C. MERIWETHER.

REINFORCED CONCRETE CAISSON.

APPLICATION FILED MAY 20, 1911.

1,048,993.

Patented Dec. 31, 1912.

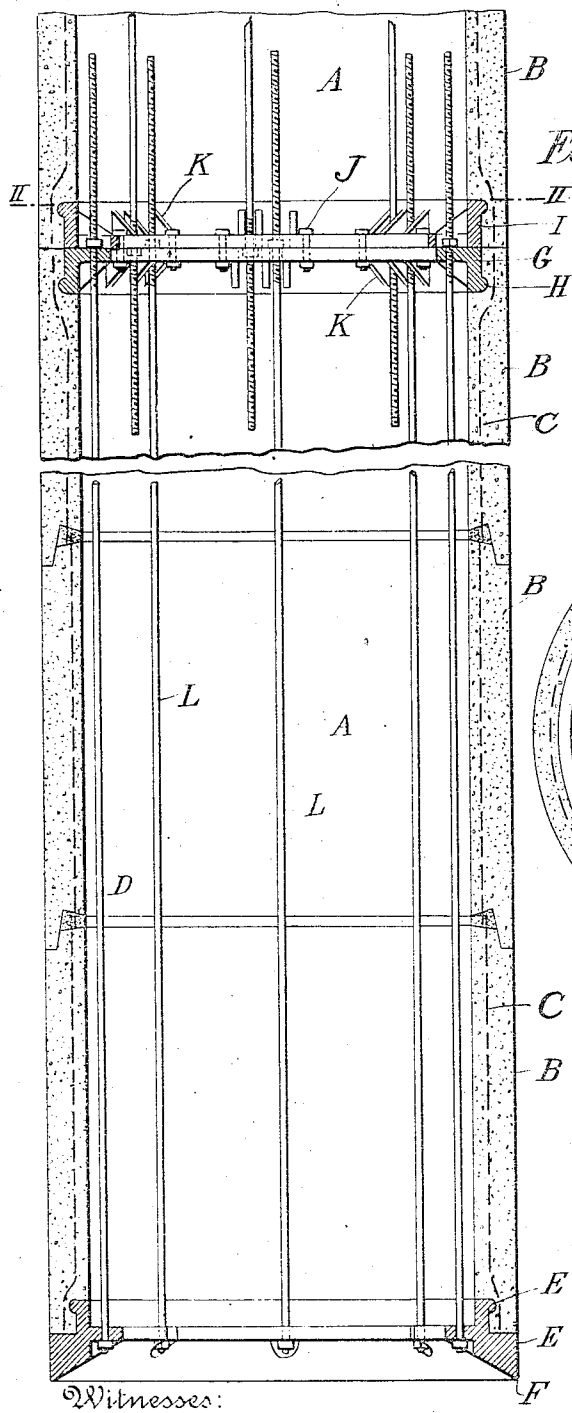
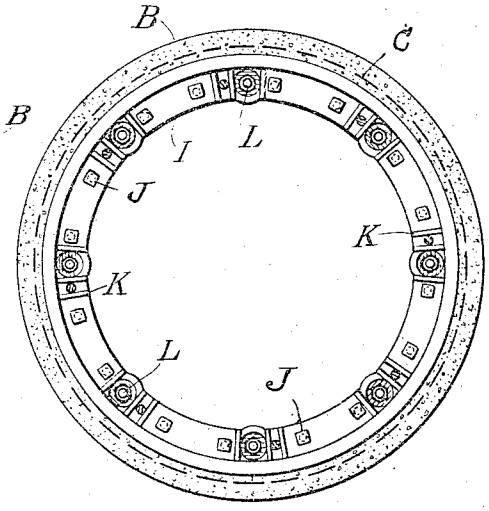


Fig. 1

Fig. 2



Witnesses:
Raphael Netter
A. A. Dunham.

C. Meriwether, Inventor
By his Attorneys
Kerr, Page, Cooper & Hayward

UNITED STATES PATENT OFFICE.

COLEMAN MERIWETHER, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO LOCK JOINT PIPE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

REINFORCED-CONCRETE CAISSON.

1,048,993. Specification of Letters Patent. Patented Dec. 31, 1912.

Application filed May 20, 1911. Serial No. 628,486.

To all whom it may concern.

Be it known that I, COLEMAN MERIWETHER, a citizen of the United States, residing at Montclair, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Reinforced-Concrete Caissons, of which the following is a full, clear, and exact description.

The object of the present invention is to provide a reinforced concrete caisson of simple and inexpensive construction, which can be sunk in the usual way and then, if desired, filled with concrete to form a pier.

To this and other ends the invention consists in the novel features of construction and combinations of elements hereinafter described, and more particularly set forth in the appended claims.

A convenient and efficient form of the invention is illustrated in the accompanying drawings, in which—

Figure 1 shows the caisson in vertical section. Fig. 2 is a section on line II—II.

The caisson illustrated is composed of one or more units, A, each of which is made up of tubular sections B. These sections are of concrete reinforced by suitable reinforcement C, for example a heavy, large-meshed fabric of wire, and are connected preferably by the bell-and-spigot construction shown at D. In this form the short spigot of one section is inserted into the long bell of the adjoining section, forming a circumferential groove, preferably on the inside. The reinforcing fabrics of the two sections extend into and overlap in the groove, which is then filled with concrete, embedding the overlapped fabrics therein and effectively locking the sections together.

The lower or bottom section of the lower unit is molded around an annular metal rim E, beveled on its lower side to form a cutting edge F and having on its upper side an outwardly extending projection, as the bead E′, to coöperate with the concrete and thus securely lock the rim to the section. At the top is an inwardly flanged connecting ring G, of metal, having a locking bead H to engage the body of the upper section. The bottom of the next unit has a similar ring I, and the two units are assembled to bring the connecting rings into contact, after which the rings are secured together by bolts, as shown at J. If desired, the rings may be strengthened by diagonal webs or gussets K.

The sections of each unit are firmly bound together, preferably before the grooves between the sections are filled with cement, by long tie-rods L inside the caisson, coöperating with the flanges of the connecting rings, and, in the case of the lowermost unit, with the flange of the rim E. The rods also extend through the adjoining ring, so that their ends project above and below the joint between the units, as shown in Fig. 1.

In constructing the caisson the preferred procedure is first to assemble the sections of each unit and then tie the sections together by means of the tie-rods, after which the grooves at the joints between the sections are filled with cement or concrete. The lower or terminal unit is then sunk in the position it is to occupy, by any convenient means suitable to the nature of the soil and other local conditions. As the caisson sinks the succeeding unit or units are placed on top and the connecting flanges bolted together, and when the caisson has reached the desired depth the whole is filled with concrete to form a solid pier, in which the tie-rods L serve as reinforcing members for the inner column. The completed pier thus consists of a reinforced outer shell or casing and a reinforced inner core, the whole being practically monolithic.

Though not strictly necessary, it is highly advantageous to make the units in sections, as described. It is important to have the connecting rings in parallel planes and at right angles to the axis of the caisson, but it is found in practice to be exceedingly difficult to attain this result when the lengthy unit is made one piece; but by making it in sections the rings can be brought into accurate parallelism with each other and at right angles to the axis of the unit by manipulation of the tie rods, the unfilled joints between the sections permitting such adjustment, after which the joints are sealed with cement or concrete. The resulting unit may not be perfectly straight between the rings, but such local irregularities are unimportant.

The construction herein specifically illustrated and described is the preferred form, but it is to be understood that the invention is capable of embodiment in other structures without departure from its proper spirit and scope as defined by the following claims.

I claim:

1. In a reinforced concrete caisson, in

combination, a tubular unit of reinforced concrete, a metal ring fixed to the bottom of the unit, having a cutting edge, a metal ring fixed to the upper end of the unit, and tie-rods extending from ring to ring inside the tubular unit and tie the rings securely together on the unit and adapted to serve as reinforcing members when the caisson is filled with concrete to form a pier.

2. In a reinforced concrete caisson, in combination, a tubular unit composed of tubular reinforced concrete sections joined end to end, a metal cutting-ring at the bottom of the unit, a metal connecting ring at the top of the unit, and tie-rods extending from ring to ring inside the unit, to bind the rings and the sections securely together and to serve as reinforcing members when the caisson is filled with concrete to form a pier.

3. In a caisson of the kind described, in combination, a tubular unit having a cutting-ring at the bottom and a connecting ring at the top, tie-rods extending from ring to ring inside the tubular unit, and a tubular unit on top of the first, having connecting rings at its ends connected by inner tie-rods, the tie-rods of each unit extending through the abutting connecting rings into the adjoining unit.

4. In a caisson of the kind described, in combination, a plurality of tubular units arranged end to end, connecting rings fixed to the ends of the units, the rings of one unit abutting the rings of the adjoining rings, and tie-rods for each unit inside the same, connecting the rings thereof and extending through the abutting rings into the adjoining units.

5. In a caisson of the kind described, a tubular unit of reinforced concrete, a ring in one end of the unit having a bead embedded in the inner surface of the concrete to lock the ring in place and having a cutting edge protecting the end of the concrete, a connecting ring locked in the other end of the unit for connection with a similar ring on another unit, and tie-rods connecting the rings inside the unit.

6. In a caisson of the kind described, a tubular unit composed of a plurality of reinforced concrete sections arranged end to end, a metal ring locked in one end of the unit and having a cutting edge, a connecting ring locked in the other end, and tie-rods inside the unit, connecting the rings to bind all the parts securely together and adapted to serve as reinforcing members when the caisson is filled with concrete to form a pier.

7. In a caisson of the kind described, a tubular unit of reinforced concrete, metal rings in the ends of the unit for the purposes described, and tie-rods inside the unit, connecting the rings to bind all the parts securely together and adapted to serve as reinforcing members when the caisson is filled with concrete to form a pier.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

COLEMAN MERIWETHER.

Witnesses:
M. LAWSON DYER,
S. S. DUNHAM.