April 18, 1939. H. T. BARRETT 2,154,597

FLOOR TREAD

Filed Jan. 23, 1937

Fig. 1.

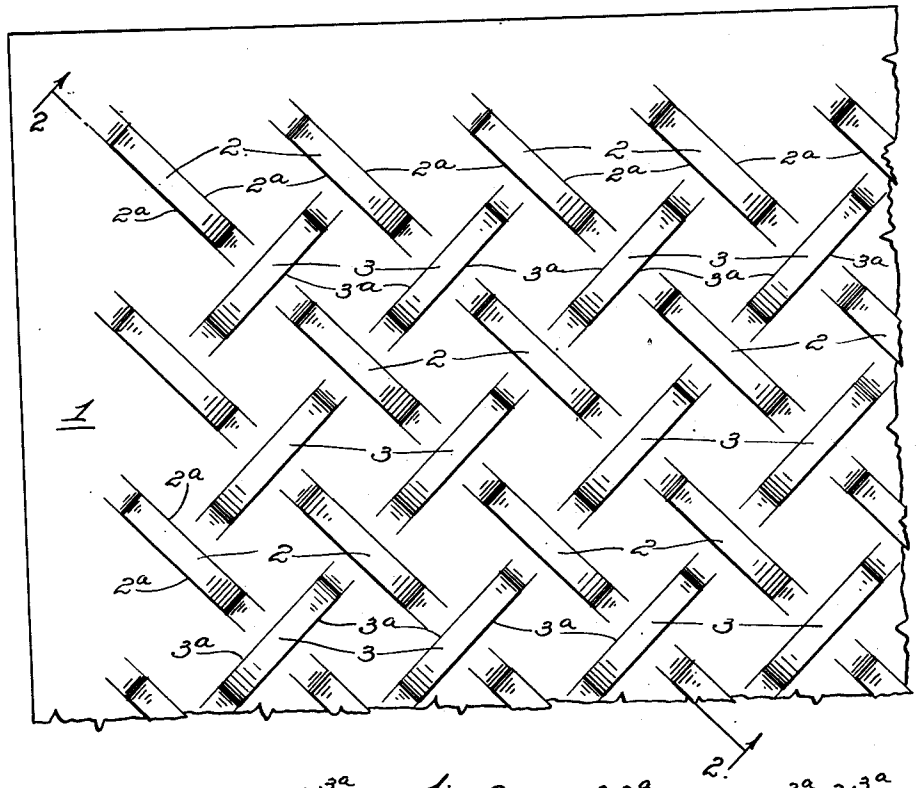


Fig. 2.

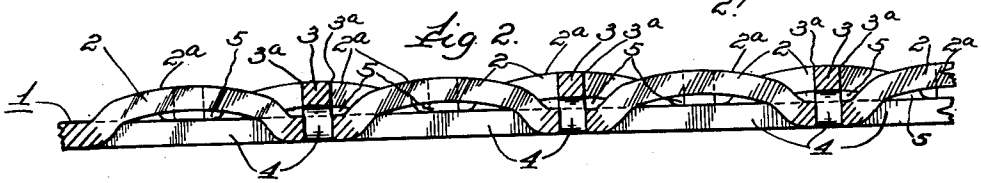


Fig. 3.

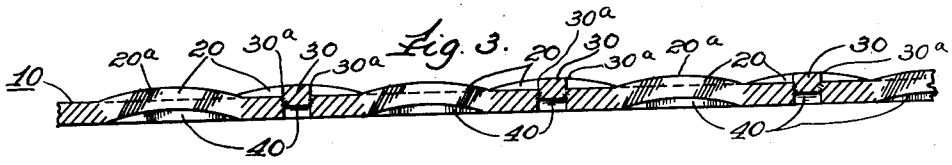


Fig. 4.

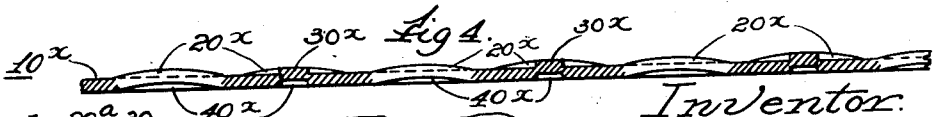


Fig. 5.

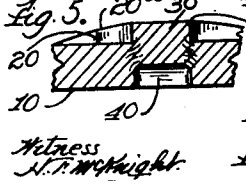
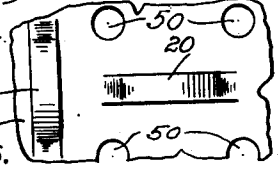


Fig. 6.



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FLOOR TREAD

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Application January 23, 1937, Serial No. 122,023

2 Claims. (Cl. 94—5)

This invention relates to floor treads or tread plates intended to provide a relatively non-slip surface for floors, stair treads, ramps, sidewalks and like areas. One object of the invention is to provide a structure which can be economically manufactured of sheet metal by a stamping process. Another object is to provide a construction in which the surface is not only corrugated but in which the upraised portions have relatively sharp edges serving to increase the frictional effect. A further object is to include in the design of the structure a simple and efficient provision for drainage of any liquid which might accumulate thereon. The invention consists of certain features and elements of construction, as herein shown and described and as indicated by the claims.

In the drawing:

Figure 1 is a fragmentary plan view showing a partial area of a floor tread plate embodying this invention.

Figure 2 is a transverse detail section taken substantially as indicated at line 2—2 on Figure 1.

Figure 3 is a section similar to Figure 2 but showing a modified construction in which the upraised portions of the plate are offset from its principal plane by less than the thickness of the plate.

Figure 4 is a section similar to Figure 3, showing the same features of construction as applied to a considerably thinner piece of material.

Figure 5 is an enlarged detail section of the structure shown in Figure 3.

Figure 6 is a fragmentary plan view of the plate shown in Figure 3.

As shown in Figures 1 and 2, the tread embodying this invention is formed from a plate 1 of sheet metal which may be of any suitable thickness, depending upon the situation in which it is to be employed and the character of service expected of it. At intervals in its area this sheet 1 has upraised elongated areas, that is, areas of generally oblong shape, as denoted at 2 and 3. Each of these areas is formed by shearing its two opposite and longer sides 2^a, 2^a, or 3^a, 3^a, from the body of the plate, and forcing upwardly the material between the lines of shear so as to cause it to arch above the principal plane of the plate, as seen in Figure 2. This leaves a slot or opening 4 in the body of the plate directly below the arched, upraised area, and when the arched portion is offset from its original position by more than the thickness of the plate 1 as in the form illustrated in Figure 2, it provides slits or openings 5 at each side of the elongated area 2 or 3 leading through the plate. Such a construction is of particular advantage where the tread is subject to dripping water or other liquid, as for example, in a laundry or restaurant kitchen space; in such installations, of course, it will be necessary to provide drainage channels under the plate 1 to carry off any water or grease which is drained from the surface through the openings 5.

As shown in Figure 1, the upraised areas are disposed in two series of parallel rows, those of one series being designated by the numeral 2 and those of the other series by the numeral 3. The areas 3 extend in rows transverse to the direction of the rows of elements 2; and, preferably, one series of rows is perpendicular to the other. Furthermore, the upraised areas of each row are so disposed as to interrupt the transverse rows; in other words, in any row, its upraised areas alternate with upraised areas of the other series.

The arrangement of the upraised areas in two series of parallel rows transverse to each other, as already described, results in an efficient distribution of the pairs of sharp slip-preventing edges 2^a and 3^a so that they shall resist slippage in any direction across the surface of the plate. And since, in most installations of material of this nature, there is a fairly definite direction of travel, usually parallel to one edge or margin of the tread plate, Figure 1 shows the elements 2 and 3 arranged in rows both oblique to an edge of the plate.

It may also be noted that in either series of parallel rows the elongated areas of each row are spaced apart endwise from each other, and the areas of the next adjacent parallel row are arranged in staggered relation so that they overlap these spaces. Thus each row supplements the next adjacent row in providing effective anti-slip features, tending to arrest any sliding movement before it can proceed any considerable distance across the tread, even if it should be in a direction exactly parallel to one of the series.

Figures 3 and 4 show modified structures which would have the same appearance in plan view as that shown in Figure 2, but which differ therefrom when viewed in section. Figure 2 shows a plate of relatively thick material but in which the upraised areas 20 and 30 are not arched upwardly from their initial position by as much as the thickness of the plate 10 itself. Thus on the under side of the plate the offsetting of the areas 20 and 30 produces merely recesses 40 in-

stead of complete slots, as shown at 4 in Figure 2. On the upper surface, however, the material is actually sheared so that the edges of the upraised areas 20 and 30 indicated at 20a and 30a are sharply formed to afford effective friction against slippage over the surface of the tread. Figure 4 shows a similar construction made from a considerably thinner plate 10x in which the upraised areas are disengaged at 20x and 30x with corresponding recesses 40x formed below them in the under side of the plate. Preferably, the recesses 40 and 40x are formed by punches having blunted or rounded edges, so that actual shearing of the metal by these punches is avoided, and it is merely displaced without actual rupture of the fibers in some such manner as indicated in the enlarged sectional view of Figure 5. This results in a plate which is considerably stronger than it would be if the material were completely sheared in forming each of the upraised areas. With this type of plate the formation of the slip-preventing features does not produce any openings available for drainage; hence, it may be desirable in some cases to perforate the plate at intervals, as indicated at 50 in Figure 6.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the invention, and that the same is not limited to the particular form herein shown and described, except in so far as indicated by the appended claims.

I claim:

1. A floor tread composed of a metal sheet formed with elongated areas upraised from its upper surface, said areas being sheared from said surface along two opposite sides of each area to form sharp edges serving as friction elements; each area being upraised by less than the thickness of the sheet, and the sheet having a recess in its under surface directly opposite said area, the bottom of the recess being substantially parallel to the upper surface of the upraised area, and its sides being joined with the bottom by curved surfaces to avoid shearing of the material within the body of the sheet.

2. A floor tread composed of a metal sheet formed with elongated arched areas upraised from its upper surface, said areas being sheared from said upper surface along two sides of each arch to form sharp edges serving as friction elements; each arched area being upraised at the middle of its length by less than the thickness of the sheet, the ends of the arched area merging smoothly into the upper and lower surfaces of the sheet, and the sheet having a recess in its under surface directly opposite each upraised area, the bottom of the recess being joined to the sides of the recess by curved surfaces so that the material at the bottom of the sheet is merely displaced without severance in forming the upraised arches.

HAROLD T. BARRETT.