United States Patent [19]

Barényi

[11] **3,817,016**

[45] **June 18, 1974**

[54] **PROTECTIVE STRIP FOR MOTOR VEHICLES**

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[73] Assignee: **Daimler-Benz Aktiengesellschaft,** Stuttgart-Unterturkheim, Germany

[22] Filed: **May 19, 1972**

[21] Appl. No.: **254,970**

Related U.S. Application Data

[63] Continuation of Ser. No. 793,428, Jan. 23, 1972, abandoned.

[30] **Foreign Application Priority Data**

Jan. 23, 1968 Germany 1680012

[52] **U.S. Cl.** **52/717,** 293/DIG. 4

[51] **Int. Cl.** **B60r 13/00,** B60r 27/00

[58] **Field of Search** 52/717, 718, 716; 293/1, 293/DIG. 4

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Primary Examiner—Price C. Faw, Jr.

Attorney, Agent, or Firm—Craig & Antonelli

[57] **ABSTRACT**

A protective molding for motor vehicles in which profile parts project beyond the outer surface of the body and in which end sections are provided at the ends of the profile parts in proximity to the edges formed in the body panels whereby the end sections are constructed as mounting strips that are adjoined by the profile parts at a distance to the edges.

23 Claims, 18 Drawing Figures

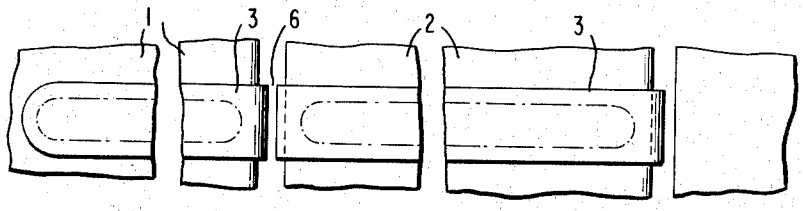
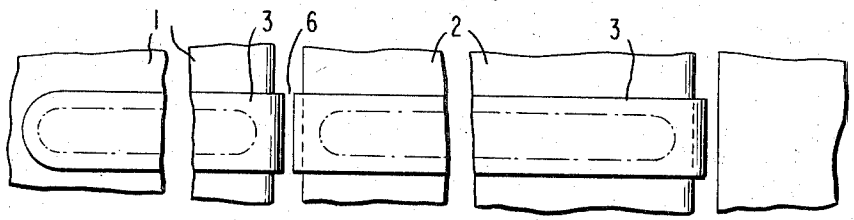


FIG. 1



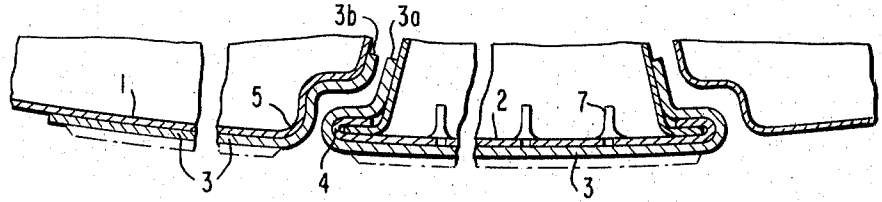


FIG. 1a

FIG. 2

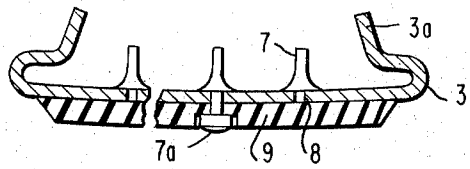


FIG. 3

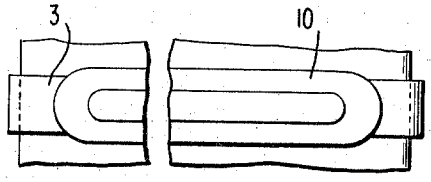


FIG. 3a

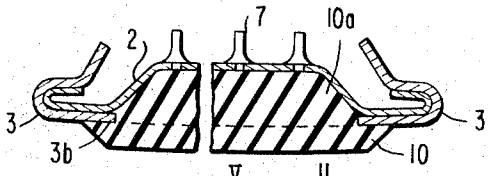


FIG. 4

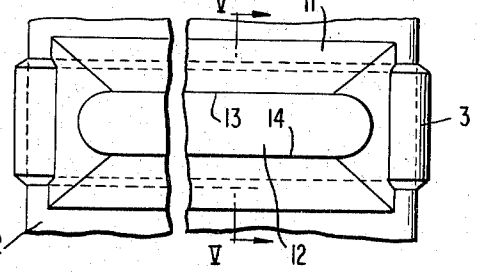
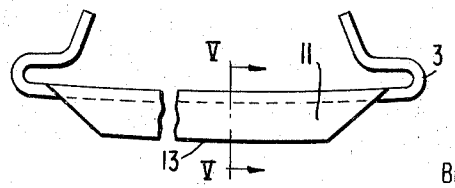


FIG. 4a



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FIG.5

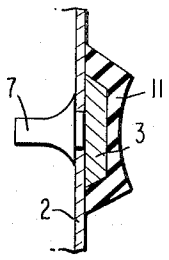


FIG.6

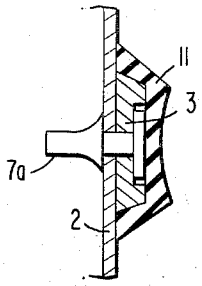


FIG.7

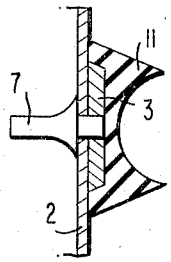


FIG.8

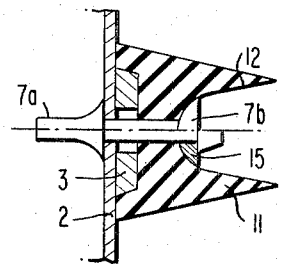


FIG.9

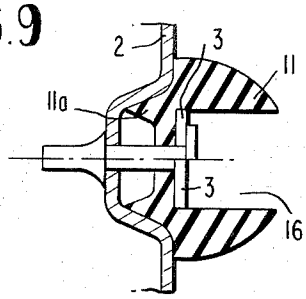


FIG.9a

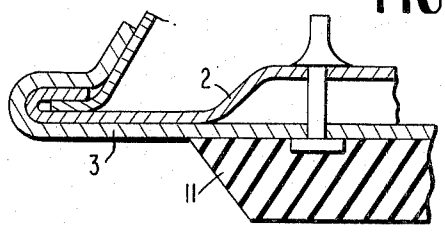


FIG.10

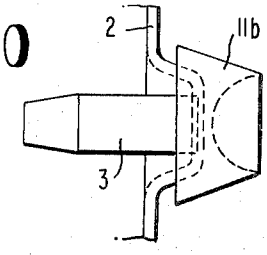


FIG.10a

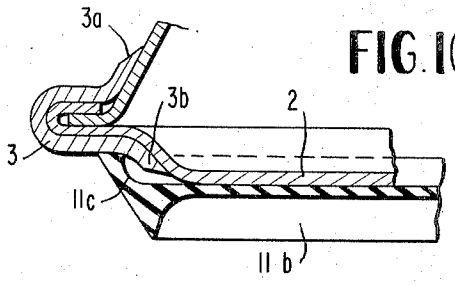


FIG.11

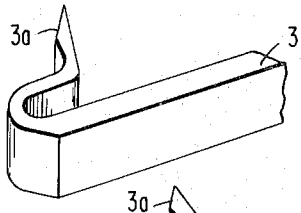


FIG.12

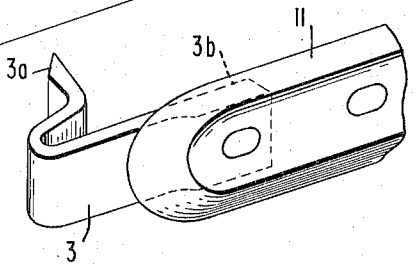
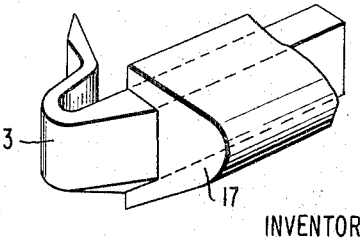


FIG.13



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PROTECTIVE STRIP FOR MOTOR VEHICLES

This is a continuation, of U.S. Pat. application Ser. No. 793,428 filed Jan. 23, 1972 now abandoned.

The present invention relates to a protective strip or molding for motor vehicles with profile parts projecting beyond the outer surface of the body and with end pieces seated at the ends of the profile parts in proximity to the door edges for the like.

Protective strips or moldings of this type are known as such in the prior art. The height of these strips or moldings constructed as continuous or uninterrupted profiles or sectional members is thereby limited in view of the opening kinematics of the doors because the doors, pivotally supported in the interior of the body, are guided with the edges thereof relatively close to the outer body surface during the opening. An excessively large height of the protective moldings could therefore impair the opening of the doors. If correspondingly bevelled-off end pieces are used, then the manufacturing costs increase considerably which are already quite high by reason of the end pieces. Additionally, care must then be taken during the assembly of the doors that certain tolerances are maintained at the door gaps. The possibility to provide the prior art protective moldings with a greater profile height and not to extend the same up to the door edges has also proved non-utilizable in the automotive industry because the known aesthetic impression of continuous, uninterrupted moldings is eliminated thereby. Also, the mounting of such special protective strip or molding sections entails difficulties so that this possibility is eliminated. However, the known protective moldings also entail the disadvantage that, especially if metal parts are provided, they can easily tear off during accidents and may give rise to injuries, for example, of pedestrians or bicyclists who come in contact with the protective strips.

The present invention, in contradistinction thereto, aims at creating a protective molding which avoids the disadvantages of the known protective moldings and opens up the possibility to adapt the profile height of the protective moldings to the existing requirements independently of the opening kinematics of the doors and possibly to completely dispense with the use of metal parts.

The present invention essentially consists in that the end pieces are constructed as flat securing or mounting strips closely adapting themselves to the body surfaces, to which are connected the profile parts with a spacing from the door edges or the like. In this manner the gap between mutually abutting securing strips, for example, between the door edge and the adjoining body edge, can be kept very small without the danger that an impairment occurs during the opening of the door. The strips or moldings may be additionally secured in a simple manner and the profile height of the protective moldings may be chosen sufficiently large at the required places.

A particularly appropriate type of construction results if the mounting strips are constructed elastically and the ends thereof are placed about the door edges or the like and are extended into the interior of the body panel. With this type of construction it is no longer important that during the assembly of the doors a predetermined gap width is maintained which subsequently can be recognized particularly clearly at the

spacing of the ends of the protective moldings. The mounting strips may directly abut against one another in such a construction; since they are elastically yielding, the doors can be opened in every case completely satisfactorily. The aesthetic impression of the continuous, uninterrupted protective molding is assured even with larger gaps between door and body, and door edges themselves receive a certain protection. Added thereto, above all, is the fact that this type of construction safely prevents a tearing-off of the protective moldings from the body panels so that injuries in case of accidents by torn-off protective molding parts can be far-reachingly avoided. With this type of construction the height of the profile parts projecting from the outer body surface can be considerably greater than the thickness of the mounting strips and greater than the height of the profile parts known heretofore.

The present invention may be realized particularly advantageously in that the profile parts are constructed as a single continuous or uninterrupted profile strip of the same cross section which is mounted on the mounting strips. This type of construction offers more particularly the possibility that the profile strip is made, for example, as drawn profile from synthetic resinous material and as yardage material can be cut in case of need to the desired length. A particularly inexpensive type of construction of the protective molding is created by this type of construction. However, the profile parts may also be constructed as a shaped part or molded piece mounted at the body which then will be somewhat more expensive in the manufacture but then offer as compensation certain advantages as regards mounting and the fastening possibilities because, for example, mounting pins can then be directly provided at the shaped part or molded body.

The mounting strips, in their turn, may be bonded, glued or cemented in a particularly simple manner at the body whereby appropriately the inner ends are then bevelled off so that a completely satisfactory adherence assembly of the mounting strips at the body is achieved. Two possibilities also exist for the manufacture of the mounting strips, namely on the one hand, the construction of a formed part or molded body mounted on the body of the vehicle on which the profile parts or profile strips are adapted to be mounted, or, on the other, also as uninterrupted strip which is cut in each case to the desired length. If the mounting strips are constructed as molded pieces, then they can be dimensioned either to the entire length of the parts provided with a protective molding, or they can be so constructed that the outer ends of the mounting strips are disposed approximately at the ends of the profile parts and are provided thereat with securing or fastening means for the connection with the profile parts.

Accordingly, it is an object of the present invention to provide a protective molding for motor vehicles which avoids by simple means the aforementioned shortcomings and drawbacks encountered in the prior art.

Another object of the present invention resides in a protective molding for motor vehicles which is relatively inexpensive in manufacture and easy to install.

A further object of the present invention resides in a protective molding for motor vehicles which does not impair the door-opening, yet maintains an aesthetic appearance which is completely satisfactory.

A still further object of the present invention resides in a protective molding for motor vehicles that greatly reduces the danger of injury to traffic participants.

Another object of the present invention resides in a protective molding for motor vehicles which permits a considerably increased height of the profile parts without difficulties in the assembly.

These and further objects, features and advantages of the present invention will become more obvious from the following description, when taken in connection with the accompanying drawing which shows, for purposes of illustration only, several embodiments in accordance with the present invention, and wherein:

FIG. 1 is a partial, elevational view on a protective molding in accordance with the present invention mounted on a motor vehicle body;

FIG. 1*a* is a partial horizontal cross sectional view through the outer side of the body and of the door with the protective molding of FIG. 1 in accordance with the present invention;

FIG. 2 is a partial, horizontal cross-sectional view through a modified embodiment of a protective molding according to FIGS. 1 and 1*a;*

FIGS. 3 and 3*a* are, respectively, partial elevational and cross-sectional views through a still further embodiment of a protective molding in accordance with the present invention provided with a shaped or molded part inserted into a recess of the door;

FIGS. 4 and 4*a* are, respectively, partial elevational and plan views on still another embodiment of a protective molding in accordance with the present invention with a profile strip provided in the center thereof with a longitudinal aperture and made as yardage material;

FIG. 5 is a cross-sectional view through still another embodiment of a protective molding of the present invention with a glued-on profile body whereby the mounting strip is constructed as molded piece with fastening pins provided thereat;

FIG. 6 is a cross-sectional view, similar to FIG. 5, through a modified embodiment of a protective molding in accordance with the present invention which is mounted on the body by means of separate fastening pins.

FIG. 7 is a cross-sectional view through still another embodiment of a protective molding in accordance with the present invention in which the profile part is constructed as shaped or molded piece with securing pins directly provided thereat.

FIG. 8 is a cross-sectional view, similar to FIG. 7, through a protective molding in accordance with the present invention with profile parts mounted on the body of the vehicle by means of separate fastening or mounting pins.

FIGS. 9 and 9*a* are, respectively, transverse and longitudinal cross-sectional views through a protective molding construction in accordance with the present invention, in which the profile part is constructed as formed part or molded piece with projections fitting into a recess at the body.

FIGS. 10 and 10*a* are, respectfully, front elevational and longitudinal cross-sectional views of still another embodiment of a protective molding in accordance with the present invention in which the protective molding is mounted on a projection provided at the body.

FIG. 11 is a partial perspective view of the end of a mounting strip in accordance with the present invention formed as shaped part or molded piece.

FIG. 12 is a partial perspective view of an embodiment of the mounting strip in accordance with FIG. 11 with an end connected to a profile part, and

FIG. 13 is a partial perspective view of the mounting strip of FIG. 11, however, constructed as uninterrupted formed part or molded piece on which is mounted a profile strip constructed as yardage material.

Referring now to the drawing wherein like reference numerals are used throughout the various views to designate like parts, and more particularly to FIGS. 1 and 1*a*, the protective molding illustrated in these figures which is constructed as securing or mounting strip 3, is mounted on the sheet-metal body panel 1 and on the sheet-metal panel 2 of the door. This mounting strip 3 is placed with its ends 3*a* and 3*b* about the edge 4 of the door and about the corresponding edge 5 of the body and is extended inwardly into the interior of the body. As a result of this construction, the gap 6 visible from the outside between the mounting strips 3 is smaller than the gap between the body 1 and the door 2. Profile parts in the form of a protective bumper having a defined profile or shape may be mounted on the mounting strips 3, as indicated in dash lines and more fully described hereinafter, whose height is considerably greater than the thickness of the mounting strips 3. In this manner, the door 2 can be opened, for example, about a pivot point located inside of the body part 1 without the danger that the height of the mounted profile disturbs or impairs the opening movement. Nonetheless, as can be seen from FIG. 1, the impression of a continuous, uninterrupted protective molding is assured. If in this embodiment the mounting strip 3 is selected from a conventional elastic material, then the gap 6 with a different width of the joint between the door 2 and body 1 may be reduced to zero without impairing thereby the opening and closing of the door. This construction offers the advantage that during the assembly of the doors a special accuracy in the adjustment of the door gap can be dispensed with, which considerably lessens the cost for the assembly operation. In the embodiment of the mounting strip 3 according to FIGS. 1 and 1*a*, provision is made that the known conventional securing pins or clips 7 are provided on this mounting strip which retain the mounting strip 3 at the sheet-metal door panel whereas the profile part indicated in dash lines is assembled on the mounting strip 3 in any conventional manner.

An embodiment is illustrated in FIG. 2 in which the mounting strip 3 itself is provided only with openings or apertures 8 through which the securing clips 7 can be extended which, in this embodiment, are provided on the assembled profile part 9. The mounting strip 3 is therefore retained in this embodiment by the profile part 9. Of course, it is also possible to retain the profile part 9 and the mounting strip 3 by separate securing clips 7*a*.

An embodiment is illustrated in FIGS. 3 and 3*a* in which the mounting strip 3 consists only of two end pieces whose ends 3*b* extend respectively approximately up to the ends of the profile part 10 and are connected thereat with the profile part 10. As shown, the strip 3 is substantially U-shaped and has an inwardly extending portion extending from one leg of the U. The profile part 10 itself is constructed in this embodiment

as formed part or molded body and is provided with an extension 10*a* which fits into a corresponding recess in the body door panel 2. Also the securing pins 7 are arranged at the formed part 10.

In FIGS. 4 and 4*a* a profile body 11 with laterally bevelled-off edges is mounted on the mounting strips 3. The profile strip 11 is thereby provided in its center with a longitudinal groove 12 so that a channel-shaped recess results between the two projecting edges 13 and 14. In the following FIGS. 5–8 there are illustrated possibilities how this type of construction of a protective molding can be constructed in practice in cross section taken along line V—V of FIG. 4.

In FIG. 5, for example, the mounting strip 3, similar as already indicated in FIGS. 1 and 1*a*, is constructed as formed part or molded piece on which the securing clips 7 are directly provided or attached. In the embodiment of FIG. 5, the profile 11 may be glued, bonded or adhesively secured in any conventional manner on the mounting strip 3 constructed as molded part. In contradistinction thereto, in FIG. 6 the mounting strip 3 is constructed as continuous, uninterrupted strip on which is mounted the second profile 11, after the strip 3 which, for example, consists of any conventional resinous material, is secured at the body with the aid of separate clips 7*a*. Also, the profile strip 11 may in this embodiment consist of synthetic resinous material or rubber whereby appropriately a softer material is chosen therefor than the material of the mounting strip 3.

In the embodiment of FIG. 7, the profile part 11 is constructed as formed or molded part on which the securing clips 7 are directly provided. In this embodiment the mounting strip 3 is secured by the clips 7 from the outside with the aid of the profile part 11. In contrast thereto, in the embodiment of FIG. 8 a type of securing is chosen which is similar to that of FIG. 6. However, in FIG. 8 the outer profile 11 is mounted with the aid of separate clips 7*a* from the outside together with the mounting strip 3 on the door or body panel 2. A construction is illustrated in the upper half of FIG. 8 with a securing pin whose head 7*b* is matched to the curvature of the recess 12 whereas in the lower half of FIG. 8, a separate intermediate ring 15 is inserted between the head of pin 7*a* and the curvature of the recess 12.

An embodiment is illustrated in FIGS. 9 and 9*a* in which the outer profile part 11 is again constructed as formed or molded part and is provided with projections 11*a*, which project into a corresponding recess in the panel 2 of the door or of the body. The mounting strip 3 is thereby inserted into a rectangular longitudinal groove inside of the profile 11 and is secured at the panel 2 by means of clips. In the upper half of FIG. 9 a separate securing clip is provided therefor whereas in contrast thereto, in the lower half of FIG. 9 the securing pins or clips are made in one piece with a mounting strip 3.

Another type of construction is illustrated in FIGS. 10 and 10*a* where the mounting strips 3 are constructed only as end pieces and are not connected with the profile molding strip 11*b* adjoining the same. The profile molding strip 11*b* is mounted in this embodiment on an embossment in the door panel 2 and covers with its ends 11*c* the bevelled-off ends 3*b* of the mounting strip 3 which, for example, is directly adhesively secured on the panel 2. The end 3*a* of the mounting strip 3 is also bevelled off flat so that a completely satisfactory assembly of the bonded mounting strip is achieved at this place. A tearing-off of the mounting strip 3 from the end 3*a* thereof need not be feared.

A securing strip section is again illustrated in perspective in FIG. 11 which is either constructed only as end piece according to FIG. 12, in the manner as in FIGS. 10 and 10*a*, and which with its ends 3*b* is either not connected or, as indicated in dash lines, is connected together with the profile part 11 at the corresponding sheet metal panel. The mounting strip section 3, however, may also be constructed as a continuous, formed or molded part made from relatively hard synthetic resinous material or the like, as illustrated in FIG. 13, on which is mounted the projecting protective molding sections constructed as continuous profile 17 and is connected in any suitable manner as described above. This type of construction offers the advantage that the profile strip 17 can be manufactured as inexpensive yardage material, can be cut to the desired length as needed, and can be mounted on the mounting strips 3.

Thus, a simple construction of a protective molding is produced by the present invention which can be manufactured and assembled in a particularly simple manner, and which additionally allows the advantage of a simple assembly of the doors without having to fear a subsequent jamming of the doors during opening by reason of the protective moldings.

While I have shown and described several embodiments in accordance with the present invention, it is understood that the same is not limited thereto but is susceptible of numerous changes and modifications as known to a person skilled in the art, and I therefore do not wish to be limited to details shown and described herein but intend to cover all such changes and modifications as are known to those skilled in the art.

I claim:

1. A protective molding for the substantially vertically extending outer body and door panel surfaces of a motor vehicle comprising at least one elongated profile member having a defined profile and extending laterally outwardly beyond the panel outer surface, and at least one elastic relatively flat mounting strip member adjoining the profile member, the elastic mounting strip member extending from opposite ends of the profile member around an edge of the outer panel surface and laterally inwardly from the edge in the direction of the vehicle interior, the elastic mounting strip member closely following the contour of the panel outer surface and being adjoined to the profile member at a distance from the panel edge, the elastic mounting strip member having a substantially U-shape in the extension thereof from the profile member around the panel edge and being provided with a laterally inwardly extending portion extending from the leg of the U disposed on the inner surface of the edge of the panel.

2. A protective molding according to claim 1, wherein the elastic mounting strip member lies on the panel outer surface during at least a substantial portion of the extension thereof from the end of the profile member around the edge of the panel.

3. A protective molding according to claim 2, wherein the elastic mounting strip member is a one-piece member in at least the extension thereof from the end of the profile member around the panel edge and in the direction of the vehicle interior.

4. A protective molding according to claim 1, wherein the elastic mounting strip member is a one-piece member extending the length of the profile member and beyond the ends thereof, the mounting strip member lying against the outer surface of the panel during at least a substantial portion of the length of the mounting strip member.

5. A protective molding according to claim 1, wherein the elastic mounting strip member is constructed of an elastically yielding material.

6. A protective molding according to claim 1, wherein the lateral extension of the profile member projecting beyond the outer surface of the panel is considerably larger than the thickness of the mounting strip member.

7. A protective molding according to claim 1, wherein the profile member is constructed as a continuous, uninterrupted profile strip of substantially constant cross section.

8. A protective molding according to claim 1, wherein the profile member is constructed as a formed part matched to the outer surface of the panel.

9. A protective molding according to claim 1, wherein the mounting strip member is adhesively secured to the panel.

10. A protective molding according to claim 9, wherein the mounting strip member is adhesively secured to the outer surface and edge of the panel and is adhesively secured to one of a body and door member of the motor vehicle in the laterally inwardly extension thereof.

11. A protective molding according to claim 10, wherein the end of the mounting strip extending laterally inwardly in the direction of the vehicle interior is bevelled off.

12. A protective molding according to claim 1, wherein the mounting strip member is constructed as a formed part matched to the outer surface of the panel.

13. A protective molding according to claim 12, wherein the mounting strip member is provided with an end portion located approximately at the end of the profile member and is provided thereat with fastening means for connection to the profile member.

14. A protective molding according to claim 12, wherein the mounting strip member is constructed as an uninterrupted strip secured to the outer surface of the panel and on which is mounted the profile member.

15. A protective molding according to claim 14, wherein the mounting strip member is provided with securing pin means.

16. A protective molding according to claim 1, wherein the profile member is provided with at least one longitudinal recess for the accommodation of the head portions of securing pin means.

17. A protective molding according to claim 16, wherein the profile members are constructed with securing pin means.

18. A protective molding according to claim 17, wherein the mounting strip member is provided with openings for extending therethrough the securing pin means.

19. A protective molding according to claim 1, wherein the mounting strip member is made from a material that is relatively harder compared to the material from which the profile member is made.

20. A protective molding for the substantially vertically extending outer body and door panel surfaces of a motor vehicle comprising at least one elongated profile member having a defined profile and extending laterally outwardly beyond the panel outer surface, at least one elastic relatively flat mounting strip member adjoining the profile member, the elastic mounting strip member extending from at least one end of the profile member around an edge of the outer panel surface and laterally inwardly from the edge in the direction of the vehicle interior, the elastic mounting strip member closely following the contour of the panel outer surface and being adjoined to the profile member at a distance from the panel edge, and projecting means at one of the two parts consisting of the mounting strip member and the profile member for fitting into recesses formed in the outer surface of the panel of the motor vehicle.

21. A protective molding according to claim 20, wherein the profile member projects laterally inwardly and laterally outwardly beyond a plane in which a major portion of the panel outer surface passes.

22. A protective molding according to claim 1, wherein recesses are provided in the profile member for the mounting of an embossment of the outer surface of the panel.

23. A protective molding according to claim 1, wherein the profile member terminates directly in front of at least one of the panel edges, the profile member covering a portion of the mounting strip member thereat.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,817,016 Dated June 18, 1974

Inventor(s) Bela Barenyi

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Title page as it reads now:

Related U. S. Application Data

[63] Continuation of Ser. No. 793,428, Jan. 23, 1972, abandoned.

Title page as it should read:

Related U. S. Application Data

[63] Continuation of Ser. No. 793,428, Jan. 23, 1969, abandoned.

Signed and sealed this 19th day of November 1974.

(SEAL)
Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

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