

No. 696,322.

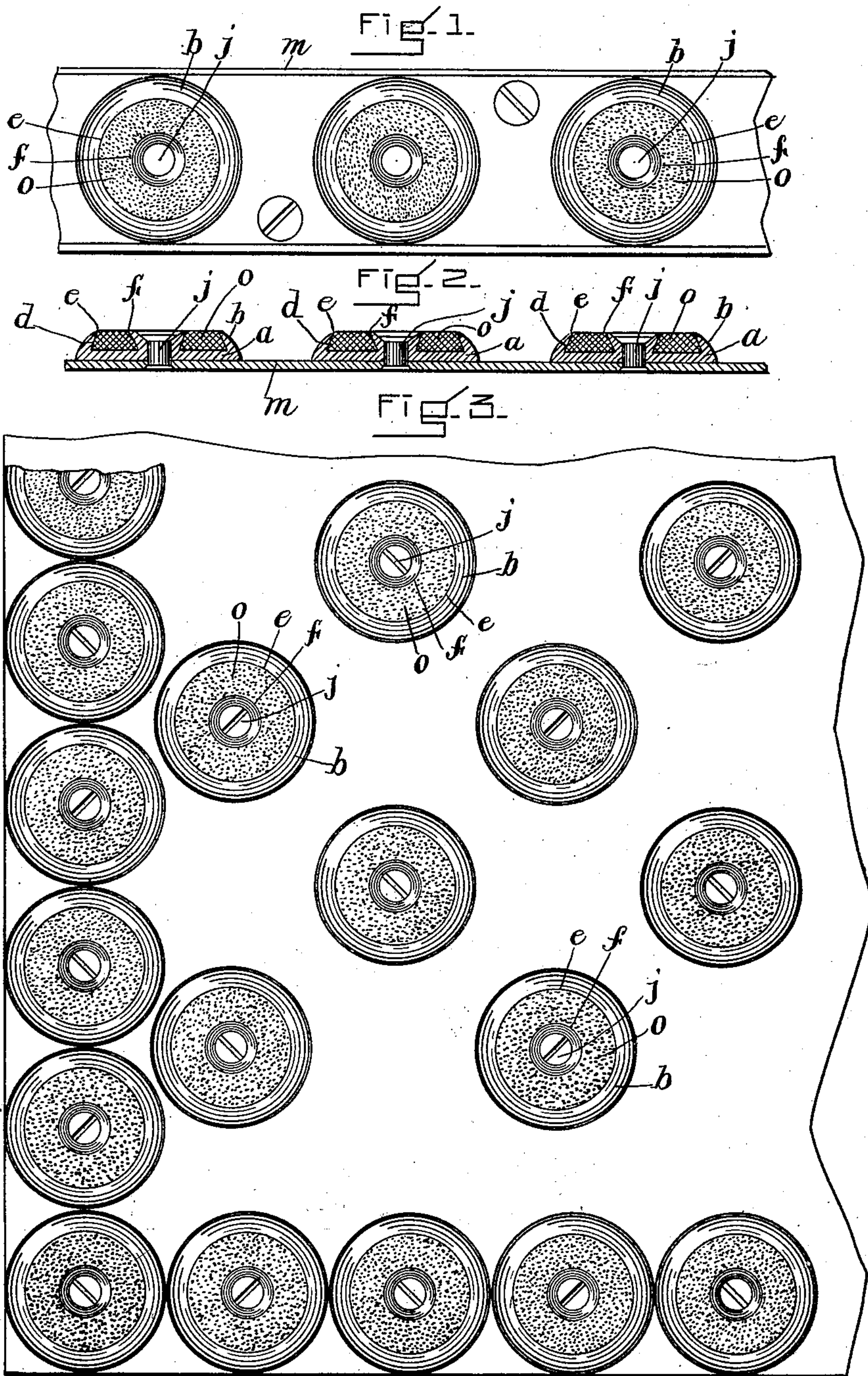
Patented Mar. 25, 1902.

T. P. FARMER.
ANTISLIPPING DEVICE.

(Application filed Jan. 5, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

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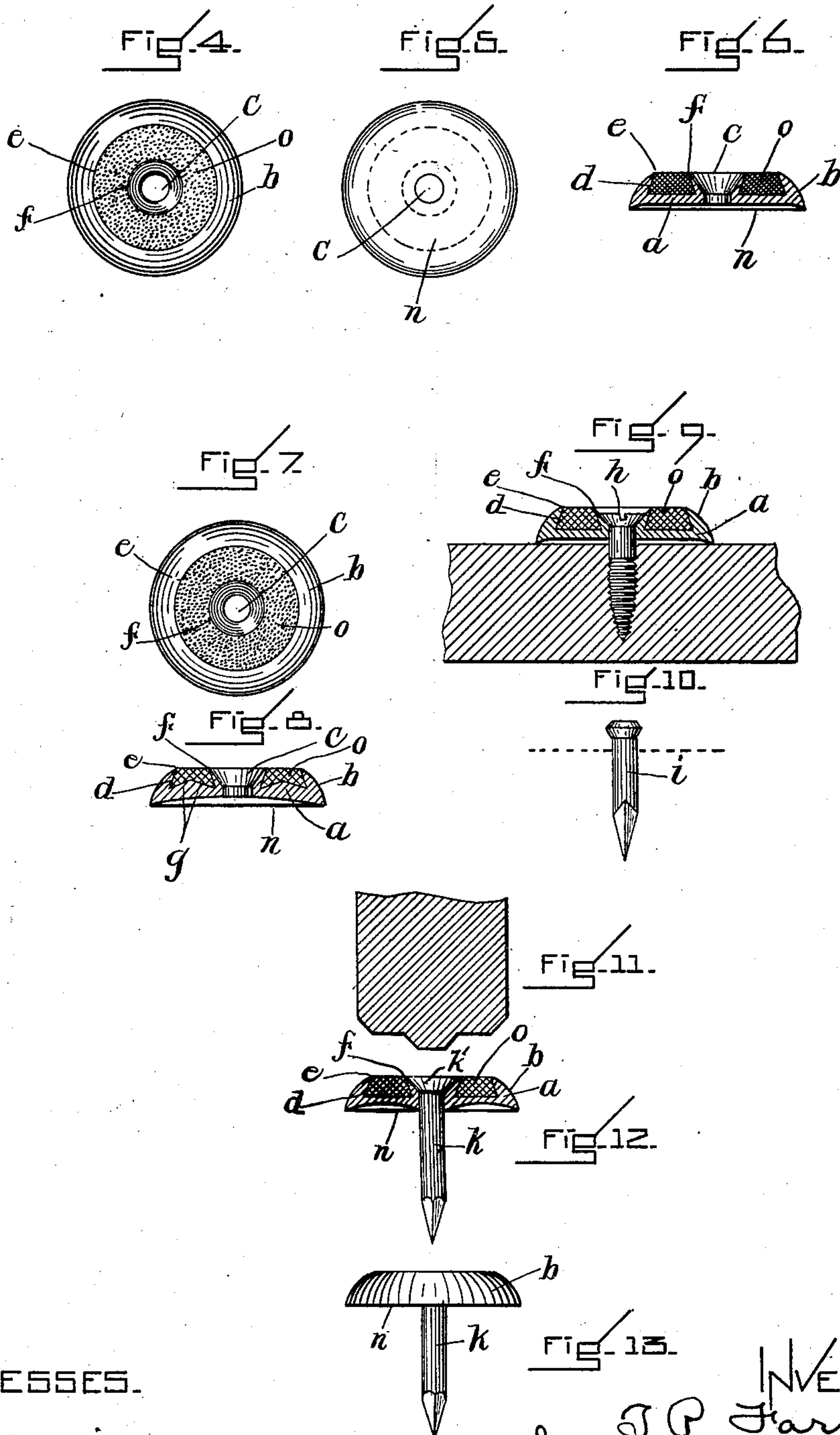
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UNITED STATES PATENT OFFICE.

THEODORE P. FARMER, OF SOUTHWEST HARBOR, MAINE, ASSIGNOR TO PROTECTIVE TREAD COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

ANTISLIPPING DEVICE.

SPECIFICATION forming part of Letters Patent No. 696,322, dated March 25, 1902.

Application filed January 5, 1901. Serial No. 42,190. (No model.)

To all whom it may concern:

Be it known that I, THEODORE P. FARMER, of Southwest Harbor, in the county of Hancock and State of Maine, have invented certain new and useful Improvements in Antislipping Devices, of which the following is a specification.

The object of this invention is to provide means for preventing persons from slipping when ascending or descending stairs or when walking over sidewalks, pavements, passages, floors, or other thoroughfares where there is liability of the occurrence of such an accident and also for preventing the wearing away of those surfaces which are subjected to constant use or over which persons are passing.

Another object of the present invention is to provide a device of the character referred to which consists of a single element, so that it may be secured in place singly or in conjunction with a plurality or multiplicity of others in any desired form or arrangement and in a manner suitable for the particular surface to which they are secured.

Hitherto various substances have been employed for preventing the slipping of a person stepping upon a pavement, tread, or surface, and in most cases the substance was of a resistant nature, such as india-rubber, lead, lead alloy, asphalt, or other plastic cement. These substances, as well as others which have been used or proposed from time to time, are of soft and crumbling nature, and to prevent them from wearing away too rapidly or from crushing out of place they have been protected by a hard-metal casing or framework. Of recent years the most common device of this character has consisted of a relatively long and narrow plate of iron or steel having longitudinal grooves filled with a suitable non-slipping or resistant material. Treads of this character, however, are expensive and cumbersome, especially when employed in or about a private residence or dwelling, as they greatly detract from the appearance of hard-wood, marble, or stone stairs or steps. Moreover, they are difficult to fit in irregular places and to bend to conform with the various curves of the surface upon

which they are to be placed. Another disadvantageous feature of such devices is that as hitherto constructed the wearing away of the top portion of the tread-surface decreased the operative surface of the resistant material and proportionately increased the wearing-surface of the hard material of which the frame or casing was constructed. According to my invention, however, I overcome the objections heretofore noted by embodying my invention in a single element, which I term a "stud," and which may be circular or polygonal in shape, and which is adapted for attachment to any tread or surface exposed to wear. The stud is preferably formed of a metallic casing or blank, which may be died or pressed into shape or drop-forged from bar-steel with a suitable die under drop-hammer pressure. This stud or blank is provided with a groove or socket for the reception of the resistant or non-slipping material, the groove being annular, so as to leave the central portion of the blank free for the reception or passage of a securing device, such as a shank, a nail, or a screw. So far as the groove itself is concerned it is undercut, and the edges of the stud are beveled upwardly, so that the area of the resistant or non-slippable material increases as it is worn away. This I regard as one of the most important features of the invention and do not limit its application to a stud or single element. As will be subsequently explained, the groove may be particularly prepared for the reception of rolled lead or lead alloy, so that when the latter is pressed into place it is spread laterally to wedge in the undercut portion of the groove.

Referring to the accompanying drawings, which illustrate several different embodiments of the invention and how it may be used, Figure 1 represents in plan view a metallic strip to which are riveted a plurality of elements or studs embodying the invention. Fig. 2 represents a longitudinal section through the same. Fig. 3 illustrates how the studs may be located with respect to one another upon a surface which ordinarily receives wear from passers-by. Figs. 4, 5, and 6 illustrate one form of the invention in which a

screw or stud may be employed for securing it in place. Figs. 7 and 8 illustrate another embodiment of the invention in which provision is made for the laterally-spreading
 5 rolled lead or non-slippable substance which is pressed into the groove prepared for its reception. Figs. 9 and 10 illustrate the employment of a screw and a nail, respectively, for attaching the stud to the surface subject-
 10 ed to wear. Fig. 11 illustrates a tool which may be employed for driving an attaching-tang into a floor. Figs. 12 and 13 illustrate a form of the invention in which a tang or shank forms a part of the stud and which
 15 may be driven into the floor or other surface over which persons may pass.

On the said drawings the casing of the stud is indicated in all cases at *a*. It is shown as circular; but, as previously stated, it may be
 20 polygonal in form or irregularly shaped without departing from the spirit and scope of the invention. Its outer edge is upwardly beveled, as at *b*, either straight or curved, although I find that when it is curved it pre-
 25 sents the most ornamental appearance. Consequently the stud is substantially frusto-conical or frusto-pyramidal in form. In the center of the stud is a downwardly-tapering aperture *c*, and located between said aperture
 30 and the bevel edge or side wall of the casing there is an annular groove *d*, the walls of which are undercut, as clearly shown, the said walls forming with the beveled side *b* and the aperture *c* two knife-edges *e* and *f*, which aid
 35 in preventing slipping. In the groove thus provided is placed a suitable resistant or non-slipping substance, such as lead or lead alloy. I prefer in most cases to employ rolled lead rather than to pour the lead or lead alloy into
 40 the groove in a molten state, and hence to insure the spreading of the lead, so that it will be wedged under the undercut walls of the groove, the bottom of the groove may be beveled from the center to the sides, as indicated
 45 at *g* in Fig. 8. Through the tapering hole or aperture *c* may be passed any suitable fastener, such as a screw *h*, as shown in Fig. 9, a nail *i*, as shown in Fig. 10, or a rivet *j*, as shown in Figs. 1 and 2; or, if preferred, I may
 50 provide the stud with a shank or tang *k*, as shown in Figs. 12 and 13, a space or recess *k'* being formed in the stud above the upper end of the tang, as shown in Fig. 12. The upper end of the fastening device in every instance
 55 is indicated as somewhat below the surface of the stud. The rivets are usually employed to secure a row or rows of the studs to a supporting-plate *m*; but the screws, nails, or tangs may be employed for attaching the stud
 60 to the floor or to any tread or thoroughfare over which persons are liable to pass.

In order to firmly clench the lead in the groove, as well as to insure a more even contact with the material to which they are to be
 65 secured, the bottom surface may be concave, as shown in Figs. 6, 8, and 9, in each of which figures the concavity is indicated at *n*. The

head of the fastener in drawing down the central portion of the stud while the outer edge remains stationary wedges the knife-edges *e* 70 and *f* together, as will be readily understood. These studs are adapted for all thoroughfares where accidents are likely to happen and may be secured in all places where it is desired to save the floor or other surface from
 75 wear. The studs may be nickel plates or gilded, so as to be of very attractive appearance, and therefore are adapted for use in private residences, where they will add greatly to the appearance of handsomely-polished
 80 floors or even where floors are carpeted. In the last-mentioned case they will save the carpet from wear. They may be placed side by side in rows or may be arranged in geometrical figures, as may suit the fancy of the
 85 user. They are fastened in place one by one, and consequently can be arranged to conform to any curve or angle on steps or staircases. They can be applied by any carpenter or ordinary mechanic and can be sold separately
 90 or in bulk, as desired.

Owing to the fact that the rivet, screw, nail, or tang by which the stud is secured in place is of hard metal relatively to the slip-resistant material and has an exposed upper end, 95 said studs may be readily fastened in the desired position by a suitable tool without marring or in any way changing the shape or appearance of the said slip-resistant material from that given to it by the manufacturer. 100

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, 105 I declare that what I claim is—

1. An antislipping device having a wearing-surface of slip-resistant material with provisions whereby the area or surface of the said material increases as it is worn away, and a 110 hard-metal fastener having its upper end depressed below the surface of the slip-resistant material but exposed to contact with a suitable tool, said device having a hard-metal backing affording a bearing for a portion of 115 said fastener.

2. An antislipping device having a groove for the reception of slip-resistant material, the walls of said groove diverging downwardly whereby the surface of the said material in- 120 creases as it is worn away, and having exposed sharp edges of hard metal bounding the edges of the groove.

3. As a new article of manufacture, a metallic stud having a wearing-surface of slip-resistant material, and having exposed sharp edges of hard metal adjoining the said slip-resistant material. 125

4. As a new article of manufacture, a metallic stud having a groove the walls of which 130 diverge downwardly, slip-resistant material in said groove, and a hard-metal fastener having its upper end depressed below the surface of the slip-resistant material but ex-

posed to contact with a suitable tool, said stud having a hard-metal backing affording a bearing for a portion of said fastener.

5 5. As a new article of manufacture, a beveled metallic stud having a central tapering aperture and having a groove between said aperture and its beveled sides, filled with slip-resistant material, whereby a hard-metal fastener may be passed and driven through
10 said aperture without marring said material.

6. A tread consisting of a plurality of single independent elements adapted to be arranged in any predetermined relation, each element having an exposed surface of slip-
15 resistant material, a casing to inclose said material, and a hard-metal fastener having

its upper end depressed below the surface of the slip-resistant material but exposed to contact with a suitable tool, said element having a hard-metal backing affording a bearing for
20 a portion of said fastener.

7. A metallic stud having provisions for securing it in place, said stud having an external rim formed with a sharp edge, and having slip-resistant material inclosed by said
25 rim.

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

THEODORE P. FARMER.

Witnesses:

F. J. LURVEY,
L. G. FARMER.