

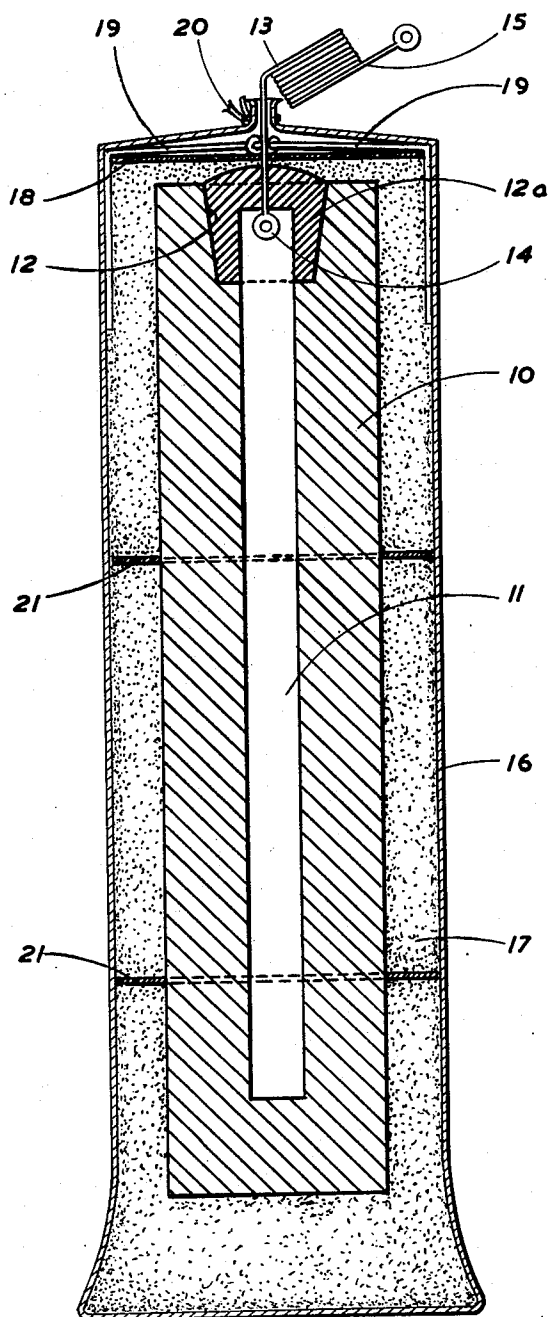
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ANODES FOR CATHODIC PROTECTION OF METAL STRUCTURES

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ANODES FOR CATHODIC PROTECTION OF METAL STRUCTURES

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5 Claims. (Cl. 204—197)

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This invention relates to anodes for cathodic protection of metal structures, the anodes being made of metal less noble than the structures to be protected. For example, anodes consisting of blocks of magnesium or a magnesium base alloy may be buried in the earth at intervals alongside an iron pipe line and connected thereto by lengths of insulated wire.

To enable the anode to have satisfactory contact with the earth, it has been proposed to surround the anode with a "backfill" of, for example, a mixture of gypsum and bentonite which may be contained in a fabric bag into which both the anode and the backfill are placed. However, it has been found that the powdered backfill may pack and sink and cease to be effective over part at least of the anode. The object of the present invention is to obviate this defect in a simple but effective and cheap manner.

According to the invention a disc of cardboard or like fibrous material is provided which seats on the top of the anode and is held down on the anode to prevent the latter from rising up above the level of the backfill, and a ring or two or more spaced rings of cardboard or other fibrous material is or are provided within the bag intermediate the ends thereof, the said ring or each of said rings having its inner periphery shaped to engage around the anode and its outer periphery making a fairly tight fit with the bag. The disc may engage at its periphery with the bag and tapes may be attached to the bag and tied together over the disc to hold the latter down on to the anode.

The invention is illustrated by way of example in the accompanying drawing, the single figure of which is a sectional view of one form of our improved anode.

The anode comprises a cylindrical element 10 of magnesium, magnesium base alloy or other suitable metal within which there is secured a rod 11 of, for example, iron. The upper end of the rod projects from the element 10, which for this purpose is formed with a depression or recess 12, and has an insulated cable 13 attached thereto at 14, the other end 15 of the cable being tagged for attachment to the structure to be protected. The recess is thereafter filled with an insulating substance, for example, bitumen, as shown at 12a. Surrounding the anode is a strong cotton bag 16 of rather larger dimensions than the element 10. The space between the bag and the element 10 is filled with the backfill material 17 so that the latter completely surrounds said element. A cardboard or other fibrous disc 18,

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which is apertured to provide for the passage of the cable, is inserted within the bag and is pressed down against the top surface of the backfill by tapes 19 secured to the inside of the bag and tied over the disc. The top of the bag is drawn tightly over the disc 18 and is closed by means of a wire ring 20 or in any other convenient manner.

As will be evident, if the backfill should tend to sink within the bag and so expose the upper end of the anode, the disc 18 will prevent this by its engagement with the element 10, or with the bitumen filling 12a if, as illustrated, this should project above the element 11. The anode is thus held against riding up above the level of the backfill.

The tendency of the backfill to pack may be further prevented or reduced by the insertion within the bag of one or more rings 21 also of cardboard or other fibrous material. The or each ring 21 has its inner periphery shaped to fit the element 10 and is externally dimensioned to make a fairly tight fit within the bag. These rings are of particular advantage where the anode is of considerable length in relation to its transverse dimension. In the embodiment illustrated, which shows an anode about two feet in length, two rings 21 are provided, the lower ring being about nine inches from the bottom of the bag and the other about midway between the lower ring and the disc 18.

The anode may be of any desired cross-sectional shape, for example, circular.

I claim:

1. A cathodic protection device for metal structures comprising a fabric bag, an anode, a loose granular backfill, and at least one ring, said anode being positioned centrally of said bag and being surrounded by said backfill, said ring being composed of fibrous material and surrounding said anode intermediate the ends thereof, and having its inner periphery engaging said anode and its outer periphery in fairly tight engagement with said bag.

2. A device as set forth in claim 1 wherein a disc is mounted on top of said anode and wherein means are present to hold said disc in place whereby the anode is prevented from riding up above the level of the backfill.

3. A device as set forth in claim 2 wherein said means comprises tapes secured to the inner wall of said bag, said tapes having their ends tied together above said last-named disc.

4. A device as set forth in claim 2 wherein

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a second ring is mounted between said first ring and said disc.

5. A cathodic protection device for metal structures comprising a fabric bag, an anode, a loose granular backfill, tapes, and a plurality of rings, said anode being positioned centrally of said bag, said anode being surrounded by said backfill, a disc mounted on top of said anode, said tapes being secured to the wall of said bag and having their ends tied together above said disc to prevent the anode from riding up above the level of said backfill, and said plurality of rings surrounding said anode intermediate the

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ends thereof, all of said rings having their outer peripheries in fairly tight engagement with said bag.

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