June 30, 1936. J. T. McDOWELL 2,045,789

ELEVATING FORM FOR CASTING HOLLOW CONCRETE WALLS

Filed June 28, 1935

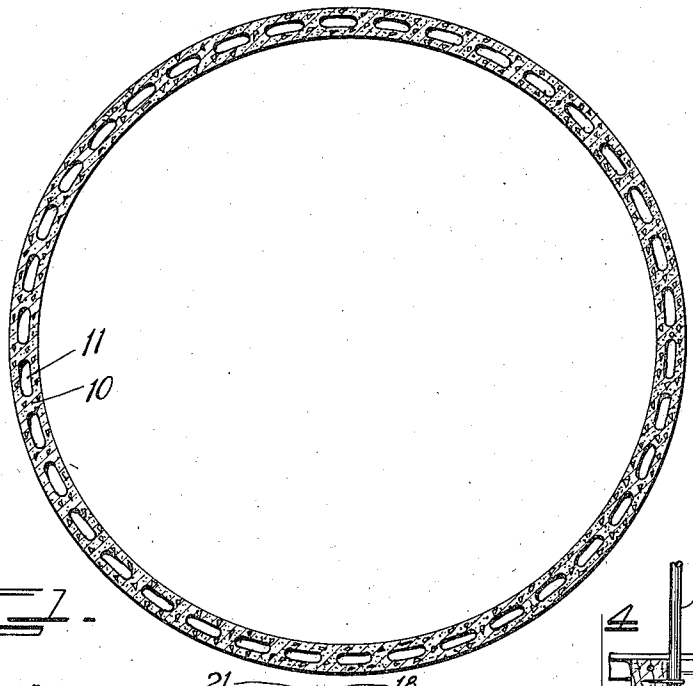


Fig. 1.

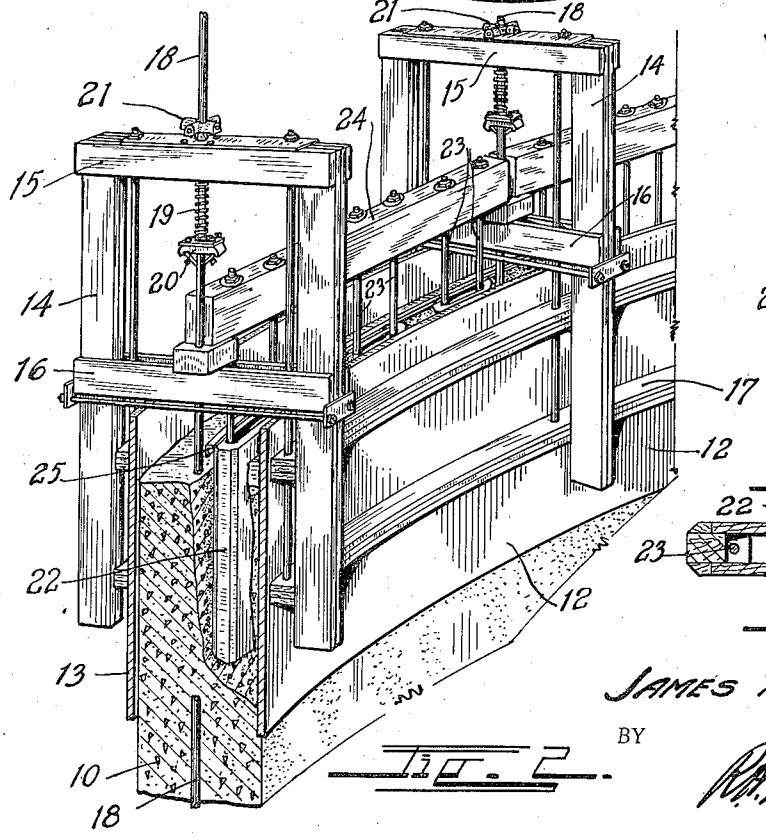


Fig. 2.

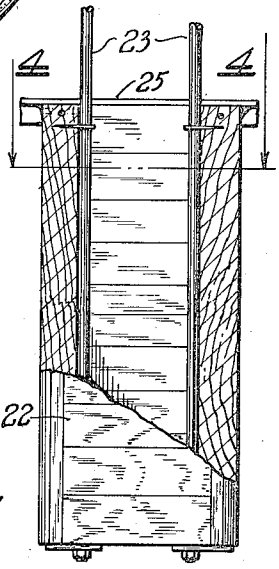


Fig. 3.

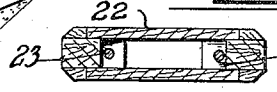


Fig. 4.

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ELEVATING FORM FOR CASTING HOLLOW CONCRETE WALLS

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Application June 28, 1935, Serial No. 28,831

3 Claims. (Cl. 25—131)

It is desirable under certain conditions to form the walls of cylindrical concrete storage bins with vertical air passages throughout the wall area. Such a construction is shown in copending application, Serial No. 726,662.

This invention relates to a concrete form construction by means of which the vertical passages in the wall can be continuously formed as the wall increases in heighth.

Another object of the invention is to combine with a vertically traveling mold for casting a concrete wall means for forming vertical passages within the wall so that no additional labor will be involved to cast a wall with passages than one without such passages.

Other objects and advantages, reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:—

Fig. 1 is a horizontal section through a typical circular bin having vertical air passages of the type which this invention is designed to form.

Fig. 2 is a perspective view of a portion of the cylindrical bin wall illustrating the improved concrete form in place thereon.

Fig. 3 is a side elevation of the core form employed in this invention, partially broken away to show the interior construction.

Fig. 4 is a horizontal cross section through the core form of Fig. 3, taken on the line 4—4, Fig. 3.

In the drawing a typical circular concrete bin wall is indicated at 10 provided with a series of vertical, spaced-apart air passages 11. The present invention is designed to cast the complete wall 10, with its air passages 11, and to ascend with the rising wall so as to form an ascending form therefor to the top of the structure.

The improved form comprises an inner form plate 12 and an outer form plate 13. The plates 12 and 13 are circular, the inner plate forming the inner diameter of the desired structure and the outer plate 13 forming the outside diameter of the finished structure. The two plates are maintained concentric with each other by means of H-frames having vertical side members 14 tied together by upper and lower cross members 15 and 16, respectively. The legs of the H-frames 14 extend downwardly over the form plates 12 and 13, and maintain the latter in rigid spaced relation. Curved beams 17 extend entirely around the form to stiffen the plates 12 and 13.

The H-frames are spaced apart at suitable intervals around the form, and are supported upon jack rods 18 which are cast into the concrete and extend upwardly therefrom. A tubular jack shaft 19 surrounds each of the jack rods, and is held from downward movement thereon by means of a ratchet clamp 20. The jack shaft is rotated through the medium of a head 21 so that it will thread itself through a nut positioned between the upper cross members 15. The cross members 15 of the frames are carried upon the tubular threaded shafts 19 so that rotation of the latter will lift the frames on the rods 18.

Thus, after the section of wall between the forms 12 and 13 has been poured and set, the jack shafts 19 are rotated to lift the two forms 12 and 13 upwardly to a position to receive the next pouring of concrete.

The hollow air passages 11 are cast by means of core forms 22 which are suspended from rods 23 intermediate the form plates 12 and 13. The rods 23 pass through and are suspended from beams 24 extending between the cross members 16 of adjacent frames. A circular angle bar 25 extends entirely around the structure between the forms 12 and 13 and is secured to each of the core forms 25, so as to maintain them in their proper spaced relation between the form plates 12 and 13. The core forms 22 may have any desired construction. It is preferred to form them of wood, as illustrated in Figs. 3 and 4, with hollow interiors and with each form suspended from a pair of the rods 23. The length of the core form is substantially equal to the width of the form plates 12 and 13.

It can be readily seen that as the frames move upwardly, they will also lift the core forms 22 so that the latter will travel simultaneously with the movement of the entire form.

With this construction, a hollow wall having vertical air passages may be cast just as readily and just as rapidly as a solid wall since the core forms interfere in no way with the usual wall pouring procedure.

While the invention has been described as particularly applicable to casting a circular wall such as used in storage elevator bins and the like, it is of course not limited to this particular use, but can also be used for casting a straight, hollow wall.

While a specific form of the improvement has been described and illustrated herein, it is de-

sired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:—

1. An elevating form for continuously casting a hollow concrete wall comprising: a pair of H-frames, the legs of which extend downwardly over each face of said wall, an inner form plate extending between the legs on the inner face of the wall; an outer form plate extending between the legs on the outer face of the wall; a cross beam extending between said H-frames over said wall; a series of pairs of vertical rods extending downwardly from said cross beams; and a core form surrounding each pair of rods between said face plates.

2. An elevating form for continuously casting a hollow concrete wall comprising: a pair of H-frames the legs of which extend downwardly over each face of said wall, an inner form plate extending between the legs on the inner face of the wall; an outer form plate extending between the legs on the outer face of the wall; a cross beam extending between said H-frames over said wall; core forms suspended from said cross beam between said face plates; means for elevating said H-frames; and a tie member secured to and extending between the upper extremities of all of said core forms.

3. In an elevating form for casting concrete walls, said form consisting of H-frames connected by inner and outer wall form plates, means for supporting core forms therein comprising: a horizontal beam extending between said H-frames; a series of spaced-apart core forms; a pair of vertical parallel suspension bolts extending upward from each of said core forms through said beam; and a longitudinally extending tie member secured to each of said core forms and extending along their upper extremities below said beam, said bolts being sufficiently long to suspend said core forms a substantial distance below said beam so as not to interfere with the pouring of said forms.

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