

Escalator Step

This invention concerns escalators, in particular, escalator steps.

It is well known, as the prior art shows, that a frequently-encountered safety problem on
5 escalators is that passengers may position their shoes too close to the sidewall or scuff plate surface and another step. Generally speaking, passengers, therefore should be discouraged from placing their feet in those positions where they
10 will either contact the scuff plate or the adjacent step.

A number of prior art approaches are available to alleviate this problem. One uses coloured plastic inserts along the perimeter of the step, and it
15 is actually an outgrowth of the concept of painting the perimeter of the step to provide a visual warning (a U-shaped border) to the passengers as to where they can safely place their feet to avoid contacting the adjacent step or the sidewall. Putting an
20 elevated tread area around the perimeter of the step, another possible solution, provides a physical barrier preventing passengers from moving their shoes into the position where they may contact the adjacent step or the sidewall. But, the plastic
25 insert is expensive, requiring installation of an additional part of the step, and is not as durable as the metallic step, and subject to cracking and wear, needing periodic replacement. The elevated tread technique, likewise, is expensive, because
30 it is an additional component, and also because it requires a special comb, the guide through which the treads pass at the terminus of the escalator.

In short, though the prior art shows various approaches to the problem, the need still exists
35 for an escalator step which, without additional

removable components, has a clear, durable, longlife warning showing passengers where they can safely locate their feet on the step.

According to the present invention there
5 is provided an escalator step having a passenger-carrying surface provided with ribs, said ribs being provided with grooves in and transverse thereto in a border of the tread along the side portions and forward portion thereof, the passenger-carrying
10 surfaces of said ribs being of a first colour and said grooves of said border being of a second colour, whereby said border is provided with a colour pattern enclosing an area on said tread within which passengers should position their feet.

15 By 'forward portion' we mean that portion of the step which in use is adjacent the adjacent higher step and on which the passengers should not place their feet.

According to another aspect of the present invention there is provided a method for providing
20 a visible border along the side portions and the forward portion of the horizontal tread of an escalator step provided with ribs including the steps of milling transverse grooves in the ribs in the border, applying a coloured coating to the ribs in the
25 border, and removing, as by burnishing, the coating from the passenger carrying surfaces of said ribs.

Thus according to the present invention, a visual warning is provided to passengers by placing a high-visibility paint, e.g. yellow paint, along
30 the edges of the step, but at a point at which it cannot be contacted by the passengers' feet, thus completely eliminating paint wear, thus the need to repaint the surface.

Preferably, this paint is placed along the
35 inside walls of the existing ribs and along horizontal surfaces of recessed transverse grooves milled into the ribs along the edge of the step, meaning no modification is required to the comb. A passenger, looking down at the step then sees, not just a

(14)

yellow, U-shaped border, but a far more distinctive checkered pattern consisting of yellow squares disposed along the edge of the step. The appearance is not just extremely distinctive, but so eye-catching and noticeable that a clear warning is given to the passengers where not to stand.

The border may be applied by first putting the transverse slots in the existing ribs along the desired area of the perimeter. Then the paint is applied along the same area; an initial step which results in a solid-painted border around the perimeter. Then the surface of the step along the border is lightly burnished to remove all of the paint on the upper surface, the surface that comes into contact with the passengers' feet, leaving the paint along the interior walls of the treads and the transverse grooves.

As stated, the invention thus provides an extremely distinctive and, most important, noticeable demarcation along the step, one which using paint is extremely low-cost, yet though it uses paint, the paint will never wear off.

Other objects, benefits and features of the invention will become apparent, to one skilled in the art, from the following.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings of which:

Fig. 1 is a perspective view of an escalator step embodying the invention; and

Fig. 2 is an enlarged view of the circled area of Fig. 1, revealing the rib, transverse groove, and colour configuration according to the invention.

Fig. 1 shows a simple, conventional escalator step 10, having vertical ribs 12 along its front surface 10A and corresponding horizontal ribs 14 along its tread 10B, on which the passengers

stand. The horizontal ribs 14 register with the vertical ribs 12 of adjacent steps that move up and down relative to each other. The ribs 14, on the tread or passenger carrying surface 10B, engage
5 combs at the terminals of the escalator, not shown, the combs and ribs arrangement being widely used.

Located along the two side portions 10C of the step 10 and the forward portion 10D is a demarcation area 16 according to the present invention. The
10 area of ribs 10E bounded by this demarcation area comprises the safe area, where passengers should stand. As stated earlier, this demarcation area 16 is defined by a border made of a checkered-like or spot pattern consisting of painted 16C
15 and nonpainted squares 16B amidst lines 14E. Fig. 2, which shows the portion of the border in the circle A in Fig. 1, demonstrates this appearance quite clearly.

In Fig. 2 there are ribs 14 that run throughout
20 the entire tread 10B of the step. In this particular configuration, there are rib pairs 14A, 14B, one 14A is higher than the other 14B. According to the invention, the rib pairs 14 at the perimeter of the step have transverse grooves 18 or slots
25 placed in them, and these slots, as well as the interior surfaces of the ribs 14D, are painted (shown by the shaded lines). In addition, the interior upward-facing lower surfaces 14E between opposed ribs are also painted. It will be observed
30 that the uppermost surfaces of all the ribs 14 are not painted - thus the passengers on the step never contact the painted surface with their shoes.

One way to manufacture a step according to the invention and as shown in Figs. 1 and 2 is
35 to first paint the ribs at the edge of the step after the transverse slots have been placed in them, and then, perhaps using merely a sanding block, burnish off the paint on the top surface,

16

leaving the paint within the transverse grooves and what might be called the interior portions or unreachable portions of the ribs. The result is a checkerboard or spot-like appearance.

- 5 To one skilled in the art, the previous description may suggest modifications and variations to the embodiment of the invention that is shown in Figs. 1 and 2 and which has been described, without departing from the scope of the invention.

(17)



- 6 -

Claims

1. An escalator step having a tread provided with ribs, said ribs being provided with grooves in and transverse thereto in a border of the tread along the side portions and forward portion thereof, the passenger carrying surfaces of said ribs being of a first colour and said grooves of said border being of a second colour, whereby said border is provided with a colour pattern enclosing an area on said tread within which passengers should position their feet.
 2. An escalator step as claimed in claim 1 wherein within said border those portions of the surface of the tread below the passenger carrying surfaces of said ribs are of said second colour to provide within said border a colour pattern of lines of the second colour between lines comprising alternating areas of the second colour and the first colour.
 3. A method for providing a visible border along the side portions and the forward portion of the horizontal tread of an escalator step provided with ribs including the steps of milling transverse grooves in the ribs in the border, applying a coloured coating to the ribs in the border, and removing, as by burnishing, the coating from the passenger carrying surfaces of said ribs.
 4. An escalator comprising a plurality of escalator steps as claimed in claim 1 or 2.
 5. An escalator step substantially as herein described with reference to the accompanying drawings.
 6. An escalator comprising a plurality of escalator steps as herein described with reference to the accompanying drawings.
 7. A method of providing a visible border along the side portions and forward portion of an escalator step as claimed in claim 3 substantially as herein described.
-