

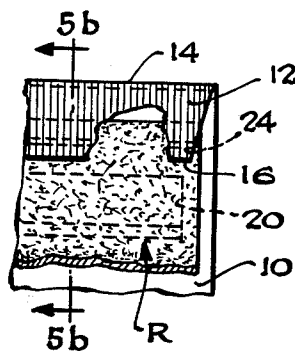
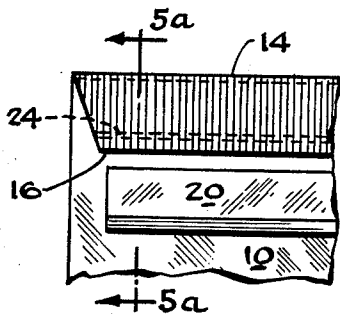
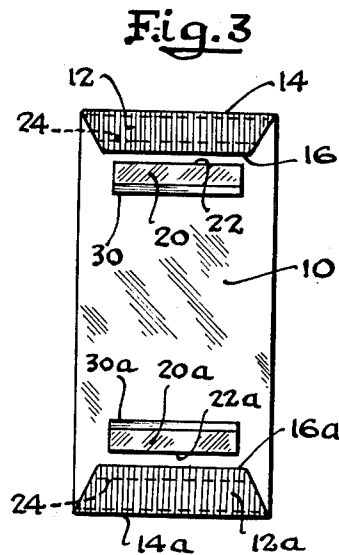
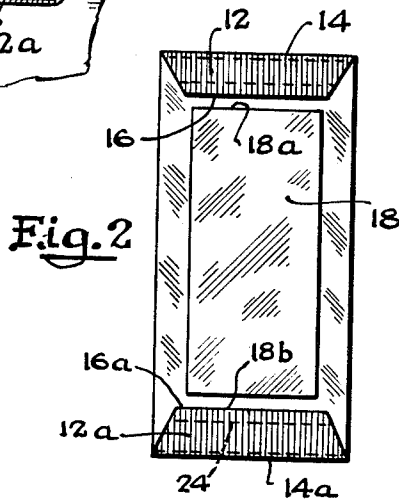
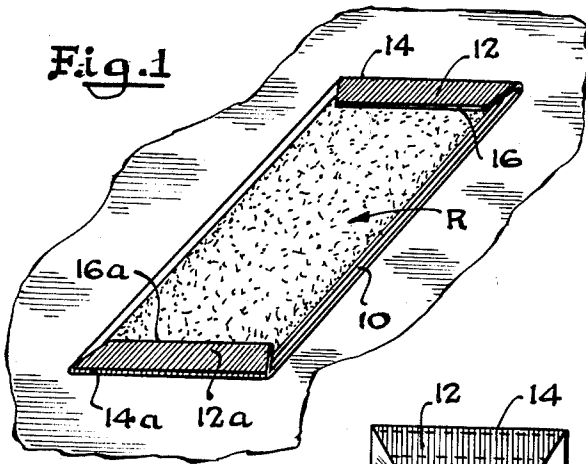
Feb. 9, 1965

T. C. PRESTON ETAL
NON-TRIP NON-SKID FLOOR MAT ASSEMBLY AND A
MAT HOLDER THEREFOR

3,168,757

Original Filed June 11, 1963

2 Sheets-Sheet 1



Inventors
Troy C. Preston
Justin J. Wetzler
By George E. Frost-Keith J. Kulie
Attorneys

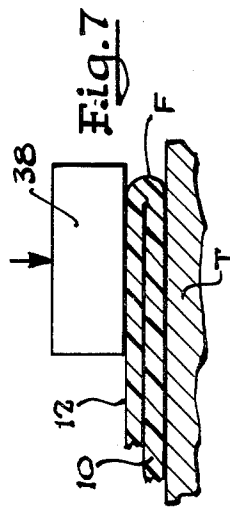
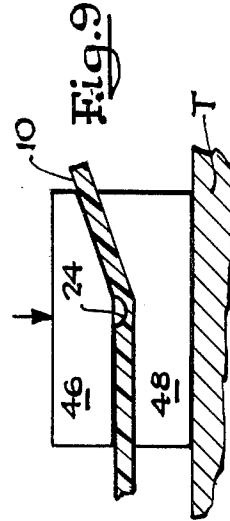
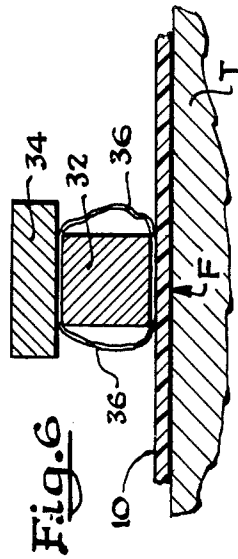
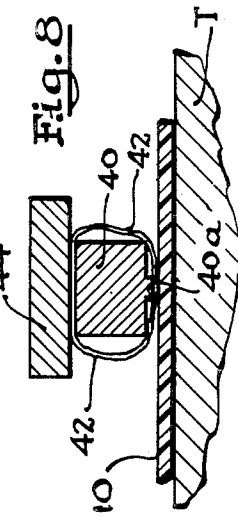
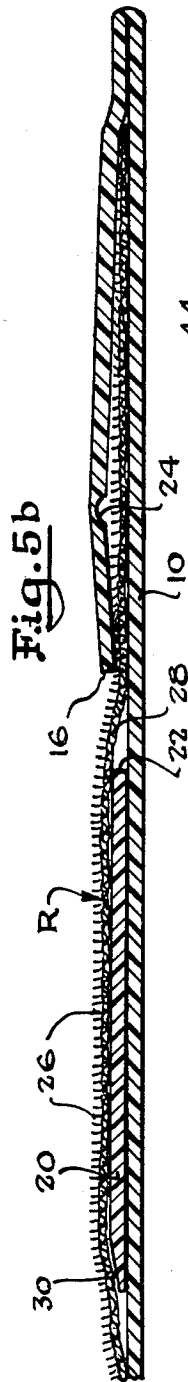
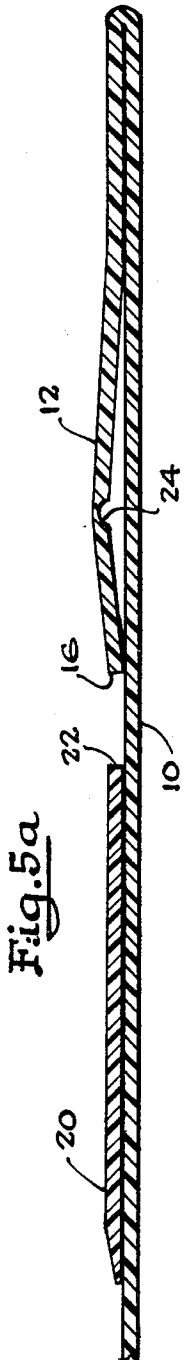
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2 Sheets-Sheet 2



Inventors
Troy C. Preston
Justin J. Wetzler
By George E. Frost-Keith J. Kulie
Attorneys

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3,168,757

NON-TRIP NON-SKID FLOOR MAT ASSEMBLY AND A MAT HOLDER THEREFOR

Troy C. Preston, Mount Carroll, and Justin J. Wetzler,
Evanston, Ill., assignors to F. W. Means & Co., Chicago,
Ill., a corporation of Illinois

Continuation of application Ser. No. 287,126, June 11,
1963. This application July 13, 1964, Ser. No. 382,419
6 Claims. (Cl. 15-217)

This application is a continuation of application Serial No. 287,126 filed June 11, 1963, now abandoned, and a continuation-in-part of application Serial No. 349,556, now abandoned, filed March 5, 1964.

This invention relates to a non-trip non-skid floor mat assembly and a mat holder therefor.

For many purposes it is desirable to have tufted washable cotton or similar rugs on the floor. Such rugs are especially desirable in halls and entranceways where persons can wipe their shoes upon them. When the rugs are treated with an appropriate dirt-collecting material, they are capable of removing dirt and dust from shoes and retaining large quantities of such dirt and dust. When loaded with dirt and dust, the rugs can be laundered and re-treated to provide an attractive, clean unit that will withstand a considerable amount of additional use before replacement is again necessary.

While so-called throw rugs have found application in the private portions of homes, they are not generally suitable for public entrances or for business establishments. This is in part due to the need in the case of public and business uses to have a treated rug that is capable of retaining large quantities of dust and dirt, rather than an untreated rug with limited dust and dirt capacity. Treated rugs, if simply laid on the floor, will discolor the floor as the treating material oozes out onto the floor. This is true even in the presence of a latex backing. Further, even when the rugs have fairly thick latex backings (and are thus heavy and rather difficult to launder) they may trip unwary persons. This is especially true after a few launderings, because the edges tend to curl up and thus make a pocket into which the shoe fits and is easily caught. For these and other reasons, small launderable rugs have not found the application in entranceways and commercial establishments that their many advantages would indicate.

In accordance with the present invention, a practical and effective floor mat assembly and mat holder is provided which can be used with a tufted treated launderable rug. In brief, the assembly includes a mat holder formed of flexible tacky plastic sheet material, such as extended vinyl with plasticizer as required to form a flexible sheet. The holder has a main flat sheet base portion of substantially rectangular shape with at least the two end edges defined by overlying folded-back ears. These ears are folded back in a short conformation to define relatively thin edges that do not tend to catch on the shoe. The ears terminate in edges parallel to and a predetermined distance inboard from each folded edge. Adjacent their free ends the ears are scored and molded to define concave down conformations. At the portions of the mat not covered by the ears, one or more pads positioned to define edges parallel to and spaced from the free edge of each ear. These pads are substantially the thickness of each ear. The rug is laid over the holder in substantially centered position and by a simple cam-like movement of the hand, each ear can be folded over the rug to sandwich the ends of the rug between the base and the ears. The net effect is to provide a unit that hugs the floor, has sharply folded and non-tripping ends, and in which the ears lie flat against the rug and indent the same in fashion defining a

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substantially flat top face that does not form pockets or upstanding edges that tend to catch on the shoes or otherwise trip the person walking thereon.

It is therefore a general object of the present invention to provide an improved floor mat assembly using a tufted washable rug and a mat holder therefor.

Further it is an object of the present invention to provide an improved floor mat assembly and mat holder in which the end edges are defined by relatively thin backfolded portions that form reverse ears that overlie the ends of the rug proper.

Another object of the present invention is to provide an improved floor mat assembly and mat holder in which the ends of the rug are sandwiched between the mat proper and overlying end ears and in which the rug is so supported that the free ends of the ears do protrude substantially above the adjacent upper face of the rug.

Still another object of the present invention is to provide a floor mat assembly and mat holder that can be readily made from inexpensive and available materials, is simple, provides a maximum utilization of the rug surface itself, and in other respects is especially adapted for practical use in home and commercial applications.

The novel features which we believe to be characteristic of our invention are set forth with particularity in the appended claims. Our invention, itself, together with further objects and advantages thereof, will best be understood from the following description taken in connection with the accompanying drawings in which:

FIGURE 1 is a view in perspective of a complete floor mat assembly constructed in accordance with the present invention and lying on the floor;

FIGURES 2 and 3 are top plan views to a reduced scale showing two forms of the mat holder proper;

FIGURES 4a and 4b are enlarged fragmentary top plan views of the end portion of the form of the unit shown in FIGURE 2, FIGURE 4a showing the mat holder proper and FIGURE 4b showing the rug in place;

FIGURES 5a and 5b are greatly enlarged cross-section views through axes 5a, FIGURE 4a, and 5b, FIGURE 4b, respectively.

FIGURES 6 and 7 are cross-sectional views to the scale of FIGURES 5a and 5b showing in illustrative form the steps of forming the folded edges of the mat holder; and

FIGURES 8 and 9 are views similar to FIGURES 6 and 7 but showing in illustrative form the steps of forming the scored under edge and concave down dihedral angle of the ears of the mat holder.

The mat holder is formed of a sheet 10 of tacky, flexible, plastic material. Preferably this sheet is of vinyl plastic which is plasticized sufficiently to provide flexibility and a tendency to lie flat on a floor or other surface upon which it is placed. Such material is available in a form having about one-eighth inch thickness and having one side in the form of longitudinal V-shaped ribs spaced by and about one-eighth of an inch, the other face being substantially flat. In this form the material has sufficient strength to withstand hard use and yet is not so heavy or so thick as to impose undue weight or risk of tripping. In one size of the apparatus of the present invention, the sheet 10 may be initially about 72 inches in length and about 32 inches wide.

As shown in FIGURES 1-4b, the sheet 10 is laid with its rib side down and at the ends is folded back in ears 12 and 12a. As shown, the top faces of the ears are formed of the rib side of the sheet 10, with the ribs running longitudinally of the unit. As one walks across the unit, these ribs tend to direct the feet longitudinally, which is desirable. The ears 12 and 12a are formed by the folded back edges 14 and 14a which are formed as hereinafter described to define relatively low non-tripping surfaces.

Inboard from the edges 14 and 14a, each ear tapers and terminates in free end defined by the edge 16 and 16a, respectively. Each such free end is located parallel to and in spaced relation with the folded edge 14 or 14a, as shown. In the illustrated size described specifically herein, the edges 16 and 16a are spaced about five inches from the adjacent folded edges 14 and 14a, thus forming ears of about five inches width. As shown, the ears are tapered from their folded edges towards their free ends. In the illustrative size here described, this taper is about an inch on each side, so that each ear is about 32 inches in length at the folded edge and about 30 inches in length at its free end.

In the form of the holder shown in FIGURE 2, the portion between the ears 12 and 12a has a single rectangular pad 18. This pad is of the same material as the sheet 10 and of substantially the same thickness. It is laid rib side down on the top (non-ribbed) face of the sheet 10, and is secured thereto by welding or adhesive. The pad 18 defines a pair of edges 18a and 18b which are located parallel to and in spaced relation with the free ends 16 and 16a of the ears. Preferably, in the size here described the edges 18a and 18b are about three-fourths of an inch from the free ends 16 and 16a of the ears, respectively.

In the alternative and preferred form shown in FIGURE 3, two pads 20 and 20a of rectangular shape are located between the ears 12 and 12a. These are of the material of sheet 10 and have their rib sides down. They are adhesively secured or welded to sheet 10. These pads, in the size of the unit above described, are about four inches wide and about 28 inches long. As shown, they are located to define edges 22 and 22a in spaced parallel facing relation to the edges 16 and 16a, respectively, of the ears 12 and 12a. These edges, in the size described above, are about three-fourths of an inch from the ends 16 and 16a, respectively.

The ears 12 and 12a have cross scores or grooves 24 on their under portions. These are located parallel to and spaced from their free ends 16 and 16a. In the size above referred to, for example, these may be spaced from the ends 16 and 16a by about 1¼ inches. As hereinafter described in detail, the ears are formed to a concave down dihedral angle along these scores. This angle is shown in enlarged view in FIGURE 5a. By reason of this angle, the edges 16 and 16a tend to bite into the tufts of the rug and thereby form a flush surface with the rug proper.

The rug proper is shown at R, FIGURES 1, 4b, and 5b. It is of tufted construction, with tufts as indicated at 26, FIGURE 5b. These extend in generally upstanding relation from the fabric base 28, all in accordance with the prior art tufted cotton, cotton-rayon, or other tufted rug construction. In the size of the assembly described above, the rug proper may be about 60 inches long and about 30 inches wide. As shown in FIGURES 1, 4b, and 5b, the rug overlies the base 10 but in the regions of the ears 12 and 12a is sandwiched between the ears and the base.

The rug is readily placed in the position shown in the figures by laying it first in centered relation on the holder or base, with the ends of the rug overlying the ears. One ear 12 (or 12a) is then lifted up at one side by hand until the lifted edge 16 (or 16a) separates from the end of the rug and the rug partially falls down beneath the level of the lifted edge of the ear. The hand is then moved longitudinally underneath the free edge of the ear from the position where the rug end is below that edge towards the opposite end of that edge. This gives a camming action that serves—in a single fast and simple movement—to cam the rug underneath the ear and the ear over the rug to sandwich the full end of the rug between the ear and the base 10. This operation can be formed more rapidly than it takes to read this explanation, thus very quickly and conveniently placing the rug in the operative position.

The tufts 26 on the rug assume a helter skelter conformation in which some tend to assume fairly upstanding

positions and others are fairly flat. The extent the tufts lay flat is determined in part by the pressure upon them and the extent the pressure is continuously applied. As shown in FIGURE 5a, the end 16 of the ear 12 tends to form a point of support for the ear and the ear arches from edge 16 some distance towards the folded edge. This is due to the concave-down dihedral angle formed at the score 24. When the rug R is sandwiched beneath the ear as shown in FIGURE 5b, the free edge 16 tends to collapse the tufts along its line of contact and thereby cause the edge 16 to sink or bite into the envelope defined by the tufts on the rug. As illustrated in FIGURE 5b, the edge 16 accordingly tends to be below the tips of the tufts of the adjacent exposed portions of the rug R.

Also as shown in FIGURE 5b, the rug R is elevated by the pad 20 along a line spaced by a relatively short distance from the free end 16 of the ear 12. The rug R thus extends from an elevated position over the pad 20 in a downward curve to a depressed position beneath the ear 12, where the rug seats on the top face of the sheet 10.

The effect of the pad 20 and of the dihedral angle form at the score 24 is to position the ear 12 as shown in illustrative view in FIGURE 5b. There are no edges of either the rug or the ear 12 that tend to catch on the shoe and trip the user.

Preferably, the side of the pad 20 remote from the ear 12 is beveled (as in the side of the pad 20a remote from the ear 12a). This beveling is indicated at 30, FIGURE 5b and 30 and 30a, FIGURE 3, and improves the lie flat appearance of the rug.

FIGURES 6 and 7 are illustrative drawings showing the preferred method of forming the folded edges 14 and 14a. As shown in FIGURE 6, the sheet 10 is placed upon a table. A lengthy heated aluminum bar 32 is then laid on the sheet 10 in position to be largely inboard the point F where the fold is to be made. Preferably this bar is on one face of the lengthy electrical heater unit 34, which serves to heat the bar to a temperature of about 350° F. A sheet of Teflon cloth, indicated at 36 is wrapped around the bar 32 to seat between the bar and the sheet 10.

The bar 32 is pressed against the face of the sheet 10 until the same has heated to the point of softness. This point can be determined by noting the degree the plastic melts beneath the bar. When the desired degree of softness is attained, the sheet 10 is folded over as in FIGURE 7. The platen 38 is then laid down over the folded edge and pressure applied (as illustrated by the arrow). The folded edge is then allowed to cool, after which time the platen 38 may be removed and the ear 12 will lie flat without any tendency to rise. The exact degrees of heating achieved by the bar 32 and the exact pressure on the platen 38 (which may be wood, or metal, as desired) may be determined by experience, the net effect of the operation is to provide a band of perhaps one-half inch inboard the folded edge wherein the plastic is fused or welded.

Alternatively, the plastic may be glued inboard the folded end to provide the lie flat ear construction.

FIGURES 8 and 9 are illustrative drawings showing the preferred method of forming the downwardly concave dihedral angle at groove 24 of each ear. The groove or score is first formed by applying the heated bar 40 along the line where the score 24 is to be formed. This bar is affixed to the heater unit 44 and is separated from the sheet 10 by a Teflon cloth 42 in fashion similar to the unit of FIGURE 6, described above. The bar 40, however, has a lengthy ridge portion 40a along its bottom face. When the bar 40 is applied as in FIGURE 8, the ridge portion 40a melts the plastic immediately below itself and the applied weight causes this plastic to squeeze out. A groove 24 is thereby formed. At the same time the portions of the plastic sheet 10 adjacent the groove 24 are heated, making them limp and capable of taking a set upon cooling.

Following groove formation as in FIGURE 8, the sheet 10 (while still hot from the application of the bar

40) is placed in the vise defined by the platens 46 and 48. Platen 46 has its down face in the form of a dihedral angle about the line where the groove 24 is located. Platen 48 has a mating dihedral angle formed by its upper face. Pressure is applied to the platen 46 and 48 as indicated by the arrow in FIGURE 9 and the plastic sheet 10 allowed to cool. It can then be removed and has a set causing the ear to have the somewhat arched conformation shown in FIGURE 5a. For convenience it is preferred to form the groove 24 and the dihedral angle with the sheet 10 in upside down position, that is with the ribbed side down, as is shown in FIGURES 8 and 9.

As an alternative to the use of the vise elements as in FIGURE 9 to form the dihedral angle, the ear may be simply flexed by hand along the groove 24 while the plastic is still warm. With proper flexing it is possible to obtain the desired dihedral angle.

While FIGURES 6 to 9 show the formation of ear 12 only, it will be understood that ear 12a is similarly formed.

While we have shown and described specific embodiments of the present invention, it will, of course, be understood that many modifications and alternative constructions may be made without departing from the true spirit and scope thereof. We therefore intend by the appended claims to cover all modifications and alternative constructions falling within their true spirit and scope.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A non-skid non-trip flush floor mat assembly comprising in combination: a mat holder of flexible tacky plastic sheet material and forming a main flat sheet base portion of substantially rectangular shape having side and end edges, at least the two end edges being defined by the sheet material folded back in a sharp conformation to define a pair of lie flat ear sheets extending reversely over the base of the holder, each of said ear sheets terminating in a free edge located parallel to and a predetermined distance inboard from the end edge, each ear sheet having a line of score at its bottom face parallel to the end edge and adjacent the free edge of the ear sheet to define a concave down normal dihedral angle, the mat holder further having pad means on its upper face terminating in an edge outboard of but adjacent to the free edge of each ear sheet and having substantially the thickness of the ear sheet; and, a tufted rug-like element of substantially rectangular conformation having side edges within the confines of the side edges of the mat holder and end edges within the confines of the ear sheets, respectively, the rug-like element overlying the mat holder in the regions inboard the ear sheets and in the regions overlaid by the ear sheets being sandwiched between the ear sheets and the base.

2. A non-skid non-trip flush floor mat assembly comprising in combination: a mat holder of flexible tacky plastic sheet material and forming a main flat sheet base portion of substantially rectangular shape having side and end edges, at least the two end edges being defined by the sheet material folded back in a sharp conformation to define a pair of lie flat ear sheets extending reversely over the base of the holder, each of said ear sheets terminating in a free edge located parallel to and a predetermined distance inboard from the end edge, each ear sheet having a line of score at its bottom face parallel to the end edge and adjacent the free edge of the ear sheet to define a concave down normal dihedral angle, the mat holder further having spaced pads on its upper face located in spaced relation to the free edge of each ear sheet and terminating in an edge outboard of but adjacent to the free edge of each ear sheet and having substantially the thickness of the ear sheet; and, a tufted rug-like element of substantially rectangular conformation having side edges within the confines of the side edges of

the mat holder and end edges within the confines of the ear sheets, respectively, the rug-like element overlying the mat holder in the regions inboard the ear sheets and in the regions overlaid by the ear sheets being sandwiched between the ear sheets and the base.

3. A non-skid non-trip flush floor mat assembly comprising in combination: a mat holder of flexible tacky plastic sheet material and forming a main flat sheet base portion of substantially rectangular shape having side and end edges, at least the two end edges being defined by the sheet material folded back in a sharp conformation to define a pair of lie flat ear sheets extending reversely over the base of the holder, each of said ear sheets terminating in a free edge located parallel to and a predetermined distance inboard from the end edge and tapering inwardly from the end edge to said free edge, the mat holder further having spaced pads on its upper face located in spaced relation to the free edge of each ear sheet and terminating in an edge outboard of but adjacent to the free edge of each ear sheet and having substantially the thickness of the ear sheet; and, a tufted rug-like element of substantially rectangular conformation having side edges within the confines of the side edges of the mat holder and end edges within the confines of the ear sheets, respectively, the rug-like element overlying the mat holder in the regions inboard the ear sheets and in the regions overlaid by the ear sheets sandwiched between the ear sheets and the base.

4. A non-skid non-trip flush mat holder for a tufted rug-like element of substantially rectangular conformation having predetermined length and width, the mat holder comprising in combination: a sheet of flexible tacky plastic material having side edges spaced by more than said predetermined width and end edges spaced by more than said predetermined length, the end edges being formed by reverse folds of the material to define overlying end ears, each of said ears tapering from the end edge and terminating in a free edge located parallel to and a predetermined distance inboard from the end edge, said distance being such as to space the free edges of the ears a distance less than the said predetermined length, each ear having a line of score at its bottom face parallel to the end edge and adjacent the free edge of the ear to define a concave down dihedral angle, the said sheet further having pad means on its upper face located between the free edges of the ears and terminating in edges outboard of but adjacent to the free edge of each ear and having substantially the thickness of the ear, whereby the rug-like element may be laid within the confines of the sheet in position overlying the portions of the same inboard the ears and in the regions of each ear sandwiched between the ear and the base.

5. A non-skid non-trip flush mat holder for a tufted rug-like element of substantially rectangular conformation having predetermined length and width, the mat holder comprising in combination: a sheet of flexible tacky plastic material having side edges spaced by more than said predetermined width and end edges spaced by more than said predetermined length, the end edges being formed by reverse folds of the material to define overlying end ears, the seating faces of the sheet adjacent each fold being secured together for a predetermined distance inboard each end edge terminating in a free edge located parallel to and a predetermined distance inboard from the end edge, said distance being such as to space the free edges of the ears a distance less than the said predetermined length, the said sheet further having pad means on its upper face located between the free edges of the ears and terminating in edges outboard of but adjacent to the free edge of each ear and having substantially the thickness of the ear, whereby the rug-like element may be laid within the confines of the sheet in position overlying the portions of the same inboard the ears and in the region of each ear being sandwiched between the ear and the base.

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6. A non-skid non-trip flush mat holder for a tufted rug-like element of substantially rectangular conformation having predetermined length and width, the mat holder comprising in combination: a sheet of flexible thermoplastic tacky plastic material having side edges spaced by more than said predetermined width and end edges spaced by more than said predetermined length, the end edges being formed by reverse folds of the material to define overlying end ears, the seating faces of the sheet adjacent each fold having a weld extending a predetermined distance inboard each end edge terminating in a free edge located parallel to and a predetermined distance inboard from the end edge, said distance being such as to space the free edges of the ears by a distance less than the said predetermined length, each ear having a line of score at its bottom face parallel to the end edge and adjacent the free edge of the ear to define a concave down dihedral angle, the said sheet further having

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pad means on its upper face located between the free edges of the ears and terminating in edges outboard of but adjacent to the free edge of each ear and having substantially the thickness of the ear, whereby the rug-like element may be laid within the confines of the sheet in position overlying the portions of the same inboard the ears and in the region of each ear being sandwiched between the ear and the base.

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WALTER A. SCHEEL, *Primary Examiner.*