

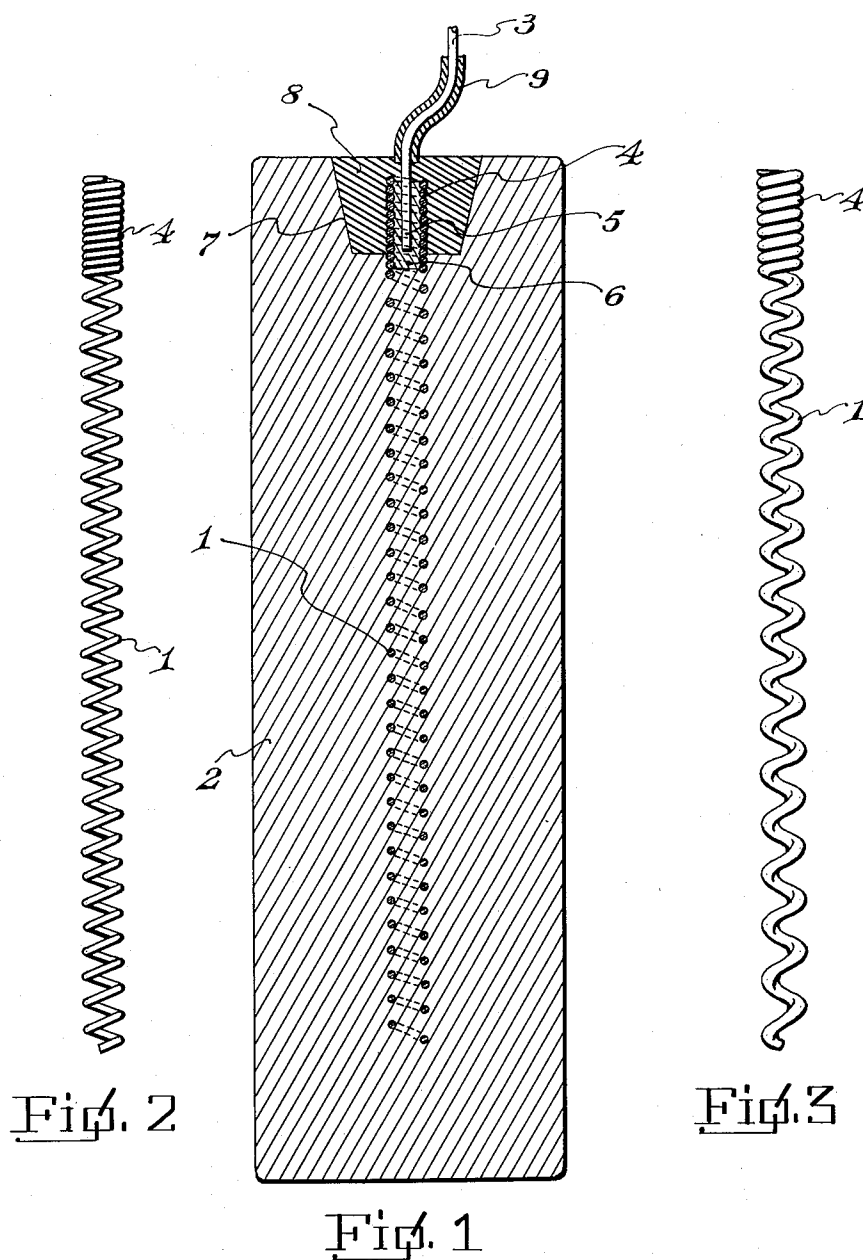
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R. M. WHEELER

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ANODE CORE

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Roger M. Wheeler
INVENTOR.

BY
Philip A. Finell
ATTY.

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ANODE CORE

Roger M. Wheeler, Tulsa, Okla.

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2 Claims. (Cl. 204—197)

The invention relates to anodes and particularly to anode cores, and has for its object to provide a device of this kind wherein the core is of spiral formation, and the core cast in the galvanic anode material, and being spiral in form, it increases the surface of the anode exposed to the galvanic action, as the galvanic material, during the casting operation, flows through the convolutions, hence it will be seen that the surface exposed by the spiral form will be increased over the conventional flat or round rod types.

A further object is to terminate the upper end of the core in a plurality of close convolutions thereby providing an easy and simple anchoring means for the lead wire, and obviating the necessity of drilling holes in flat or round cores, and at the same time providing means whereby the lead wire may be positively anchored to the upper end of the core.

A further object is to provide an anode core wherein the pitch of the convolutions is varied, preferably increased from the top downwardly, to balance the same according to the deterioration of the galvanic material. The device is used in connection with steel structures or buried pipe lines to overcome the electrolytic action on steel structures, particularly those buried or in the soil.

A further object is to provide an anode adapted to be buried in the ground and connected to a structure, and comprising a body formed from galvanic anode material having imbedded therein a spiral anode, the upper end of which anode terminates in close convolutions, in which convolutions is anchored a lead wire, and a plastic material in a chamber in the upper end of the body, and in which plastic material the upper end of the anode is imbedded.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:

Figure 1 is a vertical transverse sectional view through the anode and core.

Figure 2 is a side elevation of the spiral core.

Figure 3 is a side elevation of a modified form of core wherein the pitch of the core convolutions increases from one end towards the other.

Referring to the drawing, the numeral 1 designates the spiral anode core which is wound from wire spirally, as shown in Figure 1. By forming the core in spiral form it is obvious there is a greater contact surface or engagement of the magnesium anode 2 with the core, and at the same time it is also obvious that when the anode is cast around the core, the metal will flow through all the convolutions and will not draw away from the convolutions, one of the difficulties experienced where a flat or round rod is used. The anode 2 is composed of a metal higher than steel in the electro-motive series, such as zinc, aluminum, magnesium, or an alloy of these metals,

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which will produce an electrical current through its galvanic coupling with steel. Only a perfect bond between the anode and the core can provide assurance of continuing anode operation. The electro-galvanized spiral wire core extends substantially the full length of the expendable magnesium or other metal used in the body 2.

Considerable difficulty has been experienced in maintaining the proper lead wire connection between the core 1 and the lead wire. At present a hole is drilled in the upper end of cores of the rod type, and these often work loose. To obviate this difficulty, the convolutions 4, at the upper end of the core, are in close relation, and the end 5 of the lead wire is passed downwardly through the convolutions 4 and anchored therein by solder 6, therefore it will be seen that there is sufficient space for the solder for anchoring purposes, and at the same time an irregular surface is formed by the inner peripheries of the convolutions for positively holding the solder. During the casting operation, a chamber 7 is formed in the upper end of the body 2, and after the lead wire is soldered in place the chamber 7 is filled with a plastic material 8, such as tar, or other well known material. The lead wire 3 leads to the structure or pipe line to be protected, and is provided with insulation 9.

Referring to Figure 3, wherein the core 1 has its convolutions increasing in pitch towards the lower end, it has been found that when this core of varying pitch is imbedded in the body 2 decided advantages are obtained. The anode has a tendency to deteriorate more rapidly at its bottom end, and by reducing the number of convolutions of the core towards the bottom end, there is a reduction of area contact, and by this means the device will deteriorate equally for its entire length. In other words, if a particular zone of the anode eats away more rapidly than another, it may be well to cut down the surface contact between the core and the anode material in that particular zone, or increase the size of convolutions in that particular zone.

It will be seen that an anode core is provided which is simple and inexpensive, one in which a maximum area of contact with the anode material is obtained, maximum contact area for the solder which holds the lead line, and being soldered in a coil, the lead line will not pull out. Also a core is provided in which the pitch of the coils may be varied along its length to control and equalize the deterioration of the anode along its length, or to assume uniform anode consumption.

The invention having been set forth, what is claimed as new and useful is:

1. An anode comprising a body formed of metal, said body having an axial cavity in one end, a core disposed axially within the body and consisting of a length of wire of circular cross-section spirally embedded in the body and having an outer end defined by tightly engaged convolutions to form a socket of constant cross-sectional area, said socket being concentrically disposed within the cavity, a lead wire having an uninsulated end axially fitted in the socket and fixed therein by solder and a plastic filler closing said cavity and entirely surrounding the socket.

2. An anode as claimed in claim 1, wherein the convolutions of the spiral wire core increase in pitch from the socket to the opposite end.

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