No. 695,018. Patented Mar. 11, 1902.

F. WEAR.

SAFETY TREAD.

(Application filed Feb. 20, 1901.)

(No Model.)

FIG. 1.

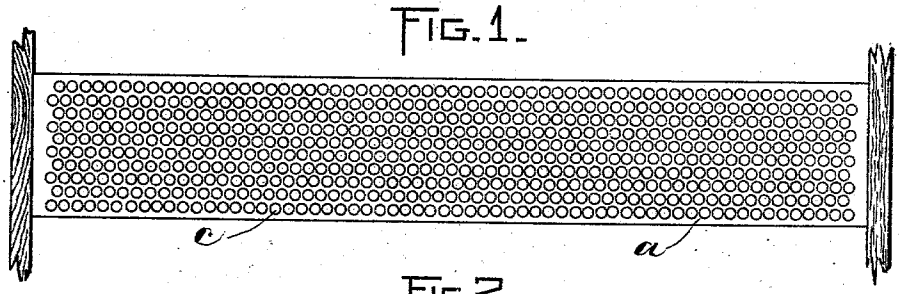


FIG. 2.

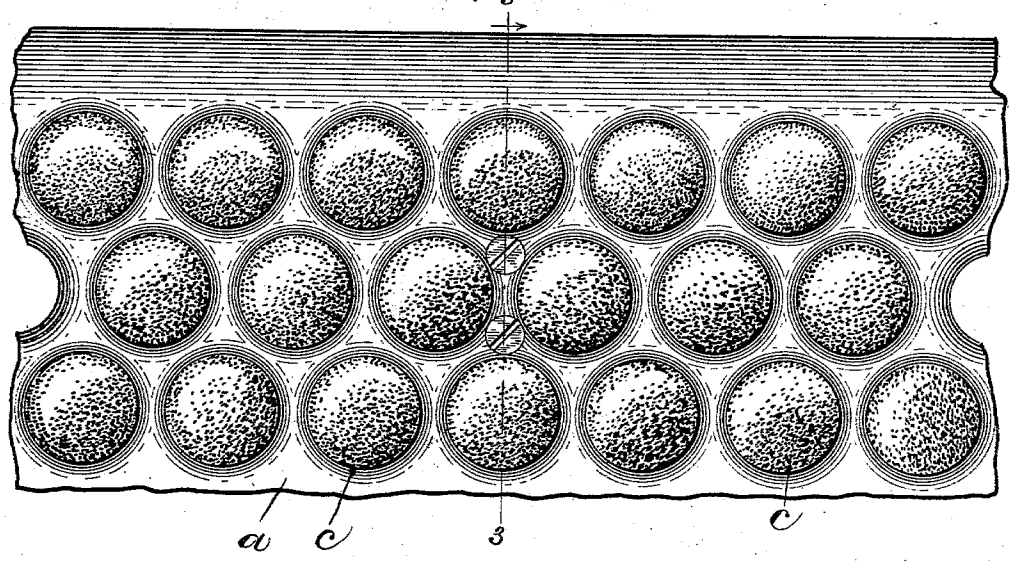


FIG. 3.

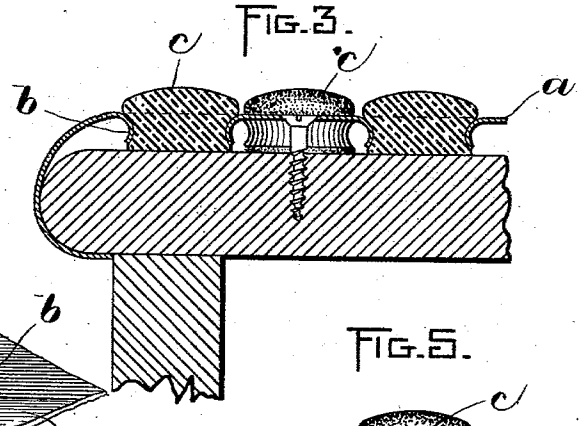


FIG. 4.

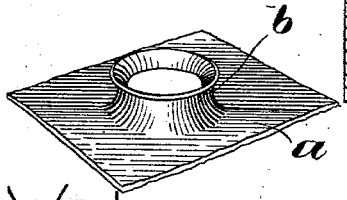
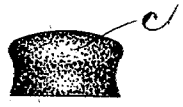


FIG. 5.



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UNITED STATES PATENT OFFICE.

FRANK WEAR, OF MEDFORD, MASSACHUSETTS.

SAFETY-TREAD.

SPECIFICATION forming part of Letters Patent No. 695,018, dated March 11, 1902.

Application filed February 20, 1901. Serial No. 48,140. (No model.)

To all whom it may concern:

Be it known that I, FRANK WEAR, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Safety-Treads, of which the following is a specification.

This invention has relation to "safety-treads," so called, its object being to provide a tread which is suitable for use in buildings of all kinds—such as stores, office-buildings, dwellings, &c.—where the ordinary treads having lead wearing-surfaces cannot be employed to advantage.

In my Letters Patent No. 637,437, dated November 21, 1899, I have illustrated and described a safety-plate having an annular flange encircling each aperture, the perforations being filled with lead. This tread is excellently adapted for outside work, but, like others of its general class, cannot be used in places where the particles of lead which are worn off by the frictional engagement of the passers-by are liable to injure the floor or the floor-covering. In the present invention, as illustrated upon the drawings, I employ a plate similar to that described and fill the apertures with studs of vulcanized rubber or other substance, the particles of which when worn off cannot have an injurious effect. The plate is arranged with the annular flanges projecting downwardly, and said flanges afford a lateral support for the studs, so constricting and engaging them that they cannot be accidentally displaced or removed from the plate. The studs are provided with heads which project above the surface of the plate and present enlarged wearing-surfaces, which yield to the pressure of the foot.

Referring to the said drawings, Figure 1 represents a stair-tread equipped with my invention. Fig. 2 shows my safety-tread somewhat enlarged. Fig. 3 represents a section through the same on the line 3 3 of Fig. 2. Fig. 4 represents a piece of the support or plate and illustrates the annular flange which encircles an aperture. Fig. 5 represents one of the studs.

The plate or support may be formed of steel, iron, brass, aluminium, paper-pulp, or other suitable material. It is perforated at regular intervals, and the stock surrounding each aperture is drawn, formed, or pressed into an annular flange *b*, the edge of which is turned outward. In the apertures are the studs *c*, which, as stated, are formed of any suitable non-slippable substance, such as vulcanized rubber. Each stud has a shank which is adapted to be inserted into an aperture and a head which overlaps the surface of the plate, as best shown in Figs. 3 and 5. The shanks are greater in diameter than the apertures, so that when they are inserted in the latter they are compressed or constricted, whereby their inherent resiliency tends to hold them in place. They likewise project beyond the flanges, so that they form a plurality of cushions for the plate to prevent the flanges from wearing into the floor.

I have shown the tread as secured upon a stair-step, in which event the plate is curved downward along one edge to take under the step-flange, although this is not material to the invention. The plate is secured in place by a plurality of screws or other fastenings and may be molded, cut, or bent to fit any corner or irregular surface with facility. Again, it may be ornamented for use in handsome dwellings, in which case the plate is preferably formed of brass or metal which is capable of a high polish.

The studs are removable and may be replaced when worn out. By reason of their projecting both above and below the supporting-plate they rest upon the lower ends and receive the weight of the person stepping upon them. Hence the support may be formed of thin and comparatively weak material, as its chief function is to hold the studs against dislocation. The provision of the curved flanges which present convex surfaces to the sides of the studs prevents the latter from being flattened to any material extent, as they hold said studs against lateral expansion. The ends of the flanges are held out of engagement with the floor or other surface, and consequently cannot mar or injure them.

For lack of a better term I have called the parts *c* "studs;" but the word is used for purposes of description and not of limitation, and any other element performing the function of the stud may be substituted therefor without departing from the spirit and scope of the invention.

Having thus explained the nature of the

invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

A safety-tread comprising a plate having a plurality of openings and annular flanges integral with the edges of said openings and convexed inward, and non-slippable studs of a shape and material adapted to be compressed in the spaces within the flanges sufficiently to hold said studs projecting above and below the flanges whereby the lower edges of the flanges are prevented by the studs from coming in contact with the surface on which the tread rests while permitting the upward withdrawal of the studs as for substitution of one stud for another without raising the plate from its position.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRANK WEAR.

Witnesses:
M. B. MAY,
GEO. PEZZETTI.