July 18, 1950 E. J. DETTLING 2,515,823

PREFORMED CONCRETE STEP

Filed April 30, 1948

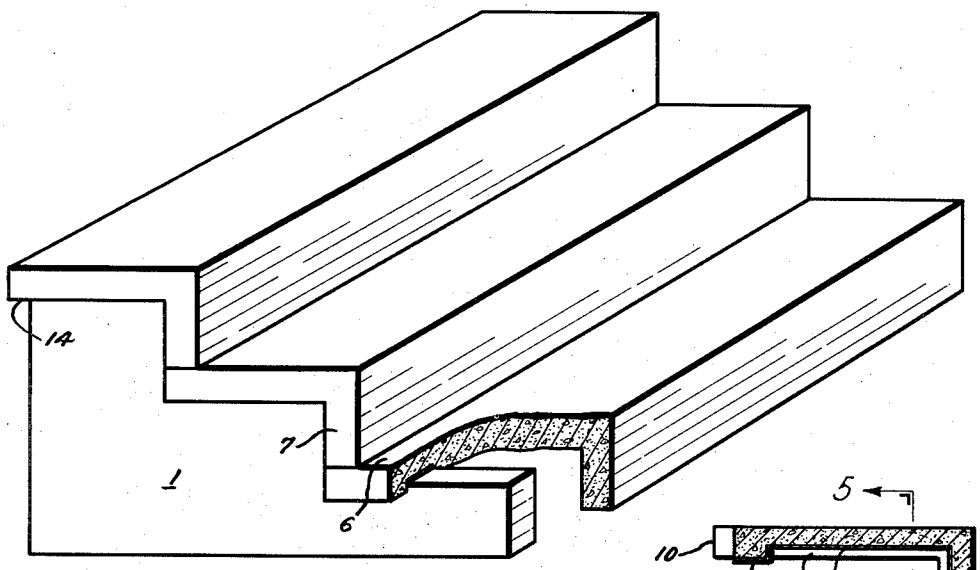


Fig. 1

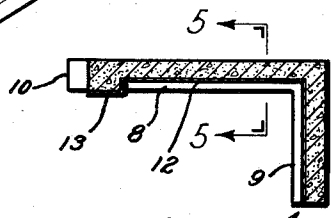


Fig. 4

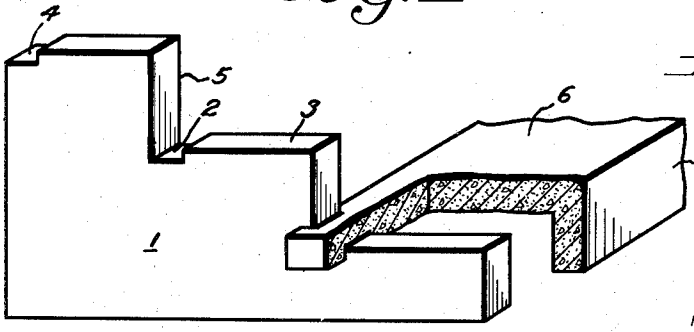


Fig. 2



Fig. 5

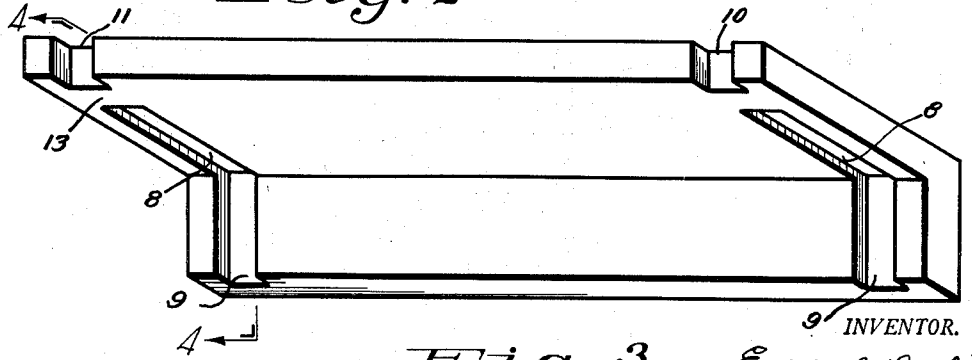


Fig. 3

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PREFORMED CONCRETE STEP

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2 Claims. (Cl. 72—96)

1

This invention relates to new and useful improvements in concrete steps for use with porches or doorways of dwellings and the like, and it is among the objects of the invention to provide a concrete step in which the side members or stringers and the treads and risers are separately formed as step units for assembly into a unitary step structure at the place of use.

It is among the objects of the invention to provide a preformed concrete step in which the stringers or side members and the treads and risers are interlocked to constitute a self-sustaining unitary concrete step.

It is a further object of the invention to provide a preformed concrete step construction in which the treads and risers are mounted with a mastic to provide a floating full bearing construction which allows for expansion at the joints to prevent strain and cracking in the concrete bodies. Also, by means of the mastic mount any unevenness in the cast concrete units will not result in teetering of the step parts.

The invention will become more apparent from a consideration of the accompanying drawings, constituting a part hereof, in which like reference characters designate like parts, and in which

Fig. 1 is a view in perspective of a preformed concrete step assembly embodying the principles of this invention;

Fig. 2 is a similar view of a stringer or side support and a portion of a step block, partially cut away for illustration;

Fig. 3 a view in perspective looking from the bottom to the under face of the tread and rear face of the riser of a preformed concrete step;

Fig. 4 a cross sectional view of the step and riser taken along the line 4—4, Fig. 3; and

Fig. 5 a vertical section of the tread taken along the line 5—5, Fig. 4.

In the drawing the numeral 1 designates the stringer or side member of which there are two in a concrete step unit, the stringer being cast concrete with suitable metal reinforcing applied in the conventional manner if desired. The stringer 1 is provided with notches 2 in the edge face 3 as shown in Fig. 2 and with a half notch 4 at the extreme upper edge thereof. The vertical faces 5 of the stringers are of a height to accommodate the thickness of the tread 6, plus the height of the riser 7 less the depth of the notches or grooves 8 in the treads. As shown in Figs. 3, 4 and 5, the tread and riser are provided with grooves 8 and 9 and the rear of the tread is provided with notches or recesses 10 and 11 by which the step units are interlocked with the stringers 1.

2

As shown in Fig. 2, the notches or recesses 10 are of a width corresponding to the thickness of the stringer to permit the tread to interlock with the stringers, and the grooves 8 and 9 may be provided with a mastic composition 12 which provides a floating full bearing and prevents teetering of the step on the stringers. In other words, as is apparent from the mastic lining in the grooves 8 and 9 of Fig. 4 of the drawing, these resilient faces rest upon the top face 3 and against the vertical faces 5 of the stringers, and the ungrooved portion 13 of the tread constitutes a key which seats in the notches 2 and 4 of the stringers so that with the notches or recesses 10 and 11 the tread and risers are interlocked with the stringers to prevent transverse or lateral movement.

As shown in Fig. 1, the risers of adjacent steps rest upon the treads of the step below so that the step unit is also interlocked against vertical displacement. It is apparent that the top step will be so interlocked by the overlapping end portion 14 which rests below the ledge of a building or the tread of a doorway.

For simplicity, a showing of reinforcing materials in the step units has been omitted, which, however, can obviously be applied in the conventional manner in the form of mesh or rods as desired.

It is apparent that no fastening means other than the notched and grooved construction of the stringers, treads and risers is needed and that when assembled the premolded concrete parts constitute a unitary cement step structure.

It is further apparent that by means of the above described preformed concrete step structure a great saving in time and materials is effected since the parts may be prefabricated at a central plant and distributed over territory for assembly as step units without the need of any skill or the use of forms, and, in fact, without the use of tools other than perhaps a level for setting the stringers and step members.

Although one embodiment of the invention has been illustrated and described, it will be evident to those skilled in the art that various modifications may be made in the details of construction without departing from the principles herein set forth.

I claim:

1. Concrete stairs comprising a pair of spaced preformed stringers, each having tread and riser receiving faces on the front edge thereof, a notch in each tread receiving face adjacent the riser receiving face, preformed step units, each com-

prising a tread portion and a riser portion depending from the front edge thereof and integral therewith, the step units assembled on the stringers with the lower edge of each riser portion contiguous to the upper surface of the tread portion of the step unit therebelow, said step units each having recesses formed in the rear edge of the tread portion, the side walls of which interact with the side walls of the stringers, spaced grooves formed in the rear face of the riser portion and the under face of the tread portion of each step unit, the side walls of each groove interacting with the side walls of a stringer, said grooves in the under surface of the tread portion terminating at points short of the rear edge thereof, thus forming a key between such points of termination of the grooves and the base of each recess, each key engaging a notch in a tread receiving face of a stringer.

2. Concrete stairs comprising a pair of spaced preformed stringers, each having tread and riser receiving faces on the front edge thereof, a notch in each tread receiving face adjacent the riser receiving face, preformed step units, each comprising a tread portion and a riser portion depending from the front edge thereof and integral therewith, the step units assembled on the stringers with the lower edge of each riser portion contiguous to the upper surface of the tread portion of the step unit therebelow, said step units each having recesses formed in the rear edge of

the tread portion, the side walls of which interact with the side walls of the stringers, spaced grooves formed in the rear face of the riser portion and the under face of the tread portion of each step unit, the side walls of each groove interacting with the side walls of a stringer, said grooves in the under surface of the tread portion terminating at points short of the rear edge thereof, thus forming a key between such points of termination of the grooves and the base of each recess, each key engaging a notch in a tread receiving face of a stringer, and mastic material disposed between the front edges of the stringers and the step units in the grooves thereof to provide full floating bearing surfaces.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,964,660	Buzby	June 26, 1934
2,441,617	Clark	May 18, 1948

FOREIGN PATENTS

Number	Country	Date
13,067	Denmark	1910
137,466	Austria	1934