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Werfel et al.

[11] **3,730,475**

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[54] **FORM FOR CASTING CONCRETE BUILDING FOUNDATION**

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[51] **Int. Cl.** **B28b 7/22**

[58] **Field of Search** ..... 249/13, 85, 144.45, 249/20, 21, 22, 34, 163, 188, 2, 4, 5, 6, 8, 11, 166, 167, 168, 187 R, 18, 19, 33, 189, 207, 213, 216, 219; 25/131 CM, 131 CP, 131 YT, 163

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[57] **ABSTRACT**

A form unit comprising two spaced apart and opposed downwardly diverging walls interconnected at their top and bottom edges, but unconnected at their end edges so that the unit is open-ended and a plurality of such form units may be arranged end-to-end to produce a form of any desired length. The unit has a relatively wide footing-producing lower region, and each wall has a strengthening rib which may continue into a handle serving as the top connection between the walls. The bottom connection is removable, so that it remains in the hardened concrete when the form is lifted off, and may serve to support reinforcing rods.

1 Claim, 3 Drawing Figures

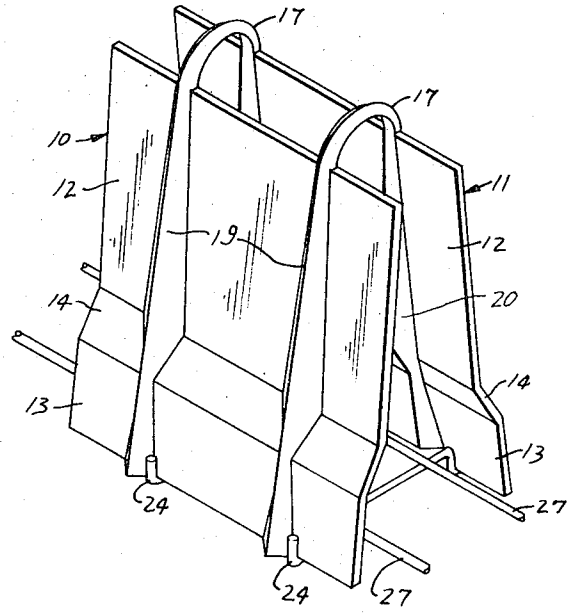


FIG. 1

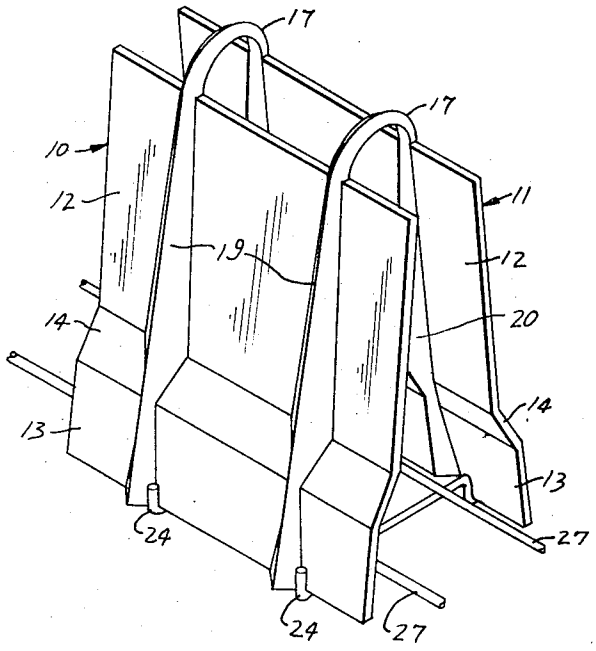


FIG. 2

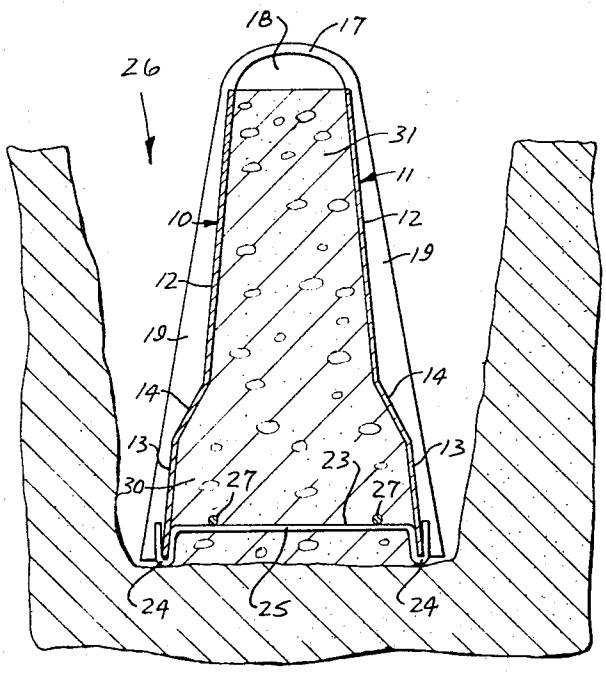
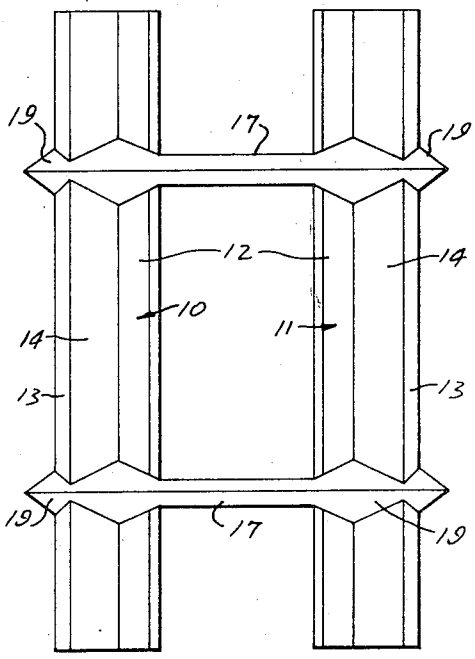


FIG. 3



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FORM FOR CASTING CONCRETE BUILDING FOUNDATION

This invention relates to casting of concrete foundations of buildings, and more particularly to a form unit for assembly with others like it to produce a form within which a foundation can be cast.

According to conventional procedure, a footing form is first constructed by nailing together wooden planks, then concrete is poured into the form which hardens into a relatively low and wide footing, after which the footing form is broken apart and removed. On the footing, a foundation wall form is then built of nailed-together wooden planks, and concrete is poured into the form. After the concrete hardens, the form is broken apart and removed. This tedious procedure involving nailing together and taking apart of wooden forms, and waiting for the footing to harden before beginning construction of the foundation wall, is obviously time consuming and expensive.

It is an object of the present invention to simplify and speed up the process of construcing a concrete building foundation by providing a form, composed of individual like units arranged end-to-end, within which the footing and foundation wall can be cast simultaneously.

It is another object of the invention to provide a unitary prefabricated form unit which may be removed without disassembly from a hardened foundation within it.

It is a further object of the invention to provide a form unit requiring no tools for installation on the building site.

It is an additional object of the invention to provide a reusable form unit.

It is another object of the invention to provide a form unit which may be compactly nested with other like units for storage.

Additional objects, features, and advantages of the invention will be apparent from the following description in which reference is made to the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of a form unit according to the present invention;

FIG. 2 is a cross-sectional view of the form unit in use; and

FIG. 3 is a top view of the form unit.

The form unit chosen to illustrate this invention includes two spaced apart and opposed, downwardly diverging walls **10** and **11**. Each wall could lie in a single plane, but preferably each wall has an upper portion **12** and a lower portion **13**, both arranged at a relatively steep slope, joined by an intermediate portion **14** having a shallower slope. As a result of this somewhat stepped shape of walls **10** and **11**, the lower one-quarter to one-third of the form unit defines a footing-producing portion, and the remainder of the form unit defines a foundation-wall-producing portion.

Walls **10** and **11** are joined on top by two curved handle members **17**. The central region of each handle member is spaced above the plane containing the upper edges of the walls, the space being identified by the reference numeral **18** in FIG. 2. The ends of each handle member are connected to the upper edges of the walls, and in the present example merge into

strengthening ribs **19** projecting from the outer face of each wall and extending between its upper and lower edges. The inner face of each wall is formed with a depression **20**, in registry with each rib **19** on its outer face, for accommodating a rib of another similar unit when the two are nested.

In the drawings, walls **10** and **11**, ribs **19**, and handle members **17** are shown integrally formed of a tough molded plastic. However, other means of fabrication may be used. For example each of the members mentioned above may be made separately and joined by suitable fastening means, or each wall and its ribs may be molded of plastic, and the walls joined by handle members made separately.

Walls **10** and **11** are temporarily joined at the bottom by connectors **23**. Each connector **23** has U-shaped ends **24**, each adapted to accommodate and frictionally grip a bottom margin of one of the walls. The ends **24** are joined by a horizontal central portion **25**, the latter being spaced above the lower edges of walls **10** and **11** when connector **23** is assembled with the form unit, as shown in FIG. 2. Each connector may be formed from a bent metal rod, as shown in the drawings, or it may be formed otherwise, as of molded plastic.

To use form units according to this invention, one or more connectors **23** are pushed on to the bottom edges of each unit, as shown in FIGS. 1 and 2 and a plurality of such units are arranged end-to-end in the excavation **26** where a foundation is needed. Since the end edges of each form unit are unconnected and hence the units are open ended, the end-to-end units establish effectively a single form. The forms are placed end-to-end until their total length equals the length of the foundation to be cast. Then, steel reinforcing rods **27** are laid on the central portions **25** of connectors **23**, the rods extending along the length of the form. Thus, each connector **23** serves two purposes, namely, to support the reinforcement rods **27** above the floor of the excavation **26**, so that the rods **27** will be completely surrounded by concrete, and to keep the walls **10** and **11** from being spread apart by the pressure of concrete poured into the form. Concrete is poured into the entire length of the end to-end form units, up to the height of the upper edges of walls **10** and **11**, to produce a combined steel-reinforced footing **30** and foundation wall **31**. Due to the downward divergence of walls **10** and **11**, it is a simple matter to lift each form unit upwardly off the foundation after the concrete hardens. One way of accomplishing this is to slip a pipe or wood beam through the spaces **18** beneath handles **17**, and have two workmen, one at each end of the pipe or beam, lift the latter and the form unit with it. Since connectors **23** are joined to the form unit only by friction, relative vertical movement between the connectors and unit brings about their separation and leaves the connectors embedded in the footing **30**. Therefore, as soon as new connectors **23** are assembled with each form unit, the form unit is ready for reuse. If the form units are not to be reused immediately, they are not furnished with connectors **23**, but instead may be compactly nested one on top of another for transportation and storage.

The form unit can be made in any suitable size, but a length and height each 4 feet is believed preferable. Corners of the foundation may be made by construct-

ing wooden forms, according to conventional practice, or a special corner form unit (not shown) may be provided. In addition, when the length of a foundation wall is not a whole number multiple of the length of each form, a special form similar to the one illustrated may be provided to telescope over the last form in the line. The walls of the special form are spaced apart a distance equal to the spacing between walls **10** and **11** plus the thickness of both these walls, so that the special form can be fitted over the outer surfaces of the form unit shown and adjusted longitudinally to make the total length of the aligned forms any desired dimension. Alternatively, conventional wooden forms can be used, if necessary, to complete the length of a form after as many form units according to this invention as possible have been aligned in the excavation.

It may also be mentioned that where a foundation is built on a sloped surface, it is conventional practice to give the foundation a longitudinally stepped configuration so that it generally follows the contour of the site. In such a case, certain of the form units of this invention will be positioned in a longitudinally stepped arrangement with respect to adjacent units, and the portion of each unit extending above an adjacent unit will have its end closed, either by wood as is conventional, or by a special insert, (not shown) adapted to fit over the end edges of the form unit.

The invention has been shown and described in preferred form only, and by way of example, and many variations may be made in the invention which will still be comprised within its spirit. It is understood, therefore, that the invention is not limited to any specific form or embodiment except insofar as such limitations are included in the appended claims.

What is claimed is:

1. A form unit for casting a concrete building foundation in situ comprising

two spaced apart and opposed downwardly diverging walls, each of said walls being provided with at least one strengthening rib extending in a direction from its upper edge to its lower edge, said strengthening rib being on the outer surface of each wall, and a depression in the inner surface of each wall adapted to accommodate a rib of another form unit when the units are nested,

means interconnecting said walls at their upper edges, and

means interconnecting said walls at their lower edges,

the end edges of said walls being unconnected to each other so that the form unit is open ended,

whereby a plurality of said form units may be arranged end-to-end to produce a form for casting a foundation wall of any desired length.

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