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Stanesic et al.

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(54) **RETAINER ASSEMBLY FOR POSITIVE
RETENTION OF FLOOR MAT**

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411/372.6; 411/377**

(58) **Field of Search** **16/4, 6, 8, 17.1;
24/90.5; 411/431, 372.5, 372.6, 373, 377,
910; 296/97.23; 428/99, 100**

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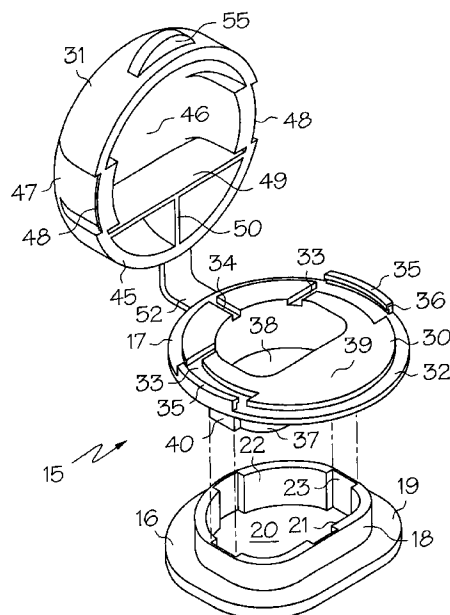
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(57) **ABSTRACT**

A two piece retainer assembly is used for positive retention of an associated vehicular floor mat to the vehicle's floor surface. The retainer assembly works in conjunction with a hook-like fastener permanently mounted to the vehicle's floor surface. The two piece retainer assembly comprises (a) an annular collar for positioning in a hole in the floor mat from an underside, and (b) a locking cover coupler for positioning in the hole of the floor mat from an upper side. The annular collar and locking cover coupler are forced together to trap the floor mat. The annular collar has a vertical upwardly extending wall forming an opening and a horizontally radially extending flange connected to the vertical wall. The locking cover coupler has a base plate with a vertical downwardly extending wall forming an opening and dimensioned to receive the vertical upwardly extending wall of the annular collar in frictional engagement. At least two vertically extending latching tabs extend from the base plate. The locking cover coupler further has a cap hinged to the base plate. The cap includes an interior locking wall and at least two recessed slots. The assembly of the invention as installed on the floor mat is positioned over the hook-like fastener in the vehicle's floor. The hook-like fastener extends through the openings of the annular collar and the base plate and is trapped in place when the cap is closed down onto the base plate.

17 Claims, 3 Drawing Sheets



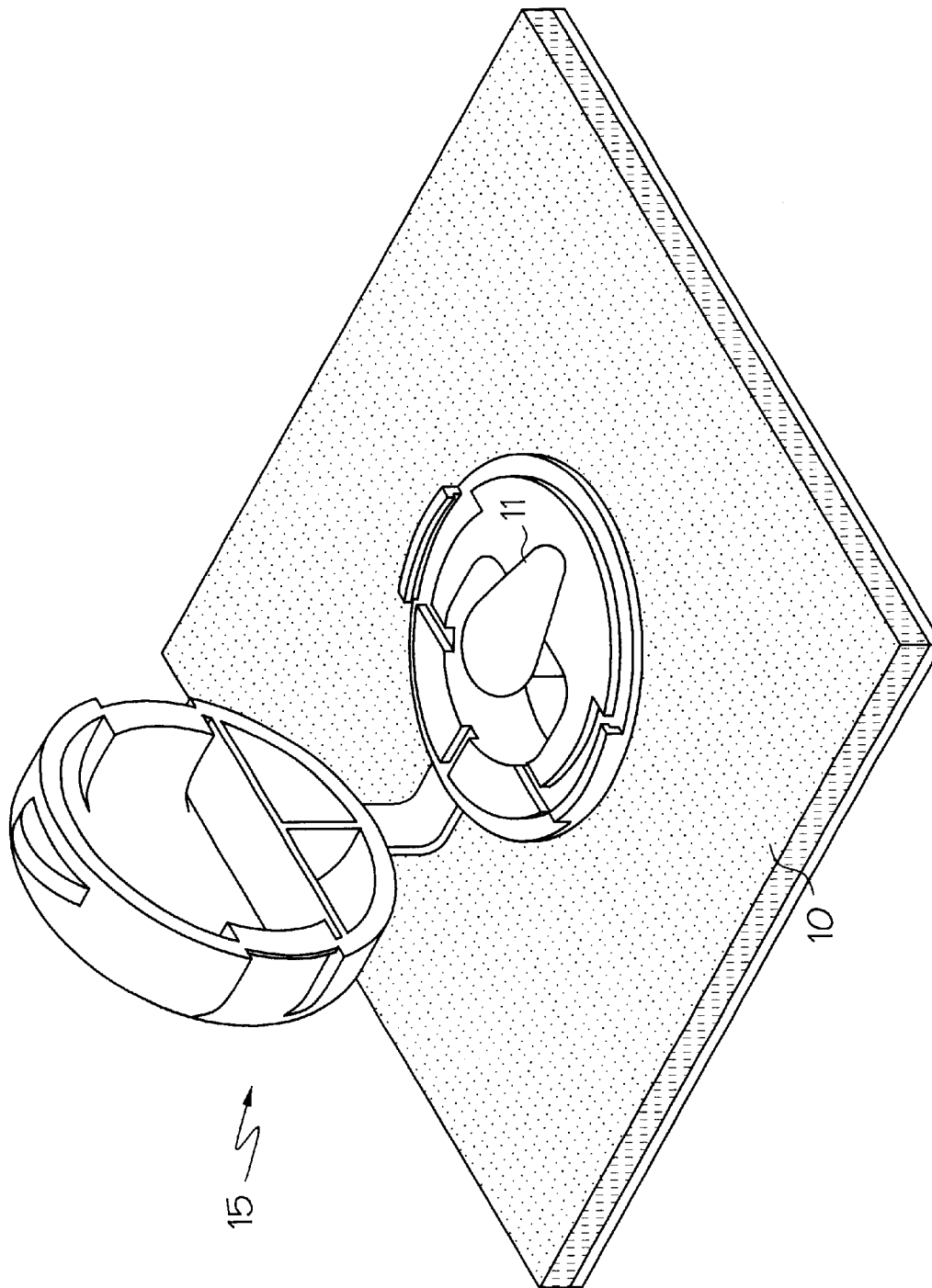


FIG. 1

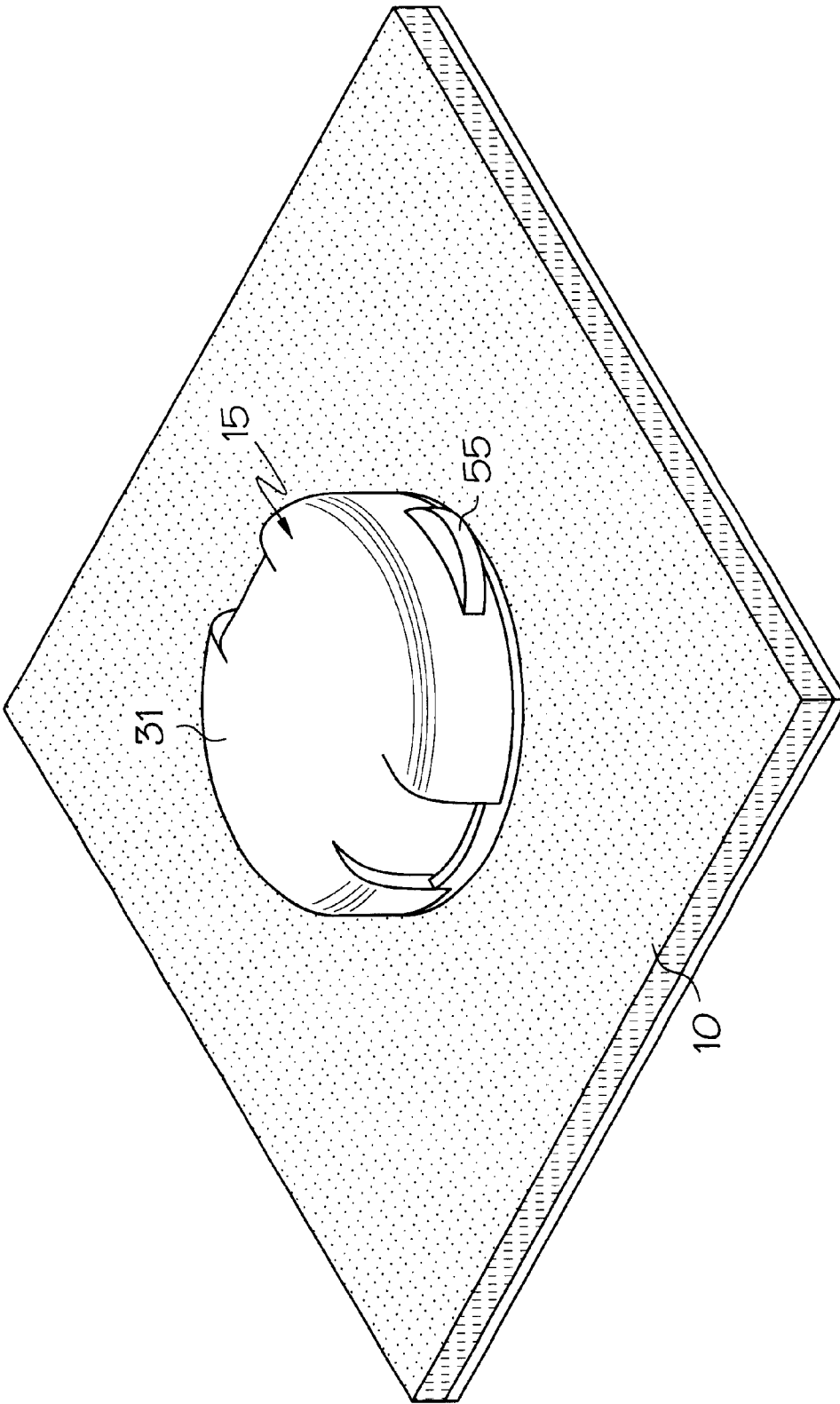


FIG. 2

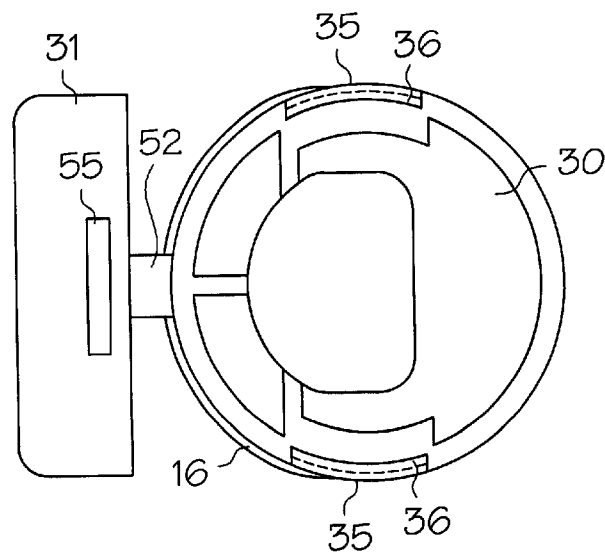
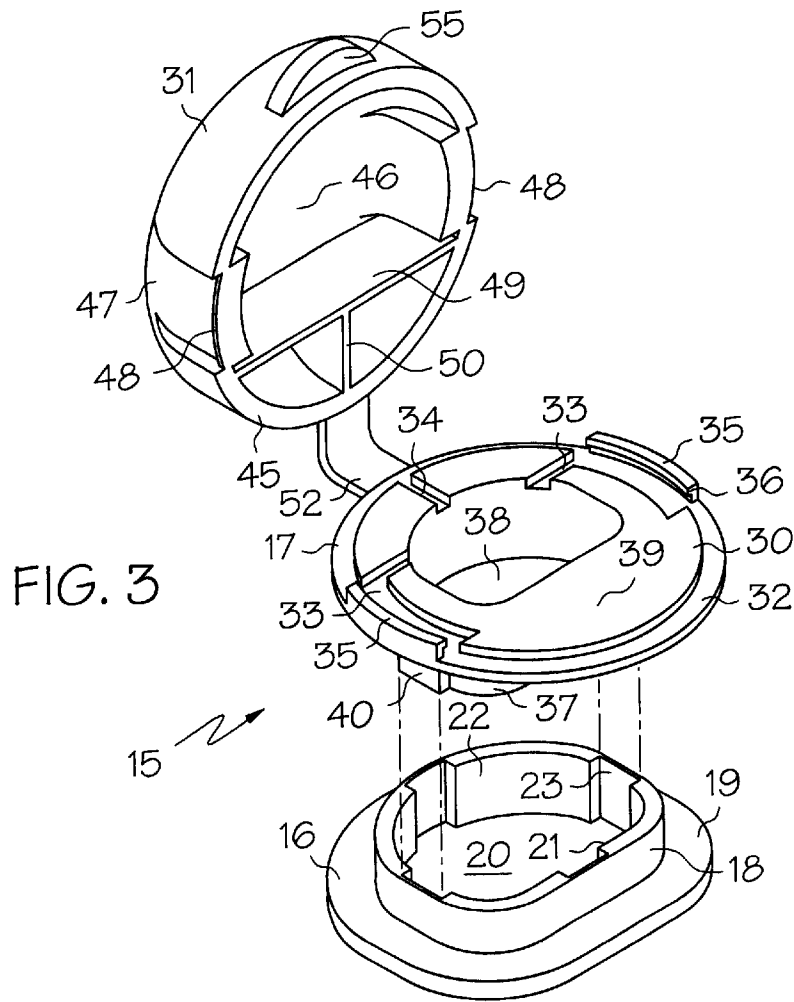


FIG. 4

RETAINER ASSEMBLY FOR POSITIVE RETENTION OF FLOOR MAT

FIELD OF THE INVENTION

This invention relates to a retainer assembly for use with a motor vehicle floor mat. More particularly, the invention relates to a two piece retainer assembly for positive retention of the floor mat to the vehicle's floor to prevent movement of the floor mat during use.

BACKGROUND OF THE INVENTION

Floor mats have long been used in motor vehicles to protect an underlying carpeted floor surface. The carpet is basically a one piece molded carpet which covers the entire interior area of the vehicle. It is permanently installed and meant to last the life of the vehicle. Most vehicle owners, particularly owners of non-commercial vehicles such as autos, vans and SUV's realize that the molded carpet is likely to be soiled and want to protect the carpet.

Early versions of floor mats for use in vehicles were typically no more than another piece of carpet cut to fit a defined area of the carpeted floor surface and overlie it. Such floor mats were easy to position and could readily be replaced when overly soiled. However, such floor mats tended to slide on the carpet floor. This created a nuisance to the vehicle's driver and passengers and a safety hazard to the driver if the sliding floor mat interfered with use of the vehicle's accelerator and/or brake. Subsequent versions of floor mats used anti-skid means to alleviate any floor mat sliding, particularly on the driver side. These anti-skid means included projecting nubs, hook-like fasteners such as Velcro and other means, typically placed on the floor mat's underside. A likelihood of sliding of the floor mat during use was substantially reduced, but not eliminated.

Current needs require that the floor mat, at least when used on the driver side of the vehicle must have positive retention. That is, movement of the floor mat is secured to the vehicle floor surface in a manner where substantial movement is not possible. Attempts to meet this requirement have included fasteners which are attached to the floor of the vehicle and interact with the floor mat. One common example is a hook-like fastener having two legs at right angles to one another. A terminus of one leg is screwed into the floor. The other leg hooks into a grommeted hole in the floor mat. When properly installed, the floor mat cannot be slid laterally. A limited amount of sliding is permitted by the tolerances needed in making the hole in the floor mat large enough to receive the hook-like fastener.

In accord with the demands of the auto industry in particular, there is still a need for a retention system for a floor mat to hold it in place with minimal chance for sliding movements. Understandably, any retention system must be easy to install and dependable. It also must permit the vehicle's owner to periodically remove the floor mat for cleaning purposes without excessive effort. In response to this need, there has now been developed a retainer assembly for a floor mat which fulfills the demands of a positive retention system. The assembly makes use of currently installed hook-like fasteners found on many vehicles. The assembly of the invention is economically produced and installed onto floor mats. The floor mat is then installed on the hook-like fastener by the vehicle's owner.

SUMMARY OF THE INVENTION

A two piece retainer assembly is intended for installation on a vehicular floor mat and for use with a hook-like fastener

permanently mounted to the vehicle's floor surface. The retainer assembly provides positive retention of the floor mat during use. The two piece retainer assembly comprises (a) an annular collar for positioning in a hole in the floor mat from an underside thereof, and (b) a locking cover coupler for positioning in the hole of the floor mat from an upper side. The annular collar has a vertical upwardly extending wall forming an opening and a horizontally radially extending flange connected to the vertical wall. The locking cover coupler has a base plate with a vertical downwardly extending wall forming an opening and dimensioned to receive the vertical upwardly extending wall of the annular collar in frictional engagement. The base plate also has at least two vertically extending latching tabs. The locking cover coupler further has a cap hinged to the base plate. The cap has a hollow interior formed by an exterior wall and includes a locking wall extending across the hollow interior wall. The cap further has at least two recessed slots to receive the latching tabs of the base plate. The two piece retainer assembly is positioned on the floor mat with the annular collar and the base plate of the locking cover coupler coupled together. In use, the assembly of the invention as installed on the floor mat is positioned over the hook-like fastener in the vehicle's floor. The hook-like fastener extends through the openings of the annular collar and base plate and is trapped in place when the cap is closed down onto the base plate.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the two piece retainer assembly of the invention showing its installation on a section of floor mat with a hook-like fastener extending from a floor surface and through openings in the retainer assembly.

FIG. 2 is a perspective view of the two piece retainer assembly of FIG. 1 showing its cap in a closed position.

FIG. 3 is a perspective exploded view of the two piece retainer assembly of FIG. 1 in isolation.

FIG. 4 is a top plan view of the two piece assembly of FIG. 3.

DETAILED DESCRIPTION OF THE INVENTION

The two piece retainer assembly of the invention is particularly adapted for installation on a vehicle floor mat and for interacting with a hook-like fastener permanently secured to a floor of the vehicle. It can be used elsewhere, but finds its most popular use on vehicular floor mats and for this reason is described below in this context.

With reference to FIG. 1, there is shown in perspective a portion of a floor mat **10** and a hook-like fastener **11**. The floor mat itself is conventional. It includes a molded thermoplastic backing and a carpet topside. While not apparent from the drawings, the floor mat **10** for use with the two piece retainer assembly of this invention further includes a hole extending fully through the carpet and the backing. The hole is near at least one corner of the floor mat positioned such that in use of the floor mat, the hole will be directly over the hook-like fastener. The hook-like fastener **11** is permanently secured to a floor of the vehicle.

In accord with this invention, a two piece retainer assembly **15** is positioned in the hole of the floor mat **10** and permanently secured to it. It operates in association with the hook-like fastener **11**. As shown in FIG. 1, the two piece retainer assembly **15** with is associated floor mat **10** is

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