United States Patent

Hill

[15] **3,670,360**

[45] **June 20, 1972**

[54] CARPET BINDER BAR

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[73] Assignee: **Roberts Consolidated Industries, Inc.,** Industry, Calif.

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[52] **U.S. Cl.** **16/16,** 52/385

[51] **Int. Cl.** **A47g 27/04**

[58] **Field of Search** 16/4–16; 52/385–387

[56] **References Cited**

UNITED STATES PATENTS

2,554,674	5/1951	Karas	16/16
2,700,584	1/1955	Hobbs	20/94
874,514	12/1907	Lindow	287/94

Primary Examiner—Bobby R. Gay

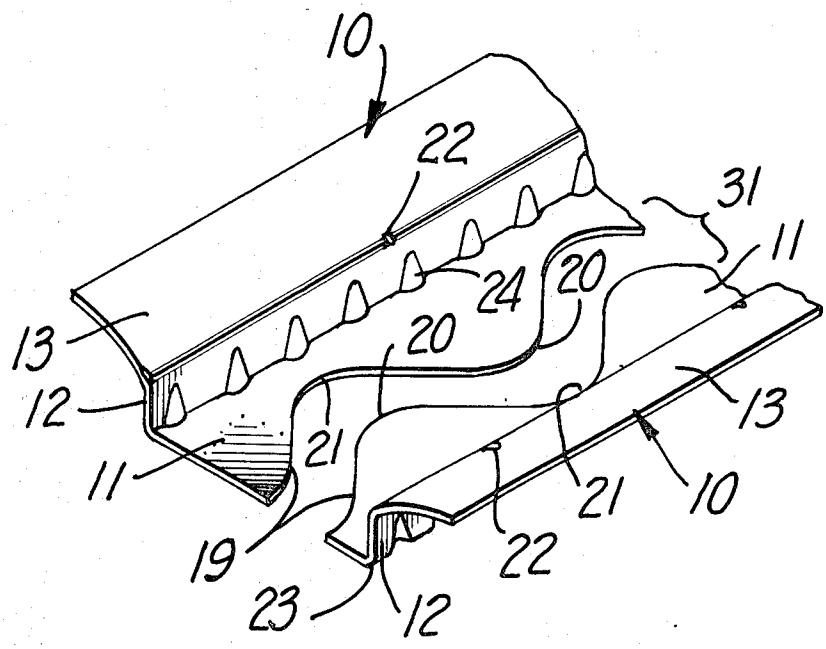
Assistant Examiner—Doris L. Troutman

Attorney—Harris, Kiech, Russell & Kern

[57] **ABSTRACT**

A concealed carpet binder bar used in conjunction with a tackless carpet strip for securing and concealing the raw edge of a carpet. The bar has a horizontal base portion, a substantially vertical portion upwardly extending from the inner edge of the base portion, the vertical portion being embossed with a plurality of vertical gussets along the length of the bar, each gusset extending from the inner edge of the base portion, and a flange portion laterally extending from the upper edge of the vertical portion. The carpet is anchored on the tackless strip, the edge is folded around the outer edge of the flange portion, and the flange portion is bent downwardly to secure and conceal the carpet edge. In another embodiment of the bar, the outer edge of the base portion is scalloped to provide alternating areas of maximum width and minimum width. In still another embodiment of the bar, the flange portion is convexly curved across its width.

10 Claims, 7 Drawing Figures



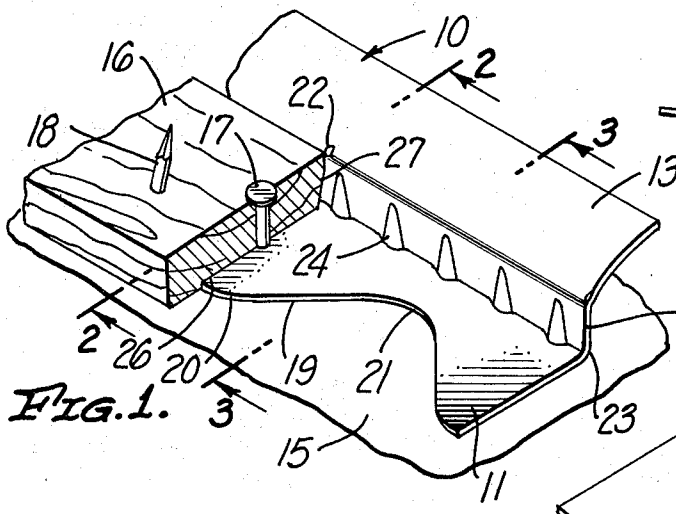


FIG. 1.

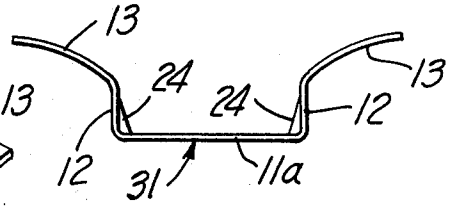


FIG. 4.

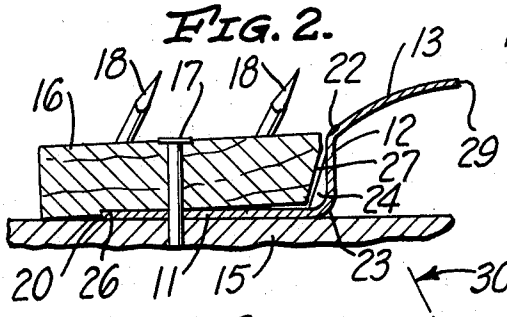


FIG. 2.

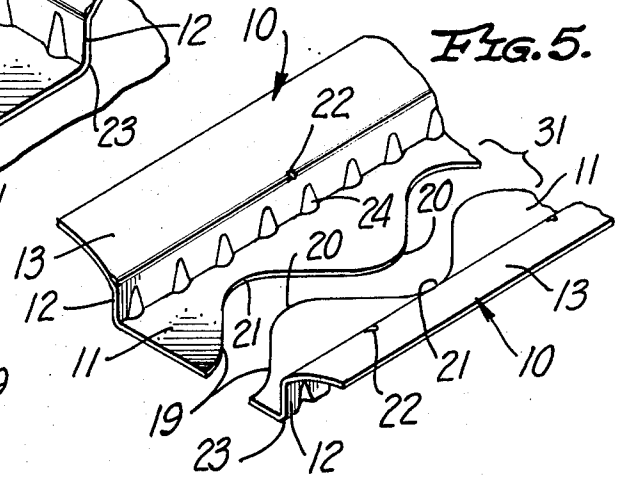


FIG. 5.

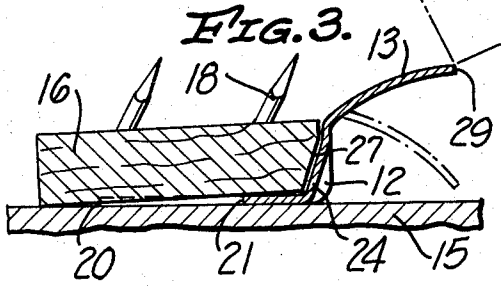


FIG. 3.

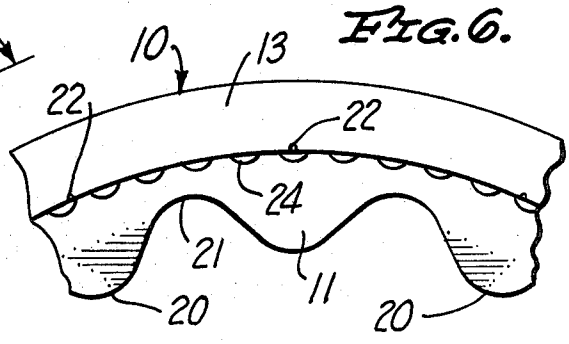


FIG. 6.

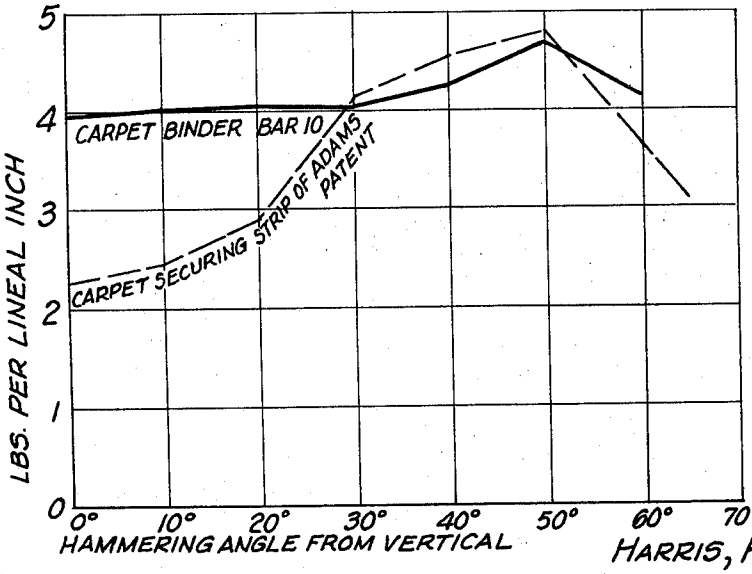


FIG. 7.

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CARPET BINDER BAR

BACKGROUND OF THE INVENTION

The present invention is directed to a concealed carpet binder bar for securing and concealing the edge of a carpet. More particularly, the present invention is directed to a carpet binder bar which is employed at the edge of a carpeted area such as in a doorway, around a fireplace, or at a point in a room or lobby where the carpeted area ends and a noncarpeted area begins, such as an area covered with linoleum, brick, stone, or the like.

Many devices have been employed and are still employed for securing and concealing the edges of carpets. The most common method was to turn and tack the carpet, i.e., to reverse fold or double edge the edge of the carpet and tack through the double thickness. This method was always considered unsatisfactory for two reasons: (1) the result was unsightly, and (2) the carpet was difficult to remove. In Roberts, U.S. Pat. No. 2,238,946 a means is described for securing and concealing the edge of a carpet by securing a tackless carpet strip to the floor adjacent the wall boards, securing the edge of the carpet to the tackless strip and concealing the upper edge of the carpet with a quarter round or other type of molding which was either nailed to the wall board or to the tackless strip. An alternative method is to tuck or compress the raw edge of the carpet into a small space intentionally left between the tackless strip and the wall board when the tackless strip is secured to the floor. This method has enjoyed a considerable commercial success; however, it has never been used in a doorway area or around a flush fireplace hearth, etc. because it cannot conceal the rough edge of the carpet without employing molding which would be a dangerous and unattractive protuberance on the floor area. W. L. Bonnell, U.S. Pat. No. 2,258,314 discloses an edge molding device for securing and conceling a carpet edge. This device is particularly applicable for securing a carpet edge in a doorway and the like. However, the device has one advantage, it is not concealed and distracts from the appearance disadvantage, the carpet edge. Another method of securing and concealing the edge of carpets is disclosed in Watson U.S. Pat. No. 2,051,191. This patent discloses a fastener consisting of a metal strip to surround the carpet area. The carpet edge is doubled over the outer edge of the strip, thus concealing the edge of the carpet. The outer edge of the strip contains sharp teeth against which the edge of the carpet in its reverse fold is firmly caught, thus securing the rug. This particular fastener never enjoyed commercial success for at least three reasons: (1) it was found that it was difficult to stretch and double under the carpet at the same time employing the fastener, (2) the finished edge did not have a particularly attractive appearance, and (3) the fastener only secured the edge of the rug to a marginal extent. Adams, U.S. Pat. No. 2,677,145 discloses a carpet-securing device which has enjoyed considerable commercial success. The disclosed device consists of a metal strip having a Z-profile with its midstroke or midsection vertical rather than diagonal. A tackless carpet strip is mounted on the base of the Z and flush against the vertical midsection. The carpet is anchored on the tackless strip and the carpet edge is then folded or doubled over the upper horizontal portion of the Z to conceal the edge. The top flange portion is then bent downward to secure the edge of the carpet. Although this securing device has been very successful, it has certain inherent disadvantages. The upper flange portion of the metal strip is bent down by hammering, through the carpet, the outer edge of the upper portion. It has been found that the effective hammering angle is critical, it lies in a narrow range of about 15°, and is awkwardly located. The proper hammering angle falls between a first imaginary line drawn through the outer edge of the upper flange portion and the bottom edge of the vertical midsection and a second imaginary line drawn between the outer edge of the upper flange and the top of the vertical midsection. If the metal strip is hammered at an angle below this second imaginary line, the upper flange is bent upward and backward. If the metal strip is

hammered at an angle above the first imaginary line, the upper flange together with the vertical midsection itself are bent downward, the bend occurring primarily at the base of the vertical midsection , resulting in an excessively wide and more "flimsy" clamping flange. In addition, the carpet above this flange has no underlying support and is rapidly worn due to excessive movement against the rigid edge of the adjacent tackless strip. To minimize the downward bending of the vertical midsection of the metal strip during hammering, the strip is generally made of fairly heavy or thick metal such as 30 mils aluminum. This creates additional problems because the tackless strip unlike FIG. 2 in the Adams patent is not fully supported across its width by the base portion of the metal strip. During the carpet stretching operation and after traffic has crossed this portion of the carpet edge, the unsupported edge of the tackless strip is forced downward to the supporting surface, i.e., the floor, raising the inner edge of the tackless strip, i.e., the edge adjacent the vertical midsection, upward. Excessive tilting of the tackless strip tends to loosen the nails, or other fastening means securing the metal strip and tackless strip to the floor and weakens the overall security. It also raises the carpet adjacent the inner edge, causing the carpet to be unevenly worn and destroying the neat appearance of the finished edge. Another carpet-anchoring device is disclosed in Goodemoot U.S. Pat. No. 2,587,836. This anchoring device consists of a channel member having two upturned sides of different width. The side with the greater width has an inwardly bent end which partly obstructs the open end of the channel. The side with the greater width is secured to the floor with its inwardly bent edge adjacent a wall. The other side of the channel member has upwardly projecting prongs upon which a carpet is anchored. The edge of the carpet is folded around the outer end of the other side and into the open end. This device is limited to anchoring and concealing the edge of a carpet adjacent a wall area, and cannot be used in doorways, around fireplace hearths, etc.

Another disadvantage of the above-described means for securing the edge of a carpet arises from the fact the means cannot readily be used in preparing a curved carpet edge. In each case the tackless strip, if used, and the metal strips or channels, must be cut in short lengths to provide a curved edge. Unless time is taken to exercise care, which is costly, the resulting edge is not smoothly curved and has a ragged and sloppy appearance.

BRIEF SUMMARY OF THE INVENTION

The present invention is directed to a device for securing the edge of a carpet on a supporting surface, comprising a metal strip having a horizontal base portion adapted to be mounted on its bottom side on the supporting surface and adapted to support on its top side on the supporting surface and adapted to support on its top side a tackless carpet strip, a substantially vertical portion extending upwardly from the inner edge of said base portion, said vertical portion being embossed with a plurality of vertical ridges lengthwise along said metal strip, said vertical ridges extending from the inner edge of said base portion, and a substantially horizontal flange portion extending outwardly from the upper edge of the vertical portion, the flange portion being adapted to receive the edge of a carpet which is reversibly folded over, around, and under the flange portion, the flange portion being bendable downward toward the supporting surface to conceal and secure the edge of the carpet. In a preferred embodiment of the present invention the horizontal base portion has a nonlinear outer edge providing the base portion with a plurality of areas of maximum width lengthwise along the strip; and means on the flange portion, opposite the areas of maximum width, for indicating the areas of maximum width.

An object of the present invention is to provide a concealed carpet-securing bar for concealing and securing the raw edge of a carpet. More particularly, it is an object to provide a concealed carpet-securing bar which will provide a relatively smooth supporting surface for the edge portion of a carpet.

Another object of the present invention is to provide a carpet-securing bar that will provide uniform gripping strength of a carpet edge over a wide range of hammering angles employed in bending downward the carpet-securing flange of the bar. More particularly, it is an object to provide a carpet-securing bar which has a selectively bendable carpet-securing flange portion and nonbendable base and vertical portions.

Another object of the present invention is to provide a carpet-securing bar that can be readily curved with minimal warping, deforming or stressing.

Another and further object of the present invention is to provide a means of preparing two carpet-securing bars from a single metal strip by cold-drawing and deforming with minimal stressing, warping and deforming of the final product. More particularly it is an object to provide a means of preparing carpet-securing bars using at least 15 percent less square footage of raw metal strips without reducing the maximum width of the finished carpet-securing bar.

An even further object of the present invention is to provide a carpet-securing bar that can be prepared from thinner metal sheets than the carpet-securing strip presently used without significant reduction in functional characteristics or strength.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a fragmentary perspective view of a carpet binder bar of the present invention supporting a tackless carpet strip;

FIG. 2 is an enlarged sectional view of a carpet binder bar supporting a carpet tackless strip taken along lines 2—2 of FIG. 1:

FIG. 3 is an enlarged sectional view of a carpet binder bar of the present invention supporting a tackless carpet strip taken along line 3—3 of FIG. 1;

FIG. 4 is a cross-sectional view of a strip of metal that has been formed into carpet binder bar blank;

FIG. 5 is a fragmentary perspective view of the carpet binder bar blank of FIG. 4 that has been wave-sheared to form two carpet binder bars of the present invention;

FIG. 6 is a top view of a carpet binder bar of the present invention that has been curved; and

FIG. 7 is a graph demonstrating the holding strength of the carpet binder bar of the present invention and the carpet-securing device of J. C. Adams, U.S. Pat. No. 2,677,145 in pounds per linear inch with respect to the hammering angle, from the vertical, used in bending down each securing flange of the devices.

THE PREFERRED EMBODIMENT OF THE PRESENT INVENTION

Referring to the drawings, a carpet binder bar **10** of the present invention is illustrated in FIG. 1. The bar **10** is a metal strip having a horizontal base portion **11**, a substantially vertical upwardly extending portion **12** and a substantially horizontal laterally extending flange portion **13**. The width of the flange portion **13** is greater than the height of the vertical portion **12**. The base portion **11** is adapted to be supported on a supporting surface **15**, and is adapted to support a tackless carpet strip **16** on its top surface. The edge of front side **27** of the strip **16** is beveled complementary with the gussets **24** so that the upper edge of the side **27** and the upper edge of portion **12** are closely aligned (see FIG. 2). The tackless strip **16** and the bar **10** are secured to the supporting surface **15** by a plurality of nails **17**. The carpet strip **16** has a plurality of prongs **18** extending upward and angled toward the flange portion **13**. The base portion **11** has a scalloped edge **19** with a plurality of peaks **20** which provide the base portion with a plurality of areas of maximum width and a plurality of valley portions **21** which provide the base portion with a plurality of areas of minimum width. Preferably the maximum width of the base portion **11** is greater than the width of the flange portion **13** and the minimum width is less than the width of the flange portion **13**. The flange portion **13** is downwardly or convexly curved across its width, that is, the upper surface of the flange is convexly curved and the lower surface is concavely curved. The upper surface of the flange portion has a plurality of scored markings **22** which are opposite the peaks **20**. In an alternative embodiment of the invention (not shown), the scored markings can be placed opposite the areas of minimum width, that is the valley portions **21**. In such an embodiment, the peaks **20** are indirectly indicated; the peaks are located on the base portion **11** midway between any two consecutive scored markings on the flange portion **13**. The vertical portion **12** extends upwardly from the inner edge **23** of the base portion **11**. A plurality of vertical gussets **24** are embossed on the inner surface of the vertical portion **12** along the length of the bar **10**. Each gusset **24** extends from the inner edge **23** of the base portion **11**.

Referring to FIG. 1, the carpet binder bar can be employed in the following fashion. The bar **10**, supporting a strip **16** with its beveled side **27** adjacent the gussets **24**, is positioned in the planned periphery of the carpet area with the flange portion **13** facing outwards, that is away from the carpeted area. The strip **16** and bar **10** are nailed or otherwise secured to the supporting surface **15**; the base portion **11** of the bar **10** is nailed in an area of maximum width, i.e. opposite a scored marking **22**. The force exerted on the tackless strip **16** when the nails **17** are driven home causes the bottom side of the strip, which is made of a relatively soft wood, to be indented by the peaks **20**. Since the peaks **20** only provide intermittent support for the outer edge portion of the strip **16**, and the nails **17** are driven through the areas of the peaks, the forces from hammering are concentrated in the areas of the peaks, thus causing deeper indentions **26** in the bottom side of the strip by the outer edge **19** of the bar **10** than are obtained from conventional carpet securing metal strips having a base portion with a straight or linear outer edge. The deeper the indentions **26** with respect to a given thickness or gauge for the base portion **11**, the flatter or smaller the offset angle for the strip **16** will be. This is very desirable, since smaller angles of incidence provide a stronger and more attractive finished carpet binder structure. Due to the relative thinness of the metal bar **10** and the indentions **26** on the bottom side of the strip **16**, the strip **16** is set off at a very small angle from the surface **15** (about 3°) with its lower front edge **27** raised only slightly above the top side of the base portion **11**; this is best illustrated in FIGS. **2** and **3**.

The edge of the carpet (not shown) is stretched and impaled on prongs **18** of the tackless strip. The edge of the carpet is then trimmed and turned under the flange portion **13**. The flange portion **13** is bent downward by hammering, through the carpet, the outer edge **29** of the flange portion (see FIG. 3). The tip **29** can be hammered at an angle over a wide hammering angle range **30** (more than a 90° range). The gussets **24** strengthen the portion **12** and prevent this portion from being bent backwardly or downwardly during the bending or hammering step. The bending of the flange portion **13** is complete when the edge of the carpet is secured to the supporting surface **15**.

The carpet binder bar **10** of the present invention is prepared from a flat strip of metal, such as 0.025-inch aluminum strip. The metal strip is cold-drawn and deformed by progressive tooling with deforming means known to the art to yield a formed metal strip or carpet-securing bar blank **31** having a profile illustrated in FIG. 4. The formed metal strip or blank **31** has a horizontal base portion **11*a***, righthand and lefthand upwardly extending vertical portions **12** and righthand and lefthand laterally extending flange portions **13**. The vertical portions **12** are embossed with a plurality of gussets **24**.

Referring to FIG. 5, the formed metal strip or blank **31** is wave-sheared lengthwise along the base portion **11*a*** with metal shear means to produce two carpet binder bars **10**. During the shearing step, or prior or subsequent thereto, the flange portions **13** can be indented with marking indentures **22** to mark the peaks **20** of the base sections **11**. The total material needed for the two bars is less than twice the maximum dimensions of each bar due to the overlapping scallops.

By this method the width of the raw metal strip, i.e., the starting strip, has been reduced by more than 15 percent without reduction of the maximum width of the finished carpet binder bar **10**.

Referring to FIG. **6**, the carpet binder bar **10** of the present invention is readily curved without deforming, warping, or stressing the bar **10**. Only when the bar **10** is sharply curved is a warping or deforming of the bar noticed, and then it is chiefly limited to the flange portion **13** and does not affect the appearance or securing strength of the finished carpet edge.

Referring to FIG. **7**, the gripping strength of the carpet binder bar **10** of the present invention is compared with the gripping strength of the carpet-securing strip described in J. C. Adams, U.S. Pat. No. 2,677,145 with respect to the hammering angle employed in bending the carpet-securing flange of each device (the hammering angle is measured from the upper vertical). The carpet binder bar **10** is made from 0.025-inch aluminum strip and the carpet-securing strip of Adams patent is made from .030-inch aluminum strip. The graph clearly shows that gripping strength of the carpet binder bar of the present invention is not significantly affected by the hammering angle over a 60° range. In sharp contrast, the gripping strength of the carpet-securing strip of the Adams patent is significantly affected by the hammering angle and varies greatly over a hammering angle range of 65°.

Although the preferred embodiment of the present invention has been described above, it is not intended that the above description be a limitation on the present invention. For example, the outer edge **19** of the base portion **11** can be shaped a variety of ways to provide a plurality of alternating areas of maximum and minimum width. Other suitable shapes include sawtooth outer edges, squared-off rectangular tooth-shaped edges, and the like. Other means besides marking indentations **22** can be employed to mark the areas of maximum width on the flange portion **13**, such as dye or paint marks, inscribed lines, decals, and the like. Alternatively the flange can be marked to indicate the areas of minimum width or each of the areas of maximum width and minimum width on the base portion of the carpet binder bar. The present invention is not limited to any particular means for securing the carpet-securing bar **10** to the supporting structure **15**. The bar **10** can be secured to the supporting structure **15** by adhesive material such as adhesive transfer tape, liquid adhesive and glue, or bolts, screws, staples or rivets. Likewise the tackless carpet strip **16** can be secured to the carpet-securing bar **10** by adhesive material, bolts, screws, staples or rivets.

I claim:

1. A device for securing and concealing the edge of a carpet on a supporting surface, comprising a metal strip having:

a horizontal base adapted to be mounted on its bottom side on a supporting surface and adapted to support on its top side a tackless carpet strip;

a substantially vertical section extending upwardly from the inner edge of said base to a height substantially coplanar to the top surface of the tackless carpet strip, said vertical section being embossed on its inner side facing said base with a plurality of vertical ridges along the length of said strip which extend upwardly for a portion of said vertical sections height from the inner edge of said base to prevent bending of the lower angle defined by the juncture of said base and said vertical section; and

a substantially horizontal flange extending outwardly from the upper edge of said vertical section on the outer side of said vertical section, said flange having a smooth upper surface and being adapted to receive the edge of a carpet which is reversibly folded over, around and under said flange, said flange being bendable downward along its width, from the upper angle defined by the juncture of said vertical section and said flange and its outer edge, toward said supporting surface to conceal and secure the edge of said carpet to said supporting surface by hammering the outer edge of said flange at an angle between 0° and about 60° from the vertical.

2. The device for securing and concealing the edge of a carpet as defined in claim **1** wherein the outer edge of said base is nonlinear and said base has a plurality of alternating maximum widths and minimum widths lengthwise along said strip; and said flange includes means for indicating the location of each of said maximum widths on said base.

3. The device for securing and concealing the edge of a carpet as defined in claim **1** wherein said base has a plurality of alternating , maximum widths and minimum widths lengthwise along said strip, each of said maximum widths being greater than the width of said flange and each of said minimum widths being less than the width of said flange.

4. The device for securing and concealing the edge of a carpet as defined in claim **1** wherein the upper surface of said flange is convexly curved.

5. The device for securing the edge of a carpet as defined in claim **1** wherein the outer edge of said base is scalloped and said base has a plurality of maximum widths and minimum widths; and said flange includes means for indicating the location of each of said maximum widths on said base.

6. A device for securing the edge of a carpet on a supporting surface, comprising:

a metal strip having a horizontal base portion adapted to be mounted on its bottom side on a supporting surface and adapted to support on its top side a tackless carpet strip, the outer edge of said base portion being scalloped to provide the base portion with a plurality of areas of maximum width and minimum width;

a substantially vertical portion extending upwardly from the inner edge of said base portion, said vertical portion being embossed with a plurality of vertical gussets lengthwise along said strip, each of said gussets extending from the inner edge of said base portion;

a substantially horizontal flange portion extending outwardly from the upper edge of said vertical portion, said flange portion being adapted to receive the edge of the carpet which is reversibly folded over, around, and under said flange portion, said flange portion being bendable downward toward said supporting surface to conceal and retain the edge of said carpet; and

means on said flange portion, opposite the areas of maximum width, for indicating said areas of maximum width.

7. An article of manufacture, a one-piece carpet fastening device for securing a carpet edge to a supporting surface, including:

a base strip adapted to be secured to the supporting surface;

an upwardly extending flange along one edge of said strip, vertical gussets being provided in said flange spaced along the length thereof, the bases of said gussets being in said base strip; and

a clamping strip extending along the upper edge of said flange and extending away from said base strip, said clamping strip being deformable downwardly after a carpet edge has been extended over the free edge of the clamping strip and tucked thereunder.

8. An article of manufacture, a one-piece carpet fastening device for securing a carpet edge to a supporting surface, including:

a base strip adapted to be secured to the supporting surface, the free edge of the strip being uniformly scalloped along its length;

an upwardly extending flange along the other edge of said strip, vertical gussets being provided in said flange spaced along the length thereof, the bases of said gussets being in said base strip; and

a clamping strip extending along the upper edge of said flange and extending away from said base strip, said clamping strip being deformable downwardly after a carpet edge has been extended over the free edge of the clamping strip and tucked thereunder, the clamping strip being provided with indicator marks spaced along its length to indicate the location of each of the scallops.

9. A carpet fastening device, comprising:

a metal strip having a horizontal portion adapted to rest upon a supporting surface to which a carpet is to be applied, an upwardly extending portion and a readily bendable flange portion projecting laterally from upwardly extending portion and across and under which the edge portion of a carpet stretched across said strip is adapted to be reversibly folded, said flange being deformable downwardly toward said supporting surface to conceal and retain said edge portion in a folded condition against said surface;

a carpet retaining strip mounted on said horizontal portion and having retaining means engageable with said carpet for retaining the same in stretchable condition;

fastening means for fastening said strip against said surface, wherein the improvement comprising the outer edge of said horizontal portion is scalloped providing said horizontal portion with a plurality of areas of maximum width;

means on said flange portion for indicating said areas of maximum width; and

said upwardly extending portion is embossed with a plurality of gussets lengthwise along said strip, said embossed gussets extending from the inner edge of said horizontal portion.

10. A carpet fastening device adapted to secure a carpet edge to a supporting surface, including: a strip adapted to be secured to the supporting surface across which the carpet is adapted to be stretched; fastening means on said strip, said fastening means comprising a flange extending vertically from said strip adjacent an inner edge thereof and a deformable securing strip formed integrally with said flange, said securing strip having a width greater than the height of said flange, said carpet being adapted to be stretched across and reversibly folded under said securing strip when said securing strip is directed angularly downward to compress said carpet against said supporting surface wherein the improvement comprises: said strip including a scalloped outer edge providing said strip with a plurality of areas of maximum width; means on said securing strip for indicating the location of said areas of maximum width; and said flange including a plurality of embossed gussets lengthwise along said flange, said gussets extending upward from the inner edge of said strip.

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