No. 854,667.

PATENTED MAY 21, 1907.

C. E. PAULSON.

STAIRWAY.

APPLICATION FILED MAR. 13, 1907.

FIG. 1

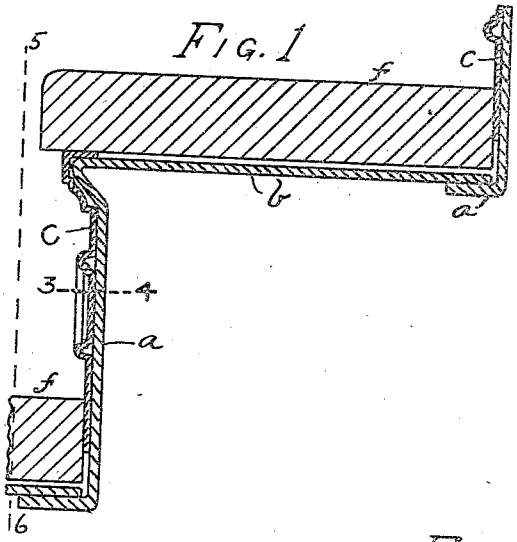



FIG. 2

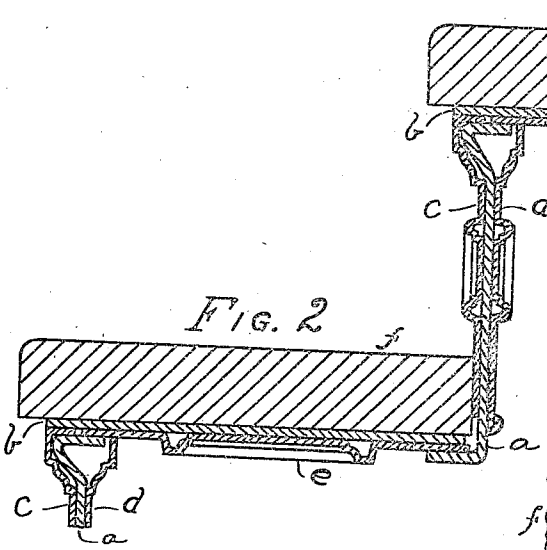



FIG. 4

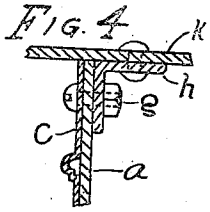



FIG. 5

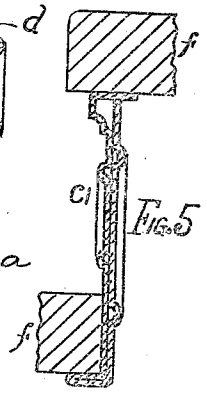
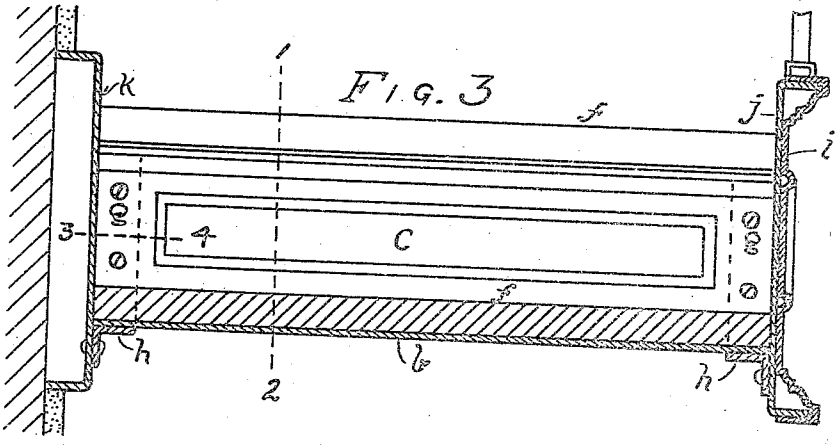



FIG. 3




WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES E. PAULSON, OF NEW YORK, N. Y.

## STAIRWAY.

No. 854,667. Specification of Letters Patent. Patented May 21, 1907.

Application filed March 13, 1907. Serial No. 362,217.

*To all whom it may concern:*

Be it known that I, CHARLES E. PAULSON, a citizen of the United States of America, residing in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Stairways, of which the following is a specification.

My invention is particularly applicable to stairways constructed of iron or steel, having treads of wood, stone, concrete or other suitable material, such as are common in modern fireproof buildings, and the particular object which I have in view is to construct the same so that the various parts can be pressed or molded into plain or ornamental forms at moderate cost.

In the accompanying drawings Figure 1 is a section of a step to which my invention is applied, taken on the line 1—2 in Fig. 3; Fig. 2 is a similar section of a step to which my invention is applied in modified form; Fig. 3 is a section on the line 5—6, Fig. 1; Fig. 4 is a section on the line 3—4 in Figs. 1 and 3; and Fig. 5 is a section similar to that shown in Fig. 1, showing a modified form of my invention.

In modern fireproof buildings the structural members of a stairway are usually made of cast iron or rolled steel sections. If made of steel the various parts must be made of metal too heavy to be easily pressed or molded into ornamental form and still be of sufficient strength to carry the loads to which they may be subjected or to meet the building regulations. To obviate this difficulty I have found that by making the various members of two or more plates, both or one of these may be made thin enough to be easily pressed into any desired form and yet when combined together afford the required strength obtained by the single heavy section ordinarily used. In the accompanying drawings where this arrangement is shown, the thickness of the plates has been greatly exaggerated for the purpose of illustration.

Referring to the drawings, it will be seen that in the first four figures I have shown the riser made of a heavy steel plate *a*, of sufficient thickness or gage to meet the requirements of the building regulations, and a very thin plate *c* of light metal which may be readily pressed into ornamental form. The heavy plate *a* is offset at top and bottom (Fig. 2) to support the heavy soffit plates *b* of the upper and lower treads. This plate *b*, which supports the tread *f*, extends over the riser plate *a* as shown in Fig. 2 or is made integral with it (Fig. 1), if desired. Both of these plates are secured to the strings *j* and *k* by any suitable means, for example they may be bolted at *g* to angle pieces *h* on the strings.

When the riser is thus made with a heavy steel plate *a*, the plate *c* of the lightest gage metal practicable, is secured in front of the same, or (*d*, Fig. 2) behind it, or (*e*, Fig. 2) underneath the soffit plate *b* or (*i*, Fig. 3) along the exposed portions of the string. Although of light weight, it is my intention to make this plate *c* sufficiently heavy to afford considerable reinforcing strength to the plates *a* and *b*, I thereby render it possible to use lighter gage metal in these plates. On the other hand the plate *c* being secured thereto is thereby protected from being accidentally knocked out of shape. It will be seen at once that by means of this plate *c* any desired form of ornamentation may be attained at a very moderate cost and in a variety and perfection which it is impossible to otherwise secure for the framework of the stair.

In portions of the framework, notably the riser, the heavy plate *a* may be altogether eliminated, sufficient strength being provided for this part by doubling the ornamental plate *c*. In Fig. 5, I show such a plate *c* doubled back upon itself, and offset at top and bottom in the same manner as the plate *a*, in Fig. 2.

The means for securing the plate *c* to the various plates with which it coacts may be adapted to suit the wishes of the builder. In Fig. 1, I have shown the upper edge of the plate angled so as to project over and rest on the upper surface of the soffit plate *b* and thus be secured between the latter and the superimposed tread. The lower edge of the plate is also extended downward so as to be secured between the lower tread and the plate *a*. But it is also advisable to attach the plate firmly as shown in Fig. 4 by the bolts *g* which secure the plate *a* to the angle piece *h* on the string. Where the soffit plate *b* is made as a separate piece (Fig. 2) the plate *c* may be secured at its upper edge between the angled edge of the plate *a* and the lower face of the soffit plate *b* in the manner illustrated. Other convenient ways of securing the plates will readily suggest themselves.

Considerable variation in the use of my in-

vention is possible and I do not wish to limit myself to the specific forms herein shown and described.

I claim as my invention

1. A stair having risers composed of a plurality of thicknesses of metal, one of which is adapted to be pressed into ornamental form, in combination with means for securing said thicknesses together so that they mutually reinforce each other, substantially as described.

2. A stair having risers and soffits each of which is composed of a plurality of thicknesses of metal, one of which is adapted to be pressed into ornamental form, in combination with means for securing said thicknesses together so that they mutually reinforce each other, substantially as described.

3. A stair having risers, soffits and strings, each of which is composed of a plurality of thicknesses of metal one of which is adapted to be pressed into ornamental form, in combination with means for securing said thicknesses together so that they mutually reinforce each other, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

CHAS. E. PAULSON.

Witnesses:

WALTER ABBE,

WILLIAM ABBE.