

No. 845,465.

PATENTED FEB. 26, 1907.

F. A. KOETITZ.  
CONCRETE FLOOR CONSTRUCTION.  
APPLICATION FILED APR. 17, 1906.

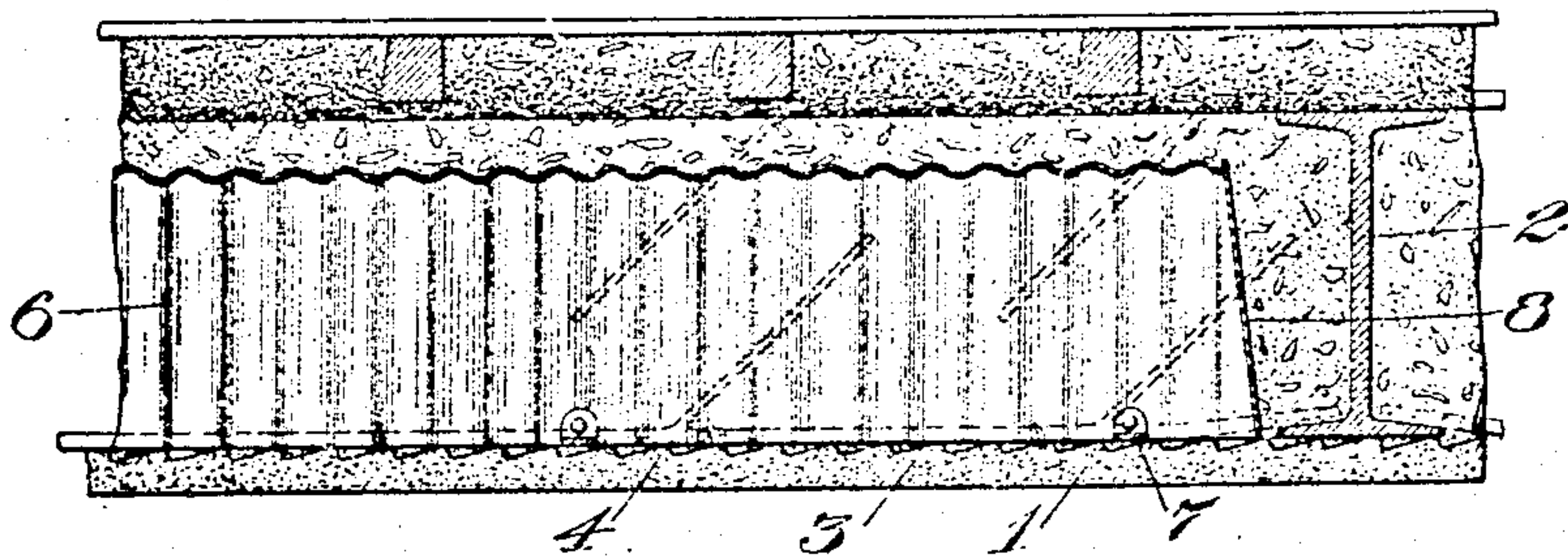


Fig. 1.

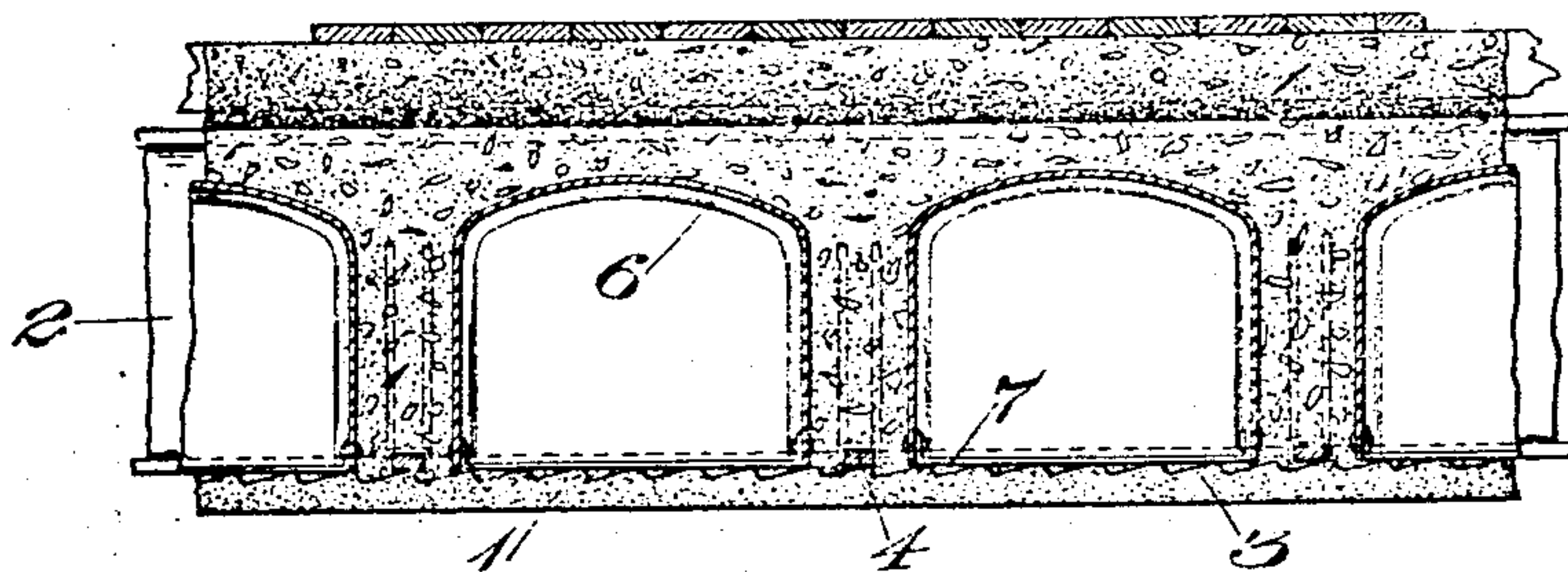
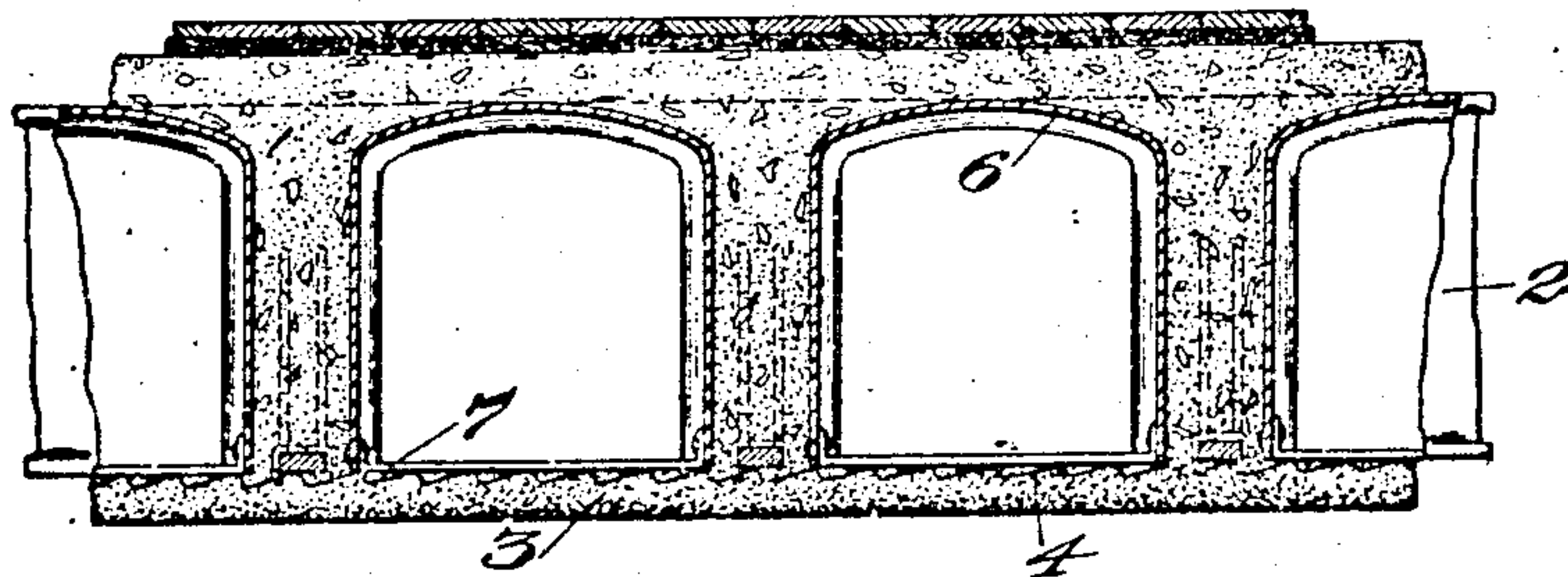


Fig. 2.



Witnesses  
E. B. Baskin  
J. H. Miller

Inventor:  
Fig. 3. Frederick A. Koetitz  
By Geo. H. Strong. Atty.



# UNITED STATES PATENT OFFICE.

FREDERICK A. KOETITZ, OF SAN FRANCISCO, CALIFORNIA.

## CONCRETE-FLOOR CONSTRUCTION.

No. 845,465.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed April 17, 1906. Serial No. 312,200.

*To all whom it may concern:*

Be it known that I, FREDERICK A. KOETITZ, a citizen of the United States, residing at the city and county of San Francisco, and State of California, have invented new and useful Improvements in Concrete-Floor Construction, of which the following is a specification.

My invention relates to an improved method of concrete-floor construction.

10 In fireproof building construction, where especial stability, combined with light weight, is desired, it is common to employ a ceiling-slab or bottom layer of concrete and metal extending between the I-beam, placing the  
15 metal between the beams and using it as a reinforce and support for the concrete slab, which may be one or two or more inches thick. This slab is allowed to set. Then one or more wooden forms are placed on  
20 the slab crosswise between the I-beams, with the forms wider at the top than at the bottom. The spaces on each side of the forms are then filled in with concrete and the latter allowed to set. Then the forms are  
25 taken out and the voids left by the removed forms bridged over by slabs, the latter plastered over with concrete, and the top finished. This entails at least four operations and takes  
30 considerable time in waiting for the concrete laid in at the several operations to set. Furthermore, there is always the danger of the new concrete not knitting close with that set, and therefore failing to secure a perfectly and homogeneously bonded structure.

35 A floor system may be constructed by using terra-cotta tile and concrete joists alternately, which does not give a continuous bond along the bottom, and the top surface of the tile structure requires additional concrete  
40 covering in many cases, is limited for depth to commercial tile, and is rather expensive.

The object of my invention is to provide a means for more rapidly and economically  
45 forming cement floors in the full depth of the floor system with voids in the interior of the concrete, as usual, to reduce dead weight, to make the entire concrete floor and ceiling  
50 practically in one operation, and to produce a thoroughly homogeneous and therefore a stronger and more durable structure at less expense.

The invention consist of the parts and the construction and combination of parts as hereinafter more fully described, having ref-

erence to the accompanying drawings, in 55 which—

Figure 1 is a section transverse to the joists. Fig. 2 is a section at right angles with Fig. 1. Fig. 3 is a view similar to Fig. 2, but showing another method of applying the 60 flooring.

In carrying out my invention a ceiling-slab 1, joist 2, and filling 3 of concrete and metal 4 are formed in the usual manner between adjacent beams or walls. All are of 65 appropriate strength and thickness commensurate with the requirement of the particular case. Instead of using wooden molds, to be later removed, or expensive tile I employ suitable molds 6 of light stiff material, as corru- 70 gated sheet metal, bent into inverted-U-shape form and of desired length and lay these crosswise between the I beams or walls arch fashion, with the open part of the U down- 75 ward, these molds to become a permanent part of the structure. Therefore they are preferably fireproof. The size of these corrugated metal forms will depend on the desired proportion the voids shall bear to the 80 body of concrete or to fulfil the required strength of the floor structure. With the ceiling-slabs or lower layer of concrete in place and while yet fresh the forms are laid in and partly embedded therein, whereupon concrete is packed in around and over the 85 forms and the top finished off. The rough floor is then finished. The forms are left in place, and being of corrugated metal and arched in the manner described they add materially to the strength of the structure. 90 Besides, the concrete being all laid in practically while fresh, it is all firmly bonded together, and with the top finished there are no joints, and the entire concrete mass is homogeneous. Moreover, my method results in a 95 great saving of time to the contractor, since he does not have to wait, first, for the concrete to set in order to put in his forms nor, secondly, for him to take out his forms in one case or provide expensive tile in the other 100 case. In order to prevent the sides of the forms or arches from being deformed by pressure of the concrete filling, I employ plates or braces 7, extended across the open bottoms of the forms. The open ends of the forms 105 may also be closed against the entrance of concrete by plates, as at 8.

Having thus described my invention, what

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I claim, and desire to secure by Letters Patent, is—

5 An improved concrete-and-metal building construction consisting of main supports, a concrete-and-metal ceiling or roof connect-  
ed therewith, sheet-metal corrugated arches disposed between the supports and hav-  
ing a length less than the distance between  
the supports, plates extending transversely  
10 across the lower part of the arches and fixed to the sides thereof whereby the said sides

are braced against the pressure of the concrete between adjacent arches, and plates for closing the ends of the arches.

In testimony whereof I have hereunto set  
my hand in presence of two subscribing wit-  
nesses.

FREDERICK A. KOETITZ.

Witnesses:

S. H. NOURSE,

CHARLES H. HARVEY.