

June 26, 1934.

N. GARRETT

1,963,984

METHOD OF CONSTRUCTING BUILDINGS

Original Filed Oct. 5, 1931 6 Sheets-Sheet 1

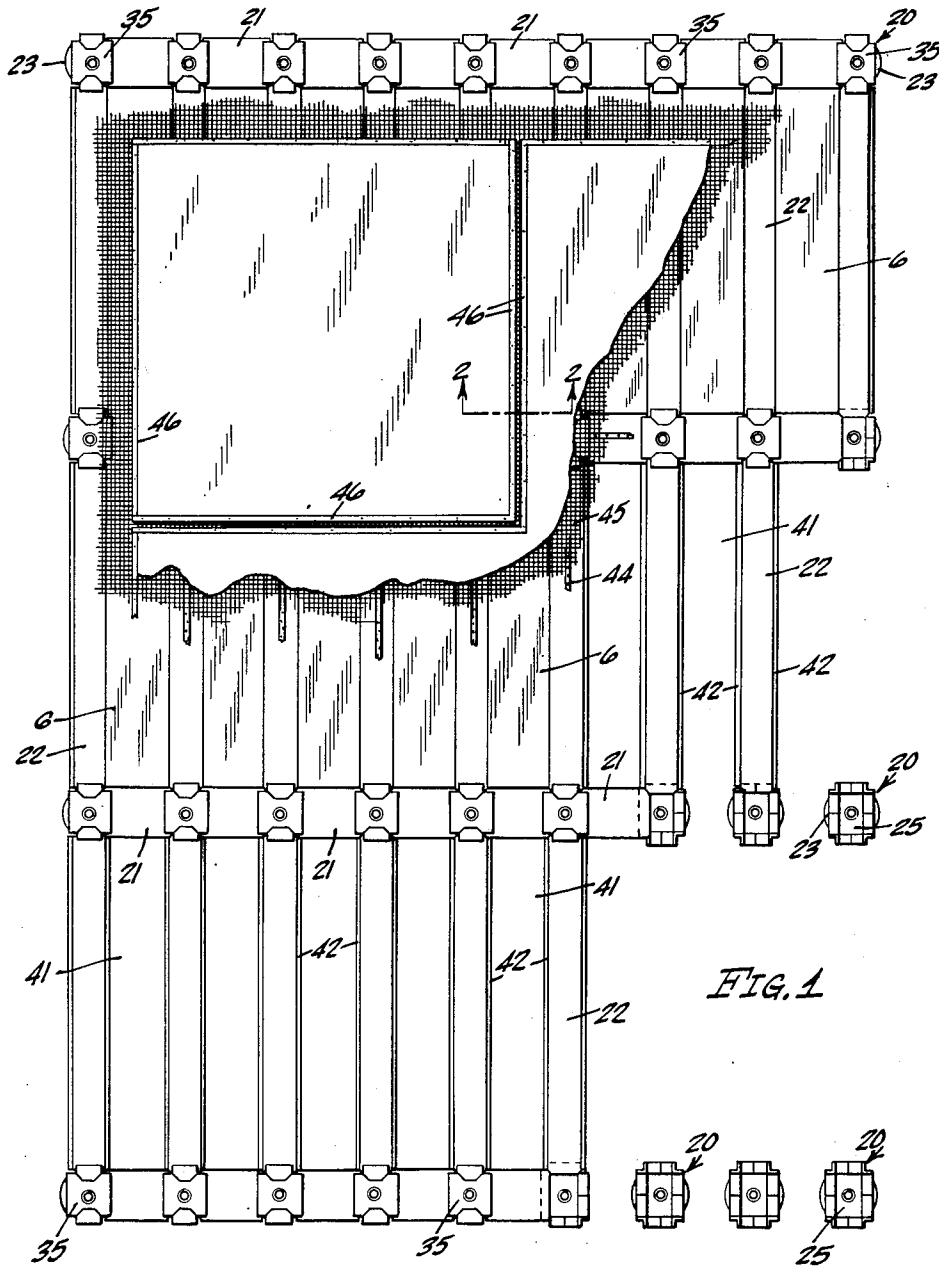


FIG. 1

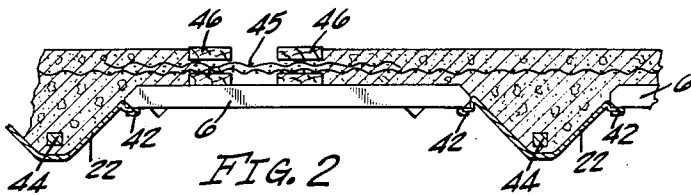


FIG. 2

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FIG. 3

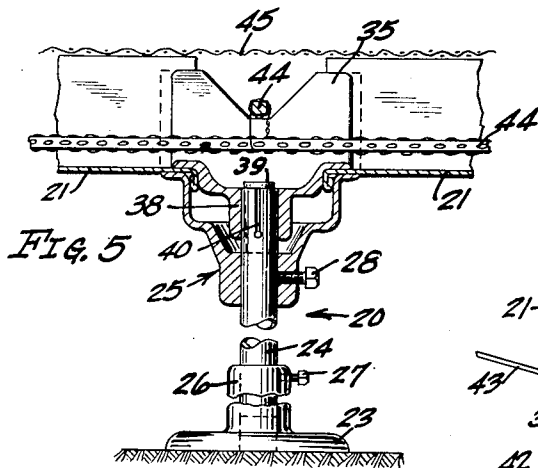
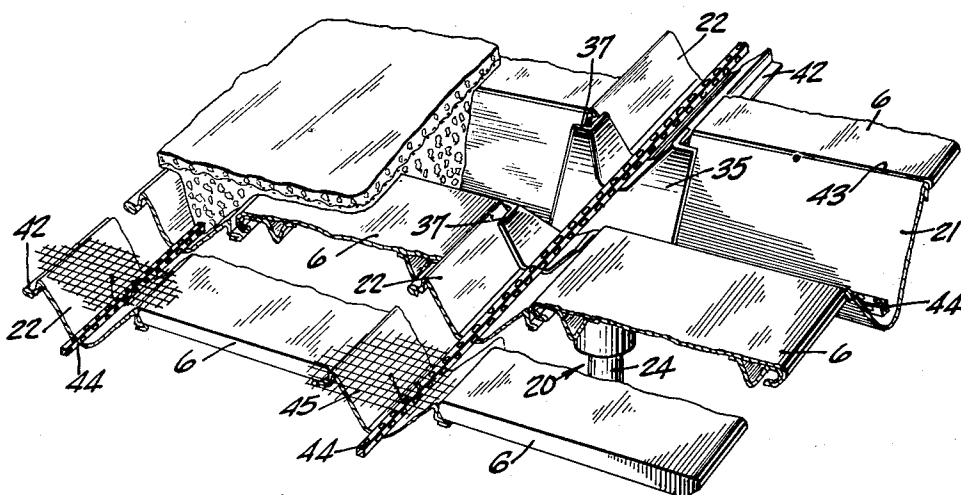


FIG. 5

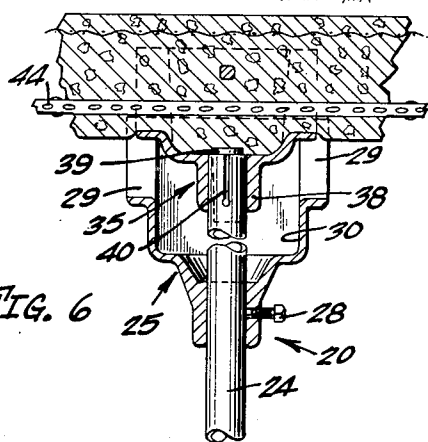


FIG. 6

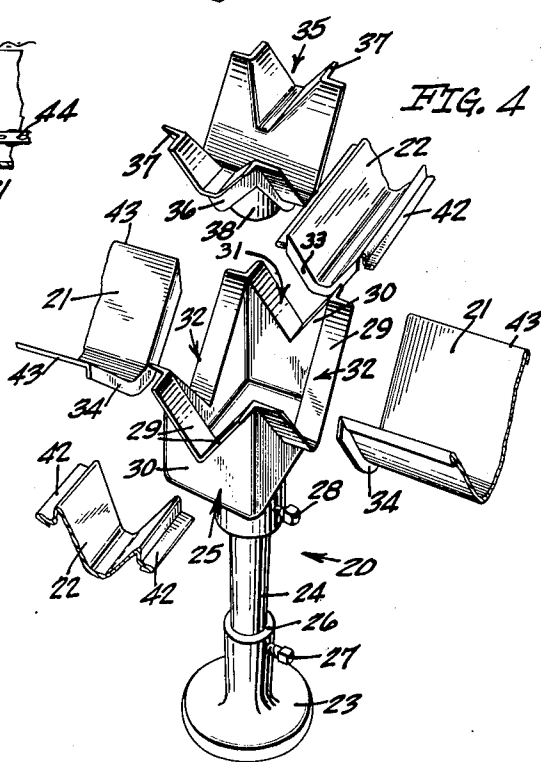


FIG. 4

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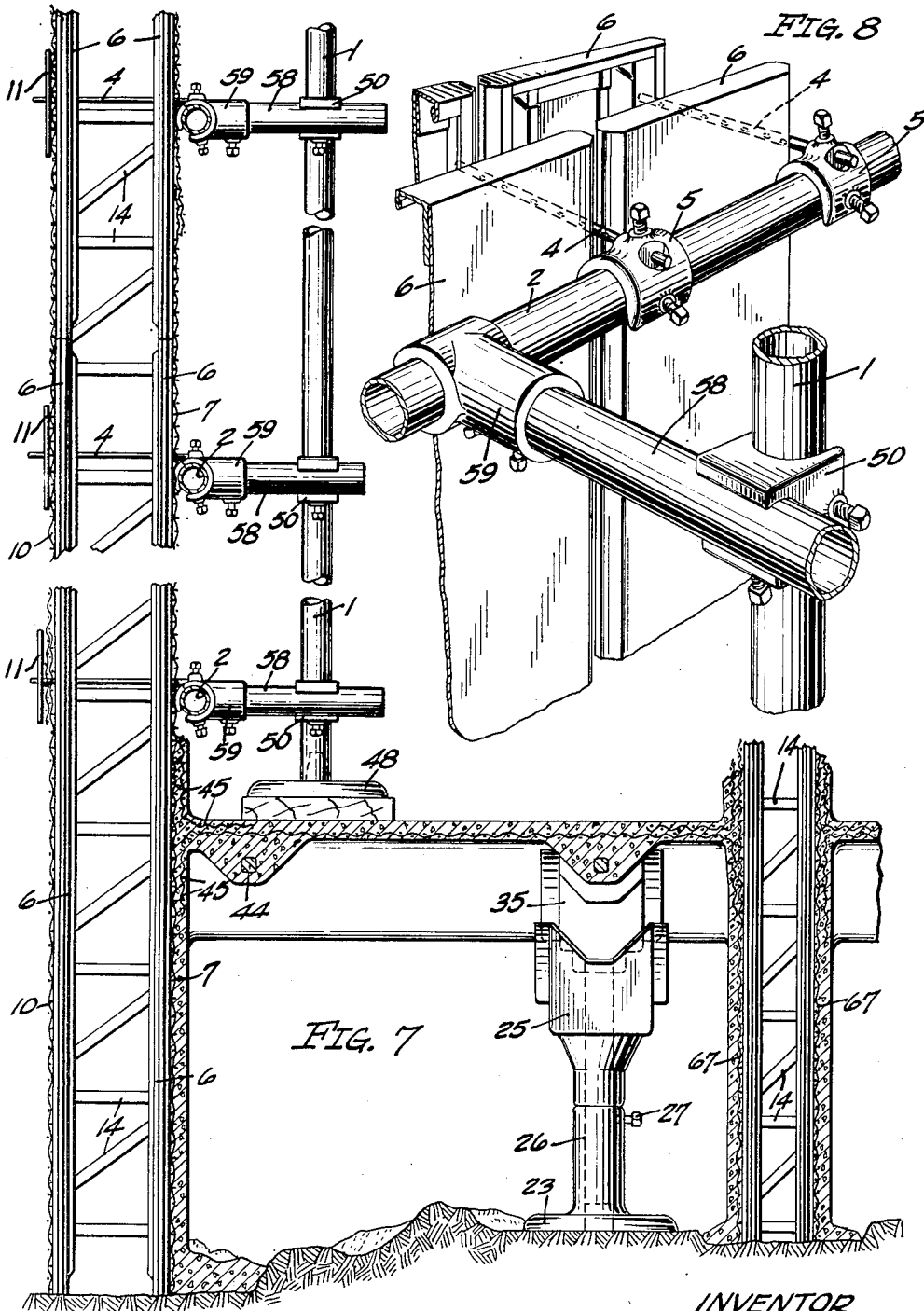
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6 Sheets-Sheet 3



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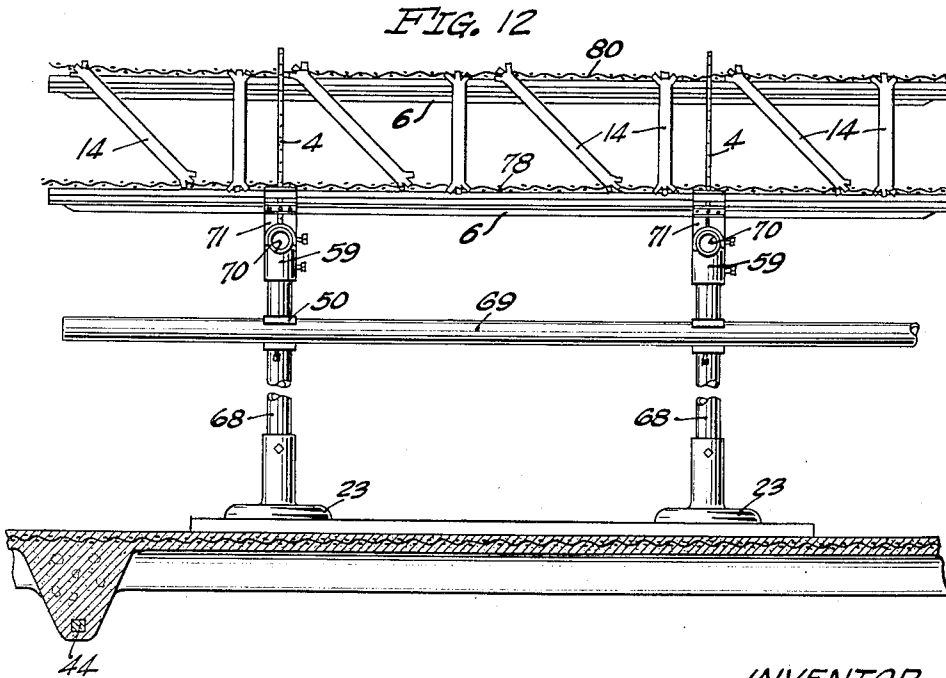
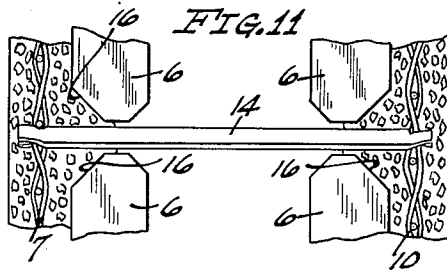
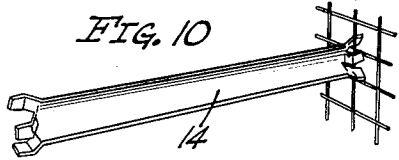
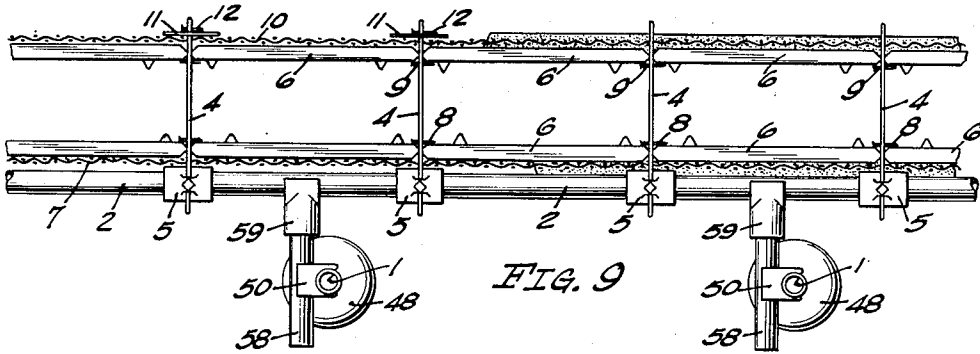
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METHOD OF CONSTRUCTING BUILDINGS

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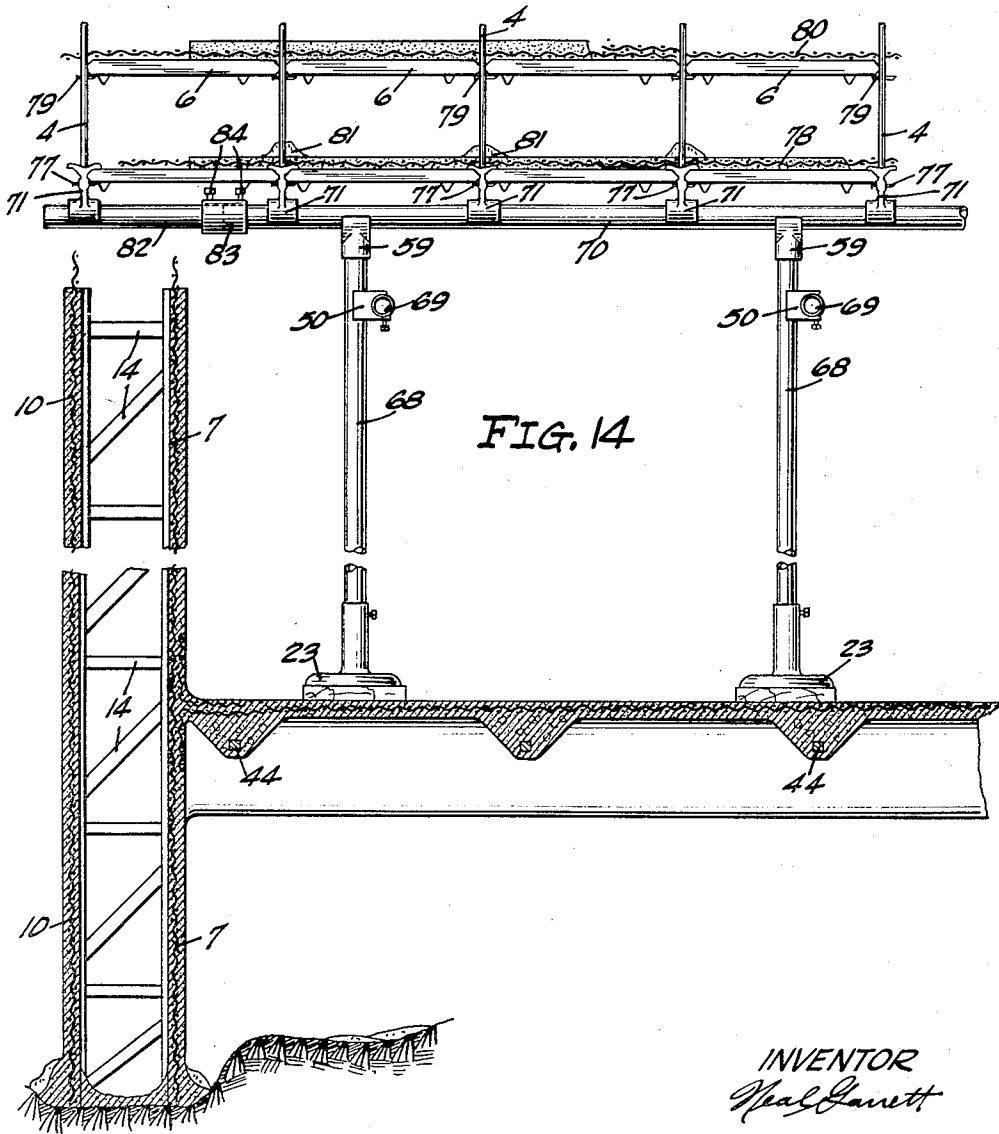
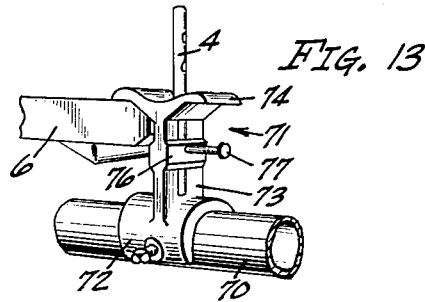
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METHOD OF CONSTRUCTING BUILDINGS

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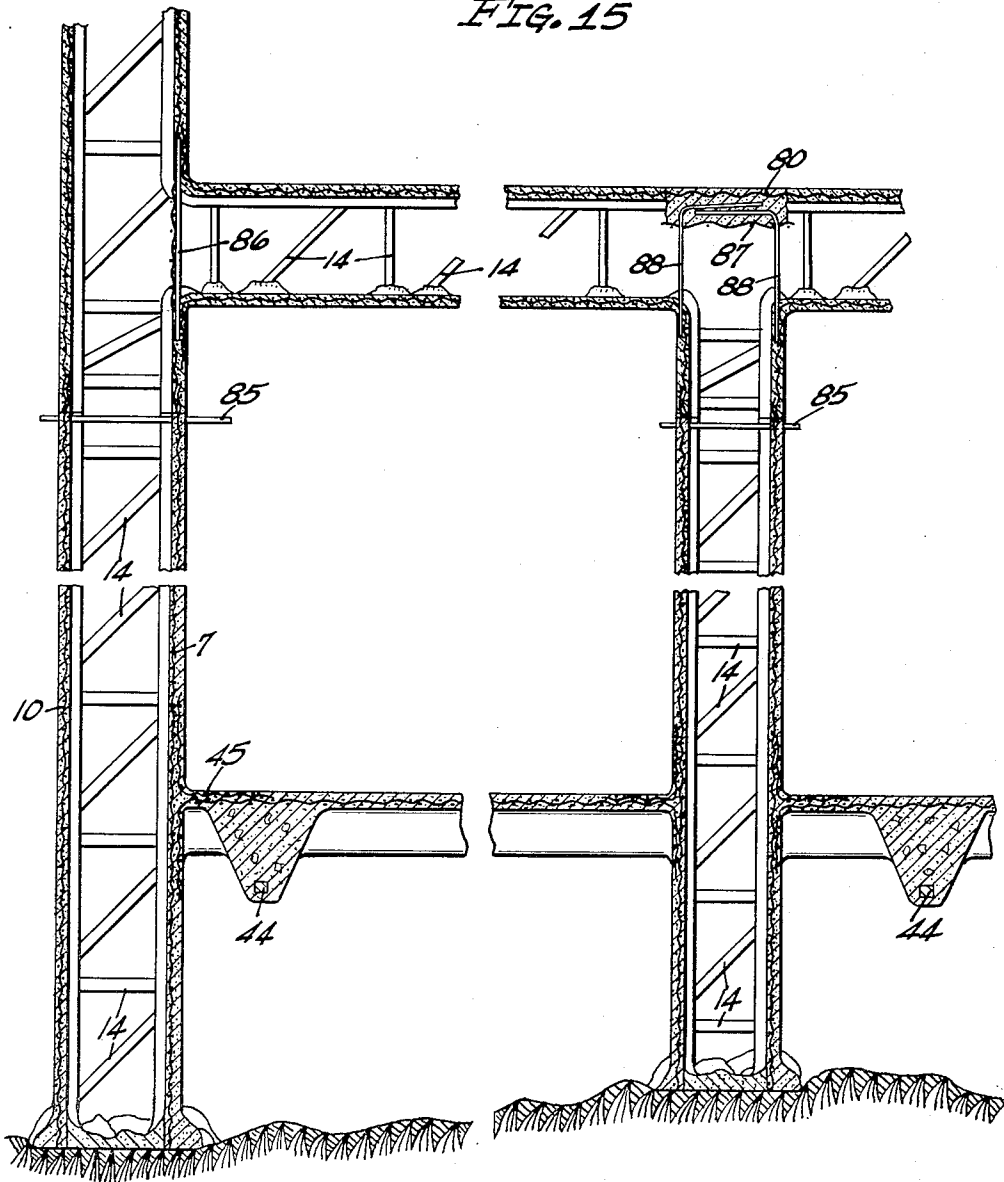
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FIG. 15



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UNITED STATES PATENT OFFICE

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METHOD OF CONSTRUCTING BUILDINGS

Neal Garrett, Glendale, Calif.

Application October 5, 1931, Serial No. 566,961
Renewed August 7, 1933

18 Claims. (Cl. 25—131)

This invention relates to methods of making reinforced cementitious structures and more especially to methods of constructing buildings characterized by cementitious floors supported by permanent floor supports. The subject matter of this invention has particular reference to the types of inventions described and claimed in my co-pending applications Serial Nos. 155,699, filed December 18, 1926; 257,357, filed February 27, 1928; 561,392, 561,393, 561,394 and 561,395, filed September 5, 1931; and 566,958, 566,959, 566,960 and 566,963, filed October 5, 1931.

An object of my invention is to provide a method of constructing buildings that utilizes plastering methods, especially in the construction of the floor supports.

Another object of my invention is to provide an improved method of constructing supports for floors in which the necessity of using complicated vertically adjustable forms is eliminated.

A further object of my invention is to provide a method of constructing buildings that is easily used on irregular ground.

A still further object of my invention is to provide a method of supporting floors characterized by spaced relatively thin cementitious slabs and by forming floor supports which are integral with the floors.

A still further object of my invention is to provide a method of constructing buildings of cementitious material in which the form work does not have to be strong enough to withstand the hydraulic head of poured concrete, thereby making possible the use of an extremely light and inexpensive apparatus in place of the heavy expensive form work heretofore thought necessary for erecting such structures.

A still further object of this invention is to provide methods of forming reinforced cementitious floors, wherein just a small portion of the apparatus is left in place to support the cementitious material while hardening and a large portion of the apparatus is removed soon after the placing of the cementitious material and is set up again for re-use.

A still further object of this invention is to provide a method of building a floor by progressively building the floor over the form work as placed so as to eliminate the necessity of form work for supporting anything except the floor so that a very light form work may be used.

A still further object of this invention is to provide a method of constructing floors and the like that utilizes methods of forming cementi-

tious slabs which have many of the advantages of plastering methods.

A still further object of this invention is to provide a method of building floor and roof structures characterized by spaced, relatively thin, cementitious slabs in which the steps of previously erecting beams, joists, and expensive types of previously formed trusses are eliminated, and in place thereof light slab-connecting members are placed progressively as the slabs are formed and said members are arranged to integrally join and brace the slabs together.

It is an important object of the invention to provide a method of utilizing a plurality of rigid units of fixed size in such a manner that structures of any shape and dimension may be formed without the use of complicated forms and especially to provide a method of utilizing the units for the construction of floors and the forming of the floor supports so that the necessity of horizontal adjustments of the floor form work is eliminated.

Many of the objects and advantages of my invention are accomplished primarily by erecting the floors prior to the erection of the walls; however, further objects and many important features of my invention are made apparent by the following detailed description.

In the drawings

Fig. 1 is a plan view showing successive steps in the erection of a floor;

Fig. 2 is a fragmentary vertical sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a fragmentary perspective view of a portion of the form panels and intervening beam and joist forms for pouring a floor, a fragment of the completed floor being shown;

Fig. 4 is a fragmentary perspective view showing the floor form support, the cover member and the ends of beam and joist forms in their relative positions but removed from the support;

Fig. 5 is a fragmentary vertical median sectional view through a beam form and floor form supporting bracket showing the forms assembled;

Fig. 6 is a view similar to Fig. 5 showing the floor form supporting bracket lowered and the forms removed;

Fig. 7 is a fragmentary vertical sectional view through a structure built according to my invention showing method of building walls and of joining floors and walls;

Fig. 8 is a fragmentary perspective view showing the pipe scaffolding and its use in alining and supporting the form panels;

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Fig. 9 is a plan view of assembled apparatus for building a wall and a portion of wall formed thereon;

Fig. 10 is a perspective view of a slab connecting member;

Fig. 11 is an enlarged fragmentary plan view of the apparatus and wall formed thereon at a gap in the form panels;

Fig. 12 is a sectional view showing apparatus for constructing a double floor;

Fig. 13 is a perspective view of a support for floor and panels;

Fig. 14 is a fragmentary elevational view of apparatus for constructing a double floor showing in section a portion of floor formed therewith;

Fig. 15 is a fragmentary vertical section through a structure formed by my method.

Apparatus and procedure for building one type of floor is illustrated in Figures 1 to 6, inclusive. A plurality of supports 20 are set up at the proper positions and adjusted to the desired levels to serve as end bearings for the beam forms 21 and the smaller beam forms or joist forms 22. The apparatus for constructing the floor is comprised of many simple parts and the description of the construction and use of each part applies to all like parts wherever they are used throughout the construction of the floor.

Support 20 includes a flanged base 23, a post 24, and a bracket 25. The post 24 is held vertically in boss 26 of base 23 and is fixed at a predetermined level by set screw 27. Bracket 25 is vertically adjusted on post 24 and fixed at a predetermined height by set screw 28. Bracket 25 has flanges 29 extending outwardly from its side walls 30, said flanges forming V-shaped notches 31 and 32 to receive the joist forms and beam forms respectively.

The ends of the joist and beam forms are provided with flanges 33 and 34 respectively. The joist and beam forms are placed with the back faces of their flanged ends tightly against the inside faces of the walls of a bracket and define a space into which cover 35 tightly fits. Cover 35 is best shown in Fig. 4, and the manner by which it locks the ends of the beam or joist forms is best illustrated in Fig. 5. The shoulders 36 of the cover coact with the walls 30 of the bracket, and the flanges 37 of the cover coact with flanges 29 of the bracket to hold the ends of the joist and beam forms from being displaced. Centrally and at the bottom of the cover 35 is an integral boss 38 having a hole therethrough. When the cover 35 is placed within the bracket, the hole in the boss 38 receives the upper end of the post 24. The post 24 holds the cover in position to secure even a single joist and/or beam form against horizontal displacement so that it is not necessary to have all four form ends in the bracket. As illustrated in Fig. 5, taper plug 39 is inserted into the upper end of tubular post 24 which is provided with slits 40, only one of which is shown, and the taper plug is driven into the post to wedge the sides of the post firmly against the walls of boss 38 thus securing the cover member to the post.

A plurality of supports 20 may be set up progressively and accurately because the joist and beam forms locked in each preceding bracket definitely locate the following bracket. The joist and beam forms are held substantially throughout their entire depth in the supports 20 to provide a continuous beam action across the supports 20 so as to eliminate the necessity of addi-

tional braces to hold the posts 24 upright. The joist and beam forms are of a size to form the sides of rectangular enclosures 41, Fig. 1, which enclosures are each adapted to receive a single panel. Panels 6 are placed face up within the enclosures 41 and are supported by ledges 42 formed integrally with the joist forms 22 as illustrated in Fig. 3. When placed within the enclosures 41, the ends of the form panels 6 abut the upper edges 43 of the beam forms 21, thus aligning the panels longitudinally.

Steel reinforcing bars 44 are laid in the bottoms of the joist and beam forms, and reinforcing 45 which is preferably a form of foraminous sheet material such as wire mesh or expanded metal is spread over the panels and joist forms and beam forms. The bars 44 are held a short distance from the bottoms of the joist and beam forms by suspending them with wires from reinforcing 45. The weight of the suspended bars 44 tends to hold the reinforcing 45 against the faces of the panels.

It is not necessary to set the apparatus to fit horizontal dimensions and it may extend into or beyond the areas to be occupied by the walls. The elimination of the necessity of accurately positioning the horizontal extremities of the floor forms at predetermined positions makes possible a very easy and rapid erection of the apparatus.

In my method the areas to be occupied by the walls can be far more easily and quickly located and defined on the level platform provided by the apparatus set up as described than can be done in methods where the wall areas must be accurately determined on the ground prior to the erection of the floor forms. The cementitious material of the floors is not to be placed within the areas to be occupied by the walls and partitions. These wall areas are preferably defined by superimposed pairs of bounding strips 46, which rest on the panel faces and are separated by the reinforcing. The reinforcing is provided double at this point so that it may subsequently be bent up and down to provide adequate bond with the walls.

Cementitious material is poured over the floor forms to form a floor of the desired thickness. The floor slab is formed up to the strips 46 to provide its margins substantially in the vertical planes of the proposed wall faces. In the case of exterior walls, only a single pair of strips 46 is required.

A floor of any desired size may be formed upon a form structure made up of units of fixed size, since the exterior walls may be located where desired without regard to the area or shape of the floor forms.

After the cementitious material has hardened sufficiently to bear its own weight, set screws 28 of brackets 25 are loosened, the brackets lowered, and the panels, joist forms, and beam forms are removed. Until permanent support for the floor is provided, covers 35 locked to posts 24 remain under the floor to support it at the junctures of the floor joists and beams as shown in Figures 6 and 7.

Before building the walls, any supports 20 which may be in the way of the erection of the walls are removed. After permanent support is provided for the floor by the walls, or otherwise, all of the supports 20 are removed. Supports 20 are removed by the loosening of set screws 27, and the lowering of posts 24 holding covers 35.

The apparatus and general procedure for constructing walls is illustrated in Figures 7, 8 and 9. My wall alining system is comprised of vertical

pipes 1 supported by bases 48, short horizontal pipes 58, clamps 50 supporting pipes 58 on pipes 1, pipes 2 extending along one side of the predetermined wall position, clamps 59 supporting pipes 2 on pipes 58, rods 4 extending transversely of the area to be occupied by the wall, and clamps 5 holding rods 4 on pipes 2.

Bounding strips 46 are removed and reinforcing 45 is bent downwardly and upwardly. Reinforcing 7 is placed over and supported by rods 4. Backing is provided behind reinforcing 7 by placing panels 6 between vertical rows of rods 4 and pressing them against the reinforcing 7, thereby forcing the same tightly against clamps 5. Pins 8 are placed through holes in rods 4 and hold the panels against the reinforcing 7.

Pins 9 are placed in holes of rods 4 to engage the backs of a second row of panels to space and align the same with respect to the first erected row of panels. Reinforcing 10 is supported on the ends of the rods 4 and held flat against the form faces by inclined strips 11. Each strip 11 is provided with a hole to receive a rod 4 and is held in place by a pin 12 passing through a hole in a rod 4.

The apparatus is erected easily regardless of the roughness of the ground. Each individual panel is slidably held at its vertical edges so as to be vertically independent of the rest of the apparatus and adapted to rest directly on the ground.

A slab connecting member, hereinafter referred to as tie 14, is formed from sheet metal strips into a shape providing a curved cross section to provide rigidity.

Before the cementitious material is applied, ties 14 are inserted through openings of the reinforcing into the position between the form panels illustrated in Fig. 11. Each tie is supported at its ends by engagement with reinforcing 7 and 10. Ties 14 are placed both horizontally and inclined, as illustrated in Figures 7, 14 and 15, to provide a web-like structure to coact with wall slabs in providing a wall adapted to act as a series of vertical trusses.

Reinforcing 7 and 10 is preferably foraminous sheet material, such as wire mesh or expanded metal of a type adapted to reinforce layers of plastered material.

After the slab connecting members and layers of wire mesh are in place, cementitious material is plastered over the form faces to embed the reinforcing 7 and 10. The cementitious material is forced into the recesses formed by the beveled faces 16 of adjoining panels so as to securely embed the ends of the ties.

Referring particularly to Fig. 7, in the formation of interior walls or partitions bounding strips 46 are removed, the exposed portions of reinforcing materials are cut and bent up and down to become incorporated in the wall slabs. Two sheets of reinforcing 67 are placed within the space to be occupied by the wall and the panels are then placed between the sheets of reinforcing and supported on frame work for the formation of a wall in substantially the same manner as that described for the formation of an exterior wall. Interior walls are preferably carried down to the ground to act as floor supports.

As soon as the cementitious material has hardened pins 12 and strips 11 are removed, rods 4 are released in clamps 5 and rotated to drop pins 8 and 9, and the forms are removed. Cementitious material is poured between the slabs to close

the space between the slabs at the ground, or to form a solid wall if desired.

Reference is directed to Figures 12 to 15, inclusive, for illustration of my method of building a double floor. The floor form supporting structure includes a plurality of vertical pipes 68 supported in bases 23 so as to be vertically adjustable and alined in rows by pipes 69 which are supported on vertical pipes 68 by clamps 50. Horizontal pipes 70 are supported on the upper ends of vertical pipes 68 by clamps 59. Floor supports 71 are clamped upon pipes 70 at intervals to support the lower row of panels.

Floor support 71 is illustrated in Fig. 13 and comprises a clamp portion 72, an upright web 73, and a floor bearing portion 74. The under side of the floor bearing portion 74 is provided with an angled surface adapted to receive the angled edges of the form panels. The clamp is provided with a vertical hole to receive a rod 4. The web is thickened at 76 and provided with a hole to receive a pin 77. Floor supports 71 are spaced along pipes 70 so that the panels are supported on pins 77 as shown and sufficient space is provided between consecutive supports 71 so that the thickened portions of the web do not obstruct the dropping of the form panels.

Over the horizontal form surface presented by the lower row of form panels, a layer of reinforcing 78 is laid. A second layer of horizontal panels spaced above the first layer is provided by supporting the panels upon pins 79 horizontally inserted in the vertical rods 4. This provides an upper floor forming surface, over which reinforcing 80 is laid. Reinforcing 78 and 80 is preferably a form of foraminous sheet material such as wire mesh or expanded metal.

To begin a floor construction I preferably place one panel in the lower row as at the extreme left of Fig. 14. The vertical walls are stopped a short distance below the level of the second floor so that this first panel may be placed partially over the top of the wall as shown. Reinforcing is placed over the form panel and cementitious material is applied to form a slab beginning at a point in vertical alinement with the interior slab of the wall and extending toward the forward edge of the panel. The forward edge of a panel is herein considered to be the edge adjacent to which another form panel is to be placed.

Next, pins 79 are inserted in rods 4 and upon them is laid the initial panel of the upper row, above and parallel to the corresponding panel in the lower row. Reinforcing and cementitious material are applied to this panel in the same manner.

The second panel of the lower row is supported on supports 71 with its edge adjoining the edge of the first panel to form what may be termed a transverse row. When this panel is in place, reinforcing is laid over it and the cementitious material is advanced from the preceding panel to the forward edge of the last laid panel.

As in the case of the walls, the two slabs are tied together by ties 14 placed both vertically and inclined as shown in Figures 12 and 15. Ties 14 are stood up in the soft cementitious material with their upper ends against the forward edge of the upper panel. Cementitious abutments 81 are formed to embed the lower ends of ties 14.

A second upper panel is placed in position, covered with reinforcing, and the cementitious material advanced to the forward edge. A projection is formed on the under face of the upper

slab at the adjoining edges of adjacent panels in which is embedded the upper ends of ties 14.

The above recited steps are continued to carry the transverse row of panels and the floor formed thereon across the structure. Gaps are left in the floor slabs at those areas which are in vertical alinement with the walls and partitions. These gaps are defined and formed just as were the gaps in the first floor which were to be occupied by the walls. Portions of the apparatus which extend through areas to be occupied by walls and partitions are supported by short pipe extensions 82 which are coupled to pipes 70 by cylindrical clamps 83 and fixed in place by set screws 84. Fig. 14 shows the lower floor slab advanced to a point near the forward edge of the last laid panel and with the corresponding upper panel in place with the wire over it ready for the cementitious material to be advanced from the previously laid upper panel. The cementitious material is shown as stopped near the center of an upper panel to allow for the lap of the reinforcing 80.

When the plaster has suitably hardened, a similar pipe framework is set up for another transverse row of form panels adjacent to the first row. The floor supports of the second transverse row are horizontally alined with those of the first transverse row so that, by removing the pins 77 and 79 the panels may be shifted endwise successively into new positions in the second row. It is preferable to remove the pins 77 first so as to provide the rods 4 free to turn in supports 71 so that the rods may turn to facilitate the removal of the pins 79 which are usually pulled out in a direction longitudinal with respect to the panels. If desired, the rods may be rotated prior to the removal of the upper panels and pins 79, thus releasing the upper panels; the upper panels withdrawn; and then the pins may be easily removed. The panels are shifted endwise to new positions in the succeeding transverse row.

When the form panels are removed, the upper slab is supported from the under slab by ties 14 and the lower slab bears on floor supports 71 which carry the floor until permanent support is provided.

Floor slabs are erected on the forms in the second row to form a strip of floor adjacent and connected to the previously formed floor. The sheets of reinforcing are longer than the panels and lap at the ends of the panels to securely tie successive strips of flooring. Ties 14, placed against panels of the second transverse row, are in alinement with similar members of the already erected floor and thus form a continuation of the truss bracing between floor slabs. Successive strips of flooring are formed in the above described manner upon successive settings of panels so that the floor is extended progressively across the structure.

The completion of the second floor involves the erection of the exterior walls and the finishing of the first floor partitions.

Short extensions 82 and any supports 71 thereon are removed by loosening set screws 84. The reinforcing is cut down the center of the gaps left for the first floor partitions. The reinforcing projecting from the upper and lower slabs is bent up and down respectively. A pipe framework is erected just as before for the walls. In this case the panels may be conveniently supported on cross rods 85 laid on top of the walls or inserted through the walls near the top, as shown in Fig. 15. The panels are alined so that they will be directly above the positions occupied by the panels

during the first stages of the wall erection. This positioning alines the slab connecting members throughout the entire vertical extent of the wall and makes the projections embedding the slab connecting members coextensive in height with the wall slabs.

The exterior slab is carried up to a point approximately at the level of the eaves, using additional panels placed on top of the first ones if necessary. The method of forming this slab is the same as already set forth. In the same manner the interior slab is carried upward to the ceiling level; it being understood that were a third story to be built, both slabs would be stopped somewhat below this point as on the first floor. The second floor is connected to the wall by embedding the bent up and down portions of the reinforcing in the interior wall slab. To aid in carrying stress between the portions of the interior slabs above and below the second floor, vertical reinforcing rods 86, only one of which is shown in Fig. 15, are placed against the reinforcing at suitable spaced horizontal intervals. When a partition is to be carried above the first floor, the method of carrying it up is the same as for erecting an exterior wall, except that the joinder of the second floor to a partition is for each slab of the partition the same as the joinder of an inner slab of an exterior wall to the second floor.

When a partition stops at the ceiling, the construction thereof is done exactly as though it were to be carried on above the second story except that the wall forming materials are only placed below the second floor. The panels are withdrawn and a form 87 is positioned as shown in Fig. 15. The reinforcing rods 88 are bent as shown. The upper layer of reinforcing 80 is bent back and wired to form 87. The gap in the upper floor is then filled with cementitious material.

After permanent support for the double floor has been provided by the completion of the walls or otherwise, pipes 68 are lowered in bases 23, and supports 71 and the rest of the floor form supporting apparatus removed.

After the panels are removed from the walls, the cross rods 85 are pulled out of the sides of the wall.

It is contemplated that features of my invention will be used in the construction of buildings where cementitious material is plastered on permanent backing.

Although features of my invention relate to the use of plastering methods, my invention includes features which are to apply to poured concrete work.

The term cementitious material is used to refer to any material in a soft state capable of hardening or to any material which was at one time in a soft state and has hardened.

Wherever the term floor is used in this specification and in the appended claims, said term is intended to apply to decks, roofs, and like structures, as well as to ordinary floor structures. It is contemplated that features of my invention will be used in the construction of floor, roof, and other like structures wherein cementitious slabs are formed in inclined or horizontal positions, or both, and/or wherein spaced-apart slabs are used in either parallel or non-parallel spaced-apart relationship.

While preferred forms of the invention have been described, it is to be understood that the drawings and the description thereof are to be considered as illustrative of, rather than limita-

tive upon, the broader claims because it will be apparent to those skilled in the art that changes may be made without departing from the scope of my invention.

5 I claim:

1. A method of constructing a building that includes forming a reinforced cementitious floor on temporary supports prior to the erection of the walls, then erecting walls to permanently support the floor, and removing the temporary supports.

2. A method of constructing a building that includes providing a gap in a floor, erecting form work extending through the gap, forming a cementitious floor support against the form work and joined to the floor, and withdrawing the form work through the gap.

3. A method of constructing a building that includes providing a gap in a reinforced cementitious floor, erecting form work extending through the gap, placing reinforcing over the form work, plastering cementitious material over the reinforcing and against the form work to form a floor support joined to the floor and embedding in the cementitious material of the floor support continuations of the floor reinforcing, and withdrawing the form work through the gap.

4. A method of constructing a building that includes forming a reinforced cementitious floor on temporary supports, providing a gap in the floor, erecting form work extending through the gap, forming a cementitious floor support against the form work and joined to the floor, withdrawing the form work through the gap and removing the temporary supports.

5. A method of constructing a building that includes providing a gap in a floor, erecting form work extending through the gap to provide two outwardly disposed form faces, forming reinforced plastered slabs against said faces and joined to the floor, bonding portions of slab connecting members in the slabs as the slabs are formed, and withdrawing the form work through the gap.

6. A method of constructing a building that includes forming a floor having two spaced horizontal reinforced cementitious floor slabs defining a gap in the floor, erecting form work extending through the gap, placing reinforcing over the form work, plastering cementitious material over the reinforcing and against the form work to form a floor support joined to the lower floor slab and embedding in the cementitious material of the floor support continuations of the reinforcing of the lower floor slab, withdrawing the form work through the gap and filling the gap in the upper slab.

7. A method of constructing a building that includes erecting a floor form work including a plurality of form units to provide a floor form work extending into an area to be occupied by a wall; forming a reinforced cementitious slab on the form work up to and exteriorly of said area and providing reinforcing projecting from the slab and extending into said area; removing the units of the form work that extend into said area; bending the projecting portions of the slab reinforcing to provide portions thereof extending vertically in said area; then providing permanent support for the floor by erecting the wall of cementitious material and embedding therein the projecting portions of the slab reinforcing, and removing the floor form work.

8. A method of constructing a building that includes erecting a plurality of form units to pro-

vide a form face extending into an area to be occupied by a wall and perpendicular to the wall; forming a reinforced cementitious slab on said face up to and exteriorly of said area and providing reinforcing projecting from the slab and extending into said area; removing the units of the form work that extend into said area; bending the projecting portions of the slab reinforcing to provide portions thereof extending perpendicularly with respect to the slab; then erecting the wall of cementitious material and embedding therein the projecting portions of the slab reinforcing, and removing the form units.

9. A method of constructing a building that includes erecting a floor form work including two spaced rows of upwardly facing panels having panels extending into an area to be occupied by a wall; placing slab reinforcing over each of the rows of panels; applying cementitious material exteriorly of said area to form two spaced floor slabs having portions of the slab reinforcing embedded therein and having portions of the slab reinforcing projecting from each slab and extending into said area; removing the panels that extend into said area; bending the projecting portions of the slab reinforcing of the upper slab upwardly and the projecting portions of the slab reinforcing of the lower slab downwardly; then providing permanent support for the floor by erecting a wall of cementitious material and embedding therein said projecting portions of the slab reinforcing, and removing the floor form work.

10. A method of constructing a building that includes erecting two spaced rows of form units to provide two spaced parallel form faces extending into an area to be occupied by a wall and perpendicular to the wall; forming reinforced cementitious slabs on said faces up to and exteriorly of said area and providing reinforcing projecting from each slab and extending into said area, removing the units of the form work that extend into said area, bending the projecting portions of the reinforcing to provide portions thereof extending perpendicularly with respect to the slabs, then erecting the wall of cementitious material and embedding therein the projecting portions of the slab reinforcing of each slab, and removing the form units.

11. A method of constructing a building that includes forming two spaced, horizontal, reinforced cementitious slabs extending between and just up to the areas to be occupied by the walls and providing projecting continuations of the reinforcing thereof extending into said areas; supporting the lower slab on temporary supports and supporting the upper slab by means of slab connecting members; bending the projecting continuations of the upper slab reinforcing upwardly and the continuations of the lower slab reinforcing downwardly; then providing permanent supports for the floor by erecting a wall of cementitious material and embedding therein the projecting continuations of the slab reinforcing, and removing the temporary supports.

12. A method of constructing a building that includes forming on temporary supports a floor comprised of two spaced, horizontal, reinforced, cementitious floor slabs joined by slab connecting members and having layers of reinforcing projecting from each of the slabs at an edge of the floor; bending the projecting reinforcing of the upper slab upwardly and the projecting reinforcing of the lower slab downwardly; erecting wall forms extending past the floor at said edge there-

of; placing wall slab reinforcing on the side of the forms that face the floor; plastering cementitious material over the projecting reinforcing of the upper slab and the wall slab reinforcing and against the wall forms above the floor to form a wall joined to the upper floor slab, plastering cementitious material over the projecting reinforcing of the lower slab and the wall slab reinforcing and against the wall forms below the floor to form a wall slab joined to the lower floor slab, erecting prior to the forming of the wall slabs vertical stress transmitting members extending between the space to be occupied by the wall slabs, and embedding portions of said members in the wall slabs as the slabs are formed.

13. A method of building a floor that includes erecting floor form work, providing temporary floor supports at spaced intervals in the form work, forming a concrete floor over the form work, removing the form work to leave the floor supported on said supports, then erecting permanent floor bearing structures, and removing said supports.

14. A method of making floors characterized by two spaced horizontal slabs that includes erecting temporary floor supports at spaced intervals throughout the area to be covered by the floor; erecting two horizontal rows of form panels, forming a slab on each of the rows of form panels, progressively joining the slabs with slab-connecting members as the slabs are formed, removing the form panels to leave the floor supported on said supports, erecting floor bearing structures, and removing said supports.

15. A method of making floors characterized by two spaced slabs formed progressively over spaced horizontal rows of form panels, that includes erecting temporary floor supports, building upper and lower horizontal rows of form panels by erecting alternately upper and lower form panels, advancing the slabs progressively over alternate upper and lower form panels as they are erected, progressively joining the slabs with slab connecting members as the slabs are formed, removing the form panels to leave the floor supported on the floor supports, erecting floor bearing structures; and removing the floor supports.

16. A method of making double floors that includes erecting form panels progressively to provide two spaced horizontal rows of form panels having the panels of one row in vertical alignment

with the panels of the other row, forming a reinforced slab over each pair of vertically aligned panels before the placement of the next succeeding pair of vertically aligned panels, and progressively joining the slabs with slab-connecting members as the slabs are formed.

17. A method of making a structure characterized by two spaced slabs that includes erecting temporary slab supports at spaced intervals throughout the area to be covered by the structure, erecting two rows of upwardly facing form panels, forming a slab on each of the rows of form panels, progressively joining the slabs with slab-connecting members as the slabs are formed, removing the form panels to leave the structure supported on said supports, joining the slabs at permanent bearing structures, and removing said supports after the cementitious material has hardened.

18. A method of making floors characterized by two spaced-apart slabs that includes erecting two substantially horizontal rows of upwardly facing form panels in place to form two substantially horizontal slabs in definite spaced-apart relationship and establishing gaps between adjacent edge portions of the panels of the upper row; erecting temporary slab supports as the form panels are erected to provide said supports in position for supporting engagement with the lower slab and extending through the lower row of form panels at spaced intervals throughout the area to be covered by the floor; erecting two slab reinforcing sheets to provide one thereof in place to reinforce one of the slabs and the other thereof in place to reinforce the other slab; disposing slender slab-connecting members between and transversely with respect to said sheets, at spaced intervals along said gaps, and in positions with respect to each other corresponding to relative positions of web members of a truss; spreading cementitious material over said sheets to form relatively thin slabs over the rows of panels; embedding portions of said members at their ends only in the cementitious material as the slabs are formed; removing the panels to leave the lower slab temporarily supported on said supports and to leave the upper slab supported on the lower slab by means of said members, then erecting permanent supporting structure for the floor; and then removing said supports.

NEAL GARRETT.

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