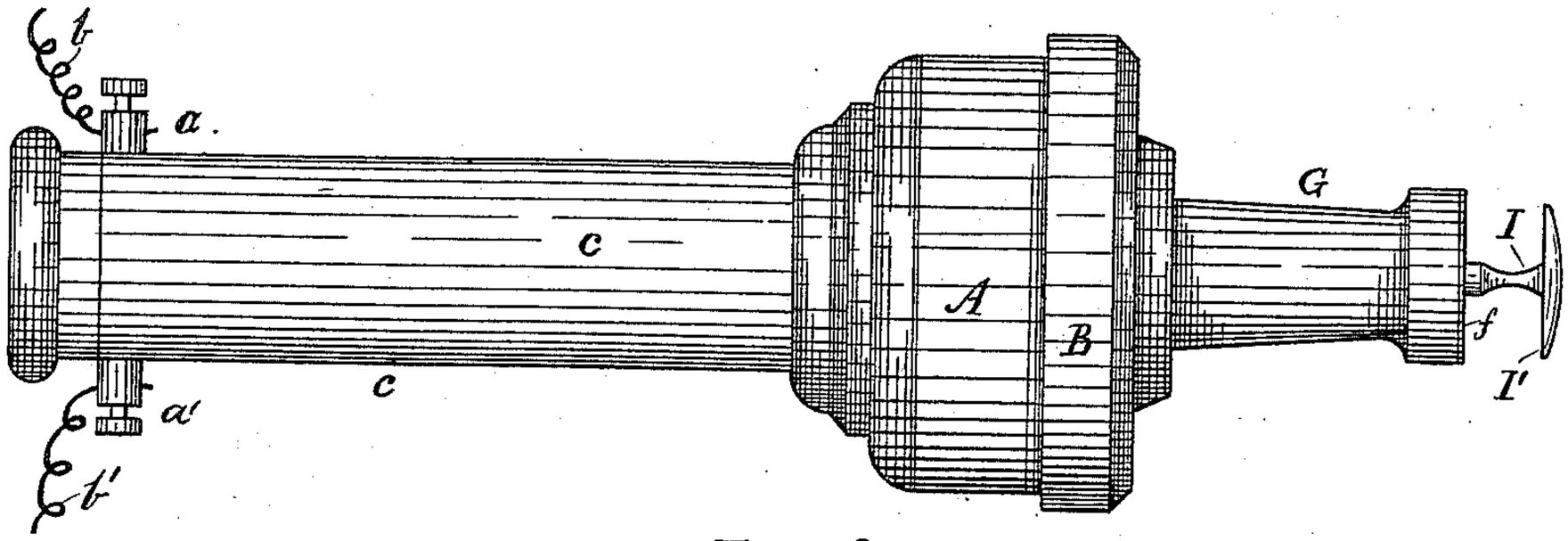

Fig. 3.

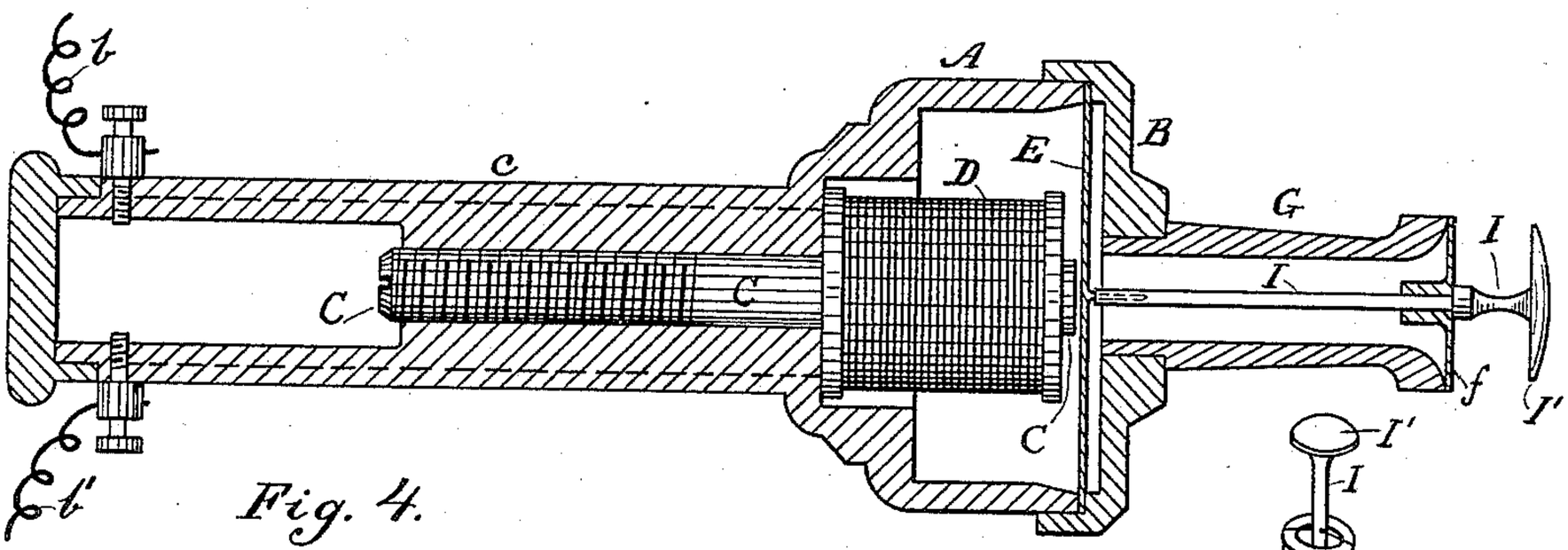

Fig. 4.

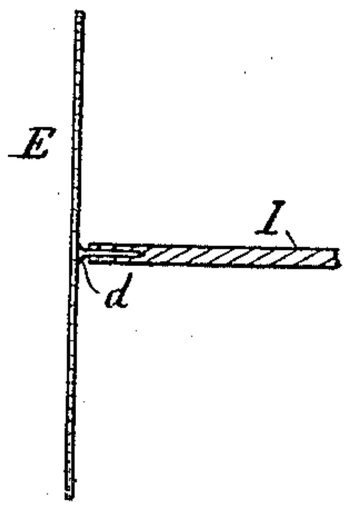

Fig. 6.

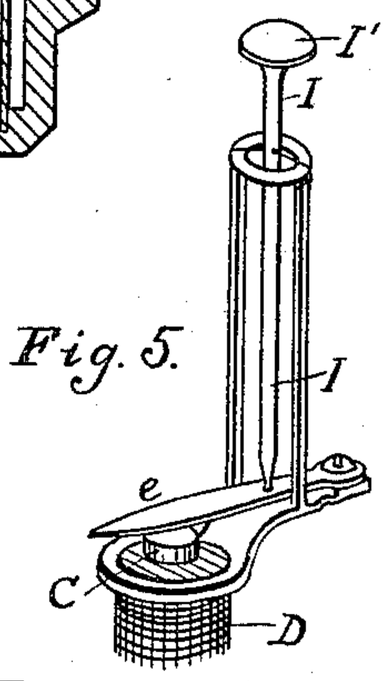

Fig. 5.

Witnesses:
J. B. Halpenny
B. J. Noble

Inventor:
James Lowth.
per F. F. Fraser-
kin - Attorney.

UNITED STATES PATENT OFFICE.

JAMES LOWTH, OF CHICAGO, ILLINOIS.

TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 309,476, dated December 16, 1884.

Application filed July 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES LOWTH, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephones, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 is a side view of a telephonic apparatus embodying my invention. Fig. 2 is a longitudinal central section on an enlarged scale through the transmitter. Fig. 3 is a side view of the transmitter, showing a modification in form. Fig. 4 is a longitudinal central section of a transmitter having the form shown in Fig. 3, and also showing some modification in construction. Fig. 5 represents a further modification, and Fig. 6 is a sectional detail showing with more particularity the manner indicated in dotted lines at Fig. 4 of effecting a juncture or contact of the stethoscopical vibrator and the disk or diaphragm for affecting the magnet.

Like letters of reference indicate like parts.

My invention is based upon the fact or discovery that the exterior parts of the human body located near or in the vicinity of the vocal organs—such, for example, as the exterior surface of the throat, and especially those parts near the larynx—vibrate in accordance with the vocal organs during the utterance of words or sounds. These external vibrations I utilize for the purpose of thereby exciting, controlling, or varying in a telephone the vibrations or undulations upon which depend the reproduction of words or sounds telephonically, and this result I accomplish or effect through the medium of a solid body, as distinguished from fluid—such as air—adapted and arranged to be employed stethoscopically; and my invention may be said to consist in the novel combinations of devices, which will be hereinafter more fully explained, and which will be particularly defined in the claims of this specification, by which I am enabled to produce for use a stethoscopical transmitter for telephones more efficient and convenient in operation than any heretofore made that I know of.

A represents a comparatively small box or case, and B is a cover or lid applied thereto.

C is a magnet located in the box or case, and D is a helix on the bar or core C. One end of the helix is carried to a binding-post, *a*, and the other end to a binding-post, *a'*.

E is a vibrating disk or diaphragm having its central portion arranged a little way out of contact with the magnet.

F is an ordinary telephonic receiver, the binding-posts of which are connected by wires *b b'* to the posts *a a'* of the transmitter at the other end of the line.

G is a tubular extension entering an opening in the cover B.

H is a soft-rubber strip extending across the outer or open end of the tube G.

I is a rod or vibrator passing through the strip H and resting at its inner end in a puncture in the disk E.

I' is a button or presser on the outer end of the vibrator I.

To use this apparatus for the purpose for which it is intended the speaker holds the tube G in such a position that the button I will be pressed lightly against the exterior of his throat near the larynx or vocal organs, and the person to whom a message is to be transmitted holds the receiver to his ear in the usual manner. Spoken words or other sounds uttered by the operator will thus by the aid of this apparatus be distinguished or heard by another person at a great distance. It is to be understood that both a transmitter and a receiver may be employed at each end of the circuit, and that the circuit may either be grounded or not and connected or not with a battery.

In the form of construction shown in Figs. 1 and 2 the tube G will serve as a handle, but a handle, *c*, may, instead, extend from the opposite side of the case, as shown in Figs. 3 and 4, and the latter form of construction permits of the extension of the magnet bar or core as there represented, which extension, by being screw-threaded as there shown permits the magnet to be adjusted with facility with relation to the disk or diaphragm E; also, by providing a handle, as shown in Figs. 3 and 4, the tube G and vibrator I may be greatly diminished in length. I desire to state, further, that it is immaterial whether the vibrator I

enters the disk E or whether a small stud or pin, *d*, Fig. 6, projects from the latter into the former. Any suitable contact or connection whereby the said disk will be made to obey the vibrations of the rod I truly is all that is essential. Neither need the part E be disk-shaped or in the form of a circular diaphragm, as its form and size are immaterial so long as it consists of a body capable of operating inductively with relation to the maguet, and is under the control of the vibrator I. In Fig. 5 I have shown a flexible metallic tongue or arm, *e*, which will serve as an equivalent for the disk E. It may be preferable, to prevent a too free movement of the vibrator I, to support it by means of a less flexible material than soft rubber; and in Fig. 4 I have shown the vibrator I passing through a wooden cap, *f*, applied to the outer end of the tube G; but such a cap should have sufficient flexibility or yield sufficiently to permit the vibrator I to respond truly to the muscular vibrations accompanying the utterance of words or other sounds by the operator while he is employing the instrument in the manner described. It will be perceived that the box A, especially when the cap *f* is employed, so incloses the disk E as to prevent it from being disturbed otherwise than by the vibrations imparted to it through the medium of the vibrator I.

The vibrator I, as will be perceived, is adapted, arranged, and made capable for use stethoscopically in connection with such other parts of a telephonic apparatus as are old and well known, and I have therefore employed the word "stethoscopically" to distinguish its action from that of other telephonic vibrators.

I desire to state that I would regard it as a mere transposition of parts to mount the magnet on the vibrator I, excepting that the body E need not then be vibratory. The magnet would then be a part of the vibrator I, but would still be influenced by the body E within the magnetic field of the said magnet, and the vibration of the vibrator I would still be the medium or means through or by which the transmitter would be affected by the muscular vibrations excited by and accompanying the utterance of words or sounds by the operator.

In applications No. 96,879, filed June 2, 1883; No. 110,006, filed October 25, 1883; No. 138,137, filed July 19, 1884, and No. 139,995, filed August 8, 1884, I have made claims for broad and generic inventions covering the art and constructions involved in this case, and I have restricted myself herein to the devices specifically pointed out and claimed.

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

1. In a telephonic apparatus, the combination, with the case A, magnet C, helix D, and necessary connections, of a stethoscopical vibrator, I, the disk E, or its equivalent, the tubular extension G, and a disk, *f*, which supports the outer end of the said vibrator and also covers over the tubular device G.

2. In a telephonic apparatus, the combination, with the transmitter-case A, helix D, disk E, or its equivalent, the tubular extension G, and stethoscopical vibrator I, of a handle-like extension, *c*, and adjustable magnet C, with the necessary connections, all constructed and operating substantially as and for the purposes set forth.

3. In a telephonic apparatus, the combination, with a transmitter-case, a tubular extension, G, a vibrator, I, a magnet, C, helix D, and necessary connections, of a vibratory armature arranged and operating in conjunction with the magnet and vibrator, as and for the purpose set forth.

4. In a stethoscopical transmitter, the combination, with the case containing a magnet, helix, vibrator, and disk E, or its equivalent, of two extensions, G and *c*, arranged about in line, one, G, containing the vibrator, the other, *c*, operating as a handle for the transmitter, all substantially as set forth.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

JAMES LOWTH.

Witnesses:
F. F. WARNER,
J. B. HALPENNY.