F. A. KOETITZ.

FORM AND REINFORCEMENT FOR CONCRETE CASINGS.

APPLICATION FILED DEC. 21, 1911.

1,042,802.

Patented Oct. 29, 1912.

Fig. 1.

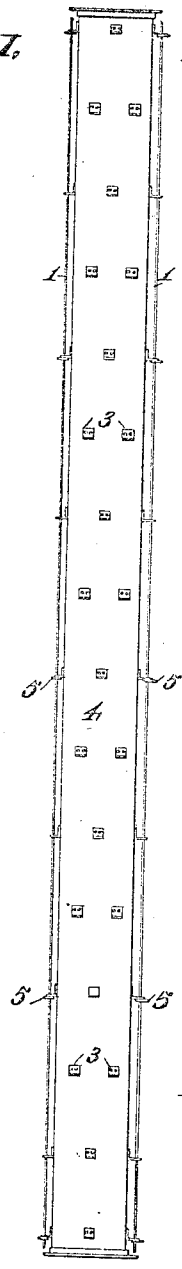


Fig. 2.

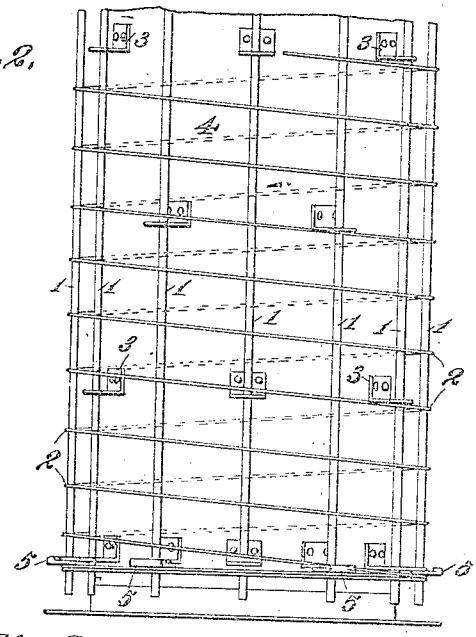


Fig. 3.

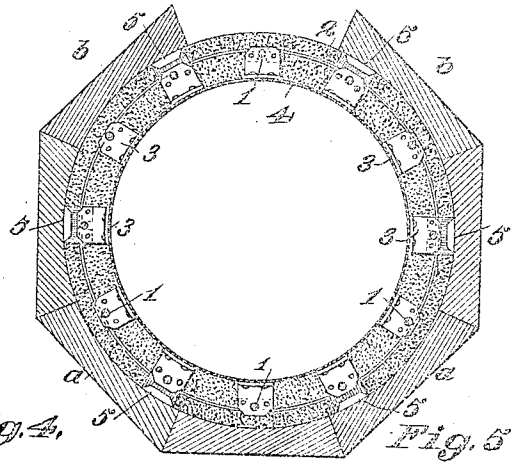


Fig. 4.

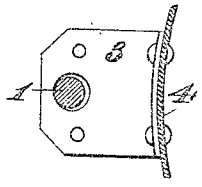
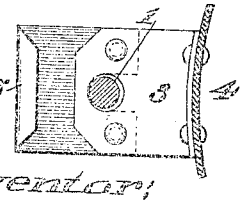


Fig. 5.



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FORM AND REINFORCEMENT FOR CONCRETE CASINGS.

1,042,802. Specification of Letters Patent. Patented Oct. 29, 1912.

Application filed December 21, 1911. Serial No. 667,096.

To all whom it may concern:

Be it known that I, FREDERICK A. KOETITZ, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Forms and Reinforcements for Concrete Casings, of which the following is a specification.

My invention relates to improvements in reinforcement for concrete casings.

It consists in the combination and arrangement whereby the reinforcement is applied and fixed to the inner form so as to be embedded within the concrete, and to build up this reinforcement without the use of temporary forms from which it must afterward be removed and placed in its permanent position.

Referring to the accompanying drawings for a more complete explanation of my invention—Figure 1 is a longitudinal view. Fig. 2 is an enlarged side view of a portion showing the spiral reinforcement. Fig. 3 is a transverse section showing the lugs and the relative position of the parts. Figs. 4 and 5 are views showing the sheet metal lining and the lugs or spacers.

In the construction of reinforced concrete casings, especially when made of great length, it is difficult and expensive to make and handle the reinforcement separately, to place it over the inner form, or to project the inner form into the reinforcement. It is also difficult to so space the reinforcement as to maintain it at a definite uniform distance from the inner form, and to hold the combined reinforcement and inner form concentrically in the proper position with relation to the outer form, so as to assure a uniform thickness for the concrete walls of the casing.

In my invention I combine the reinforcement in a fixed manner with the inner form, constructing it permanently around said form, and thus avoiding the use of a temporary form around which such reinforcements are usually constructed, and from which they must be removed and transferred to their final position. This fixed combination, forms practically a trussed structure, and simplifies and greatly strengthens both the reinforcement and the inner form. One helps to strengthen the other during the process of handling them and placing of the concrete.

As shown in the drawing, *a* is the lower portion of the outer form, and *b* the upper portion. These are conveniently placed in a horizontal position, so that with long objects, such as piles, the reinforcements may be properly placed and the concrete afterward filled in between the inner and the outer form. The lower portion *a* of the outer form, has sufficient opening at the top to allow the parts of the reinforcement to be introduced, and the upper portion *b* is fitted over the lower portion after the reinforcement has been applied, and by means of openings or channels in the top, the concrete may be applied.

4 is the inner sheet metal lining, which is riveted to lugs, as at 3. These lugs may be of strap form secured to the lining and formed with spaced tongues 3′, which extend into the interior of the form and toward the outer shell.

1 represents the reinforced rods which pass through the tongues extending substantially midway between the inner sheet metal lining or shell 4, and the outer casing *a*—*b*.

5 are the outer extensions or spacers, which are riveted to the lugs 3 near the bottom. In applying these, the inner casing with the lugs and extensions fixed to the lower portion are let down into the outer casing *a* until these extensions rest upon the bottom, thus maintaining the reinforcing rods in a substantially intermediate position between the inner shell and the outer casing, the spiral reinforcement 2 being wound around these rods extending from end to end. Side clips and lugs 5 will hold these parts in the relative position. The lugs and extensions surrounding the upper portion of the metal lining or shell serve when the upper part *b* of the casing is in place to equally space the rods and reinforcement at this part of the mold, thus preventing the inner casing and reinforcement from rising toward the top, as it would be liable to do otherwise, and thus vary the thickness of the concrete filling. These parts may be thus placed for any desired end, and are ready for the permanent structure. The concrete is then filled in through the openings in the upper portion or cap *b* of the outer form, and the reinforcement and spiral winding being firmly held in position, will be embedded in this concrete, and it will be thus evenly distributed around these reinforcements, and when the concrete is set will form a perma-

nent structure in which the parts are symmetrically disposed and without distortion.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

A reinforcement for concrete casings consisting of an inner shell, perforated tongues fixed thereto and extending inwardly toward the outer casing, rods extending through said tongues, and extensions secured to the inner tongues and forming spacers in contact with the outer shell.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK A. KOETITZ.

Witnesses:
CHARLES EDELMAN,
C. C. COOK.