Feb. 22, 1944. J. M. CROM 2,342,181

REINFORCED CONCRETE CONSTRUCTION

Filed March 6, 1942

Fig. 1.

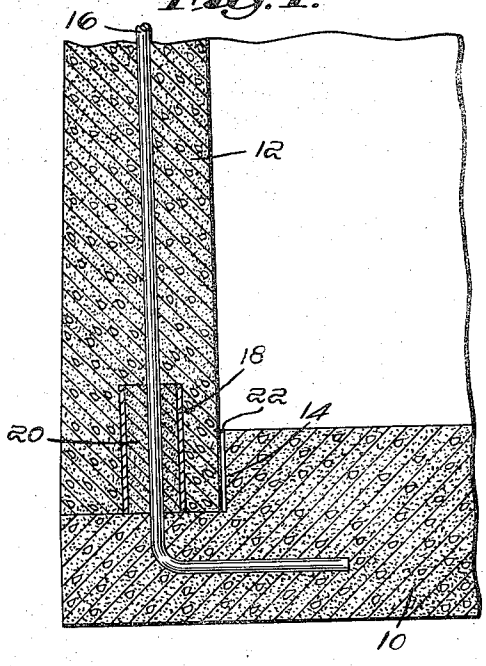


Fig. 2.

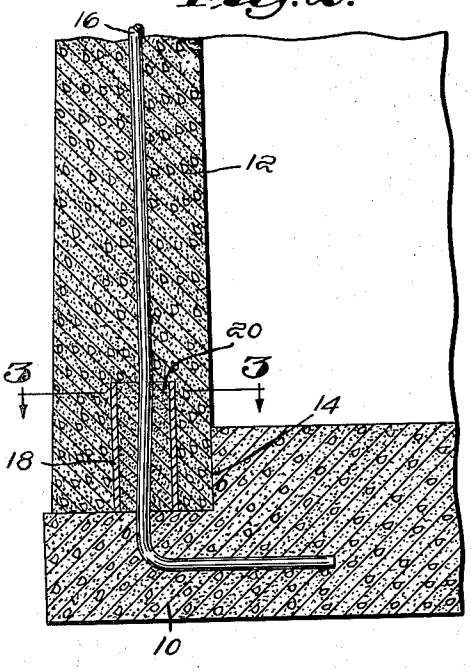
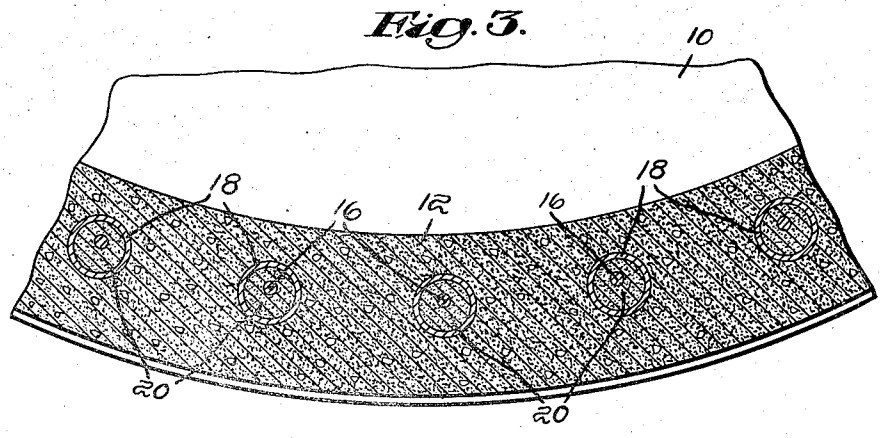


Fig. 3.



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REINFORCED CONCRETE CONSTRUCTION

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Application March 6, 1942, Serial No. 433,605

2 Claims. (Cl. 72—13)

This invention more especially concerns cylindrical concrete tanks each embodying a vertical wall resting on a horizontal base and wherein it is essential that the wall shall be bound by reinforcement to the base and shall remain in tightly sealed contact therewith. Considerable difficulty has heretofore been experienced in securing a leak tight joint at the junction of the wall with the base. In such construction the base is ordinarily provided with reinforcement extending upwardly therefrom and the wall is formed on and bonded to the reinforcement. Shrinkage of the wall upon setting disrupts the reinforcement, cracks the surrounding concrete especially at the junction of the wall with the base, and results in leakage through the junction. My invention herein embodies a method of tank construction which eliminates this objection and at the same time provides a fully reinforced joint in which the shrinkage of the wall serves directly and through the reinforcement to draw the wall into tight sealing contact with the base whereby rendering the joint leak proof.

My invention consists in so constructing the wall on the base that the concrete of the wall is held in spaced relation from the reinforcement and prevented from bonding thereto up to a predetermined point beyond the base, the wall being bonded to the reinforcement upwardly beyond such point. When the concrete of the wall sets and shrinkage takes place the unbonded portion of the reinforcement not only permits such limited movement of the wall on the base but such movement acting through the reinforcement furthermore serves to draw the wall into tight sealing contact with the base. The production of an improved tank of this nature comprises the object of the invention.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof selected for purposes of illustration and shown in the accompanying drawing, in which—

Fig. 1 is a fragmentary sectional view through a concrete tank construction embodying my invention,

Fig. 2 is a like view after the concrete has set and shrinkage has taken place,

Fig. 3 is a horizontal sectional view taken on line 3—3 of Fig. 2.

In the drawing, 10 indicates the horizontal base and 12 the vertical annular wall of a concrete tank. The base is first formed as an independent unit and is provided with an outer annular recess 14 for receiving and supporting the annular wall. Suitable reinforcement 16 is anchored within the base and projects upwardly therefrom within the recess in position to receive the wall in bonding engagement. The reinforcement illustrated comprises an annular row of suitably spaced steel rods 16 anchored within the base and extending upwardly therefrom. Heretofore, where reinforcement has been used, the wall has been formed directly over and in bonding engagement with the entire exposed portion of the reinforcement and the wall shrinkage which takes place when the concrete sets has resulted in shearing or upsetting the reinforcement at the junction of the wall and base, cracking of the concrete and causing substantial leakage between the two members. Attempts have been made to remedy the condition by tamping packing material into the joint but the results have been quite unsatisfactory. My invention contemplates a construction which not only eliminates these objections but in which shrinkage of the wall brings and maintains the two members into tight sealing contact at both vertical and horizontal surfaces of the joint.

In accordance with my invention, the concrete of the wall is held in spaced relation and kept from bonding to the reinforcement adjacent to and for a predetermined distance above the base, whereby permitting shrinkage movement of the wall radially inward upon setting of the concrete. In the construction illustrated I place a spacer, in the form of a pipe 18, about each rod 16 adjacent to and extending a predetermined distance above the base 10 and I preferably fill the spacer with a suitable filler 20, such as asphalt. The filler holds the spacer properly spaced from the reinforcement and prevents rusting of the reinforcement in the final product.

The concrete is poured about the spacer and reinforcement to form the wall, as illustrated in Fig. 1, the inner vertical face of the wall being somewhat spaced from the base at 22 to permit inward shrinkage of the wall upon setting of the concrete. It will be apparent that the reinforcement ties the wall securely into contact with the base and when, upon shrinkage, the wall moves to the position of Fig. 2, the portion of reinforcement within the spacer is merely shifted to a slight angle as illustrated. This shifting movement not only takes place freely without injury to the reinforcement or joint but furthermore causes the rods to draw and hold the wall into tight sealing contact with the base. It will be understood that the gap 22 is just of sufficient width to allow for the shrinkage and secure a tight contact also on the vertical joint when final

shrinkage has taken place. Thus a liquid tight seal is automatically effected and maintained at the joint between the wall and base. The construction and advantages of the invention are believed to be clearly apparent without further description.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

1. A method of constructing a concrete tank, which consists in forming a concrete base with an annular recess disposed about its periphery beneath its top surface and having an upwardly facing substantially horizontal surface and an outwardly facing annular shoulder at its inner extremity, bonding an annular row of reinforcing rods in the base and extending upwardly from said horizontal surface, forming a cylindrical concrete wall in and extending upwardly from the recess in predetermined spaced relation from said shoulder and bonded to the rods extending upwardly from the recess, and leaving a portion of said rods adjacent to the junction of the wall with the base free from bonding engagement with the concrete whereby permitting shrinkage movement of the wall into tight contact with the shoulder and causing the rods to draw the wall into tight contact with said horizontal surface upon said movement.

2. A tank comprising a concrete base having an annular outwardly facing surface therearound adjacent to its periphery and a substantially horizontal annular surface disposed outwardly of and adjacent to the first named surface, an annular concrete side wall resting on the horizontal surface and in shrunk-tight contact with both of said surfaces, and an annular row of reinforcing rods spaced outwardly from the first named surface and free from bonded engagement with the concrete adjacent to the junction of the wall with the base but bonded to the wall and base therebeyond, said shrunk-tight contact between the wall and base being effected upon shrinking movement of the wall radially inward upon setting of the wall concrete and wherein the reinforcing rods draw the wall into tight contact with the horizontal surface.

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