

April 15, 1941.

K. R. WEEKS ET AL

2,238,514

BUILDING CONSTRUCTION

Filed Nov. 6, 1939

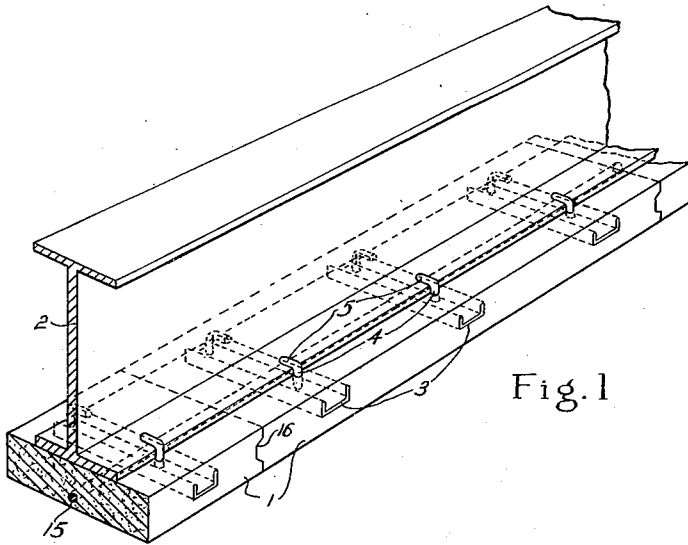


Fig. 1

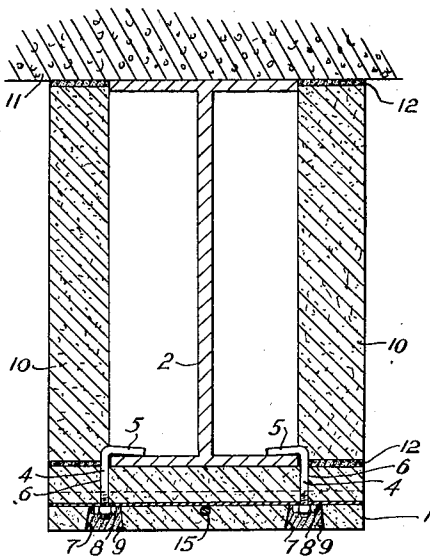


Fig. 2

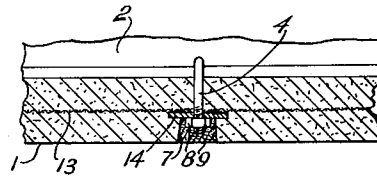


Fig. 3

INVENTORS:
KENNETH R. WEEKS and WILFRED S. ARMSTRONG

BY *A. E. MacKae*

ATTORNEY

UNITED STATES PATENT OFFICE

2,238,514

BUILDING CONSTRUCTION

Kenneth R. Weeks and Wilfred S. Armstrong,
Winnipeg, Manitoba, Canada, assignors to Gyp-
sum, Lime and Alabastine, Canada, Limited,
Toronto, Ontario, Canada

Application November 6, 1939, Serial No. 302,970

7 Claims. (Cl. 72-59)

This invention relates to building construction and more particularly to a construction involving the use of precast ceiling slabs or the like, such as are used for fireproofing purposes, and means for supporting such slabs below main supporting members such as I-beams and the like.

An object of the invention is to provide a precast slab of the type referred to having reinforcing means therein and separate supporting elements for the slab adapted for convenient and ready assembly with the slab and, in association with the reinforcing means, to suspend securely the slab from a main supporting member.

Other objects of the invention will be apparent from the following description with particular reference to the accompanying drawing, in which

Figure 1 is a perspective view of a structure according to the invention;

Figure 2 is a sectional elevation of the structure, and

Figure 3 is a sectional elevation of a modified structure.

In the drawing, 1 indicates the precast ceiling slabs usually formed of gypsum or other cementitious material such as concrete. As shown, the slabs 1 are in rectangular sections for application to the under surface of an I-beam 2 constituting a main supporting member. It will be understood that the slabs may be made in any desired shape corresponding to the structural shape of the main supporting member.

A plurality of reinforcing members, such as metal channel members 3, are embedded in each slab and extend transversely thereof substantially from edge to edge.

The means for suspending the slab from the I-beam comprises a series of pairs of bolts 4 extending through the slab and channel member, each bolt having a hoop 5 at its upper end adapted to engage the lower flange of the I-beam. Holes 6 extending through the slab and channel member for receiving the bolts 4 are preformed in the manufacture of the slab. On the under surface of the slab, enlarged sockets 7 are formed in registry with the holes 6 and extend inwardly to the channel member, to provide space for applying nuts 8 to the bolts, the channel member forming a rigid abutment for the nuts.

When the slab has been properly positioned and the nuts 8 screwed tightly into place, the sockets 7 are filled with mortar 9 or the like.

Figure 2 illustrates a completed construction in which vertically positioned slabs 10, supported on the marginal portions of slabs 1, extend to the

ceiling surface 11 to enclose the I-beam. The joints may be plastered or mortared at 12.

Figure 3 illustrates an alternative structure in which a wire fabric or mat 13 replaces the channel members 3 and extends throughout the transverse area of the slab from edge to edge. In this form, a washer 14 is embedded in the slab adjoining the lower surface of the wire mat at each hole 6 with its opening in registry with the hole. Thus, the washer presents an abutment surface for the nut 8 in each socket 7, which is finally filled with mortar 9, as previously described.

As shown in Figures 1 and 2, a metal rod reinforcement 15 may extend longitudinally of the slab just under the channel members 3.

A tongue and groove seal joint between adjacent edges of slab may be provided, if desired, as indicated at 16.

In practice, the slabs 1 and bolts 4 are separately manufactured and transported as required to building structures. Since the surfaces of the slabs 1 are free of projections, such as are frequently present in slabs of this nature, consequent packing and transportation difficulties are avoided. Erection of the slabs is conveniently and quickly accomplished with insertion of the bolts in the holes provided and application of the nuts to the lower ends thereof, the latter being rendered accessible by provision of the sockets 7. The provision of a solid metal abutment surface against which the nuts may be tightened in association with the embedded reinforcing members ensures a particularly rigid positioning of the slabs.

Since the embedded reinforcing members extend from edge to edge of the slab, the marginal portions thereof withstand chipping and the like and are capable of supporting the vertically extending slabs 10, as shown in Figure 2. In the structure illustrated in Figures 1 and 2, the channel reinforcements in association with the supporting bolts are particularly efficacious in providing a strong marginal area for supporting the vertical slabs 10.

It will be understood that the structural forms and details illustrated may be varied without departing from the spirit and scope of the invention as defined in the appended claims.

We claim:

1. In building construction, the combination with a main supporting beam of a plurality of precast slabs arranged below the beam, said slabs each having a plurality of reinforcing channel members embedded therein and having preformed bolt holes extending through the slab,

each said bolt hole also extending through an embedded channel member, and a bolt extending through each bolt hole, said bolt having a hook at one end engaging said beam and a nut at the other end engaging a channel member.

2. In building construction, the combination with a main supporting beam of a plurality of precast slabs arranged below the beam, said slabs each having a reinforcing metal mat embedded therein and having preformed bolt holes extending through the slab and metal mat, a washer in registry with each bolt hole embedded in the slab in abutment with said metal mat, a bolt extending through each bolt hole, said bolt having a head at one end engaging said beam and a nut at the other end screwed into engagement with said washer.

3. In building construction, the combination with a main supporting beam having a lower flange of a plurality of precast slabs arranged below said beam and having plane upper surfaces in abutment with said flange, each slab being wider than said flange whereby the lateral marginal portions of each slab project outwardly from the flange, a reinforcing member embedded in each slab and extending transversely from edge to edge thereof, means engaging said reinforcing member and said flange for suspending each slab from the beam, and a plurality of slabs supported on said marginal portions and extending upwardly to enclose the lateral faces of said beam.

4. In building construction, the combination with a main supporting beam of a plurality of precast slabs arranged below the beam, said slabs each having a plurality of reinforcing members embedded therein and extending transversely from edge to edge thereof, said slabs each also having a plurality of pairs of preformed bolt-holes extending therethrough, each pair of bolt-holes also extending through one of said reinforcing members, and a bolt extending through

each bolt-hole, said bolt having a hook at one end engaging said beam and a nut at the other end engaging a reinforcing member.

5. A fireproofing slab adapted for application to a building beam, and having a reinforcing member embedded therein and extending from edge to edge thereof, and means whereby said slab may be secured to said beam comprising a plurality of bolt-holes extending into that face of the slab adapted to be placed in contact with said beam and through said reinforcing member, and nut-receiving sockets in the other face of the slab extending inwardly to the reinforcing member and each in registry with one of said bolt-holes.

6. A fireproofing slab adapted for application to a building beam, and having a plurality of reinforcing members embedded therein, and means whereby said slab may be secured to said beam comprising a plurality of pairs of bolt-holes each extending into that face of the slab adapted to be placed in contact with said beam and through a reinforcing member, and nut-receiving sockets in the other face of the slab extending inwardly to the reinforcing member and each in registry with one of said bolt-holes.

7. A fireproofing slab adapted for application to a flanged building beam and having a plurality of reinforcing members embedded therein and extending transversely and means whereby said slab may be secured in contacting relation with said beam flange comprising a plurality of pairs of bolt-holes, each pair of bolt-holes extending into that face of the slab adapted to be placed in contact with said beam flange and through one of said reinforcing members, and corresponding nut-receiving sockets in the other face of the slab extending inwardly to a reinforcing member and each in registry with one of said bolt-holes.

KENNETH R. WEEKS.
W. S. ARMSTRONG.