No. 750,156. PATENTED JAN. 19, 1904.

N. BOIS.

STAIR STRUCTURE.

APPLICATION FILED MAY 2, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

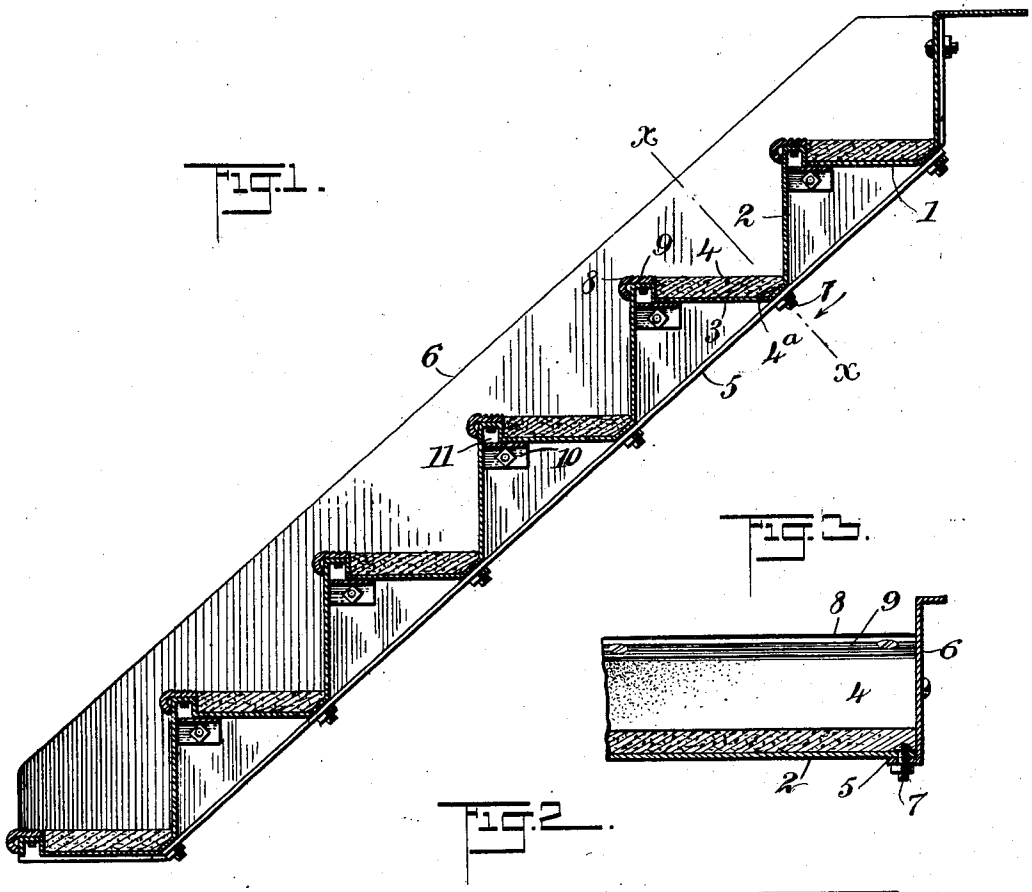
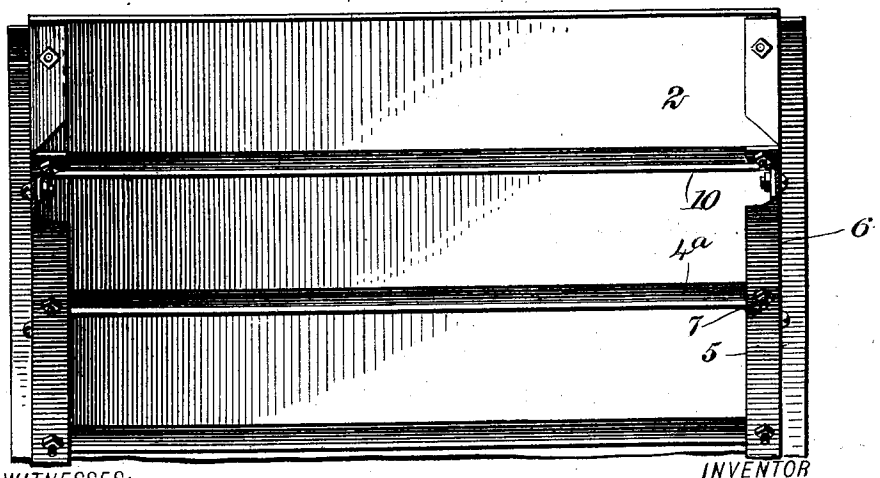


FIG. 3.

FIG. 2.



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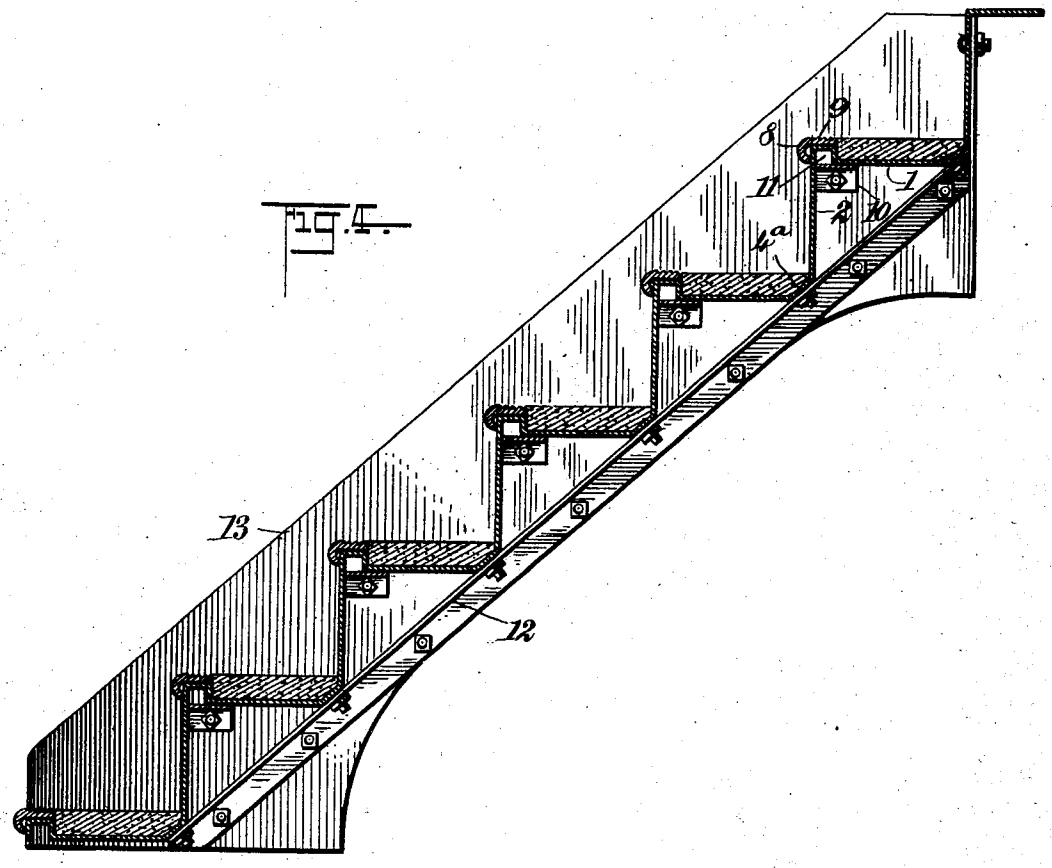
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Fig. 4.



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UNITED STATES PATENT OFFICE.

NATHANIEL BOIS, OF NEW YORK, N. Y., ASSIGNOR TO CLARA BOIS, OF BROOKLYN, N. Y.

STAIR STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 750,156, dated January 19, 1904.

Application filed May 2, 1903. Serial No. 155,391. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL BOIS, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Stair Structure, of which the following is a full, clear, and exact description.

This invention relates to improvements in metallic stairs, an object being to provide a stair structure of novel construction in which a plurality of steps and risers are formed from a single length of sheet metal.

Other objects of the invention will appear in the general description.

I will describe a stair structure embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section of a stair structure embodying my invention. Fig. 2 is an under side view thereof. Fig. 3 is a section on the line *x x* of Fig. 1, and Fig. 4 is a longitudinal section showing a modification.

In carrying out my invention a plurality of steps 1 and risers 2 are formed from a single sheet of metal. The step portions are depressed, as at 3, forming pockets or receptacles for concrete 4, which forms the tread and deadens the sound. At the junction of each step and riser the metal is turned at an angle, as indicated at 4^a, parallel with the inwardly-turned flanges 5 on the lower edges of the string-pieces 6, which also consist of sheet metal, and fastening devices, here shown as bolts 7, pass through the portions 4^a and through the flanges. Nose-pieces 8, of heavier material, are secured to the steps, and the portions of said nose-pieces overlapping the steps at the edges are corrugated, as indicated at 9, to prevent a person slipping on the same.

Underneath each step and having its ends secured to the opposite string-pieces is a tie-plate 10. This tie-plate at its forward edge abuts against the inner surface of the riser and not only serves to prevent possible spreading of the string-pieces, but closes the opening 11, formed between the outer edge wall of the depression 3 and the riser, thus preventing the accumulation of dirt in said spaces and also facilitating the painting of the under side of the stair structure.

In Fig. 4 I have shown the steps and risers constructed as above described; but in this example the stair structure is secured to angle-plates 12, bolted or otherwise secured to string-pieces 13. This form of steps is designed particularly to be used in connection with front-door stoops or the like, and therefore the lower edges of the string-pieces are here shown as curved longitudinally, and it is obvious that the string-pieces may be otherwise ornamented.

It is obvious that a stair structure embodying my invention will be very light, yet sufficiently strong for the purpose designed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A stair structure comprising string-pieces of sheet metal having inwardly-extended flanges, a plurality of steps and risers formed of a single length of sheet metal, the steps having depressed portions, the material at the junction of the steps and risers being formed at an angle parallel with the flanges, fastening devices extended through said portions and the flanges, and concrete or cement in said depressions.

2. A stair structure comprising string-pieces of sheet metal having inwardly-extended flanges, a plurality of steps and risers formed of a single length of sheet metal secured to the flanges, the steps having depressed portions, concrete or cement in said depressed portions, and tie-plates having their ends secured to the string-pieces, the said tie-plates being extended across the steps between the front walls of the depressions and the adjacent risers.

3. A stair structure comprising string-pieces of sheet metal having inwardly-extended flanges at the lower edge, a plurality of steps and risers formed of a single strip of

sheet metal, the steps having depressions, means for connecting the steps and risers to the flanges, tie-plates extending underneath the steps and connecting with the string-pieces, concrete in the depressions, and nose-pieces having corrugated portions extended over the front edges of the steps.

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

NATHANIEL BOIS.

Witnesses:
JNO. M. RITTER,
C. R. FERGUSON.