

T. BEEVERS.

STAIRCASE.

APPLICATION FILED DEC. 29, 1908.

996,903.

Patented July 4, 1911.

Fig. 1.

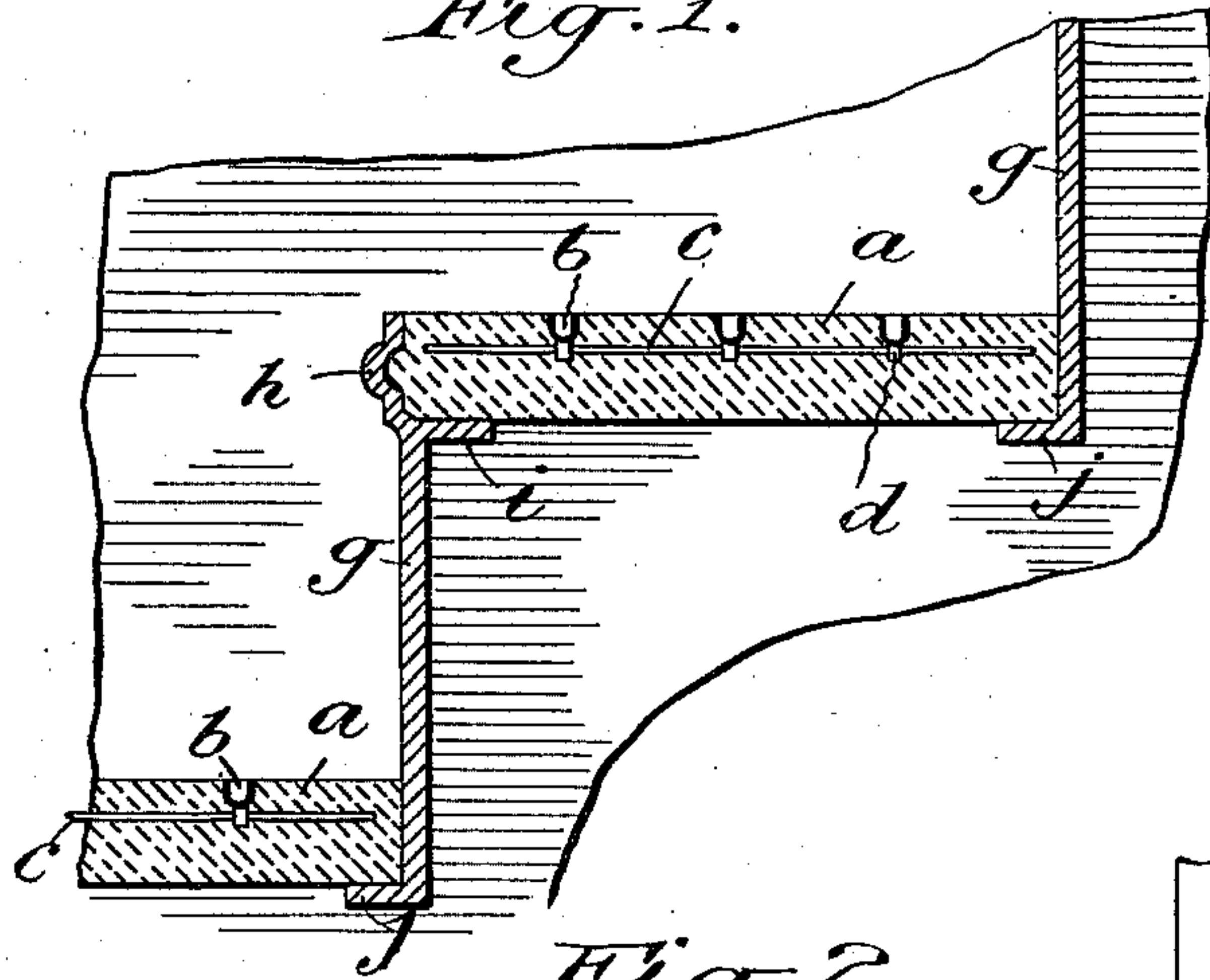


Fig. 2.

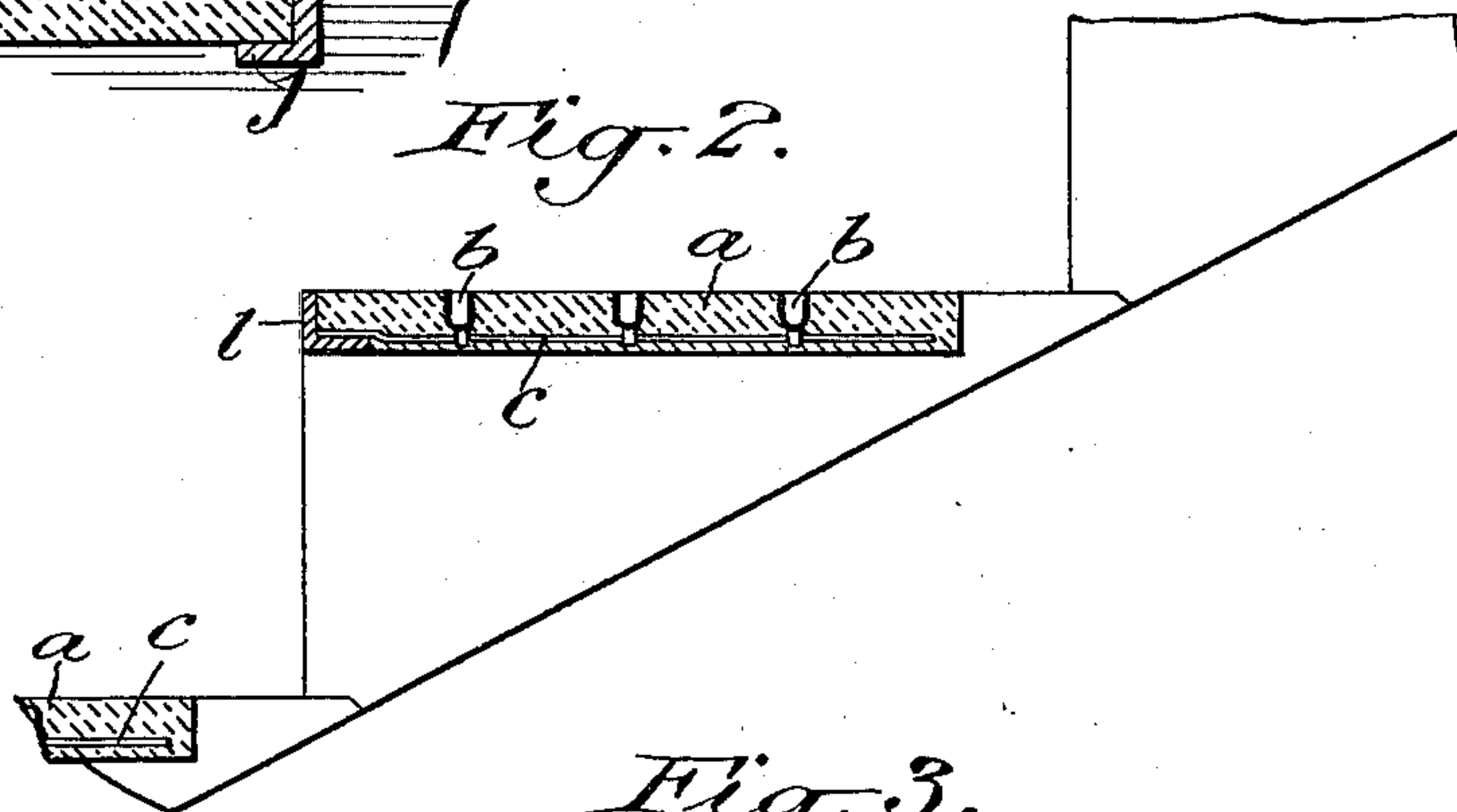


Fig. 3.

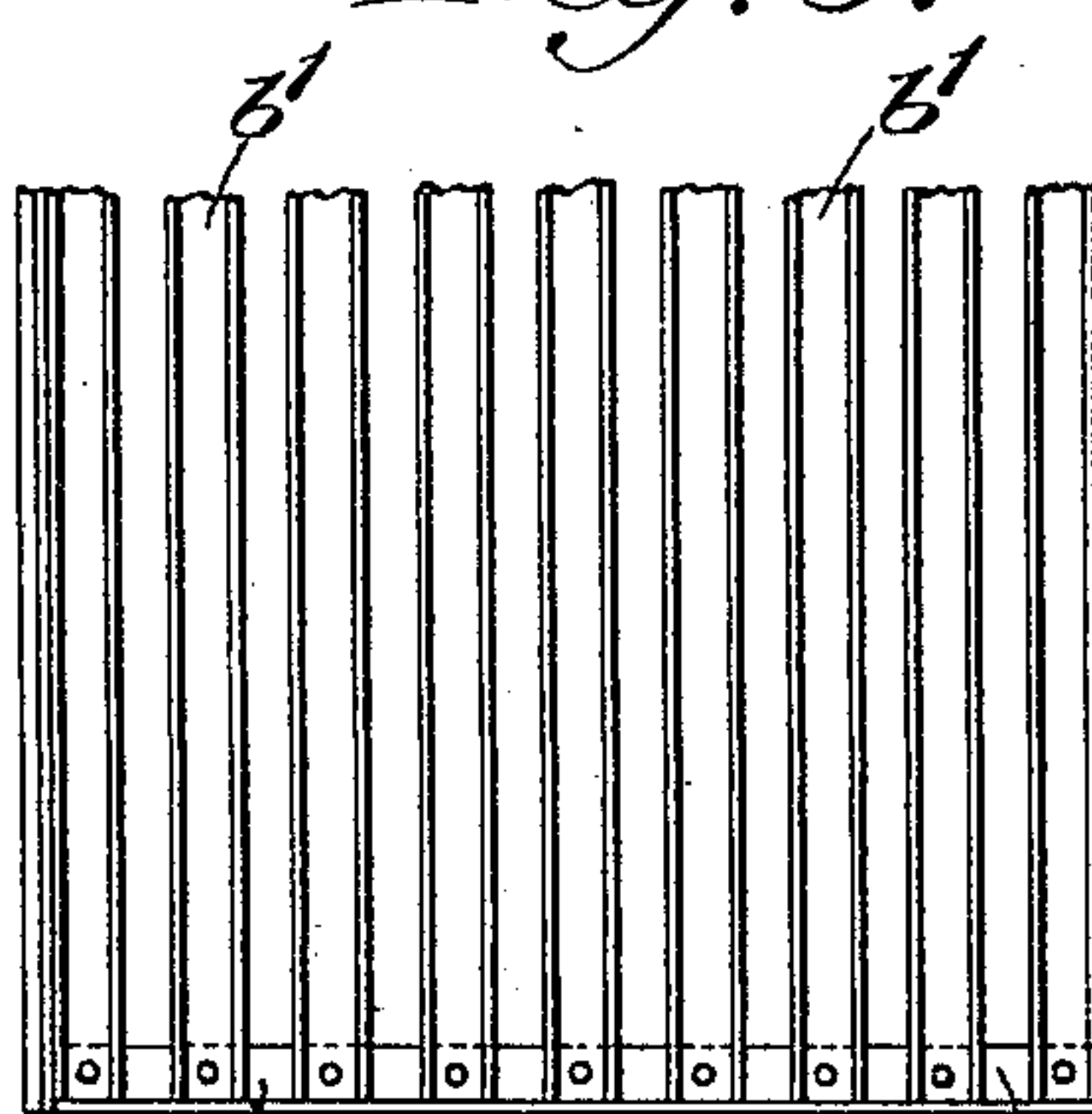


Fig. 4.

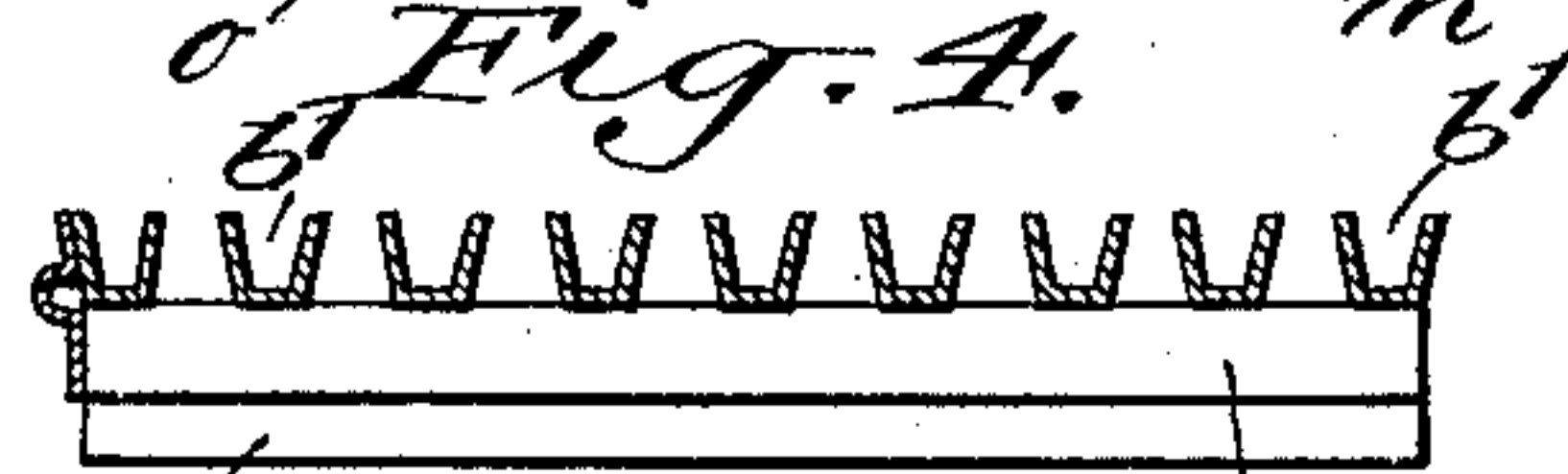
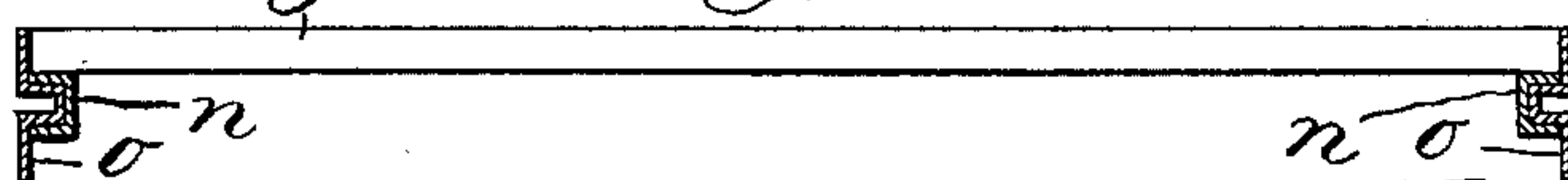


Fig. 5.



Witnesses:-  
F. George Barry,  
Harry S. Glusker

Inventor:  
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attys.

# UNITED STATES PATENT OFFICE.

THOMAS BEEVERS, OF LONDON, ENGLAND, ASSIGNOR TO THE SAFETY TREAD SYNDICATE LIMITED, OF LONDON, ENGLAND, A CORPORATION OF GREAT BRITAIN.

## STAIRCASE.

996,903.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed December 29, 1908. Serial No. 469,856.

*To all whom it may concern:*

Be it known that I, THOMAS BEEVERS, a subject of the King of Great Britain, and resident of 15 Barbican, in the city of London, England, civil engineer, have invented new and useful Improvements Relating to Staircases, of which the following is a specification.

The present invention relates to treads for stair-cases and the like and has for its object to cheapen the construction thereof.

According to this invention, the treads comprise slabs of concrete or other similar material, in combination with metallic grids composed of troughs and cross ties so disposed that the troughs form metal lined grooves on the surface of the treads, while the cross ties form reinforcements embedded in the body of the slabs.

In the accompanying drawing, Figure 1 shows in sectional elevation, a fragment of a stair-case employing treads embodying this invention. Fig. 2 is a sectional elevation of a modified form showing the improved tread applied for the purpose of repairing existing steps. Fig. 3 is a plan view of a modified grid-like structure before it is embedded in the concrete. Fig. 4 is a cross section of the same, and Fig. 5 is a longitudinal section through the tread and support.

Referring to Figs. 1 and 2, *a* is a tread consisting of a concrete slab reinforced with a grid-like structure of U-shaped metal troughs *b* transversely strung together by bars *c* which are threaded through a rib *d* depending from the bottoms of said troughs.

The U-shaped metal troughs *b* are exposed at their upper surface, forming a series of open troughs in the upper surface of the tread, but otherwise the troughs and the bars *c* which string them together, are completely embedded in the concrete.

The risers are denoted by *g*, and consist of metal plates which, in building a stair-case, have their ends embedded in the structure of the building. These risers are preferably provided with nosings *h* and sup-

porting lugs *i, j*. The supporting lugs project, the one backward and the other forward, and act as supports for the treads which are molded of such a size that they will lie snugly thereon and can be secured by a little grouting of cement applied at the back of the nosings which are carried by the risers.

Before the concrete treads are fitted, temporary treads may be laid in position so as to save the use of tiles to protect the permanent treads while the building is in progress. After the building is complete, the permanent treads may be fitted and secured without difficulty.

For repairing the surface of existing steps, the tread need not be so thick but it will generally be desirable to furnish a metal front to take the place of a nosing, such, for example, as the angle-iron *l*, as shown in Fig. 2, to which the bars *c* may be secured.

Referring to Figs. 3 to 5, the U-shaped bars of the part of the tread are shown as of a slightly different configuration in cross section and are denoted by *b'*. In this form, it is preferred to provide at the ends of the treads, channel irons *m* adapted to slide on to the ribs *n* of the supports *o*, which latter may be secured to the stringers of the stair-case in any suitable manner.

What I claim is:

A tread composed of concrete and a grid-like metal structure having grooved bars disposed in the concrete so as to expose metal lined open grooves in the surface of the tread, the upper edges of the metal walls of the grooves being exposed on the tread surface and a reinforcement interlocked with the grooved bars and embedded within the body of the tread and extending transversely to the metal lined grooves, substantially as described.

London, the 10th day of December, 1908.

THOMAS BEEVERS.

Signed in the presence of—

ALFRED S. BISHOP,

P. A. NEWTON.