June 15, 1937. E. G. GROVES 2,083,781

BUILDING CONSTRUCTION

Filed Dec. 14, 1936

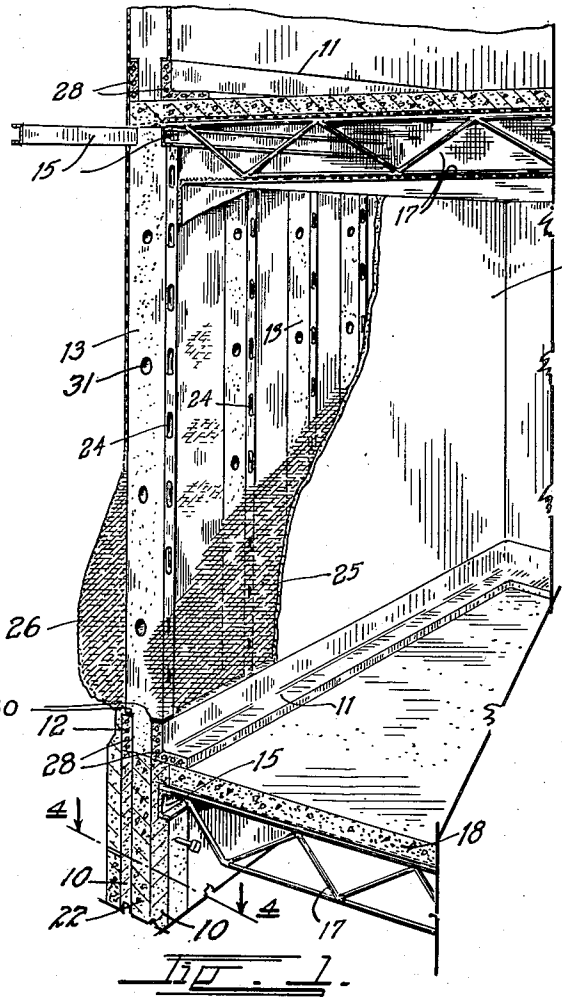

Fig. 1.

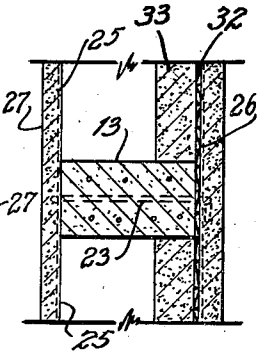

Fig. 6.

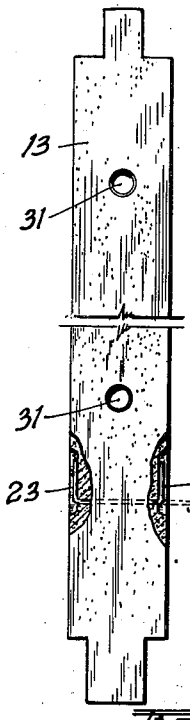

Fig. 2.

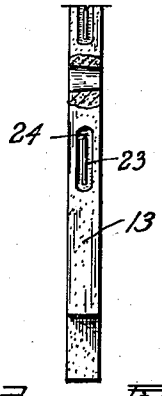

Fig. 3.

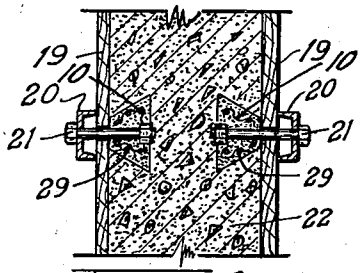

Fig. 4.

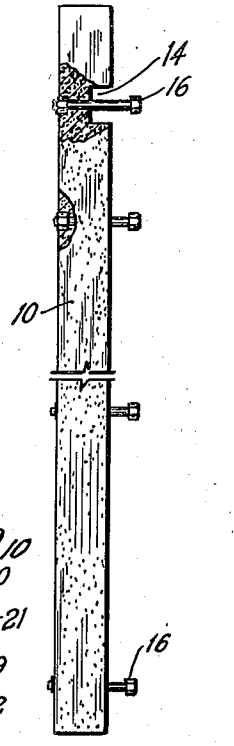

Fig. 5.

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BUILDING CONSTRUCTION

Eugene G. Groves, Denver, Colo.

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6 Claims. (Cl. 72—1)

This invention relates to an improvement in building construction and has for its principal object the provision of a building in which all woodwork is eliminated; in which all of the structural members are pre-formed so that no concrete forms are necessary on the job; which will provide a durable, permanent, fireproof construction; and which will be adaptable to any type of building.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:—

Fig. 1 is a fragmentary perspective view illustrating a typical wall section embodying the new construction.

Fig. 2 illustrates a side elevation of the stud member employed in the new construction.

Fig. 3 is a face view of the stud member.

Fig. 4 is a detail horizontal section through the basement wall of the building, taken on the line 4—4, Fig. 1. In this section, however, the form boards are shown still in place whereas in Fig. 1 the form boards have been removed.

Fig. 5 is a side elevation of the basement wall stud.

Fig. 6 is a detail cross section of the upper building wall.

The invention comprises a series of pre-cast concrete reinforced stud members 10 and 13 which cooperate with a series of pre-cast reinforced concrete beam members 11 and 12 to form the complete frame of the building.

For the basement wall, a series of the stud members 10 are employed. These stud members are wider at their inner faces than at their outer, so that they may eventually become dovetailed into the wall. The stud members 10 are set up at spaced-apart intervals opposite each other throughout the length of the basement wall of the building.

The inside stud members support the beam member 11, which is L-shaped in cross section. The outer stud members support a straight beam member 12. The beam members 11 and 12 support a series of the studs 13 as shown in Figs. 2 and 3. The lower extremities of these studs are notched at opposite faces to fit over and rest upon the beam members 11 and 12.

The lower stud members 10 are formed with a receiving notch 14 for the reception of a channel beam 15 which is held in place therein by means of suitable bolts 16. The channel member 15 acts as a sill for supporting metallic floor trusses 17, over which a concrete floor 18 is poured.

The basement wall is finished by attaching form boards 19 to the inner and outer faces of the stud members 10. These boards are clamped against the stud members by means of suitable vertical channel bars 20 bolted thereto by means of attachment bolts 21. After the form boards 19 are in place, the entire basement wall is filled with a filling of concrete 22 which imbeds the dovetailed stud members 10 permanently in place.

The form boards and their supporting channels 20 can now be removed. The nuts of the bolts 21 will remain imbedded in the concrete and can be later used to attach shelves and other structures to the inner face of the basement walls.

The concrete filling 22 acts of course to increase the compressive strength of the entire wall and as a water proof retaining wall for the outer earth. The studs 10 act as reinforcing for the concrete 22. The form boards 19 are the only members not permanently incorporated in the wall. No supporting frames or braces are needed to support the form boards as this is done by the studs which later become a permanent part of the wall.

The upper studs 13 are formed with a series of heavy cross wires 23 at vertically spaced intervals. The extremities of these wires normally lie in longitudinal indentations 24 so that the studs can be handled without liability of the wires catching upon external objects or injuring the hands of the builders. After the studs are in position, these wires are bent outwardly, as indicated in broken line in Fig. 2, to receive a sheet of wire lath 25. The wire extremities are then turned upwardly against the wire lath to permanently hold the latter in place. A similar sheet of wire lath 26 is placed on the outer faces of the studs and is also held in place by the cross wires 23.

The wall is then finished by plastering a heavy coat of water-proof cement plaster on both faces thereof. The lower edge of the plaster is brought against the upper edges of the beam members 11 and 12 to form a complete continuous wall.

It is preferred to position lead pads 30 at all points of pressure in the structure, for instance between the studs 13 and of supporting beams 11

and 12 to prevent the transmission of vibrations, noise, etc., throughout the structure.

The studs 10 and 13 are precast and delivered to the job ready for installation. Both of these members are formed with internal reinforcing as indicated at 29 so as to form a column structure for supporting the load placed upon them. The beams 11 and 12 are also precast and delivered ready for installation. They are also formed with suitable reinforcing, as indicated at 28, so as to form a beam structure for supporting the weight of the studs.

The studs 13 are furnished with laterally extending holes 28 through which the usual pipes, electrical conduits, wires, etc. of the building may be run. These holes also serve to allow air to circulate throughout the entire wall structure to dry out the structure and prevent condensation of moisture.

Where an exceptionally strong wall structure is desired a wire mesh reinforcement 32 may be secured to the outer face of the studs 13 as shown in Fig. 6. The wire lath 26 is then fastened over the reinforcing mesh. The outer face of the wall is then plastered with cement plaster to the desired wall finish. The inner face of the wire mesh is then back plastered, as indicated at 33, between the studs 13 to form a reinforced self sustaining panel with the studs as an integral part thereof.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:—

1. In building construction, a series of pairs of reinforced concrete studs outlining both faces of the basement wall; concrete poured between said studs to lock the latter in place, said studs being wider at their inner faces than at the outer, so as to become permanently imbedded and locked in said wall; a pair of horizontal longitudinally extending reinforced concrete beams supported by said basement wall; and a second series of vertical, spaced-apart reinforced concrete studs supported by said beams and extending upwardly therefrom, said latter studs being notched at their lower extremities to receive said beams.

2. In building construction, a series of pairs of reinforced concrete studs outlining both faces of the basement wall; concrete poured between said studs to lock the latter in place, said studs being wider at their inner faces than at the outer, so as to become permanently imbedded and locked in said wall; a pair of horizontal longitudinally extending reinforced concrete beams supported by said basement wall; and a second series of vertical, spaced-apart reinforced concrete studs supported by said beams and extending upwardly therefrom; and means for attaching wire lath to said latter studs.

3. In building construction, a series of pairs of reinforced concrete studs outlining both faces of the basement wall; concrete poured between said studs to lock the latter in place, said studs being wider at their inner faces than at the outer, so as to become permanently imbedded and locked in said wall; a pair of horizontal longitudinally extending reinforced concrete beams supported by said basement wall; and a second series of vertical, spaced-apart reinforced concrete studs supported by said beams and extending upwardly therefrom; wire lath attached to the opposite faces of said latter studs; and plaster covering both faces of said wire lath.

4. In building construction, a series of pairs of reinforced concrete studs outlining both faces of the basement wall; concrete poured between said studs to lock the latter in place, said studs being wider at their inner faces than at the outer, so as to become permanently imbedded and locked in said wall; bolts extending through said studs into nuts permanently imbedded in said wall.

5. In building construction, a series of pairs of reinforced concrete studs outlining both faces of the basement wall; concrete poured between said studs to lock the latter in place, said studs being wider at their inner faces than at the outer, so as to become permanently imbedded and locked in said wall; a beam extending across the upper extremities of the studs on the inner face of said wall, said latter studs being notched to receive said beam.

6. In building construction, a series of pairs of reinforced concrete studs outlining both faces of the basement wall; concrete poured between said studs to lock the latter in place, said studs being wider at their inner faces than at the outer, so as to become permanently imbedded and locked in said wall; a beam extending across the upper extremities of the studs on the inner face of said wall, said latter studs being notched to receive said beam; and floor supporting trusses supported from said beam.

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