United States Patent [19]

Altus

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[54] **FLOOR MAT RETENTION SYSTEM FOR AUTOMOTIVE VEHICLES**

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[73] Assignee: **The 2500 Corporation,** Farmington Hills, Mich.

[21] Appl. No.: **199,600**

[22] Filed: **May 27, 1988**

[51] **Int. Cl.**[5] **B32B 3/06;** B60J 9/00

[52] **U.S. Cl.** **428/81;** 428/82; 428/85; 428/86; 428/95; 428/99; 428/101; 428/223

[58] **Field of Search** 428/81, 82, 85, 86, 428/95, 99, 101, 223; 74/564

[56] **References Cited**

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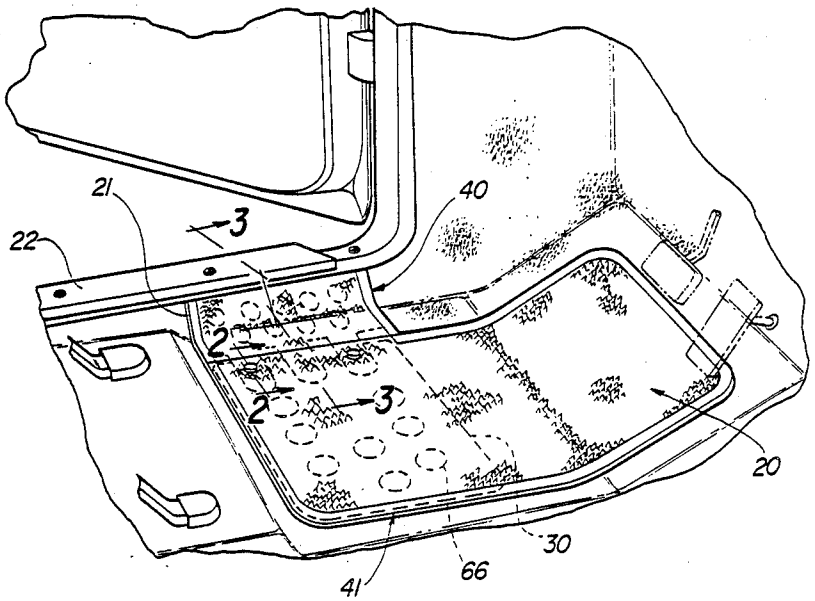
Primary Examiner—Marion C. McCamish
Attorney, Agent, or Firm—Dykema Gossett

[57] **ABSTRACT**

There is disclosed a floor mat retention system for automotive vehicles which provides for positive attachment of the floor mat to the vehicle body without penetrating the automotive carpet. A first retainer portion is fixedly mounted to the automotive vehicle by a method other than penetrating the automotive carpeting and a second retainer portion is removably attached to said first retainer portion. A floor mat construction is then removably attached to at least said second retainer portion. The first and second retainer portions may have bristles on one or both sides thereof to aid in preventing slippage, and the floor mat construction may have carpet nap on both sides thereof so that it may be made reversible, if desired.

39 Claims, 3 Drawing Sheets



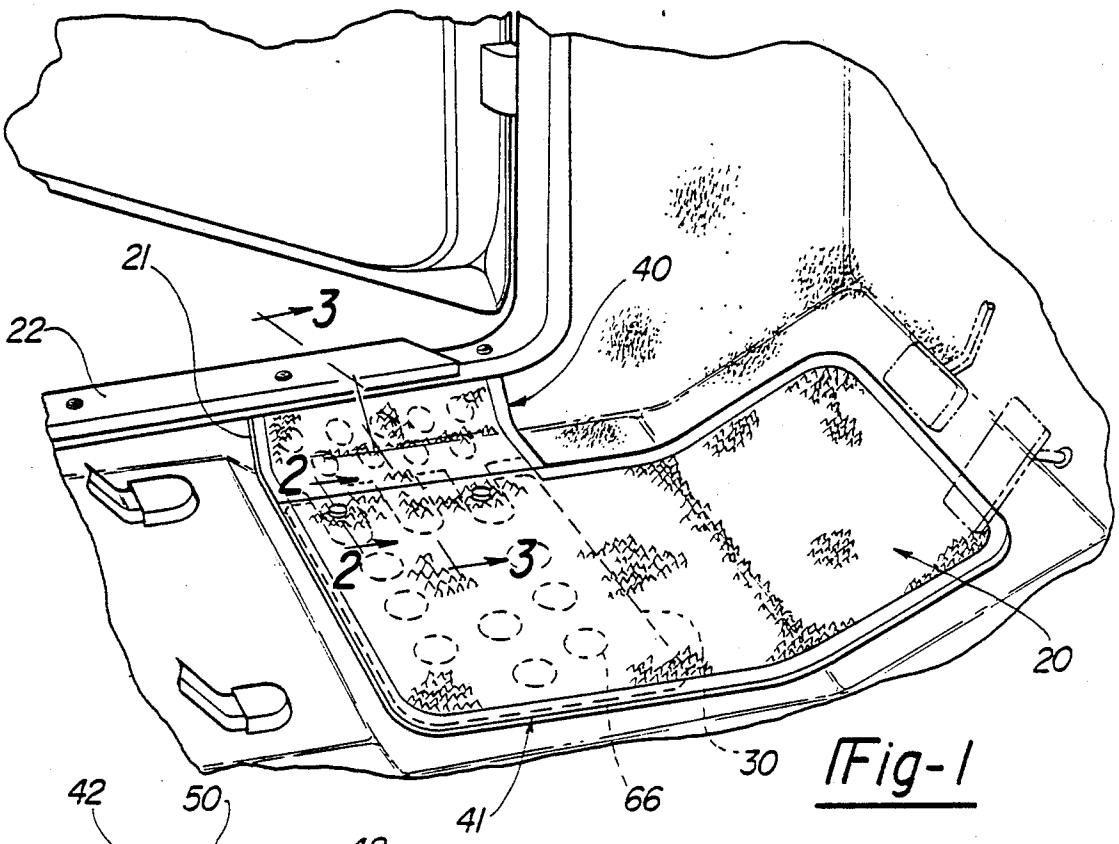


Fig-1

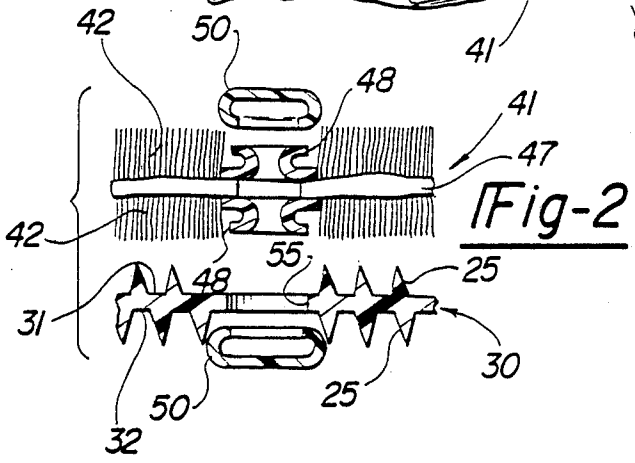


Fig-2

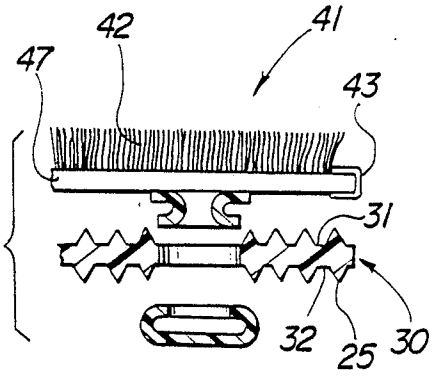


Fig-2A

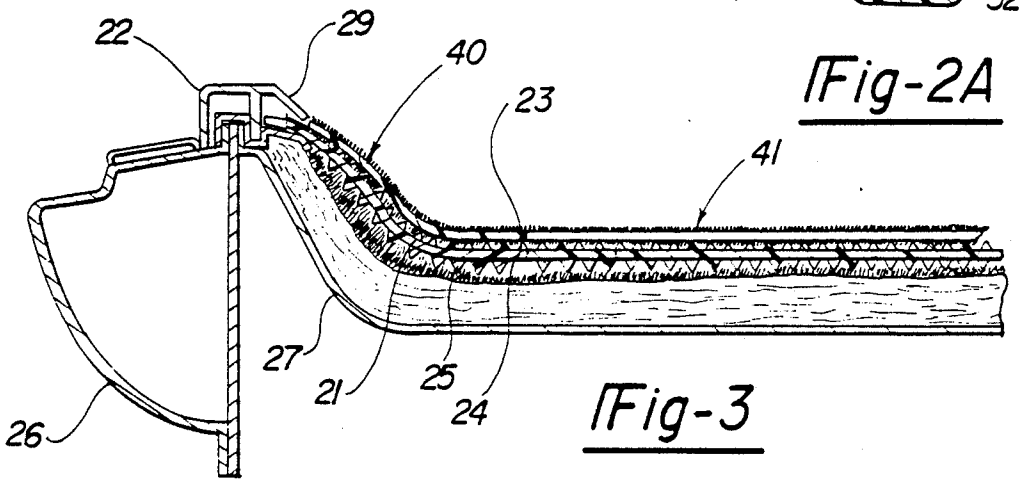


Fig-3

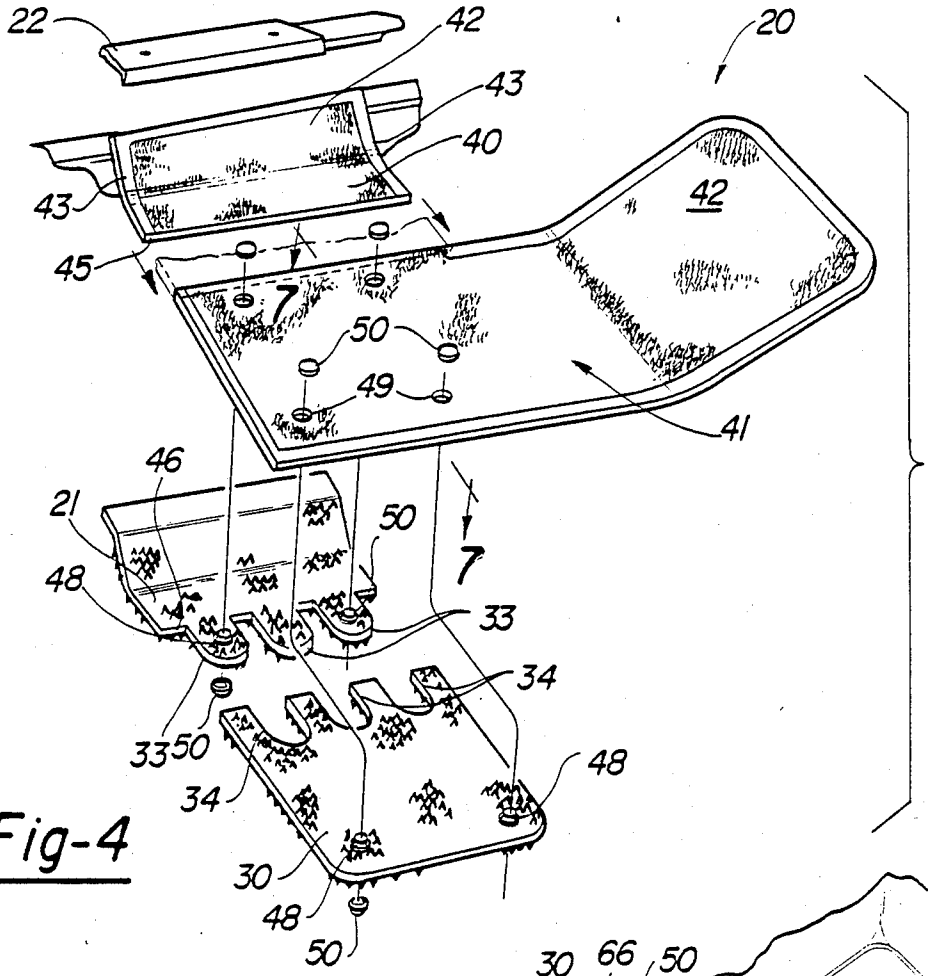


Fig-4

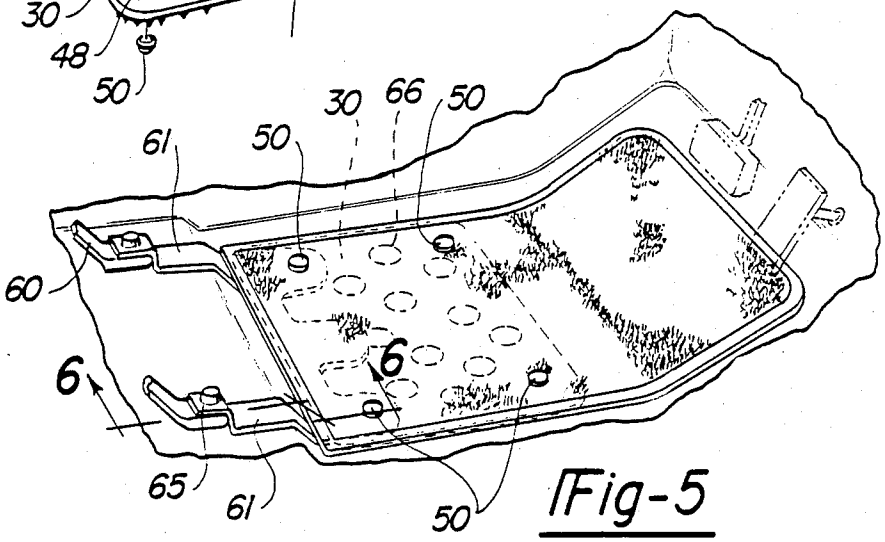


Fig-5

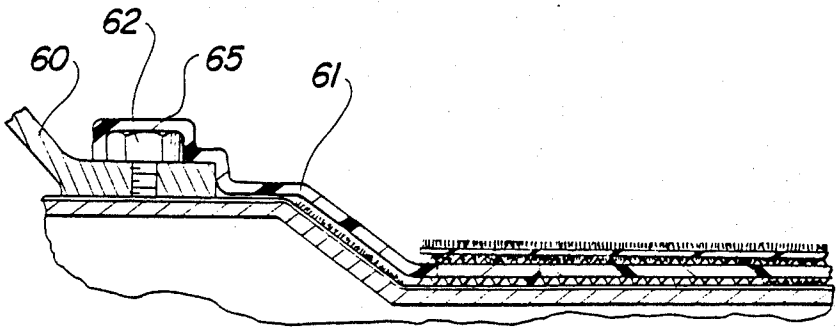


Fig-6

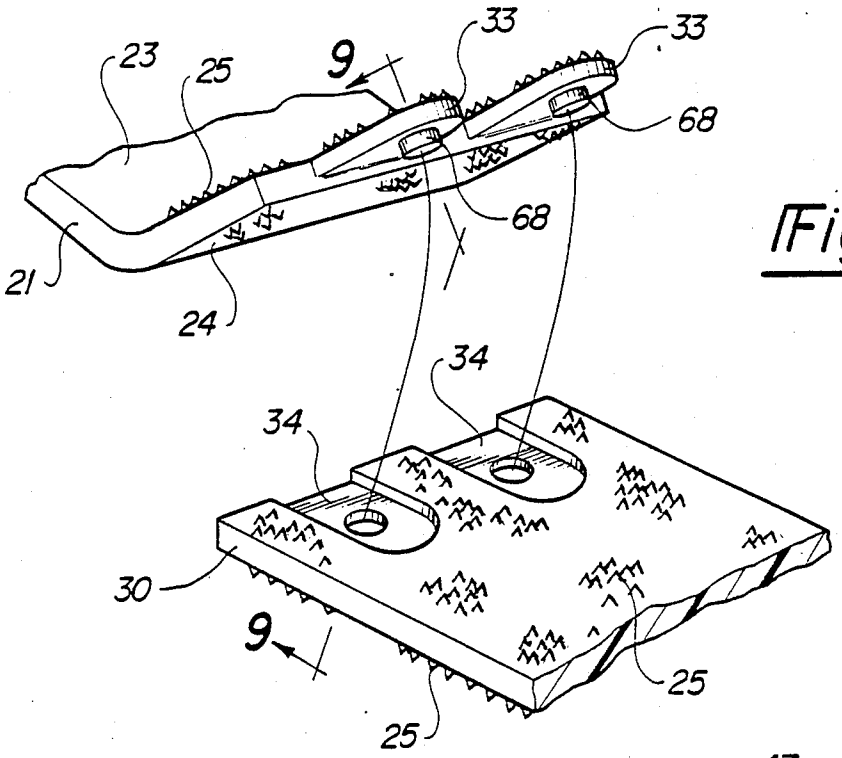


Fig-8

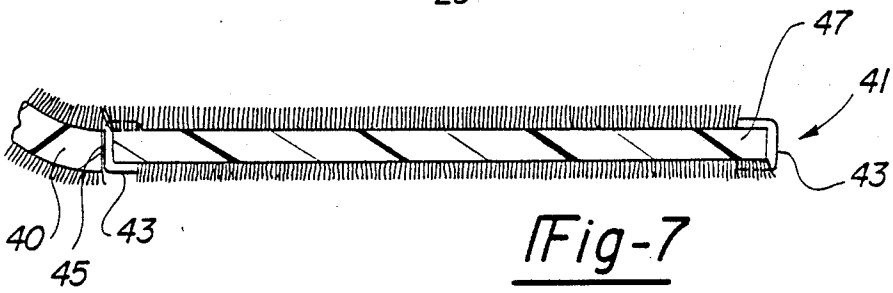


Fig-7

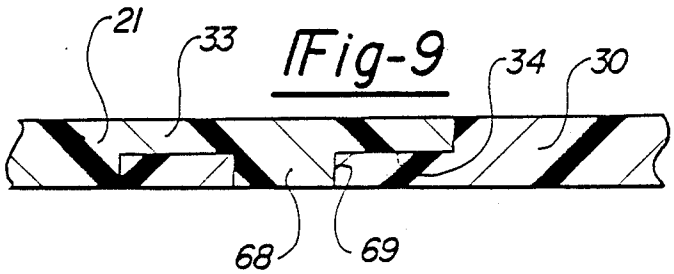


Fig-9

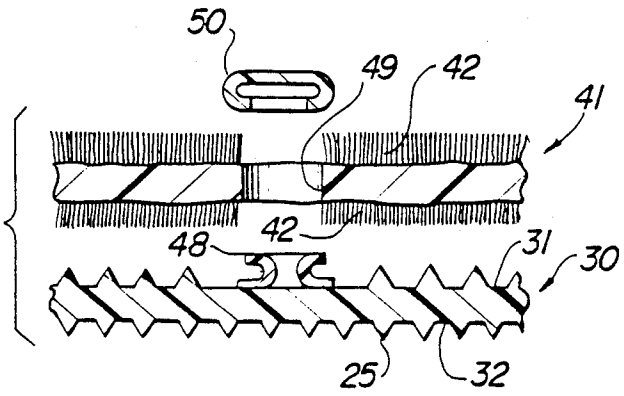


Fig-2B

FLOOR MAT RETENTION SYSTEM FOR AUTOMOTIVE VEHICLES

BACKGROUND OF INVENTION

1. Field of the Invention

The present invention relates to automotive floor mats, and more particularly to a method and apparatus for postively locating floor mats in automotive vehicles by having at least one portion of the floor mat retainer system mounted to the automotive vehicle. The need for retainers in connection with automotive floor mats is fully discussed in U.S. Pat. Nos. 4,361,610; 4,481,240, 4,588,628 and 4,673,603 owned by the assignee of the present invention. However, even though these patents discuss the need for the retention of automotive floor mats with regard to automotive carpets, they do not deal with the positive retention of floor mats in automotive vehicles by having a portion of a floor mat mounting system attached to the automobile body, which is the subject of the present invention.

2. Description of the Prior Art

It has long been the practice to cover areas of automotive carpeting which are subjected to heavy wear with separate floor mats, which usually have at least one surface covered with a carpet material, although they may be of an all rubber construction. For as long as this has been done, there has been a severe problem with these mats unexpectedly moving, and sometimes causing interference with the proper operation of the brake and/or accelerator pedals in automobiles. Recently there have been recalls involving thousands of automobiles to have their floor mats replaced because they have slipped and jammed under the accelerator pedal, and in some cases have caused accidents. While the floor mats disclosed in the above-mentioned patents of the common assignee of the present application, and in a recent application owned by said common assignee entitled "Floor Mat and Method of Attaching Retainer Thereto", filed on Oct. 15, 1987, under Ser. No. 07/109,291, have been found to be entirely satisfactory for a large majority of automotive applications, it has also been found that some floor pan designs, whether dictated by styling, function, or otherwise, still present problems which are not entirely solved by the aforementioned floor mats. This has caused the inventors in the present application to continue their work in the automotive floor mat area, and has led to the present invention which provides positive retention of the floor mat in the automotive vehicle by having at least part of the system positively mounted to the vehicle itself. Substantial and long-standing problems in the art had to be solved to determine how to provide this positive retention and still provide for the periodic removal and cleaning of the automotive floor mat.

Applicants are aware of many previous attempts to provide positive retention of automotive floor mats. One of these is to sew the floor mat to the automotive carpet. However, this makes it completely unremovable, which is undesirable, and because of the twisting motions placed on the floor mats when the occupants enter and leave the a vehicle, the floor mats tended to be torn where they were sewn to the carpet.

Another attempt simply was to try and attach the floor mats to the automotive floor pan. However, as is well known in the automotive art, automotive carpeting is backed by a water proof bonding layer to prevent moisture, such as accumulated on the carpeting when occupants enter when it has been raining or snowing, from penetrating the carpeting and contacting the automotive floor pan, which causes severe rusting problems. Whether one attempted, for example, to screw the floor mat down through the automotive carpeting to the floor pan, or place a fastening means on the floor pan and provide an opening in the carpet for the fastening means to pass through, both of these destroyed the water imperviousness of the automotive carpeting, and presented severe rusting problem s. Thus, Applicants knew a novel solution to this problem was needed.

SUMMARY OF THE INVENTION

In order to provide a floor mat retention system which does not pose any of the problems of earlier floor mat retention systems, we have provided a floor mat retention system for automotive vehicles having a first retainer portion fixedly attached to the vehicle other than through the automotive carpeting and floor pan, and we have further provided a second retainer portion adjacent to, and removably attached to said first retainer portion. Attached to said second retainter portion, also in a removable manner is a floor mat construction. The floor mat construction may have carpet nap on one or both sides thereof, and one or both of the retainer portions may have bristles on one or both sides thereof.

Thus, it is an object of the present invention to provide a method and apparatus for positively locating floor mats in automotive vehicles.

It is a further object of the present invention to provide a positive floor mat retention system for automotive vehicles which does not destroy the water imperviousness of the automotive carpeting.

It is further object of the present invention to provide that the automotive floor mat, with or without the second retainer portion, is easily removed and replaced in the automotive vehicle.

Still another object of the present invention is to provide a positive floor mat retention system for automotive vehicles which can be used regardless of the shape of the automotive floor pan.

Still another object of the present invention is to provide a floor mat construction which is securely attached to the automotive vehicle.

A further object of the present invention is to provide a positive floor mat retention system wherein a floor mat construction is removably attached thereto by appropriate fastening means.

Further objects and advantage of the present invention will be apparent from the following description and appended claims, reference being had to the accompanying drawings forming a part of the specification, wherein like reference characters designate corresponding parts in the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a partial perspective view showing one embodiment of our invention mounted in an automotive vehicle.

FIG. **2** is a sectional view, taken in the direction of the arrows, along the section line **2—2** of FIG. **1**.

FIG. **2A** is a view similar in large part to FIG. **2** but showing a floor mat construction having carpeting only on side thereof.

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