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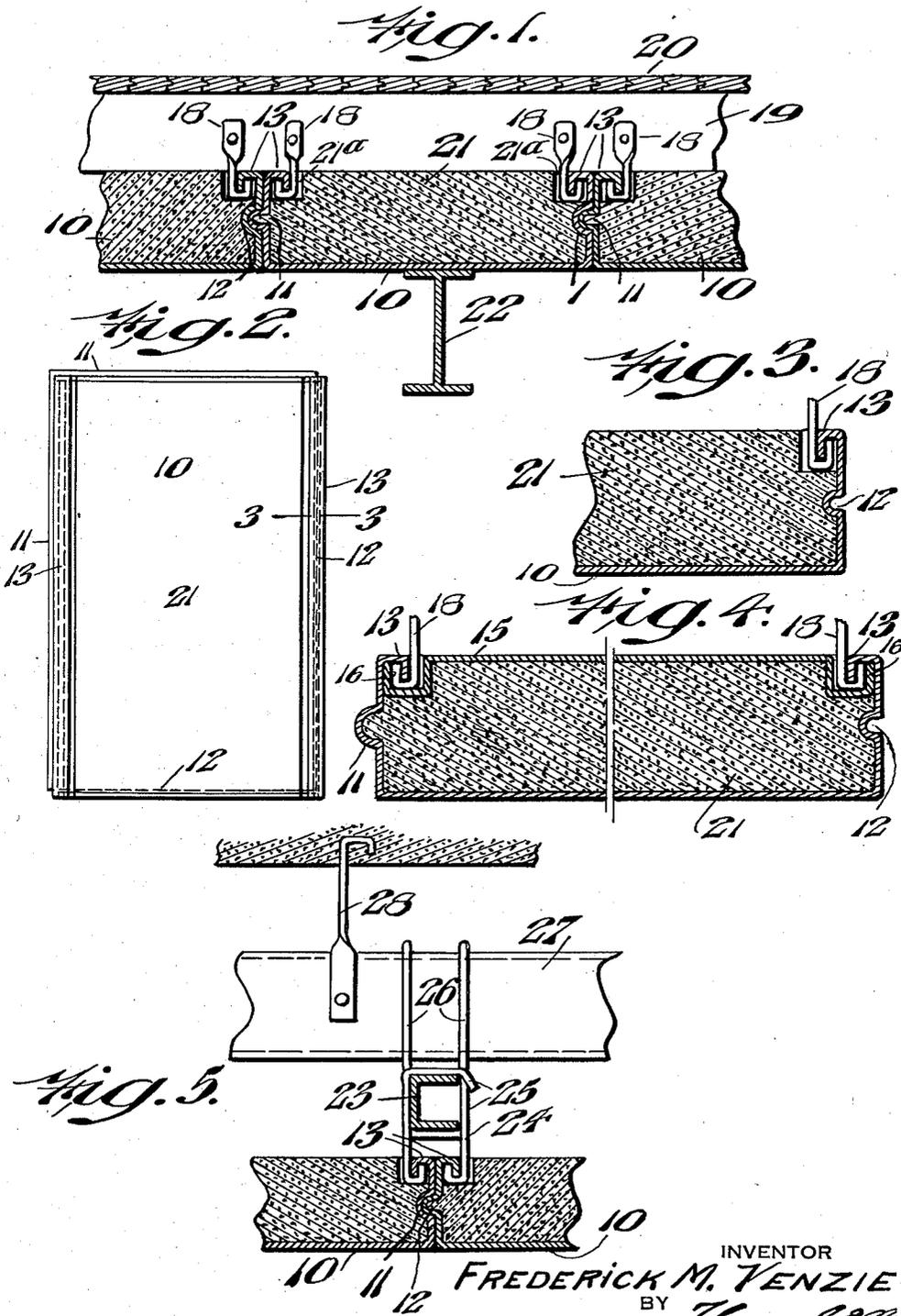
F. M. VENZIE

2,097,781

BUILDING CONSTRUCTION

Filed April 6, 1933

2 Sheets-Sheet 1



INVENTOR  
**FREDERICK M. VENZIE**  
BY *Thor. S. Cole*  
ATTORNEY

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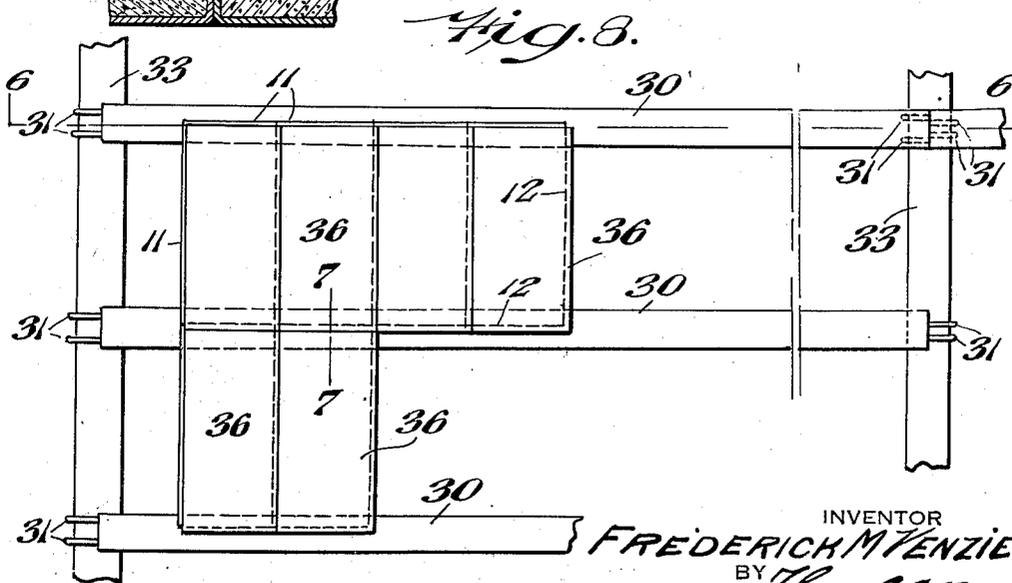
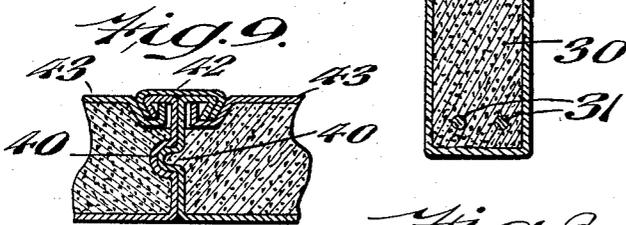
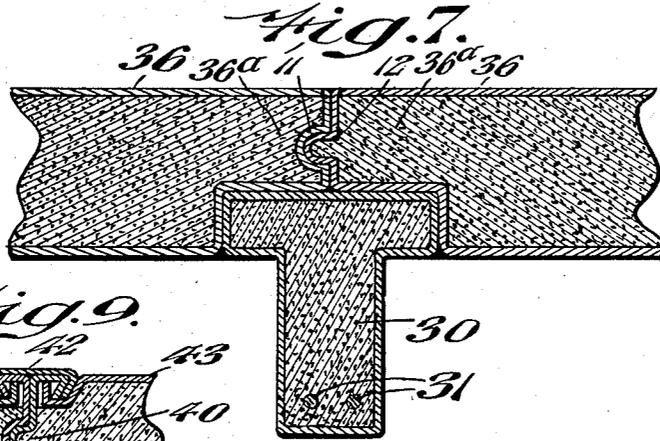
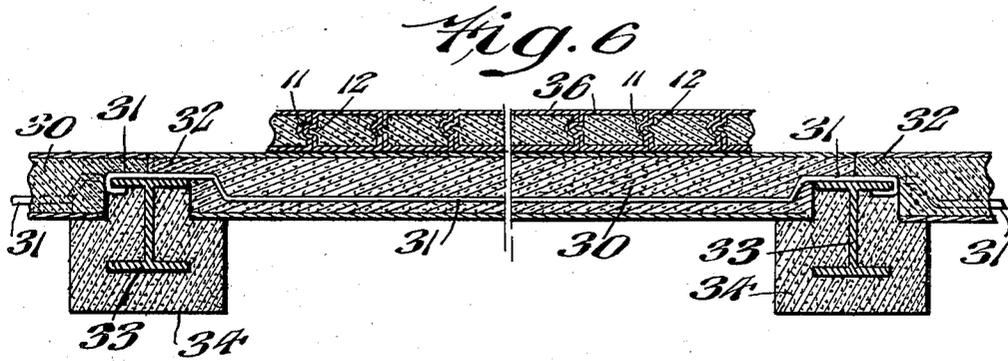
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BUILDING CONSTRUCTION

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2 Sheets—Sheet 2



INVENTOR  
**FREDERICK M. VENZIE,**  
BY  
*Thos. S. Ellis*  
ATTORNEY

# UNITED STATES PATENT OFFICE

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## BUILDING CONSTRUCTION

Frederick M. Venzie, Philadelphia, Pa., assignor  
to National Gypsum Company, Buffalo, N. Y., a  
corporation of Delaware

Application April 6, 1933, Serial No. 664,703

7 Claims. (Cl. 72-118)

My invention relates to building construction and more particularly to novel units adapted for use as floor, ceiling, or roofing slabs which in combination with their support results in a novel floor, ceiling, or roofing structure.

My invention contemplates the use of novel structural materials for use in place of the smaller beams and of the floor and ceiling slabs heretofore used, such materials comprising a cementitious shape together with a metallic shell on such portion of the clip as it is found desirable to provide with a smooth or wear resisting surface, sufficient metal being provided, in the slabs at least, to act as a form for the cementitious material.

An object of my invention is to provide building units which eliminate the need for plaster coatings previously used to provide a smooth surface.

Another object is to provide units which may serve as both floor and ceiling slabs and which optionally are adapted either to properly maintain in position wooden floor supports, to be hung as ceiling slabs from a supporting framework or function as a combination ceiling and roofing unit.

A further object of my invention is to provide a unit which may be readily manufactured and which will act not only as a mold for a concrete or other cementitious block but which need not be removed from the block after its formation and will thereafter function as a smooth covering therefor.

Another object of my invention is to provide a novel block in which the means for attaching the block to a support form a part of the mold in which the block is made and which is provided with tongued and grooved portions to act not only as a means for holding the form about the concrete but as a means for breaking what would otherwise be a clean joint between adjacent blocks.

Other objects and advantages of my invention will be apparent from the following specification, claims, and from the drawings, in which:

Fig. 1 is a vertical section through a floor construction showing the application of my invention thereto;

Fig. 2 is a plan view of a unit embodied in my invention;

Fig. 3 is a vertical section on line 3-3 of Fig. 2;

Fig. 4 is a vertical section through a modified form of construction unit;

Fig. 5 is a vertical section showing the ap-

plication of my invention to a ceiling construction;

Fig. 6 is a vertical section on line 6-6 of Fig. 8;

Fig. 7 is a detailed sectional view on the line 7-7 of Fig. 8 showing a modified form of my invention;

Fig. 8 is a plan view of the structure shown in Figs. 6 and 7; and

Fig. 9 is a detailed sectional view of a modified form of building unit.

Referring now particularly to Figs 1 to 3, my novel construction unit comprises a metallic pan 10 having tongues 11 on one end and one side and grooves 12 on the other end and side with the upper or open ends of the sides being bent over toward the interior of the pan to form hooks 13. The hooks 13 are adapted to receive various types of connecting means such, for instance, as the clips 18 shown in Fig. 1, which are adapted in this instance to hold in predetermined position supports or sleepers 19 to which a wooden flooring 20 may be nailed.

The hooks 13 may also receive a plate 15 having U-shaped flanges 16 on opposite sides fitting the hook 13 and the pans, whether having a cover as at 15 or not, may be filled with any suitable and satisfactory material for the purpose desired, such for example as concrete as indicated at 21, or such various rigid and self sustaining sound proofing or fire resistant materials as are well known to those skilled in the art. The pans are almost completely filled prior to the insertion therein of the lid 15 or the supporting elements 18, positioning of which causes the complete filling of the pan except for the recesses or slots 21a adjacent the hooks 13.

Thus I provide a unit which not only may have the desired structural and fire or sound proofing qualities, but I also provide a smooth and resistant surface, which when used in the interior of a room eliminates the need for the application of a plaster coating.

As illustrated in Fig. 1, the slab unit 10 is employed as a flooring member supported by I-beams 22 which may be left exposed as illustrated or from which may be hung any type of desired ceiling structure. In this illustration the hook members 13 serve as a means for attaching the clips 18 to which the floor supports or sleeper 19 may be nailed.

The same slab unit may be reversed and positioned as in Fig. 5 to form a ceiling having a smooth metallic surface indicated at 10 and hung from plasterer's channels 23 by U-shaped clips 24 having long legs 25 adapted to be

clamped over the upper portion of the channel, which in turn may be hung by hair pin clips 26 from other and larger plasterer's channels 27 supported in any suitable desired fashion as by the hanger 28 which may be embedded in the concrete forming a floor.

My invention is not restricted to slab construction but may include such structures as beams 30 illustrated in Figs. 6 to 8 inclusive, which may be formed from a metallic unit having in cross section a T-shape in which reinforces 31 may be located and which may have open ends which roughly are in the shape of an inverted L 32 as indicated in Fig. 6, the bottom of the L forming a flange adapted to rest on girders 33. Preferably, as indicated in Fig. 6, the reinforces 31 extend through the ends 32 of the beam and may be bent around the girder 33 to maintain the beams in proper position. Inasmuch as most building codes require that the girders be embedded in three inches of fireproofing the particular shape of the ends of the beams is not important since they are embedded in and hidden by the concrete as indicated at 34.

The beams 30 may carry slab units of the type illustrated in Fig. 3 or the ends of slabs 35 may be formed with a flange 36a (Fig. 7) to form an even and smooth surface. Thus the metal forming the casing of the beam 30 will abut the metal forming the casing of the slabs and provide an entirely smooth surface within the structure except at the girders which are usually so spaced that they do not lie within the confines of a room under normal building operating conditions.

To these slabs as thus shown may be connected a flooring as illustrated in Fig. 1 or if they form the roof of a building a coating of mastic and roofing material may be applied directly thereto.

In the modified form of unit shown in Fig. 9 the metal pan 40 is formed with hooks 41 which are bent inwardly at a slight angle and two of which on adjacent pans are engaged by a single U-shaped clip 42 the legs of which are bent at an angle equal to that of the hook. The hook also holds in position a cover 43 identical with that shown in Fig. 4.

Various modifications may be made in the above described embodiment of my invention without departing from the spirit and scope thereof as set forth in the following claims.

I claim as my invention:

1. A building construction comprising a support, a unit comprising a pan having hook shaped portions and an interior fill of cementitious material, and means engaging said hook shaped portions and attachable to said support.
2. A building construction comprising a support, a unit comprising a pan having hook shaped portions and an interior fill of self-sustaining material, and means engaging said hook shaped portions and attachable to said support.
3. A building unit comprising an imperforate metal casing of rectangular shape of greater length than width and flanged on four sides at right angles to the face thereof, two of said flanged sides being tongued and two being grooved, the edges of two of the said flanges being bent inwardly and downwardly to form a long hook shaped edge, and cementitious material within said shell completely filling the same except adjacent said hook shaped edge.
4. A building unit comprising a metal casing of rectangular shape flanged on four sides at right angles to the face thereof, two of said flanged sides being tongued and two being grooved, the edge of at least one of said flanges being shaped to form a hook shaped edge, and a self sustaining material within said shell.
5. A building unit comprising a metal casing of rectangular shape flanged on four sides at right angles to the face thereof and having two parallel major surfaces, said flanged sides having reentrant portions, and cementitious material within said shell.
6. In a building construction, a rigid tongued and grooved element shaped as a parallelepiped having parallel slots at the edges of the two meeting surfaces; and a metal covering on a face and four sides of said element, said metal covering having hook shaped ends extending into said slots.
7. In a building construction, a rigid tongued and grooved element shaped as a parallelepiped having a slot adjacent the meeting edge of two meeting surfaces, a metal covering on a face and four sides of said element, said metal covering having supporting means extending into said slots.

FREDERICK M. VENZIE.