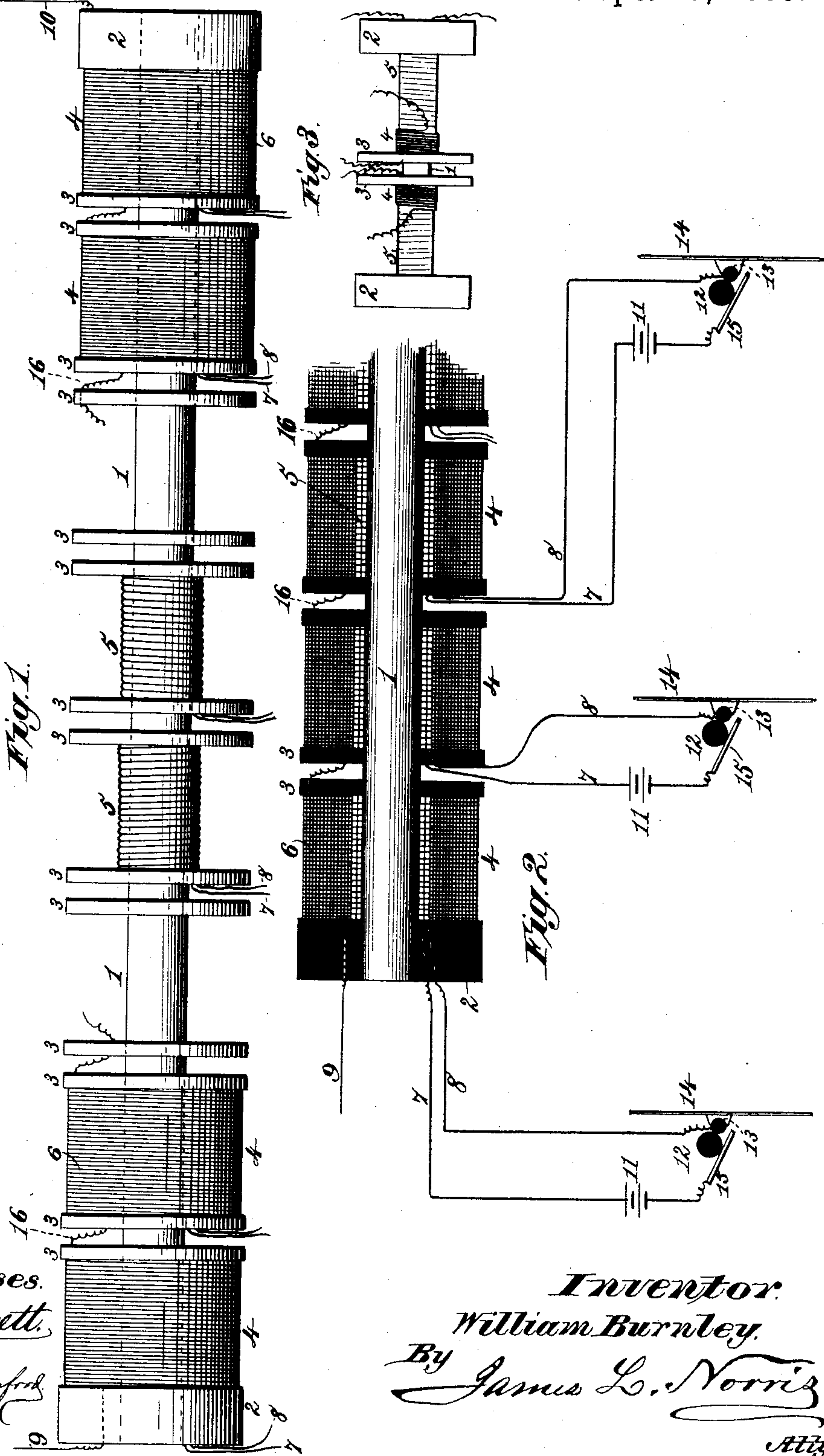


(No Model.)

W. BURNLEY.
INDUCTION COIL.

No. 326,270.

Patented Sept. 15, 1885.



Witnesses.
John C. Swett.
J. A. Rutherford.

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Atty

UNITED STATES PATENT OFFICE.

WILLIAM BURNLEY, OF NORTH EAST, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO CHARLES A. HITCHCOCK, OF SAME PLACE, AND LEWIS F. WATSON, OF WARREN, PENNSYLVANIA.

INDUCTION-COIL.

SPECIFICATION forming part of Letters Patent No. 326,270, dated September 15, 1885.

Application filed April 16, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BURNLEY, a citizen of the United States, residing at North East, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Induction-Coils, of which the following is a specification.

My invention relates to induction-coils more especially intended for use with multiple telephonic transmitters, the object being to furnish a coil adapted to furnish an induced current of high tension and large quantity for the line from the action of primary currents of low tension though of considerable quantity, so that the electrodes operating only low-tension currents are not destroyed or disturbed.

It is known that in the use of multiple telephonic transmitters each set of electrodes is arranged to be influenced simultaneously by the same sound-waves, whether the electrodes are all under control of and operated by a single diaphragm or whether there be a diaphragm for each set of electrodes, and that each set of electrodes has its own circuit-connections and an induction-coil. Instead of furnishing each set of electrodes with a separate induction-coil, as in such practice, I furnish for the multiple transmitter a single induction-coil, having what may be termed a "compound primary wire"—that is, upon a core of sufficient length is wound a number of sections of primary wire, which sections may be separated by pairs of disks fastened upon the core after the manner of the spool-heads of coils and magnets. These sections of primary wire may be wound upon the core alternately right and left handed, or all may be wound in the same direction. Over all these sections of primary coil the secondary coil is wound continuously, so as to be operated on for the induction of secondary currents by all the sections of the primary coil. The terminals of the sections of primary coil are brought out so as to be attached to the electrodes, each set of electrodes in a multiple transmitter being assigned its own primary section and local battery or section or connection from a local battery. This may be better understood by reference to the drawings, wherein—

Figure 1 is a front view of an induction coil

embodying the invention, part of the windings being removed; and Fig. 2 is a view, partly in longitudinal section, of Fig. 1, and partly diagrammatic, to show the circuit-connections. Fig. 3 is a modified form of induction-coil.

The reference-numeral 1 indicates a magnetic core of sufficient length to receive the desired number of sections, 5, of primary coil, and is provided with the usual insulated heads, 2 2. Upon this core are placed the disks 3 in pairs, the members of the pairs being a slight distance apart for convenience of bringing out from the coils the proper circuit-connections. These disks divide the length of the core into sections, each section being devoted to a section of the primary coil. These sections of primary coils are each complete in themselves, and have their free ends or terminals 7 8 brought out between the disks 3 3 for connection into proper local circuits. They may be wound alternately right and left, as shown in middle portion of Fig. 1, or they may be all wound in one direction.

6 is the secondary coil superimposed continuously over all the primary sections, connection being made between the various portions of the secondary coil lying between the heads or disks 3 by the wire passing there-through from one section to another, as shown at 16. One terminal thereof, say 9, is connected to the ground, while the other, 10, is connected to line.

In the use of such a coil it is intended that there shall be as many sections 5 of the primary coil as there are sets of electrodes in the multiple transmitter—in this case eight, as shown in Fig. 1. In Fig. 2, 14 are the diaphragms; 12 13, the electrodes; 15, inclined plates supporting electrodes 12; 11, the local batteries; and 7 8, the terminals of the primary sections, forming, with the electrodes, the local circuits, one for each primary section. This arrangement of diaphragm and electrodes is shown by me in a prior application for patent, filed April 11, 1885, No. 161,921; but the invention is not confined to the use of such arrangement, but may be used with any desired form or arrangement of electrodes.

While the diaphragms and electrodes are here shown segregated for more clear illustration

tion, it is of course understood that they are in practice so grouped together as to be under the influence, simultaneously, of the same sound-waves; and also, while each set of electrodes is shown as influenced and controlled by an independent diaphragm, it is evident that this need not be so, but that all the sets of electrodes may be acted on by a single diaphragm or arranged in sets to be acted on simultaneously by several diaphragms.

Referring to Fig. 3, it will be seen that two adjoining sections of the secondary coil are wound in opposite directions—that is, one to the right and the other to the left—the inside terminals of such secondary coil-sections being indicated by the numeral 20 and the outside terminals of such secondary coils by 21, while the numeral 22 indicates the terminals of the primary coil. The arrangement thus indicated is intended to be connected with line in series for tension or in multiple arc for quantity.

Having thus described my invention, what I claim is—

1. An induction coil consisting of a continuous core having a series of disks mounted thereon in pairs, whereby the length of said

core is divided into several sections, a primary wire wound in two or more independent sections adapted to be connected in independent circuits, and a secondary wire also wound in sections, substantially as described.

2. An induction-coil consisting of a core, a series of disks thereon dividing the length of the coil into two or more sections, a primary wire wound in two or more independent sections, each section having its own terminals, and a secondary wire wound continuously thereover in one continuous coil, substantially as described.

3. In an induction-coil, the combination of a single continuous core, a series of primary coils wound thereupon, and one or more sections of secondary coil wrapped therearound and adapted to be connected to a line in series or in multiple circuit, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM BURNLEY.

Witnesses:

DYER LOOMIS,

E. C. HITCHCOCK.