H. F. EDWARDS & W. DOWLING.

FIREPROOF STAIR.

APPLICATION FILED AUG. 18, 1909.

964,222. **Patented July 12, 1910.**

Fig. 1.

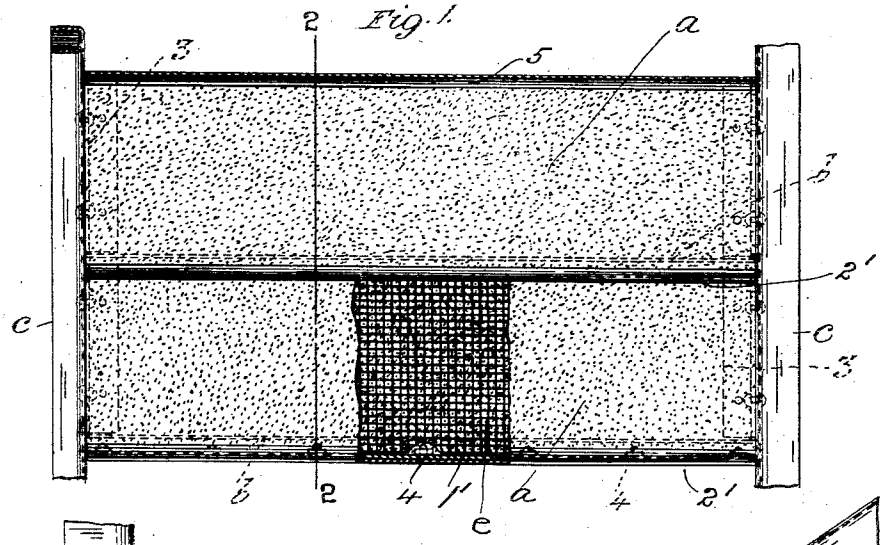


Fig. 2.

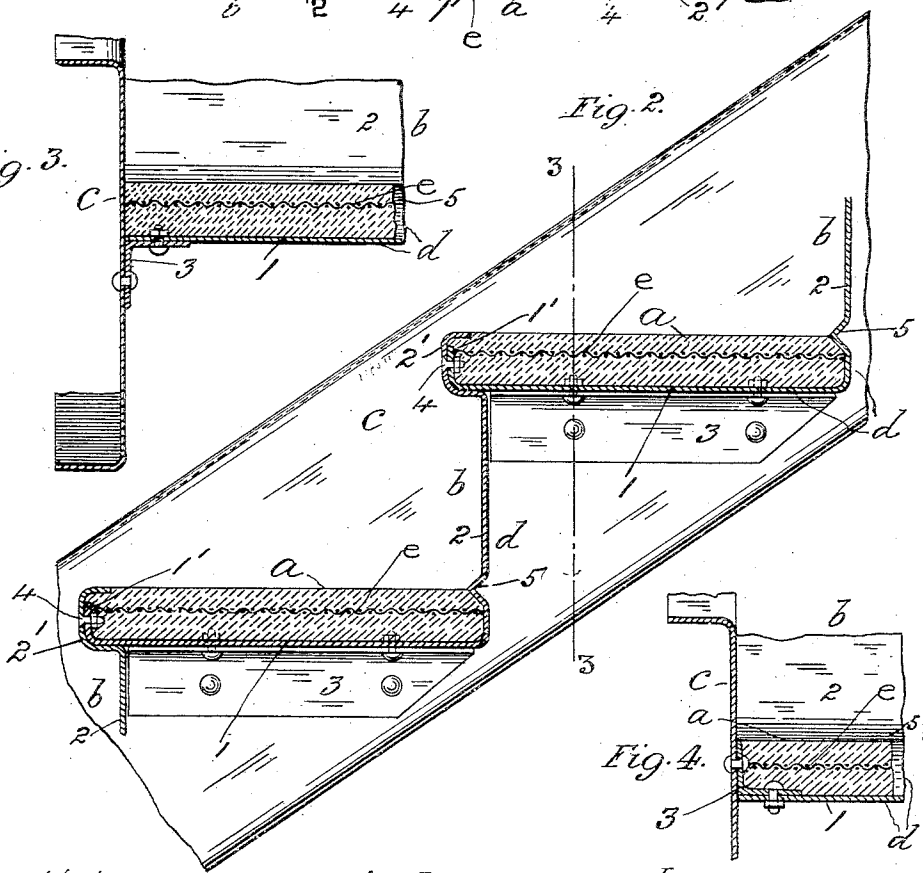
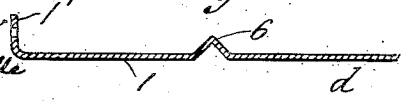


Fig. 3.

Fig. 4.

Fig. 5.



WITNESSES

J. W. Renbow

Hal C. Belville

INVENTORS

Henry F. Edwards

William Dowling

By Edward W. Ferrell

their Attys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY F. EDWARDS AND WILLIAM DOWLING, OF ST. LOUIS, MISSOURI, ASSIGNORS TO MESKER & BROTHER, OF ST. LOUIS, MISSOURI.

FIREPROOF STAIR.

964,222. Specification of Letters Patent. **Patented July 12, 1910.**

Application filed August 18, 1909. Serial No. 513,462.

To all whom it may concern:

Be it known that we, HENRY F. EDWARDS and WILLIAM DOWLING, citizens of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Improvement in Fireproof Stairs, of which the following is a specification.

Our invention relates to that class of stair in which iron or other suitable metal is used in its construction, combined with concrete or cement, and has for its object to provide a light, simple, inexpensive, strong, durable, non-combustible, and easily assembled stair.

It consists in features of novelty as hereinafter described and claimed, reference being had to the accompanying drawing forming part of this specification, whereon,

Figure 1, is a top plan view of two successive stairs, partly broken away, constructed according to our invention; Fig. 2, a vertical transverse section thereof to enlarged scale, on line 2, 2, in Fig. 1; Fig. 3, a vertical longitudinal section through the tread (broken away), and transverse section through the adjacent stringer of the stair on line 3, 3, in Fig. 2; Fig. 4, a similar view to Fig. 3, showing a modified attachment of the tread to the stringer, and Fig. 5, a similar view to Fig. 2 through the base of the tread, showing a modified construction thereof.

Like letters and numerals of reference denote like parts in all the figures.

a represents the tread proper, *b* the riser, and *c* the stringers of our improved fireproof stair constructed and arranged respectively, as follows:—Each stair consists primarily, of a metallic plate *d* having a horizontal portion 1 adapted to support the tread proper *a* as hereinafter more particularly referred to, and an upright portion 2 adapted to form the riser *b*, the plate *d* extending between the stringers *c* to which the horizontal portion 1 is secured at its ends, preferably by angles (or lugs) 3, riveted or bolted thereto, either below or above preferably the latter the plate *d*, as shown in Figs. 3, and 4, respectively, and the plate *d* having its front edge portion 1′ preferably upturned to form a flange or lip which is adapted to fit within a correspondingly shaped channel or nosing 2′ formed at the top of, and projecting forwardly from the front side of the upright portion 2 of the plate *d*, or riser *b*, of the succeeding stair, the flange 1′ which doubles the thickness of metal at, and reinforces the nosing 2′ being fixed to the latter by bolts (or rivets) 4 which are outwardly countersunk as shown, and the channel or nosing 2′ overhanging the horizontal portion 1 of the plate *d* thereat, the latter with the nosing 2′, reinforcing flange 1′ riser *b*, and stringers *c* thereby forming in their assembled position a receptacle for cement or analogous material which is poured therein on to the horizontal portion 1 of the plate *d* and constitutes the tread proper *a* of the stair.

The upright portion 2 of the plate *d*, or riser *b*, is preferably formed along its front side with a suitable horizontal bead, molding, or projecting ledge 5, which in the present case is pressed forward from the plate *d* and V-shaped (or otherwise) overlapping and having its longitudinal apex alined to the upper surface of the cement tread *a*, and its lower inclined surface bearing on and holding the latter in place thereat, and preventing access of dirt between the tread *a* and riser *b*, as occurs where the plate *d* is plain; moreover, the strength and rigidity of the riser *b* are thereby increased. Similarly, the channed or nosing 2′, by overhanging the horizontal portion 1 of the plate *d*, operates to hold and prevent abrasion of the cement tread *a* thereat. If desired the horizontal portion 1 of the plate *d* may also be formed with a longitudinal strengthening bead or rib 6 similar to the bead 5 of the riser *b*, as shown in Fig. 5. At a suitable depth within the cement tread *a* while being placed in the receptacle therefor formed by the metallic walls of the tread thereat as previously defined, is preferably, laid a sheet of wire cloth or netting *e* which on the setting of the cement tread *a* acts as a bond thereto and insures a solid tread to the stair at all times.

We preferably make one or both the stringers *c* channel-shaped in cross section with its flanges outward in the assembled position of the stair, whereby any architectural molding or ornamental work can be readily combined with or placed against the outside face of the stringer and fixed to the said flanges.

What we claim as our invention and desire to secure by Letters Patent is:

1. In a fireproof stair of the class described, the combination of a metallic plate having a horizontal portion supporting a ce-

ment tread, and an upright portion forming the riser of the stair, and a bead projecting forward from the upright portion adjacent to the horizontal portion, and overlapping the rear portion of the said tread for intercepting the passage of dirt thereunder.

2. In a fireproof stair of the class described, the combination of a metallic plate having a horizontal portion supporting a cement tread, and an upright portion forming the riser of the stair, a channel projecting forward from the said upright portion at its top edge, and a bead projecting forward from the said upright portion adjacent to the horizontal portion, and overlapping the rear portion of the said tread for intercepting the passage of dirt thereunder.

3. In a fireproof stair of the class described, the combination of a metallic plate having a horizontal portion adapted to support a cement tread and an upright portion adapted to form the riser of the stair, a flange projecting upward from the said horizontal portion at its front edge, and a bead projecting forward from the said upright portion and overlapping the said tread for intercepting the passage of dirt thereunder.

4. In a fireproof stair of the class described, the combination of a metallic plate having a horizontal portion adapted to support a cement tread, and an upright portion adapted to form the riser of the stair, a flange projecting upward from the said horizontal portion at its front edge, a channel projecting forward from the said upright portion at its top edge and adapted to inclose and to be reinforced by the said flange, and a bead projecting forward from the said upright portion and overlapping the said tread for intercepting the passage of dirt thereunder.

HENRY F. EDWARDS.
WILLIAM DOWLING.

Witnesses:
HAL C. BELLVILLE,
EDWARD W. FURRELL.