No. 610,833. Patented Sept. 13, 1898.

W. R. ROBINSON.

FIREPROOF STRUCTURE.

(Application filed Jan. 11, 1898.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

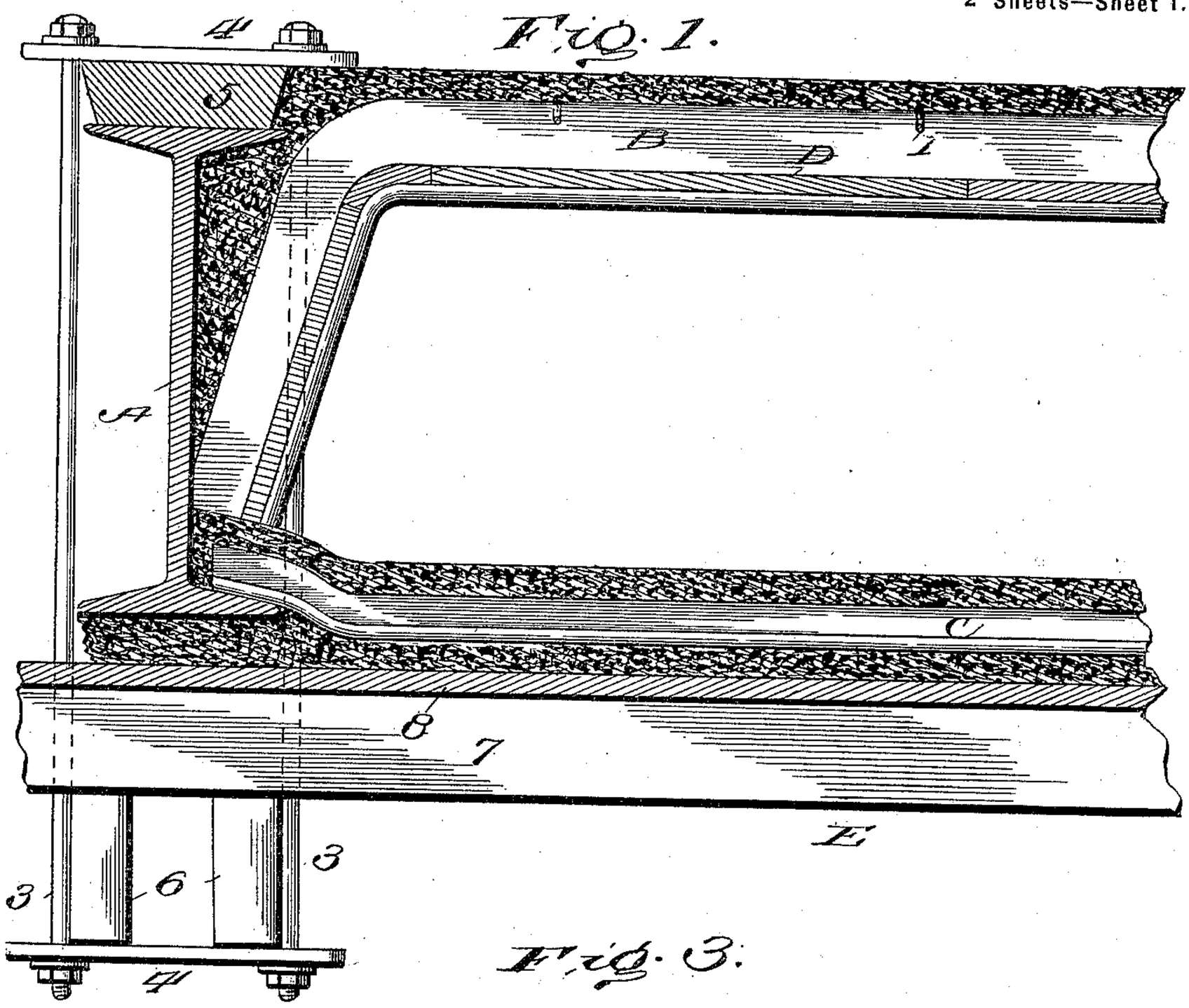
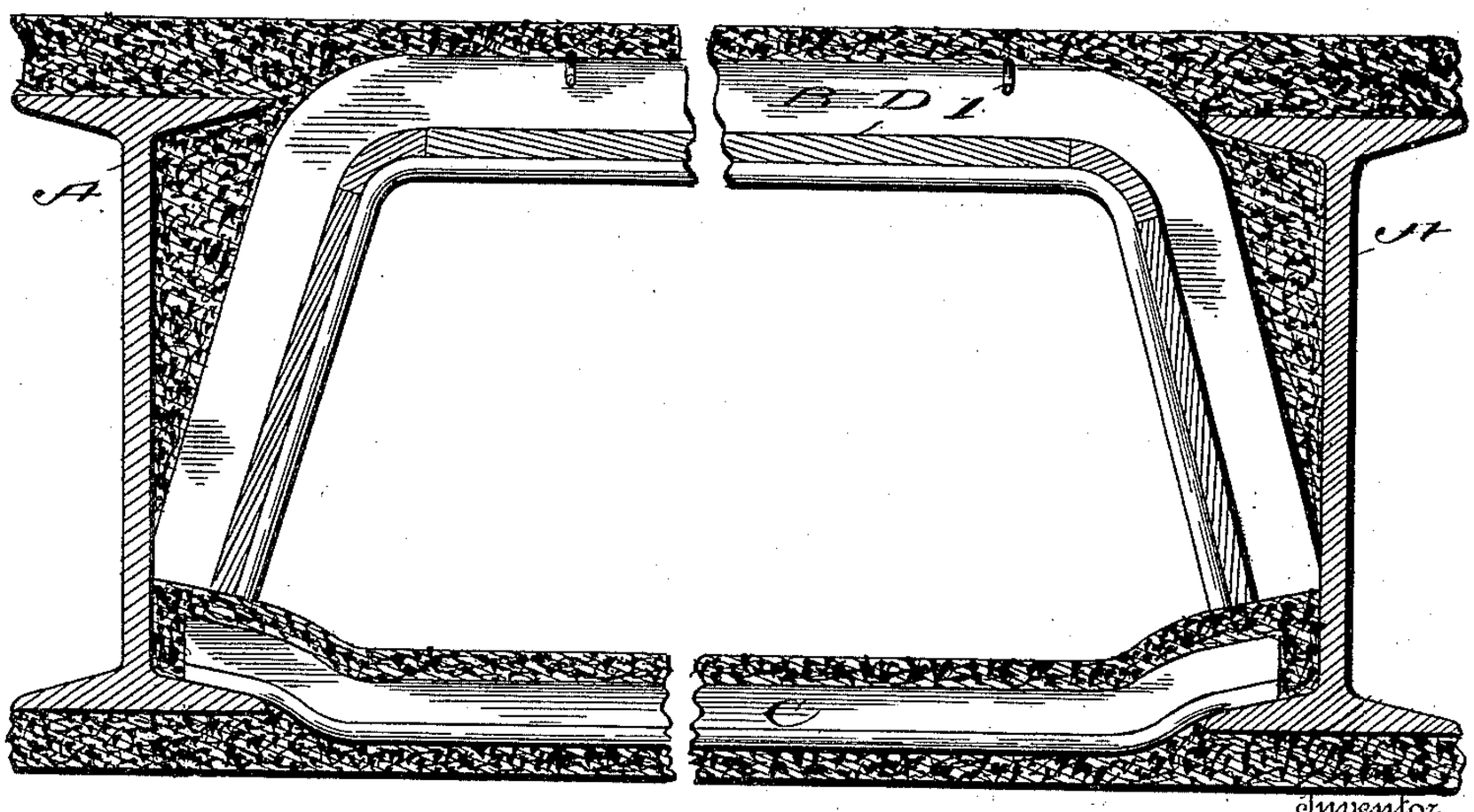


FIG. 3.



Witnesses
Jno. Thiel
D. W. Gould.

Inventor
William R. Robinson
by T. W. McTallmadge
His Attorney

No. 610,833. Patented Sept. 13, 1898.

W. R. ROBINSON.

FIREPROOF STRUCTURE.

(Application filed Jan. 11, 1898.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

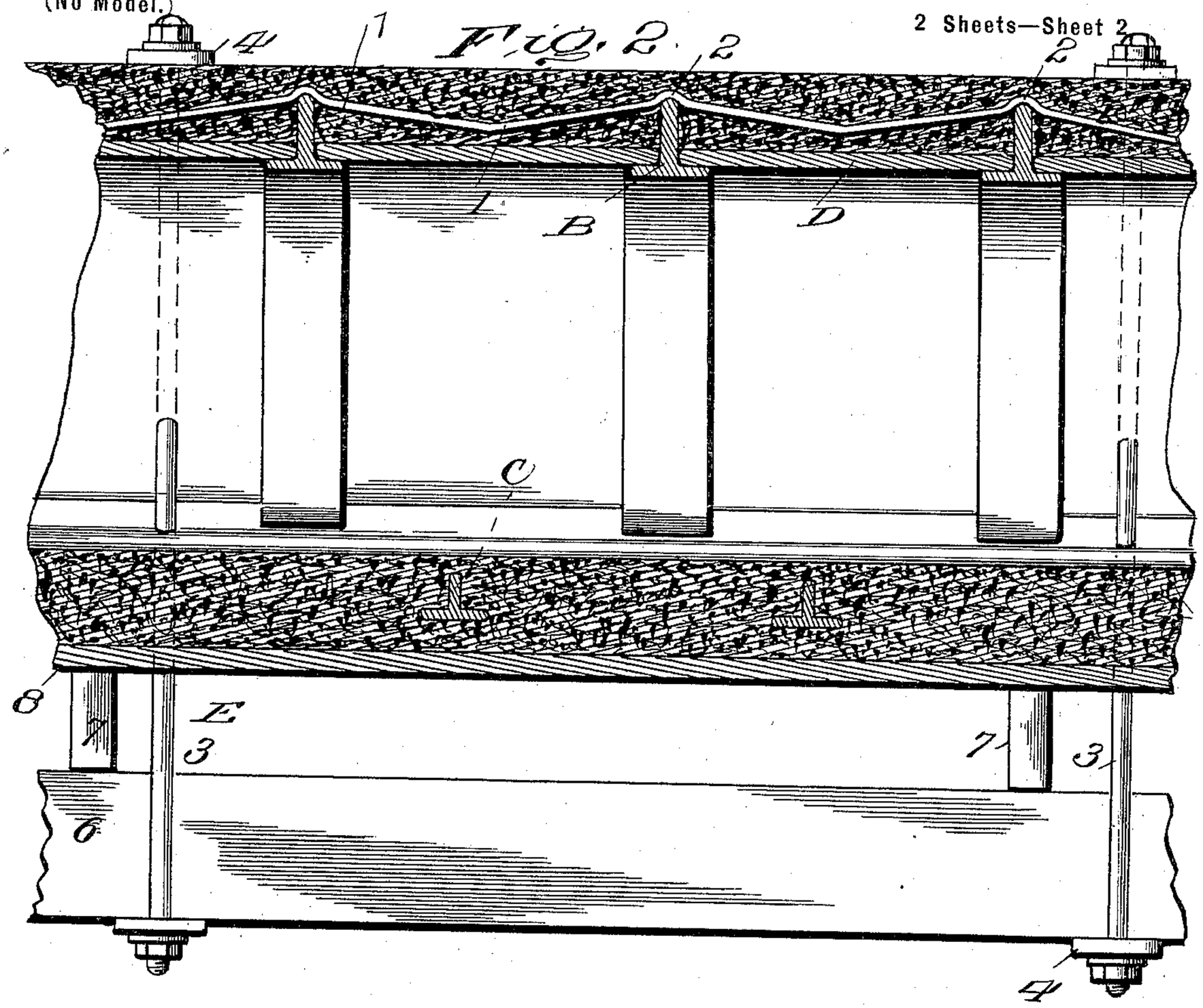
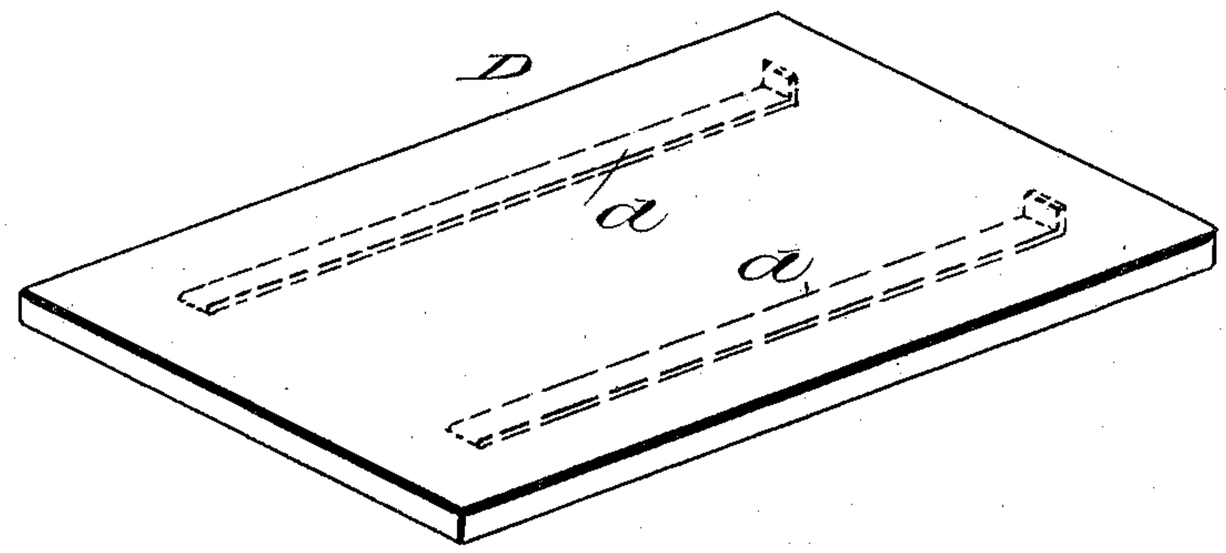


Fig. 4.



Witnesses
D. W. Gould.

Inventor
William R. Robinson
by T. W. Tallmadge
his Attorney

UNITED STATES PATENT OFFICE.

WILLIAM R. ROBINSON, OF CLEVELAND, OHIO.

FIREPROOF STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 610,833, dated September 13, 1898.

Application filed January 11, 1898. Serial No. 666,330. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. ROBINSON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Fireproof Structures, of which the following is a specification.

My invention relates to an improvement in fireproof structures, having relation particularly to what is termed "double construction," or that in which the floor and ceiling are constructed separately from and independently of each other.

One object of my invention is to provide such a construction of floor-bars as to enable me to entirely dispense with the use of stirrups for supporting them.

Another object is to provide a suitable base on which to receive the floor-concrete, whereby I am enabled to dispense with centering in the construction of the floor considered by itself.

Another object is to so form the ceiling-bars that they may be supported on the lower flanges of the I-beams, the flanges of the ceiling-bars being at the same time sufficiently below the plane of the bottom of the I-beams to form an indirect support for the concrete underlying the beams.

Other advantages due to my invention will be apparent from the following description.

Figure 1 of the drawings is a broken elevation showing the partial formation of a section of both floor and ceiling, the centering for the latter being shown in position. Fig. 2 is a transverse section of the same. Fig. 3 is a broken elevation of a completed panel with the centering removed, the supporting-bars for both the floor and the ceiling being shown in full lines for clearer illustration. Fig. 4 is a perspective view of the slab for the floor-bars.

Referring to the drawings, A represents the I-beams, designed to support the floor and the ceiling and to be spaced a suitable distance apart.

B represents the bars for the floor, being inverted-T bars, the ends of which are bent or turned downward and rest upon the lower flanges of the I-beams, as shown.

C represents the ceiling-bars, also inverted-T bars, but somewhat smaller than the floor-bars. The ceiling-bars are bent slightly upward near their ends and rest with their flanges flat upon the flanges of the I-beams intermediate the floor-bars, the greater portion of the flanges of the ceiling-bars being on a plane below the I-beam, as shown, for a purpose hereinafter described.

D represents slabs of suitable incombustible material adapted to rest on the flanges of the floor-bars, reaching from one bar to the next, as shown, forming a base upon which the concrete for the floor is placed. In order to strengthen these slabs, I embed in them while molding one or more iron strips *d*, as clearly shown in Fig. 4.

In order to aid in holding the floor-bars in proper relative position, I employ a series of tie-rods 1, recessed or bent at 2 to snugly embrace the upper edge of the webs of the bars, thus preventing movement of the bars and also aiding in holding the concrete, as will be evident.

When the bars for both the ceiling and the floor are in place, as above described, I next position the centering E for the ceiling. This centering comprises vertical rods 3 in pairs, one on each side of the I-beam, united at their upper and lower ends by plates 4, secured in place by suitable nuts. A block of wood 5 is placed between the upper plate 4 and the I-beam to permit rods 2 to be placed in position without interfering with the floor-bars. On the lower plate 4 I place longitudinal stringers 6, and on these stringers place transverse joists 7, the latter supporting the platform 8, on which the concrete for the ceiling rests until dry. The concrete for the ceiling will thus surround the floor-bars B, materially assisting to hold them in place.

By forming the ceiling-bars C with an upward curve near their ends their flanges will lie flat on the inclined upper surfaces of the lower flanges of the I-beams, whereby the bars are firmly supported, and, furthermore, as these bars for the greater portion of their length lie in a plane below that of the beams their flanges serve to indirectly support the concrete underlying the beams.

After forming the ceilings, as above described, the centering E is removed in an obvious manner, and the slabs D are placed in proper positions on the flanges of the floor-

bars B, after which concrete is filled in until it is on a plane a suitable distance above the tops of the I-beams. It may be found better practice to let the centering remain in position until that section of floor above the completed section of ceiling is constructed, especially as the floor may then be constructed without waiting for the ceiling to dry. If such is desired, the bars 3 will pass through suitable openings in the slabs D, and after removing the centering the channel or space left on top of each I-beam which was occupied by the block 5 of the centering may be readily filled with concrete. The ceiling is to be finished by plastering in the usual manner and the floor with tile or the like.

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

1. In a fireproof structure, the combination, with I-beams, of floor-bars connecting said beams, the ends of the bars being supported by the lower flanges of the I-beams, tie-rods looped over the upper edges of said floor-bars, a solid platform supported by the flanges of the bars and underlying the tie-rods, and a filling of concrete resting on said platform.

2. In a fireproof structure, the combination, with I-beams, of floor-bars connecting said beams, a solid platform connecting said bars, the floor-bars being turned downward at their ends and adapted to rest on and be supported by the lower flanges of the I-beams, a filling of concrete resting on said platform, ceiling-bars connecting said beams, being turned upward near their ends and adapted to rest on and be supported by the lower flanges of the I-beams, and a concrete filling entirely surrounding the ceiling-bars and embracing the ends of the floor-bars, whereby the concrete for the ceiling is adapted to aid in holding the floor-bars.

3. In a fireproof structure, the combination, with I-beams, of floor-bars connecting said beams and having their ends bent downward and resting on the lower flanges of the I-beams, a concrete filling between the floor-bars, ceiling-bars connecting the I-beams and having their ends bent upward and resting on the lower flanges of the I-beams intermediate the ends of the floor-bars, and a concrete filling surrounding and supported by the ceiling-bars, the concrete also surrounding the ends of the floor-bars.

4. In a fireproof structure, the combination, with I-beams, of floor-bars connecting the beams, said bars being of inverted-T shape and having their ends bent downward and adapted to rest on and be supported by the lower flanges of the I-beams, tie-rods connecting the floor-bars at their upper edges, a plurality of slabs of plastic material adapted to be placed on and supported by the flanges of the floor-bars, and a filling of concrete supported by said slabs.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM R. ROBINSON.

Witnesses:
W. V. SMITH,
C. H. BALL.