Jan. 19, 1937. A. F. WESTLUND ET AL 2,068,583

SUPPORT AND METHOD OF MAKING THE SAME

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FIG. 1.

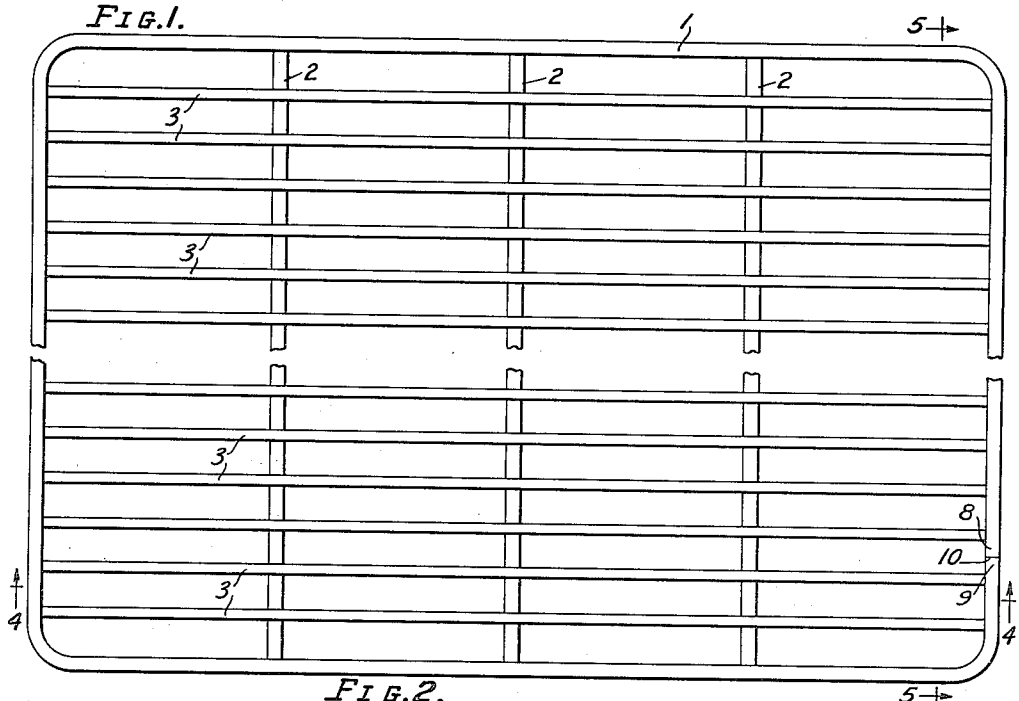


FIG. 2.

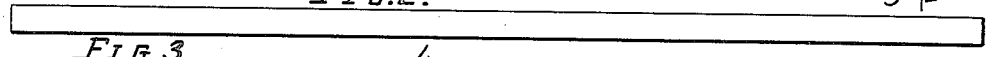
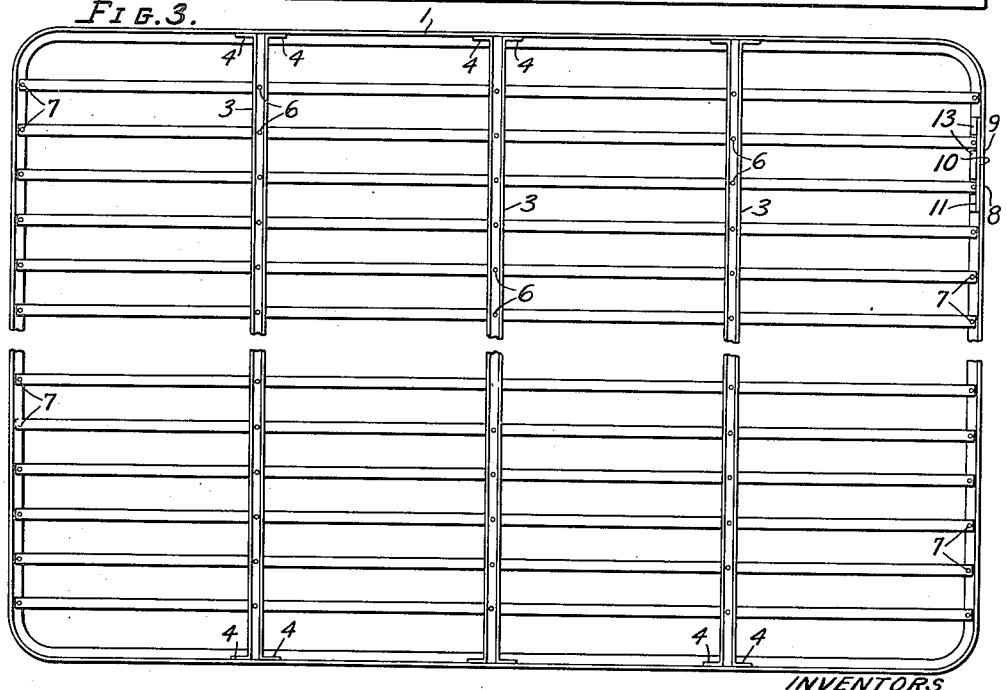


FIG. 3.



INVENTORS
ALBERT F. WESTLUND
SHIRLEY D. MURPHY.
BY Toulmin & Toulmin
ATTORNEYS

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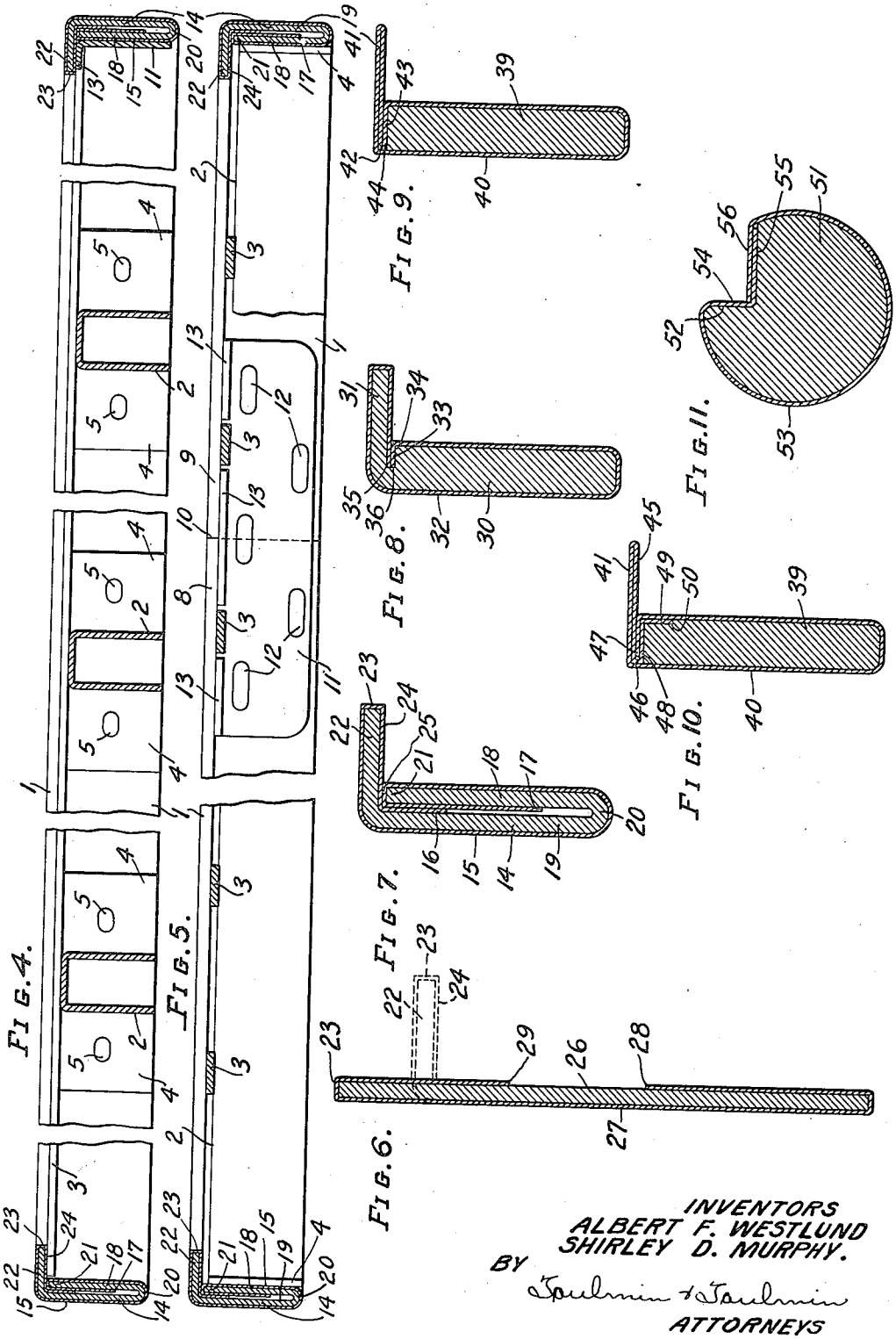


FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

FIG. 8.

FIG. 9.

FIG. 10.

FIG. 11.

INVENTORS
ALBERT F. WESTLUND
SHIRLEY D. MURPHY.
BY
Faulmin & Faulmin
ATTORNEYS

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SUPPORT AND METHOD OF MAKING THE SAME

Albert F. Westlund and Shirley D. Murphy, Indianapolis, Ind.

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3 Claims. (Cl. 153—1)

This invention relates to supports for articles, and in particular, to shelves for refrigerators; and also to the structural members of which such shelves are composed, as well as to methods for making these articles.

One object of this invention is to provide a support composed of composite frame members interconnected by cross members of a single material, the composite members being so folded as to conceal the base material from the covering material.

Another object is to provide a support having a peripheral member composed interiorly of a base metal and externally of a non-corrosive metal, the base metal and the non-corrosive metal being so overlapped and folded together as to entirely conceal the base metal.

Another object is to provide a support consisting of a peripheral member formed of a base material covered by a thin layer of different material folded thereover in such a manner as to conceal the base material, this peripheral member being interconnected between its opposite sides by members of a single material throughout.

Another object is to provide a composite frame member of angled cross section, the member being composed of a base material overlaid with a layer of non-corrosive material, the whole being folded together in such a manner as to conceal the base metal and to give the apparent effect of a solid member composed of non-corrosive metal throughout.

Another object is to provide a method of making a composite frame member of the above construction, wherein a metal strip is covered with a thin sheet of a cover metal, especially of a non-corrosive nature, the whole being then folded together so as to conceal the base metal, in the manner previously described.

In the drawings:

Figure 1 is a top plan view, partly broken away, of the support of this invention.

Figure 2 is a side elevation of the support shown in Figure 1.

Figure 3 is a bottom plan view of the support shown in Figure 1.

Figure 4 is an enlarged detail section, partly broken away, along the line 4—4 of Figure 1.

Figure 5 is a detail section, similar to Figure 4, but taken along the line 5—5 of Figure 1.

Figure 6 is an enlarged cross section through a metal strip in the early stage of manufacture and prior to the bending operations for concealing the base metal.

Figure 7 is a cross sectional view showing the composite metal strip of Figure 6, after it has been folded to conceal the base metal.

Figures 8, 9, and 10 are views similar to Figure 7, but showing a modified form of construction.

Figure 11 is an enlarged cross sectional view of a composite structural member, of partially circular cross section.

Hitherto, in constructing supports, such as shelves for refrigerators, it has been customary either to provide such shelves of a single metal throughout or to electroplate this metal with a non-corrosive coating. By making the support of a single metal throughout, it has either been necessary to use a low-cost metal, in order to maintain a low selling price, or else the high-cost non-corrosive metals used for the device limited the market for it on account of the high selling price which must be obtained. On the other hand, supports made by electroplating a low-cost base metal with a corrosion-resisting metal are of uncertain quality because the coating is not always sufficiently tenacious, and because the thickness thereof is liable to vary. The article and method of our invention has for one of its purposes the provision of a support which will be corrosion-resisting and which can be manufactured at a low price.

Referring to the drawings in detail, Figure 1 shows a support, such as a refrigerator shelf, having a peripheral frame member, generally designated 1, with one pair of its opposite sides interconnected by the structural or girder members 2, and in the other direction by the strips 3. In the preferred form of our invention the strips 3 are made from a corrosion-resisting metal in their entirety, as shown in Figure 5. The girder members 2 are also preferably made of this corrosion-resisting metal throughout, although composite metal may obviously be used by doubling the construction shown in cross section in Figures 7 to 10, inclusive, thus making a U-shaped structure instead of an L-shaped one.

The ends 4 of the girder members 2 (Figures 3 and 4) are bent to form tabs which are secured to the inside wall of the peripheral member 1 by any suitable means, such as by spot-welding at the points 5 (Figure 4). The cross strips 3 and the girder members 2 are also preferably united to one another by spot-welding, as at 6, (Figure 3). The ends of the strips 3 are united to the underside of the peripheral member 1 by spot-welding, as at 7.

The free ends 8 and 9 of the peripheral member 1 meet at the joint 10 (Figures 1, 3, and 5). These ends 8 and 9 are held firmly together by the joint connector 11, the latter consisting of a strip of material spot-welded, as at 12, to the inside wall of the peripheral member 1 (Figure 5), and having arms 13 perpendicular to the remainder of the connector. These arms 13 are spot-welded to the adjacent portion of the peripheral member 1.

The peripheral member 1 (Figures 4 and 7) consists of an approximately L-shaped base por-

tion 14, having a cover portion 15 extending over most of the surface, the free edge portions 16 and 17 of this cover portion being bent inwardly by the folding of the base portion arm 18 against the portion 19 at the point 20, and with its end 21 in close proximity to the bent portion 22 of the base metal. By this folded construction the cover portion 15 is bent around the exposed end of the bent portion 22, as at 23, and again bent against the inner side thereof, as in the portion 24. Similarly, the concealed end 21 of the base portion arm 18 has the cover portion 25 bent therearound, continuing in the free edge portion 17. The portion 24 terminates in the edge portion 16, previously mentioned, and situated in the interior of the structural member after the bending operations have been concluded.

The method of making the structural member shown in Figure 7 consists in preparing a strip 26 (Figure 6) of base metal, rolling or otherwise closely forming a strip of cover metal 27 around this strip but with the edges 28 and 29 spaced apart from one another on one side. After this operation has been completed, one edge of the composite structure shown in Figure 6 is bent at right angles to form the base portion 22, covered by the cover portions 23 and 24. This step is indicated by the dotted lines shown in Figure 6. The opposite edge of the composite structure shown in Figure 6 is then bent completely back on itself, thus concealing the edges 28 and 29 within the interior of the structural member. This gives the result shown in cross section in Figure 7.

The modified form of structural member shown in Figure 8 consists of a base material strip having a thick portion 30 and a thin portion 31. The thick portion 30 and the thin portion 31 are initially flat. In this condition the cover material strip 32 is rolled around the base metal in the manner previously described, with one edge 33 thereof bent around the corner 34 of the ledge between the thick and thin portions. After this the thin portion 31 is bent at right angles to the thick portion 30, causing the edges 35 and 36 to be concealed within the interior of the structure.

The modified form of structure shown in Figure 9 is similar to that shown in Figure 8 with the exception of the fact that instead of the thin portion 31 on the base material strip 39, the cover material 40 is bent back on itself to form a laminated portion 41, and this in turn, is bent at right angles to conceal its free edge 42 within the interior of the structure. Prior to this the portion 43 of the cover material has been bent around the edge of the base material strip 39, with its edge 44 lying adjacent the opposite edge 42, and likewise concealed within the interior.

A suitable material for the base metal is cold-rolled steel, while a suitable material for the cover is stainless steel.

The modified form of structural member, shown in Figure 10, is generally similar to Figure 9, and the corresponding parts are designated by similar reference numerals. The underside 45 of the laminated portion 41 is continued at 46 around the edge 47 of the lower cover portion, continuing therebeneath in the portion 48, which is bent at right angles downward, forming the edge portion 49, the latter being received within the recess 50 in the base metal portion 39.

The modified form of structural member, shown in Figure 11, consists of a base material portion 51 having a groove 52 along one side. The base material portion is otherwise roughly circular in cross section. The cover material 53 is laid over the base material portion 51, including the portion 54 which runs along one side 55 of the groove 52. The portion 54 is bent at the bottom of the groove, and continues onward in the portion 55, running along the other side of the groove and beneath the opposite edge portion 56 of the cover material.

It is a common characteristic of all of the modifications that the cover material is laid over the base material and the folding or bending operations conducted in such a manner that none of the base material is exposed at the sides of the structural member. In this manner the effect is obtained of constructing a structural member which has the advantages of a solid member of expensive non-corrosive metal and at the same time the inexpensiveness of a less costly metal.

It will be understood that we desire to comprehend within our invention such modifications as come within the scope of the claims and the invention.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. A method of making a composite corrosion resistant structural member comprising forming a strip of base metal, forming a strip of corrosion resistant metal, bending said corrosion resistant metal over said base metal with the free edges of said corrosion resistant metal on one side of the base material, bending one part of this composite structure to form an angled portion and bending the opposite part of the composite structure reversely along the remaining portion thereof with its edge substantially in engagement with the angled portion thereof, whereby to conceal the free edges of the corrosion resistant metal between the adjoining portions of the base metal and in the interior of the structural member thus formed.

2. A method of making a composite corrosion resistant structural member comprising forming a strip of base metal, forming a strip of corrosion resistant metal, bending said corrosion resistant metal over said base metal with the free edges of said corrosion resistant metal on one side of the base material, said free edges being spaced apart from one another, bending one part of this composite structure to form an angled portion and bending the opposite part of the composite structure reversely along the remaining portion thereof with its edge substantially in engagement with the angled portion thereof, whereby to conceal the free edges of the corrosion resistant metal between the adjoining portions of the base metal and in the interior of the structural member thus formed.

3. A structural member for supports comprising a base portion of one metal, a cover portion of a corrosion resistant metal thereon, said base portion including two substantially parallel portions and the free edges of said cover portion being disposed between said parallel base portions and within the interior of said structural member, another portion of said base portion being connected to one of said substantially parallel base portions and extending across the edge of the other substantially parallel base portion.

SHIRLEY D. MURPHY.
ALBERT F. WESTLUND.