March 22, 1927. 1,622,212

G. A. SHIELDS

BUILDING CONSTRUCTION

Filed Dec. 12, 1925

Fig. 1.

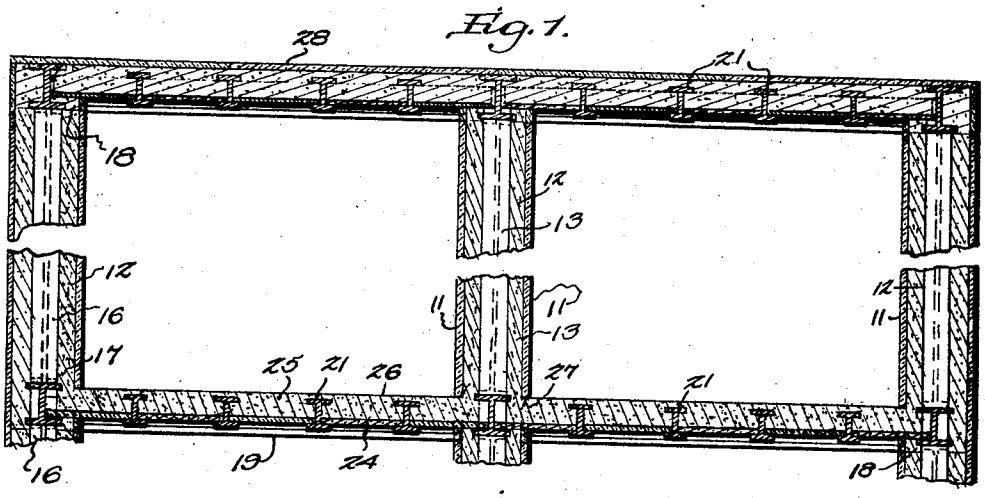


Fig. 2.

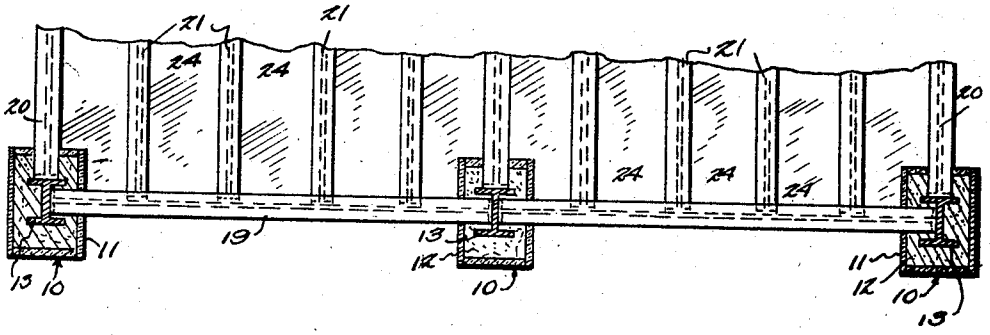


Fig. 3.

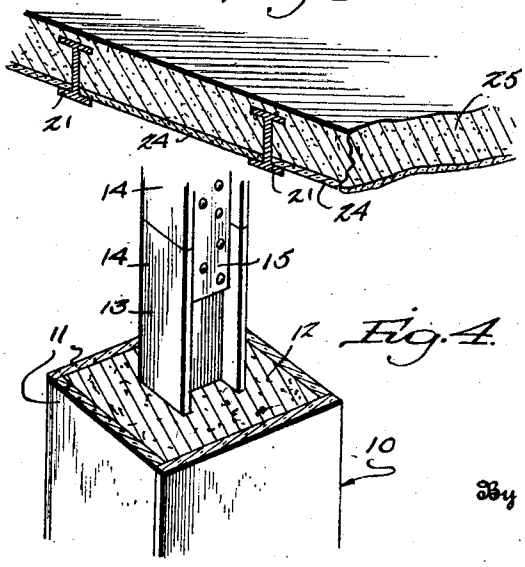
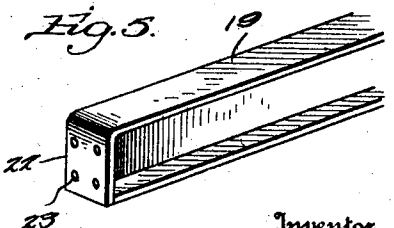


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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BUILDING CONSTRUCTION.

Application filed December 12, 1925. Serial No. 75,114.

This invention relates to building constructions.

An important object of the invention is to provide a novel floor construction associated with vertical column or other supporting means, the floor construction being adapted to be readily assembled and embodying a reinforced concrete construction wherein the concrete bonds with the concrete of the posts or other supporting means.

A further object is the provision of a floor construction wherein the metallic reinforcing members are adapted to support glass or other sheets which are adapted to act as forms when the concrete is poured and to provide finished surfaces for the ceilings whereby they need not be removed after the structure is completed.

A still further object is to provide a plurality of spaced horizontal I-beams to form the metallic reinforcing for the floor, the lower bases of the beams being adapted to support the glass sheets referred to, the concrete being poured over the I-beams to fill the spaces therein and to provide a flooring surface.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown one embodiment of the invention. In this showing:

Figure 1 is a vertical sectional view taken through the supporting posts,

Figure 2 is a plan view of a portion of a floor before the concrete is poured, the supporting posts being shown in section,

Figure 3 is a fragmentary sectional perspective of a portion of the completed floor,

Figure 4 is a similar view of one of the supporting columns or posts, and,

Figure 5 is a fragmentary perspective view of one of the main supporting beams.

Referring to the drawings, the numeral 10 designates a series of alined supporting posts each of which is provided with a facing of glass, marble or the like 11 which act as forms when pouring the concrete filler 12 of the posts. Each of the posts or columns is provided with a reinforcing member 13 preferably in the form of a relatively heavy I-beam, as shown. The series of posts or columns are repeated at spaced intervals throughout the building as will be understood, the outer series surrounding the building forming portions of the walls which may be completed between the posts in any suitable manner. The beams 13 are formed of sections 14 arranged in end to end relation, the number of sections depending upon the height of the building, and the individual sections may be secured together by plates 15 riveted or otherwise secured to the adjacent ends of the sections. In practice I prefer to terminate the beams 13 at each floor in which case each of the beams will be formed of sections 16 arranged between the floors. At the top of each section 16 a relatively heavy horizontal I-beam 17 is arranged and is secured thereto in any suitable manner. The succeeding sections 16 will rest upon the upper faces of the beams 17, as shown in Figure 1, and will be secured thereto in any desired manner as by riveting or bolting. In constructing the building, the columns 10 are preferably formed one story at a time to provide access to the upper ends of the sections 16 whereby the beams 17 may be placed in position. Accordingly the concrete filler 12 will be poured substantially to the level indicated by the numeral 18 whereupon the beams 17 may be placed in position and the next succeeding story constructed.

The columns of each series are connected by horizontal transverse I-beams 19, the ends of which are bolted or otherwise secured to the webs of the vertical beams 13. Similarly each beam 13 is connected to the beam 13 of the next adjacent series of columns by relatively large I-beams 20. The beams 19 are connected by spaced longitudinal I-beams 21 which may be lighter than the beams 19 and 20. The beams 21 are adapted to extend into the space between the bases of the beams 19 whereby they will rest upon the lower bases thereof. The beams 19 may be provided with downturned ends 22 having openings 23 to receive bolts or rivets to permit the beams 19 to be secured to the vertical beams 13. Similarly the ends of the beams 21 may be provided with downturned ends to permit them to be secured to the webs of the beams 19. It will be obvious that the opposite ends of the beams 21 will be similarly formed and adapted to be secured to beams 19 secured to the next adjacent series of columns.

As shown in Figure 1, glass sheets 24 are arranged between the beams 21. These sheets are of sufficient width to permit the edges thereof to rest upon the bases of the beams 21 to properly support the sheets.

A filler of concrete 25 is arranged between and over the beams 21, the sheets 24 acting as forms when pouring the concrete. The upper surface 26 of the concrete may serve as a floor surface, as will be apparent. The edges of the sheets 11 forming the facings of the columns may terminate at points indicated by the numeral 27 in alinement with the surface 26 of the concrete flooring to permit the latter to bond with the filler 12 of the columns when the concrete of the flooring is poured. As many stories as desired can be constructed as will be apparent, and the top floor may be provided on its upper face with glass sheets 28. A suitable roof may be constructed thereabove, as will be obvious.

The posts or columns are constructed as described and the concrete poured therein is terminated at the lines 18 as each story is completed. After one story of the column has been completed the beams 17 are placed in position after which the next adjacent vertical beam sections are secured against the upper faces of the beams 17. The horizontal beams 19 and 20 are then secured to the vertical beams 13 after which the smaller spaced beams 21 are placed in position with the glass sheets therebetween. The facings 11 then may be placed in position after which the filler 12 may be poured to fill the spaces between the sheets 11 and the concrete flooring may be poured to bond with the concrete filler 12. Each successive story will, of course, be constructed in a similar manner. It will be apparent that the ceilings will be formed by the sheets of glass or similar material 24, and the lower faces of the beams, 19, 20 and 21 may be finished or decorated in any suitable manner to provide a beam ceiling effect. It will be apparent that the glass sheets efficiently act as forms for the pouring of the concrete flooring and are retained as a permanent part of the structure to form a finished ceiling surface.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In a building construction, a plurality of columns each including a vertical metal beam, a plurality of preformed sheets of material surrounding said beam and spaced therefrom and a filler of concrete arranged in the space between said beam and said sheets, said beam, said sheets and said filler having their upper ends flush, a horizontal metal beam supported at each end upon the upper ends of each adjacent pair of columns, a plurality of relatively small I beams arranged parallel to and spaced from each other and supported by said horizontal beams, said I beams having lower horizontal flanges, a plurality of preformed sheets supported upon the flanges of said I beams, a filler of concrete filling the spaces between said I beams and supported upon said last named sheets, said last named filler extending upwardly beyond said I beams to provide a floor surface, and a second column arranged over each of said first named columns in vertical alinement therewith, the preformed sheets of said second named column having their lower edges terminating substantially flush with the upper surface of said second named filler whereby the latter will bond with the fillers of said columns.

2. In a building construction, a plurality of columns each including a vertical metal beam, a plurality of glass sheets surrounding and enclosing said beam and spaced therefrom and a filler of concrete filling the space between said beam and said sheets, the upper ends of said vertical beam, said sheets and said filler being flush, a horizontal metal I beam supported at each end upon the upper ends of each adjacent pair of columns, a plurality of relatively small I beams supported at opposite ends by certain of said horizontal beams, each of said I beams including upper and lower horizontal flanges, a plurality of substantially flat glass sheets supported at opposite edges upon the lower flanges of said relatively small beams, a filler arranged between said relatively small beams and supported by said glass sheets, said last named filler extending upwardly beyond said relatively small beams and having a flat upper face providing a floor surface, and a second column arranged above and in vertical alinement with each of said first named columns, the vertical beam of each of said second named columns being supported upon and secured to said horizontal I beams, the glass sheets of said second named columns having their lower edges terminating flush with the upper surfaces of said second named filler whereby the latter will bond with the filler of said columns.

In testimony whereof I affix my signature.

GEORGE A. SHIELDS.