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SELF INDUCTION COIL FOR DUPLEX OR MULTIPLEX TELEPHONE CONNECTIONS.

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1,148,792. Patented Aug. 3, 1915.

Fig. 1.

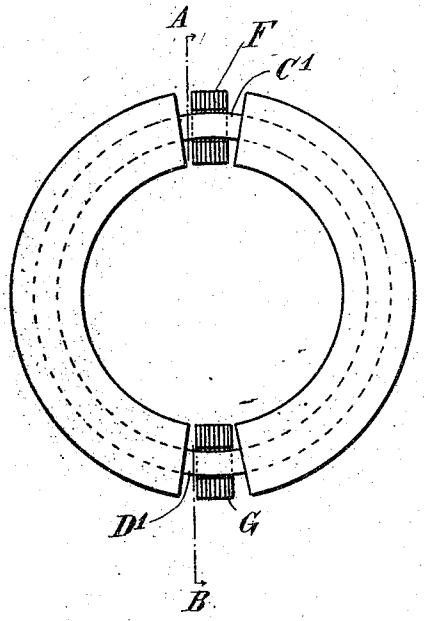
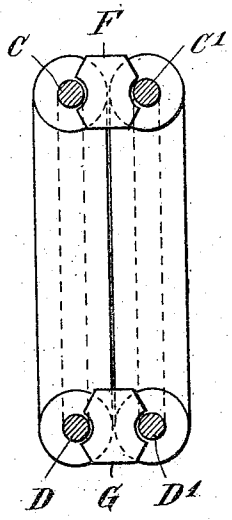


Fig. 2.



Witnesses
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By

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UNITED STATES PATENT OFFICE.

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SELF-INDUCTION COIL FOR DUPLEX OR MULTIPLEX TELEPHONE CONNECTIONS.

Specification of Letters Patent. **Patented Aug. 3, 1915.**

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To all whom it may concern:

Be it known that we, AXEL HERMAN OLSSON, engineer, and HENNING BERNHARD MATHIAS PLEIJEL, professor, both subjects of the King of Sweden, citizens of Sweden, and residing, respectively, at Bergsgatan 16B and Brunnsgatan 2, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Self-Induction Coils for Duplex or Multiplex Telephone Connections, of which the following is a specification.

According to another application, the inventors have proposed to obtain the Pupin-effect in duplex or multiplex telephone connections by the aid of the leakage fields, which, on account of the currents in the duplex lines, arise between the iron cores of two or more superposed double coils, each of the known type. In most cases the self-induction load, which will in this way be effected in the duplex line, will be sufficient, especially as, for each group of coils in the double line, two groups of coils loading the duplex line will be obtained. In some cases, however, it is of importance to augment the self induction load in the duplex line without changing the load given to the double lines. This is obtained, according to this invention, by reducing the magnetic resistance, which is to be passed by the leakage field. This can, of course, be performed in different ways. According to one embodiment of the invention, those points of the iron cores of the coils, where the two halves of the winding meet each other, are free from windings to such a degree as is necessary for obtaining the desired strengthening of the leakage field. Between the iron cores, at the above-named points, a yoke or block of laminated iron is arranged.

An embodiment of the invention is shown on the annexed drawing.

Figure 1 shows a coil combination consisting of two superposed rings. Fig. 2 is a section on line A—B in Fig. 1.

From the figures it is seen how the windings are omitted at the points C, D and C^1, D^1. F and G are the iron blocks or yokes, inserted between the iron cores at said points. The air-gaps can be made greater or smaller as desired. The yokes or blocks F. G. consist of laminated iron, the number whereof is made dependent upon the degree of strengthening of the leakage fields desired.

The magnetic lines of force of the leak fields will pass from the one iron core to the other one in the same coil combination. By inserting the iron blocks or yokes the leakage fields can pass through iron, which will augment the strength of the said fields.

It is clear that the strengthening of the leakage fields can be regulated by making the air-gaps between the iron cores and the blocks greater or smaller or by varying the sectional area of the block. By such regulating means no variation in the load of the double lines will be obtained, as the magnetic fields set up by the currents in the double lines will be poleless and will be completely inclosed in the iron cores.

What we claim is:

1. In self-induction coils for duplex or multiplex telephone connections containing groups of induction coils, each group containing more than one coil, means for reducing the magnetic resistance between the coils of each group, whereby the leakage field will be augmented.

2. In self-induction coils for duplex or multiplex telephone connections containing groups of induction coils, each group containing more than one coil, means for reducing the magnetic resistance between the coils of each group, said means consisting in iron blocks inserted between the iron cores of said coils.

3. In self-induction coils for duplex or multiplex telephone connections containing groups of induction coils, each group containing more than the one coil, each provided with two windings, means for reducing the magnetic resistance between the coils of each group, said means consisting in iron blocks inserted between the iron cores of said coils at the points, where the two winding halves of the coils meet each other.

In testimony whereof we have affixed our signatures in presence of two witnesses.

AXEL HERMAN OLSSON.
HENNING BERNHARD MATHIAS PLEIJEL.

Witnesses:
GRETA PRIEN,
HARRY ALBIHN.