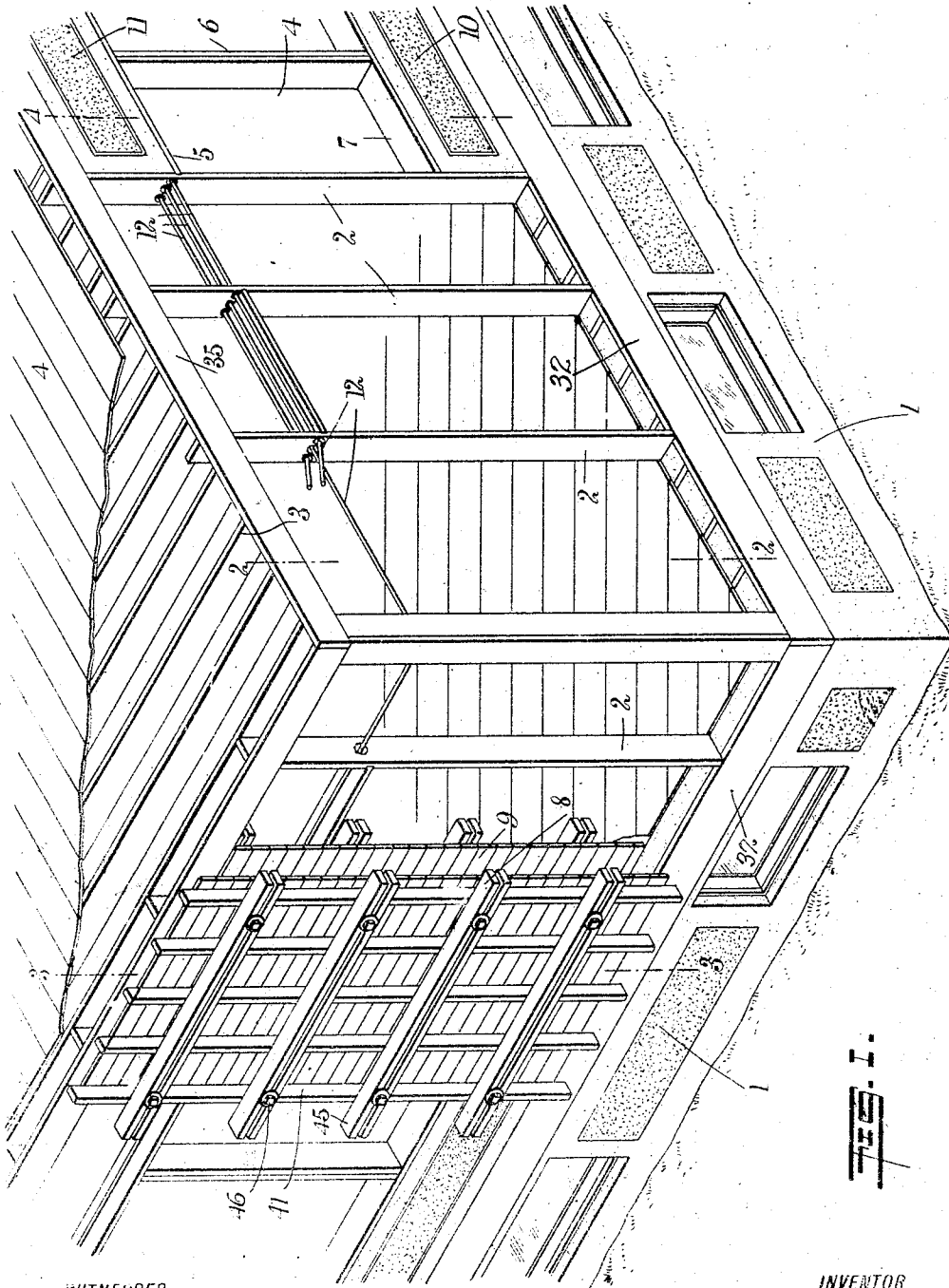


A. F. MEYER.
WALL CONSTRUCTION.
APPLICATION FILED APR. 27, 1912.

1,061,918.

Patented May 13, 1913.

4 SHEETS—SHEET 1.



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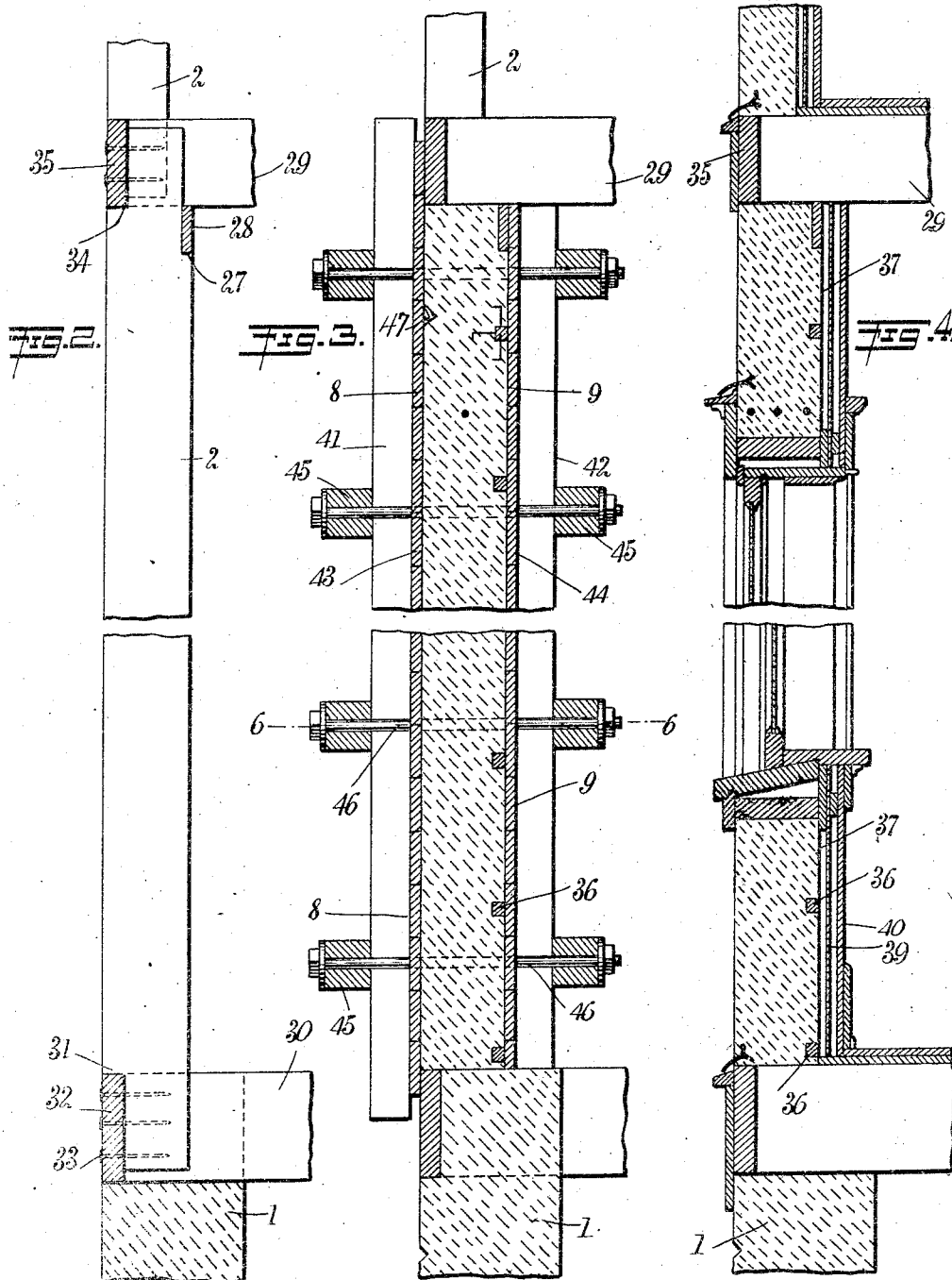
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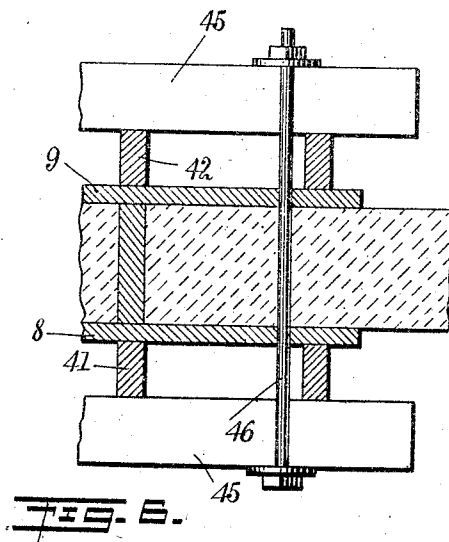
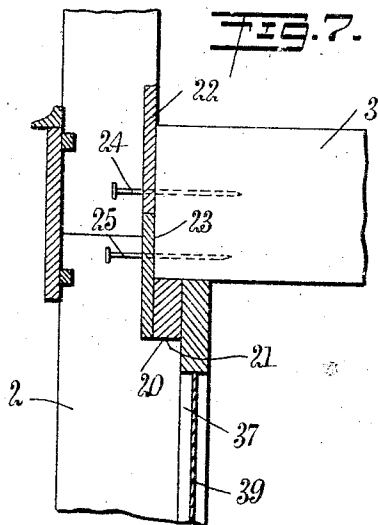
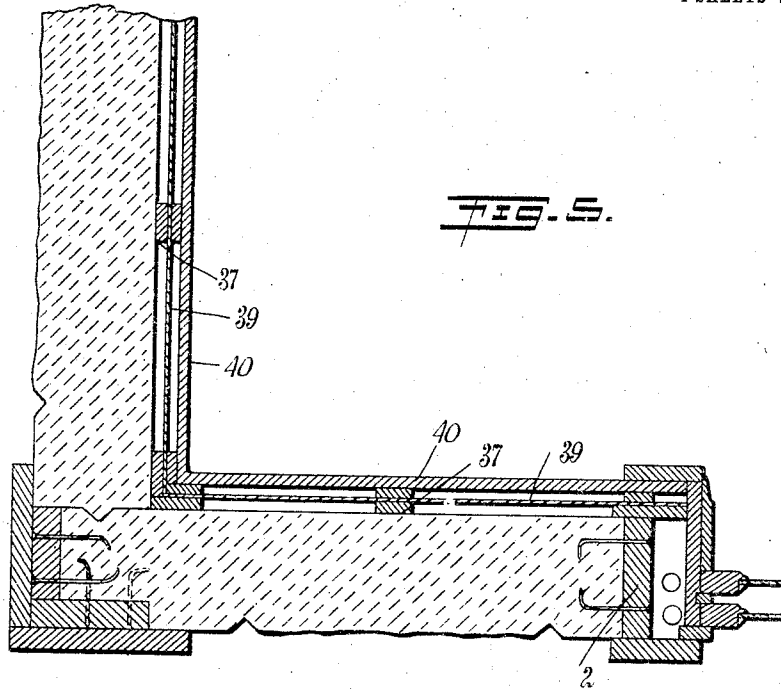
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4 SHEETS—SHEET 3.



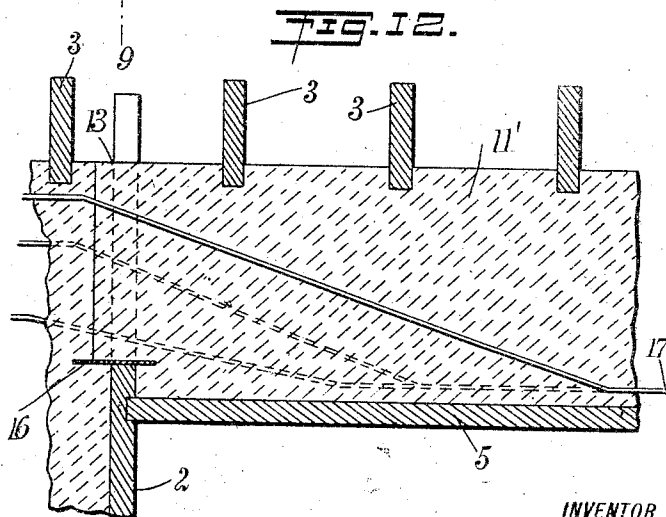
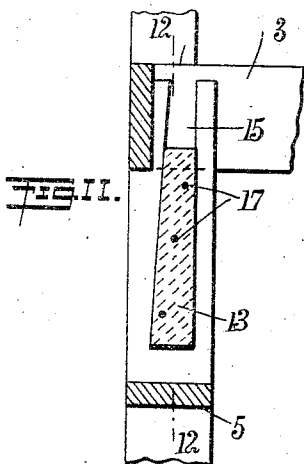
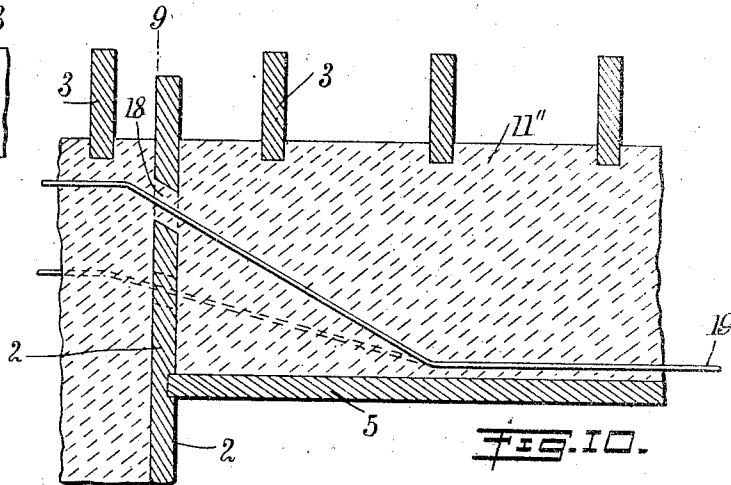
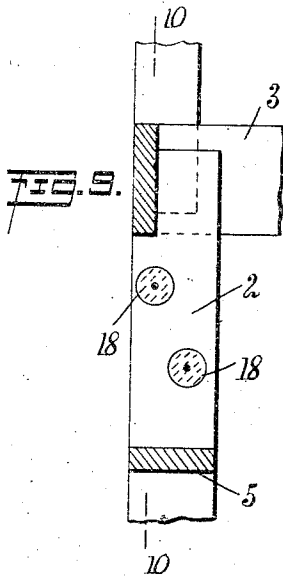
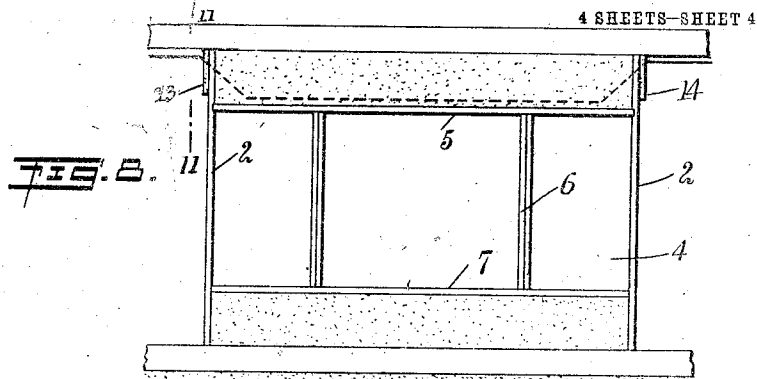
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UNITED STATES PATENT OFFICE.

ADOLPH F. MEYER, OF ST. PAUL, MINNESOTA.

WALL CONSTRUCTION.

1,061,918.

Specification of Letters Patent.

Patented May 13, 1913.

Application filed April 27, 1912. Serial No. 693,565.

To all whom it may concern:

Be it known that I, ADOLPH F. MEYER, a citizen of the United States, and a resident of St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and Improved Wall Construction, of which the following is a full, clear, and exact description.

This invention relates to a construction of walls for buildings, and particularly to walls using concrete or other cast material, and also to the method employed in constructing the wall.

The object in view is the provision of an improved wall construction designed to eliminate all planes of weakness and permeability resulting from the deposition of concrete in successive horizontal layers and to make possible and practicable the production of a pleasing and durable surface finish by means of brushing and washing the partially hardened concrete.

A further object of the invention is to provide an improved wall construction which embodies the assembling of a suitable framework disclosing window openings and the ordinary panels for the walls, the ordinary panels for the walls being filled with concrete or other cast material, each panel being cast as an integral block, whereby all lines of division are eliminated and the resulting wall presents cast portions integral throughout.

A still further object of the invention is the embodiment of an improved method of construction which includes first, the forming of a framework employing studding, joists, headers and other framing timbers, all designed to eliminate fitting, plumbing, alining and shoring of forms; to eliminate the use of end forms; and to make possible the use and re-use of forms of unit size in the construction of widely dissimilar sized portions of wall; and, second, the placing of face forms or molds over the various panels or openings in this framework and then pouring or casting concrete or other material in the panels or openings not designed for windows, doors, or the like, the respective forms in each instance completely closing each side of the respective panels so that the resulting product will be an integral block cast to fit, and entirely fill, the space between any particular framing timbers, thus producing a wall impervious to wind and water.

In carrying out the various objects of the invention, a wall structure is provided which embodies the use of a framework, part or all of which is left in place and which acts in various capacities, namely, as the ordinary studding of the building for supporting the floors, which serve as scaffolding during deposition, and also as the supports or bracing members for holding forms in place which are used in casting blocks between the respective studding. In this manner the ordinary scaffolding and bracing or shoring used in casting concrete walls are eliminated, and also by dividing the cast mass into panels or blocks the same may be cast so as to fill the particular opening in which they are positioned. In addition to filling the particular openings in which the respective blocks are positioned, the construction admits of the brushing or washing of the cast block while the same is still green, or partially hardened, in order to eliminate any of the marks of the mold or form, and to expose the aggregate, giving a pleasing surface finish free from discoloration, and also obviates the necessity for bush hammering, sand blasting, or applying stucco.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a fragmentary perspective view of part of the walls of a building; Fig. 2 is a section through Fig. 1 approximately on the line 2—2; Fig. 3 is a section through Fig. 1 approximately on the line 3—3; Fig. 4 is a section through Fig. 1 on the line 4—4, the same being shown with the window and finishing parts in position; Fig. 5 is a horizontal fragmentary section showing a corner of the completed wall and part of the window; Fig. 6 is a fragmentary sectional view through Fig. 3 approximately on the line 6—6; Fig. 7 is a fragmentary sectional view adjacent one of the joists for showing one method of supporting the joist; Fig. 8 is a fragmentary front view showing a window construction and a cast beam arranged over the window acting as a lintel; Fig. 9 is a fragmentary sectional view approximately on the line 9—9 of Fig. 10; Fig. 10 is a fragmentary longitudinal section through the lintel beam, the same being taken approximately on the line 10—10 of Fig. 9;

Fig. 11 is a section through Fig. 8 approximately on the line 11—11, the same being shown on an enlarged scale; and Fig. 12 is a fragmentary sectional view through Fig. 11 approximately on the line 12—12.

In constructing a device embodying the invention, any desired wall structure may be formed either for a dwelling house, out-houses on a farm, storage houses, or walls used for any purpose. In constructing the walls a foundation 1 is built in any desired way. On this foundation are placed the first floor joists 30, which are secured to a longitudinal beam or header 32 by suitable securing means, as for instance nails 33. A plurality of studding 2, of any desired dimensions and provided with notches 31 to fit over header 32, are next arranged any suitable or desired distance apart around the building and secured to header 32. The studding 2 are notched at 34 for receiving a longitudinally arranged beam or header 35 and are also notched at 27 for receiving a ribbon 28. The studding 2 and the joists or ceiling beams 3 upon which is placed the flooring 4 are both secured to header 35 and to ribbon 28. In this connection attention is called to Fig. 7 showing a slightly modified construction for connecting joists to studding. Referring more particularly to this figure it will be observed that the joists 3 are arranged to rest on a longitudinally positioned member 20 resting on a notch 21 in the studding 2. In addition, longitudinally arranged members 22 and 23 are provided which are notched into the studding 2 and which are secured to the joists 3 by fastening means such as nails 24 and 25. Preferably these nails are not driven entirely to their heads but are permitted to project outward a short distance and thus engage the concrete and act as an anchor. Anchor members in the form of bent nails 26, driven through the studding, are also employed, as shown in Fig. 5.

Between each pair of studding 2 forming a door or window opening is secured a header 5. After the framework has been thus constructed the forms 8 and 9 are placed in position. It will be evident that any desired number of the forms 8 and 9 could be used according to the speed with which it is desired to construct the wall. In constructing the forms 8 and 9 the same are made preferably of such a size as to extend from a short distance above to a short distance below the panel openings between the studding 2 so that the cast material, as for instance concrete, may be poured in from the top until the entire panel opening is filled whereby a single integral block will be provided for each panel opening. When casting the block 10 beneath the header 7, smaller forms are used and the concrete is placed in position before the

header 7 is put in place. After the concrete has been placed in position the header 7 is put in place on top of the soft concrete and forced down to its correct position. After this has been done and the concrete 10 has hardened, the intermediate posts 6, in the case of double or triple windows, are inserted and secured to headers 5 and 7. The beam 11 is then cast, the material being poured in from above. In order that the concrete beam or lintel 11 may be able to support the load or weight carried to it by the floor joists 3 and the portion of the wall above it, it is reinforced on its lower or tension side by suitable reinforcing members 12, one or more of which preferably extend entirely around the building or throughout the wall so as to tie together the entire wall structure. In connection with beam 11 attention is called to Figs. 8 to 12 inclusive, in which the manner of supporting lintel beams 11, at the ends, is shown on a larger scale, and in which a slightly modified placing of the reinforcing members 12 is also shown, these details of construction depending somewhat upon the width of door or window opening over which the lintel is to be used. For lintels over the ordinary sized door or window openings the form shown in Figs. 9 and 10 is preferably used. In this construction the lintel derives its end support from the header 5 being mortised into studding 2, from the projecting portions 18 extending through suitable apertures in the studding 2 and from the reinforcing members 19. There being one member 19 for each projecting portion 18 consequently member 19 is covered and protected. For lintels over very wide door or window openings the form shown in Figs. 8, 11 and 12 is preferably used. In this construction the beam 11 derives its end support from the header 5 mortised into the studding 2, from the extensions 13 and 14 projecting through a suitable slot 15 in the studding 2, from a reaction plate 16, preferably of metal, extending into the panels or blocks on each side of the opening, and from the reinforcing members 17. Above the headers and door and window framing metal flashings are embedded in the concrete and extend beyond the outer face of the said concrete over the headers and framing as shown in Fig. 4.

In casting the various walls, the nailing strips 36 (Figs. 3 and 4) are positioned in the various spaces between the studdings as hereinafter more fully described, so that furring members 37 may be secured in place, to which paper 39 can be secured. Also the furring members 37 are adapted to receive laths and plaster or wall boards 40 of any desired construction, these boards taking the place of plaster, as is well known in the art. In this manner the interior sur-

face of the walls may be finished in any desired style, and also one or more dead air spaces be provided between the interior finish and the concrete structure.

5 In forming the walls forms or molds 8 and 9 are used, as shown more particularly in Figs. 1 and 3. These forms may be of various sizes and preferably they are arranged in different sizes for any particular wall, the larger size extending from floor to floor, and the smaller sizes being adapted to be used above and below window openings, door openings, and the like. In the molds shown the same are provided with a plurality of vertically arranged members or posts 41 and 42, to which are rigidly secured strips or boards 43 and 44. Across the posts are arranged at suitable distances apart, a plurality of pairs of horizontal bars or ledger-boards 45, these ledger-boards being suitably spaced apart and designed to receive clamping bolts 46 which clamp the forms or molds to the respective studdings.

2. These forms or molds must be made of such a size as to overlap any of the openings between studdings so as to provide an inclosed chamber when taken with any two of the respective studdings so that the concrete may be poured or inserted in place and have supports on all sides. A plurality of horizontally and vertically arranged trimming members 47 are rigidly secured to the interior of the mold or form 8 so as to cause horizontally and vertically arranged grooves in the wall when completed.

On the interiorly arranged mold or form 9 the strips 36 are positioned and are held in place by a few nails or screws which are adapted to be removed before the mold is removed so that the strips 36 will remain in the wall. In order to properly anchor the strips 36 the same are provided with anchoring arms, as for instance nails 48.

A specific construction has been described, and a particular wall shown in the drawing, in order to disclose the invention, but it will be evident that various other shapes of walls could be constructed without departing from the spirit of the invention. It will be evident that the constructing of a framework and then having one or more pair of molds or forms for inclosing any particular pair of studdings could be provided and used without in any way departing from the spirit of the invention. Also by forming a wall according to the present invention the various concrete or cast parts thereof are all cast integral so joints and connecting parts are eliminated and a block or beam cast across a space above or below a door or window opening may be formed integral with adjacent cast blocks. Also, further, by forming a wall according to the present invention certain members of the framework as for example the studding may be for

temporary or construction purposes only, removable and to be removed after certain portions of the wall have been cast.

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

1. A wall construction, comprising a framework including studding and door and window framing, the studding at the sides of each door and window framing being provided with comparatively large openings above the framing integrally cast blocks between the studding on opposite sides of the framing, and an integrally cast beam between the studding above the door and window framing, the material forming the blocks and beam filling the openings in the studding and having embedded therein reinforcing members which are also embedded in the blocks and beam.

2. A wall construction, comprising a framework including studding and door and window framing, the studding at the sides of each door and window framing being provided with comparatively large openings above the framing, integrally cast blocks between the studding at the sides of the framing, an integrally cast beam between the studding above the framing, the material forming the blocks and beam filling the openings of the studding and having embedded therein reinforcing members which are also embedded in the beam and blocks, and members of a length greater than the thickness of the studding, resting on the bottoms of the openings of the studding and embedded in the blocks and beam.

3. A wall construction, comprising a framework including studding and door and window framing, the studding on each side of each door or window framing being formed with openings above said framing, integrally cast blocks arranged in the spaces between the studding at opposite sides of the door or window framing, an integrally cast beam arranged above said framing and formed with projecting end portions extending through said openings, and reinforcing rods embedded in the said beams and extending through the said openings, the end portions of the said beams and the reinforcing rods engaging and supported by the blocks in the spaces between the studding at each side of the door or window framing.

4. A wall construction, comprising a framework including studding and door and window framing, the studding on each side of the door or window framing being provided with one or more openings above said framing, integrally cast blocks in the spaces between studding at opposite sides of the framing, an integrally cast beam arranged above the door and window framing and formed with projecting end portions extending through the openings of the stud-

ding and engaging and supported by the
blocks between the studding, metal plates in
the bottoms of the said openings and of a
length greater than the thickness of the
5 studding, said plates being embedded in said
blocks and beam, and reinforcing rods pass-
ing through the openings in the studding
and embedded in the said beams and blocks.

In testimony whereof I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

ADOLPH F. MEYER.

Witnesses:

P. A. ERICSON,
ERNEST BISCHALL.