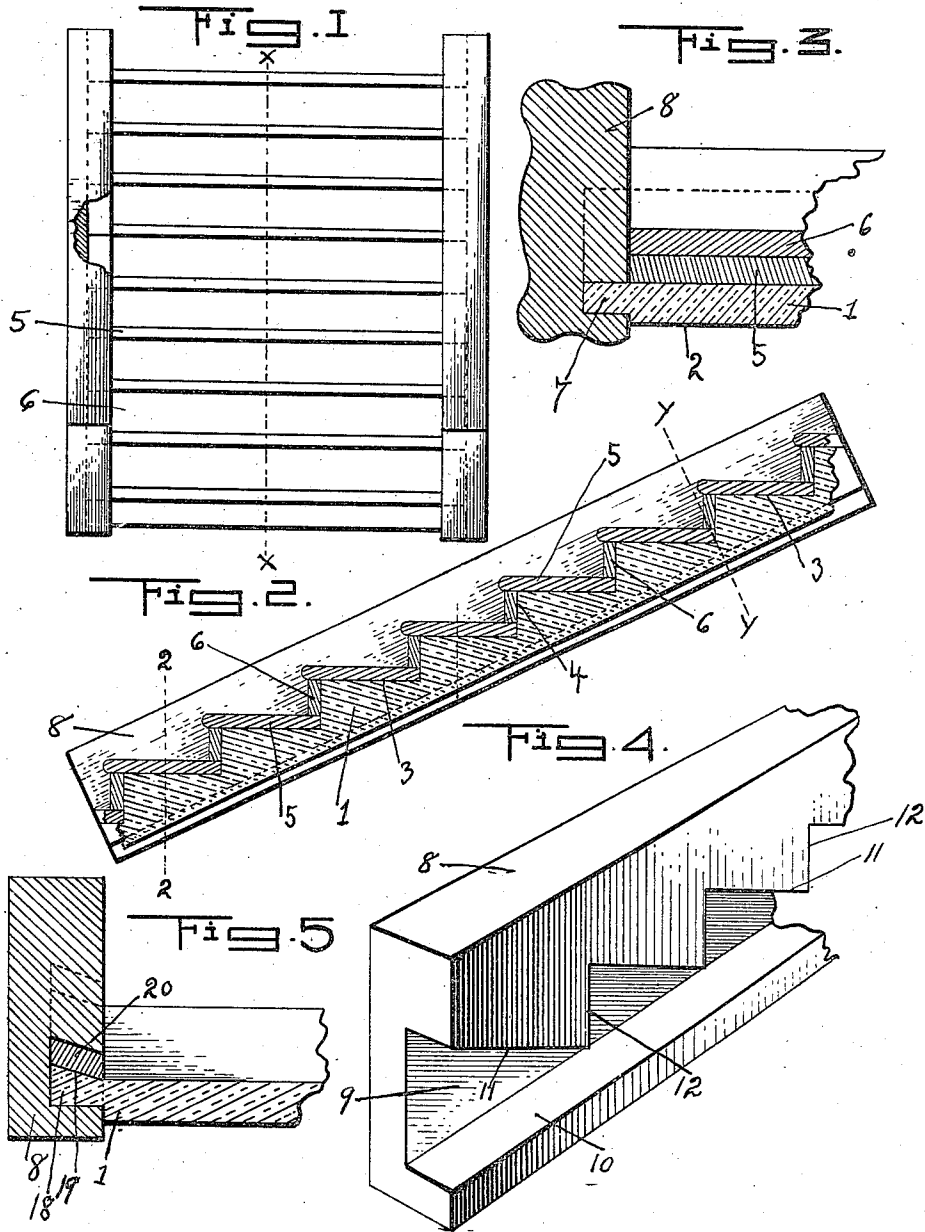


J. OMAN.
STAIRWAY CONSTRUCTION.
APPLICATION FILED JAN. 17, 1910.

987,737.

Patented Mar. 28, 1911.



Witnesses

E. Cloud Newman.
N. Louis Bogan

Inventor
John Oman
by *H. C. Ernst & Co*
Attorney

UNITED STATES PATENT OFFICE.

JOHN OMAN, OF WASHINGTON, DISTRICT OF COLUMBIA.

STAIRWAY CONSTRUCTION.

987,737.

Specification of Letters Patent. Patented Mar. 28, 1911.

Application filed January 17, 1910. Serial No. 538,414.

To all whom it may concern:

Be it known that I, JOHN OMAN, a citizen of the United States of America, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Stairway Construction, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to stair construction of that class having a form made of concrete or other composition, and the object thereof is to set up a stairway in the manner as hereinafter set forth whereby the pressure or weight of the stringer or coping at the top and bottom thereof will be relieved and furthermore whereby the accumulation of dust or foreign bodies between the sides of the form and the stringers or copings will be prevented, such accumulation of dust or foreign bodies results in the loosening of the stringer from the form and in some instances the separation of the stringer from its bonds or ties, these latter coupling the stringer to the forms, under such conditions making the stairway unsafe for use as the stringer is liable to fall off or collapse when subjected to weight.

A further object of the invention is to set up a stairway in a manner as hereinafter set forth whereby the necessity of providing a coupling medium for the upper end of the stringer or coping or the upper section of the stringer or coping is dispensed with, such coupling means being essential when the stairway turns or extends at an angle at a point intermediate its ends.

Primarily the invention relates to that class of stairway construction, embodying a concrete form for supporting the treads and risers and to which the stringer or coping is connected by bonds or ties, but in lieu of utilizing solely the well known forms of bonds and ties for coupling the stringer or coping to the form, the form is laterally extended on one or both sides with respect to the treads and risers and the lateral extension or extensions are utilized to support the stringer or coping or stringers or copings whereby the pressure or weight at the top and bottom of the stringer or coping is relieved, the accumulation of dust or foreign bodies is prevented between the stringer or coping and the side or sides of the form, and furthermore the necessity of employing

coupling devices for the upper end of the stringer or upper stringer section is dispensed with.

Further objects of the invention are to provide a stairway construction which shall be simple in its arrangement, strong, durable, quickly and conveniently built, and comparatively inexpensive to set up.

With the foregoing and other objects in view, the invention consists of the form of stairway construction as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claim hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—Figure 1 is a front elevation of a stairway construction in accordance with this invention, Fig. 2 is a longitudinal sectional view on line $x-x$, Fig. 1, Fig. 3 is a section on line $y-y$, Fig. 2, Fig. 4 is a perspective view broken away of a stringer or coping, Fig. 5 is a sectional detail illustrating a modification.

Referring to the drawings in detail 1 denotes a form constructed of concrete or other suitable material which is disposed at an inclination and has a smooth lower face 2 and a stepped upper face to provide the seats 3 and the shoulders 4. The seats are angularly disposed with respect to the shoulders and have mounted thereon the treads 5 which are of a width greater than the width of the seats and abut at their inner edges against the shoulders 4 and project from the seats 3.

The reference character 6 denotes the risers which are positioned against the shoulders 4 and each riser is interposed between the projecting portion of an upper tread and the inner portion of a lower tread.

Each of the treads 5 and each of the risers 6 is of less length than the width of the form so that the form 1 is provided with a lateral extension 7 with respect to the ends of the treads and risers and each lateral extension is utilized to support a stringer or coping, whether said stringer be formed of a plurality of sections or of a single piece. The treads 5 and risers 6 are secured in position by suitable cement and at each end

abut against the inner face of a stringer or coping which is indicated by the reference character 8.

As shown in Figs. 1 to 4, the stringer 5 8 is formed of a single piece of material, the material may be stone, iron, terra cotta or other suitable material, preferably stone and it has its inner face cut away to provide a pocket 9 having a longitudinally-extending 10 and continuous flat bottom wall 10 which conforms to the shape of the bottom of the form 1. The top wall of the pocket 9 has a series of inclined portions 11 connected together by vertically-extending portions 12, 15 so that the top wall of the pocket 9 will conform in contour to the upper face of the form 1. The pocket 9 of each stringer is adapted to receive a lateral extension 7 of the form 1 whereby the stringer is coupled 20 to the form as well as being supported thereby and under such conditions the weight at the top and bottom of the stringer is relieved. As the extensions of the form project 25 into the pockets of the stringers and abut against the inner walls of the pockets it is obvious that the accumulation of dust or foreign bodies between the ends of the extensions of the form and the stringers is reduced to a minimum, whereby the loosening 30 of the stringers or the separation of the stringers from the form is prevented and the stair construction made one of great durability.

Each stringer is of a width greater than 35 the thickness of the form 1 so that the stringer will project above the treads 5 and below the lower face of the form 1. If the lateral extension 7 should not snugly fit the walls of the pocket 9, cement, plaster of 40 Paris or any other suitable means is employed as a filler.

The stairway as illustrated is shown provided with treads 5 mounted upon the seats 3 and risers 6 positioned against the shoulders 4, but it is obvious that independent 45 treads and risers can be dispensed with, as the seats 3 can be utilized as the treads and the shoulders 4 constitute the risers.

In the modified form shown in Fig. 5 the 50 extension 7 of the form which is indicated by the reference character 18 has its lower face flat, but its upper face is inclined as at 19 at various portions throughout its length

to constitute what may be termed a series of 55 dove-tails, or in lieu of the series one or more may be provided. The extension 18 is of less height than the height of the pocket 9, so that when the extension 18 is mounted in the pocket 9, a space will be formed between the upper face of each dove-tail portion 60 and the inclined portion or portions 11 of the upper wall of the pocket 9. In the space formed between the extension and the said portion or portions 11 of the upper wall of the pocket 9 and which is indicated by the 65 reference character 20, a suitable filler is placed. This filler may be cement, mortar or mortar and slate, or concrete or any suitable material which will constitute a binder for retaining the extension 18 in the pocket 70 9. When this binder is utilized the anchors 13 illustrated in Fig. 4 can be dispensed with. In lieu of providing the extension 18 on its upper face with what may be termed a dove-tail, the lower face of the extension 75 can be constructed in such manner, if such be the case, the shape of the lower wall 10 of the pocket will be formed at an inclination in a manner as the upper wall. It is also obvious that both the upper and lower faces of 80 the extension can be formed, so that the extension throughout will have one or more dove-tails and under such conditions it is evident that the walls of the pocket 9 would be shaped accordingly. It is also obvious 85 that the extension could be of dove-tail contour from end to end and if such be the case the binder would be inserted between the walls of the pocket and the upper and lower faces of the dove-tail or either one. 90

What I claim is:—

In stairway construction, a one-piece concrete form having its lower face extending in the same plane throughout and its upper 95 face stepped throughout, and a stringer provided on its inner face with a pocket having the lower wall thereof extending in the same plane throughout and its upper wall stepped throughout, one side of said form extending in said pocket. 100

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

JOHN OMAN.

Witnesses:

N. LOUIS BOGAN,
A. M. WILSON.