G. W. BROOKS.

PRESSED STEEL STAIR.

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1,166,428.

Patented Jan. 4, 1916.

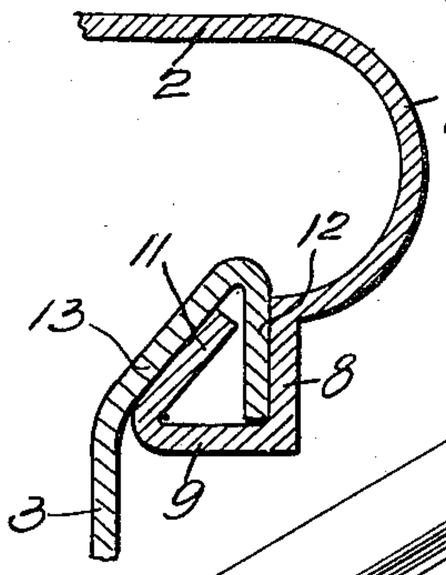

Fig. 3.

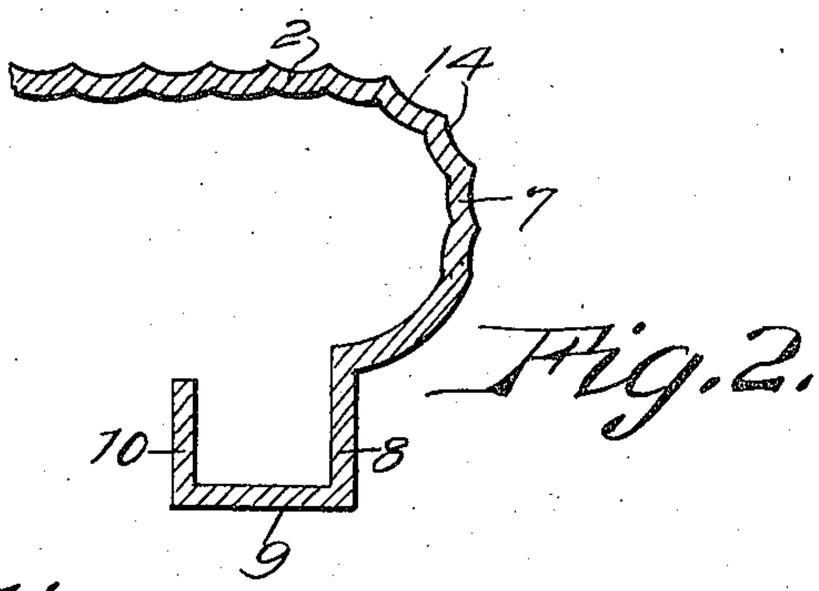

Fig. 2.

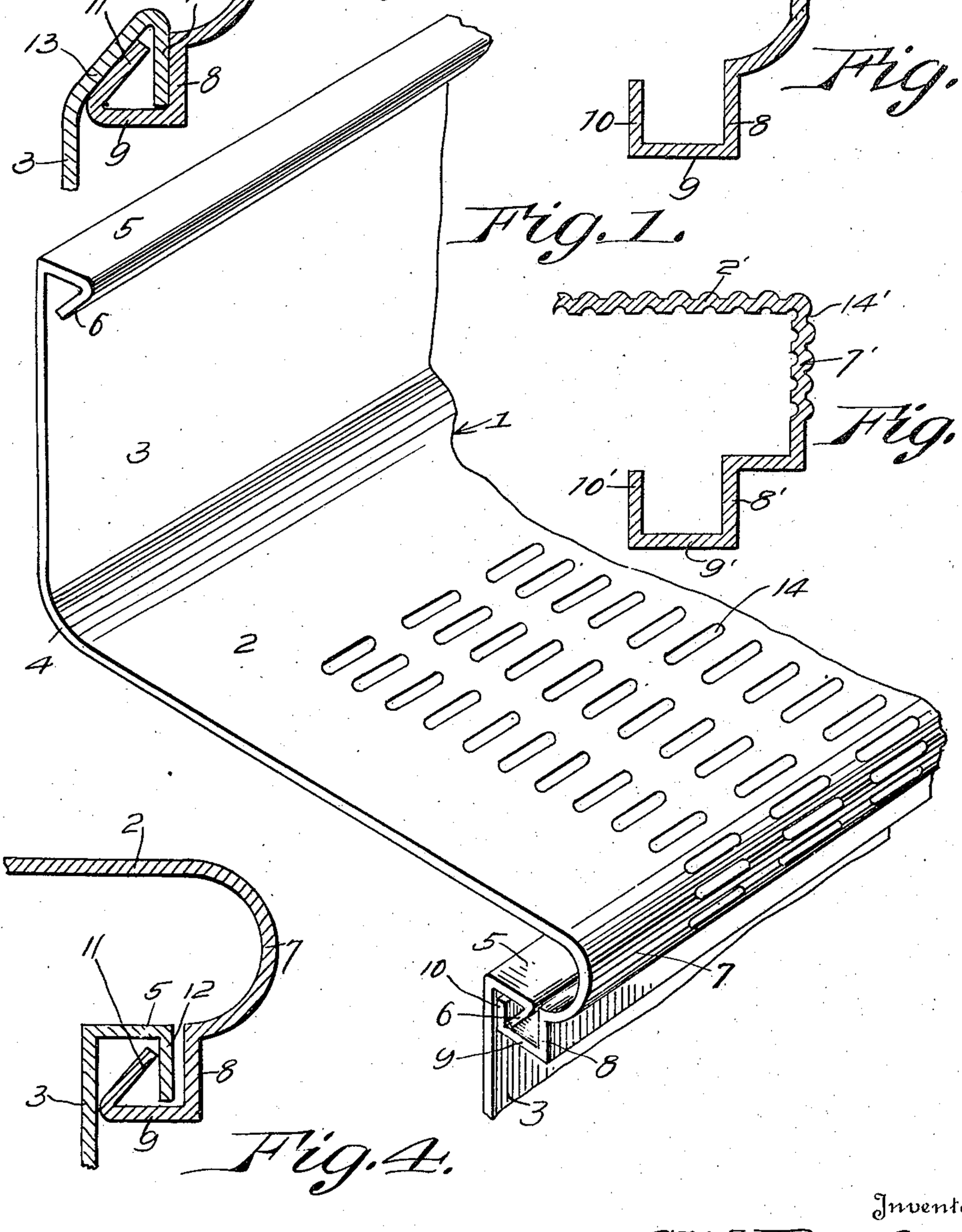

Fig. 1.

Fig. 5.

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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PRESSED-STEEL STAIR.

1,166,428. Specification of Letters Patent. Patented Jan. 4, 1916.

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To all whom it may concern:

Be it known that I, GEORGE W. BROOKS, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Pressed-Steel Stairs, of which the following is a specification.

This invention relates to certain new and useful improvements in metallic stairs and it has for its objects among others to provide a simple, improved solid pressed steel tread and riser with means of interlocking the one riser with the tread of the next stair so as to form a complete stair.

It has for a further object to provide a simple form of locking or fastening means which will be concealed from the front of the stair and to provide for adjustment at the front of the tread to allow for various heights or irregularities in the formation of the treads, or to allow of an adjustment to correct the errors in the different heights of the floor landing.

It has for a further object to provide a structure of this character embodying economy of manufacture, great tensile strength, saving of time in assembling, and which will be neater and more pleasing in appearance than the prior forms especially those of cast iron.

By forming the stair by dies I am enabled to employ lighter material, more accurate fit without liability of cracking or breaking. Furthermore, the steel is thus reinforced and is stronger than cast iron. Furthermore, no ragged edges are left, hence all abutting joints are tightly fitted, making the construction strong and rigid. Being accurately pressed into shape, it is sanitary both as regards rounded or convex corners and the nosing. The form of nosing conforms to the shape of standard style of wood treads and has the additional sanitary feature of the ends and portion around the safety grips being left smooth so that dirt which accumulates on the tread can be brushed off over the smooth place, thereby making it easy to keep clean. By having the rounded concave corner at the back of the tread which prevents the accumulation of dirt, I provide a sanitary feature formed from the tread itself, no crevices or corners being provided for the dirt to lodge in.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a perspective view showing one of my improved pressed steel risers and treads, the latter being shown as interlocked with the adjacent edge of the next riser. Fig. 2 is a vertical sectional detail through the front end of the tread. Fig. 3 is a detail in vertical section showing a modified construction for the interlocking of the tread and riser. Fig. 4 is a similar view of a modified form of construction. Fig. 5 is a section similar to Fig. 2 showing a square nosing.

Like numerals of reference indicate like parts throughout the several views.

Referring to the drawings, 1 designates my improved pressed steel tread and riser, the same embodying in one integral element the tread portion 2 and the riser 3, the same being formed at a curve, as shown at 4, at the point of junction of the riser and tread, the upper end of the riser being formed with a substantially horizontal extension 5 terminating in the downwardly and rearwardly extended lip or extension 6, as shown clearly in Fig. 1. The forward end of the tread portion 2 is formed into a half round nosing 7, from the inner face of which depends the substantially vertical wall 8 which is extended rearwardly substantially horizontally, as at 9, and terminates in the upwardly extended lip 10. This upwardly extended lip may be substantially vertical and parallel to the outer wall 8, as seen in Figs. 1 and 2, or it may extend forwardly from its junction with the rear face of the portion 9 at an angle of about 45°, as seen at 11 in Figs. 3 and 4. Furthermore, the lip 6 of the upper end of the riser may extend vertically, as seen at 12 in Figs. 3 and 4, instead of inclinedly as in Fig. 1. Again, the portion connecting the upper end of the riser 3 and the depending lip may be inclined, as seen at 13 in Fig. 3. The result and effect in all of the forms is substantially the same.

The improved stair is formed of light material and shaped by die forming. I preferably employ plate steel. The die forming reinforces the steel and leaves it

stronger than cast iron, with much greater tensile strength and without possibility of cracking or breaking.

The method of assembling the parts will be readily understood. As seen in Figs. 1, 3 and 4, the depending lip of the upper end of the riser is received within the channel of the inwardly extended terminal of the nosing, the riser being placed into position and thus retained by the interlocking of the interengaged portions of the riser and the adjoining tread. The riser is readily adjustable to suit the required height in case error is made in fastening the angles or locating punched holes for holding bolts for supporting the treads. It is to be noted that the bottom of the riser and the top of the tread are concave at the starting point of the tread and also of the riser and that the half round nosing at the front of the tread with a right angle bend supporting the same, with the supporting member returning to the riser and this supporting member being bent at right angles, thus forming a projecting nosing or sunken panel riser. The lock is invisible from the front of the tread, providing a neat finished appearance.

It will be noted that in all the forms shown, the terminal of either the riser or the tread extends in an inclined direction and has a bearing against one of the adjacent members of the other part. In the form shown in Fig. 3 the inclined portion 13 bears directly upon the inclined terminal 11 of the tread. The inclined lip forms a brace and adds strength to the joints. Furthermore, by inclosing the depending wall of the extension of the riser, or the terminal wall of the trough-shaped portion of the tread, I form an interlock that aids materially in holding the adjacent treads and risers against tendency to get out of proper assembled position.

In some cases I have found it desirable to form the tread with foot grips, as shown at 14, which may or may not extend for a greater or less portion around the nosing. When employed, these grips should extend over the wearing surface of the tread nearly to the riser. These prevent slipping and, of course, are integral with the tread. These foot grips reinforce the surface of the tread and extending as they do above the face of the tread proper, give an additional wearing surface of the same depth before the foot grips or tread will be worn level to the body of the tread proper.

It is evident that I may employ a rectangular or square nosing in lieu of the rounded nosing previously described. Such is shown in Fig. 5 in which 2′ is the tread portion, 7′ the square nosing, 8′ the vertical outer wall, 9′ the horizontal extension and 10′ the upwardly extended lip. 14′ represents the foot grips.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is:—

1. A pressed steel tread and riser complete in a single integral element, the tread being formed with a curved nose and a rearward trough-shaped extension beneath said nose and the riser terminating in a forward extension with rearwardly angularly extended lip.

2. A pressed steel tread and riser complete in a single integral element, the tread being formed with a curved nose and a riser terminating in an angularly extended lip, and the tread having a trough-shaped portion extended rearwardly from the nose at a distance from the surface of the tread for coöperation with the lip of an adjoining riser.

3. A pressed steel tread and riser in a single integral element, the riser having at its upper end a horizontal extension and an inclined terminal forming a lip and the tread having a rounded nose terminating in a trough shaped portion with one wall of which the inclined lip of an adjacent riser is designed to coöperate.

4. A pressed steel tread and riser in a single integral element, the riser having at its upper end a horizontal extension and a downwardly extended terminal, and the tread having a rounded nose terminating in a trough-shaped portion in which the depending portion of an adjacent riser is received and with which it is designed to cooperate, one of the coöperating portions being inclined.

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

GEORGE W. BROOKS.

Witnesses:
J. R. Moore,
G. L. Bybee.