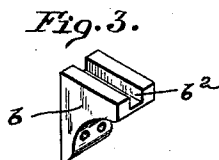
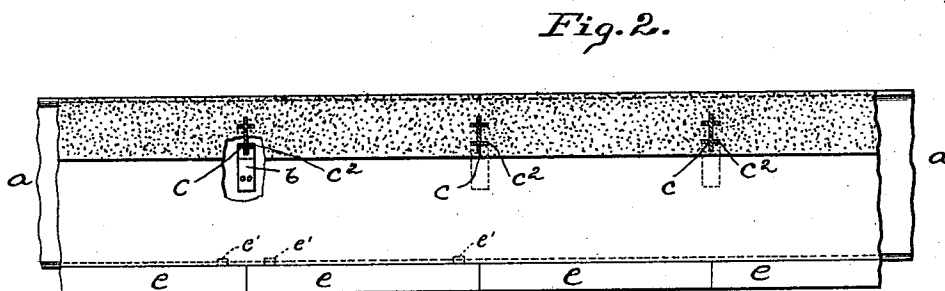
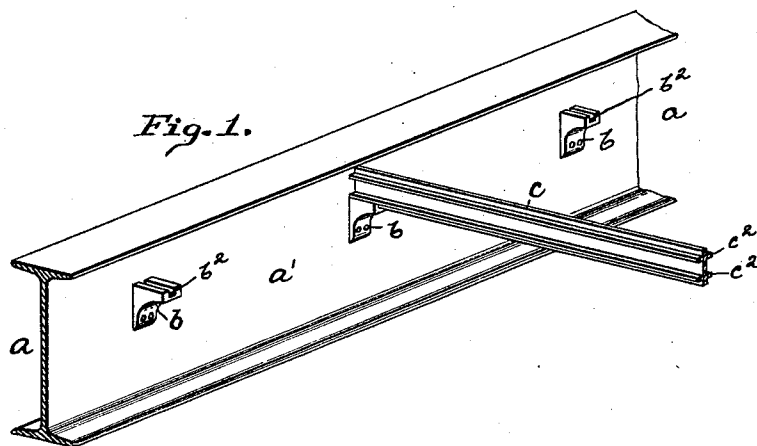


(No Model.)

C. A. BALPH & E. P. S. WRIGHT.  
FIREPROOF FLOOR AND CEILING.

No. 582,383.

Patented May 11, 1897.



*Witnesses:*

*Walter Varnasiss*  
*Robert E. Totten*

*Inventors:*

*Charles A. Balph & Elisha P. Wright*  
*By Kay M. Gatten*  
*Attorneys.*

# UNITED STATES PATENT OFFICE.

CHARLES A. BALPH, OF PITTSBURG, PENNSYLVANIA, AND ELISHA P. S. WRIGHT, OF NEW YORK, N. Y.

## FIREPROOF FLOOR AND CEILING.

SPECIFICATION forming part of Letters Patent No. 582,383, dated May 11, 1897.

Application filed August 12, 1896. Serial No. 602,475. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES A. BALPH, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, and ELISHA P. S. WRIGHT, a resident of New York, county and State of New York, have invented a new and useful Improvement in Fireproof Floors and Ceilings; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to fireproof floors and ceilings, and more particularly to a certain form of such floors and ceilings as is set forth in Letters Patent of the United States No. 527,042, granted to us on the 9th day of October, 1894. In that patent there are metal bars of a length corresponding to the space between the beams and extending transversely of and connected to the beams, said bars being supported on their edges and a filling of concrete completely embedding said bars. The present invention relates to novel means for connecting said bars to said beams, so that said bars will be supported on their edges.

The invention comprises certain novel features, all of which will be fully hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a beam with a bar connected thereto in the manner of our invention. Fig. 2 is a like view with the concrete in position and partly broken away to expose a portion of the bar. Fig. 3 is an enlarged view of one of the brackets removed.

The letter *a* designates the ordinary metal I-beams employed in fireproof floor and ceiling construction. Attached to the webs *a'* of said beams at suitable intervals apart are the metal brackets *b*. These brackets are bolted or otherwise secured to the webs of the beams. The brackets *b* are to support the bars *c*.

In order to add to the strength and rigidity of the construction, the floor and ceiling bars *c* are supported on their edges. Accordingly the brackets *b* have the grooves *b<sup>2</sup>* formed therein to receive the lower edges of the bars *c*, the edges of said bars fitting snugly in said grooves. The bars *c* are preferably constructed with the longitudinal side ribs *c<sup>2</sup>*, which act

to lock or bind the concrete more securely in place. The grooves *b<sup>2</sup>* are made deep enough to permit the lower ribs to rest on the upper faces of the brackets, so that the bars are more firmly supported.

With the bars *c* supported on their edges by the brackets *b* in the manner set forth, and a suitable "centering" having been erected as a temporary support, the concrete can be readily packed down and around the bars, so as to completely embed the same. By the employment of the brackets we provide a firm support for the bars and one which will prevent the displacement of the bars while the concrete is being packed around the same.

We have illustrated our invention as applied to a construction in which the floor and ceiling are formed of one body of concrete. The bottom flange of the beam *a* has the tiles *e* attached thereto, said tiles having the pliable clips *e'* projecting therefrom and engaging said flange. This tile is set forth and claimed in an application filed by us on the 21st day of January, 1896, Serial No. 576,290. Concrete *f* may then be used to cover the remainder of the beam. It is apparent that the floor and ceiling may be formed of separate bodies of concrete, an air-space being left between them. In that case a second set of bars supported on their edges will be employed.

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

In fireproof floors and ceilings, the combination with the beams, of brackets secured thereto, said brackets having grooves formed therein, and cross-bars having longitudinal ribs along the sides thereof, said bars being supported on their edges in said grooves and having said ribs resting directly on said brackets, and concrete completely embedding said bars, substantially as set forth.

In testimony whereof we, the said CHARLES A. BALPH and ELISHA P. S. WRIGHT, have hereunto set our hands.

CHARLES A. BALPH.  
ELISHA P. S. WRIGHT.

Witnesses:

ROBT. D. TOTTEN,  
ROBERT C. TOTTEN.