March 21, 1933. H. W. REEL 1,902,789

PRECAST CEILING CONSTRUCTION

Filed June 17, 1930

Fig. 1

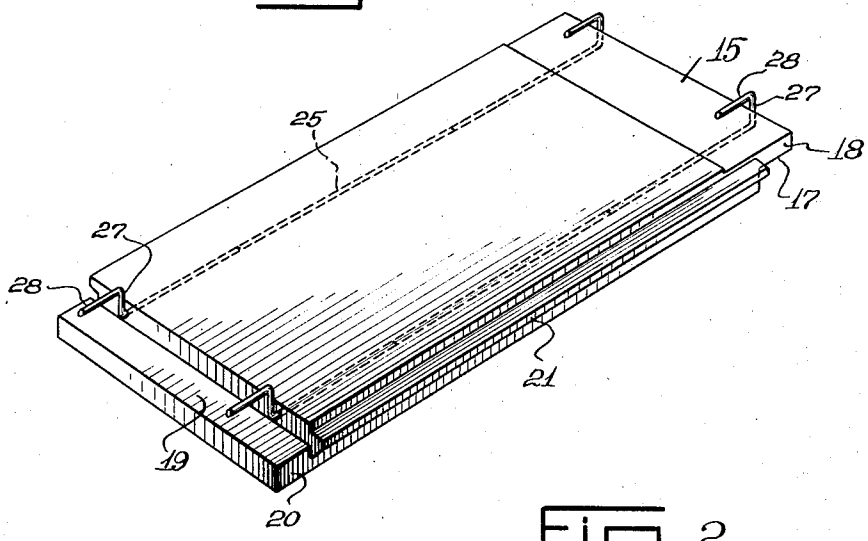


Fig. 2

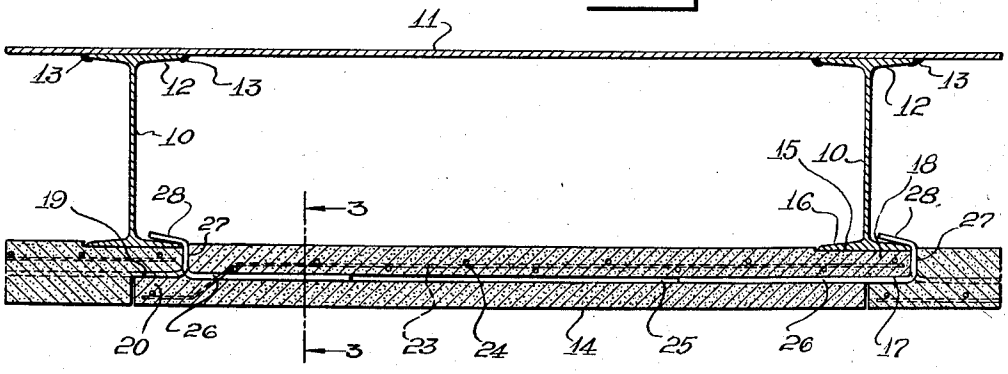
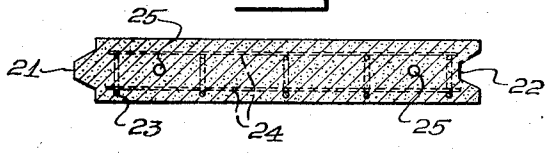


Fig. 3



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UNITED STATES PATENT OFFICE

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PRECAST CEILING CONSTRUCTION

Application filed June 17, 1930. Serial No. 461,738.

This invention relates to precast ceiling construction and has reference more particularly to ceiling tiles which may be suspended from steel beams over which extends a closed floor.

It is often the practice to place steel floor plates on top of steel supporting beams and securely weld these plates to said floor beams. The problem then arises of providing a ceiling construction which may be readily attached to the bottom flanges of the floor beams. It is also often desirable at times to have a tile construction which may be attached to the lower flanges of floor beams, regardless of the construction of the floor used above.

An object of this invention, therefore, is to provide a precast ceiling construction which may be readily attached to the lower flanges of floor beams.

Another object of the invention is to provide a ceiling tile having specially formed attaching members for connecting the tile to the lower flanges of floor beams; also to improve building and tile constructions in other respects hereinafter specified and claimed.

Reference is to be had to the accompanying drawing forming a part of this specification, in which

Fig. 1 is a perspective view of one of my improved ceiling tile,

Fig. 2 is a sectional elevation through a floor and ceiling construction employing my improved ceiling tile, and

Fig. 3 is a transverse, sectional elevation through one of the ceiling tiles taken on line 3—3 of Fig. 2.

The improved ceiling construction is especially adapted for buildings in which steel floor beams 10 are rigidly supported at their ends at space intervals and in substantially parallel relation. Steel floor plates 11 are laid across the upper flanges 12 of the beams 10 and are welded securely thereto by means of welds 13. The precast ceiling tiles forming the subject matter of the present application are preferably formed of a slab of gypsum 14 poured in a plastic state in a suitable form, although other cementitious materials, such as concrete and the like, may be used if desired.

One end of the slab 14 is provided with a molded recess 15 which is formed on the top face of the slab 14 and is of sufficient width to receive the lower flange 16 of the floor beam 10. Recess 17 is formed on the same end of the slab 14 and on the bottom surface thereof, this recess 17 being adapted to form a tongue 18 on the end of the slab 14. A corresponding recess 19 is formed on the opposite end on the top surface of slab 14, said recess section 19 being of sufficient depth and width to receive the tongue 18 so that tongue 18 then overlies a similar tongue 20 of the adjacent tile, as shown in Fig. 2. A tongue 21 preferably with sloping edges is formed along one longitudinal edge of slab 14 and a corresponding groove 22 is formed on the opposite longitudinal edge of this slab, being adapted to receive the corresponding tongue 21 of the adjacent tile so as to keep the tiles in substantial alignment and in position to form a ceiling. A reinforcing mat comprising longitudinal wires 23 and transverse wires 24, preferably welded thereto or otherwise secured, is embedded in the slab 14, one end of said mesh extending into the tongue 20 and the other end of said wire mat extending into the tongue 18 so as to give the slab and tongues great strength and rigidity.

In order to connect the slab 14 to the lower flanges 16 of the floor beams 10, I provide a pair of substantially parallel longitudinal core holes 25 extending longitudinally through the slab 14, said holes opening at one end below the tongue 18 and at the other end above the tongue 20. When assembling the tiles at the job, attaching rods 26 are slipped into the core holes 25 at each end, these rods 26 having upwardly extending sections 27 and transversely extending hook ends 28 for engaging the lower flanges 16 of the floor beams. With this form of construction, the workman can apply the slab 14 to the lower flanges 16 of the floor beam in a successive manner, one after the other, without the construction of forms or staging since the

attaching rods are easily slipped into place and hooked over the flanges 16. It will be seen that the section 27 of the attaching rods are engaged by a surface of the adjacent tile so as to prevent said attaching rods from being inadvertently withdrawn from the core holes 25. The slabs 14 are thus securely attached to the beams and in a manner which permits fast erection at a low labor cost. It also permits the attachment of the slab 14 to the beams even after the upper floor plate 11 has been welded in place thus giving my imroved ceiling tile a new field of usefulness not heretofore possible with other ceiling constructions.

This tile may be cut in the field to any length desired and the rods 26 inserted at the cut end, since the cored holes 25 pass through the entire tile. A new tongue 18 may be formed during the cutting or sawing operation.

I would state in conclusion that while the illustrated example constitutes a practical embodiment of my invention, I do not wish to limit myself precisely to these details, since manifestly, the same may be considerably varied without departing from the spirit of the invention as defined in the appended claims.

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

1. In a precast ceiling construction, the combination with a plurality of spaced metallic beams in substantially parallel relation and having lower flanges, of a plurality of ceiling slabs arranged below said floor beams and spanning the distance there between, integral tongues and grooves formed on said slabs for inter-connecting said slabs one with another, said slabs being formed with longitudinally extending core holes, and attaching rods extending detachably into said holes and engaging the flanges of said beams so as to rigidly connect said slabs to said beams.

2. A ceiling tile comprising a rectangular slab of cementitious material having a reinforcing mat embedded therein, tongues and grooves formed on the four edges of said slab adapted to interlock with the tongues and grooves of other adjacent slabs to form a ceiling, said slab being provided with core holes, and attaching hook rods removably extending into said core holes and adapted to attach said slabs to lower flanges of floor beams.

3. A ceiling tile comprising a slab of cementitious material having a reinforcing mat embedded therein, a tongue and groove associated with the edges of said slab and adapted to engage similar tongues and grooves of adjoining slabs, said slab being provided with core holes, and attaching rods detachably received in said core holes for supporting said slab, said slab being adapted to be cut to varying lengths and still have the core holes effective to receive said attaching rods.

HERBERT W. REEL.