Jan. 6, 1953 P. N. SITTON 2,624,096

ADJUSTABLE WALE CONSTRUCTION FOR SEPTIC TANK FORMS

Filed Jan. 19, 1951 2 SHEETS—SHEET 1

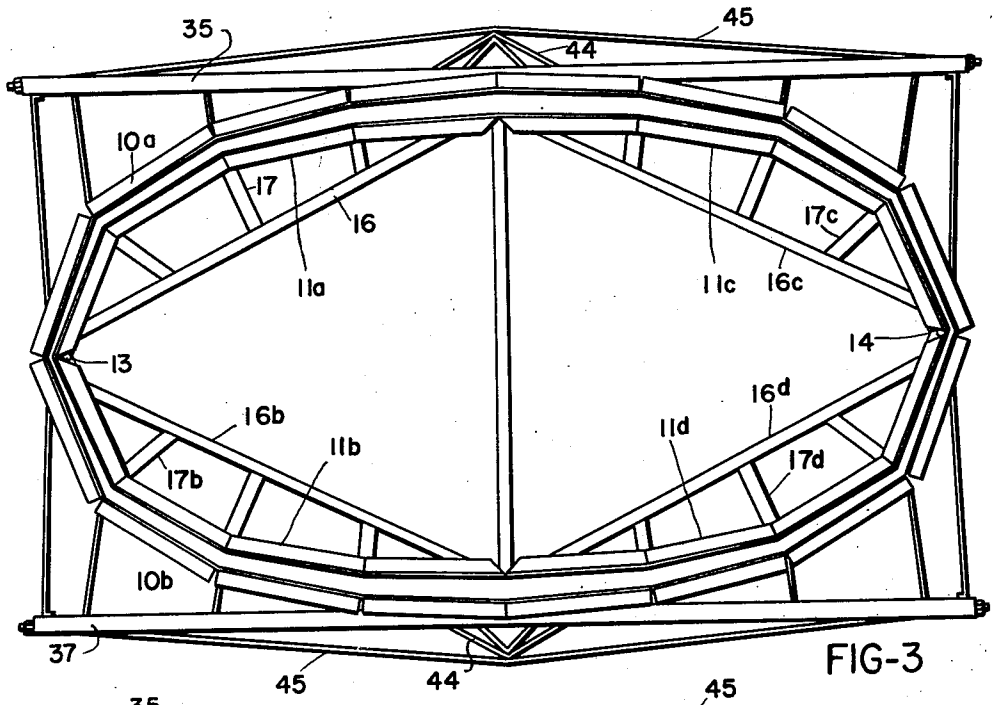

FIG-3

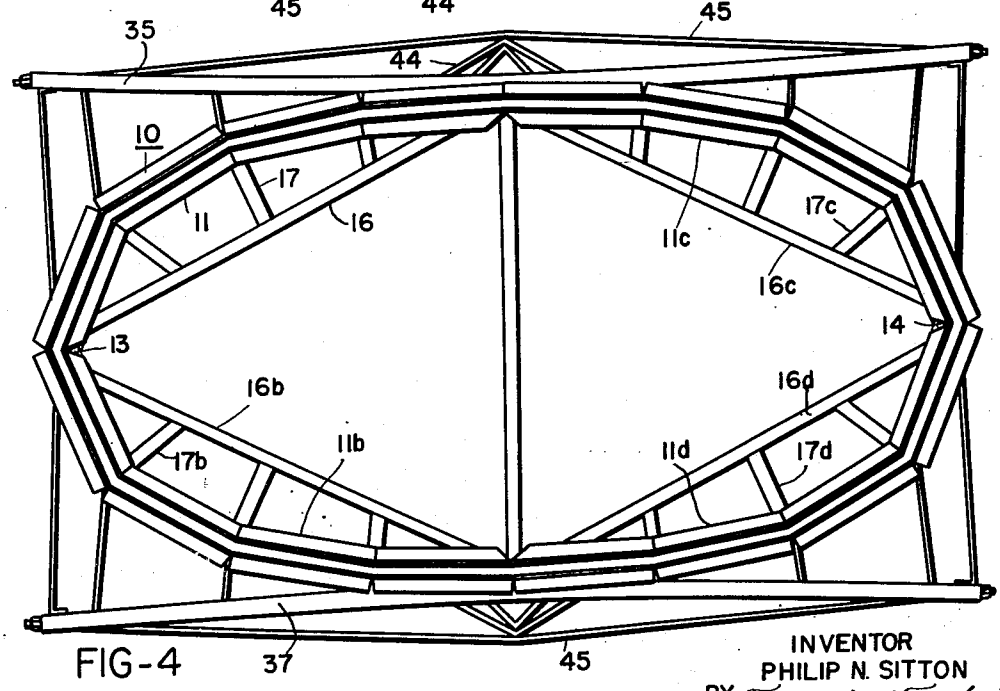

FIG-4

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ADJUSTABLE WALE CONSTRUCTION FOR SEPTIC TANK FORMS

Filed Jan. 19, 1951 2 SHEETS—SHEET 2

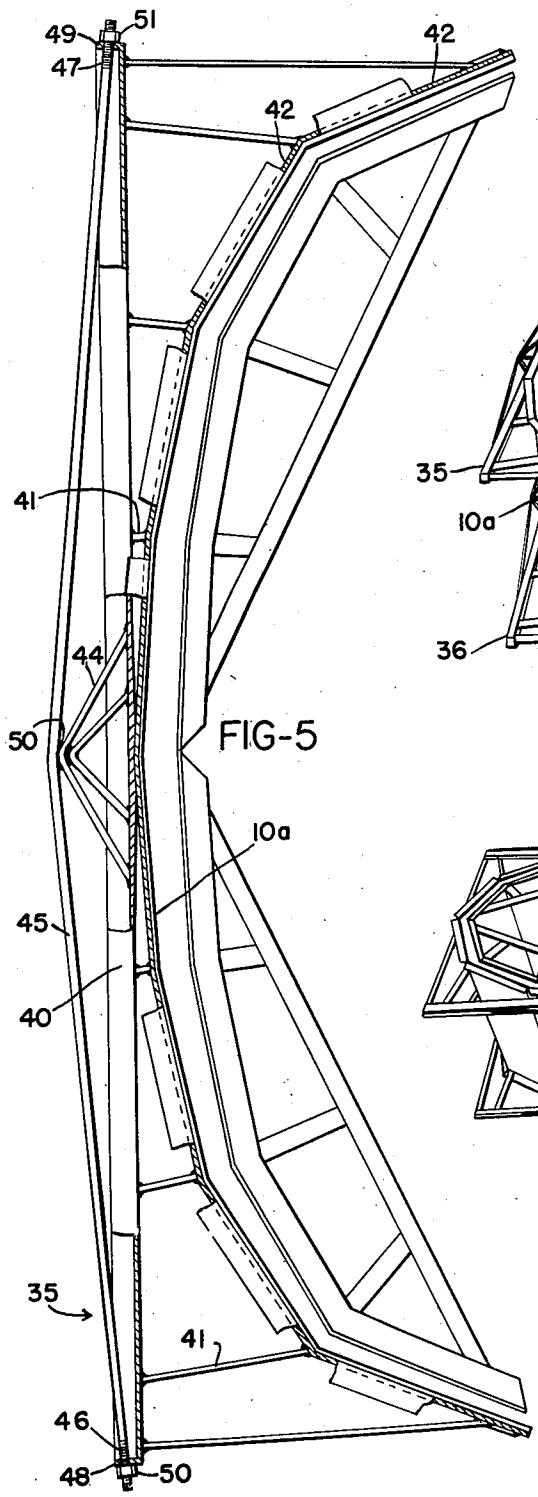

FIG-5

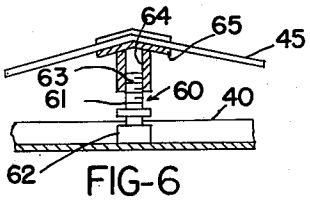

FIG-6

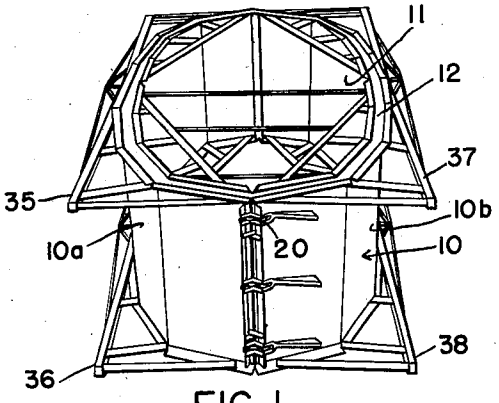

FIG-1

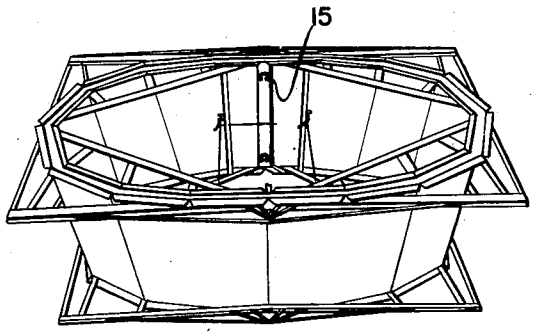

FIG-2

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UNITED STATES PATENT OFFICE

2,624,096

ADJUSTABLE WALE CONSTRUCTION FOR SEPTIC TANK FORMS

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Application January 19, 1951, Serial No. 206,839

3 Claims. (Cl. 25—130)

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This invention relates to forms that are particularly adapted for use in the manufacture of articles requiring walls of uniform thickness, and is especially adapted for the manufacture of concrete articles such as septic tanks.

In the manufacture of concrete articles, particularly those that are provided with a hollow interior, it is essential that an inner and an outer form wall be provided in spaced relationship so that a concrete wall can be poured therebetween. It is desirable that the poured concrete wall be of uniform thickness in many articles. Thus, relatively accurate spacing between the inner and outer wall sections of the form is required. In articles wherein the wall thickness is retained uniform, the articles are less subject to breakage, and the article as a whole is much stronger than if the wall thickness is permitted to vary from place to place in the article.

The wall of a concrete septic tank is subjected to substantial ground pressure when the tank is installed under ground. Thus, it is essential that the wall thickness be uniform to permit the usage of a minimum quantity of concrete in the septic tank to hold the weight of the tank as low as possible and thereby provide for easy portability of the tank and installation in the ground.

While the invention will be particularly disclosed and described with reference to its use in the manufacture of a concrete septic tank having a substantially elliptical cross sectional shape, yet it will be understood that the invention can be used in the manufacture of other articles whether they are made of concrete or other materials that can be used in casting. It will also be understood that, while the invention is particularly applied in the manufacture of concrete septic tanks to maintain a uniform wall thickness in the septic tank, the invention can be used to obtain a determined variation in a wall thickness should such be desirable.

It is, therefore, an object of this invention to provide a form wall that can be flexed for adjustment of the form wall relative to another form wall, but which remains rigid after adjustment as a result of the flexing of the wall.

It is another object of the invention to provide a form wall that is held in rigid position by a truss beam, but which truss beam can be flexed to provide for adjustment to the shape of the form wall section.

It is still another object of the invention to provide a form wall that is rigidly secured in a fixed position by a truss composed of a truss beam and a truss rod wherein the truss beam can be

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flexed by adjustment of the truss rod relative to the truss beam and, thereby adjust the shape of the form wall secured to the truss.

It is still another object of the invention to provide a form in which a pair of trusses extend along opposite sides of the form and are attached to the form to retain the form wall in a fixed position, but wherein the trusses can be flexed relative to the form wall to adjust the shape of the form wall thereby.

Further objects and advantages will become apparent from the drawings and the following description:

Figure 1 is a perspective view of a form incorporating features of this invention, the form being adapted for the manufacture of concrete septic tanks.

Figure 2 is a side perspective view of the form illustrated in Figure 1.

Figure 3 is a plan view of the form of Figure 1 illustrating the out of adjusted relationship between the inner and outer walls of the form occasioned during initial positioning of the form walls relative to one another.

Figure 4 is a plan view like Figure 3, but illustrating the outer and inner walls of the form in adjusted relationship to obtain uniformity of spacing therebetween around the periphery of the form.

Figure 5 is an enlarged plan view showing a portion of the form of Figure 3 to more clearly illustrate the structure of the form wall and its support and adjusting means.

Figure 6 is a cross sectional view of a modified arrangement of a bridge for causing a change in length between a truss beam and a truss rod connected therewith.

The form of this invention, as illustrated in the drawings, is adapted for the manufacture of concrete septic tanks wherein the transverse cross section of the tank is substantially in the form of an ellipse. The form consists of an outer substantially elliptical wall 10 and an inner substantially elliptical wall 11 that is spaced from the outer wall 10 whereby to provide a space 12 between the walls 10 and 11 to receive a fluid concrete for the casting of the form.

The inner wall 11 is preferably composed of four wall sections 11*a*, 11*b*, 11*c* and 11*d*. The inner wall sections 11*a* and 11*b* are connected together at one end by a hinge connection 13. Similarly, the wall sections 11*c* and 11*d* are connected together by a hinge connection 14. The wall sections 11*b* and 11*d* are connected by means of U-bolt fastening devices 15, and

the wall sections 11a and 11c are similarly connected.

It will thus be seen that the inner wall sections 11a, 11b, 11c and 11d can be disengaged by removal of the U-bolt fastening devices and then moved about their hinge connections 13 and 14 to collapse the inner wall sections for removal of them from the interior of a casting form.

Suitable brace bars 16 and 17 are provided to hold the wall section 11a rigidly. Corresponding bars 16b, 17b, 16c, 17c, 16d and 17d are provided to reinforce the wall sections 11b, 11c and 11d.

The outer form wall 10 is composed of two wall sections 10a and 10b, each forming one-half the outer wall 10. The outer wall sections 10a and 10b are connected at their end extremities by suitable fastening devices 20.

When the inner form wall sections are assembled within the outer form wall sections, as illustrated in Figure 3, the form walls are not usually uniformly spaced relative to each other. The non-uniform spacing between the form walls may be a result of manufacturing inaccuracies, or a result of a straining of the form walls and their component parts during use of the form. However, from time to time, it becomes necessary to adjust the spaced relationship between the outer form wall and the inner form wall to obtain a uniform spacing therebetween.

The outer form wall 10a is provided with the trusses 35 and 36 that extend in the direction of the length of the form wall. The truss 35 is positioned adjacent the top edge of the form wall 10a, while the truss 36 is positioned adjacent the bottom edge of the form wall 10a. Similarly, the form wall 10b is provided with trusses 37 and 38 along the top and bottom edges thereof respectively.

The trusses 35, 36, 37 and 38 are all constructed alike, and are all attached to the respective form walls or form sections 10a and 10b in like manner so that a description of only one of the trusses and its connection with the respective form wall will be given.

In Figure 5 the truss 35 is illustrated as being secured to the form wall 10a. The truss 35 consists of a truss beam 40 that extends in the direction of the length of the form wall or section 10a adjacent the top edge of the same. The truss beam 40 is attached to the form wall 10a by means of a plurality of supports 41 that are spaced longitudinally along the truss beam 40 and extend between the truss beam and the wall 10a. The form wall 10a is shaped in the form of one-half of an ellipse, and specifically is arranged in the form of a plurality of chordal sections 42. Each of the supports 41 connect between the truss beam 40 and the wall 10a at the juncture between adjacent chordal sections 42, thus providing a plurality of supports between the form wall and the truss beam to rigidly position the form wall 10a relative to the truss beam 40. The truss beam 40 consists of a channel-shaped member including a back portion and in the forward face of the back portion, longitudinally of the ends, there is provided a bridge 44.

A truss bar 45 has one end thereof connected with the truss beam 40 at one end of the beam and the opposite end thereof connected with the beam 40 at the opposite end of the beam, the truss bar 45 passing over the bridge 44. The ends of the truss bar 45 are provided with

thread portions 46 and 47 that extend through the end walls 48 and 49 of the truss beam 40. Draw nuts 50 and 51 are provided on the threaded ends 46 and 47 respectively, whereby the effective length of the truss bar 45 can be changed by drawing the nuts upon the truss bar or threading them outwardly thereon.

The structural arrangement of the truss 35 and the form wall 10a is such that the length of the beam 40 of a truss 35 relative to its cross section, as shown in Figure 5, makes it so that a shortening of the length of the truss bar 45 relative to the truss beam 40 upon tightening the nuts 50 and 51 against the ends 48 and 49 of the beam 40 will cause the truss beam 40 to flex in much the same manner as a bow, the truss bar 45 acting as the bowstring, as illustrated in Figure 4.

In Figure 3 the inner form wall and the outer form wall is illustrated in a position in which the outer form wall is out of adjustment relative to the inner form wall, whereas in Figure 4 the outer form wall 10 has been adjusted relative to the inner form wall 11 by shortening the truss bars 45 to cause the center portions of the outer form walls to move inwardly toward the inner wall 11 and simultaneously cause the ends of the outer form wall to move outwardly relative to the inner form wall thus, re-arranging the outer form wall relative to the inner form wall to provide uniform spacing between the walls around their entire periphery.

The truss bar 45 may be secured permanently to the bridge 44, as indicated by the weld 50 so that the draw nuts 50 and 51 at opposite ends of the truss bar 45 can provide individual adjustment of each quadrant of the outer form wall.

In Figure 6 there is illustrated a modified structure by which the truss rod 45 can be changed in length relative to the truss beam 40. In Figure 5 the change in length of the truss rod is occasioned by rotation of the draw nuts 50 and 51, whereas in Figure 6 the change in length between the truss rod 45 and the beam 40 is occasioned by movement of an adjustable bridge 60.

The adjustable bridge 60 consists of a screw 61 having one end thereof seated in a socket 62 secured to the beam 40 to allow rotation of the screw 61 in the socket 62. The opposite end of the screw 61 has the threaded portion 63 threadedly engaging a threaded socket 64 of a support member 65 over which the truss rod 45 extends.

It will be apparent that rotation of the screw 61 relative to the support member 65 to elongate the length thereof will result in a flexing of the beam 40 in much the same manner as an actual shortening of the truss rod 45 by rotation of the drawing nuts 50 and 51, illustrated in Figure 5.

While the apparatus disclosed and described herein constitutes a preformed form of the invention, yet alteration can be made without departing from the spirit of the invention and all modifications that fall within the scope of the appended claims are intended to be included herein.

What I claim is:

1. A form wall for molds comprising, a wall section which is adapted to be flexed for adjustment of the same relative to a cooperating form wall to vary the space therebetween, a beam including a back portion arranged adjacent said wall section, a plurality of support members secured to said wall section and attached to said beam, said support members being spaced along

said beam, a truss rod extending longitudinally of said beam and engageable therewith at spaced points, a bridge on said beam contacting the back portion of said beam and adapted to be placed under stress by a change in the effective length of said truss rod, said beam being dimensioned relative to its length and cross section so as to be flexed upon a change in the effective relative length of said rod, a movable member engageable with said truss rod and said beam for changing the effective relative length of said rod, said change in effective length of said rod being transmitted to said beam whereby said beam is caused to be flexed to change the spacing between said wall section and said cooperating form wall.

2. A form wall for molds comprising, a wall section which is adapted to be flexed for adjustment of the same relative to another form wall, a beam including a back portion adjacent said wall section, a plurality of support members secured between said wall section and said beam and spaced along said beam, a truss rod extending longitudinally of said beam and engageable therewith at spaced points, said beam being dimensioned relative to its length and cross section so as to be flexed upon a change in the effective relative length of said rod, a bridge on said beam contacting a forward face of said back portion adapted to be pressured by a change in the effective length of said truss rod relative to said beam, and an adjustable member on said rod and coacting with said beam causing a change in the effective relative lengths thereof upon adjustment of said member to flex said beam and thereby flex said wall section attached and change the spacing between said wall section and said other form wall.

3. A form wall for molds comprising, a wall section which is adapted to be flexed for adjustment of the same relative to another form wall, a truss beam including a back portion adjacent said wall section, a plurality of support members secured between said wall section and said truss beam spaced along said beam, a bridge on said truss beam positioned substantially midway between opposite ends thereof and contacting a forward face of said back portion adapted to be pressured, a truss rod extending between opposite ends of said beam and engageable with said bridge to support said rod in a position spaced from said beam, said beam being dimensioned relative to its length and cross section so as to be flexed upon being pressured by a change in the effective relative length of said rod, and adjusting means on at least one end of said rod to change the effective length thereof relative to said beam whereby to flex said beam and thereby flex said wall attached thereto.

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