No. 682,173 Patented Sept. 10, 1901.

G. D. COLEMAN.

METALLIC SURFACE SHEATHING.

(Application filed Dec. 20, 1900.)

(No Model.)

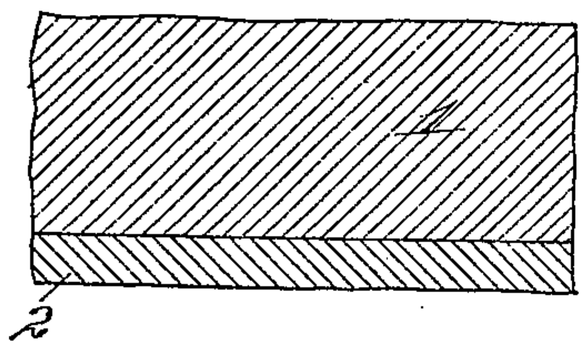

Fig. 1.

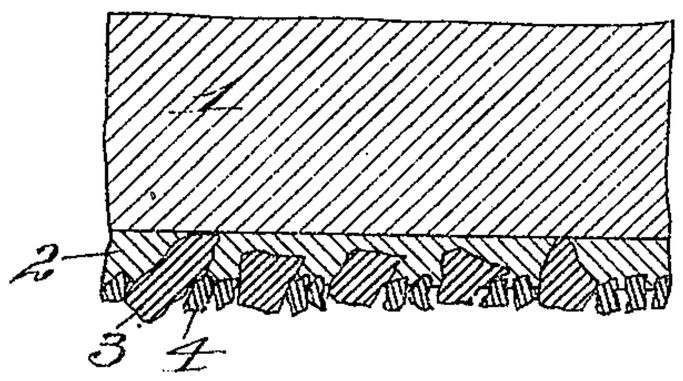

Fig. 3.

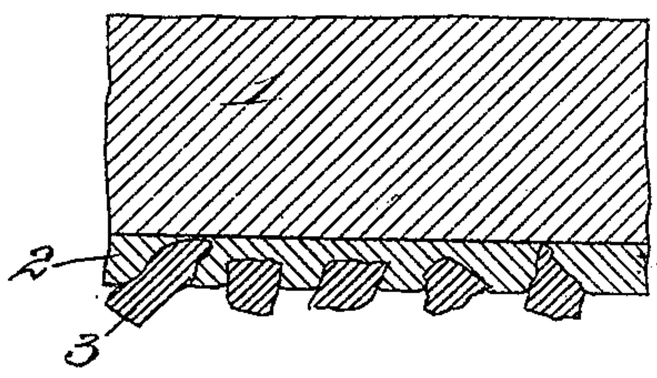

Fig. 2.

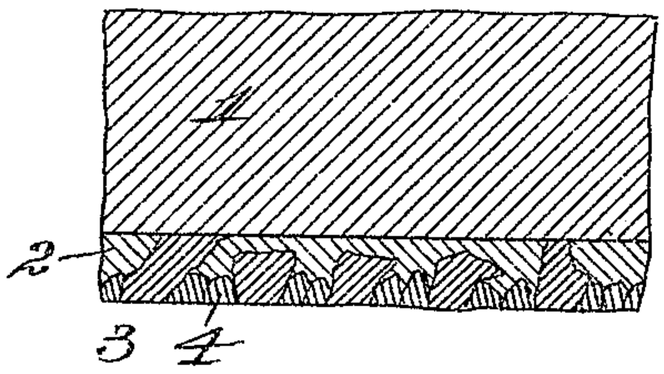

Fig. 4.

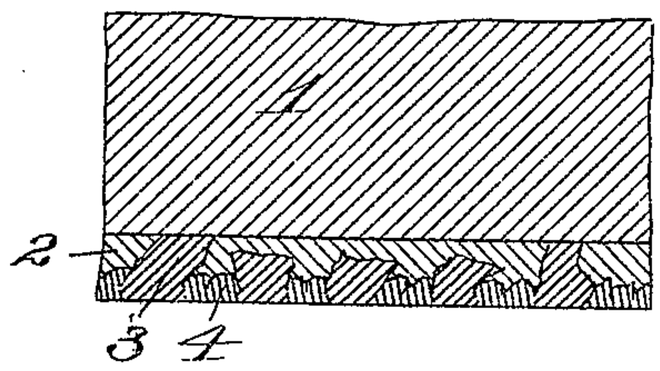

Fig. 5.

WITNESSES

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METALLIC SURFACE-SHEATHING.

SPECIFICATION forming part of Letters Patent No. 682,173, dated September 10, 1901.

Application filed December 20, 1900. Serial No. 40,544. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. COLEMAN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Metallic Surface-Sheathing; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to an improvement in metallic surface-sheathing.

The object of my invention is to produce a metallic surface-sheathing for covering surfaces exposed to the action of liquids, vapors, or gases, which would either attack or destroy the surface or which surfaces by chemical decomposition would pollute or adulterate the liquids, gases, or vapors exposed thereto. My invention is applicable to the coating of tanks for holding acids, alkalies, or other chemicals which without the sheathing would attack the walls of the tanks.

My invention is particularly useful in connection with the tanks used for the extraction of the oils and fatty substances from wool. These tanks are ordinarily made of iron and tinned on their inner surfaces. In the course of use the tin is gradually worn away until the tanks become worthless and new tanks must be substituted for them; but according to my invention I am enabled to reline these tanks with a continuous metallic surface-sheathing which will avoid the large expense incident to the replacement of the entire tank.

My invention is also adapted to be used as a protective coating in many places and wherever a metallic protecting-coating is required for covering a structure exposed to the deterioration of substances brought in contact with it, either for the purpose of protecting the structure from deterioration or for preventing pollution or adulteration of the substances which come in contact with the structure. While my invention is adapted for these various uses, it is particularly useful for covering smooth or comparatively smooth surfaces, such as the lining of tanks for holding substances which, without the lining, would attack the material of which the tank was constructed.

To the above end my invention consists in the metallic surface-sheathing hereinafter described and claimed.

In the accompanying drawings, illustrating the preferred form of my invention and a method of making the same, Figures 1, 2, 3, and 4 diagrammatically illustrate, in enlarged section, four of the successive steps of the preferred method of making my improved metallic surface-sheathing, and Fig. 5 diagrammatically illustrates, in enlarged section, the preferred form of the finished sheathing constituting the subject-matter of the present application.

My invention consists of a metallic sheathing of metal or alloy attached to the surface to be covered by a layer of suitable adhesive substance, which for the purposes of this application I term "paint." The metallic sheathing is preferably provided on its under surface with a series of projections or irregularities by which it is bound to the adhesive material. I prefer to make the sheathing by welding or soldering together granulated or comminuted metal. The sheathing may be made of any suitable metal or alloy; but in practice I have found it preferable to employ a metal or alloy capable of being soldered, and so while in its broader aspects my invention is not limited to any particular metal or alloy when the particles of metal or alloy are united by soldering then the metal or alloy must be such as is capable of being soldered. I find it preferable to use a paint consisting of red lead mixed with a binder, as oil, and a drier, as turpentine.

My sheathing may be attached to the surface to be covered in any suitable or desired manner. In my copending application, executed of even date herewith, Serial No. 40,545, I have described and claimed an improved method of making a metallic surface-sheathing embodying the invention forming the subject-matter of the present application. I prefer to make the sheathing in the following manner: The surface 1 to be sheathed is first thoroughly cleansed, to this surface is

applied a layer of paint 2, which is allowed to dry until it becomes tacky, Fig. 1, upon this tacky surface particles of granulated lead 3 are projected, the particles of lead being in diameter about twice the thickness of the layer of paint and being forced into the paint until they are partially embedded therein, Fig. 2, finely-divided solder 4 is projected against the surface of the paint between the particles of lead, Fig. 3, and then the surface is rolled or hammered without excessive pressure to bring the lead and solder into intimate contact and to remove the larger inequalities of the surface, but without bringing the paint to the surface, Fig. 4. The paint is allowed to dry. Then I apply a coating of soldering fluid, and go over the whole surface with a hot soldering-iron, melting the surface solder and uniting the particles of lead into a continuous metallic surface-sheathing, Fig. 5. In this connection it will be noted that while my Patent No. 629,426, dated July 25, 1899, "Antifouling coating for metal structures," shows a metallic sheathing in which particles of copper are supported by an adhesive paint, said particles of copper are not welded or soldered into a continuous imperforate metallic sheathing, because if the said coating be examined with a magnifying-glass it will be found that while the particles of copper are very close together and while many of the particles are in close contact with each other there are numerous small interstices between some of the particles of copper which are filled by the paint which supports them.

The object of the present invention is to make a metallic surface-sheathing which shall be such as to prevent the access of substances to the paint and the surface which supports it.

Having thus described my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. A metallic surface-sheathing consisting of a continuous imperforate sheathing of metal or alloy and a layer of paint by which said sheathing is attached to the surface to be covered, substantially as described.

2. A metallic surface-sheathing consisting of a layer of paint studded with granulated or comminuted metal or alloy, the particles of which are united to form a metallic surface, substantially as described.

3. A metallic surface-sheathing consisting of a layer of paint studded with granulated or comminuted solderable metal or alloy having particles of solder studding the surface of the paint in the interstices between the particles of metal or alloy, the particles of metal or alloy and solder being united together to form a metallic surface, substantially as described.

4. A metallic surface-sheathing consisting of a layer of paint studded with granulated or comminuted solderable metal or alloy having smaller particles of solder studding the surface of the paint in the interstices between the larger particles of metal or alloy, the particles of metal or alloy and solder being united together to form a metallic surface, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE D. COLEMAN.

Witnesses:
HORACE VAN EVEREN,
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