Aug. 31, 1926. 1,597,675

S. DUNSEATH

CONCRETE FORM

Filed April 2, 1926

FIG. 1.

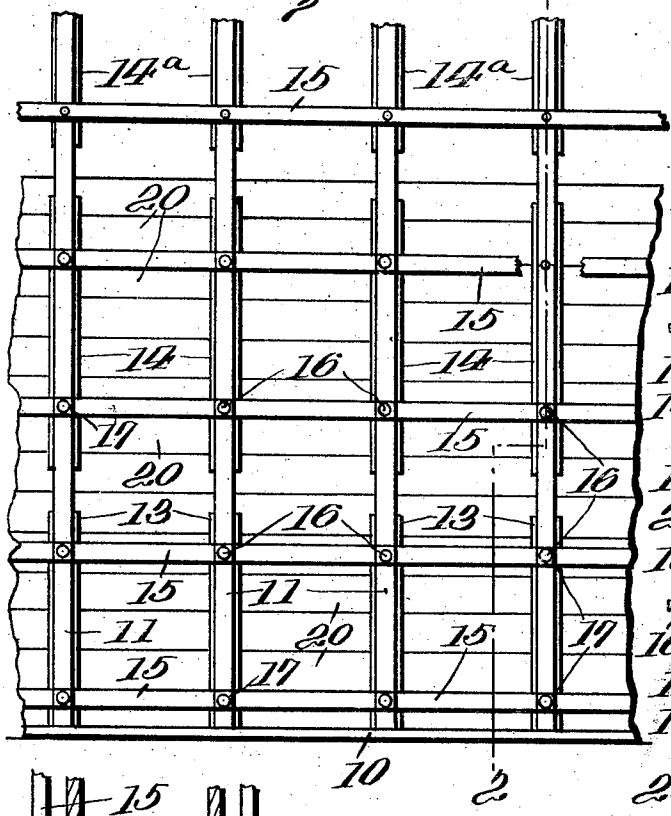


FIG. 2.

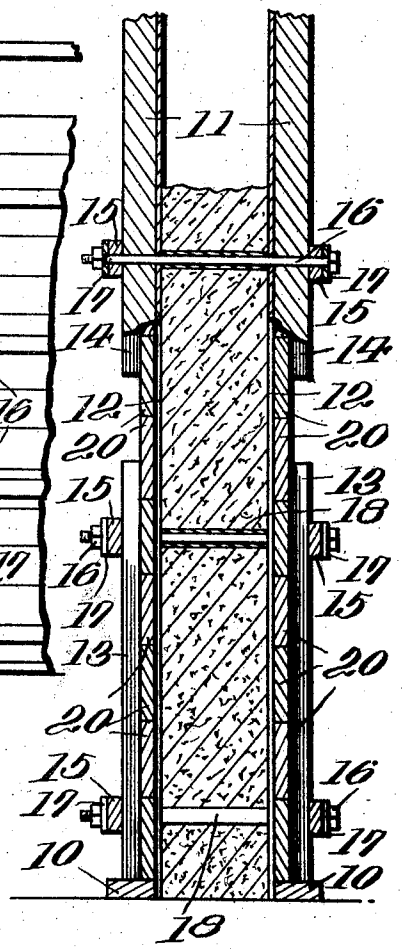
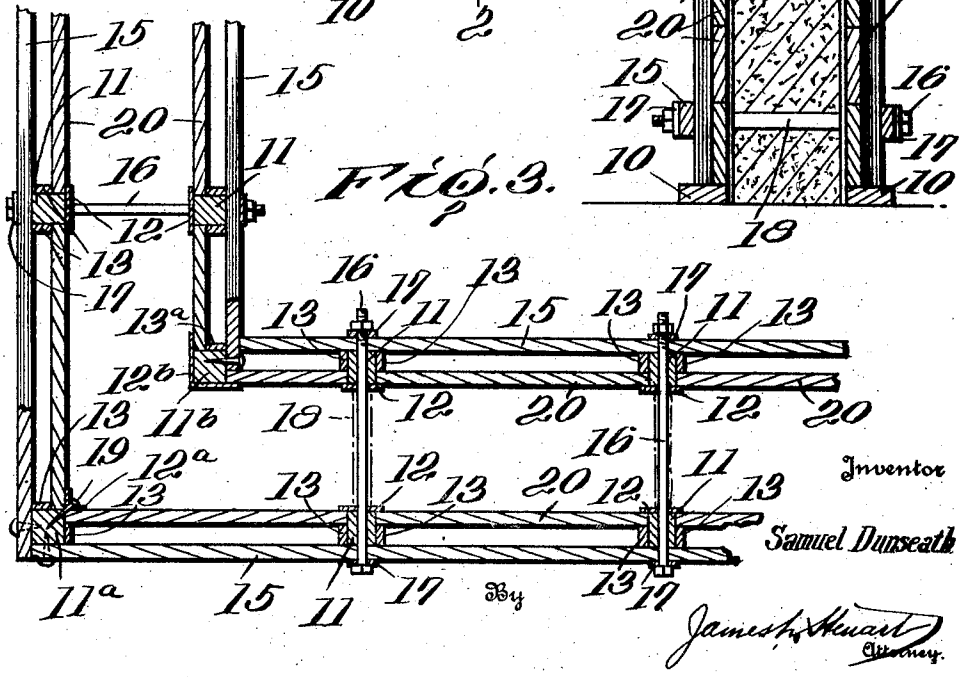


FIG. 3.



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UNITED STATES PATENT OFFICE.

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CONCRETE FORM.

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This invention relates to improvements in mold forms for constructing monolithic walls and is more particularly adapted for use in constructing in situ concrete walls having bonded corners.

It has heretofore been proposed to provide metal or wood panels of various sizes and to associate these panels to form a mold by means of cross bars and trusses which were rigidly connected to the several panels for supporting them in position. Various sizes of panels were necessary for this purpose and in the case of metal the expense incident to adapting the mold to fit the architectural requirements of the walls as to design and size was considerable, and oftentimes rendered the work impossible. It has long been customary to provide such mold forms of wood, in which wooden uprights were employed and braced together in suitable fashion, and to which the actual facing of the mold, composed of sheathing lumber, was fixedly nailed and served as a further bracing. The difficulty of such a system is the fact that the material is expensive if dressed, and if not dressed, sticks to the concrete and leaves a very rough surface. Furthermore, in cutting and trimming the lumber to shape, a loss occurs at each job and it is practically impossible to construct a number of buildings by the use of the same molds.

Engineering considerations make it essential, in placing concrete, that a layer of not more than three feet in depth be placed at a time: if more be placed, separation of aggregate occurs and results in a weakening of the wall. With mold forms heretofore employed, either the skeleton was erected as a whole, and then the facing inserted as the work progressed, which is cumbersome and involves interruptions; or the skeleton and mold form was erected in sections following each successive pouring.

In opposition to these mold forms, the present invention proposes to provide a system having the merits of each, but avoiding their disadvantages, and in particular sets forth a rigid framework or skeleton which is erected at the site of the building, and into which loose fitting elements may be assembled for the placing of concrete, and these elements may be put in position in proportion as the work of pouring the concrete advances and without interference with work at adjacent points.

Referring to the drawings, there is illustrated one form of the invention which is particularly adapted for use in house construction with monolith walls.

Figure 1 is an elevation of the wall mold form in position.

Fig. 2 is a section of the same on an enlarged scale, approximately on line 2—2 of Fig. 1.

Fig. 3 is a horizontal section on a similar scale through a corner constructed according to the present invention.

In these drawings, the sills 10 are used as a support for the wall molds. These sills are composed each of a small piece of timber which is preliminarily placed upon a firm support and are spaced apart at the distance to be occupied by the monolith wall. The mold studding or vertical posts 11, 11 are then placed in position in flush and plumb relation to the inner edge of the sills 10 as shown in Fig. 2. Each of these studdings 11, as shown in Fig. 3, is provided on the face which will be presented to the concrete wall with a metal face plate 12 which is rigidly and tightly secured to the respective posts 11, and which extends from the footing upwardly to the top of the mold. As shown in Fig. 2, it is preferred, but not essential, to extend this plate 12 beyond the bottom end of the post 11 by the thickness of the sills 10, so as to further assist in spacing and bracing the posts 11 with respect to the sills 10. Since this metal plate 12 is intended only to support the panel boards 20 described hereinafter prior to placing the concrete, it may be very thin.

At each side of the studding 11 in the course of the wall is provided a guiding rail 13 which extends from the bottom of the respective studding upward for a distance of two or three feet, and no more. At this point there is a gap corresponding to the width of a panel board 20, as will be set forth hereinafter, and then a further guide rail 14 is provided in alinement with each, which likewise extends for a distance of two or three feet, then another gap is provided and then further guide rails 14^a, etc.

These vertical studdings 11 are held in rigid relation to each other, both along the respective side of the wall and with respect to

the mating studding 11 on the opposite side of the wall, by means of the horizontal braces 15 and the clamping bolts 16. These clamping bolts 16 are respectively passed through washers 17, through the horizontal braces 15, through a studding 11, and its face plate 12, then span a gap substantially the thickness of the wall to be produced, and in like manner pass through the face plate 12 and the opposite studding 11, through the horizontal brace 15 on the other side of the wall, through another washer 17 and finally are secured by nuts. It is apparent that by tightening or loosening the nuts, the allotted distance between the facings of the panel boards which delimit the wall may be regulated at will.

It is preferred to provide sleeve 18 about these bolts and between the face plates 12 for the purpose of permitting an easy withdrawal of the bolts after the wall has been cast, and to serve as spacing means between the respective face plates 12.

At the corners, as shown in Fig. 3, the vertical studdings 11^a and 11^b are provided respectively at the outer and inner corners, and support the respective face plates 12^a and 12^b which are secured to the studding 11 in rigid relation thereto, for example by the screw 19. The rails 13 are provided as customary for the outer corners, and the rails 13^a are provided for the inner corners between the horizontal braces 15.

Each of the studdings 11 may extend for the entire height of the building to be erected, but it is preferred and in case of tall buildings it is essential, that the studdings 11 be of definite lengths, and the required length for the height of the building be obtained by placing a sufficient number of them end to end. The joints 11^x come successively opposite the horizontal braces 15 (Fig. 1, cut-away portion) which thus serve to stiffen and support the joints. By having the studdings of two lengths, the adjacent studdings are jointed at different braces, and likewise the points at the opposite sides of the wall may be staggered, so that a firm self-supporting mold form is produced. The guide rails 14, 14 may project past the joint at each side to prevent lateral movements.

The mold facing of the wall is composed of a plurality of panel boards 20 which are cut to the lengths determined by the prearranged distances between the bolt holes on the horizontal braces 15, and may merely be smooth boards cut to the specified length and without any further preparation except that if so desired they may be oiled or treated to prevent the sticking of the concrete. Since there is substantially no wastage, they may be cheaply made of dressed lumber and employed many times, so that the cost for form lumber for each job is small. They are of uniform width, and the spaces between the successive rails 13, 13 and 14, 14 set forth above are purposely made slightly greater than the width of any panel board.

In assembling the form, after the studding and braces have been connected by the bolts 16 as set forth above, these panel boards 20 are slipped into the gap left between the rails 13, 13 and 14, 14, and are moved downward along the channels presented between the face plates 12 and the rails 13. Successive boards are inserted between the several studdings until the space is built up substantially to the center of the particular gaps for the desired distance along the wall. It will be noted in Fig. 1 that the length of the rails 13 is calculated to bring their upper end substantially half-way on the width of the last panel board to be inserted, so that it is afforded a substantial brace for one-half of its width.

When this particular portion of the wall has been poured and has established its primary "set", panel boards are then inserted in the same manner through the gap between the rails 14, 14^a, and the rails immediately above, and another three foot height of mold is assembled, and is then poured. This procedure continues until the building is erected to the full height.

In Fig. 3 it will particularly be noted that the corner studding 11^a and 11^b may be located at various points, and that any lossage results from the cutting of the braces 15 and of the panel boards: but since these members are each relatively cheap and easily cut, there is no substantial loss of valuable material at any particular job, since only the last section, as represented at the inner corner in Fig. 3, is subject to cutting so far as the panel boards are concerned, and by overlapping the braces 15, they may be employed in substantially any length.

After the wall has been cast to its entire height, and has set, the several bolts 16 are released from their nuts and withdrawn from the wall. The braces 15 then come away, and the studding 13 may be removed, and with them the panel boards 20, which are drawn outward by the plates 12 engaged behind their ends. A slight tap will loosen any stuck panel board. The wall is then complete, and if so desired, may be given a stucco coat.

It is apparent that the invention is not limited to the specific construction illustrated, but that it may be modified within the scope of the appended claims.

I claim:

1. In a mold form for monolith walls, a plurality of studding, means to hold said studding in rigid parallel relation of each other, face plates on said studdings extending beyond their sides, a plurality of panel

boards of uniform width supported against the face plates of two adjacent studdings and carried therebetween to form the mold face, and a plurality of guide rails on each side of each of said studdings, said guide rails being separated by a gap substantially equal in distance to the width of said panel boards.

2. In a mold form for monolith walls, a plurality of studding members, pairs of braces to hold said studding in rigid parallel relation to each other to form two parallel lines of pairs of studdings, said studding being joined by endwise abutment to produce a form of the desired height, said joints being made at the points of intersection with said braces, said joints being staggered, securing means passing through said pairs of braces and said studdings at the points of intersection to retain said studdings in fixed mutual relation, a plurality of panel boards of uniform size to fit between adjacent studdings on each side of the mold form, and guiding means on said studdings to hold said panel boards in position, said guiding means being constructed and arranged to permit the successive placing of said panel boards without their being passed the length of said studdings.

3. In a mold form for monolith walls, a plurality of studding, a plurality of braces at an acute angle to said studding, means to clamp said studding and braces together at their points of intersection, a face plate on each studding at the face at which the wall is to be produced, said plate projecting beyond the edges of said face, a plurality of guide rails on each side of each of the studding extending parallel to said face plate, a plurality of panel boards of uniform width supported between each adjacent pair of studdings and held in position by said plates and rails thereof, said guide rails on the adjacent faces of each adjacent pair of studdings being of the same length and being separated from the next guide rails thereon by a distance substantially equal to the width of one of said panel boards, each of said rails having its upper terminus at a distance from the base of the wall which is not an integral multiple of the width of the panel boards.

Signed by me at New York, N. Y., this 1st day of April, 1926.

SAMUEL DUNSEATH.