P. M. STEWART.

PROTECTED METAL STRUCTURE.

APPLICATION FILED APR. 6, 1916.

1,243,001. Patented Oct. 16, 1917.

Fig. 1.

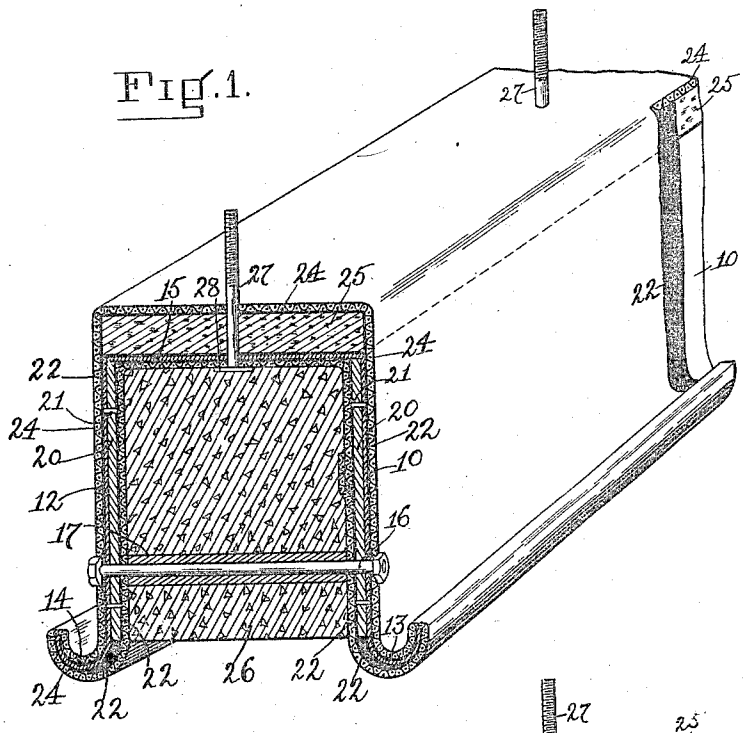
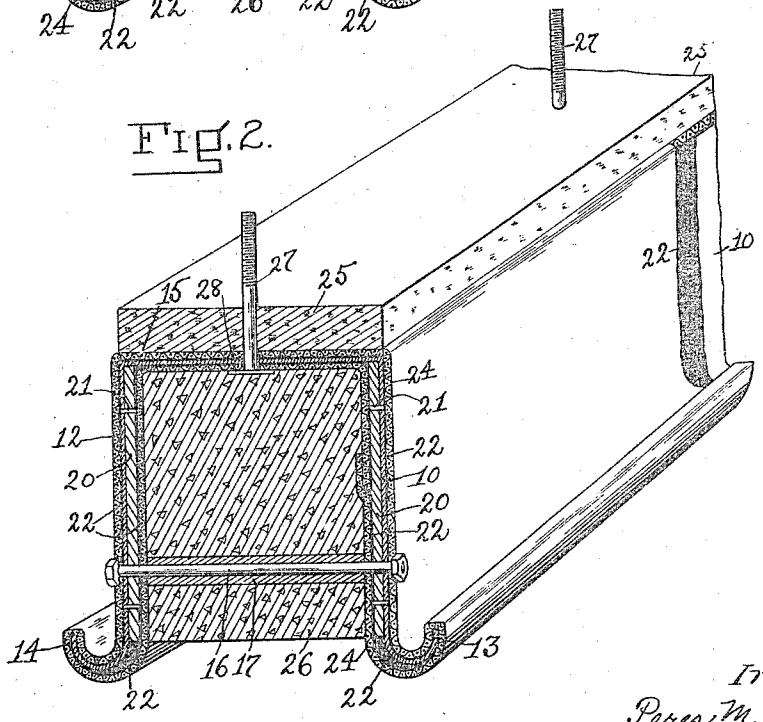


Fig. 2.



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PROTECTED METAL STRUCTURE.

1,243,001. Specification of Letters Patent. Patented Oct. 16, 1917.

Application filed April 6, 1916. Serial No. 89,283.

To all whom it may concern:

Be it known that I, PEREZ M. STEWART, a citizen of the United States, and a resident of the borough of Manhattan, in the city, county, and State of New York, have invented an Improvement in Protected Metal Structures, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a protected metal structure and is herein shown as a composite bar, which is especially adapted among other uses to be employed as a skylight bar.

The invention has for its object to provide a skylight or other composite bar, which is highly insulated against heat and cold, moisture, fumes, condensation, etc., and which can be assembled at the shop and shipped to the job as one piece, ready for use.

The invention further has for its object to provide the protected metal bar with a cushion for the glass as will be described, and also has for its object to produce a skylight or like bar which is light, inexpensive and highly efficient.

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

Figure 1 represents in section and perspective one construction of protected metal bar embodying this invention, and Fig. 2, a modification to be referred to.

In the preferred embodiment of the invention, I employ a metallic member having thin sheet metal side walls 10, 12, spaced apart and arranged substantially parallel to each other.

The side walls 10, 12 are preferably curved outwardly at their lower ends to form gutters 13, 14, and are metallically connected together, which may be effected by a thin sheet metal top bar 15, preferably integral with the side walls 10, 12, and also by means of tie rods or bolts 16 located preferably near the lower ends of the said side walls, said bolts or tie rods having on them metal or other sleeves 17, which serve as spacing devices for the side walls 10, 12.

The top bar 15 and side walls 10, 12, being of thin sheet metal and of light gage, such as 24 gage metal, are capable of being pressed up by hand or by machinery at a minimum cost to form a channel bar metallic member having gutters integral with it, and after being properly shaped, said channel member may have its side walls 10, 12, reinforced or stiffened by thicker metal plates or bars 20, which are preferably located on the inside of the side walls 10, 12, and firmly secured thereto by rivets 21 or otherwise.

The metallic member is provided with a protective layer of asphalt or like material of a hydrocarbonaceous nature, which is represented by the heavy black lines 22, and is further protected on its exposed surfaces by a layer or sheet 24, which may be lead, or, as is preferred, fibrous material, such as asbestos paper or felt, wool felt, paper, and the like.

The protective layer 24 is adhesively secured to the metal member by the asphalt or like adhesive and protecting material 22, and as represented in the drawings completely envelops the metal member and has its ends overlapped on the inner surface of one of the side walls as 10.

The protective layer 24 may also envelop a cushioning member 25, preferably of cork as represented in Fig. 1, which cushioning member is supported by the top wall or bar 15 of the metallic member.

The space between the side walls 10, 12, may and preferably will be filled with plastic material, preferably of gypsum or like light plastic material, which when set forms a non-metallic member 26 within the metallic member, and serves as an insulator against heat and cold and prevents condensation on the interior of the metal member, and also serves as a stiffener for the metal member.

While it may be preferred to completely cover the inner surfaces of the metal member with the protective layer 24, it is not desired to limit the invention in this respect, as the protective layer may be omitted from the greater portion of the inner surface of the metal member when the plastic body or filler 26 is used, for the latter acts as a protection for the inner surface of the metal member against corrosion, fumes, etc.

The body or filler 26 of plastic material may also serve as a backing member for bolts 27, which have their heads 28 located on the under side of the top wall or bar 15 of the metal member, and have their shanks

extended up through the said top wall or bar and through the cork or other cushion 25 and through the asbestos or other protective layer 24.

It may be preferred to envelop the cork or other cushion 25 with the protective layer 24 as represented in Fig. 1, but it is not desired to limit the invention in this respect, as the cork cushion 25 may be laid on the protective layer, as represented in Fig. 2. In either case it will be observed, that the skylight bar can be assembled in the shop ready to be shipped to the job as a complete article with the cushion forming a part thereof, for in the construction shown in Fig. 1, the cushion 25 is held from accidental displacement by the protective covering 24 and by the bolts 27, and in Fig. 2 by the said bolts. With the construction shown in Fig. 2, the cork cushion 25 may be slipped over the bolts 27 at the job before or after the skylight bar is placed in position.

The bolts 27 are used to secure the usual cap piece (not shown) but which is used to hold the glass (not shown) in place on the skylight bar, and said glass may be quickly and easily renewed in case of breakage by simply removing the said cap piece.

When the protective layer 24 is of a fibrous material, its outer surface may be painted or otherwise provided with a coating of waterproof material.

The plastic member 26 may be provided with a metal reinforcement of known construction if desired.

From the above description, it will be observed that the composite bar which is especially adapted for use as a sky-light bar, can be assembled complete in the shop and shipped to the job ready to be put up and have the glass applied to it with the least possible labor, and that a skylight can be built in a minimum time and at a minimum cost; that the metal portions of the bar are thoroughly protected against heat, cold, moisture, fumes, condensation, etc., and that the bar is light, inexpensive and highly efficient, and is provided with a cushion for the glass.

While the composite bar is especially useful as a sky-light bar, it is not desired to limit the invention in this respect, as the invention may be embodied in bars designed for other uses.

The composite bar may be fastened to the curb or purlins of the building by any suitable fastening devices, such as clips or angles, not shown.

Furthermore, it may be preferred to protect the metallic channel bar as herein shown and described, but it is not desired to limit the invention in this respect.

Claims:

1. A composite bar comprising a metal member having a top wall and side walls extended from said top wall and outwardly bent at their lower ends to form gutters, reinforcing plates for said side walls, a layer of hydrocarbonaceous material covering said metal member, a protective layer covering the exposed surfaces of said metal member, means for tying said side walls together, a body of plastic material between said side walls, and a cushioning member interposed between the said top wall and said protective layer.

2. A composite bar comprising a metal member having a top wall and side walls extended from said top wall and outwardly bent at their lower ends to form gutters, reinforcing plates for said side walls, a layer of hydrocarbonaceous material covering said metal member, a protective layer covering the exposed surfaces of said metal member, means for tying said side walls together, a body of plastic material between said side walls, a cushioning member supported by said top wall, and devices extended from said top wall through said cushioning member.

3. A composite bar comprising a metal member having a top wall and side walls extended from said top wall and outwardly bent at their lower ends to form gutters, reinforcing plates attached to said side walls, a protective layer covering the exposed surfaces of said metal member and adhesively secured to the latter, means for tying said side walls together, a body of plastic material between said side walls, a cushioning member supported by said top wall, and devices extended from said top wall through said cushioning member.

4. A composite bar comprising sheet metal side walls and a top wall, reinforcing members for said side walls, a tie rod connecting said side walls, a body of plastic material between said side walls, a cushion member supported by said top wall, and a device supported by said plastic material and extended through said top wall and cushion.

5. A composite bar comprising sheet metal side walls and a top wall, tie rods connecting said side walls, a body of plastic material between said side walls, a cushion member supported by said top wall, and a device supported by said plastic material and extended through said top wall and cushion.

6. A composite bar comprising sheet metal side walls, tie rods connecting said side walls, a body of plastic material between said side walls, a cushion member above said plastic material, and a device supported by said plastic material and extended through said cushion.

7. A composite bar comprising a top plate, a body of plastic material below said top plate, a cushion member supported by said

top plate, and a device supported by said plastic material and extended through said top plate and cushion.

8. A composite bar provided with a top wall and with substantially thin side walls, reinforcing plates materially thicker than said side walls and firmly secured thereto, a filling of plastic material between said side walls, a cushion supported by said top wall, and devices supported by said plastic material and extended through said top wall and cushion.

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

PEREZ M. STEWART.