Aug. 5, 1941. A. ARRIGHINI 2,251,775

CONCRETE FORM

Filed Jan. 15, 1940

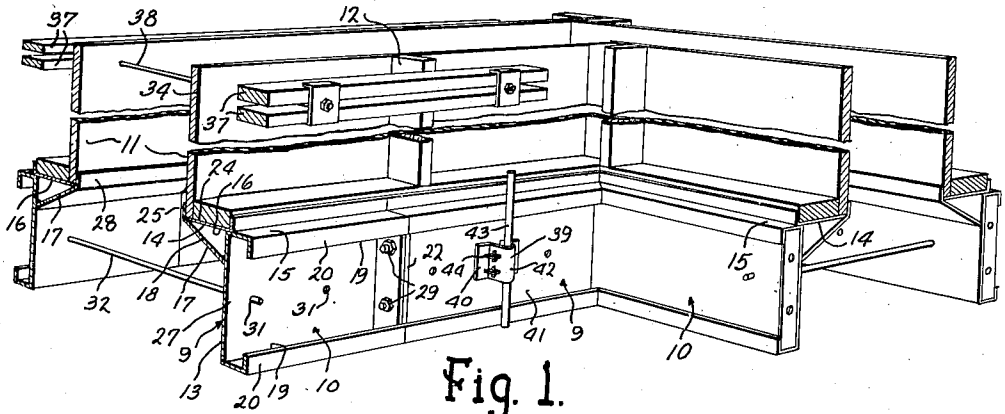


Fig. 1.

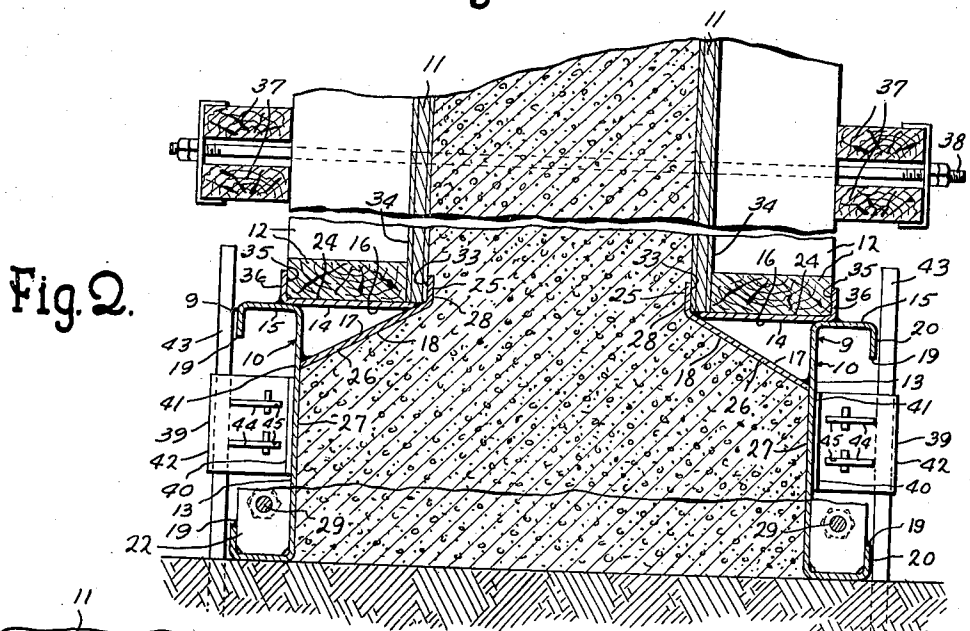


Fig. 2.

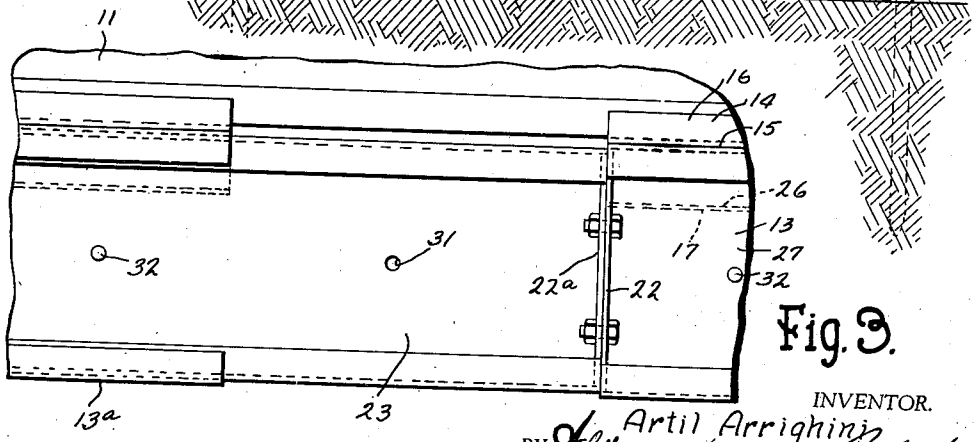


Fig. 3.

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CONCRETE FORM

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1 Claim. (Cl. 25—131)

This invention relates to forms and more especially to forms for pouring concrete footings and walls.

One object of this invention is the provision of a form for concrete sufficiently economical and flexible in design to allow the use of it in all types of building projects.

Another object of this invention is the provision of a form rendering it possible to pour concrete footings and wall sections in one operation to form an integral one-piece construction.

A still further object of this invention consists in the provision of a form of the type set forth above, comprising a plurality of light-weight sections capable of being readily joined together in the field to form combined walls and footings of various lengths.

Additional and further objects of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing wherein:

Figure 1 is a perspective view of a corner construction of my invention embodying the concrete form referred to;

Figure 2 is a sectional view of my invention; and,

Figure 3 is a side elevational view of a portion of the base member.

Previous to the invention in question numerous attempts have been made to develop a practical and economical form to be used in pouring concrete footings and wall sections.

The difficulties encountered have arisen primarily from two causes; first, the use of sheet metal throughout the entire form; and, secondly, constructing the entire form at the location out of wood or the like. The sheet metal form, in addition to being limited for practical reasons to particular sizes, was used only by builders of large buildings because of the capital tied up in the forms, the tremendous cost of storing and transporting the forms; and, also, because of the cost of the equipment needed to handle the forms during assembly and disassembly.

The difficulty with the forms constructed entirely upon the location is obvious since each form was "custom built" for that particular job and wasted too much time and money to be practical for moderate priced buildings.

The result of the aforementioned defects has been that, although solid concrete walls and footings are highly desirable in the ordinary home, only extremely large homes and buildings could afford to have this construction. My invention, however, has eliminated these defects and produces a practical, flexible and economical form which is already being used to construct the footings and basement walls of lower priced homes.

With the above in mind reference will now be made to the specific embodiment of the invention, selected for the purpose of illustration. In Figure 1 of the drawings I have shown a form having a plurality of separable sections **9**. Each section has a base portion **10** upon which plywood frames **11** and braces **12** are mounted. Each base portion comprises a base member **13**, substantially channel shaped in cross section and having a channel member **14** secured to the top flange **15** thereof. The channel member **14** in the present instance comprises two angle irons **16** and **17** which, in addition to cooperating with each other to form the channel **14**, form an angle brace **18** extending from the side of the base member **13**, the plywood frames and braces are mounted in the channels **14** and, with the addition of stakes and walers commonly used in the industry, form a simple and economical construction which at the present time allows the erection of the forms and the pouring of the entire footings and basement walls for the average priced home in an ordinary working day.

With reference to Figures 1 and 2 more in detail, it will be seen that the base members **13** are in the form of channel irons having the free edges **19** of their side flanges **20** bent inwardly. This allows the base member **13** to have either an end piece such as **22** welded or otherwise secured thereto, or to act as a slideway for telescopically receiving a side plate insert such as **23** which will be more fully described with reference to Figure 3.

Secured to the top flange of the base member **13** by welding or otherwise is a channel member **14**. As stated above, this channel member in the present instance comprises two angle irons **16** and **17**. The angle iron **16** has a horizontal flange **24** cooperating with the vertical flange **25** of angle iron **17** to impart a channel shape to the member **14**. The free edge of the horizontal flange **24** is welded or otherwise secured to angle iron **17** at the junction of flange **25** with the other flange **26**. The flange **26** of angle iron **17** is inclined downwardly with reference to the horizontal flange **24** on the angle iron **16** and is welded or otherwise secured to side **27** of the base member **13** to form the angle brace **18**. This construction, in addition to being extremely strong, is designed to outline the shape of the

concrete footings and wall sections. In other words, side 27 of each form outlines the outermost face of the footing while the angle brace graduates the width of the footing down to the width of the wall. The face 28 of vertical flange 25 defines the outermost face of the wall portion.

As can be seen from Figure 1, the corner constructions of the base portions 10 are mitered and welded together to form a solid one-piece construction. I have found that by making these corners extend about two feet in each direction they are sufficiently small to allow ease in handling. It will be noticed that the straight sections are joined to the corner pieces and to one another by bolting the end pieces 22 together with suitable bolts 29.

The adaptability of the form to different sized walls is achieved by supplying certain of the base members 13 with telescopic inserts such as 23, as can be seen by examining base member 13a in Figure 3. The only difference between the base member 13a and the base member 13 is that the end piece 22a in this form is secured to the insert 23 instead of to the base member 13. This allows the modified construction to be used in either its closed or extended position.

In practice I have found that if the insert can be extended approximately two feet, relatively few need be used since the regular form can be made in variations of lengths. It will be obvious that all the base members can be supplied with these inserts 23, or that both ends of an individual base member could be supplied with this insert.

It has been found advisable to supply the base members with openings 31 therethrough to allow the use of bars such as 32 for making reenforced concrete if desired. These openings 31 are sufficiently small so that in the ordinary basement construction, when reenforcing is not necessary, they allow some water to drip through which aids in more rapidly setting the concrete.

With reference to the remainder of the form, I have found that plywood sheathing such as 11 is extremely economical to use. As is known, it has a great deal of strength and can be readily cut to size. It can be seen from Figure 1 that this sheathing is placed against face 33 of flange 25 and is maintained in place by wedging a plurality of braces 12 between the back face 34 of the sheathing and the face 35 of flange 36 of iron 16.

In practice I have found that if the sheathing 11 has its back face framed by two-by-fours such as 12, an extremely strong portable wall form results; but, whether this exact material is used or not the speed and strength required of this form is accomplished by having the width of the wall form and the braces equal to the width of channel 14. This insures the bottom of the wall portions of the form of having proper support.

It will be obvious that the adjacent vertical edges of the sheathing 11 and braces 12 are to be in abutting relation with each other, and preferably maintained in that relation by nailing for the reason that nails allow more rapid assembly and disassembly than bolts. Also, if the lumber is to be used in the construction of the house, a reasonable number of nail holes will not prohibit such use.

In addition to the wall construction above mentioned, I have found it advisable to use two walers on each side of the wall spaced approximately an equal distance from one another. These walers are the standard type used at the present time, and, as can be seen in Figure 2, consists of two two-by-fours 37 mounted parallel to one another and bolted to a similar set on the opposite side by bolts 38. The reason that only two walers are necessary is because flange 36 of channel member 14 imparts the same effect upon the lower portion of the plywood sheathing and braces as an additional waler would. Of course, the elimination of this waler increases the speed of assembly of the form, as well as decreasing the number of parts necessary to take into consideration in constructing the form.

The base members 13 are provided with means for maintaining them in definite position with relation to the ground and to each other. In the present instance this is accomplished by means of substantially U-shaped braces 39 having flanges 40 welded to the inner face 41 of the base member 13. The base portion 42 of the braces having a diameter sufficiently large to receive an iron stake such as 43 or the like. These stakes are maintained in position by means of wedges 44 driven through slots 45 in the sides of the brace.

In the operation of my device I first accurately determine the corners of the building and place a corner form in each of these corners. Such a form should have at least two stakes, one on each side of the corner to maintain it in position, which stakes are driven well into the ground and the form thus held rigidly in the desired position. The remaining forms are then assembled out from each corner. The inside forms, in fact all but the outside corner forms, can then be laid very rapidly and by the most inexperienced of workmen. When the base portions are thus assembled the plywood sheathing 11 can be readily set up, the walers put on, and the form is ready to receive the liquid concrete mass. Not only is it extremely simple to fill the form with concrete, but the construction outlined above results in a form which eliminates all leveling once the base portions of the form are properly staked out since the strength and the shape of the channel member 14 necessitate the sheathing being at the proper angle with relation to the remainder of the form. This problem of leveling has always been an acute one in the construction of wooden forms upon location.

I have found that because of the lightness of weight of my form it is very easy to transport both the base and wall portions of the form to other locations without the need of large and heavy duty trucks. In fact, an analysis of my invention will show that it is completely made up of parts easily obtainable on the open market and does not involve expensive materials, but is well within the reach of the average individual in the concrete art. In addition, its lightness allows it to be assembled and disassembled without any special equipment.

What I claim as my invention is:

In a form for simultaneously pouring concrete footings and wall sections, a pair of opposed base members extending longitudinally of the wall section and predeterminately spaced to define the outermost faces of the footing, an upwardly opening channel member on each of said base members extending in the direction of the length of the base member and projecting laterally inwardly from the upper longitudinal edge of the base members towards one another and having vertical flanges at the inner edges defining the outermost faces of the wall portions, and means for anchoring the same against movement.

ARTIL ARRIGHINI.