June 14, 1932. J. E. BURNS 1,863,186

PROTECTED METAL ARTICLE

Filed Nov. 4, 1930

Fig. 1.

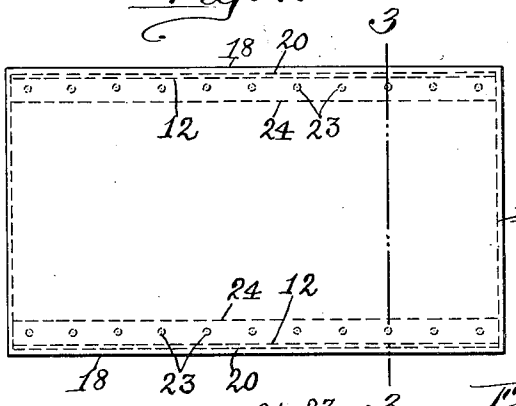


Fig. 2.

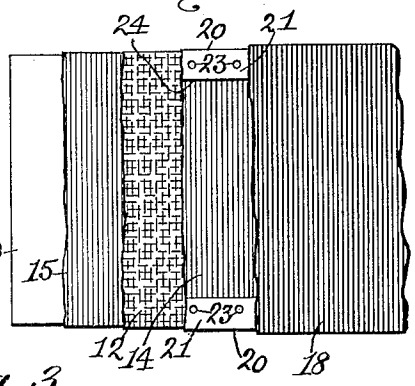


Fig. 3.

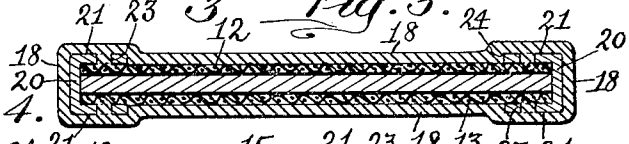


Fig. 4.

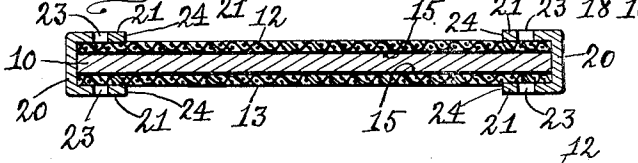


Fig. 5.

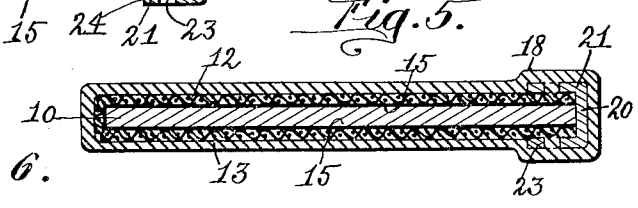


Fig. 6.

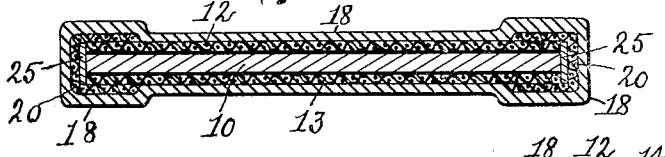
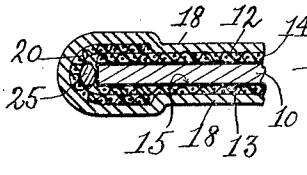


Fig. 7.



Inventor:
John E. Burns
By Jas. H. Churchill Esq.
Atty.

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1,863,186

UNITED STATES PATENT OFFICE

JOHN EDGAR BURNS, OF AMBRIDGE, PENNSYLVANIA, ASSIGNOR TO H. H. ROBERTSON COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

PROTECTED METAL ARTICLE

Application filed November 4, 1930. Serial No. 493,326.

This invention relates to an asphalt-protected metal article and particularly to an asphalt-protected metal sheet in which the steel or other metal sheet has adhesively affixed to it by asphalt or like bituminous material layers of fibrous material saturated with asphalt or like bituminous material, which fibrous material is also protected by a coating or layer of asphalt or like bituminous material which is united or bonded with the asphalt in the fibrous material.

In protected metal sheets of the character described, as now generally constructed and known to me, the layers of fibrous material are folded over the side edges of the metal sheet to protect from corrosion the metal sheet, usually of steel, by the asphalt with which the fibrous material is saturated, and the protective coating is applied to the fibrous layers to contact therewith throughout their area and thereby seal the steel sheet from the weather and the injurious effects of acid and alkali fumes.

A protected metal sheet of this character is disclosed in United States Patent No. 1,277,755 dated September 3, 1918.

The present invention has for its object to provide a protected metal sheet of this general character in which one or both of the side edges of the steel or other metal sheet may not be covered by the saturated fibrous layers yet are protected by the coating layer which is firmly united with fibrous layers in such manner, as will be described, to properly protect the side edge or edges of the metal sheet and enable the protected metal sheet to be bent at or near its side edge or edges without cracking or otherwise injuring the protective coating so as to expose to the atmosphere the metal sheet at such bend.

To this end, the steel sheet having the fibrous layers applied thereto and having one or both of its side edges exposed or uncovered by the fibrous layers has applied to the exposed side edge a substantially narrow strip or member, which will be hereinafter termed the binding strip or member and which may be of metallic or non-metallic material and provided with side walls which overlay the fibrous layers and are provided with edges and with a plurality of openings or perforations at the rear of the edges of said side walls, so that when the protective layer or coating is applied, the said coating will not only cover and be united with the uncovered portion of the fibrous layers but also will cover the edge strip or binding member and will pass through the openings or perforations therein and be united with the portion of the fibrous layers which are covered by the side walls of the binding strip or member, and thereby effect a sufficiently strong union between the protective coating and the fibrous layers at the edge of the steel sheet to enable the protected metal sheet to be bent at or near its normally exposed edge without danger of cracking or opening up the protective coating adjacent the edges of the side walls of the binding strip or member.

A protected metal sheet embodying this invention is capable of being made with steel sheets of different widths and may be provided with relatively sharp bends or flanges, to enable them to be used on buildings where a protected metal sheet of normal width and construction in which the fibrous layers are folded over the side edges of the metal sheet could not be used.

These and other features of this invention will be pointed out in the claims at the end of this specification.

Fig. 1 represents in plan view one construction of protected metal sheet embodying this invention;

Fig. 2, a plan view of the sheet shown in Fig. 1 with the layers broken away;

Fig. 3, a cross section on an enlarged scale of the protected metal sheet shown in Fig. 1, taken on the line 3—3;

Fig. 4, a cross section of the protected metal sheet shown in Fig. 1 before the protective coating is applied;

Fig. 5, a cross section on an enlarged scale of a modified construction of protected metal sheet embodying the invention, and

Figs. 6 and 7, cross sections of the protected metal sheet showing modifications of the binding member.

Referring to the drawing 10 represents a metal sheet, preferably of steel, which has affixed to its upper and lower surfaces layers 12, 13 of fibrous material, preferably asbestos or like felt which is saturated with asphalt or like bituminous material 14. The saturated fibrous layers 12, 13 as shown in Figs. 1, 2, 3 and 4 are of substantially the same width as the metal sheet 10 and are adhesively affixed to the metal sheet by a layer or film of asphalt or like bituminous material indicated by the heavy black lines 15.

The metal sheet 10 and the fibrous layers 12, 13 affixed thereto are sealed within a protective coating or envelop 18 of bituminous material, preferably gilsonite fluxed with cotton seed pitch, which protects the steel sheet from corrosion and the action of acid and alkali fumes in the atmosphere, and provision is made for effecting a firm attachment of the protective coating 18 with the fibrous layers 12, 13 at the side edges of the metal sheet 10, so that the protected metal sheet may be bent at its side edges without liability of cracking or opening up the protective coating at such bend or bends.

For this purpose the metal sheet 10 having the fibrous layers 12, 13 applied thereto, is provided at its uncovered side edge or edges with a binding member 20, which is shaped to cover the exposed edge of the metal sheet 10 and provide side walls 21 which overlay the fibrous layers adjacent to the edge of the metal sheet, and said side walls are provided with a plurality of openings 23 (see Fig. 4) located at the rear of the front edge 24 of the side walls, so that the material of the coating or protective layer 18, which is plastic when heated, may pass through said openings and unite or bond with the saturant in the fibrous layers 12, 13 behind or at the rear edge of the side walls of the binding member and thereby securely fasten the protective layer 18 to the fibrous layers 12, 13 at the rear of as well as in front of the edge of the side wall 21 of the binding member, and thus prevent movement of the coating layer 18 with relation to the front edge of the binding member when the protected metal sheet is bent at its edge to form a flange, and thereby avoid liability of the coating member 18 being cracked or opened up so as to expose the steel sheet 10 to corrosion and the bad effects of acid and alkali fumes.

The binding member may be of sheet metal and have the holes or openings 23 punched therein and sufficient in area to obtain a firm union of the coating member 18 with the fibrous layers, or said binding member may be made of an open meshed fabric either metallic or non-metallic as represented in Figs. 6 and 7.

When an open meshed fabric is used as the binder member, it may be provided with a core 25 to contact with the exposed edge of the steel sheet.

The fibrous layers 12, 13 may be separate layers when both edges of the steel sheet are exposed, or they may be in one piece and folded over one edge of the metal sheet, as shown in Fig. 5 when only one edge of the metal sheet is exposed.

A protected metal sheet provided with a perforated binding member applied to one or both edges of the steel sheet, enables the latter to be obtained by cutting a steel sheet, of normal or standard width, such as is used in the production of the protected metal sheets disclosed in the Patent No. 1,277,755, and thereby avoids the necessity of the manufacturer of the protectetd metal sheets of normal width, to carry steel sheets of different widths in stock to meet conditions of use wherein protectetd metal sheets of narrower widths than the standard protected metal sheets are required.

What is claimed is:

1. A protected metal article comprising a metal sheet, layers of felt saturated with asphalt covering the opposite surfaces of said metal sheet and uncovering one edge of said metal sheet, a binding member covering the exposed edge of the metal sheet and the saturated felt layers for a portion of the width of the latter, the overlaying and underlaying portions of said binding member having edges and openings at the rear of said edges, and a layer of coating material covering the saturated felt layers and binding member and extended through the openings in the binding member and united with the portions of the saturated felt covered by said binding member.

2. A protected metal article comprising a metal sheet, layers of fibrous material saturated with asphalt and cemented to opposite surfaces of the metal sheet with one edge of the metal sheet uncovered by said fibrous material, a binding member covering the normally exposed edge of said metal sheet and overlaying the fibrous layers for a portion of the width of the latter, said overlaying portions of said binding member having edges and openings at the rear of said edges, and a layer of coating material enveloping the metal sheet, fibrous layers and binding member and extended through the openings of said binding member and united with the portions of the fibrous layers covered by said binding member.

3. A protected metal article of the character described, having a metal sheet covered on its opposite surfaces with fibrous material and having an edge uncovered, a binding member covering the uncovered edge of said metal sheet and having sides overlaying said fibrous material and provided with openings at the rear of the edges of said sides, and a layer of coating material covering the bind-

ing member and united with the fibrous material outside of the binding member and also beneath the sides of the binding member through the openings therein.

4. A protected metal article comprising a metal sheet, fibrous layers saturated with asphalt and cemented to opposite surfaces of the metal sheet to leave the side edges of said metal sheet exposed, binding members covering the side edges of the metal sheet and overlaying the said fibrous layers for a portion of the width of the latter, the overlaying sides of the binding members having edges and openings at the rear of said edges, and a coating member cemented to the fibrous layers between the binding members and covering the binding members and having portions filling the openings in the latter and united with portions of the fibrous members at the rear of the edges of said binding members.

In testimony whereof, I have signed my name to this specification.

JOHN E. BURNS.