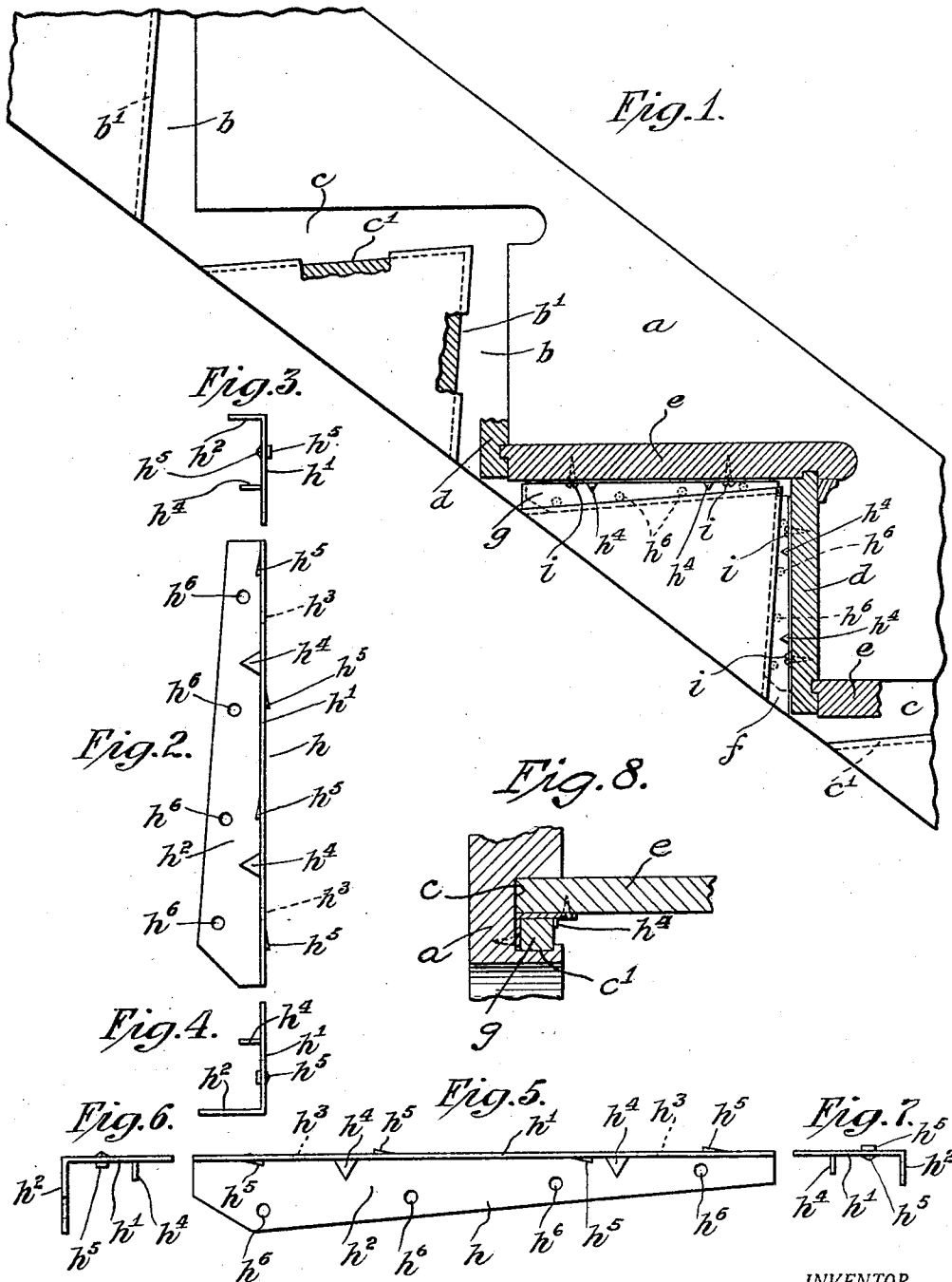


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STAIRWAY CONSTRUCTION

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STAIRWAY CONSTRUCTION

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In the ordinary construction of wooden stairways the ends of each riser and of each tread are commonly received in recesses routed in the opposing faces of inclined planks or string pieces. Such recesses are commonly tapered and are wide enough to receive wedges of wood which, in the assembling of the structure, are driven tightly into place under each end of the tread and back of each end of the riser, forcing the tread up against the horizontal shoulder of the recess and forcing each end of the riser forward against the vertical shoulder of the recess. In the shrinkage which generally takes place the ends of the treads and risers are often loosened in the string pieces and in use the stairway creaks or rattles even if the treads or risers are not disengaged at one end or the other. The present invention is intended to overcome these difficulties and to provide a means for retaining each end of each tread and each end of each riser in firm engagement with the string pieces and in accordance with the invention there is provided preferably for each end of each tread or riser a locking piece of metal which is engaged with the string piece and with the tread or riser, thereby preventing the disengagement of the tread or riser and is also in engagement with the wooden wedge, serving to hold it firmly in position.

In the accompanying drawing in which the invention is illustrated—

Figure 1 is a view in vertical, sectional elevation, showing a portion of one string piece of a stairway with the tapered recesses shown in one part and the tread and riser shown in section in another part, with the wedges and locking pieces in position.

Figure 2 is a view in elevation, on a larger scale, of one of the locking pieces adapted for use with a riser.

Figures 3 and 4 are end views of the locking piece shown in Figure 2.

Figures 5, 6 and 7 are views respectively similar to Figures 2, 3 and 4, showing a locking piece adapted for use with a tread.

Figure 8 is a detail view, in section, on the plane indicated by the broken lines 8—8 of

Figure 1, showing the relation of the string piece, tread and locking piece and wedge.

The string piece *a*, usually a plank of suitable width and thickness, has formed therein, as by routing, a suitable number of recesses *b* to receive the ends of the risers, one of which is shown at *d*, and a suitable number of recesses, one of which is shown at *c*, to receive the ends of the treads, one of which is shown at *e*. Each recess is routed out to a suitable depth and each recess is tapered, the width of each recess at the narrowest part of its tapered portion being somewhat greater than the thickness of the corresponding riser or tread. In the rearward shoulder of each recess *b* there is formed, parallel with the face of the string piece and close to the inner wall of the recess, a narrow slot such as a saw-cut or kerf *b*¹, a corresponding slot *c*¹ being formed in the lower shoulder of each recess *c*.

For cooperation with each end of each stair element, that is, each tread or riser, as the case may be, there is provided a locking piece *h*. As the locking pieces for the risers and the treads are alike, except for formation to suit the place of use, a description of one will answer for all, it being understood that the locking piece shown in Figures 2, 3 and 4 is adapted for cooperation with the remote end of a riser, as shown in Figure 1, while the locking piece shown in Figures 5, 6 and 7 is adapted for use with the corresponding end of a tread. Each locking piece *h* is preferably formed of soft steel, of about 16 gauge, with a parallel sided flange *h*¹ and a tapered flange *h*², the taper of the flange *h*² corresponding to the taper of the recess formed in the string piece. The flange *h*¹ is formed with holes *h*³ to receive screws *i* by which the locking piece may be secured to the corresponding stair element, that is, a tread or riser, as the case may be. Each flange *h*¹ is formed with lugs *h*⁴, struck from the metal to form guides for the wedge, as shown in Figure 8, and is also formed with points or spurs *h*⁵, also struck from the metal in opposite directions, to engage, when the parts are assembled, with the tread or the riser on the one side and the usual wedge *f*, *g*, on the other side when the wedge is driven in. The flange *h*² is also

formed with holes h^s through which is formed a union of the glue which is used in the structure at one side of the locking piece and that at the other side.

5 In assembling the parts of the structure the treads and risers are set in place with their ends in the recesses of the string pieces and the locking pieces h are then driven into place, the edge of the tapered flange h^2 being engaged in the corresponding saw-cut or kerf b^1 or c^1 , as the case may be. Then the wooden wedges f, g , which have been spread with glue are driven into place. Finally the screws are driven through the holes h^3 in the flanges h^1 into the treads or risers, as the case may be. When thus assembled it will be found that the parts are securely held together, are prevented from disengagement at either end of the tread or riser, and are held against such movement as would occasion squeaking.

20 It will be understood that changes in details of construction and arrangement may be made to suit different conditions of use or the convenience of the manufacturer or of the user and that, except as pointed out in the accompanying claims, the invention is not restricted to the particular construction shown and described herein.

30 I claim as my invention:

1. In stairway construction the combination of a string piece having a recess formed therein, a stair element having its end received in said recess, a wedge interposed between one shoulder of said recess and the stair element to force the stair element against the other shoulder of said recess, a flanged metallic locking piece, means to engage one of the flanges with the string piece, and means to engage the other of the flanges with the stair element.

45 2. In stairway construction the combination of a string piece having a recess formed therein, a stair element having its end received in said recess, a wedge interposed between one shoulder of said recess and the stair element to force the stair element against the other shoulder of said recess, a flanged metallic locking piece, means to engage one of the flanges with the string piece, and means to engage the other of the flanges with the stair element, the locking piece being formed for engagement with the string piece and with the wedge.

60 3. In stairway construction the combination of a string piece having a recess formed therein, a stair element having its end received in said recess, a wedge interposed between one shoulder of said recess and the stair element to force the stair element against the other shoulder of said recess, a flanged metallic locking piece, one shoulder of the recess being formed with a slot to receive the edge of one of the flanges of the

locking piece, and means to engage the other of the flanges with the stair element.

4. In stairway construction the combination of a string piece having a recess formed therein, a stair element having its end received in said recess, a wedge interposed between one shoulder of said recess and the stair element to force the stair element against the other shoulder of said recess, a metallic locking piece having a tapered flange interposed between the wedge and the inner wall of said recess and engaged with the string piece and having a second flange, and means to engage the last named flange with the stair element.

This specification signed this 2d day of November, A. D. 1931.

PHILIP G. ANDERSON.