Dec. 2, 1969 A. ARRIGHINI 3,481,575

PREFABRICATED WALL FORM

Filed April 3, 1967 2 Sheets-Sheet 1

FIG.1

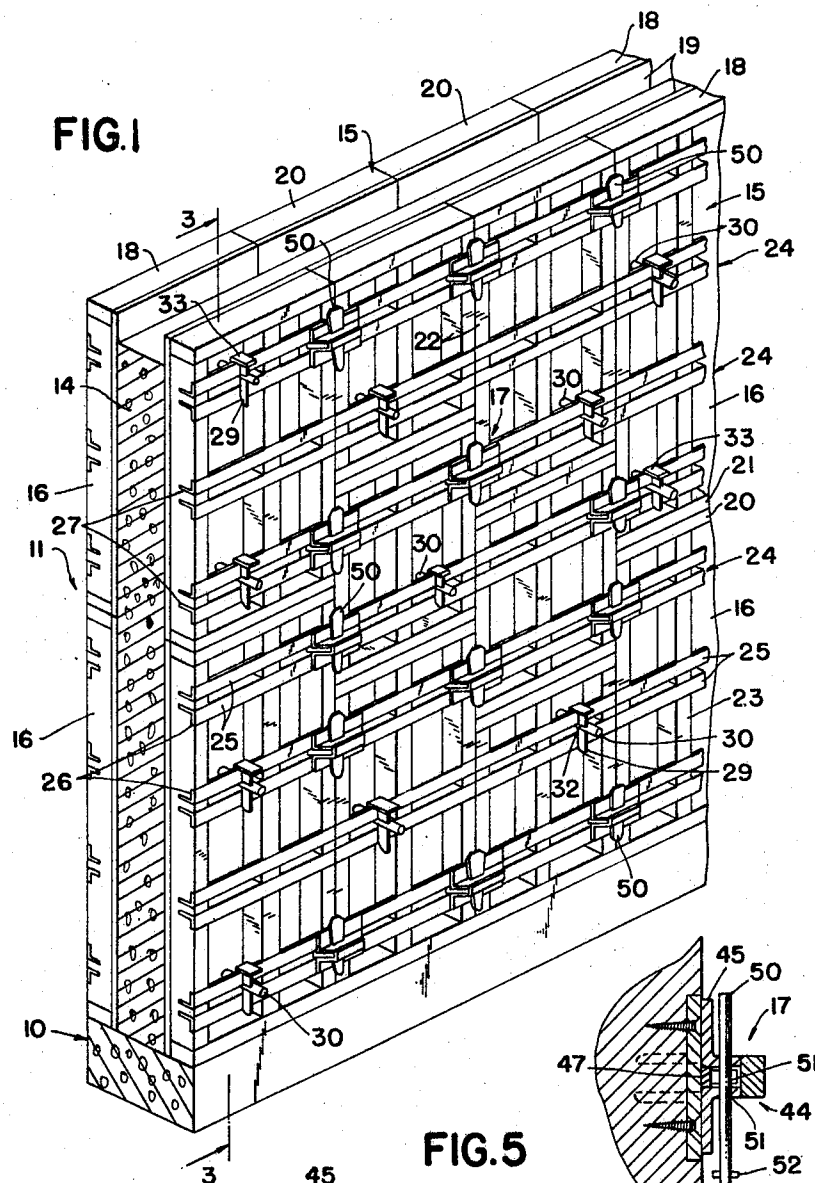
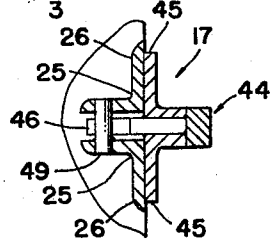


FIG.5

FIG.6



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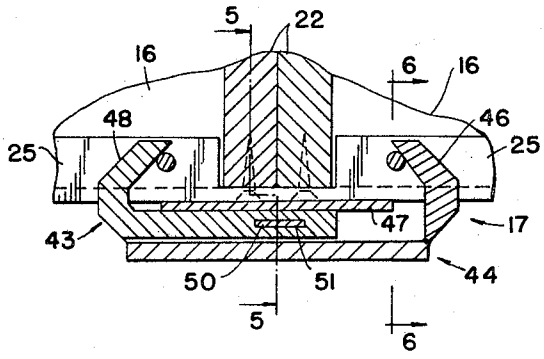
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PREFABRICATED WALL FORM

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FIG.4



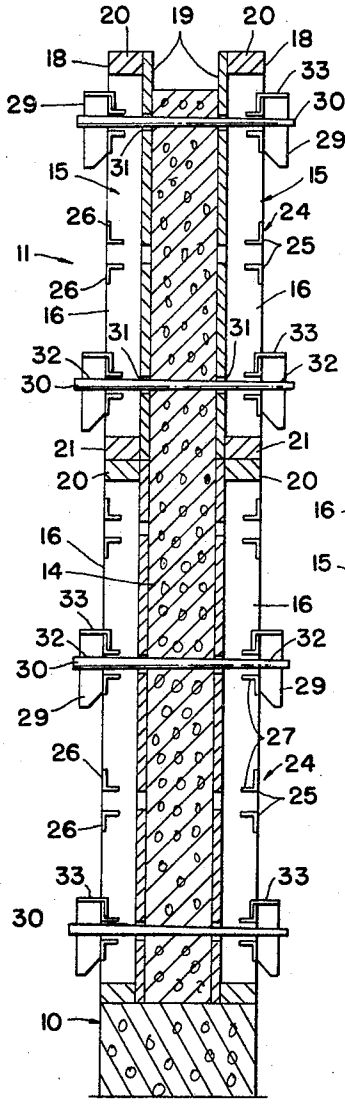


FIG.3

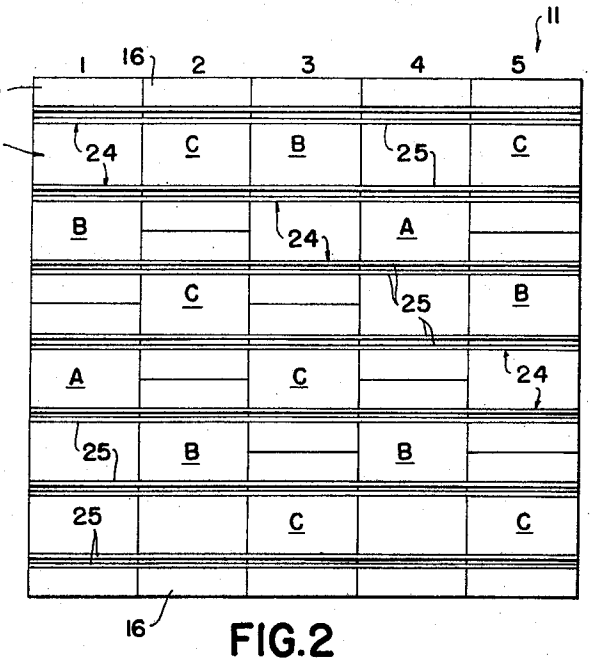


FIG.2

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3,481,575

PREFABRICATED WALL FORM

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Int. Cl. E04g 11/10, 17/04
U.S. Cl. 249—45 3 Claims

ABSTRACT OF THE DISCLOSURE

This invention relates to a collapsible prefabricated form into which composition material such as concrete may be poured to form a composition wall structure.

The form comprises laterally spaced walls between which the composition material is poured. Each wall includes a plurality of panels, the panels being stacked on one another in vertical rows or columns. The panels in adjacent rows are secured together by clamps. Tie rods extend between the walls to secure them together.

Vertically spaced horizontal walers are secured to the panels, and clips are provided to connect the tie rods to the walers. The panels are of different lengths, but the length of every panel is a whole number multiple of the spacing between walers. Therefore, the walers on the two walls will always be opposed to one another no matter what combinations of panel lengths are employed.

BACKGROUND OF THE INVENTION

This invention represents an improvement on the structure shown in my earlier Patent No. 2,526,529 issued Mar. 29, 1948. In earlier prefabricated forms, as exemplified in my earlier patent, the panels have been of the same length. According to my present invention, different length panels are employed so that composition wall structures of any height may be poured.

SUMMARY OF THE INVENTION

It is an essential object of the invention to provide an improved prefabricated wall form having panels of different lengths making it possible, by the arrangement and selection of panels, to pour composition wall structures of any desired height.

Another object is to provide a prefabricated wall form in which the walers on the panels of one wall will always be directly opposite the walers on the opposite wall no matter what the selection and arrangement of panels.

Another object is to provide panels of different lengths, but in which the length of each panel is a whole number multiple of the spacing between walers.

Another object is to provide equally spaced walers on each panel in which the ends of the panels are spaced from the adjacent walers one-half the distance between the walers.

Another object is to provide a wall made of a plurality of vertical rows or panels in which the joints between the ends of the panels in adjacent rows are staggered.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings, wherein:

FIGURE 1 is a fragmentary perspective view of a collapsible wall form constructed according to my invention.

FIGURE 2 is a semi-diagrammatic outside elevational view of a wall of the form.

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 1.

FIGURE 4 is a sectional view of one of the panel clamps.

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 4.

FIGURE 6 is a sectional view taken on the line 6—6 of FIGURE 4.

Referring now more particularly to the drawings, a part of a prefabricated wall form embodying the features of this invention is shown in FIGURE 1 as comprising a footing **10** and a vertical wall forming unit **11** supported on the footing.

The wall forming unit **11** comprises laterally spaced, parallel vertical walls **15** respectively supported at the bottom edges on footing **10** and cooperating with one another to provide the space therebetween required to form the vertical composition wall **14**. Each vertical wall **15** in turn comprises a plurality of vertical rectangular elongated sections or panels **16** which are separable from one another and adapted to be releasably secured together in edge-to-edge relationship by suitable clamps **17** as more fully described hereinafter.

Each wall panel **16** comprises a frame **18** and a sheet or facing **19** of plywood or the like secured to the inner surface of the frame **18**. The frame **18** for each panel is composed of top, bottom and side members **20, 21** and **22** respectively. In some cases where the panels **16** are of substantial width, it is also preferred to reinforce the same with an upright member **23** positioned intermediate the opposite side members **22**.

The width of all of the panels is the same, although the panels are of different height or vertical dimension. As seen in FIGURE 2, the panels marked A are of the greatest length, the panels marked B are of an intermediate length, and the panels marked C are of the shortest length. Thus, for example, the panels A may be 8 feet long, the panels B may be 6 feet long and the panels C may be 4 feet long.

Each of the panels has two or more horizontal walers **24** secured to the outer surfaces of the side members **22** of the frame. Each waler consists of a pair of vertically spaced horizontal angles **25**. The angles of each waler are arranged so that their flanges **26** are substantially flush with the outer surface of the frame and lie in the same vertical plane. The flanges **27** of the walers extend in an inward direction from the adjacent edges of the flanges **26** in vertically spaced horizontal planes.

The spacing between the walers, measured between centers, on all of the panels is the same. Also, the spacing between the top waler on each panel and the uper end of the panel, and between the bottom waler on each panel and the lower end of the panel, again measured from the center of the waler, is one-half the spacing between walers. For example, employing panels of 8 feet, 6 feet and 4 feet lengths, the spacing between walers may be 2 feet and the spacing between the ends of the panels and the adjacent walers may be one foot. Thus it will be seen that the panels while of different lengths, each has a length that is a whole number multiple of the spacing between walers. Obviously, a 2-foot long panel could be employed in which event the panel would have a single horizontal waler disposed midway between its upper and lower ends.

The panels in each of the walls **15** are arranged in vertical rows or columns with the panels in each row or column stacked end-to-end upon one another. The rows of panels in FIGURE 2 are designated **1, 2, 3, 4, 5**. The sides of the panels in adjacent rows are clamped in edge-to-edge relation to one another by clamps **17**.

When the panels in each of the walls **15** are positioned in edge-to-edge relation as thus shown and described, the front or inner sheet or facing **19** of the several panels cooperate to form a continuous vertical planar substantially uninterrupted surface against which the composition material may be cast.

Attention is further called to the fact that when the several panels **16** of the laterally spaced walls **15** are respectively positioned on the footing **10**, the walers **24** on the panels of the several rows assume positions in alignment with one another. As seen in FIGURE 2, despite the fact that panels of different lengths are employed, the walers on the panels in any one row line up horizontally with the walers on the panels in all of the other rows. Since the waler arrangement on each panel is symmetrical with respect to a horizontal central axis, any or all of the panels may be reversed end for end without changing the order or position of the walers.

The walls **15** are arranged so that the vertically spaced, horizontally extending and aligned walers **24** of one wall are directly opposite those of the other wall. Moreover, the walls are preferably arranged so that the vertical rows of panels in one wall are directly opposite the vertical rows of panels in the other wall.

The opposed walls **15** are held in proper laterally spaced relationship by tie rods **30**. As shown particularly in FIGURE 3, the tie rods **30** extend through openings **31** formed in the front facings or sheets **19** of the opposed panels. These openings **31** are aligned or in register with the space between the angles of each waler **24** so that obviously therefore the holes **31** in the opposed panels will register with one another. The opposite ends of the tie rods **40** respectively project between the angles **25** of the walers. Preferably the tie rods taper in width and in thickness from one end to the other enabling them to be readily removed from the composition wall **14** after the latter has become set sufficiently to permit disassembling the form. The opposite ends of each tie rod are formed with an elongated slot **32** of sufficient dimension to receive one of the clips **29**. The slots **32** are spaced beyond the transverse angles **25** of the walers so that the clips abut the outer surfaces of the angles and thereby hold the opposed wall sections **16** against relative movement in an outward direction. Formed on or secured to the upper end of each clip is a hook **33**. The hooks **33** are adapted to engage over the uppermost angle of each waler in a manner clearly shown in FIGURES 1 and 3 to thus cooperate in holding the opposed panels **16** against relative movement in an inward direction.

As stated above, the adjacent vertical sides or edges of the panels **16** are secured together by the clamps **17**. As shown particularly in FIGURES 1 and 4–6, each clamp **17** comprises a pair of relatively slidable parts **43** and **44**. The part **44** comprises a laterally inwardly opening U-shaped member having oppositely extending support engaging flanges **45** and having a laterally inwardly extending finger **46** at one end. The part **43** is in the form of a plate which is slidably supported in the U-shaped member **44** and is held in assembled relation with the U-shaped member by a strip **47** which is welded or otherwise suitably secured to the U-shaped member at the open side thereof. The end of the part **43** opposite the end of the part **44** having the finger **46** thereon is also formed with a laterally inwardly extending finger **48**. As shown particularly in FIGURE 4 of the drawings, the fingers **46** and **48** converge to provide, in effect, hook portions for respective engagement with pins **49**. The pins **49** are respectively secured to adjacent panels **16**, and in the present instance extend between and are secured to the respective pairs of angles **25**.

The clamps **17** are positioned opposite angles **25**, as shown in FIGURE 1 of the drawings, across the joint between the side edges of adjacent panels. In detail, each clamp is positioned so that the flanges **45** on the U-shaped part **44** bear against the outer sides of the adjacent ends of the angles **25** of walers **24** in overlapping relationship to the joint between the vertical side edges of adjacent panels. In positioning the clamps, the fingers **46** and **48** are respectively engaged with the pins **49** in the manner shown in FIGURE 4, so that relative sliding movement of the parts **43** and **44** in a direction toward one another urges the adjacent vertical side edges of the panels in intimate contacting relationship.

The clamp parts **43** and **44** are relatively moved toward one another by a stake **50** which extends through vertical slots **51** formed in the clamp parts **43** and **44**. The location of the slots **51** in the respective clamp parts is determined so that the slots register with one another in the clamped position of the parts, and the stake **50** is wedge-shaped to impart a cam action on opposite end walls of the slots **51** to effect alignment of the slots in response to movement of the wedge-shaped stake in a downward direction relative to the clamp parts. In other words, the construction is such that as the wedge-shaped stake is moved downwardly through the slots **51**, the parts **43** and **44** of the clamp are relatively moved in a direction toward one another. As the clamp parts are relatively moved toward one another, the inclined edges on the fingers **46** and **48** respectively exert a camming action on the pin **49** to force the vertical side edges of adjacent wall sections together.

It of course follows from the above that the clamps may be readily released by merely moving the wedge-shaped stakes **50** in an upward direction to release the clamping action on the respective panels **16**. After the stake **50** has been raised a short distance, the clamping parts may be relatively moved in directions away from each other a sufficient distance to disengage the fingers from the respective pins **49**, whereupon the clamp may be removed from the panels. If desired, the lower end of each stake **50** may be provided with a pin **52** which limits the extent of withdrawal of the stake, and retains the latter in assembled relationship with the clamp.

The use of panels of different lengths enables constructing a form of any desired height depending upon the height of the composition wall desired. Obviously, if only 8 foot panels are available, there will be problems in pouring a 10 foot wall. The different panel lengths employed in the present system makes it possible to increase the height of the form in small increments. However, the relation of panel lengths to waler spacing assures that the vertical spacing of the walers to which the tie rods are connected remains constant.

What I claim as my invention is:

1. A collapsible form for composition wall structures comprising laterally spaced walls between which composition material is adapted to be poured, each wall including a row of two or more panels arranged end-to-end, said rows being of substantially equal length and opposed to one another, elongated walers secured to said panels and extending from side to side thereof, said walers on one wall being parallel and equally spaced from one another, said walers on the other wall being parallel and equally spaced from one another the same distance as the walers on said one wall and disposed directly opposite the walers on said one wall, said wallers being symmetrically arranged on said panels with respect to the central transverse axes of said panels, certain of said panels being of a different length than others, the length of each panel being a whole number multiple of the spacing between walers, the ends of said panels being spaced from the adjacent walers one-half the spacing between walers, means for connecting said walls together including ties extending between said rows, and means connecting each tie to opposed walers on said walls.

2. The collapsible form defined in claim **1**, wherein each panel has two or more walers.

3. The collapsible form defined in claim **1**, wherein each wall includes at least one additional row of two or more additional panels arranged end-to-end, said additional rows extending alongside said first-mentioned rows and being opposed to one another, additional elongated walers secured to said additional panels and extending from side to side thereof, said additional walers on each wall being aligned with the first-mentioned walers on the same wall and directly opposed to said additional

walers on the other wall, certain of said additional panels being of a different length than others, the length of each additional panel being a whole number multiple of the spacing between said additional walers, means for connecting said additional rows together including ties extending therebetween, means connecting each of the last-mentioned ties to opposed walers of said additional rows, clamps connecting panels in adjacent rows together, the joints between the ends of the panels in said rows of each wall being staggered, all rows being upright, said additional rows being of substantially the same length as said first-mentioned rows, each panel having two or more walers and the ends of said panels in said additional rows being spaced from the adjacent walters one-half the spacing between walers.

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D. W. JONES, Assistant Examiner

U.S. Cl. X.R.

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