March 9, 1965 R. E. TRUESDELL 3,172,800

FINISHING BEADING OR MOLDING

Filed March 23, 1961

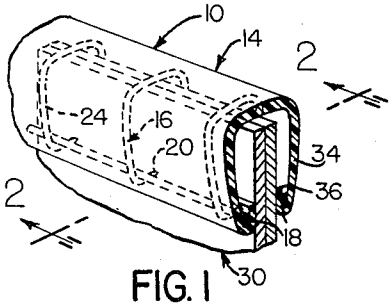


FIG. 1

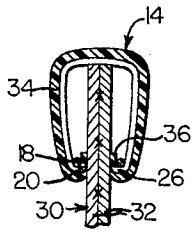


FIG. 2

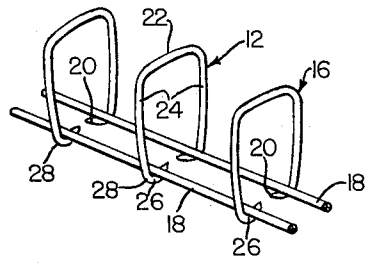


FIG. 3

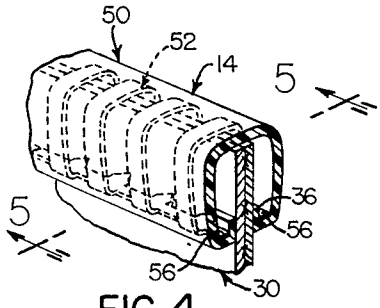


FIG. 4

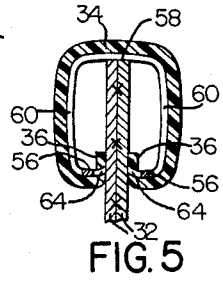


FIG. 5

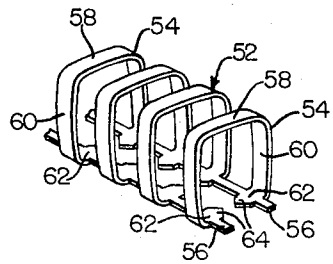


FIG. 6

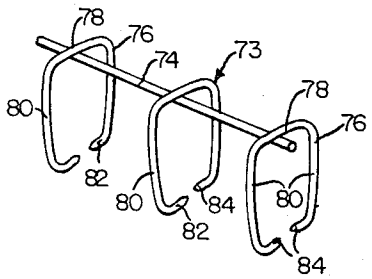


FIG. 7

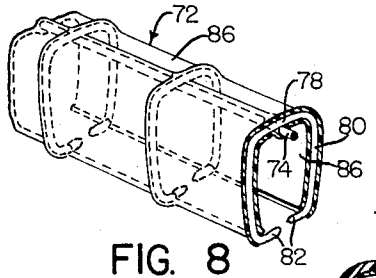


FIG. 8

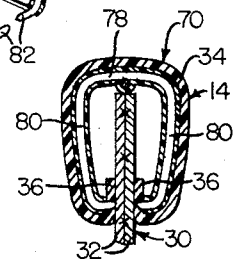


FIG. 9

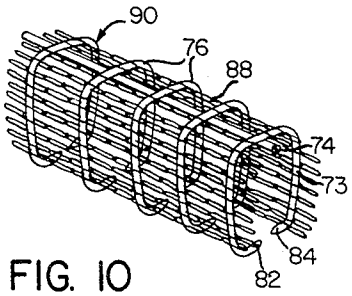


FIG. 10

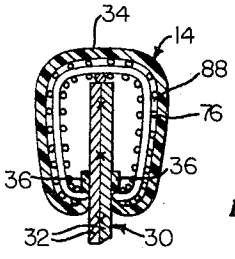


FIG. 11

INVENTOR.
ROBERT E. TRUESDELL

BY Coleman, Nord & Kraus

ATTORNEYS

United States Patent Office 3,172,800 Patented Mar. 9, 1965

3,172,800

FINISHING BEADING OR MOLDING

Robert E. Truesdell, 1656 N. Bretton Drive, Avon Township, Oakland County, Mich.

Filed Mar. 23, 1961, Ser. No. 97,880
12 Claims. (Cl. 161—100)

This invention relates to a finishing beading or molding and more particularly to a molding embodying a flexible insert overwrapped with an outer covering, the insert having a longitudinally extending series of spaced rib members secured together and provided with means restricting the covering material from riding up the arms of the rib members.

The invention involves an insert for an outer covering comprising a longitudinally extending series of spaced rib members having a web portion and depending arms terminating in inturned opposed claw hook ends. These rib members are conjoined into a series by longitudinally extending connectors, integrally or separately formed and conjoining the rib members adjacent their claw hook ends, which are slightly upturned. The rib members may also be conjoined into a series by a longitudinally extending connector, integrally or separately formed and conjoining the members at their web portions, the connector functioning as a backbone strip. In this form of the invention, the rib members are dipped in plastic film material up to the claw hook ends, coating the insert with a film that provides resistance to upriding of the outer covering when the claw hook ends pierce the covering material. A second means for providing the required resistance to upriding, in the latter form of the invention, i.e. with a backbone strip, is the weaving of a web about the rib members up to inturned arm portions adjacent the claw hook ends, the woven web being the full equivalent of the plastic coating film and functioning as a resistance to upriding of the outer covering.

The finishing molding of this invention is used to finish and cover the raw edge of sheet metal, sheet plastic, or other materials having an unsightly or rough, dangerous edge. Such an edge may be straight, or may be curved, or may be a combination of straight and curved portions, both in a single plane or in more than one plane. The finishing molding of this invention is useful in vehicles such as automobiles, trucks, boats, on furniture, structural building components, and in applications that present the problem of a rough, unsightly and dangerous planar sheet edge.

The application of finishing molding to raw sheet metal or plastic edges has been known heretofore, reference being made to Truesdell et al. Patent No. 2,954,310. The instant invention provides a means, by longitudinally extending connectors, integrally or separately formed and conjoined to the spaced rib members, whereby a resistance is provided against upriding of the outer covering upon the rib members once the claw hook ends of the rib member arms pierce through the outer covering at the sheet metal edge, or film or web means extending over the rib members to lines adjacent the inturned arm portions providing similar resistance to upriding.

The edge formed of two sheet metal panels or sections and welded together is called a "pinchweld edge." Whenever this term is used, it will be understood that the term applies to plastic or composition edges of either a single or multiple panels or sections, as well as to sheet metal panels or sections of single or multiple number. The term "backbone strip" will be understood to apply to a connector or connectors, whether integrally or separately formed, conjoining the spaced rib members at their web portions into a longitudinally extending series.

It is an object of the invention to provide a connected longitudinally extending series of spaced rib members having claw hook ends adapted to grip a pinchweld edge and to support an outer overwrapping covering secured thereover by the claw hook ends. Another object is to provide rib members having means conjoining them which resist the upriding of the outer covering upon the rib members. Still another object is to provide connectors securing the rib members in a longitudinally extending series adjacent their claw hook ends to provide the desired resistance. Yet another object is to coat the rib member and fill the spaces longitudinally therebetween with either a plastic film or a woven web to provide the desired resistance.

These and additional objects and structural features of the invention will become more apparent from the description given below, and in which the terms employed are used for purposes of description and not of limitation.

Reference is made to the drawing annexed hereto, forming an integral part of this specification, and constituting illustrative and exemplary forms of the invention, in which

FIG. 1 is a perspective view of a fragmentary portion of a pinchweld edge covered by a portion of finishing molding embodying the invention.

FIG. 2 is a transverse vertical sectional view taken substantially on the line 2—2 of FIG. 1.

FIG. 3 is a perspective view of the insert portion of the finishing molding in FIG. 1.

FIG. 4 is a perspective view of a fragmentary portion of a pinchweld edge covered by a portion of a second form of finishing molding embodying the invention.

FIG. 5 is a transverse vertical sectional view taken substantially on the line 5—5 of FIG. 4.

FIG. 6 is a perspective view of the insert portion of the finishing molding in FIG. 4.

FIG. 7 is a perspective view of an insert portion prior to being coated with a plastic film to provide the required resistance to upriding of the outer covering.

FIG. 8 is a perspective view of the insert portion of FIG. 7 coated with a film of plastic material.

FIG. 9 is a transverse vertical sectional view, similar to those shown in FIGS. 2 and 5, with the insert of FIG. 8 mounted on a pinchweld edge and securing an outer covering thereabout.

FIG. 10 is a perspective view of an insert portion as shown in FIG. 7 covered with a woven webbing to provide the require resistance to upriding of the outer covering.

FIG. 11 is a transverse vertical sectional view, similar to that shown in FIG. 9, with the covered insert of FIG. 10 mounted on a pinchweld edge and securing an outer covering thereabout.

As shown in the drawing, particularly in FIGS. 1–3 inclusive, the finishing molding **10** comprises an insert **12** and an outer covering **14**. The insert **12** comprises a longitudinally extending series of spaced parallel rib members **16** connected by longitudinally disposed connected runners **18** secured to the rib members **16** by welding, adjacent the claw hook ends **20**. Each of the rib members **16** comprises an integrally formed body having a web **22** and depending arms **24** terminating in inturned portions **26** having their claw hook ends **20** directed slightly upwardly. The connective runners **18** are secured upon the inturned portions **26** adjacent the corners **28** where the latter portions bend inwardly toward each other for gripping the pinchweld edge **30** therebetween, so that the runners lie between the corners **28** and the claw hook ends **20**. The rib members **16** are disposed transversely of the runners **18**.

As shown in FIGS. 2, 5, 9 and 11, the pinchweld edge

30 as illustrated, comprises two sheets 32 of metal welded together to form a raw unfinished (i.e. a dangerously exposed raw) edge. Such edges may comprise a single or multiple layers of metal, plastic, or composition material joined together by welding, by rivets or mechanical fasteners, by adhesives, or by other suitable means.

It will be noted that the connective runners 18 in the insert 12 are described as preferably conjoined upon the inturned arm portions 26. They may however be conjoined upon the depending arms 24 above and adjacent the corners 28. Being in wire form, the connective runners 18 will bend and flex in a substantially similar manner whether connected to the inturned portions 26 or to the lower portions of the arms 24. Another modification of the insert 12 involves placing the connective runners 18 outside of the inturned arm portions 26, instead of inside the arm portions, i.e. on the outside surface of the rib members 12. This form is not shown in the drawing, but it will be understood that such modification is merely a minor one which does not depart from the essence of the invention. In either arrangement the outer covering 14, is prevented from riding up the rib member arms 24 by the restrictive connective runners 18 which form a barrier against movement of the outer covering pierced by the claw hook ends 20.

The outer covering 14 is here disclosed as an overwrap comprising a resilient and flexible body 34, with or without an outer finish of material secured thereto. It will be understood that the outer covering 18 is fabricated from a wide variety of materials, having such designs, properties and characteristics as may be required and/or desired for particular applications of the molding. Those skilled in the art are familiar and well-versed in respect to these outer coverings. The outer covering 14 terminates laterally in side edges 36 that turn inwardly about the insert inturned arm portions 26 and lie within the outline of the insert, the claw hook ends 20 piercing through the side edges 36 to bear in gripping contact upon the pinchweld edge 30. The connective runners 18, it will be observed, serve as the restrictive barriers against upriding of the outer covering 14 upon the rib member arms 24. Other forms of the invention here disclosed also provide such restrictive barriers against upriding, as will be described below.

A second form of construction embodying the inventive concept is that illustrated in FIGS. 4–6 inclusive. The finishing molding 50 comprises an insert 52 and the outer covering 14. As shown more clearly in FIG. 6, the insert 52 comprises an integrally formed series of spaced rib members 54 and connective webs 56 therebetween. The rib members 54 are formed into a longitudinally extending series by the connective webs 56 formed integrally therewith by stamping from a strip of sheet metal. The rib members 54 comprise web portions 58 having depending arms 60 terminating in inturned portions 62, where the connective webs 56 conjoin, and in claw hook ends 64 directed toward each other and in substantially opposed relationship, the claw hook ends being slightly upturned. The connective webs 56 lie in a plane which is substantially parallel to the plane of the rib member web portions 58, permitting facile flexing of the molding in the plane of the pinchweld edge 30. Flexing in a plane at an angle to the vertical plane of the pinchweld edge 30 shown in these views of the drawing is also easily performed, as the connective webs 56 are of a width sufficient to hold the rib members 54 in proper and satisfactory spaced relationship though the plane of the pinchweld edge 30 may curve to one side or to the other. This weaving of the molding to one side or to the other is performed without loss of gripping action upon the pinchweld edge by the insert.

The incentive concept is also embodied in two additional forms of the invention. In these forms a backbone strip is utilized to conjoin the rib members into a longitudinally extending series. Referring to FIGS. 7–9 inclusive, the finishing molding 70 comprises the insert 72 and the outer covering 14. The insert base 73, FIG. 7, comprises a longitudinally extending backbone strip 74 conjoined to spaced rib members 76. The backbone strip 74 may be formed separately from the rib members 76 and conjoined thereto by welding, or the two components may be integrally formed from sheet metal by stamping, similar to the process used in forming the insert 50, FIGS. 4–6 inclusive. The rib members 76 comprise web portions 78, to which the backbone strip 74 is conjoined, and connected depending arms 80 terminating in inturned portions 82 and claw hook ends 84. As shown in FIG. 7, the insert base 73 provides rib member arms that have no means restricting upriding of the outer covering when pierced by the claw hook ends 84. Such means is provided by inverting the insert base 73 so that the backbone strip 74 is below and the claw hook ends 84 are above, then dipping the insert base into a path of plastic material, such as the plastisols, polyvinyls, or other suitable materials, to deposit a thin plastic film 86 upon the insert base up to (or down to) the inturned arm portions 82. The film 86, strongly resistant to removal or displacement from the rib members 76 provides a barrier similar to that of the connective runners 18 or the connective webs 56 against upriding of the outer covering 14, FIG. 9. The plastic film 86 may also be applied to the insert base 73 by spraying. Plastic film materials which can be used as sprays or dips for the insert base include, among others, polyvinyl chloride or plasticized polyvinyl chloride, certain latex solutions controlled for concentration and preferably with extenders, and other similar and equivalent materials.

A fourth exemplary embodiment of the invention, FIGS. 10 and 11, provides for covering the insert base 73, FIG. 7, with a woven webbing of fabric 88 thereover and down to the inturned arm portions 82, producing the insert 90. The woven fabric webbing 88 thus provides a barrier, similar to the plastic film 86, against upriding of the outer covering 14, FIG. 11.

In certain instances, the inserts 12, 52, 72 or 90 may be used without the outer covering 14, and each insert will then be effective as a pinchweld edge molding.

The methods of producing the combination of insert and outer covering include the steps of forming any of the inserts heredisclosed in a substantially or relatively flat planar form, the rib members being laid out transversely of the connective runners, webs or backbone strips and the claw hook ends at the ends of the rib members being turned down (or up). The outer covering 14 is then enwrapped upon the insert, the rib members being spread out, so to speak, laterally, the outer covering side edges 36 being turned in upon the claw hook ends which pierce the covering. Thereafter, the combination of insert and outer covering is bowed up substantially into the form of the molding as shown in the several views of the drawing, FIGS. 1, 2, 4, 5, 9 and 11. The claw hook ends of each insert are closer together than the thickness of the pinchweld edge in order that claw hook contact is exerted upon the edge therebetween to provide a suitable and adequate grip thereon. When bowing up the insert and outer covering, the barriers to upriding upon the rib member arms—the connective runners 18, the connective webs 56, the plastic film 86, or the woven webbing 88—effectively resists such upriding and exposure of the rib member arms to substantial view. After bowing of the insert and outer covering combinations 10, 50, 70 and 90 with the outer covering 14, the molding is complete and ready for application to pinchweld edges.

The molding is applied to the edge 30 by passing the leading edge between the claw hook ends of the molding and pressing downwardly upon the edge until the leading edge meets the rib member web portions or the backbone strip, as the case may be. The claw hook ends, being slightly upturned, grip the pinchweld edge of metal, plastic or composition therebetween and resist re-

moval from the edge by claw hook bearing contact upon the edge.

The finishing molding here disclosed and claimed is resilient and flexible in its ability to conform to and follow a pinchweld edge. As shown above and in the drawing, the insert and the molding have a channel-like cross-sectional configuration, the pinchweld edge passing into the channel opening. The insert in each instance provides and serves as a supporting frame for the outer covering. Although a single backbone strip is shown and described, it will be understood that spaced strips will also provide the desirable backbone support for the rib members. The connective runners **18** and connective webs **56**, when secured at the inturned portions of the rib members, substantially maintain the claw hook ends in alignment and prevent distortion of the hook ends away from the pinchweld edge.

In some cases, an adhesive may be applied to the inner surface of the outer covering to more securely anchor the outer covering upon the insert. This step is optional, and depends upon the relative holding or overwrapping relationship between particular types of inserts and outer covering materials. In most cases, it should not be necessary to use an adhesive.

Having described the invention in its simplest terms, it will be understood that the features of construction may be changed or varied in greater or lesser degree without departing from the essence of the invention.

I claim:

1. In a resilient flexible channel molding for an edge such as a pinchweld edge,

an insert extending longitudinally of said molding and an outer covering upon said insert,

said insert having a channel-like cross-sectional configuration and comprising

a longitudinally extending series of spaced parallel transverse rib members and

longitudinally extending means connecting said rib members into a supporting frame for said outer covering,

each of said rib members having a medial web portion conjoined to arms bent in depending relationship thereto,

said arms being disposed in spaced opposed substantially parallel relationship to each other, inturned and terminating in spaced apart hook ends extending beyond said longitudinally extending means adjacent thereto and directed substantially toward each other,

said outer covering secured to and extending longitudinally and laterally upon said frame, overlying said rib members and said longitudinally extending means and having outer covering portions disposed inwardly of said insert between said hook ends and pierced by said hook ends,

said longitudinally extending means being secured to said rib members substantially at their inturned portions and providing resistance against upriding of said outer covering upon said rib member arms,

whereby said molding flexes in conformity with and overlies said edge, and said hook ends pierce through said outer covering side edge extensions and compressively grip said edge therebetween, said hook ends and said longitudinally extending means maintaining said outer covering fully upon said supporting frame.

2. The structure defined in claim 1, and in which said longitudinally extending means defines substantially parallel parallel lines passing substantially through said inturned portions of said rib members adjacent said hook ends.

3. The structure defined in claim 1, and in which

said longitudinally extending means comprises a pair of connective runners, each secured to said rib members at their inturned portions adjacent said hook ends,

said runners providing resistance against upriding of said outer covering upon said rib member arms.

4. The structure defined in claim 1, and in which

said longitudinally extending means comprises connective webs integrally formed with said rib members and secured to and securing said rib members at their inturned portions adjacent said hook ends,

said connective webs extending longitudinally of said insert between said rib members and providing resistance against upriding of said outer covering upon said rib member arms.

5. The structure defined in claim 1, and in which

said longitudinally extending means comprises a backbone strip conjoined to said rib members at their web portions and a channel film covering secured to and upon and about said backbone strip and said rib members and extending down said arms to and in the area of their inturned portions adjacent said hook ends,

said channel film covering extending longitudinally of said insert between adjacent rib members and having lateral edges on either side of said rib members defining substantially parallel longitudinally extending lines passing substantially through said inturned portions,

said channel film covering providing resistance against upriding of said outer covering upon said rib member arms.

6. The structure defined in claim 1, and in which

said longitudinally extending means comprises a backbone strip conjoined to said rib members at their web portions and a woven webbing extending longitudinally between said rib members and secured to said rib members laterally of said backbone strip upon said rib member arms to and in the area of their inturned portions adjacent said hook ends,

said woven webbing having lateral edges on either side of said rib members defining substantially parallel longitudinally extending lines passing substantially through said inturned portions,

said woven webbing providing resistance against upriding of said outer covering upon said rib member arms.

7. In a longitudinally extending insert for a resilient flexible channel molding to cover an edge such as a pinchweld edge, said insert having a channel-like cross-sectional configuration,

a longitudinally extending series of spaced parallel transverse rib members and

longitudinally extending means connecting said rib members into a supporting frame for an outer covering to be applied thereover,

each of said rib members having a medial web portion conjoined to arms bent in depending relationship thereto,

said arms being disposed in spaced opposed substantially parallel relationship to each other, inturned and terminating in spaced apart hook ends extending beyond said longitudinally extending means adjacent thereto and directed substantially toward each other,

said longitudinally extending means being secured to said rib members substantially at their inturned portions and adapted to provide resistance against upriding of said outer covering when applied upon and between said rib member arms,

whereby said insert flexes in conformity with and overlies said edge, and said hook ends compressively grip said edge therebetween and together with said longitudinally extending means maintain said outer covering

fully upon said supporting frame when applied thereabout.

8. The structure defined in claim 7, and in which said longitudinally extending means defines substantially parallel lines passing substantially through said inturned portions of said rib members adjacent said hook ends.

9. The structure defined in claim 7, and in which said longitudinally extending means comprises a pair of connective runners, each secured to said rib members at their inturned portions adjacent said hook ends,

said runners adapted to provide resistance against upriding of said outer covering when applied upon and between said rib member arms.

10. The structure defined in claim 7, and in which said longitudinally extending means comprises connective webs integrally formed with said rib members and secured to and securing said rib members at their inturned portions adjacent said hook ends,

said connective webs extending longitudinally of said insert between said rib members and adapted to provide resistance against upriding of said outer covering when applied upon and between said rib member arms.

11. The structure defined in claim 7, and in which said longitudinally extending means comprises a backbone strip conjoined to said rib members at their web portions and a channel film covering secured to and upon and about said backbone strip and said rib members and extending down said arms to and in the area of their inturned portions adjacent said hook ends,

said channel film covering extending longitudinally of said insert between adjacent rib members and having lateral edges on either side of said rib members defining substantially parallel

longitudinally extending lines passing substantially through said inturned portions,

said channel film covering adapted to provide resistance against upriding of said outer covering when applied upon and between said rib member arms.

12. The structure defined in claim 7, and in which said longitudinally extending means comprises a backbone strip conjoined to said rib members at their web portions and a woven webbing extending longitudinally between said rib members and secured to said rib members laterally of said backbone strip upon said rib member arms to and in the area of their inturned portions adjacent said hook ends,

said woven webbing having lateral edges on either side of said rib members defining substantially parallel longitudinally extending lines passing substantially through said inturned portions, said woven webbing adapted to provide resistance against upriding of said outer covering when applied upon and between said rib member arms.

References Cited by the Examiner

UNITED STATES PATENTS

1,184,792	5/16	Troppman	154—43
2,026,971	1/36	Greene	20—69
2,313,419	3/43	Bush	20—69
2,399,204	4/46	Cameron	20—69
2,794,757	6/57	Bright	161—100
2,954,310	9/60	Truesdell et al.	154—43
3,091,821	6/63	Cook	20—69 XR

EARL M. BERGERT, *Primary Examiner.*