

Sept. 8, 1959

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2,902,794

FURNITURE SUPPORT MEANS

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2 Sheets-Sheet 1

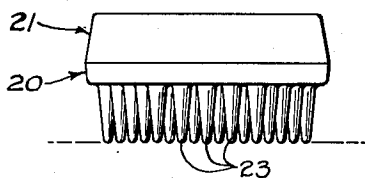


Fig. 1

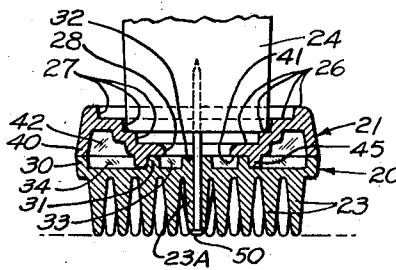


Fig. 2

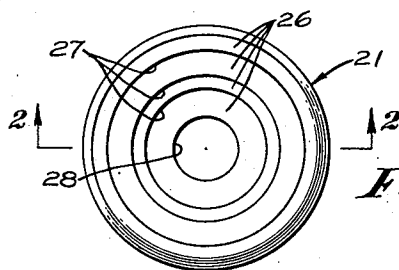


Fig. 3

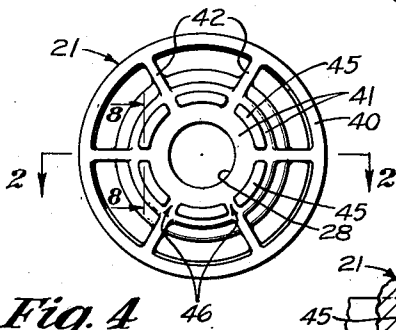


Fig. 4

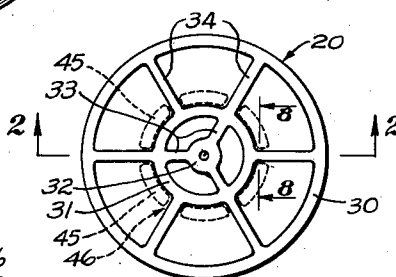


Fig. 5

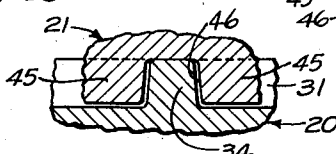


Fig. 8

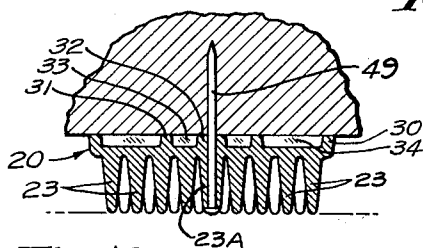


Fig. 7

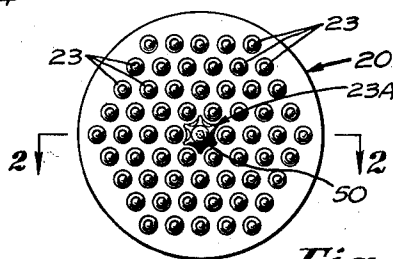


Fig. 6

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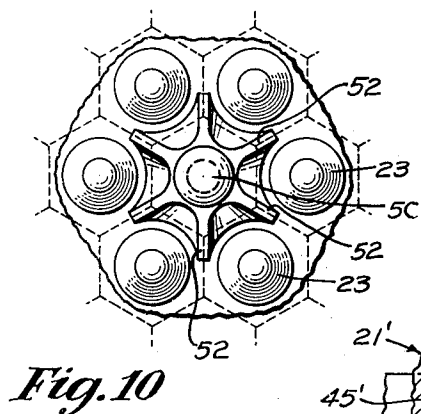
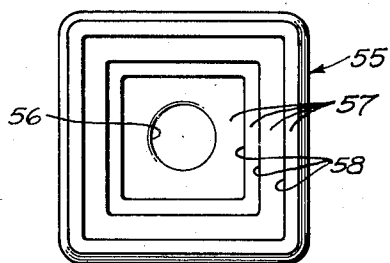
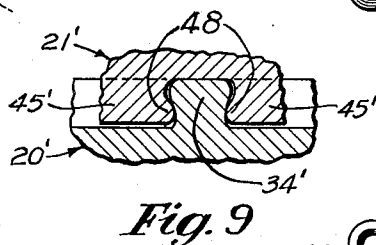
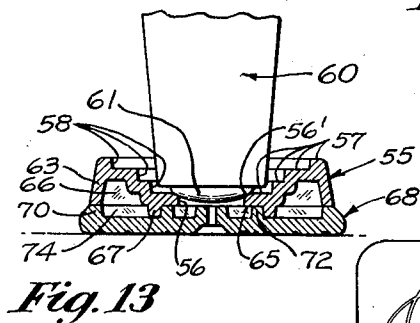
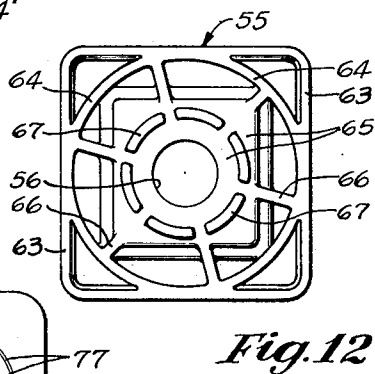
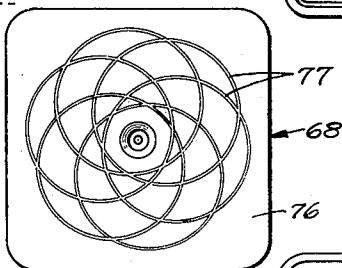
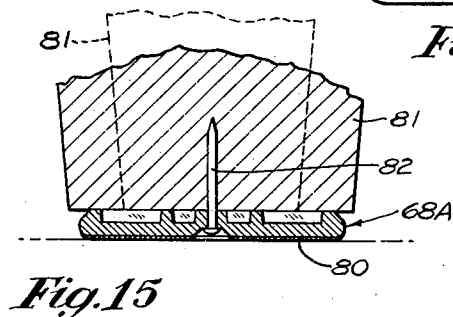
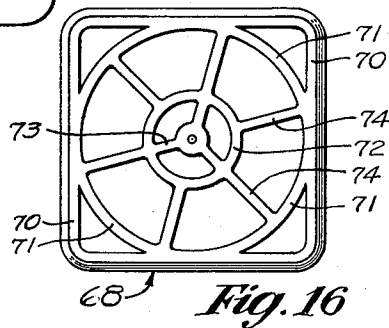
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FURNITURE SUPPORT MEANS

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11 Claims. (Cl. 45—137)

This invention has to do with furniture supports or pedestals commonly interposed between the legs or other bottom surfaces of furniture and the furniture-supporting floor surfaces.

It is common practice in the interest of economy in production and simplicity of purpose to manufacture furniture supports of a single homogeneous material, such as glass, rubber, plastics or the like. Such articles cannot meet many general requirements pertaining to distribution of the furniture load over a given area of floor material and nature of engagement with a given floor material. For example, the common glass caster cup has sufficient rigidity to evenly distribute the localized load imposed thereon to the floor surface, but the bottom surface of the cup does not meet all requirements regarding the nature of engagement with any given floor surface, such, for example, as antiskid quality on a hard-surfaced floor. On the other hand, a caster cup made of a rubber-like material may provide the antiskid requirements but lacks the stiffness required for distributing a localized furniture load thereon to a larger area of floor surface. While it is economically feasible to manufacture such articles for large distribution and sale, it would be considerably less feasible to manufacture such articles of two or more parts or materials (such as a glass cup with rubber bottom surface), as would be necessary to meet given requirements. When one considers the large number of such articles that a manufacturer would have to produce to meet all requirements regarding the number of different sizes and shapes of furniture legs multiplied by the number of different types of floor surface conditions in addition to the skid and antiskid requirements, the economic feasibility of such production becomes unsound, particularly when more than one material per single article is involved.

An object of the present invention is to provide means by which most of these requirements can be met economically from the standpoint of manufacture by providing for a large number of combinations from a minimum number of basic parts. In this connection it is an object to provide furniture supports comprised of an upper part or adapter and a lower part or base, the adapter being designed to receive the load imposed upon it by the furniture and to distribute said load substantially uniformly to the base which in turn bears upon the floor or floor-covering material. A further object in this connection is to provide a construction adapted to permit of the base being of one material and the adapter of another material.

Another object is to provide interengaging and/or interlocking means between the adapter and the base that will axially center the one part relative to the other part as well as prevent relative rotation of the two parts. A further object is to provide means which serve to transfer lateral loads from one part to the other part, such lateral loads often resulting from the use of furniture by persons.

It is also an object to provide means whereby a plurality of adapters and a plurality of bases, each serving at least one function regarding such as adaptability to

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certain sizes of furniture legs and certain floor coverings, respectively, may be used interchangeably. Another object is to provide bases having a two-fold function whereby, in addition to their use in connection with adapters, the bases may be used alone as, for instance, by direct attachment to, or engagement with, a furniture leg.

Still another object is to provide an article wherein the various wall sections are of approximately the same thickness thereby to enable superior and rapid production molding thereof.

A more detailed description of the invention, wherein other objects and advantages will become apparent, will be given in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation of a two-part furniture support comprising an adapter and a base;

Fig. 2 is a vertical medial cross section of the furniture support shown in Fig. 1 and taken substantially on section lines 2—2 of Figs. 3, 4, 5, and 6;

Fig. 3 is a top plan view of the adapter of Fig. 1;

Fig. 4 is a bottom plan view of the adapter;

Fig. 5 is a top plan view of the base of Fig. 1;

Fig. 6 is a bottom plan view of the base;

Fig. 7 is a vertical medial cross section of a base shown attached directly to the bottom surface of a piece of furniture;

Fig. 8 is an enlarged fragmentary vertical cross section of the adapter and base taken in the plane of line 8—8 of Figs. 4 and 5;

Fig. 9 is a view similar to Fig. 8 but showing a modification thereof including provisions for an interlocking engagement between adapter and base.

Fig. 10 is a fragmentary enlargement of the central portion of Fig. 6;

Fig. 11 is a plan view of a rectangular adapter;

Fig. 12 is a bottom plan view of the adapter of Fig. 11;

Fig. 13 is a vertical medial cross section of the adapter of Fig. 11 mating with a base adapted for one type of hard-surfaced floor covering.

Fig. 14 is a bottom plan view of the base shown in Fig. 13;

Fig. 15 is a vertical section showing a modification of the base shown in Fig. 13; and

Fig. 16 is a top plan view of the base shown in Fig. 13 as well as that of Fig. 15.

More particularly describing the invention, referring first to Figs. 1—8, the furniture support illustrated in such figures comprises a base 20 and an adapter 21. The device as a whole is designed to receive a load as may be imposed by the leg of an article of furniture seated in the adapter and transfer the load evenly over a given area to the floor or a floor covering. The base 20 is provided with a plurality of closely spaced, blunt-tipped, rigid projections 23 which are adapted to separate and pass between the pile fibers of a rug or carpet (not shown) and rest on the backing thereof, as disclosed in my United States Letters Patent No. 2,301,385. As will later appear, various styles and designs of bases may be employed for use with different types of floor coverings and floor surfaces.

The adapter 21 is designed to receive a part of the furniture to be supported, such as the furniture leg 24 (Fig. 2), and for this purpose, the upper surface of the adapter is recessed or somewhat cup-shaped, preferably being stepped to provide a plurality of annular, concentric ledges 26. Between the ledges are substantially vertical shoulders designated 27. At the center is an opening 28. With the construction described it will be apparent that an adapter of a given size is suitable for receiving and centering furniture legs of different diameters.

It is a particular feature of the invention that I so de-

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sign the adapter and the base that the wall thicknesses at various sections thereof are substantially uniform, thereby making it possible to produce the articles uniformly by high speed production molding of plastics or other suitable materials. In order to achieve substantially uniform wall thickness and at the same time provide for interengagement and interlocking of the adapter and base, as well as provide for the proper transference of the load from the adapter to the base, and at the same time incorporate sufficient strength into the articles, I employ ribbed matching surfaces upon the upper side of the base and the underside of the adapter, respectively.

Referring to Fig. 5, the base is recessed to provide a circular outer rib 30 marginal to the periphery and an inner rib 31 spaced radially inward thereof. At the center is a substantially circular boss 32 from which three radial ribs 33 project to the inner rib. Between the circular ribs 30 and 31 I provide six radial ribs 34, three of which are aligned with ribs 33. The ribs just described provide flat bearing surfaces disposed in a common plane and thus are adapted to support corresponding ribbed portions of the underside of the adapter to be described.

Referring particularly to Fig. 4, which illustrates the underside of the adapter, it will be apparent that this also is recessed to provide a marginal or outer rim, designated 40. Inwardly of this is a flat, annular plateau 41. Six ribs 42 extend radially outward from the plateau to the outer rim, being equally spaced to register with ribs 34 of the base. The outer surfaces of the ribs 40 and 42 and plateau are disposed in a common plane. For the purpose of locking the adapter and base against relative rotative movement as well as against lateral displacement, I provide a plurality of arcuate lugs 45 which are shown in the form of an interrupted circular rib projecting downwardly below the plane of the surfaces of the ribs. The spaces 46 between the lugs 45 are disposed to register with and receive the radial ribs 34 of the adapter, the lugs being received between the ribs 34. Also, the inner diameter of the interrupted or segmental rib formed by the lugs 45 is sufficiently large to receive the inner rib 31 of the base.

With the construction described it will be apparent that, when the adapter and base are assembled, a load imposed upon the adapter is distributed and imposed relatively uniformly over the ribbed surface of the base and that the two elements are locked against relative rotation or lateral displacement to maintain proper orientation between the mutual load bearing surfaces of the base and adapter. It will also be apparent that the ribs of the adapter form a grid that presents a load transfer surface that will bear against and substantially uniformly transfer furniture loads to the upper surface of the base. In like manner, it will also be apparent that the ribs of the base form a grid that presents a load transfer surface designed to receive the load imposed upon it by the adapter.

If desired, I may also provide for releasably securing the adapter to the base by providing a dovetail engagement between the lugs of the adapter and the ribs of the base where the material of one of the elements is sufficiently resilient to yield slightly. Thus in Fig. 9, I show the ribs of the base, designated 34', somewhat bulbous in cross section and received in complementary-shaped end portions 48 on lugs 45'.

Also, it should be noted that the flat upper bearing surface area provided by the ribbed portion of the base enables the base alone to be used in conjunction with a furniture leg or the like and directly attached thereto as by a nail 49 as shown in Fig. 7. In this connection it may be pointed out that the centermost projection 23A of the base is tubular and made somewhat shorter than the other projections so that when a nail is inserted in the tubular projection and driven into the furniture leg the head of the nail will lie substantially in the plane of the ends of the other projections or thereabove. To im-

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part added strength thereto, the central projection is formed to taper outwardly at the base (see Fig. 10) in a starshaped form with integral buttress portions 52. This provision also makes possible the optional use of a nail 50 for attachment of both adapter and base to a furniture leg as shown in Fig. 2.

Each projection 23 is provided with a blunt or rounded tip providing an elemental bearing area which is adapted to separate and pass between the pile fibers and bear directly upon the woven or other backing of a pile-surfaced floor covering. Thus the furniture load imposed upon the furniture support is transmitted to the floor covering via numerous elemental bearing areas, each contributing a portion of the total load to a small area of the floor covering. When lines are constructed perpendicular to and through the midpoints of lines connecting the centers of adjacent projections, the small areas bounded by broken lines in Fig. 10 are the result, each area representing an elemental load-zone area on the floor surfacing material upon which is imposed the portion of the furniture load contributed by the elemental load-bearing area of the projection centered within it. Likewise, the head of nail 50 presents an elemental load-bearing area centered within elemental load-zone area 52. A plurality of such elemental load-zone areas, as for example the seven areas indicated in Fig. 10, may be termed a composite load zone area which may or may not include a projection 50'. Thus, the total load-zone area, associated with all of the projections on the furniture support, may be considered as comprised of several or many composite load-zone areas, one or several of which may contain a projection 23A.

Referring now to Figs. 11-16, in Fig. 11, I show a rectangular adapter 55 having a central opening 56 and a stepped cupped upper side including the ledges 57 and the intervening upright shoulders 58. The ledges are symmetrical about the center of the device and are increasingly larger from bottom to top. In Fig. 13 a furniture leg 60, having a glide button 61 thereon is shown resting in the adapter, the glide being supported upon the beveled margin 56' surrounding opening 56. If the furniture leg is flat on the bottom, it is supported upon one of the ledges 57, depending upon the size of the leg.

The bottom of adapter 55 (Fig. 12) is provided with a recessed undersurface formed to define an outer rib 63 marginal to the edge of the device, a series of arcuate ribs 64 which merge with the outer rib, and, if continued, would form a circular rib. Intermediate the ribs 64 and a centrally disposed rectangular plateau area 65 are a plurality of radially extending ribs 66. As in the previously described form of the invention, a plurality of arcuate lugs 67 project below the plateau surface 65, forming an interrupted or segmental rib.

I contemplate that various types of base members can be used with the different adapter members according to the floor surface and the requirements of the user. For example, in Fig. 13, I show a base 68 which is adapted to rest upon a flat floor surface. The material of which the base is formed will depend upon the qualities desired as, for example, if it is desired that the base slide relatively easy over the particular surface upon which it is used, the base may be made of a material giving this characteristic where on the other hand if a nonskid type of base is desired, the base will be made of a material which would have this characteristic. The base itself is generally rectangular to correspond to the adapter shown in Fig. 11, and on its upper surface is ribbed as best shown in Fig. 16. The base thus has an outer rib portion 70, arcuate ribs 71, a central inner circular rib 72, inner radial ribs 73, and outer radial ribs 74. It will be apparent that when the adapter and base are assembled, as shown in Fig. 13, the same interrelationship exists between the parts as was described in connection with the circular form of the invention shown in Figs.

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1-8, namely, that the ribs of the adapter register with and are supported upon the ribs of the base and that the lugs of the adapter project between the radial ribs 74 of the base to lock the parts.

In Fig. 14 I show the bottom surface 76 of the base 68 as being provided with a plurality of intersecting circular grooves 77 for the purpose of trapping sand or similar particles caught between the bottom surface of the base and the floor.

Fig. 15 discloses a base 68A identical to that shown in Fig. 13 except that the bottom surface has been provided with a relatively soft rubber-like or cork-like coating 80 adaptable where the material of the base is relatively hard and a softer floor-engaging material is desired. In Fig. 15 I also show the base attached directly to a furniture leg 81 by means of a nail 82.

It is to be noted that adapters 21 and 55 shown in Figs. 2 and 13, respectively, may be used interchangeably with bases 20 and 68. It is also to be noted that while base 20 has been described as circular and appearing in plan as shown in Fig. 5, base 20 may also be rectangular and have a grid configuration substantially as shown in Fig. 16. On the other hand, base 68 (Fig. 13) may also be circular and have a grid configuration substantially as shown in Fig. 5.

It will be apparent from the foregoing description that the rib and recess formation employed in both the adapters and bases provides articles each of which has a relatively uniform sectional wall thickness, thereby enabling superior and high speed production molding of the articles from a variety of materials. Furthermore, the ribbed or grid construction provides adequate strength and serves as a means of transferring the load imposed upon the adapter to the base and evenly distributing it thereover. Thus I am able to use a relatively soft or resilient base, such as may be required for a particular type of floor, in conjunction with a relatively hard adapter suitable for evenly distributing the weight imposed upon it over the base. It will also be apparent that with inter-fitting bases and adapters made from only a limited number of different materials, a very large number of base-adapter combinations are possible.

Although I have illustrated and described preferred forms of my invention, I contemplate that various changes and modifications can be made therein without departing from the invention, the scope of which is indicated by the following claims.

I claim:

1. Furniture support means adapted to be interposed between a furniture leg or the like and a supporting surface, comprising a base member, said member including a body providing means on its undersurface for engaging the supporting surface, said body having a recessed upper side defining ribbed portions presenting bearing surfaces disposed in a common plane, and an adapter element including a body of substantially rigid material providing a recessed upper side to receive a furniture leg, said body of said adapter element having a recessed underside defining ribbed portions presenting bearing surfaces disposed in a common plane and to register with said bearing surfaces of said base member whereby a vertical load imposed on said adapter element is transferred through the ribbed portions thereof to the bearing surfaces of said base member.

2. Means as set forth in claim 1 in which interengaging means is provided on said adapter element and said base member to prevent relative lateral movement thereof and relative rotation thereof, when assembled.

3. Means as set forth in claim 1 in which interengaging means is provided on said adapter element and said base member to prevent relative lateral movement thereof and relative rotation thereof, when assembled, said interengaging means including a segmental circular rib depending from the body of said adapter member below said

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bearing surfaces and receiving certain of the ribs of said base member.

4. Means as set forth in claim 1 in which the recessed upper side of said adapter is stepped providing a plurality of ledges of different size for the reception of furniture legs of different sizes.

5. Means as set forth in claim 1 in which the ribbed portion of the body of said base member includes a peripheral rib and a plurality of radial ribs and in which said interengaging means comprises, in part, a circular segmented rib projecting beyond the plane of the ribbed portions of said adapter for projection between the radial ribs of said base member.

6. An adapter for use in combination with a base member adapted to rest on a supporting surface, and having an adapter-receiving upper surface, comprising a substantially rigid body having an undersurface adapted to rest on said base member, said body having a stepped, recessed upper surface adapted to receive furniture legs of different sizes.

7. Furniture support means adapted to be interposed between an article of furniture and a supporting surface, comprising a base member having a bottom surface formed to rest on the supporting surface, and a substantially rigid adapter element adapted to rest on said base, said element having a recessed upper surface to receive a furniture leg or the like, the upper side of said base and the underside of said adapter being formed to provide free-fitting interengaging means for holding said member and said element, when assembled, with said element centered on said member.

8. A furniture leg support adapted to be interposed between a supporting surface and a portion of an article of furniture comprising a body presenting means on its underside for engaging said supporting surface, said body having an upper side presenting bearing surface adapted to receive a load imposed thereon, said means on the underside of said body comprising a plurality of closely spaced, blunt-tipped, rigid projections adapted to separate and pass between the pile fibres of a pile-surfaced floor covering with the tips thereof bearing upon the backing of the same, one of said projections being tubular and shorter than the remainder of said projections whereby to receive a nail or the like for securing said body to a furniture leg with the head of the nail being in the plane of the tips of the remainder of said projections.

9. A furniture leg support adapted to be interposed between a supporting surface and a portion of an article of furniture, comprising a body-presenting means on its under side for engaging said supporting surface, said means comprising a plurality of closely-spaced, blunt-tipped, rigid projections adapted to be separate and pass between the pile fibres of a pile-surfaced floor covering with the tips thereof bearing upon the backing of the same, one of said projections being tubular and shorter than the remainder of said projections whereby to receive a nail or the like for securing said body to a furniture leg with the head of the nail being in the plane of the tips of the remainder of said projections, said body having a recessed upper side defining ribbed portions presenting bearing surfaces disposed in a common plane and adapted to receive a load imposed thereon.

10. An adapter element for use in combination with a base member providing a grid surface area on its upper side, comprising a substantially rigid body formed to provide an upper side with a stepped recess, the under side of said body being recessed in a manner to define a grid-like pattern of bearing surfaces in a common plane adapted to register with the grid surface area of the base member whereby to distribute and transfer the load imposed on said body to the grid surface area of the base member and said body being recessed in a manner to provide said body with a substantially even cross-sectional wall thickness.

11. A furniture leg support adapted to be interposed

between a supporting surface and a portion of an article of furniture comprising a body presenting means on its underside for engaging said supporting surface, said body having an upper side presenting a bearing surface adapted to receive a load imposed thereon, said means on the underside of said body comprising a plurality of closely spaced, blunt-tipped, rigid projections adapted to separate and pass between the pile fibres of a pile-surfaced floor covering with the tips thereof bearing upon the backing of the same, one of said projections including a nail or

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the like for securing said body to a furniture leg with its tip in the plane of the tips of the remainder of said projections.

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