June 10, 1952 J. M. PATERSON ET AL 2,599,580

MARGINAL SECURING STRIP FOR CARPETS

Filed June 24, 1949 3 Sheets-Sheet 1

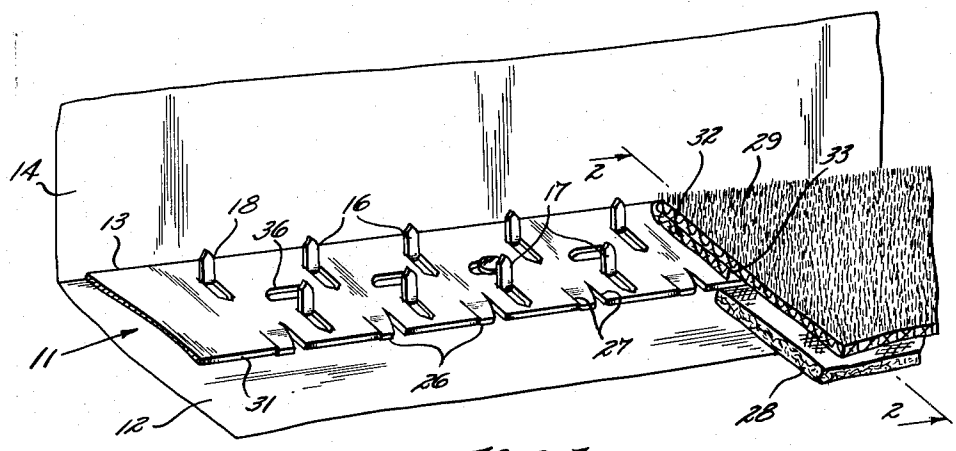


Fig. 1

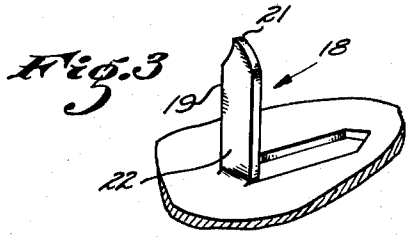


Fig. 3

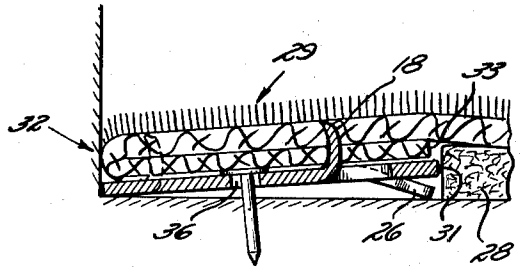


Fig. 2

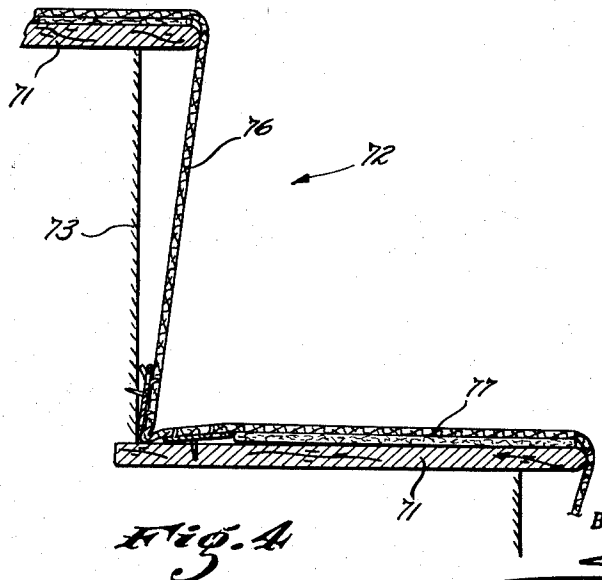


Fig. 4

INVENTORS
GEORGE M. PATERSON
BY JOHN M. PATERSON
Stewart III Maule
ATTORNEY

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MARGINAL SECURING STRIP FOR CARPETS

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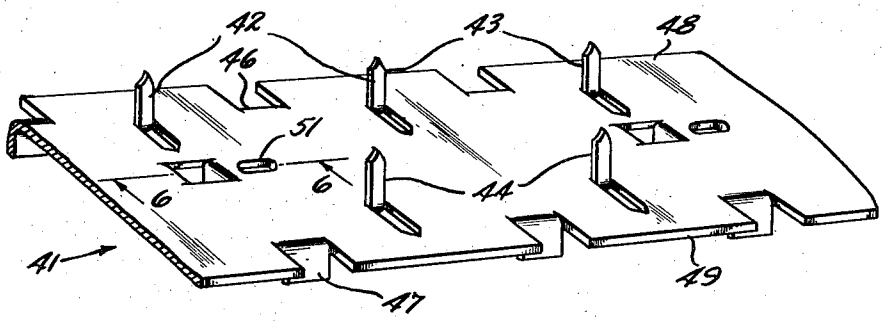


Fig. 5

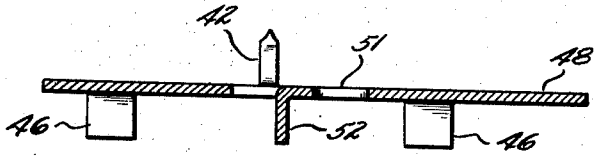


Fig. 6

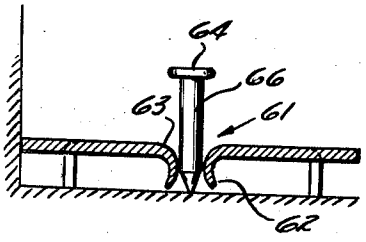


Fig. 8

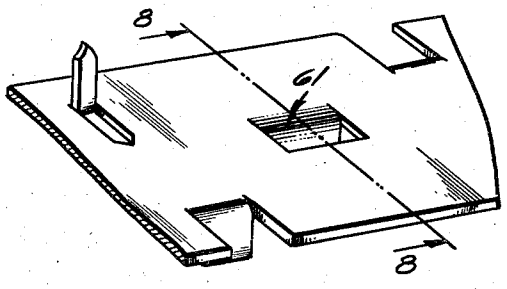


Fig. 7

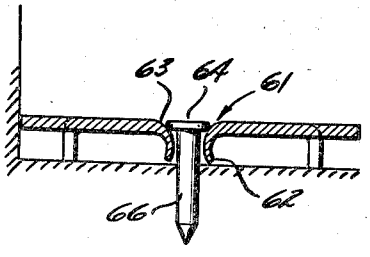


Fig. 9

INVENTORS
GEORGE M. PATERSON
BY JOHN M. PATERSON
Stuart M. Maule
ATTORNEY

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MARGINAL SECURING STRIP FOR CARPETS

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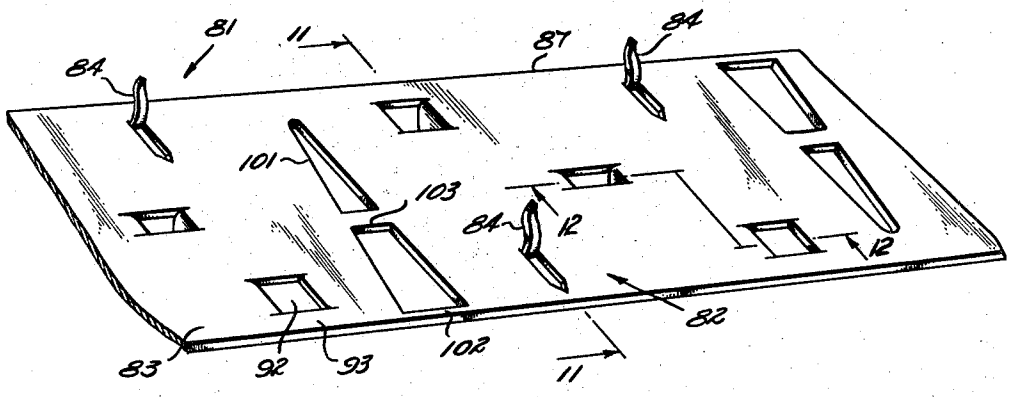


Fig. 10

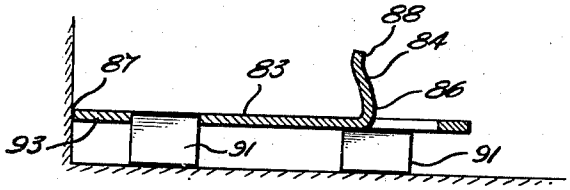


Fig. 11

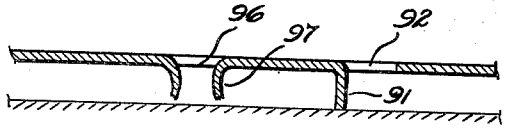


Fig. 12

INVENTORS
GEORGE M. PATERSON
BY JOHN M. PATERSON
Stuart M. Hauke
ATTORNEY

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UNITED STATES PATENT OFFICE

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MARGINAL SECURING STRIP FOR CARPETS

John M. Paterson, Glendale, and George M. Paterson, Los Angeles, Calif.

Application June 24, 1949, Serial No. 100,986

6 Claims. (Cl. 16—16)

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This invention relates to miscellaneous hardware, and more particularly to carpet fasteners of the type, commonly known as "carpet strips," which is regularly used to fasten the edges of stretched carpet to its supporting floor.

An object of our invention is to provide a carpet strip adapted to afford convenience in securing edges of a carpet to the floor in such a manner that the carpet strip is made invisible after installation by being completely hidden under the carpet, and which is capable of engaging the carpet without damage thereto and with such security that the carpet can be stretched with the maximum tension that the fibers and woven strands of the carpet can stand.

A more detailed object in this connection is to provide a carpet strip having carpet-engaging prongs so designed that they are less liable to tear the fabric of the carpet and to cut the fibres of which the carpet is made, than are the prongs of carpet strips of more conventional design, without however, impairing the strength of the prongs to the extent that they are apt to be bent out of shape when the carpet is stretched to the desired tension.

A further object is to provide a carpet strip of the character described, which involves the use of a metal strip rather than wood as the base or foundation member of the item, and yet which is provided with means for supporting the relatively thin metal strip at substantially the elevation above the floor which corresponds to the thickness of the sub-padding commonly employed, thus making for an interruptedly smooth upper surface of the carpet where it extends over the marginal carpet strip.

Still another object is to provide means for compensating for the lateral shifting of the nails or other fastening members used in anchoring the carpet strip to a concrete floor which frequently occurs as the result of the nail's encountering a relatively impenetrable piece of gravel or the like embedded within the concrete. This compensation avoids the buckling of the metal strip which otherwise would occur as the shifting of the fastening member occurs in a direction extending longitudinally of the strip.

A still further object is to provide improvements in the design of the holes through which nails or other fastening means are driven in anchoring the carpet strip to the floor, which improvements result in greater convenience to the operator while anchoring the strip in place, and in a smoother appearance of the carpet after laying, and in greater security of attachment of the carpet to the strip.

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The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred forms of our invention which are illustrated in the drawings accompanying and forming part of the specification. It is to be understood that we do not limit ourselves to the showing made by the said drawings and description, as we may adopt variations of the preferred forms within the scope of our invention as set forth in the claims.

Referring to the drawings:

Figure 1 is a perspective view, partially broken away and shown in section, of a piece of carpet strip incorporating the principles of the present invention, and showing the manner of its use in fastening carpet to a floor.

Figure 2 is a transverse vertical sectional view, the plane of section of which may be assumed to have been taken on the line 2—2 of Figure 1, with the direction of view as indicated.

Figure 3 is an enlarged detail view of one of the carpet-engaging prongs or carpet strip of Figures 1 and 2.

Figure 4 is a sectional view, drawn to reduced scale, illustrating another manner of use of the carpet strip of the present invention.

Figure 5 is a perspective view, similar to Figure 1, but showing a modified form of carpet strip incorporating the principles of the present invention.

Figure 6 is a longitudinal vertical sectional view, taken upon the line 6—6 of Figure 5, with the direction of view as indicated.

Figure 7 is another prospective view similar to Figure 1, but showing a still further modified form.

Figure 8 is a transverse vertical sectional view of the carpet strip shown in Figure 7 while the operation of anchoring the strip in position is being performed. This view may be assumed to have been taken upon the line 8—8 of Figure 7, with the direction of view as indicated.

Figure 9 is a view similar to Figure 8, but with the installation of carpet strip completed.

Figure 10 is another view similar to Figure 1, but showing still further modified form of carpet strip incorporating the principles of the present invention.

Figure 11 is a transverse vertical sectional view, taken upon the line 11—11 of Figure 10, with the direction of view as indicated.

Figure 12 is a compound longitudinal vertical sectional view, taken upon the line 12—12 of Figure 10, with the direction of view as indicated.

Referring first to that modification of our in-

vention which is illustrated in Figures 1, 2, and 3, our improved carpet strip 11 is illustrated as being installed upon the upper surface of a suitable floor structure 12 closely adjacent and preferably with one of its edges 13 actually in contact with one of the marginal walls 14 adjacent the floor 12. The strip 11 is composed of sheet metal in strip form, from which preferably two rows 16 and 17 of carpet-engaging teeth or prongs 18 are struck.

As is best illustrated in Figure 3, each of the carpet-engaging prongs 18 is of such form that its two side edges 19 are substantially straight and parallel throughout the major portion of the length of the prong, only the outer end of the prong 18 being pointed by convergence of the side edges 19 to a relatively sharp point 21. Hence, when viewed from either the front or the back, each of the prongs 18 is substantially straight, except for the pointed outer end thereof. However, when viewed from either side, the prong is of slightly arcuate form, with the result that although the prong at its base is substantially perpendicular to the plane of the strip 11, at its upper end the prong points toward the wall 14 against which the edge 13 of the strip 11 bears. These prongs 18 are formed preferably by die stamping, so that each tooth is severed from the body of the strip 11 throughout its side edges and outer end, leaving only its base integral with the body of the strip. The tooth is then bent upwards about a line joining the ends of the lines of severance which define the side edges of the prong and, as this bending operation occurs, the prong is also bent to its described curved or arcuate configuration.

Since the line about which the prong is bent as it is struck from the plane of the body of the strip, which line lies within the base of the prong, the prongs are disposed with their relatively wide front faces directly toward the edge 13. That is to say, any line drawn transversely of any one of the prongs will extend in a direction substantially parallel to a longitudinal dimension of the body of the strip. The significance of this detail lies in the fact that, after the carpet has been installed upon the strip, each prong presents a relatively broad front face 22 to the carpet, opposing tension therein rather than a side edge of the prong. This, of course, minimizes the tendency for the prongs to cut the carpet when the carpet is stretched very tightly thereupon.

The straight sides of the prongs 18, except at their extreme outer ends or points, eliminate the tendency for the carpet to rise upon the prongs when the carpet is stretched, in contradistinction to the action that develops when prongs having upwardly converging side edges are employed. This detail, considered in connection with the fact that the angle between the body of the strip and that face of each prong against which the carpet engages when stretched, is not more than 90°, whereas the upper portion of the prong slopes away from the direction in which the tension occurs, makes for the greatest security with which the carpet is embedded upon the several prongs 18.

The prongs 18 of the two rows 16 and 17 are preferably in staggered relation; this arrangement permits the use of an ample number of prongs 18 without seriously weakening the remaining, body portion of the strip 11, to insure against the hazard of bending the prongs back in response to the force which the carpet exerts thereagainst when the carpet is stretched. In

actual practice, therefore, it has been found that a carpet strip having straight sided prongs sufficiently narrow to penetrate the carpet without damage to the latter, can be formed in the carpet strip at such closely spaced intervals that they are capable of withstanding the maximum tension that can be imposed upon carpet without danger of tearing the fabric of the carpet or cutting the fibers or strands of which the fabric is woven.

In addition to the two rows 16 and 17 of prongs 18, downwardly extending supporting feet 26 are struck from the body of the strip 11. These are formed by cutting two preferably parallel lines of incision 27 inwardly from an edge of the body of the strip for each of the feet 26 to be provided, and then deflecting the metal of the strip between those two incisions from the plane of the strip but in the direction opposite that in which the prongs 18 extend. Hence, these feet 26 serve to support that edge of the strip 11 above the floor 12; and the parts are so proportioned that the height to which the edge is so supported substantially corresponds to the thickness of the sub-padding 28 which is to be used beneath the carpet 29. This permits the installation to be made as illustrated in Figure 1, with the sub-padding 28 reaching only to the outer edge 31 of the carpet strip 11 and with the upper surface of the sub-padding 28 substantially flush with the upper surface of the carpet strip 11 so that the carpet 29 then can extend smoothly across the line of intersection between the carpet strip 11 and the sub-padding 28.

Hence, even when only a single thickness of carpet 29 is engaged upon the prongs 18, the completed installation will not show evidence of the edge of the sub-padding 28, as would be the case if the carpet 29 were deflected downwards around that edge of the sub-padding to its points of engagement upon the prongs 18; and even in those instances where the extreme edge 32 of the carpet 29 is doubled back under, as illustrated in Figure 1, the tension in the body portion of the carpet 29 will prevent the carpet from being bent sharply downwards around the extreme edge 33 of the carpet where the carpet 29 extends outwards from the carpet strip 11 toward the center of the room.

The strip 11 is also provided with a series of nail holes 36 with relatively closely spaced intervals throughout the length of the strip 11, and through which suitable nails or other fastening device may be driven in anchoring the strip 11 in position on the floor 12. It should be pointed out that although these holes 36 are refered to in the specification and throughout the claims as "nail holes," no implication is intended as to the type or character of fastening devices to be employed inasmuch as wood screws might be desirable, for example, when installing the device upon certain types of wooden floors. Each of these holes 36, however, is longer than its width, the direction of its elongation being longitudinally with respect to the strip 11. The purpose for this elongation longitudinally of the strip is to compensate for the tendency, particularly when the strip is being mounted upon a concrete floor, for the nails or other fastening device to shift slightly from the position in which it is started while the nail is being driven. This frequently results from engagement of the point of the nail with a relatively impenetrable piece of gravel or other hard object embedded within the concrete. As the fastening occurs in a direc-

tion perpendicular with respect to the plane of the wall 14, it is relatively immaterial because even if the entire strip 11 is shifted away from the wall slightly, the result will be undetectable after the carpet has been laid because it, the carpet, completely covers the anchoring strip.

However, should the shifting of the nail occur in a direction parallel to the wall and if the nail were to fit tightly within the hole through the strip through which the nail is being driven, buckling of the strip would undoubtedly occur, with the result that an objectionably noticeable bulge would occur in the upper surface of the carpet subsequently laid upon the buckled strip. However, by employing holes 36 which are elongated longitudinally of the strip, a material degree of shifting of the nail while being driven and in a direction parallel to the wall 14, can occur without any disadvantageous result.

Figures 5 and 6 illustrate a slightly modified form of carpet strip, indicated in its entirety at 41. Here the carpet-engaging prongs 42 are of the same general design as that already described and they are similarly arranged in two parallel rows 43 and 44 with the prongs 42 of the two rows staggered with respect to each other. Supporting foot 46 and 47 are formed respectively in the two edges 48 and 49 of the strip 41, with the result that the strip is supported in a plane parallel to the floor rather than in the slightly oblique plane which is characteristic of the previously described modification.

Another difference between this form of our improvement and the first-described modification is that here means are provided for supporting the body portion of the strip 41 adjacent each of the nail holes 51. The desirability for such support arises from the fact that while the nails are being driven, it frequently occurs that the last blow struck by the hammer in driving the nail home, is sometimes of greater force than is necessary, with the result that the immediately adjacent portion of the carpet strip 41 would be bent downwards forming a hollow or depression in the carpet strip apt to be detectable in the form of a similar depression in the upper surface of the laid carpet. To avoid this undesirable condition, a downwardly extending flange 52 is provided immediately adjacent each of the nail holes 51 in the form of a tongue severed along three sides from the body of the strip 41 and bent downwards from the plate thereof above a line defining the fourth edge, as best illustrated in Figure 6.

Figures 7, 8, and 9 illustrate a still further modification of carpet strip, similar to the modification in Figures 5 and 6, but differing from it in respect to the details of the nail holes 61 provided therein, and the means for support of the carpet strip immediately thereadjacent. In this modification, the nail holes are formed by means of a suitable die in the form of a relatively sharp pointed instrument having a tapered shank. The point of the die is caused to penetrate the strip by being pushed downwardly therethrough and the tapered shank is then pushed on farther through, causing the immediately adjacent portions of the strip defining the edges of the hole thus formed to be extruded in the form of a burr 62, which burr serves the function of the supporting foot or flange engaging the supporting also results in forming the upper end 63 of the strip immediately adjacent the nail hole. This also results in forming the supper end 63 of the rail hole with a tapering entrance throat substantially conforming to the tapered under surface of the so-called "countersunk" or "flat" head 64 of a conventional concrete-penetrating nail 66. Consequently, after the nail 66 has been driven in, its head 64 lies substantially flush with the upper surface of the body portion of the carpet strip, as illustrated in Figure 9.

The die used in forming the burrs 62 is so proportioned that it spaces the opposed burrs 62 of each pair apart by a distance very slightly less than the diameter of the shanks of the nails 66 which it is intended to use in anchoring the strip to the floor. The advantage arising from such an arrangement is made apparent by Figures 8 and 9, the former of which shows how a nail 66 is held erect by the frictional engagement of the shank with the two burrs 62, attainable by merely pressing the point of the nail into the space between the nails with a force not necessarily greater than can easily be exerted with the thumb pressing downwardly upon the head of the nail, or by tapping the nail gently with the carpet layer's hammer. Consequently, the workman can place the nail in the position indicated in Figure 8, wherein it will be held erect by its frictional engagement with the burrs 62; and then, after the workman has withdrawn his hand from the proximity of the nail, drive the nail home, i. e., to the position indicated in Figure 9, without any danger of hitting his thumb or fingers with the hammer.

Here again each of the nail holes 61 is elongated longitudinally of the carpet strip so as to compensate for shifting of the nails 66 as they are driven and in a direction parallel to the adjacent wall 67. This is accomplished by use of a penetrating tool which is of oval cross section rather than round, but which, as described, is possessed of a relatively sharp penetrating point and a tapered shank.

Although the most common manner of usage of the carpet strip of the present invention is upon the floor of a room adjacent the walls thereof, as illustrated in Figure 1, it also affords convenience in laying carpet upon the steps 71 of a flight of stairs 72. At the line where each riser 73 extends upwards from the step 71, two pieces of our improved carpet strip may be employed: one laid upon the upper surface of the step 71, preferably spaced slightly from the lower edge of the associated riser 73 and with its carpet-penetrating prongs pointing upwards and towards the riser; and the other on the riser 73 itself spaced slightly above the plane of the step 71 and with its prongs directed outwards and downwards toward that step. This arrangement permits the portion 76 of the carpet which extends upwardly toward the next step, to be stretched tight, as well as the horizontally extending portion 77 which lies upon the upper surface of the step 71. The two pieces of carpet stripping thus employed may be of identical construction, thus requiring only one type of carpet strip to be carried in stock, but they are installed in relatively reverse position so as to attain the proper position of their respective carpet-engaging prongs.

Referring now to that modification of our invention which is illustrated in Figures 10, 11, and 12, it will be observed that here again the carpet strip is generally similar to those previously described, in that it is provided with two rows 81 and 82 of upstanding prongs, each of these rows of prongs being parallel to and adjacent one of the lateral edges of the base strip 83. Moreover,

the prongs 84 in the two rows 81 and 82 are in staggered relationship, as in the previously described modifications. The prongs 84 themselves, however, differ slightly in the details of their form from those previously described. As best shown in Figure 11, each prong 84 extends upwards from the base strip 83 in such a manner that substantially a right angle exists between the lower end 86 of the prong and the strip 83. However, throughout the major portion of the length of the prong 84, it is slightly arcuate, the direction of such curvature being upward and toward that edge 87 of the strip 83 intended to be nearest the associated edge of the carpeting. Hence, the curvature is upwards and away from the direction in which the tension of the carpet causes the carpet to press against the prong.

At its upper end, however, the prong 84 is provided with a reverse curve so that the upper end 88 also is substantially vertical. This facilitates pressing the carpet downwards onto the several prongs and causing the prongs to penetrate the carpet so as to cause the carpet to be engaged upon the prongs. This can easily be affected in any of several ways, the preferred manner being merely by rubbing a blunt edged instrument along the upper surface of the carpet over the prongs, exerting sufficient pressure thereupon to cause the carpet to be pressed downwards, impaling the carpet upon the upstanding vertical ends of the prongs. After having thus been engaged upon the vertical upper ends of the prongs, the tension in the carpet will itself cause the carpet to slide farther down upon the lower ends of the prongs, seating within the concavity of the prong's outer faces, so that accidental displacement of the carpet from the prongs is precluded.

In this modification, the feet 91 which support the body of the strip 83 at suitable elevation above the flooring also are of slightly modified construction, in that they extend in planes extending transversely of the strip 83 rather than longitudinal with respect thereto as in the previously described modifications. Moreover, instead of being formed as tongues extending downwards from one edge of an aperture which is open at the associated edge of the strip 83, as in the previously described modifications, here the apertures 92 which are left when the tongues 91 are struck downwards from the plane of the strip, are set in slightly from the associated edge of the strip 83, thus leaving each aperture completely encircled by metal. In other words, a web 93 of metal extends across what would otherwise be the outer end of each aperture 92, this web being integral with the body of the strip 83 and hence materially strengthening the entire construction. In this modication, the nail holes 96 of the supporting feet 97 associated therewith, are substantially the same as the corresponding elements illustrated in Figures 7, 8, and 9.

However, still another detail present in the modification of Figures 10, 11, and 12 not found in the earlier forms, has to do with flexing the strip laterally in its own plane so as to make it conform to curved and angular walls. The strip is provided with transversely extending slots 101 extending inwards from the edges of the strip 83. Each alternate slot 101 extends inward from the opposite edge of the strip 83, and the sides of each slot preferably diverge toward that associated edge of the strip. However, instead of being in the form of complete slots, each preferably has at least a pair of webs 102 and 103 extending

thereacross, the former being at the associated edge of the strip 83 and thus constituting a continuation of that edge, and the latter being disposed substantially midway between the ends of the slot. These webs 102 and 103 are of relatively light construction, so that they may easily be cut out by a workman at the time the carpet strip is being installed. Such cutting can be performed easily with an ordinary pair of tinsnips or with conventional "side-cut" pliers. Hence, they correspond roughly to the well-known "knock outs" in a conventional electric outlet box which can easily be removed by the workmen at the time of installation. After webs 102 and 103 of one or more slots have been thus removed, the strip may be bent edgewise, i. e., in its own plane, so as to make it conform to a convex or concave curve and thus take the configuration of curved or angular walls.

We claim:

1. As a new article of manufacture, a marginal securing device for carpet, comprising an elongated strip, a plurality of prongs upstanding therefrom, each of said prongs having a carpet-penetrating point on its upper end, and feet associated with one of the lateral edges of said strip, each of said feet being severed from said strip along two opposed edges of that foot and being deflected vertically downwards from the plane of said strip to support the associated edge of said strip in elevated position above the surface engaged by said feet, all of said feet being aligned in a plane parallel to and offset inwards from this edge of said strip thereby providing an abutment for an edge of carpet turned under said strip.

2. As a new article of manufacture, a marginal securing device for carpet, comprising an elongated strip, a plurality of prongs upstanding therefrom, each of said prongs having a carpet-penetrating point on its upper end, feet associated with at least one lateral edge of said strip and extending downwards from said strip adjacent said edge thereof to support said strip with said edge elevated above the surface engaged by said feet, said strip having a plurality of nail holes therethrough, and a flange struck from said strip and extending downwards therefrom adjacent each of said holes, and thereby presenting a supporting flange for the portion of said strip immediately adjacent the associated hole.

3. As a new article of manufacture, a marginal securing device for carpet comprising an elongated strip, a plurality of prongs upstanding therefrom, each of said prongs having a carpet-penetrating point on its upper end, and a row of feet associated with each lateral edge of said strip, each of said feet of each of said rows being struck from said strip and extending downwards therefrom to support the associated edge of said strip, said strip having a plurality of nail holes therethrough, and a flange struck from said strip and extending downwards therefrom adjacent each of said holes, and thereby presenting a supporting flange for the portion of said strip immediately adjacent the associated hole.

4. As a new article of manufacture, a marginal securing device for carpet, comprising an elongated strip, a plurality of prongs upstanding therefrom, each of said prongs having a carpet-penetrating point on its upper end, feet associated with at least one lateral edge of said strip and extending downwards from said strip adjacent said edge thereof to support said strip with

said edge elevated above the surface engaged by said feet, said strip having a plurality of nail holes therethrough, and a burr extending downward from the under surface of said strip at the edge of each of said nail holes and thereby presenting a supporting flange for the portion of said strip immediately adjacent the associated nail hole.

5. As a new article of manufacture, a marginal securing device for carpet, comprising an elongated strip, a plurality of prongs upstanding therefrom, each of said prongs having a carpet-penetrating point on its upper end, feet associated with at least one lateral edge of said strip and extending downwards from said strip adjacent said edge thereof to support said strip with said edge elevated above the surface engaged by said feet, said strip having a plurality of nail holes therethrough, each of said nail holes being relatively elongated longitudinally of said strip whereby displacement of said strip by displacement of a nail in that direction while being driven is avoided, and a burr extending downward from the under surface of said strip at the edge of each of said nail holes and thereby presenting a supporting flange for the portion of said strip immediately adjacent the associated nail hole.

6. As a new article of manufacture, a marginal securing device for carpet, comprising an elongated strip, a plurality of prongs upstanding therefrom, each of said prongs having a carpet-penetrating point on its upper end, feet associated with at least one lateral edge of said strip and extending downwards from said strip adjacent said edge thereof to support said strip with said edge elevated above the surface engaged by said feet, said strip having a plurality of nail holes therethrough, each of said nail holes being relatively elongated longitudinally of said strip whereby displacement of said strip by displacement of a nail in that direction while being driven is avoided, and opposed burrs extending downwards from opposite edges of each of said nail holes and defining a tapering entrance throat slightly narrower than the diameter of the shanks of the nails used to anchor said strip, whereby a nail will be held erect by its frictional engagement with said burrs prior to being driven home to strip-anchoring position.

JOHN M. PATERSON.
GEORGE M. PATERSON.

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