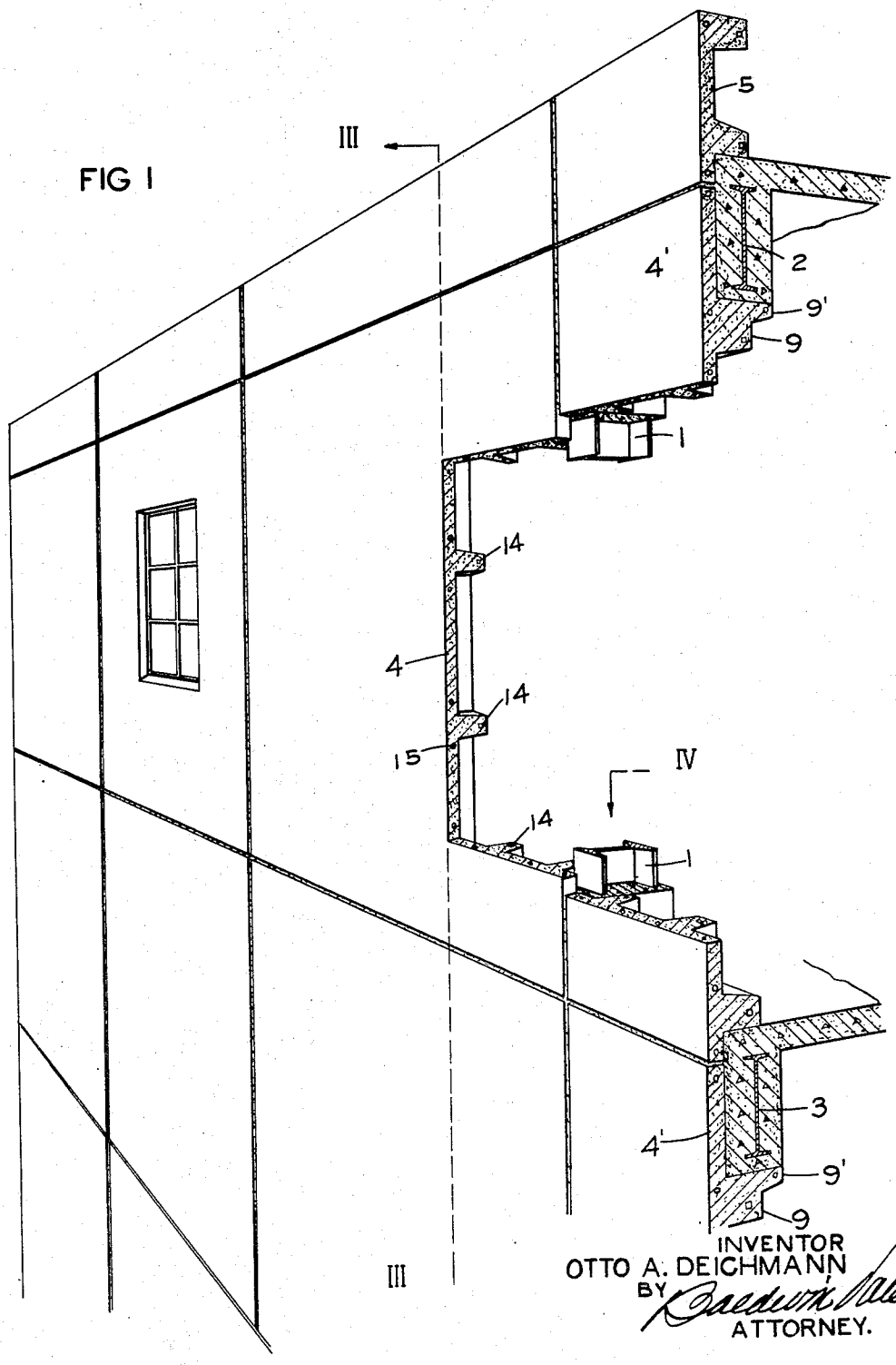
June 9, 1936. O. A. DEICHMANN 2,043,697

BUILDING STRUCTURE

Filed Feb. 23, 1933 3 Sheets-Sheet 1

FIG 1



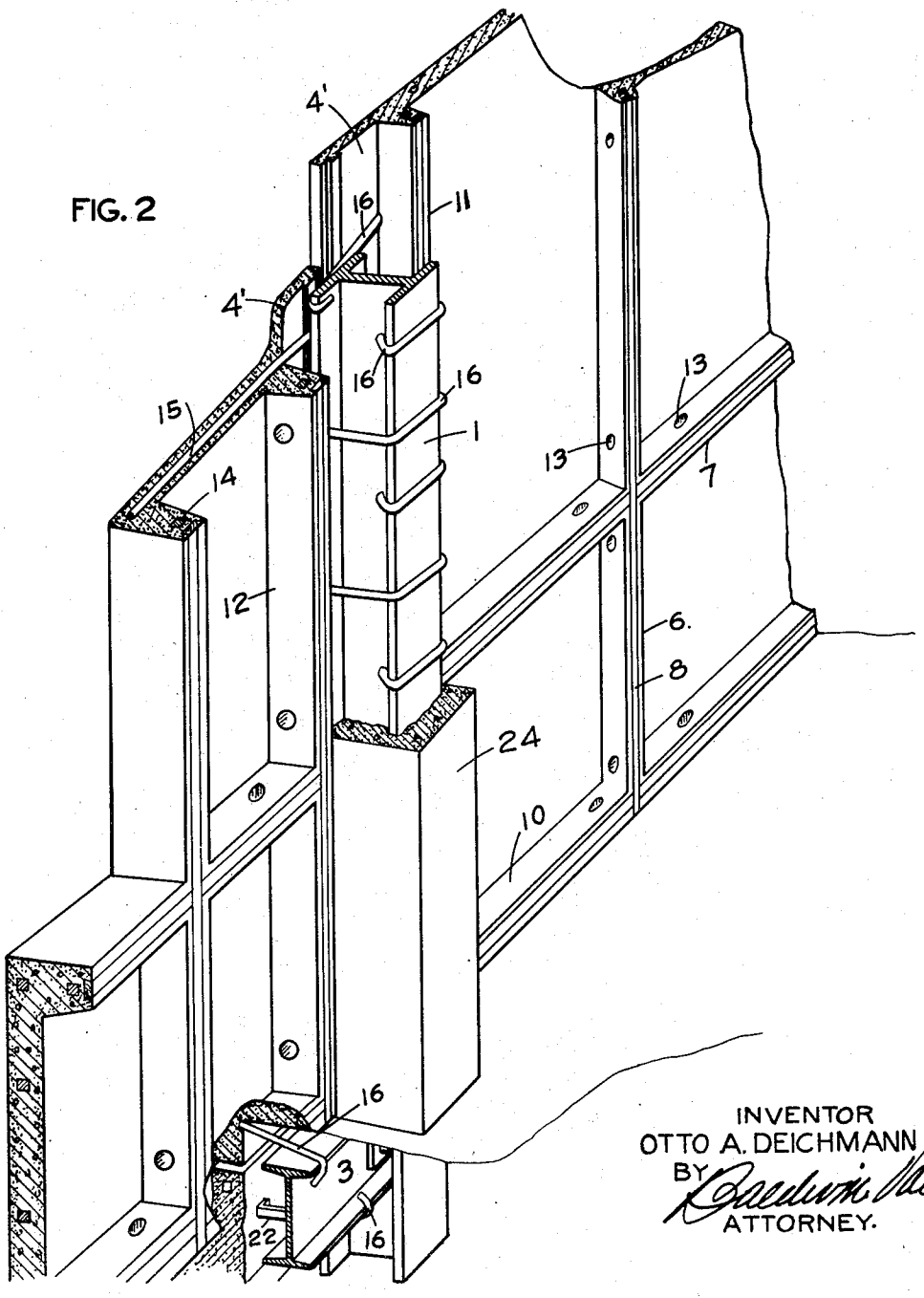
INVENTOR
OTTO A. DEICHMANN
BY
ATTORNEY.

June 9, 1936. O. A. DEICHMANN 2,043,697

BUILDING STRUCTURE

Filed Feb. 23, 1933 3 Sheets-Sheet 2

FIG. 2



INVENTOR
OTTO A. DEICHMANN
BY
ATTORNEY.

June 9, 1936. O. A. DEICHMANN 2,043,697

BUILDING STRUCTURE

Filed Feb. 23, 1933 3 Sheets-Sheet 3

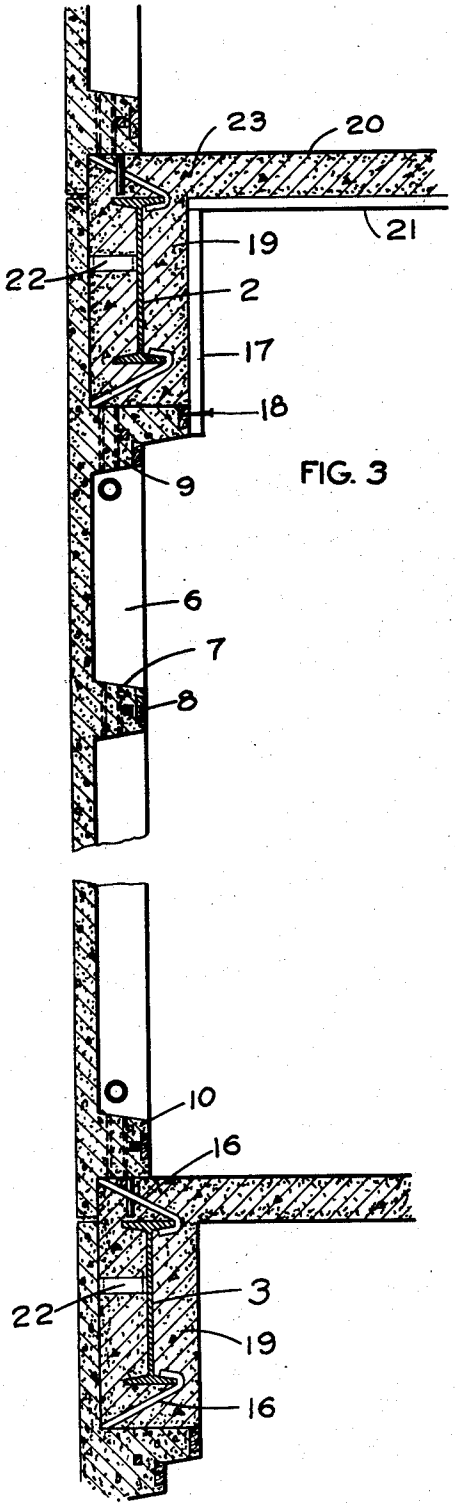


FIG. 3

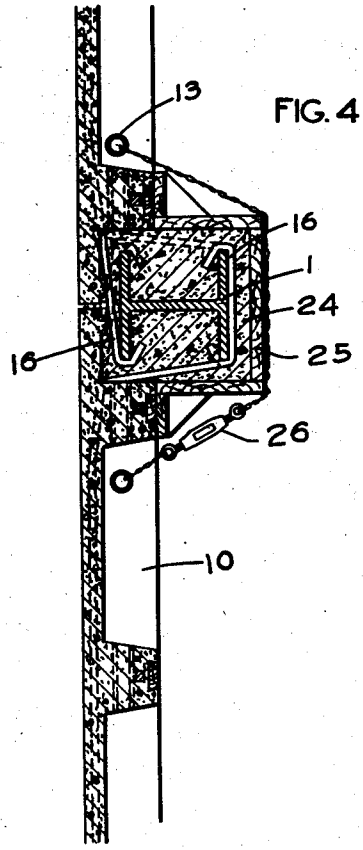


FIG. 4

INVENTOR
OTTO A. DEICHMANN
BY
ATTORNEY.

Patented June 9, 1936 2,043,697

UNITED STATES PATENT OFFICE

2,043,697

BUILDING STRUCTURE

Otto A. Deichmann, San Francisco, Calif.

Application February 23, 1933, Serial No. 658,080

1 Claim. (Cl. 72—1)

This invention relates to improvements in building structures and more particularly to the walls of buildings and the method of erecting the same.

Among the objects of the invention are to simplify the construction and erection of building walls of reinforced concrete.

Another object is to precast the curtain walls and partitions and to erect them on the building frame in units.

Another object is to construct and arrange portions of the curtain panels so that they will serve as forms or parts of forms for the concrete which unites the frame, walls, floors, etc., into a monolithic structure.

A further object is to facilitate the erection of buildings by reducing the labor and equipment required at the point of erection.

Other objects and advantages will appear as the description progresses.

The general practice in the erection of multi-story buildings of reinforced concrete is to erect forms and cast monolithic walls above the foundations. Such walls have columns, beams and trusses formed homogeneously therewith to act as a frame for the structure.

Another practice is to cast frames of concrete or to rivet together structural steel frames and then place forms on the frames and cast the curtain walls; or lay hollow tile or the like within the openings in the frames to form the curtain walls.

The conventional practices above described involve an undue amount of labor, material and confusion on and about the building site.

In the application of the present invention, the curtain walls are precast and hoisted into position as the framing progresses.

In this specification and the accompanying drawings, the invention is disclosed in its preferred form. It is to be understood, however, that it is not limited to this specific form, because it may be embodied in other forms without departing from the spirit of the invention as defined in the claim following the description.

In the three sheets of drawings:

Fig. 1 is a vertical section in perspective showing a wall constructed in accordance with this invention.

Fig. 2 is a fragmentary detail in perspective of the interior of the same, in vertical and horizontal section, showing the construction and arrangement of the precast panels, combined with the building frame.

Fig. 3 is a detail in vertical section taken on the line III—III, Fig. 1, showing the manner of interlocking the panel reinforcing bars with the building frame.

Fig. 4 is a horizontal section of the same viewed from above at IV, Fig. 1.

In detail the construction illustrated in the drawings, referring to Fig. 1, comprises the column 1 and the beams 2—3 of the building frame. The exterior wall is composed of the precast panels 4, in superimposed relation and supported by the building frame. The exterior wall is topped by the coping blocks 5.

These panels are composed of suitable form of concrete or plastic. They are precast in forms either on the building site or elsewhere. The forms have channels therein to form the studding ribs 6, the bridging 7, within the encircling flanges 9—10—11—12 set back from the edges of the panels.

The dovetail nailing strips 8 are laid in these channels and become embedded in the studding, bridging and flanges. The flanges, studding and bridging have the holes 13, cored therein, for convenience in handling and erecting the panels.

In as much as these panels when not subjected to sustaining stresses greater than their own weight, they can be composed of light aggregate concrete. Crushed pumice, and synthetic products of a similar nature, can be used as aggregates with a great saving of weight without sacrificing required strength.

The reinforcing bars 14 are laid in channels in the forms to reinforce the flanges, studs and bridging 6—7—9—10—11—12. The similar bars 15 are crisscrossed to reinforce the planes of the panels with their ends 16 forming hook members protruding beyond the flanges 9—10—11—12. These extensions 16 are bent around the adjacent columns and beams 1—2—3 or any contiguous portion of the building framing, see Figs. 2 to 4.

The upper flanges 9 are provided with the extensions 9', see Figs. 1-3, beneath the beams 2—3 to form the bottoms for the enclosing "cribbing" 17, nailed to the strip 8 as at 18, see Fig. 3. This cribbing provides a form into which the footings 19 of the floors 20 are cast around the beams 2—3 in the usual manner. The abutting extensions 4' of the panels comprise the outer sides of these forms surrounding the beams. The only inlet to these forms is at the top beneath the sill flanges 10 and above the cribbing 17 upon which the floor cribbing 21 rests. The panels are spaced away from the beams 2—3 by the interposed spacers 22 which maintain the assembled panels 4 in a flush plane prior to the casting of the floor footings 19.

Reinforcing material such as 23 is laid upon and spaced above the floor cribbing or forms 21 and interlocked with the beams 2—3. When the floor concrete is flooded onto 21, it flows into the forms surrounding the beams 2—3 and forms the footings 18 and binds the panels 4 to the building frame 1—2—3 in a practically monolithic reinforced bond. If the abutting edges of the panels 4 are slightly separated, the grout in the floor mix will flow outward between them and save the labor of "buttering" these edges with mortar when they are erected.

In forming the pilasters 24 surrounding the columns 1, the form 25 is nailed in place, see Fig. 4, and temporarily braced by the wire turnbuckles 26 extending from the adjacent holes 13 and around the form 25. This form 25 is filled from the floor level above in the usual manner and encloses the column 1 and the clinched extensions 16 of the panel reinforcing bars.

The alined holes 13 also provide vertical and horizontal passages for pipes, wiring conduits, etc., to be concealed within the walls.

The interior walls and partitions may be composed of opposed panels similar to the exterior panels 4. The nailing strips 8 provide means for attaching furring strips to which lathing may be attached and plastered in the usual manner. The dead air space equal to the depth of the studding and bridging 6—7 provides desirable thermal insulation and arrests any moisture that may permeate the outer panels.

While the panels 4 are still plastic within the molds, during the precasting operation, they may be overlaid with crushed marble or any desired surface finish. Veneers of brick, tile, terra cotta, molded embellishments, and the like, may be bonded to the still plastic panel surface.

Door, window and other openings may be precast in the panels as in Fig. 1.

Having thus described this invention and the method of practicing the same, what is claimed and desired to secure by Letters Patent is:

A building structure including a supporting frame having columns and cross beams; curtain panels having abutting edges overlapping said frame members and having marginal flanges extending within the plane of said frame and having nailing strips embedded therein; reinforcing bars protruding from the edges of said panels and bent into engagement with said frame members; and spacers interposed between said panels and said frame members and cooperating with said engaging bars and spacing said panels relative to said frame.

OTTO A. DEICHMANN.