

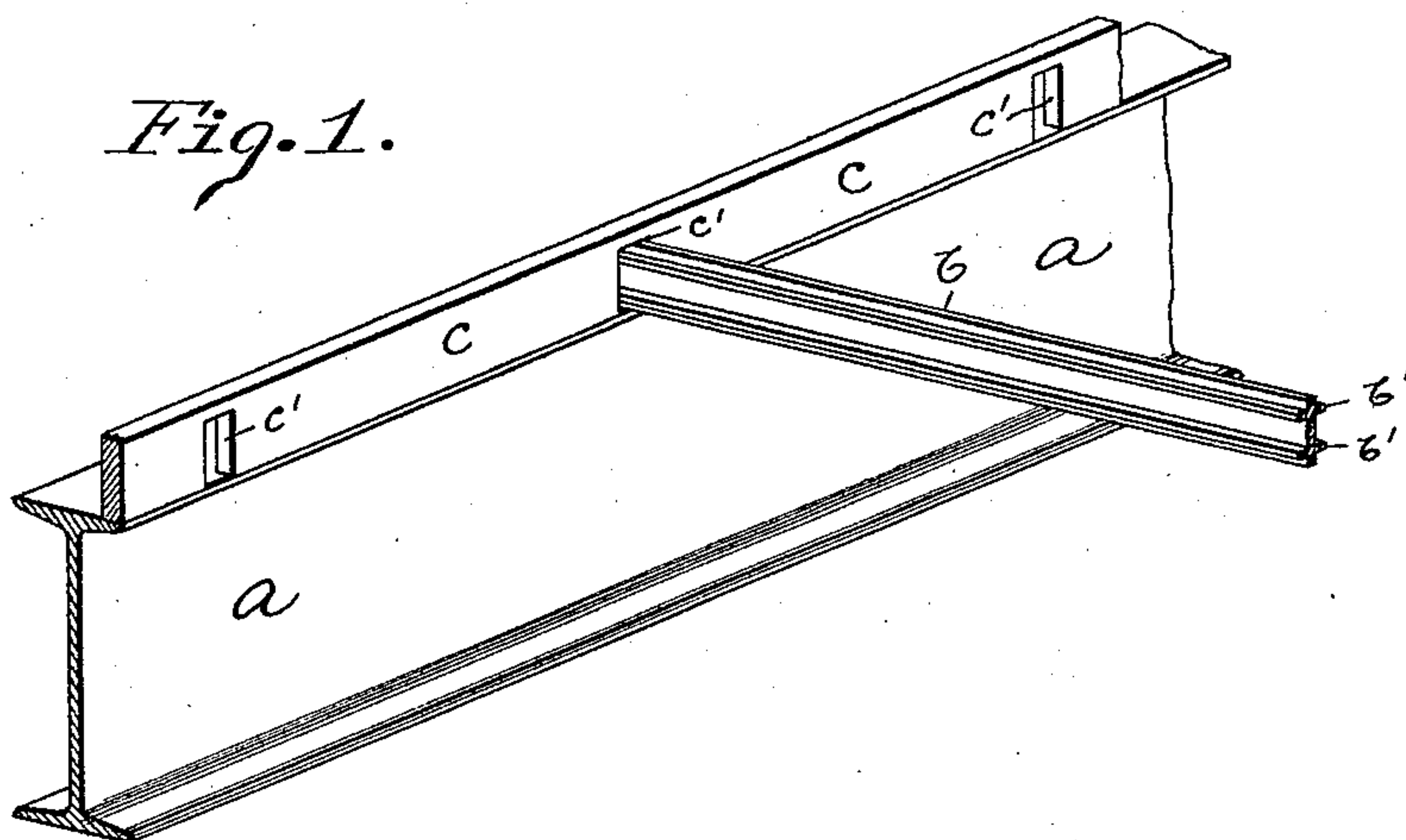
(No Model.)

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

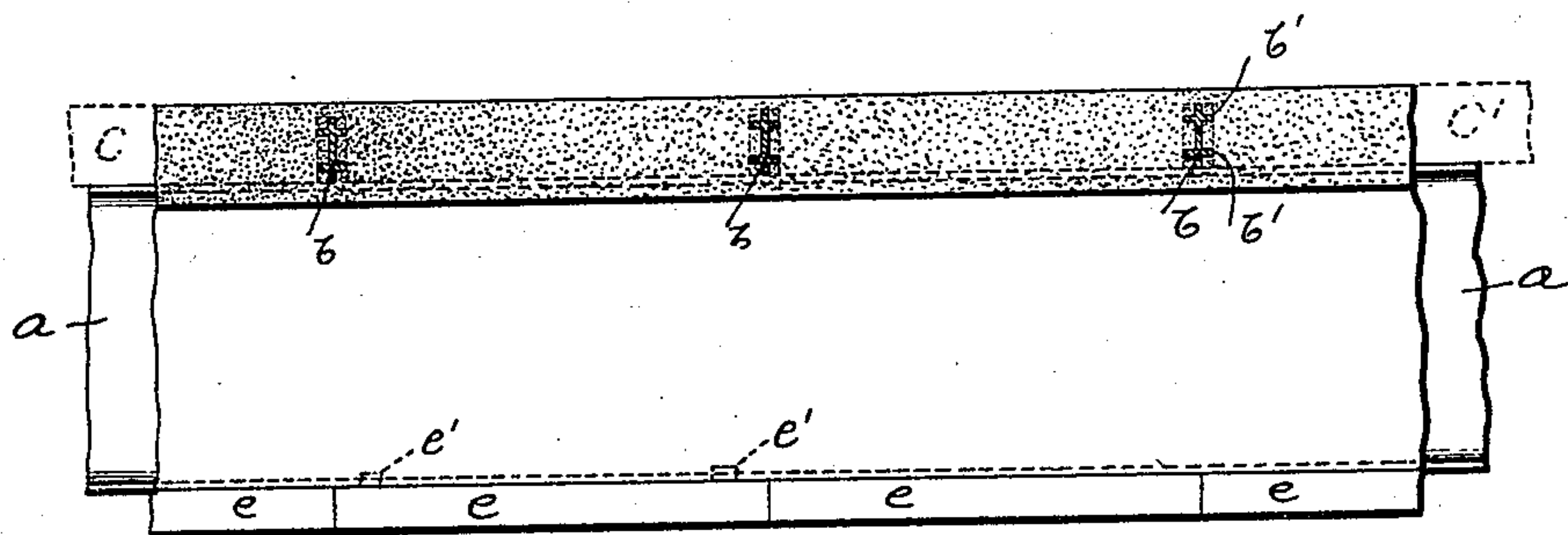
No. 582,386.

Patented May 11, 1897.

*Fig. 1.*



*Fig. 2.*



*Witnesses:*

*Walter Yarnall*  
*Robert C. Totten*

*Inventors:*

*Charles A. Balph*  
*Elisha P. S. Wright*  
*By Kay & Totten*  
*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. 582,386, dated May 11, 1897.

Application filed August 12, 1896. Serial No. 602,479. (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 floor and ceiling construction, 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 a novel means of connecting said bars to said beams, so that said bars will be supported on their edges in such position that the concrete can be packed around the same.

The invention comprises, generally stated, plain, ribbed, or roughened bars of lengths corresponding substantially to the distance between the beams, set on their edges on the upper flanges of the beams, and a temporary studding having recesses formed at intervals therein, said studding being adapted to rest on the upper flange of the beams with its recesses fitting over the said bars, so that said bars while supported in this position may be surrounded by and embedded in concrete.

In the accompanying drawings, Figure 1 is a perspective view of a portion of a beam, showing the ends of the bars supported in the manner of the invention. Fig. 2 is a like view of the floor with the concrete in position and partly broken away to expose a portion of the bars.

The letter *a* designates a suitable metal I-beam such as employed in fireproof structures. Resting on the upper flanges of the

beam *a*, at suitable intervals apart, are the metal bars.

As set forth in the Letters Patent hereinbefore referred to, one of the chief features of the invention contained therein is the metal bars supported on their edges and embedded in concrete. We prefer to employ metal bars which are ribbed or roughened on their side faces, as by the use of such bars the concrete is bound and held in place more securely. Accordingly the metal bars *b* have the ribs *b'* formed along the side faces thereof. In this manner said bars can rest on the upper flanges of the beams, but in order to support the bars in this position while the concrete is being packed around them we employ the temporary studding *c*. This studding can be formed from wood and is provided with the recesses *c'* at suitable intervals. When the studding rests upon the upper flanges of the beams the recesses *c'* coincide with the ends of the bars *b* and fit over the same. A suitable "centering" is then erected to support the concrete while it is being packed around the bars. The bars are then embedded in the concrete, being supported during such operation by the studding. After the concrete has been packed around the bars the studding *c* can be removed, leaving a groove in the floor which can be readily filled with concrete level with the rest of the floor.

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.

We have illustrated our invention in the case where the floor and ceiling are formed in one body and at the same time. It is apparent, however, that it applies equally well to cases where the floor and ceiling are formed separately, leaving an air-space between same. In that case the ceiling-bars may be supported on the lower flanges of the beams.



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

In fireproof floors and ceilings formed of concrete, the combination with suitable metal  
5 I-beams, of metal bars resting on their edges on the upper flanges of said beams, and temporary studding having recesses formed therein fitting over 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.