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J. M. PATERSON ET AL

2,654,909

CARPET ANCHORING STRIP

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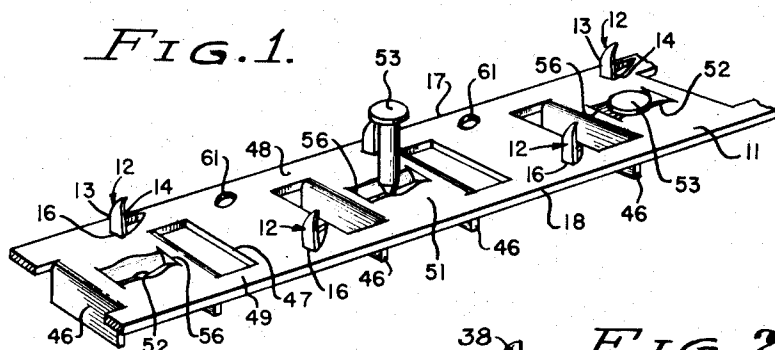
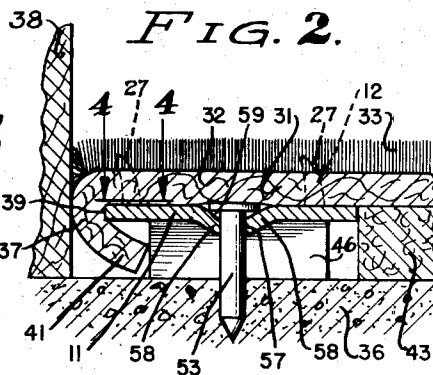
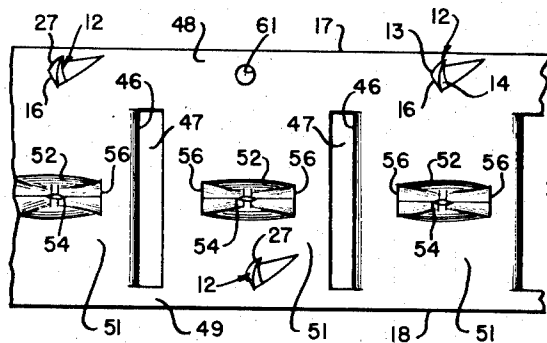


FIG. 3.

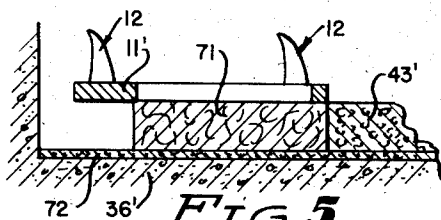


FIG. 5.

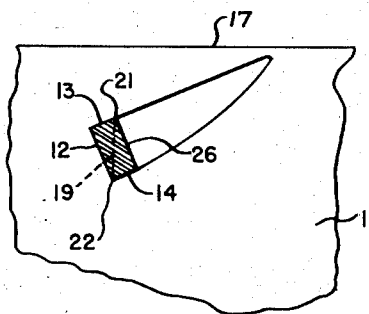


FIG. 4.

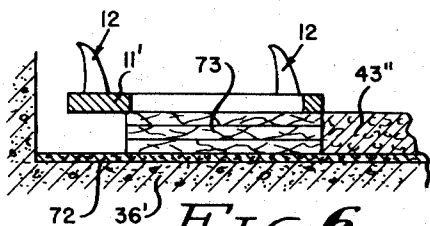


FIG. 6.

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CARPET ANCHORING STRIP

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7 Claims. (Cl. 16-16)

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This invention relates to miscellaneous hardware, and more particularly to carpet-fastening strips.

An object of the present invention is to provide a carpet-anchoring strip constituting an improvement over that forming the subject matter of our co-pending application, Serial No. 100,986, filed June 24, 1949, now Patent No. 2,599,530, dated June 10, 1952.

A more detailed object of our present invention is to provide a carpet anchoring strip having a metal base portion and improved means for elevating the base above the floor so as to compensate for the relatively greater thickness of the padding underlying the carpet, as compared with the thin, sheet metal base of the strip, and thereby disposing the upper surface of the strip substantially flush with the upper surface of the padding to provide a substantially flat support for the carpet throughout the entire area thereof.

A further object in this connection is to provide a carpet-anchoring strip of the general character described in which the base-elevating element is characterized by a degree of yieldability to insure against the transmission of vibration for any material distance therethrough, and thereby being made capable of overcoming one of the principal disadvantages of more common carpet strips, as will be explained in greater detail below.

A still further object is to provide a carpet strip, the base portion of which is of sheet metal, and which is provided with means for adapting the strip for installation in curved lines, as around the base of a circular column, without, however, detracting to any material extent, from the inherent rigidity and strength of the strip as installed in straight lines, as along the base of a straight wall.

Yet another object of our present invention is to provide a novel and especially efficient design for the carpet-engaging prongs or teeth of a carpet-anchoring strip of the general character indicated.

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:

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Figure 1 is a perspective view of a length of metal base carpet anchoring strip incorporating the principles of the present invention. A portion of the figure is broken away to reduce its length.

Figure 2 is a transverse vertical section taken through the carpet anchoring strip of Figure 1, but drawn to an enlarged scale and showing the manner of installation of the strip as well as the manner of attachment of the carpet thereto.

Figure 3 is a top plan view of the strip of Figure 1, but drawn approximately to the scale of Figure 2.

Figure 4 is a horizontal sectional view drawn to still more highly enlarged scale, with the plane of section indicated by the line 4-4 of Figure 2, to show with a greater degree of clarity the precise arrangement of the carpet-anchoring prongs.

Figure 5 is a transverse vertical sectional view taken through a modified form of carpet anchoring strip incorporating the principles of the present invention.

Figure 6 is a view similar to Figure 5 but showing still another modified form.

In accordance with the present invention, our improved carpet anchoring strip, as illustrated in Figures 1 to 4 inclusive, comprises a base portion 11 of sheet metal preferably of the order of 1/8" thick and of suitable width to accommodate the various features characterizing the strip to be described in detail hereinbelow. The base 11 is provided with a plurality of upstanding rigid carpet anchoring teeth or prongs 12 conveniently formed by severing each of them throughout the length of both their front and back edges 13 and 14 respectively from the bottom of the base 11 and then striking each prong 12 from the plane of the base 11 by bending it upwardly about a line or axis 16 at the base of the prong. The die, or dies, as the case might be, by means of which this described severing and striking is performed, are so designed that the plane of each prong extends obliquely to the front and back longitudinal edges 17 and 18 respectively of the base 11. More exactly, the extent of obliquity is such that a line 19 (see Fig. 4) drawn from the front corner 21 in the base of each prong 12 to the diagonally opposite corner 22 would be substantially perpendicular to the front and back edges 17 and 18 respectively of the base 11. The importance of this detail of construction arises from the fact that pressure exerted by a carpet against each prong 12 is substantially transverse with respect to the base 11, consequently substan-

tially parallel to or coincident with the imaginary line 19. It is desirable, of course, to have each prong present as great an extent of surface to the carpet resisting the force exerted by the carpet against the prong and yet to design the prongs only so large as is necessary to enable them to resist being broken off or bent by that force. If the prongs are made any larger than necessary for them to be possessed of the requisite strength, it will be found that when the carpet is impaled thereon they have too great a tendency to sever the fibers of which the fabric of the carpet is composed rather than to merely force them aside as the prong passes therebetween. The ideal arrangement for a prong of a given size as far as its capability of resisting force exerted thereagainst by a carpet is concerned is with its side faces parallel to the direction of such force because of the greater modulus of a rectangular section, the longer sides of which are parallel to a force tending to bend or break the member. On the other hand, the most desirable arrangement for a prong as far as its being able to avoid tearing the carpet is with the broadest faces of the prong normal to the direction of the force which the carpet exerts against the prong. These two desirable characteristics of a prong are, therefore, diametrically opposed to each other with the result that, when both of these important requirements of a prong are taken into consideration, the most nearly ideal arrangement for a prong is as hereinabove described, to wit, arranged obliquely with a diagonal taken through the rectangular base of a prong parallel to or coinciding with the direction in which the carpet exerts force against the prong. The combined or total area of the front edge 13 and a side face 26 of a prong, projected onto a plane parallel to the longitudinal edges 17 and 18 of the base 11 and, hence, normal to the direction of the force exerted by carpet against the prong, will, when the prong is thus arranged, be at a maximum without, however, decreasing the modulus of the section of the prong considered with respect to that prong's ability to withstand being bent or broken by a force exerted by the carpet against the prong.

As a precaution against accidental slipping of the carpet from the prongs 12 after once having been impaled thereupon, we prefer that the forward edge 13 of each prong incline upwards and forwards slightly, as best shown in Figure 2, so that the force exerted by the carpet against the prong will develop resilient force urging the carpet downwards with respect to the prong. Moreover, at its upper end where the front and back edges 13 and 14 come together in a relatively sharp point, each prong is preferably deflected slightly to one side, as at 27 and as best illustrated in Figure 3.

Preferably the prongs 12 are of such length that when a carpet such as that indicated at 31 in Figure 2 is engaged thereupon, each prong 12 extends through and to only a slight distance above the backing 32 so that its upper end or point 27 is sealed within and protected by the upstanding pile 33.

Figure 2 illustrates the conventional manner of mounting a carpet anchoring strip upon a floor 35 so as to serve as means for anchoring an edge 37 of a carpet 31 extending along the lower edge of a wall 38. However, in order to impart a neat and finished appearance to the final installation, the preferred manner of locating the anchoring strip is with its forward edge 39 spaced slightly

from the wall 38 so that the extreme edge 37 can be forced downwardly through the space thus provided and tucked under the base 11, as illustrated at 41, so concealing the extreme edge and also serving to prevent raveling in the event that an unsalvaged edge of the carpet occurs at this particular location.

Means are provided for supporting the base portion 11 in elevated position above the floor 35 far enough to accommodate the edge 41 under the base 11, as illustrated in Figure 2. However, the precise height at which the base 11 is to be supported is determined more particularly by the thickness of the padding 43 interposed between the carpet 31 and the floor 35, the most desirable arrangement being, of course, to support the upper surface of the base 11 substantially flush with the upper surface of the padding 43, as illustrated in Figure 2. In the modification presently being described the means for supporting the base 11 in this relatively elevated position comprises a plurality of downwardly extending flanges or legs 45 which also may be severed along all but one edge of each leg and struck from the plane of the base portion 11, but in the opposite direction, as compared with the prongs 12. Consequently, an elongated aperture or slit 47 is left in the base portion 11 extending transversely thereof alongside the upper end of each supporting flange or leg 45. These slits 47 in themselves serve a useful function inasmuch as the webs 48 and 49 at the ends of each slit 47 and at the forward and after edges respectively of the base portion 11 are relatively narrow and hence are readily easily removable. A workman can, with an ordinary pair of tinsnips, sever one of the webs associated with each slit 47 so that the slits, in effect, extend all the way to the edge of the base, leaving the segments 51 of the base 11 between slits 47 interconnected only by the webs along one edge thereof. When so altered, the base 11 can be flexed in its own plane with comparative ease and thus made to conform to, say, the base of a circular column in such a manner that the carpet anchoring strip, instead of extending in a straight line, follows a curved line conforming to the base of the curved object to which the carpet is to be fitted. The curve can of course be made either concave or convex as determined by which webs 48 or 49 are removed.

However, the presence of the transversely extending slits in the base portion 11 does not impair the inherent rigidity of the base portion before severance or removal of any of the webs 48 or 49 because of the fact that such a web is provided at each end of each slit 47. Both of the longitudinal edges of the base portion 11 is left continuous and unbroken because of the presence of the webs at both ends of each slit and, consequently, the carpet anchoring strip of the present invention is possessed of substantially the same amount of strength and rigidity as would be the case were the slits 47 omitted entirely.

At suitable intervals throughout the length of the carpet anchoring strip, preferably in each alternate segment 51, an opening 52 is provided to accommodate a nail 53 or other suitable fastening device for securing the strip to the floor 35. Inasmuch as carpet anchoring strips of this nature are frequently installed upon a concrete floor, the openings 52 preferably are so proportioned that conventional concrete nails having relatively thick shanks can be accommodated therein. However, the strip is not limited to use in connection with fasteners of this type inas-

much as each nail hole 52 instead of being formed by severing material completely from the base portion 11 are made by simply cutting a longitudinal extending slit 54 and a relatively short transversely extending slit 56 at each end of the slit 54 and then by deflecting the edges of the slit 54 downwards between the two transverse slits 56, thus producing a relatively narrow, longitudinally extending opening 57 to the upper end of which a tapering entrance throat is defined by two opposed downwardly and inwardly sloping flanges 58 (see Figure 2). Before a fastener is driven through the opening 57, it preferably is relatively narrow so that when installation is being made upon a wooden floor nails of relatively thin shanks can be employed; and yet, when installation is being made upon a concrete floor, conventional concrete nails 53 can be employed, it being understood that as the shank 53 of such a nail is driven downwards between the flanges 58 they will be bent far enough apart by the nail itself to permit the shank of the nail to pass therebetween and on into the concrete floor 36. The relatively wide depression 59 thus formed in the upper face of the base portion 11 serves to receive the head of the nail 53 so that the head is countersunk within the base portion 11 to provide a substantially uninterrupted smooth surface to support the carpet 31.

The downwardly and inwardly sloping flanges 58 also offer convenience by serving to support the nail 53 substantially erect when only its point has been forced between the two flanges 58 as by means of a light tap with a carpet layer's hammer. This permits the workman to let go of the nail after it has thus been initially positioned, and then to drive it home with heavier blows without danger of injury.

Preferably supplementary nail holes 61 are provided in the base portion 11 through which relatively light nails may be driven either as an initial step in locating the carpet anchoring strip or as an additional means of adding a measure of security to the firmness with which the strip is fastened down.

Figures 5 and 6 illustrate respectively, modified forms of the carpet anchoring strip of the present invention in which the means for supporting the base portion 11' above the floor 36' take the form of solid strips of material instead of the spaced apart legs struck from and extending downward from the base portion. One of the difficulties frequently encountered by workmen installing carpet anchoring strips of this general character, particularly when installation is being made upon concrete, is that when a nail is being driven home, the hammer blows set up vibrations in the strip which travel along the strip and have the tendency to loosen the nail previously driven in an adjacent nail hole. Consequently, one of the features of the present invention is to provide means for supporting the base 11' upon the floor 36' which means are of a materially cushioning or yieldable nature so that it will serve as means for dampening the vibrations which hammer blows otherwise would be apt to set up in the base portion 11' to the detriment of the security with which previously driven nails hold the strip to the floor. Figure 5, for example, illustrates the supporting means in the nature of a strip 71 of fibrous, paper board, such as that conventionally employed for wall board. Material of this nature is possessed of an ample degree of yieldability to accomplish the purposes hereinabove referred to and yet is sufficiently re-

silient to provide ample support for the base portion 11' of the strip to hold it in the exact position desired so that the upper surface of the base portion 11' remains substantially flush with the padding material 43'. Other forms of paper products also have been found satisfactory for this purpose, such as strips of pressboard, chipboard, printers' binder board and the like, although the wallboard 71 previously referred to has been found preferable because of its greater degree of yieldability. Owing to the fibrous, and hence relatively absorbent nature of these paper products, and particularly when installation is being made upon concrete floors 36' a supporting strip 71 of this nature should be protected from moisture that might otherwise be conveyed to it by the concrete, as by a layer of tarpaper 72 or similar impervious material. This strip 72 of impervious material may be disposed only under the strip 71 of cushioning material or, as illustrated in Figure 5, it may extend throughout the entire area of the floor being carpeted so that it also offers protection against dampness for the padding material 43'. Figure 6 is similar in most respects to the showing of Figure 5, with the exception that the padding and supporting material are employed as a strip 73 of plywood; and here again the impervious layer 72 such as tarpaper should be employed to protect the strip 73 alone or both the strip 73 and the padding material 43'.

We claim:

1. As a new article of manufacture, a carpet-holding device comprising a sheet metal strip, means for fastening said strip to a floor in position to underlie a piece of carpet adjacent and substantially parallel to an edge thereof, and a plurality of prongs upstanding from said strip, each of said prongs being severed from said strip along all edges of said prong except its base and being bent upwardly from the plane of said strip about an axis in the base of said prong extending obliquely with respect to the longitudinal edges of said strip whereby each of said prongs presents both a side face and an edge to carpet to oppose tension in said carpet exerted in a direction transverse to said strip.

2. As a new article of manufacture, a carpet-holding device comprising a sheet metal strip, means for fastening said strip to a floor in position to underlie a piece of carpet adjacent and substantially parallel to an edge thereof, and a plurality of prongs upstanding from said strip, each of said prongs being severed from said strip along all edges of said prong except its base and being bent upwardly from the plane of said strip about an axis in the base of said prong, each of said prongs being disposed with its base in a position of obliquity with respect to the longitudinal edges of said strip whereby each of said prongs presents both a side face and an edge to carpet to oppose tension in said carpet exerted in a direction transverse to said strip.

3. As a new article of manufacture, a carpet-holding device comprising a sheet metal strip, means for fastening said strip to a floor in position to underlie a piece of carpet adjacent and substantially parallel to an edge thereof, and a plurality of prongs upstanding from said strip, each of said prongs being severed from said strip along all edges of said prong except its base and being bent upwardly from the plane of said strip about an axis in the base of said prong extending obliquely with respect to the longitudinal edges of said strip whereby each of said prongs presents

both a side face and an edge to carpet to oppose tension in said carpet exerted in a direction transverse to said strip, the upper end of each of said prongs being pointed and deflected laterally to present an obstruction resisting displacement of carpet from said prong.

4. As a new article of manufacture, a carpet-holding device comprising a sheet metal strip comprising a plurality of segments separated from each other by transversely extending slits and webs integral with said segments and closing both ends of all of said slits, each of said webs being removable to permit collapsing the proximal end of the associated slit to impart curvature to said strip, means for fastening said strip to a floor in position to underlie a piece of carpet adjacent and substantially parallel to an edge thereof, and a plurality of prongs upstanding from said strip, each of said prongs being severed from said strip along all edges of said prong except its base and being bent upwardly from the plane of said strip about an axis in the base of said prong extending obliquely with respect to the longitudinal edges of said strip whereby each of said prongs presents both a side face and an edge to carpet to oppose tension in said carpet exerted in a direction transverse to said strip, the upper end of each of said prongs being pointed and deflected laterally to present an obstruction resisting displacement of carpet from said prong.

5. As a new article of manufacture, a carpet-holding device comprising a sheet metal strip, means for fastening said strip to a floor in position to underlie a piece of carpet adjacent and substantially parallel to an edge thereof, means for supporting said strip in position elevated above said floor with its upper surface substantially flush with under-carpet padding, and a plurality of prongs upstanding from said strip, each of said prongs being severed from said strip along all edges of said prong except its base and being bent upwardly from the plane of said strip about an axis in the base of said prong extending obliquely with respect to the longitudinal edges of said strip whereby each of said prongs presents both a side face and an edge to carpet to oppose tension in said carpet exerted in a direction transverse to said strip.

6. As a new article of manufacture, a carpet-holding device comprising a sheet metal strip, means for fastening said strip to a floor in position to underlie a piece of carpet adjacent and substantially parallel to an edge thereof, means for supporting said strip in position elevated

above said floor with its upper surface substantially flush with under-carpet padding, said supporting means being spaced inwardly from the edge of said strip proximal to said edge of said carpet whereby said edge of said carpet can be turned back under said edge of said strip, and a plurality of prongs upstanding from said strip, each of said prongs being severed from said strip along all edges of said prong except its base and being bent upwardly from the plane of said strip about an axis in the base of said prong extending obliquely with respect to the longitudinal edges of said strip whereby each of said prongs presents both a side face and an edge to carpet to oppose tension in said carpet exerted in a direction transverse to said strip.

7. As a new article of manufacture, a carpet-holding device comprising a sheet metal strip, means for fastening said strip to a floor in position to underlie a piece of carpet adjacent and substantially parallel to an edge thereof, a strip of cushioning material substantially more yielding than said sheet metal strip underlying said sheet metal strip and supporting it in elevated position above said floor, and a plurality of prongs upstanding from said strip, each of said prongs being severed from said strip along all edges of said prong except its base and being bent upwardly from the plane of said strip about an axis in the base of said prong extending obliquely with respect to the longitudinal edges of said strip whereby each of said prongs presents both a side face and an edge to carpet to oppose tension in said carpet exerted in a direction transverse to said strip.

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