

C. M. WALES & C. BASKERVILLE.
REINFORCED METAL.
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1,280,908.

Patented Oct. 8, 1918.

Fig. 1.

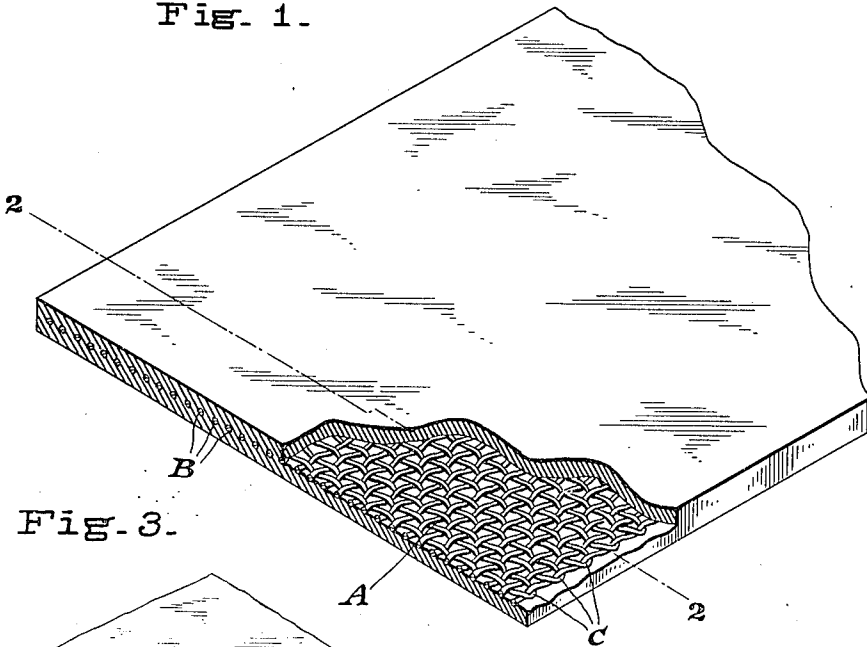


Fig. 3.

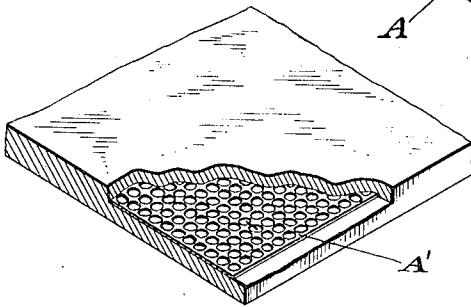
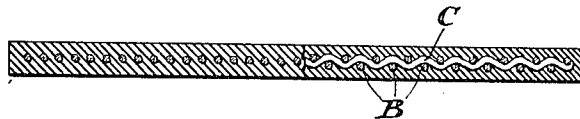


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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REINFORCED METAL.

1,280,908.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, CHARLES M. WALES and CHARLES BASKERVILLE, citizens of the United States, and residents of the borough of Manhattan, city of New York, county and State of New York, have made certain new and useful Improvements Relating to Reinforced Metal, of which the following is a specification.

The object of the invention is to produce an article having a lead coating which is secured to a ferrous gauze netting or perforated sheet, which gauze netting or perforated sheet serves as a reinforcing member for the resulting article.

The article which is the subject matter of the present invention is in fact reinforcing lead in sheet form and is particularly adaptable for use as a lining for tanks, vats or the like, but it has a broad general use and can be employed in many ways and in many arts. For example, the product is adaptable for the making of gaskets.

As illustrating articles which may be made according to the invention herein described reference is made to the drawing forming part of this specification and in which drawing,

Figure 1 is a perspective view of an article partially broken away. This figure shows a portion of a lead sheet which is reinforced by a ferrous gauze.

Fig. 2 is a cross sectional view taken as on the broken line 2—2 of Fig. 1; and

Fig. 3 is a perspective view of an article partially broken away. This figure shows a portion of a lead sheet which is reinforced by a perforated ferrous plate.

In said drawing A (see Figs. 1 and 2) indicates a reinforcing member in the form of a ferrous wire gauze or netting—either iron or steel—made as by weaving sets of wires B and C. In Fig. 3, a reinforcing member A' is shown and this member A' is a perforated iron or steel plate which is made as by punching a number of holes in a sheet so as to form a netting or screen, so to speak. The wire gauze, netting or perforated plate A or A' is properly cleaned as by pickling in a suitable acid in any well known manner. When cleaned it is preferably dipped in zinc chlorid or an antimony chlorid solution. The function of this solution is to serve as a flux to maintain the gauze, netting or perforated plate in a clean condition. The gauze, net-

ting or perforated plate is then dipped in a molten antimony lead alloy (which will hereinafter be referred to as the alloy of binding material.) This binding alloy contains approximately from 10 to 13% antimony and is preferably covered with a suitable flux. When the gauze is thus dipped it acquires a coating of the binding material. The gauze, netting or perforated plate thus treated is now ready for the reception of the main covering or coating material which is to provide the exterior of the final article. This main covering is a commercially pure lead or an alloy containing lead and of such a character that it acts like lead. This additional lead or lead alloy which constitutes the coating or covering may be applied to the gauze, netting or perforated plate which has been dipped into the binding alloy as by pressing the treated gauze or the like into a thin layer of molten lead alloy some of which molten lead or lead alloy is allowed to solidify and remain on the treated gauze. This dipping into the molten lead or lead alloy may be continued until the required structure has been built up; or the additional lead may be secured to the gauze or the like by placing the gauze between sheets of lead or sheets of lead alloy and passing between heated rollers. Or, the additional lead or additional lead alloy may be applied to the gauze or the line by feeding the gauze between two troughs containing molten lead or lead alloys and which troughs are constructed so as to feed out sheets of molten metal against the gauze whereby the molten metal thus fed will solidify and will adhere to the gauze.

When the cleaned ferrous wire gauze, netting or perforated metal is first dipped into a molten lead alloy the latter will adhere firmly to or become united with the ferrous metal in the gauze. This binding material will remain on the gauze as a thin coating as the gauze leaves the molten bath. To this thin binding coating of lead antimony a covering of chemically pure lead or a covering comprising a large portion of lead and some antimony is applied or united and will thus be caused to be firmly united to the ferrous gauze or netting.

From an inspection of Fig. 1 it will be observed that the finished product may be in the form of a sheet or strip having a lead or an alloy of lead and antimony coating ex-

tending along one or both surfaces thereof. This sheet or strip is also reinforced by the ferrous gauze or perforated sheet so that the sheet or strip is comparatively stiff and rigid even though the major portion of the material in the sheet or strip is lead which is a substance comparatively easy to bend and will yield with comparatively a small amount of pressure.

It will thus be observed that as a resulting product a strip or sheet can be produced in which lead constitutes the major portion thereof but which strip is comparatively strong and self-sustaining, thus making it much more practical in many places, for instance in sulfuric acid tanks, than are the present well known sheets of lead which are not reinforced and which frequently bulge and sag.

It will also be observed that the layers of lead on opposite sides of the gauze or netting reinforcing member are connected to the lead which passes through the openings in the reinforcing member.

What we claim is:

1. An article of the class described comprising in combination a wire gauze or perforated sheet of ferrous metal to which there is secured a continuous sheet of lead by means of a binder comprising an alloy of antimony and lead.

2. An article of manufacture having on an exposed surface thereof lead which is reinforced by means of a ferrous wire gauze or perforated sheet, there being a lead antimony binder between the chemically pure lead and the wire gauze or perforated sheet.

3. An article of manufacture made by dipping a ferrous wire gauze or perforated sheet when in a cleaned condition into a solution such as zinc chlorid or antimony chlorid, thereafter dipping said gauze or sheet in a molten alloy of antimony and lead and subsequently attaching or securing to the gauze or sheet thus treated a lead or lead alloy coating.

4. In the manufacture of an article of the class described the method which comprises dipping a ferrous wire gauze, netting or perforated sheet into a molten alloy lead solution and subsequently securing in place when in a heated condition a lead or lead alloy coating, the coating resulting from said dipping operation serving as a binder between the ferrous wire netting or perforated sheet and the lead or lead alloy covering.

5. In the manufacture of an article having a lead exterior and a ferrous reinforced portion the method which comprises dipping a cleaned ferrous gauze or perforated sheet in a zinc chlorid or antimony chlorid solution subsequently dipping in a molten antimony lead alloy binder containing antimony of approximately from 10 to 13% and finally applying a coating of lead while in a heated condition whereby the lead antimony alloy will serve as a binder between the ferrous metal and the lead coating.

6. In the manufacture of articles of the class described the method which comprises dipping a ferrous wire gauze, netting or perforated sheet into a bath containing an alloy of lead and antimony in molten condition so as to provide a deposit which can be employed as a binder, and when in a heated condition applying a lead or lead antimony coating to the member thus dipped, which binder serves to secure to the ferrous gauze or sheet the lead or lead antimony coating.

7. An article of the class described comprising in combination a ferrous gauze, netting or perforated sheet that serves as a reinforcing member, a coating of lead or lead alloy and a binder between said coating and said ferrous metal, which binder comprises lead and antimony.

8. An article of the class described comprising in combination a lead or lead alloy covering, a ferrous gauze, netting or perforated sheet which serves as a reinforcing member and a lead antimony binder that is attached to the ferrous gauze or sheet when in molten condition and to which binder the covering is secured when the covering and the binder are in a heated condition.

9. In the manufacture of an article of the class described in sheet form the method which comprises dipping a series of ferrous wires into a molten alloy and employing the coating resulting therefrom as a binder between said wires and a lead or lead alloy covering whereby there will be produced a sheet having lead as the principal component thereof and which sheet is reinforced by the ferrous wires secured to the lead.

This specification signed and witnessed this 4th day of February, 1916.

CHARLES M. WALES.
CHARLES BASKERVILLE.

Signed in the presence of—
G. McGRANN,
EDWIN A. PACKARD.