April 24, 1928. 1,667,040

D. F. LARKIN

STEP PROTECTOR

Filed April 23, 1925

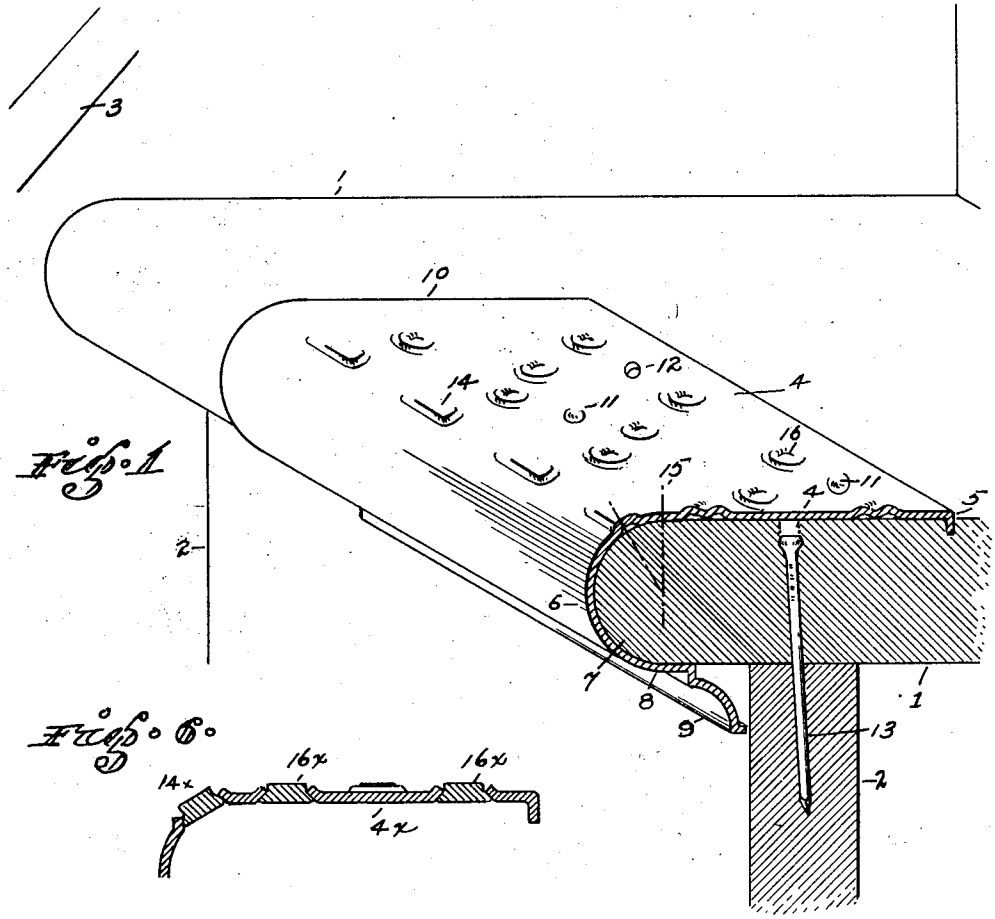


Fig. 1.

Fig. 6.

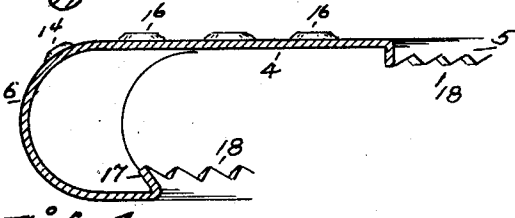


Fig. 2.

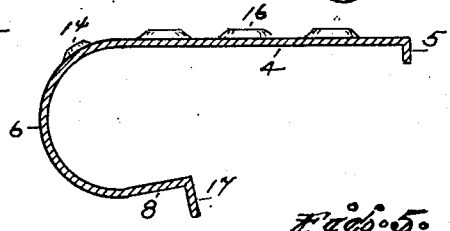


Fig. 3.

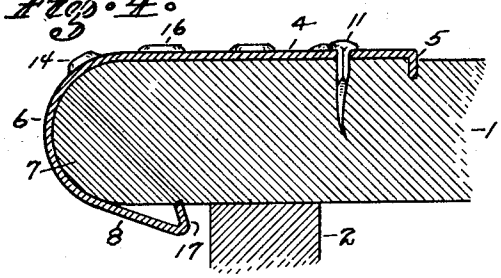


Fig. 4.

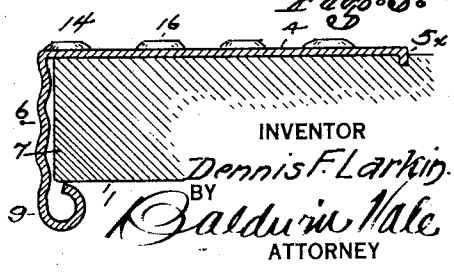


Fig. 5.

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UNITED STATES PATENT OFFICE.

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STEP PROTECTOR.

Application filed April 23, 1925. Serial No. 25,384.

This invention relates to improvements in step protectors and has for its principal object the protection of step nosings and treads against undue wear and injury.

A further object is to provide a safety tread, adjacent the stair nosing, that will add nonslipping with increased wearing qualities at this point.

Another object is to provide against the possible accumulation of dust and dirt beneath the protector while adding increased stability and security of attachment of the protector.

Other objects and advantages will appear as the description progresses. In this specification and the annexed drawings, the invention is illustrated in the form considered the best; but it is to be understood that the invention is not limited to such form, because it may be embodied in other forms and it is to be understood that in and by the claims following the description it is desired to cover the invention in whatsoever form it may be embodied.

In the accompanying one sheet of drawings: Fig. 1, is a fragmentary perspective of a stair, partly in cross-section having a nosing protector constructed and applied in accordance with this invention. Fig. 2 and Fig. 3, are cross-sectional details of modified forms of the invention. Fig. 4 is a similar view of Fig. 2, applied to the stair nosing, which is shown in cross section, illustrating the frictional and mechanical fastening of the protector to the nosing. Fig. 5, is a similar view illustrating a form especially applicable to automobile running boards and square nosed stairs. Fig. 6, is a similar view of a modification having inserted non-slip buttons.

It is desired to differentiate this invention from step pads and treads that do not encompass and reinforce the nosing. Fully ninety percent of the wear and tear on stairs is on and adjacent to the nosing. Likewise this is the point of danger to the pedestrian, especially on wooden treads that wear unevenly, split, chip and give beneath the weight of the person. This invention insures uniform treads, easily placed and replaced when worn, with a nosing having the necessary non-slip qualities, yet with no corners or angles likely to trip or catch the toe or soles of the shoes of pedestrians.

Broadly stated the invention comprises an integral strip of metal, preferably sheet steel, electro galvanized or otherwise treated to resist corrosion and increase visibility and formed to rest upon the stair tread and encompass the nosing.

In detail the construction illustrated in the drawings, referring to Figure 1, includes the usual stair step 1, resting upon the riser 2, the ends of which are gained into stringers 3, or otherwise constructed in accordance with this art.

The protector comprises the tread 4, having the down turned flange 5, preferably perpendicular to the tread and countersunk into the surface of the step 1. The tread 4, extends forward and is bent at 6, to the contour of the nosing 7, and extends well under the nosing at 8 toward the riser 2. For ornamentation and additional rigidity, this extension 8, may be formed into an ornamental scotia 9, or other ornamental shape, to give finish to the angle between the underside of the step and the riser.

The length of the tread may be equal to the distance between the stringers 3, or it may be confined to the central portion of the step where the major wear is, leaving lateral spaces between the ends 10 of the tread and the adjacent stringers 3. These spaces facilitate sweeping, in cleaning the steps. The flange 5, also prevents dust and dirt accumulating beneath the protector.

The standard wooden step 1, is finished to about one and one-eighth inches in thickness, with the rounded nosing 7. The contour of the curve 6, including the extension 8, of the protector, is slightly less in radius than the radius of the nosing (see Figure 3) so that when the protector is forced into position, the inherent tension of the metal protector will cause the extension 8, to bear firmly against the underside of the step, to cause a good frictional adherence at this point; while the curve 6, snugly fits the nosing 7, to firmly grip and reinforce the nosing.

With the protector thus applied, two nails 11, are driven through the holes 12, near the opposite ends 10, and partly into the step 1, to hold the protector in position, while a chisel is driven into the step along the flange 5, the length of the tread, to form a channel or kerf to receive the flange 5, and countersink it into the surface of the step. The flange 5, is then hammered gently along its

length until the underside of the tread 4, rests against the step. Then all the nails 11, are driven home, securely fastening the protector to the step. The flange 5, entering the channel, tends to draw the protector against the nosing 7. "Trunk nails" are preferred because they have suitable oval heads and cut points slender enough to follow the grain of the wood and tend to clinch, see Figure 4.

It is highly desirable that the tread 4, be of sufficient width to carry the flange 5, well back of the riser 2. In factories and buildings where packing cases and the like are skidded up and down the stairs, the nosings are often chipped or split off back to the risers, to which they are secured by the nails 13; nailing at this point tending to induce splitting of the clear grained step 1.

The tread portion 4, is provided with spaced rows of embossments in staggered relation, to prevent slipping. The first row of embossments 14, are arranged preferably just forward of a vertical line 15, through the radial center of the nosing, approximately thirty degrees off perpendicular. This is the point of greatest wear and possible slipping. These embossments 14, are preferably long and narrow, that being the form best suited for the purpose at this point. The other embossments 16, are distributed uniformly over the surface of the tread, and are preferably annular in form, as presenting the best tractional surface. All embossments have tapered streamline sides to avoid accumulation of dirt for sanitary reasons.

The modified form shown in Figures 2 and 4 has the upturned flange 17, the edge of which is adapted to anchor itself in the underside of the step when forced over the nosing 6, as shown in Figure 4. This form of protector can be applied to carpeted stairways, the flanges 5 and 17 embedding themselves into the pile of the carpet and can be depended upon to hold without nailing, especially if provided with the serrations such as 18 (see Figure 2).

In cement stairs the protectors can be attached within the molding forms in such a manner that the protectors will remain embedded in the step, when the forms are removed.

Figure 5, illustrates a modification especially designed for ornamenting and protecting the nosings of automobile running boards. The flange 5^x is shortened and is adapted to sink into the linoleum or other covering of the running board. Figure 6, illustrates a means for inserting pressed carborundum or other composition buttons 14^x and 16^x, through countersunk openings in the tread 4^x. These buttons serve the same function but are more durable than the embossments 14—16.

Having thus described this invention what I claim and desire to secure by Letters Patent is:

1. A step protector comprising a strip of sheet metal having an edge flanged perpendicularly to and adapted to be countersunk into the step and a bent edge adapted to enclose the step nosing.

2. A step protector comprising a strip of sheet metal having a flanged edge adapted to be countersunk into the step and a bent edge adapted to enclose the step nosing and terminating in a flanged edge beneath said nosing.

3. A step protector comprising a strip of sheet metal having a flanged edge bent substantially perpendicularly to the tread portion and adapted to be countersunk into the step; and a curved portion adapted to enclose and resiliently engage beneath the step nosing.

In testimony whereof I have hereunto affixed my signature.

DENNIS F. LARKIN.