April 19, 1927. 1,625,125

M. LATOUR

ELECTRICAL CONDUCTOR

Filed Aug. 19, 1921

Fig. 1

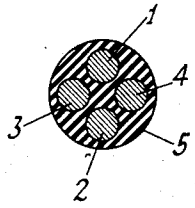


Fig. 2

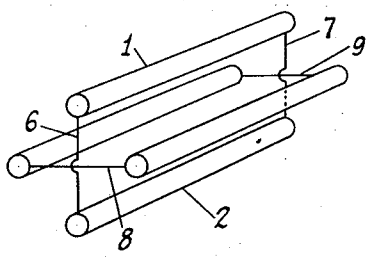


Fig. 3

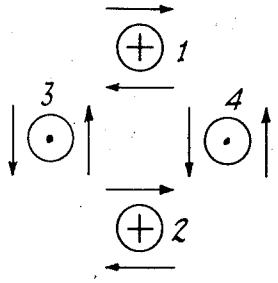
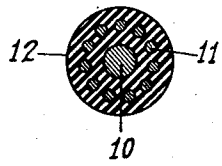


Fig. 4



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Patented Apr. 19, 1927. 1,625,125

UNITED STATES PATENT OFFICE.

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ELECTRICAL CONDUCTOR.

Application filed August 19, 1921, Serial No. 493,667, and in France February 22, 1916.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

In electrical installations it is often of great importance completely to eliminate the self induction of the conductors that interconnect the various apparatus. In the circuit arrangements for wireless telegraph apparatus, for instance, these self induction phenomena are very annoying.

The solution thus far arrived at consisted of the twisting together of the conductors or simply of locating the conductors near each other. However, the conductors cannot be connected to the apparatus unless their ends are separated, whereby loops will be formed that may possess considerable self induction.

The object of the present invention is to provide an arrangement whereby the self induction of the conductors is completely eliminated.

According to the present invention, the connections are so provided that each conductor is composed of two wires and the ends of these two wires are united in a manner to constitute a closed loop.

Attention is directed to the accompanying drawing in which:

Fig. 1 is a cross section view of a preferred modification of my invention.

Fig. 2 is a schematic diagram of Fig. 1.

Fig. 3 is a diagrammatic view for illustrating the operation of my invention.

Fig. 4 is a cross section view of another modification of my invention.

Referring to Figs. 1, 2 and 3, the preferred embodiment of my invention comprises two conductors 1 and 2 arranged parallel to each other in a common plane and two other conductors 3 and 4 arranged parallel to each other in another plane, the two planes being at right angles to each other and bisecting each other. The conductors may be encased in the usual insulating material 5.

Conductors 1 and 2 are joined together at their ends by fastening them to common terminals or by jumpers 6 and 7. Conductors 3 and 4 may be similarly joined together by jumpers 8 and 9.

Referring to Fig. 3, conductors 1 and 2 constitute one side of a circuit and conductors 3 and 4 constitute the other side. Assume currents flowing down thru conductors 1 and 2 and up in conductors 3 and 4. The ampere turns exerted by conductors 1 and 2 tend to neutralize as do the ampere turns exerted by conductors 3 and 4. This results in the substantial elimination of all self induction between the various conductors.

The invention is applicable irrespective of the number of conductors employed and it is independent of the character of the current employed. The invention may be generally applied to installations wherein the elimination of the self induction in the conductors is desired.

In wireless telegraph stations in which rotating dischargers mounted on the alternator shaft are used, the connections between this discharger, the inductance and the capacity of the oscillating circuit must be without noticeable self induction. The purpose of this is to make possible the obtaining of waves of short lengths and a satisfactory coupling between the antenna and the oscillating circuit.

In certain stations and particularly in stations installed on airplanes in which the alternator with the rotating discharger mounted on the end of the shaft is located on the wings of the airplane at a fairly great distance from the oscillating circuit, conductors without self induction and arranged in the manner described above should be used.

Referring to Fig. 4, I may construct a cable comprising a conductive core 10 forming one side of a circuit and a plurality of conductors 11 arranged concentrically around the core 10 insulated from each other and from the core by insulating material 12.

While I have shown and described various preferred embodiments of my invention I do not limit myself to the same but may employ such other modifications as come within the spirit and scope of my invention.

Having described my invention, what I claim is:

1. A pair of electrical conductors for use in a circuit, each conductor consisting of two wires connected in multiple at their ends,

the plane of one pair of wires being perpendicular to the plane of the other pair.

2. A pair of electrical conductors each consisting of two wires connected to form a loop, the plane of one loop being perpendicular to the plane of the other.

3. In an arrangement of the class described constituting two portions of an electrical circuit, each portion consisting of a pair of substantially straight wires connected in multiple at their ends, the plane of one pair of wires being perpendicular to the plane of the other pair.

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