

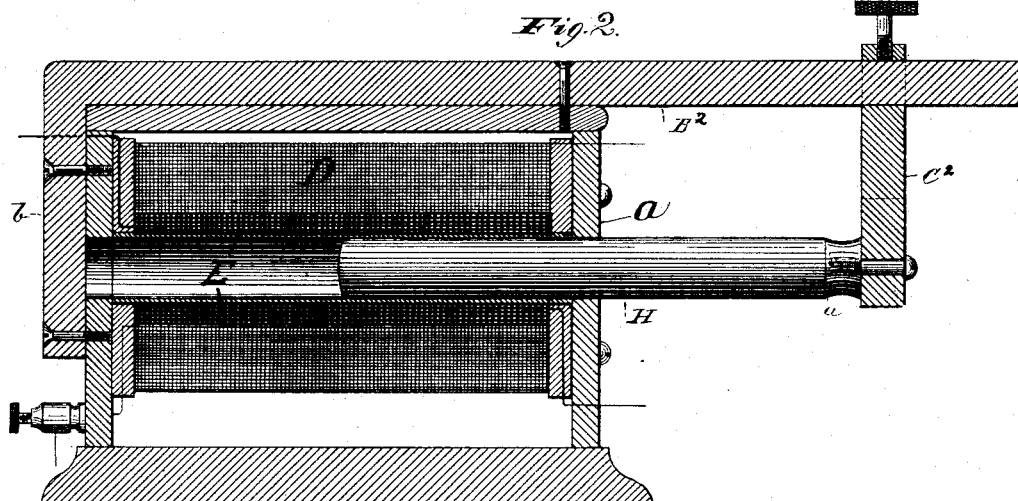
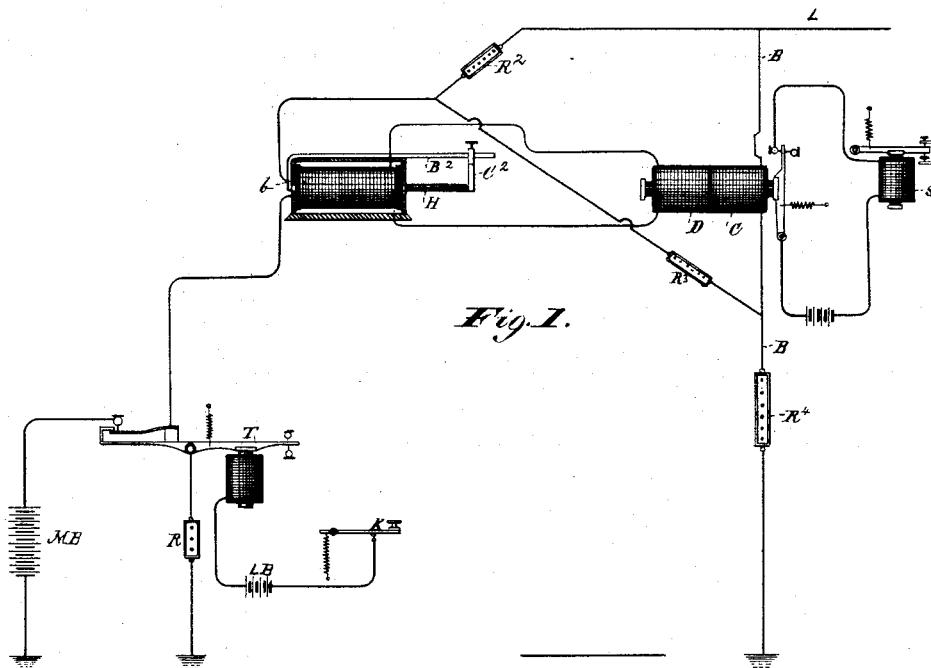
(No Model.)

F. W. JONES.

INDUCTION COIL.

No. 344,318.

Patented June 22, 1886.



WITNESSES

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# UNITED STATES PATENT OFFICE.

FRANCIS W. JONES, OF NEW YORK, N. Y.

## INDUCTION-COIL.

SPECIFICATION forming part of Letters Patent No. 344,318, dated June 22, 1886.

Application filed November 11, 1885. Serial No. 182,401. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS W. JONES, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Means for Overcoming Static Disturbances in Duplex Telegraphy, of which the following is a specification.

My invention relates to certain improvements in induction-coils, designed for use in telegraphy as a means for overcoming the disturbing effects of the static charge and discharge current.

The object of the invention is to so construct the induction-coil that the inductive effects shall be heightened, while at the same time there shall be furnished a provision whereby the duration of the secondary current may be adjusted to correspond with the duration of the disturbing static charge and discharge effects.

An induction-coil constructed in accordance with my invention is especially applicable to compensating arrangements such as shown in my prior patent, No. 300,781, and I have in the diagram, Figure 1 of the present case, shown my improved coil so applied. Fig. 2 is a longitudinal section of the instrument.

My invention relates to induction-coils having a core whose terminals are practically joined in a magnetically-closed circuit outside of the coils.

The invention consists in making the core adjustable within the coil, so that the effective length of core may be varied, the magnetic connection from one end of said core to the opposite end of the coil being, however, maintained under all conditions of adjustment, so as to preserve a magnetic connection outside of the coil.

The "magnetic connection" of my invention may be any arrangement such that the magnetic influence may be closed or directed around from one end of the coil to the other, and does not mean necessarily a continuity of magnetic material, since the effects, though in less degree, may be obtained if there be a

slight break in the material. It is obvious, also, that a portion only of the core may be made adjustable, instead of the whole core.

Referring to Fig. 2, H indicates the core of the induction-coil, whose primary and secondary coils are indicated, respectively, at E and D. The core H is made adjustable in the coil for the purpose of varying the effects, and the magnetic connection from one end (as *a*) of the core to the opposite end of the core is made through the iron bar or rod B<sup>2</sup>, to which the magnetic extension C<sup>2</sup> of the core is clamped, and the rectangular extension *b* from the bar extending to a point near the end of the coil-aperture, in which H slides. By the magnetic connection thus provided outside the induction-coil between its opposite ends the duration of the secondary or induced currents is prolonged, so as to more nearly correspond to the duration of the static charge and discharge currents.

The adjustment is furnished by sliding the core in and out of the coil and clamping the piece C<sup>2</sup> at desired point. The bar B<sup>2</sup> is prolonged sufficiently to preserve the magnetic connection through C<sup>2</sup> with the end *a* of the core under all conditions of adjustment.

One manner of applying the coil is indicated in Fig. 1, in which T indicates an ordinary transmitter operated by an electro-magnet in circuit with a local battery, L B, and a Morse key, K. M B designates the main-line battery; R, the ordinary resistance in the ground-wire, and R<sup>2</sup> R<sup>3</sup> R<sup>4</sup> the usual adjustable resistances in the branches of the Wheatstone bridge. B is the bridge-wire. S is the local sounder, and C D are the relay-coils in the bridge-wire. For a more detailed description of this application of the device, reference may be had to my prior patent before referred to. The device is, however, of special utility in various connections in telegraphy, where it is desirable to utilize the secondary current from an induction-coil, and to obtain a current somewhat more prolonged than can be had from an ordinary induction-coil.

What I claim as my invention is—

1. The combination, with an induction-coil

having an adjustable core, of a magnetic connection from one end of the core to the opposite end of the coil maintained under the various conditions of adjustment.

- 5 2. The combination, with an induction-coil, of a bar of magnetic material outside the coil and connected to one end thereof, and an adjustable core sliding in magnetic connection

with said bar, as and for the purpose described.

Signed at New York, in the county of New York and State of New York.

FRANCIS W. JONES.

Witnesses:

THOS. TOOMEY,  
WM. H. BLAIN.