W. S. ATWOOD.

TREAD SURFACE.

APPLICATION FILED NOV. 17, 1914.

1,166,423. Patented Jan. 4, 1916.

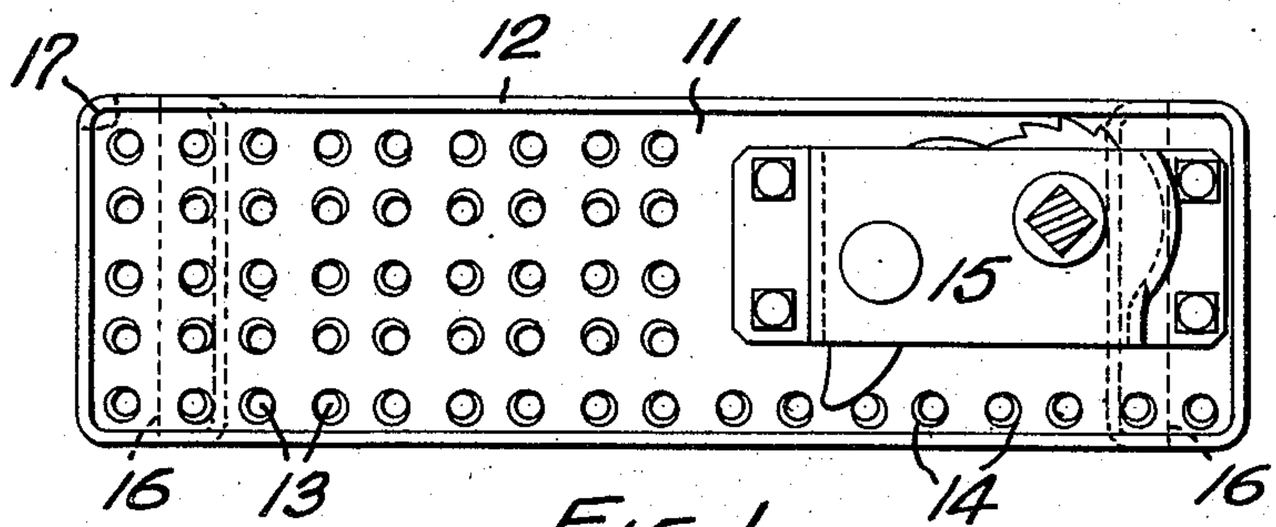

FIG. 1.

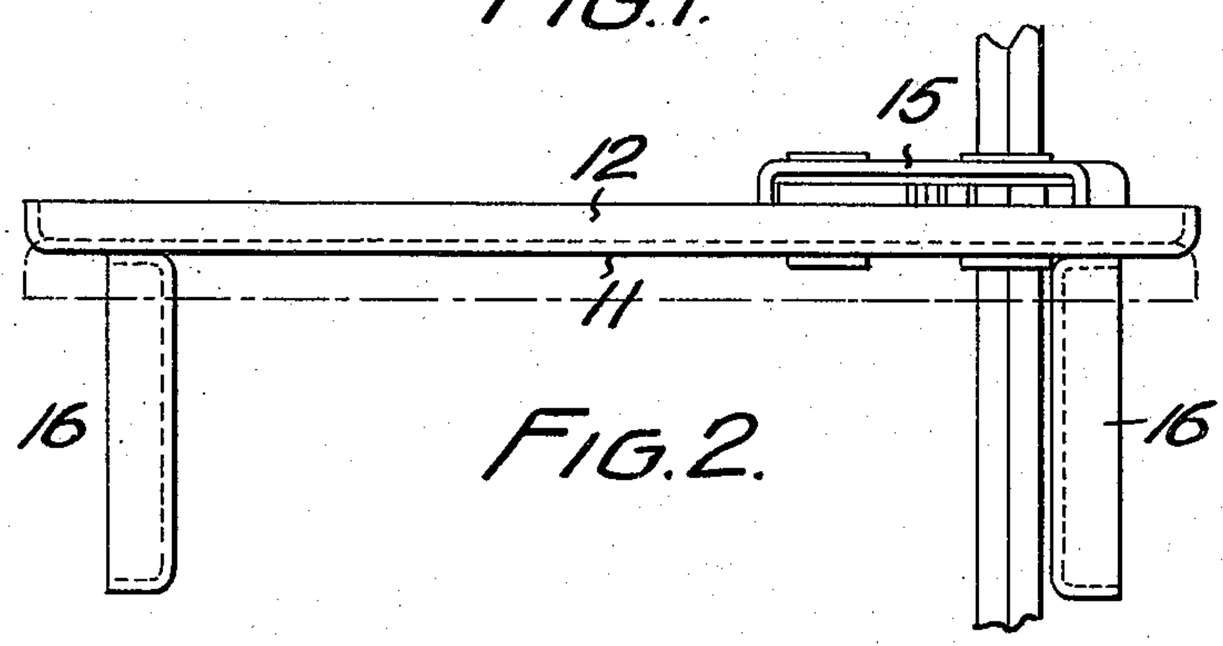

FIG. 2.

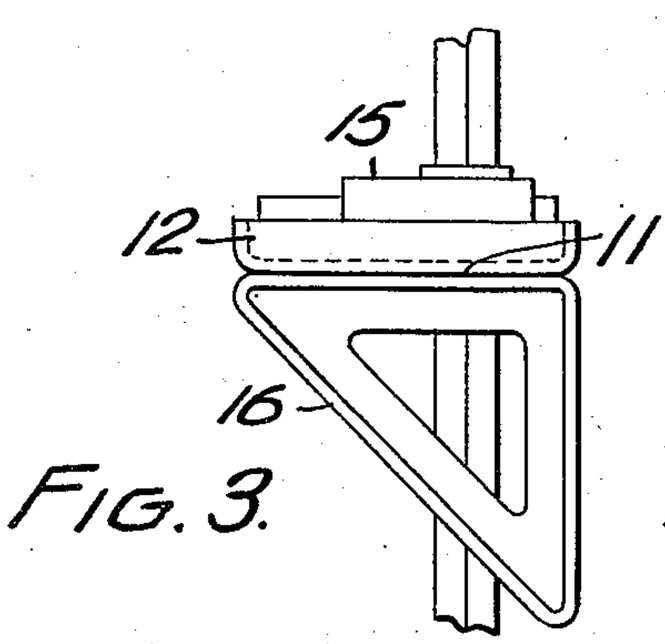

FIG. 3.

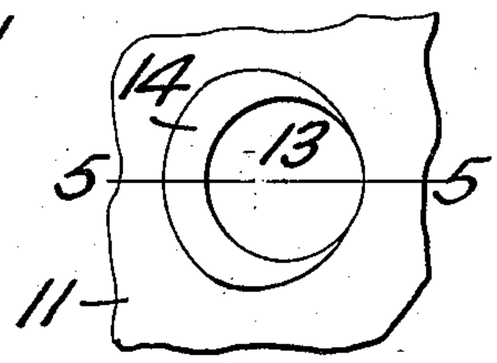

FIG. 4.

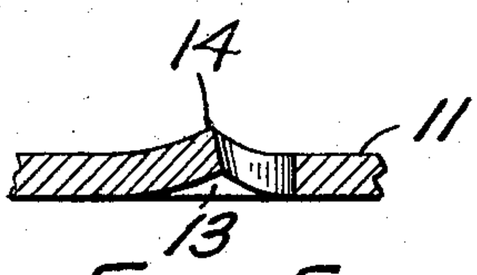

FIG. 5.

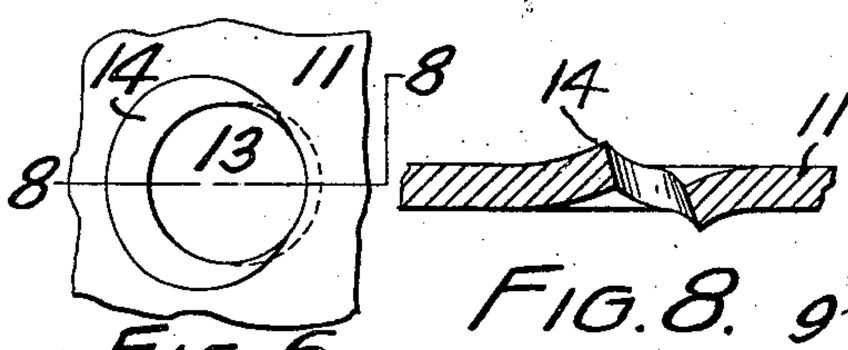

FIG. 6.

FIG. 8.

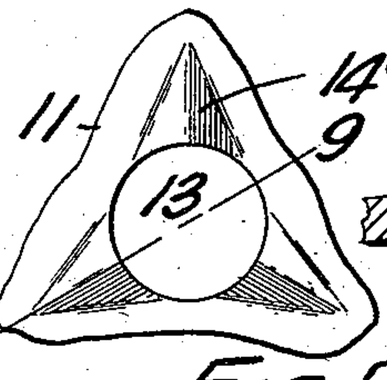

FIG. 7.

FIG. 9.

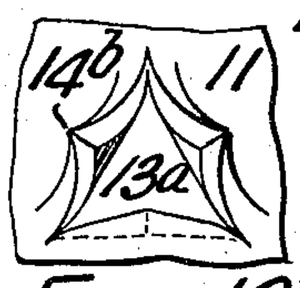

FIG. 10.

Witnesses

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TREAD-SURFACE.

1,166,423. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed November 17, 1914. Serial No. 872,584.

To all whom it may concern:

Be it known that I, WILLIAM S. ATWOOD, a citizen of the Dominion of Canada, and resident of the city of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Tread-Surfaces, of which the following is a full, clear, and exact description.

This invention relates to improvements in brake steps, and the object is to provide a tread surface which may be manufactured and installed at a minimum of cost and which will have a maximum of durability.

A further object is to provide a tread surface having the upper surface thereof formed to provide safe and secure footing under all conditions of weather.

The device consists essentially of a rectangular plate preferably of rolled sheet stamped to form an upwardly or downwardly projecting flange around the entire periphery, and a series of burs or projections on the upper surface partially surrounding or adjacent to drainage apertures.

In the drawings which illustrate the invention:—Figure 1 is a plan view of the step. Fig. 2 is a front elevation of same. Fig. 3 is an end elevation. Fig. 4 is an enlarged plan view of the simplest form of bur. Fig. 5 is a sectional view on the line 5—5, Fig. 4. Figs. 6 and 7 are plan views of slightly modified forms of burs. Figs. 8 and 9 are sectional views on the lines 8—8 and 9—9 of Figs. 6 and 7 respectively. Fig. 10 shows a modified form of aperture.

Referring more particularly to the drawings, 11 designates a rectangular metal plate, preferably formed of rolled sheet and stamped to form an upwardly or downwardly projecting flange 12 around the entire periphery, a plurality of apertures 13, and a plurality of sharp-edged burs 14 partially surrounding or adjacent to the apertures formed edge uppermost.

The plate carries fixed thereto the usual ratchet and pawl mechanism for coöperation with the brake staff designated as a whole by the numeral 15, and is supported by brackets 16 of stamped sheet metal preferably secured permanently to the plate by riveting, welding or other suitable means.

In the present invention, the holes 13 are formed with burs 14 only partially surrounding the same, as clearly shown in Figs. 4 to 9 inclusive. In Figs. 4 and 5, the bur is turned up around approximately one half the circumference of the hole, the plate being substantially flat for the remaining portion of the circumference. In Figs. 6 and 8, the bur is as previously described, but the plate instead of being flat is bent slightly down opposite the bur, so that the drainage through the hole is better. In Figs. 7 and 9, the burs, designated 14^a, instead of being circumferential are radial in form and of any suitable number. The plate between these burs at the circumference of the hole may be flat or may be bent down as shown in Fig. 8. The down bent portions may be very slight or may practically duplicate the burs 14^a on the under side of the plate.

It will be seen from the foregoing description that sufficient roughness is given to the upper surface of the plate to provide safe footing, and at the same time, perfect drainage of the plate is attained. It is preferable, but not necessary, that every hole in the plate should have a flat or down bent portion in its circumference, so that moisture and cinders may escape over the whole surface of the plate. When radially disposed burs are used, the holes and burs may be arranged so that the burs of adjacent holes interdigitate, thus forming a very greatly strengthened sheet, giving a safe footing and easy escape for moisture and cinders. The upturned flange which entirely surrounds the plate will effectively guard against a trainman's foot slipping off the edge of the plate even without the roughened surface of the plate.

While the plate has been shown and described with a flange extending unbrokenly around the entire periphery, it is by no means essential that it should be so. The flange may be provided on the four sides of the plate in four separate sections separated at the corners of the plate if this is found desirable or expedient in manufacture. Such a condition is indicated in dotted lines at 17. It will also be evident that where the step is so close up against the end of the car that a trainman's foot cannot slip down between the step and car end, the flange adjacent the car may be eliminated or for strength turned downwardly. It will also be understood that while the apertures of the plate have been shown as circular, they may be of any shape and arrangement with the burs arranged in any of the manners previously described or in any other manner

found peculiarly adaptable to the shape of aperture used. The form shown in Fig. 10 illustrates but a single example. The aperture 13^a is substantially triangular, the metal punched out to form the aperture being turned up on one or more edges to form the burs 14^b and left horizontal, or turned downwardly on the remaining edge or edges. While this invention has been shown and described solely as a brake step, it must not be understood therefrom that the intention is to limit the invention to this particular use, as it may be applied to the steps of railway and street cars, locomotives, and in fact, the steps or running boards of any type of vehicle. The invention may also be applied to stair treads for inside and outside stairs for either land or marine work.

Having thus described my invention, what I claim is:—

A metal tread comprising a plate having apertures therein, the axes of which are normal to the surface of the plate, the edge of the apertures being forced back in such proportion to the thickness of the material and the size of the apertures as to form burs having an edge, the portion of the edge of said burs above the surface of the plate circumscribing said apertures.

In witness whereof, I have hereunto set my hand, in the presence of two witnesses.

WILLIAM S. ATWOOD.

Witnesses:
S. R. W. ALLEN,
G. M. MORELAND.