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PROTECTIVE MEANS FOR BURIED METALLIC SURFACES

Filed Oct. 11, 1929

Fig. 1.

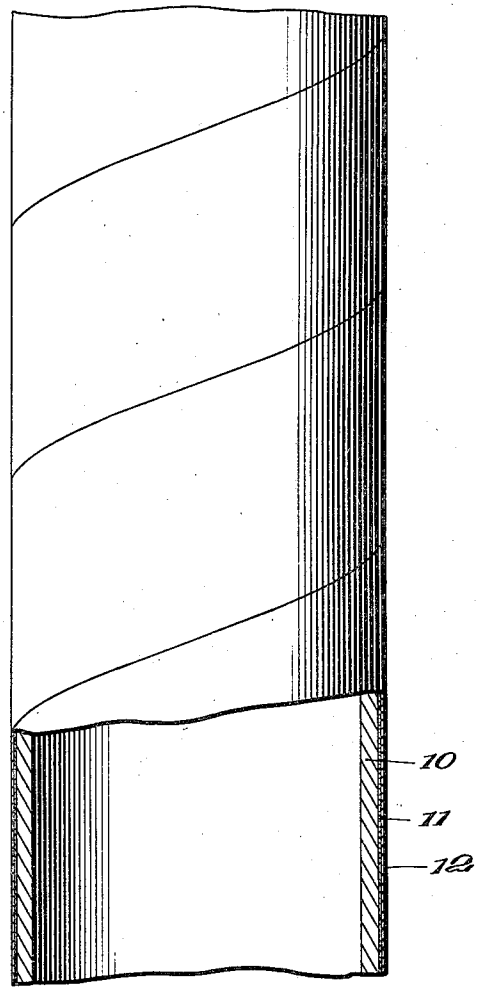
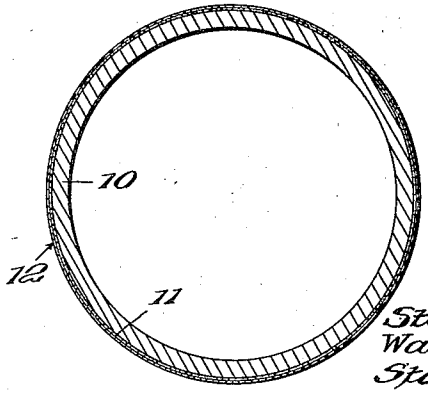


Fig. 2.



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UNITED STATES PATENT OFFICE

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PROTECTIVE MEANS FOR BURIED METALLIC SURFACES

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This invention relates to improvements in protective coverings for metallic bodies adapted to be buried under the soil.

Coatings, and particularly those of a bituminous nature, used to protect metal buried in the soil against corrosion, are subject to several serious destructive agencies, which may be divided into two general classes: first, that class of destructive agencies that are chemical in nature, and, secondly, those which are of a mechanical character. The destructive agencies of this latter class have been investigated by the United States Bureau of Standards, and have been grouped by that Bureau into a general classification designated as "soil stress effects". The primary object of the present invention is to provide means for combatting this soil stress effect, and in carrying out this object, means are utilized that are capable of being applied to the metallic body, such as pipe, in the field by methods that are in use at the present time for the application of protective wrappings now being used in connection with pipe lines.

More specifically, the invention contemplates a protective means for pipe lines adapted to be buried in soil, such means consisting of a coating of non-corrodible material applied directly to the surface of the body to be protected, this coating itself in turn being protected by a layer of metal sheathing of from .0005 inches to .010 inches in thickness.

In the accompanying drawing there is shown in Figure 1, partly in elevation and partly in section, a section of pipe covered with the protective means of the present invention. Figure 2 is a transverse cross-sectional view through the pipe shown in Figure 1.

As illustrated in the drawing, the piping 10 is first coated with a non-corrodible substance, preferably of a bituminous nature, as indicated at 11, and after such coating has been applied, there is placed on the pipe a metal sheathing 12. In accordance with the present invention, the metal constituting this sheathing is of a thickness of from .0005 inches to .010 inches, as materials in this range possess a flexibility and ductility which make it possible to draw them tightly against the surface of the bituminous or other coating which is to be protected against soil stress effects. Also, materials in this range of thickness are so readily handled that they can be applied to pipe lines in the field, or at their point of use, by methods which are at present utilized in the application of cloth or like wrapping materials. This is not possible with metal sheets of a thickness greater than the maximum above mentioned, as thicker metal sheets must be applied by special methods, due to their rigidity. Further, thicker metal sheets will not stay closely and intimately in contact with the coating to be protected. As a consequence, the cost of thicker metal sheets is extremely high, due to the fact that they must be applied by special methods, and, due to the fact that they fail to make close contact with the material, their protective action is inferior to that of sheets of a thickness within the limits specified herein.

There is, of course, some advantage in using a metal sheathing highly resistant to the corrosive action of the soil, but this is by no means essential, as the primary function of the sheathing is to overcome the destructive agencies in that class known as soil stress effect. Similarly, it is not essential that this metallic sheathing adhere tightly to the protective coating, since its function is not to exclude destructive chemical materials, but to distribute and deflect those mechanical forces which tend to disrupt the protective coating material 11.

The metal sheathing 12 can be applied to the object to be protected in various ways, dependent somewhat upon the shape of the body. However, in the case of piping, the metal sheet is preferably applied in elongated strips wrapped helically around the pipe, as is shown in that portion of the pipe illustrated in elevation in the drawing.

What is claimed is:

1. A soil stress and corrosion-resistant covering for buried metallic pipe comprising a continuous corrosion-resistant coating covering the pipe surface, and an armor jacket for protecting said coating from mechanical injury by the soil comprising a heli-

cal wrapping of metallic ribbon of foil thickness.

2. A soil stress and corrosion-resistant covering for buried metallic pipe comprising a continuous corrosion-resistant coating covering the pipe surface, and an armor jacket for protecting said coating from mechanical injury by the soil comprising a helical wrapping of single-ply metallic ribbon of foil thickness.

3. A soil stress and corrosion-resistant covering for buried metallic pipe comprising a continuous corrosion-resistant coating covering the pipe surface, and an armor jacket for protecting said coating from mechanical injury by the soil comprising a helical wrapping of single-ply metallic ribbon of such flexibility as to be capable of manual application around the pipe and coating after the pipe has been strung out, assembled, and coated.

4. A protective covering for metallic surfaces buried in soil of corrosive nature comprising a continuous corrosion-resistant coating covering the metallic surface and means for protecting said coating from mechanical injury due to soil stress phenomena comprising an armor jacket of flexible single-ply corrosion-resistant metallic sheeting having a thickness of not less than .0005 of an inch or more than .010 of an inch.

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