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## (54) BODY SIDE PROTECTIVE MOULDING

(71) We, ITT INDUSTRIES INC., a Corporation organised and existing under the Laws of the State of Delaware, United State of America, of 320 Park Avenue, New York 22, State of New York, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

This invention relates to a body-side protective moulding system for protecting the generally vertical surfaces of the sheet body of an automotive vehicle.

Body-side protective mouldings are well known and have been used in the art to protect the sheet-metal surfaces of a vehicle body while providing a decorative or ornamental finish. One such system utilises a unitary metallic strip, such as a continuous strip of anodized aluminium and of a given cross-sectional configuration, which is mechanically fastened to the vehicle body by means of a weld-stud and clip arrangement, or by the conventional nut-and-bolt attachment. This technique has the disadvantage that several expensive fasteners, such as weld-stud and clip arrangements or the like, must be provided at regularly spaced intervals along the moulding strip. Further, this technique has the overall disadvantage that a change in the moulding configuration, such as to accommodate a different vehicle model, necessitates an expensive tooling change to provide the structurally different moulding configuration.

Another known technique for providing protective moulding strips is the adhesively applied moulding of plastics material in which a moulding body of a material such as PVC or a vinyl is applied to the vehicle by means of two-sided stick-on tape. This system has the disadvantage that the adhesively mouldings are particularly sensitive

to undersurface preparation which, therefore, necessitates more than ordinary care during the assembling operation to avoid moulding bond failure both initially and subsequently. That is, it has been found that these adhesively-applied body-side mouldings tend to separate from the sheet metal body, particularly at the end portions of the moulding, when the undersurface has not been properly prepared. Further, since these adhesively-applied side mouldings typically lack any means for a fixed rigid support to the vehicle body, it has been found that they develop a tendency to separate from the body as a result of the various shear forces applied to the moulding during its service life. That is, even relatively low shear forces applied to the end portions of the moulding strip tend to separate the moulding strip from the vehicle body. Still further, where fasteners are provided at the end portions, such fasteners would be undesirably visible from the external surface thereof.

According to the present invention there is provided a body-side protective moulding assembly for attachment to the generally vertical surfaces of the sheet-metal body of an automotive vehicle said assembly comprising, in combination:

an elongate metallic base carrier strip defining a longitudinal channel having side-walls which extend towards each other to partially close the channel opening, a layer of adhesive material bonded at a first surface thereof to one outer side of said carrier strip over a substantial portion of the transverse dimension of said one side of said carrier strip and wherein the opposite surface of said layer of adhesive material provides an exposed surface for adhesive attachment to a surface portion of said body after being pressed into engagement therewith; and an elongate member of plastics material af-

fixed to the other side of said carrier strip to complete said moulding assembly and to provide an ornamental surface thereof.

Embodiments of the invention are described below with reference to the accompanying drawings, wherein:

figure 1 is a side view of an automotive vehicle body with body-side protective mouldings;

figures 2, 3 and 4 are cross-sectional views of three embodiments of body-side protective mouldings;

figure 5 is a fragmentary side view of an end portion of a body-side moulding shown in conjunction with an end plug inserted therein; and

figure 6a and figure 6b provide side and top views, respectively, of a metallic carrier strip including a rigid fixed fastener means therewith.

In figure 1, there is shown generally at 2 a body for an automotive vehicle including three body-side protective mouldings 4, 6 and 8. Moulding 4 is a conventional quarter outside moulding, and moulding 8 is illustrated as a conventional fender outside moulding. As is known, mouldings 4, 6 and 8 protect the vertical sheet-metal surfaces of body 2, such as against the movement of a swinging door of an adjacent automotive vehicle. The body-side protective moulding system disclosed herein is particularly adapted for such uses as illustrated in figure 1. However, as described more fully herein-after, a given body-side protective moulding system, as disclosed herein, can be applied to any one of a number of applications, such as the outline mouldings provided on the upper portions of conventional lorry or truck bodies. Further, this protective moulding system can be provided in any desired structural configuration including various curved sections, and disposed on any given surface of an automotive vehicle.

Figure 2 shows generally at 10 a cross-sectional view of a body-side protective moulding assembly which includes a metallic carrier strip 12 which is bonded, at an undersurface thereof, to a layer of adhesive tape 14, such as a two-sided, stick-on neoprene tape or any other suitable material. Assembly 10 further includes an insert 16 of plastics material which is bonded or mechanically affixed to metallic carrier strip 12 by any one of a number of suitable means. Insert 16 may be provided in any given shape, color and surface texture, and may incorporate fluorescent material. It may be made by, for example extrusion. Metallic carrier strip 12 comprises a rolled or die-formed section of stainless steel, anodized aluminium, or any other suitable metallic material. In many applications, insert 16 is preferably provided with a hollow central portion or aperture 18 extending longi-

tudinally through if over its entire length. Aperture 18 facilitates a variety of additional functions such as a conduit for carrying electrical conductors through moulding 10 which are then used to power external devices, such as a light source and lens disposed in moulding assembly 10 at some point along the length thereof. Such light sources can be used as night safety markers, to illuminate door locks, and so on. In figure 2, insert 16 is bonded to carrier strip 12, such as with an adhesive, or by heating either insert 16 or carrier 12 to effect the bonding.

Figure 3 shows another embodiment of a protective moulding assembly 10' which is in many ways similar to the moulding assembly 10 of figure 2 and accordingly like elements bear like reference numerals. Metallic carrier strip 12' is provided as a generally U-shaped rolled channel section, the first bend 12a of which is provided along a given radius to increase the overall strength of carrier strip 12'. The upper (as viewed in figure 3) portion of each leg of strip 12' is provided with an inwardly directed projection or ear 12b. Ears 12b facilitate assembly of carrier strip 12' with an insert 16' of plastics material such as by a roll-form assembly, or a slide assembly. Moulding assembly 10' has the advantage that no adhesive or heat bonding is required to secure the insert to the carrier strip. As with insert 16 of figure 2, insert 16' can be provided with a plain or embossed surface or any other desired ornamental appearance including a textured surface. Similarly, insert 16' can be provided with a hollow central portion 18' (as indicated by broken lines) extending therethrough to accommodate other apparatus such as the electrical conductors of an auxiliary lighting system.

Figure 4 shows generally at 10" yet another embodiment of a moulding assembly which includes an insert 16" of plastics material having integral projections 16a which secure insert 16" to a metallic carrier strip 12" in a push-in or snap-on relationship with inwardly inclined ears 12"b.

Figure 5 shows a fragmentary side view of one end portion of the protective moulding assembly illustrated in figure 2. Moulding assembly 10 in figure 5 includes an end plug shown generally at 20. End plug 20 closes the open channel-end of moulding assembly 10 and is of material such as plastics, or can be die-cast or forged. Further, the end plug 20 may be chromium-plated, or moulded in any desired color, texture or ornamental configuration. End plug 20 includes a first projection 22 which extends into the open portion of carrier strip 12 and a second projection 24 which extends into the internal void 18 of insert 16, the insert can be positively locked to the moulding

once end plug 20 is staked in place as at 26. This technique eliminates the die operations required to form a closed end typical of prior art moulding strips and otherwise substitutes a single staking operation. Furthermore, end staples and attendant fabricating operations, which are required in prior art side mouldings, are eliminated.

Figures 6a and 6b show respectively, side and bottom views of a protective moulding assembly 100 which includes a fastener 101 located in a keyhole-shaped slot 102 in the carrier strip 112 and which is utilized positively to attach the ends of moulding assembly 100 to an automotive vehicle body. These fasteners simplify the assembly plant installation of the mouldings and accordingly render assembly 100 less sensitive to poor undersurface preparation. Thus, warranty expenses incurred because of moulding bond failures are substantially eliminated.

What has been taught, then, is a body-side protective moulding assembly which exploits the concept of component interchangeability. That is, the present invention facilitates a choice of plastic inserts to revise the moulding appearance without affecting the base metal carrier and other components of the assembly. Accordingly, the moulding assembly can be exploited for either a single automotive vehicle line, including the entire range of models within that line, or to a multiplicity automotive vehicle lines without incurring the penalty for new tooling with each system.

#### WHAT WE CLAIM IS:

1. A body-side protective moulding assembly for attachment to the generally vertical surfaces of the sheet-metal body of an automotive vehicle said assembly comprising, in combination:  
an elongate metallic base carrier strip defining a longitudinal channel having side-walls which extend towards each other to partially close the channel opening,  
a layer of adhesive material bonded at a first surface thereof to one outer side of said carrier strip over a substantial portion of the transverse dimension of said one side of said carrier strip and wherein the opposite surface of said layer of adhesive material provides an exposed surface for adhesive attachment to a surface portion of said body after being pressed into engagement therewith; and  
an elongate member of plastics material affixed to the other side of said carrier strip to complete said moulding assembly

and to provide an ornamental surface thereof.

2. An assembly as claimed in claim 1 in which said carrier strip is a rolled or die-formed channel and the plastics member is bonded to support faces of the strip.

3. An assembly as claimed in claim 1 in which said carrier strip is a rolled or die-formed channel having inturned ear portions and the plastics member has side grooves which engage said ears by sliding along them.

4. An assembly as claimed in claim 1 in which said carrier strip is a rolled or die-formed channel having inwardly inclined ear portions and the plastics member has integral projections which engage said inwardly inclined ears in a snap-in manner.

5. An assembly as claimed in claim 1, 2, 3 or 4 in which the plastics member has an internal passage extending lengthwise therethrough.

6. An assembly as claimed in any preceding claim wherein each end of said carrier strip receives a plug member which extends into said channel.

7. An assembly as claimed in claim 5 or in claim 6 as dependent on claim 5 wherein said plug extends into the end of said passage in the plastics member.

8. An assembly as claimed in any preceding claim wherein said carrier strip includes at each end thereof means for fixedly fastening said moulding assembly to said body independently of said layer of adhesive material.

9. An assembly as claimed in claim 5, or any claim appended thereto wherein said passage extends through substantially the entire length of the plastics member and accommodates electrical conductors therein.

10. An assembly as claimed in claim 9, comprising a light emitting device carried by said assembly and connected to said electrical conductors.

11. An assembly as claimed in any preceding claim wherein the plastics member incorporates a fluorescent material.

12. An assembly as claimed in any preceding claim wherein the plastics member is formed by extrusion.

13. A body-side protective moulding assembly for attachment to the generally vertical surfaces of the sheet-metal body of an automotive vehicle substantially as herein described with reference to and as illustrated in the accompanying drawings.

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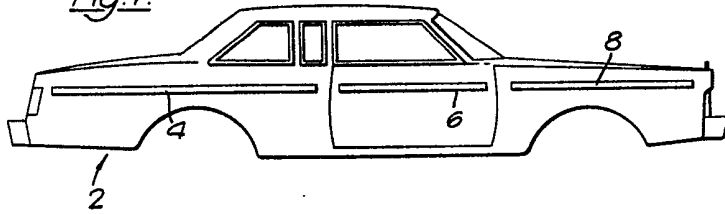
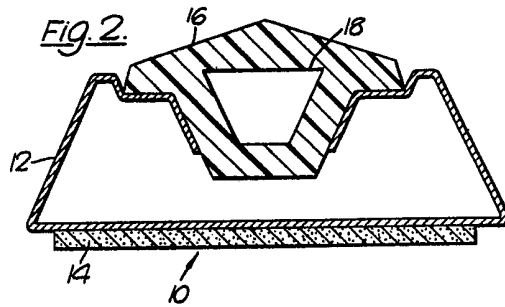
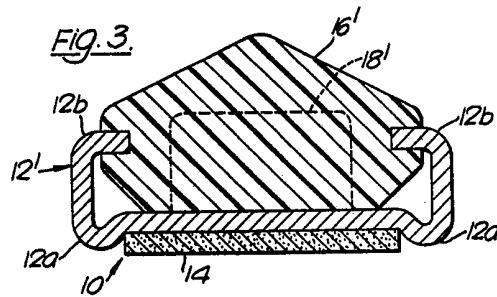
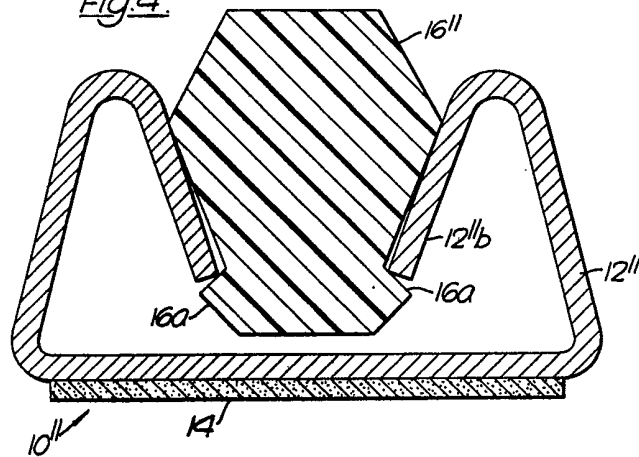
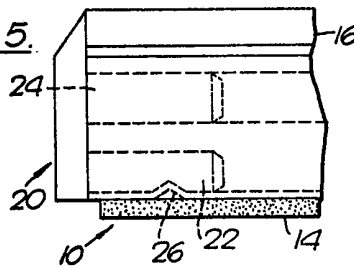
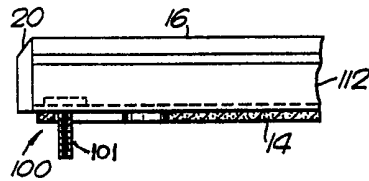
*Fig. 1.**Fig. 2.**Fig. 3.*

Fig. 4.Fig. 5.Fig. 6a.Fig. 6b.