

F. R. PHILLIPS.  
TREAD SURFACE.  
APPLICATION FILED AUG. 26, 1908.

917,355.

Patented Apr. 6, 1909.

Fig. 1.

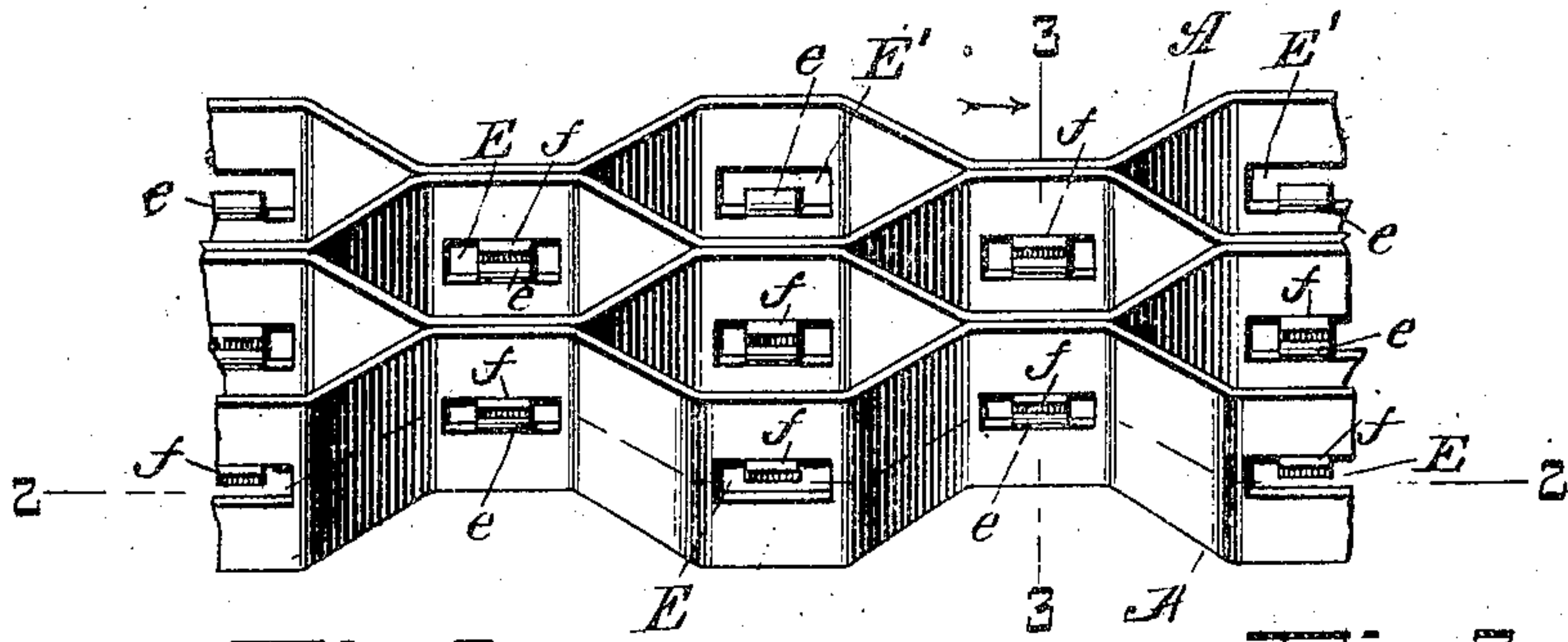


Fig. 2.

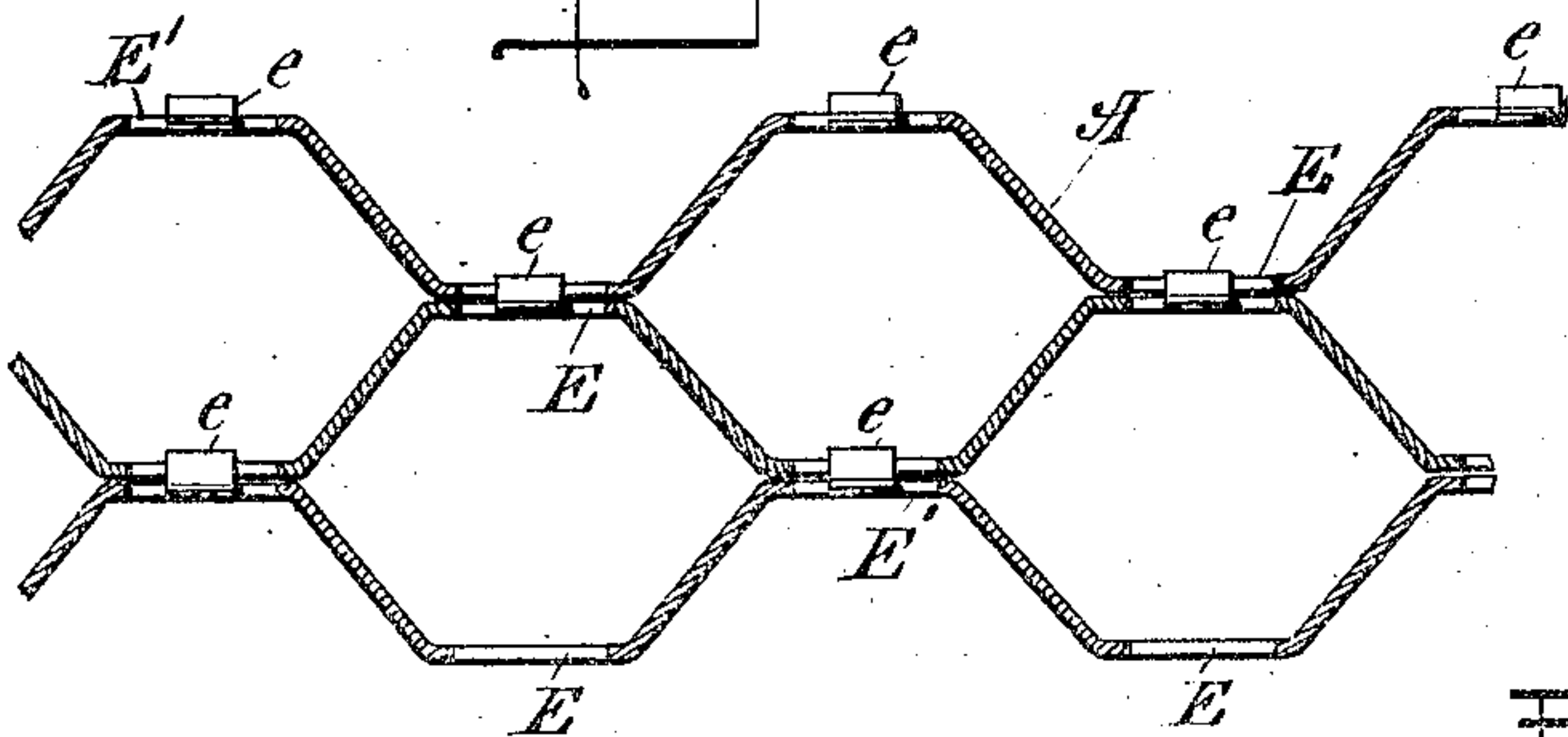


Fig. 3.

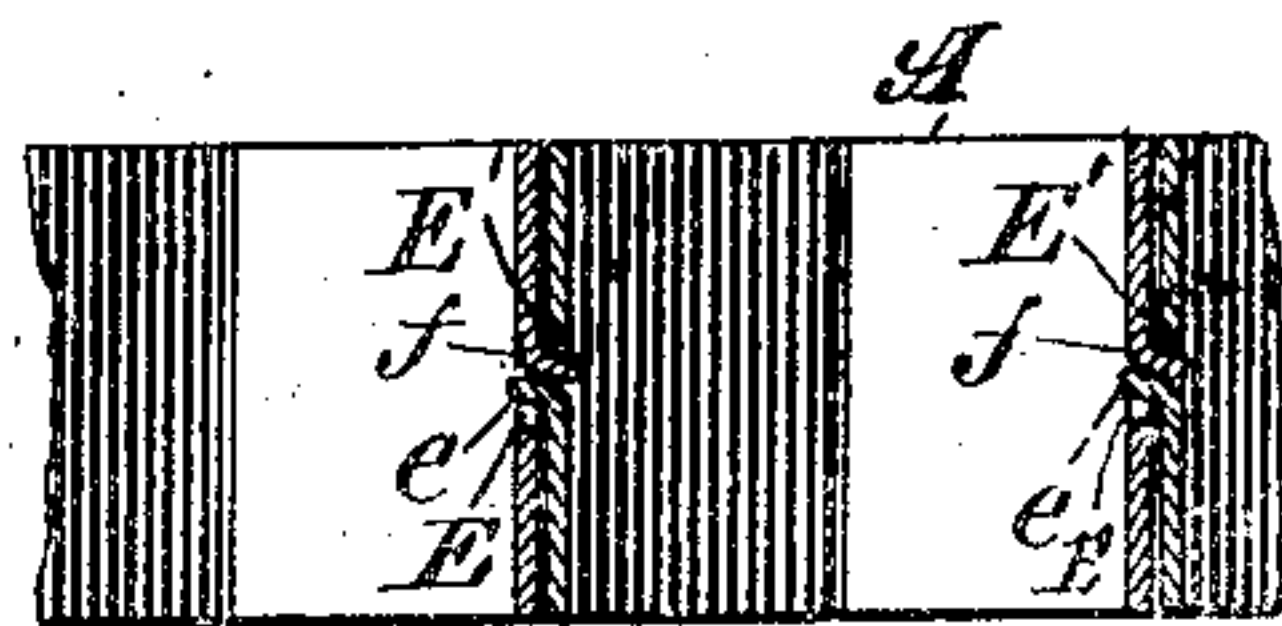


Fig. 4.

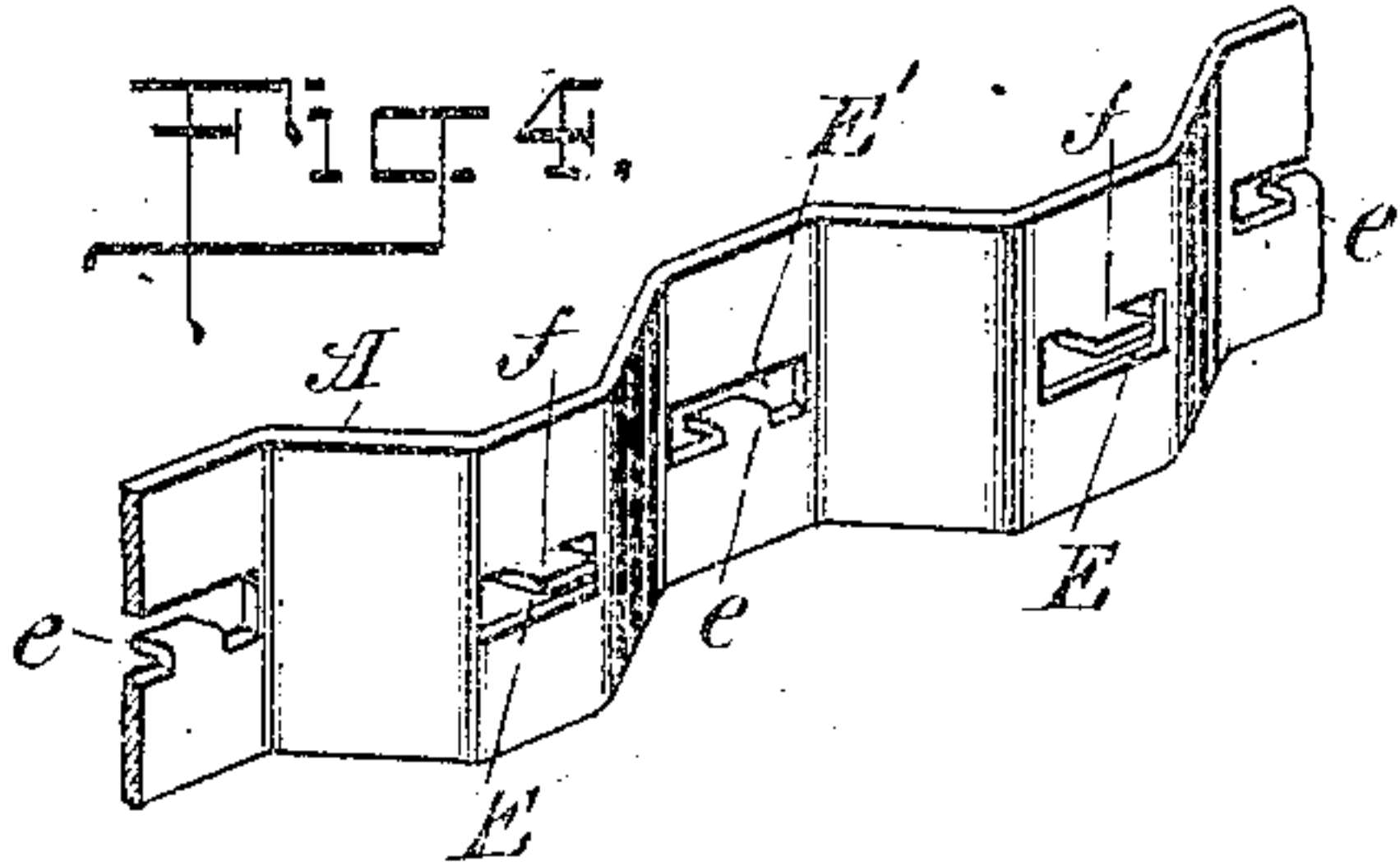


Fig. 5.

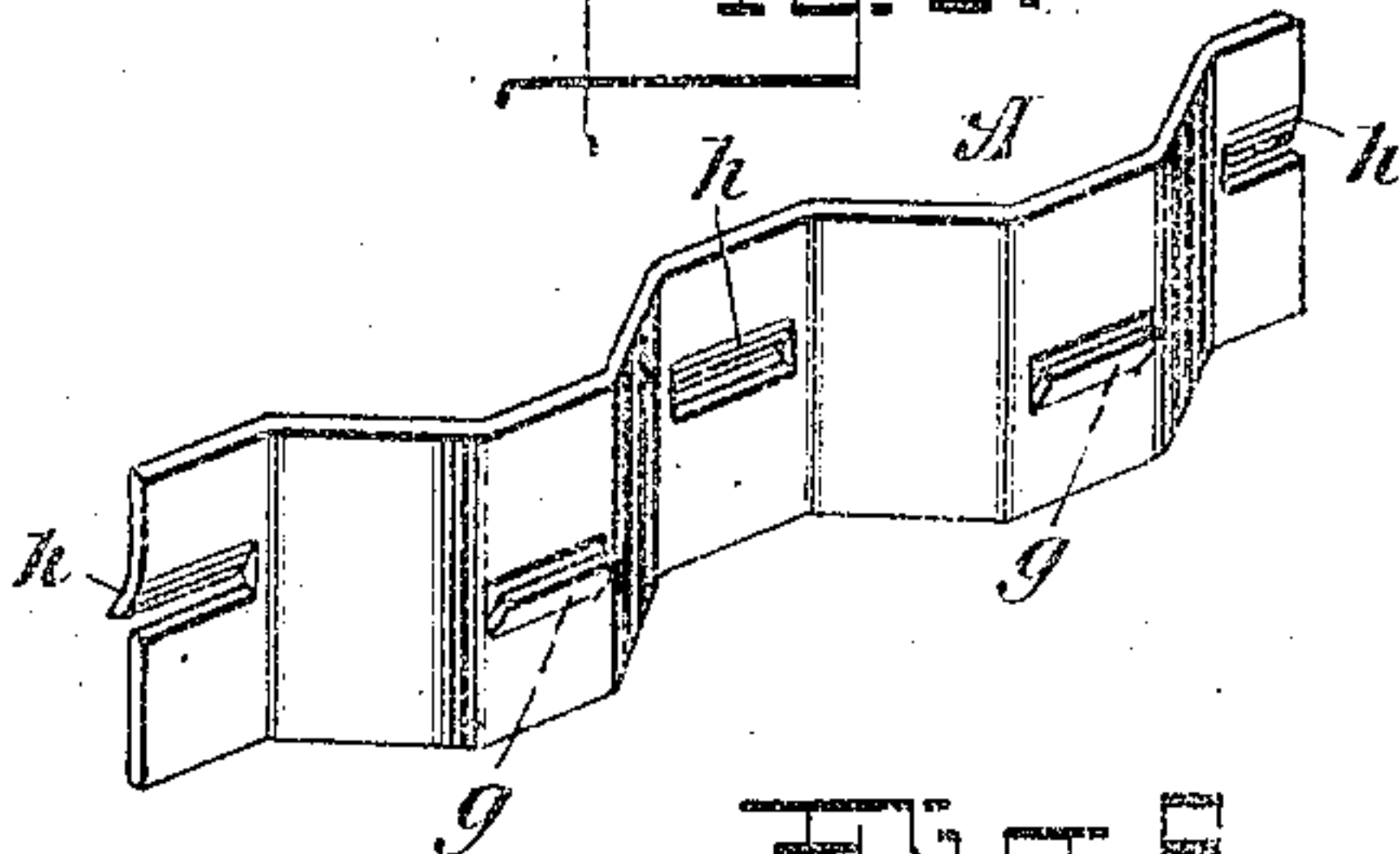


Fig. 6.

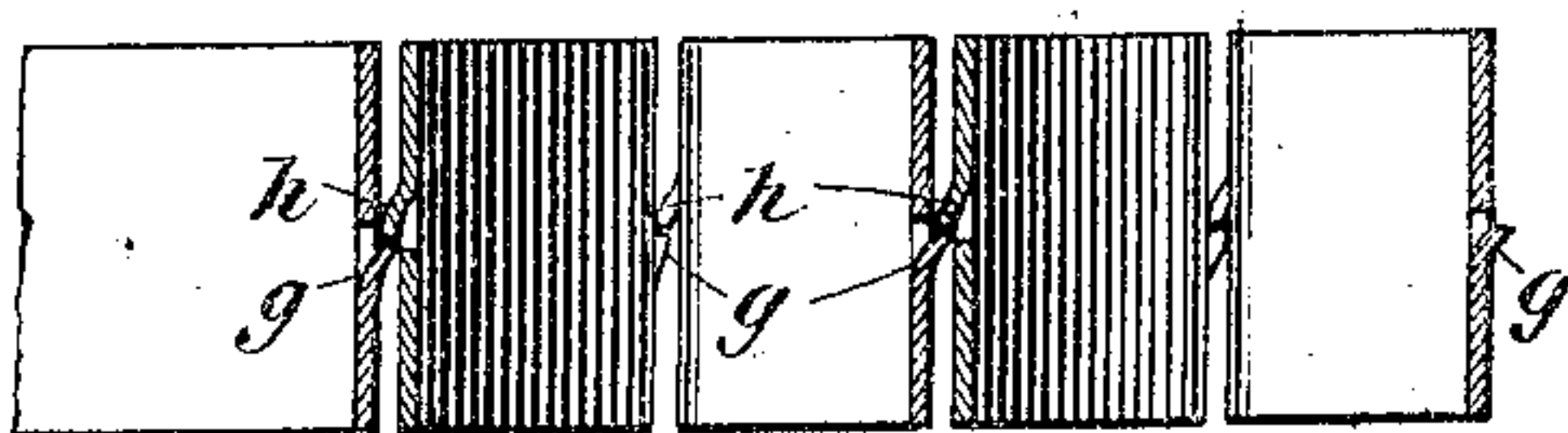


Fig. 7.

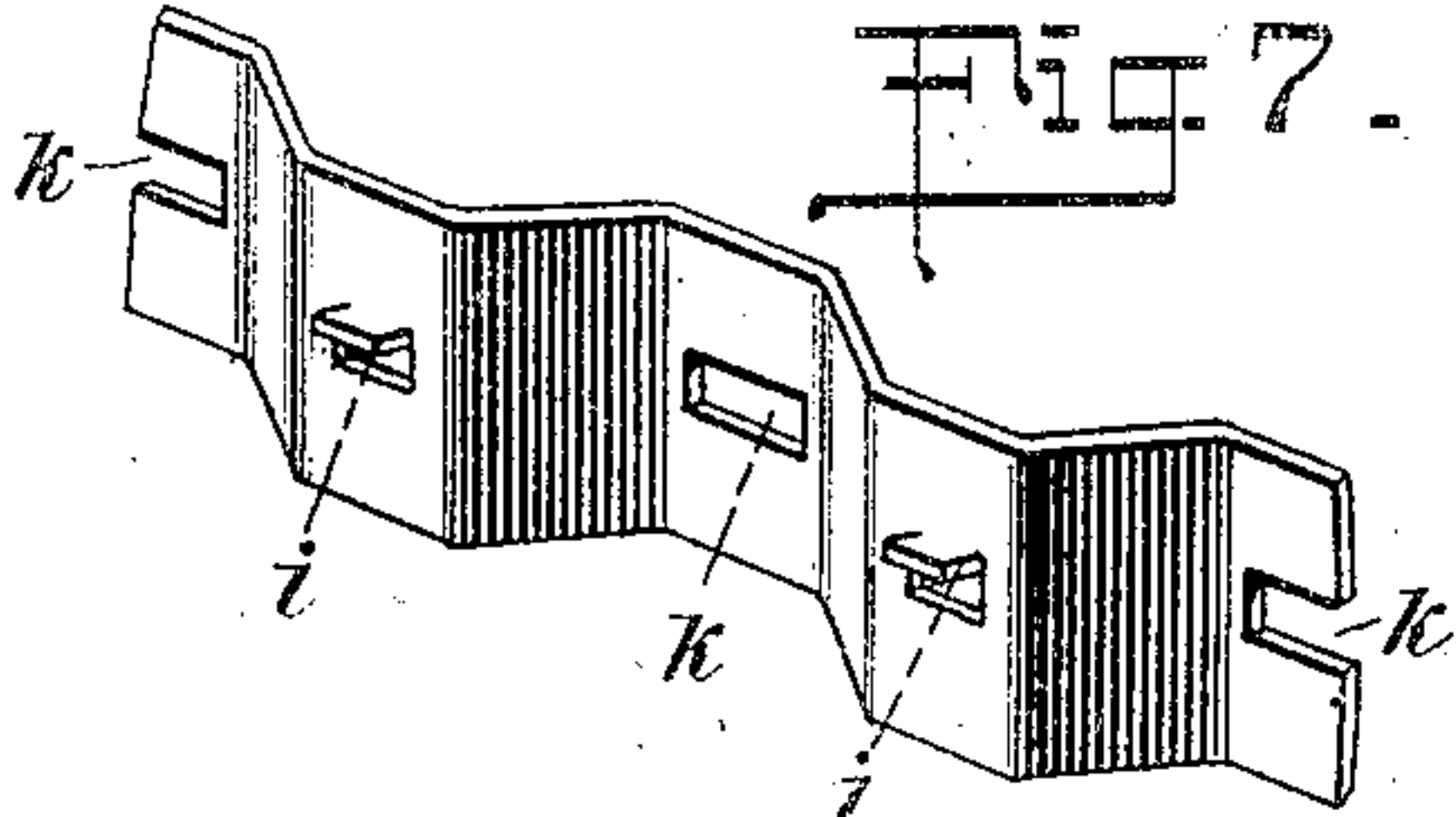
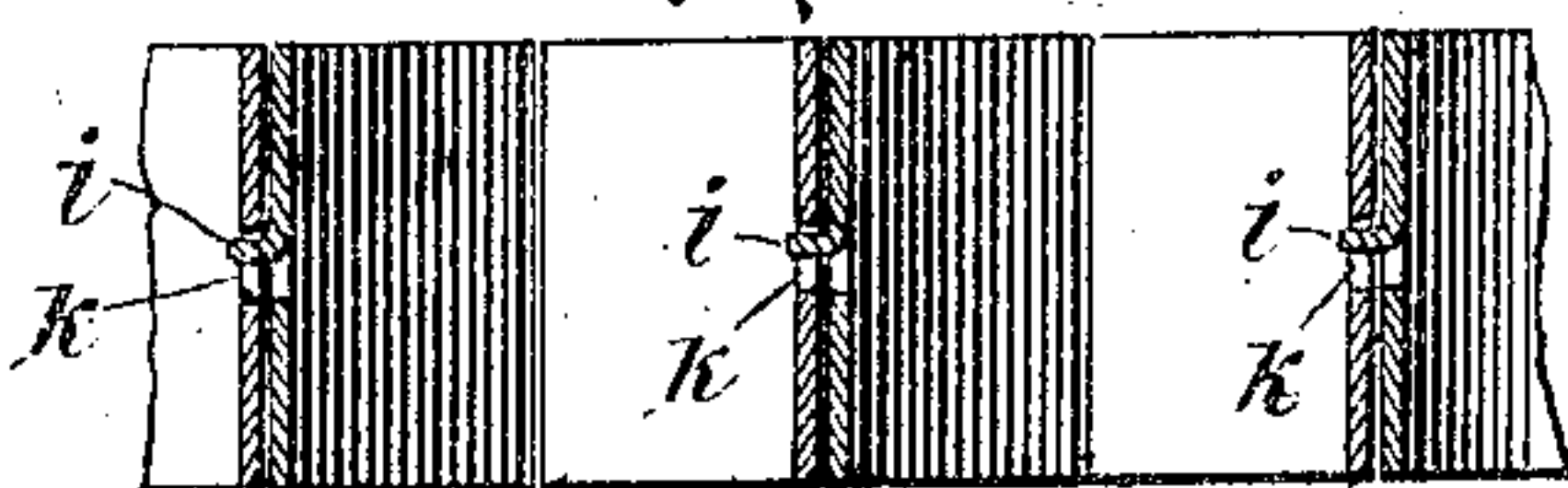


Fig. 8.



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# UNITED STATES PATENT OFFICE.

FREDERICK R. PHILLIPS, OF PLAINFIELD, NEW JERSEY.

## TREAD-SURFACE.

No. 917,355.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed August 28, 1908. Serial No. 450,405.

To all whom it may concern:

Be it known that I, FREDERICK R. PHILLIPS, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have made and invented certain new and useful Improvements in Tread-Surfaces, of which the following is a specification.

My invention relates to an improved step or mat, and more particularly to that kind or style thereof comprising a number of strips of metal placed edgewise to the surface, and bent or crimped into zigzag form, whereby to form a mesh through which dirt, snow or foreign matter may pass, the object of the same being to provide a device of this kind which shall be strong and rigid, and wherein the several crimped strips will be locked against vertical movement with relation to each other, and at the same time allowed a slight longitudinal movement, in order to permit of the mat or step being formed with a rounded or curved outline, or an outline other than straight, as for instance, car steps having rounded or curved front edges.

A further object of my invention is to so form or shape the strips that they may be easily and readily assembled, and so locked as to prevent any disengagement and consequent sagging thereof, and which at the same time will be inexpensive to manufacture.

With these and other ends in view, the invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a part of a mat or platform constructed in accordance with my invention. Fig. 2 is a sectional view thereof taken on the line 2—2 of Fig. 1. Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1. Fig. 4 is a perspective view of a portion of a detached strip. Fig. 5 is a similar view of a modified form thereof. Fig. 6 is a sectional view showing the method of assembling strips constructed like those illustrated in Fig. 5. Fig. 7 is a perspective view of a modified form of strip, and Fig. 8 a sectional view showing the method of assembling the same.

Heretofore in the formation of tread surfaces comprising crimped strips of metal set edgewise, it has been attempted to secure the several strips against vertical movement one with relation to the other, by providing the

contacting sides or surfaces with locking means, these means comprising in certain instances a spherical projection on one surface to be contained within a correspondingly shaped indentation on the contacting face of the adjacent strip, and in other instances, a projection formed on the face of one strip to be contained within a slot formed in the contacting face of the adjacent strip. Objections have been urged against both of these forms, against the former because of the failure to positively lock the strips together by reason of the inclined surfaces of the spherical projection and indentation, and against the latter because of the weakness of the projection, the said projection being formed vertical and presenting a bearing surface equal in width to the thickness of metal of which the strip is formed.

The object of my invention is to overcome these objections, and to provide a strip so formed that a more secure locking of the strips will be effected, and to provide the interlocking projection formed on the contacting face of one strip with a sufficiently long bearing surface for the slotted contacting face of the adjacent strip, whereby to securely lock the same and lend sufficient strength thereto to withstand any strain which might be imposed upon it. In carrying out these objects, I form the mat or tread surface of strips of sheet metal of proper width and thickness, and crimped or bent into zigzag form, preferably in such way that the mesh or openings between the strips shall be hexagonal in shape.

As illustrated in Figs. 1, 2, 3 and 4 of the drawings, the alternating contacting faces of the strip A are slotted, as illustrated at E, a portion of the metal of the slot being bent inwardly from the upper edge of said slot to form the projections or male members f, the intermediate contacting faces or sides of the same strip being also slotted as illustrated at E', and a portion of the metal of the slot being bent in the opposite direction from the lower edge thereof, forming the male locking members e.

In assembling the strips, as clearly illustrated in Fig. 3, it will be seen that the male members e project into the slots E formed in the contacting faces of the adjacent strip, and that the male members f on the same strip project in the opposite direction into the slots E' of the contacting faces of the adjacent strip, thereby securely locking the



strips against vertical movement one with relation to the other, but allowing a slight longitudinal movement. Instead, however, of having the projections or male members bent outwardly, as described, they may be bent, as illustrated in Fig. 5, that is, the projections *g* on the alternating faces of the strip are bent slightly outwardly from the lower edge of the slots, and the projections *h* on the intermediate faces of the strip bent in the opposite direction from the upper edge of the slots, these projections *g*, *h*, extending entirely across the faces, thereby providing extremely long bearing surfaces when the strips are properly assembled, as illustrated in Fig. 8, the lower edges of the members *h* resting upon the upper edges of the members *g*. Again, as illustrated in Figs. 7 and 8, I may form the strip with the male members *i* projecting from the upper edges of the slotted alternating contacting faces, and extending partially across the same, and the intermediate contacting faces of the strip with the slots *k* extending entirely across the same, whereby when the parts are assembled, as illustrated in Fig. 8, the male members *i* will project into and through the slots *k*, thereby locking the strips against vertical movement with relation to each other, but at the same time allowing a slight longitudinal movement.

It will be observed in all the foregoing instances that the male members of the interlocking parts are arranged horizontally, that is, the metal of the projections are bent from the lower longer edges of the slots, in contradistinction to the shorter vertical edges, thereby affording long bearing surfaces upon which the strips may slide, and overcoming the objections urged against the former construction, wherein the projection or male member is arranged vertically and presents nothing more than its edge as a bearing surface for the attaching strip.

It will of course be understood that when the strips are formed as illustrated in Figs. 1, 2, 3, 4, 7 and 8, the interlocking projections may be made as long as may be desired, it being necessary only to leave sufficient play thereof in the slots of the adjacent strips to

permit of the requisite longitudinal movement of one strip upon the other when bending or forming the tread surface with an edge or outline other than straight.

In making strips as illustrated in Figs. 5 and 6, I have extended the projections *g* and *h* entirely across the contacting faces, as I have found from experiment that the long bearing surfaces afford a very effective means for preventing any vertical movement of the strips one upon the other, and at the same time permits of the extreme limit of longitudinal movement of the strips one upon the other when bending the mat to its proper outline.

I am aware that it is not new to form a mat or tread surface consisting of crimped strips of metal provided on the contacting faces with male locking members projecting into slots formed in the contacting faces of the adjacent strip, and hence I make no claim to such, but:

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A tread surface of the character described, consisting of a series of crimped strips, the alternating slotted contacting faces of each strip being provided with male locking members projecting from the horizontal edges of the slots in said faces, substantially as described.

2. A step or mat of the character described, consisting of a series of crimped strips, the slotted alternating contacting faces of each strip being provided with locking projections extending in one direction from the upper horizontal edges of said slots and the slotted intermediate contacting faces being provided with projections extending in the opposite direction from the lower horizontal edges of said slots, substantially as described.

Signed at New York, borough of Manhattan, in the county of New York, and State of New York, this 15th day of August A. D. 1908.

FREDERICK R. PHILLIPS.

Witnesses:

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PARKER COOK.