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(54) Self-supporting conductor cable

(57) Specially designed for relatively short spans, has a cylindrical shape and is made up of a centre or core (1), in the physical form of a cable of steel, iron or other mechanically strong material, capable of supporting its own weight and that of the electricity-conducting component, core (1) being enclosed within said rodeado por el citado electricity-conducting component (2) which has a tubular configuration and is made up on a basis of standard wire stranding (3), i.e. wound helically, but conveniently plaited to each other to constitute said tubular and cylindrical body.

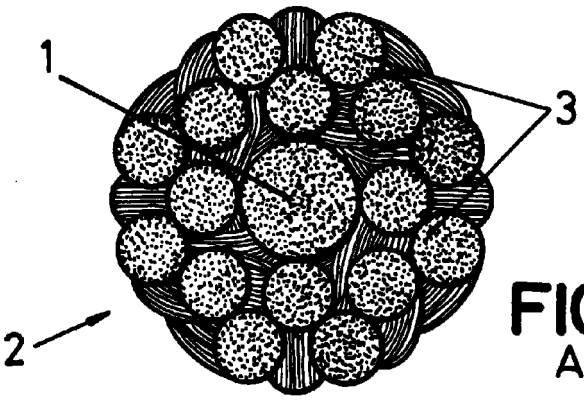

FIG. 2
A-B

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to an electrical conductor cable of the self-supporting type, that is, in addition to comprising the conductor medium for the electric current, it also incorporates its own means of physical support avoiding the occurrence of flux effects in the conductor material itself, preferably copper, due to the stress resulting from its own weight.

[0002] The cable proposed herein has been specially designed for short spans, to be used uncovered and capable of withstanding any mechanical stress.

BACKGROUND TO THE INVENTION

[0003] Leaving aside high voltage lines, in which use is made of cables produced with special geometric shapes and alloys, in normal practice the requirement is cover shorter hops, as is the case of the cables that run from the transformer stations to the connection points, where the conductor is copper, but said conductor does not have to withstand the actual weight of the cable, i.e. it does not have to be subjected to tensile stress, in order to avoid fluxes arising which can in principle give rise to loss of section and in the worst case, breakage of the cable, for which reason various types of bearing elements are employed in order to overcome problems of the kind mentioned.

[0004] One of the solutions in this respect consists in using phase lines based on copper or aluminim cables exclusively, which are bound to each other and also to a self-bearing element, generally ac able of steel or other alloys, clad with the same material as the phase lines and which is wound in a spiral with the latter, so that it is this self-bearing element which supports the its own weight and that of the phase lines, and to which are attached the metal fittings and fasteners up to the union with the connection points.

[0005] In the case of standard braiding, i.e., wound in a helical form, the problem is encountered that in bends of reduced radius, the core tends to lie on the outside, loosing the geometrical form.

[0006] Another solution, usually employed in telephone or instrumentation cables, consists in extruding the cable in the form of an "8", so that the conductors are located on one part of the "8" and the self-bearing element in the other; in this manner all fastening is made on the self-bearing element and the conductors are kept free from stress.

[0007] This solution is unsuitable for electrical power transmission lines.

DESCRIPTION OF THE INVENTION

[0008] The self-supporting conductor cable which the invention proposes, resolves the problems explained above in a fully satisfactory manner, constituting a new, completely effective solution which, in addition to supporting any mechanical force, ensures optimum electical conductivity, permits short-radius bends free from risk to the cable braiding, as well as being easy to mount on the retaining metal fittings.

[0009] To achieve this and in more specific terms, the cable proposed herein is constructed on a basis of a core of steel, iron or any other material of appropriate strength, and a cylindrical, tubular sheath which surrounds said metal core, which shall be procured from any material that is a good conductor of electricity, capable of carrying the ampères for which it has been calculated, or else the leakage or short-circuit currents, even though the later is not its intended practical employment, said conductive sheath being in all cases structured on a basis of standard windings, i.e. helically wrapped but braided to each other in order to achieve the aforementioned tubular body.

[0010] In this manner one achieves a self-supporting, higlhy flexible conductor, perfectly circular and non-deformable which, even after being subjected to very small bending radii, on recovering its original shape, also recovers the linear generatrix, showing no evidence of deformation or fatigue in the braiding.

[0011] It must also be pointed out that, by having the electrical conductor situated on the outside of the cable, the distribution of electric current is more uniform and for high voltages and frequencies a greater current density is achieved and, since the external surface area is greater, the heat dissipation is better.

DESCRIPTION OF THE DRAWINGS

[0012] To complete the description being made and in order to assist in a better understanding of the characteristics of the invention, in accordance with a preferred example of its practical embodiment, attached hereto as an integral part of said description, is a set of drawings in which in an illustrative and not restrctive manner, the following is shown:

Figure 1.- Shows a side elevation of a span of self-supporting conductor cable constructed in accordance with the object of the present invention, in which the supporting core appears over-sized with respect to the conductive sheath, in order to show its structure with greater clarity.

Figure 2.- Shows detail in transverse section of the cable shown in Figure 1.

PREFERRED EMBODIMENT OF THE INVENTION

[0013] In the light of the above figures, it can be seen how the self-bearing conductor cable proposed through the invention is built up from a core (1), which constitutes the mechanical support of the cable as a

whole and which is intended to withstand the forces resulting both from its own weight and by the electricity-conducting element (2), which, as can be observed particularly in Figure 2, forms a tubular sheath which surrounds the core (1).

[0014] The core (1) can be steel, iron or any other material of adequate strength, preferably flexible in nature in order to permit bending of the conductor cable as a whole, and the electrically conductive sheath (2) shall be built up from any standard arrangement of braided wire (3), i.e. wound helically, but determining a braided configuration and a circular crowning section, like for example running each of said wire braidings according to segments which in turn run in an alternating fashion in axial and transversal directions, where the transversally running segments are intercalated underneath every three consecutive conductor bundles.

Claims

1. Self-supporting conductor cable, which being specially designed for carrying electrical power, over relatively short spans, being of the type which incoproates an electrically conductive component, of any material which is a good conductor of electricity, and a bearing element in the material form of a cable of steel, iron or similar, is characterised in that the cable (1) mechanically supporting the assembly has an axial disposition in the core of said pipe, whilst the conductive component (2) takes on a tubular, cylindrical configuration, housed in the within the bearer element.

2. Self-supporting conductor cable, in accordance with claim 1, characterised in that the conductive component is porcured on a basis of standard wire braiding (3), that is, wound in helical form, but suitably braided in order to take on the tubular and cylindrical form mentioned.

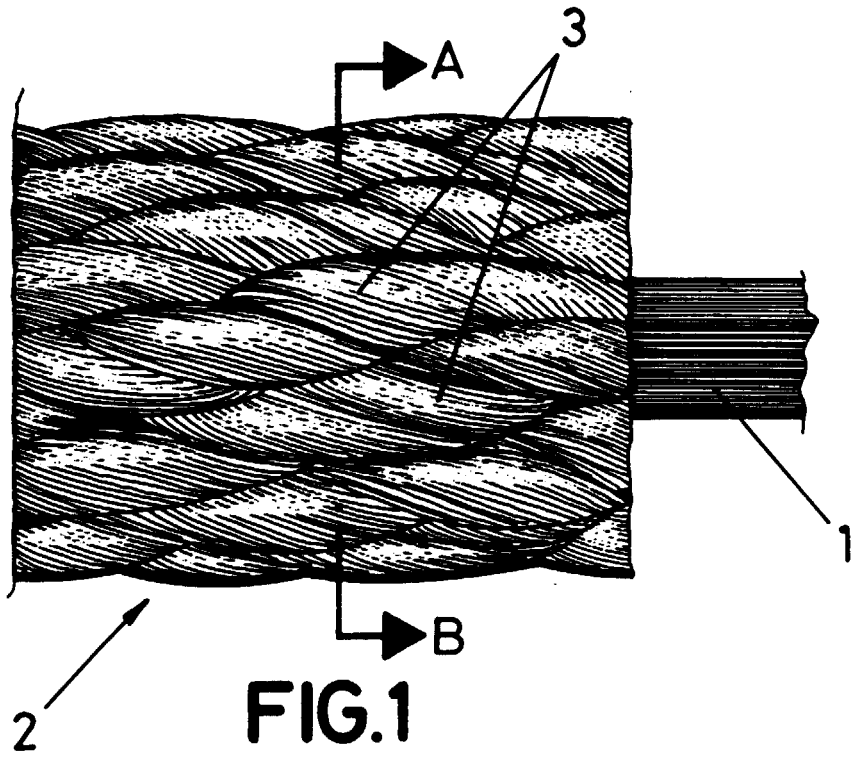

FIG.1

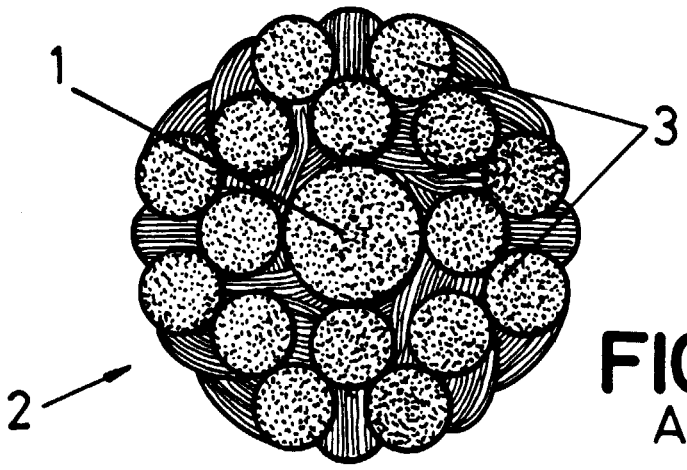

FIG. 2
A-B