

W. H. KIPP & H. BERGER.
 APPARATUS FOR MOLDING CONCRETE PIPES.
 APPLICATION FILED MAR. 23, 1910.

995,354.

Patented June 13, 1911.

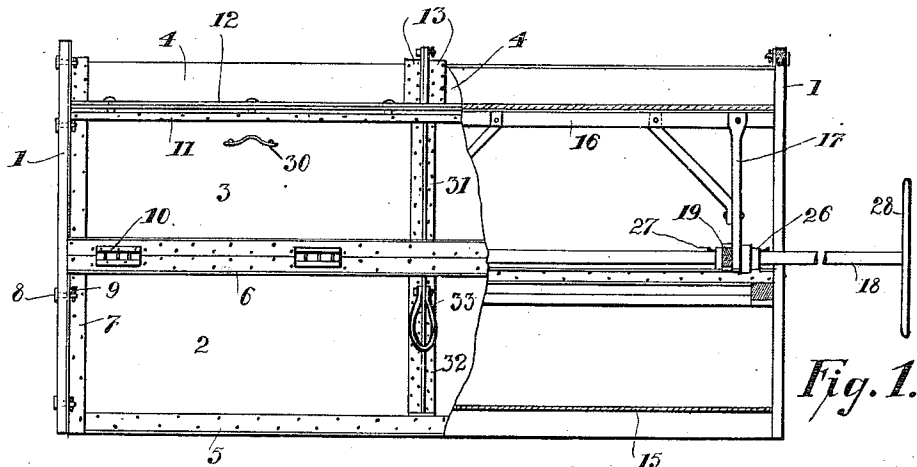


Fig. 1.

Fig. 2.

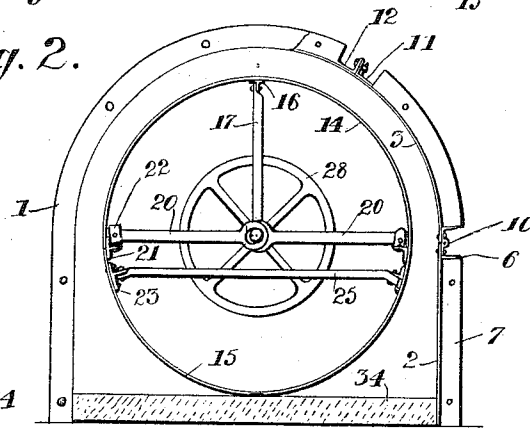
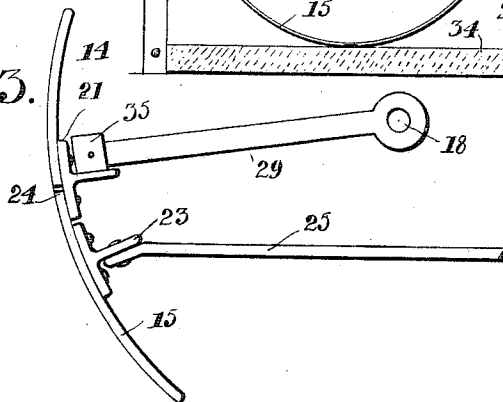


Fig. 3.



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Specification of Letters Patent. Patented June 13, 1911.

Application filed March 23, 1910. Serial No. 551,199.

To all whom it may concern:

Be it known that we, WILLIAM H. KIPP and HENRY BERGER, citizens of the United States of America, residing at Mexico city, Federal District, Mexico, have invented certain new and useful Improvements in Apparatus for Molding Concrete Pipes, of which the following is a specification.

Our invention relates to a mold especially adapted for constructing concrete pipes preferably on the spot, the object being to provide a mold box readily applicable in the excavation and which at the same time will permit a thorough tamping of the material filled in from above also making the cylindrical core member in two longitudinal halves of unequal surfaces, providing one of these with mechanism for constricting its longitudinal intersectional edges, thus allowing the withdrawal of the core member, which object we attain by the structure and mechanism illustrated in the accompanying drawing, with reference to which:

Figure 1 is a lateral elevation of the mold box, part of which is broken away and showing the core in cross section; Fig. 2 is an elevation showing the end of the mold box and within this the core in place; Fig. 3 is a detail view of the two halves of the core showing the stop lever for limiting the movement of the shaft.

In the drawing is seen the arcuated flat bar irons (1) that form the extremities and supports for the mold box, which comprises two vertical straight sections (2), two curved sections (3) hinged to the vertical sections, and two curved sectional top pieces (4) constituting the cover of the mold box.

The two vertical sections (2) have strengthening angle irons (5) riveted to its lower edge, and to its upper horizontal edge the angle irons (6), to its end being riveted angle-irons (7), one of which sides abuts against the flat bar iron (1) and locked to it by the bolts (8) and cotters (9).

In Fig. 1 are shown the hinges (10) by which the curved sections (3) are jointed to

the lower vertical sections (2), both the sections (3) and the top sections (4) having riveted thereto curved angle irons (7) by which they are fastened to the flat bar iron (1) in the same way as mentioned in reference to the vertical sections (2).

The top edge of sections (3) is strengthened by angle iron (11) one of the sides of which abuts against one side of angle iron (12) riveted to the edge of top section or cover (4), and all over where unions are made between the sections we employ bolts (8) and corresponding cotters (9) as already cited.

The cover is divided in two halves or sections (4) the adjoining edges of which are formed with angle irons (13) bolted together before the mold box is entirely filled.

The core is made up by two portions, one upper part (14) greater than the lower part (15) which together compose the cylinder or tube. As said the upper portion has a greater surface than the lower portion, and in cross section the periphery of the core is thus divided into the arc greater than a semicircle which corresponds to the upper section (14), and the arc of the lower section (15) which is thus less than a semicircle.

Inside the upper portion of the core throughout its entire length is riveted a T iron (16) and therefrom project at right angles the radial suspension rods (17) in the ends of which and in the center line of the core the shaft (18) may be turned. Near the suspension rods (17) and fixed to the shaft (18) we provide pairs of eccentrics (19) the eccentricity of which lies in diametrically opposite directions and which are surrounded by the straps or clips of the eccentric rods (20) extending almost horizontally and being pivotally attached to the projections (22) on the T irons (21) riveted inside the upper core half along its edge as shown in Fig. 2.

The lower section (15) of the core is provided with T irons (23) parallelly following the longitudinal lines of its intersections, but at some distance from the mere edge,

and these T irons are maintained in a rigid manner at a constant distance by the chords or stays (25).

The salient flanges (24) of the lower section (15) will abut against a part of the T irons (21) riveted to the upper section (14) of the core, and said T irons (21) are disposed with a salient part beyond the edge of the upper section.

The eccentrics are constructed with integral collars (26) and fastened to the shaft (18) with gibheaded keys (27).

At one end of the shaft is fastened the hand-wheel (28) whereby the shaft is turned, and as the eccentrics must follow the movement of the shaft, the eccentric rods are either made to expand or contract the flanges of the upper section (14) of the core, thus in the latter case the distance between the two parallel edges will be shortened and the entire upper section (14) falls inside the lower section (15). In order to avoid that inexperienced laborers should turn too much or too little on the hand-wheel (28) or that the pressure or contraction of the concrete when drying, should close the edges toward each other, we attach to the shaft (18) a stop arm (29) which may be swung from one of the T irons (21) to the other on which is disposed a lug (35) (see Fig. 3) whereto the stop arm may be bolted during the operation.

Handles (30) are attached with convenient intervals to the outside of the mold box sections, and T irons (31) are riveted to the curved sections (3) as well as other T irons (32) are riveted to the straight vertical sections (2) to which latter irons (32) is fastened loops (33).

In the Fig. 2 is shown a layer (34) of concrete filled in the mold box and upon which the core is placed; thus when the cover (4) has been withdrawn, and the sections (3) unfolded, concrete may be poured into the mold as high as to the hinges (10) and when this has been tamped, the curved sections (3) are closed and secured by the bolts and cotters, whereafter more concrete is filled into the mold box, as far up as to the top of the sections (3); thereafter one of the halves of the cover or sections (4) is set in its position on the angle irons (11) and from the uncovered part which corresponds to the other half section (4) is introduced more concrete until it fills up the entire interstice between the core and the mold box, and finally the other half section (4) is mounted on top of the section (3), hence the necessary concrete which will complete a length of pipe equal to the mold box must naturally be tamped in horizontally from the end of the same.

As this apparatus is more particularly intended for constructing a pipe line at its permanent site, the core should be made of

equal length with the mold box, so that the core may always enter a short distance into the section already made.

When the concrete has sufficiently hardened, the mold box is taken to pieces as explained, and the core may be extracted by previously operating the hand-wheel (28) which will change the position of the eccentrics, so that the rods (20) are pulled together and the flanges of the upper section (14) approach the center, whereby it falls down to rest on the T irons (23) and once released from the inside of the pipe it is drawn out, and next the lower section (15) can be lifted as high as the inside diameter of the pipe, and likewise removed.

Though we have shown the mold box with straight sections which will produce a pipe of flat foundation, it may as well be made exclusively of curved sections for rendering cylindric the exterior of the pipe, which form would be adequate for making reinforced pipes at the factory for subsequent colocation.

Having thus described our invention, we claim:

1. A mold for making concrete pipes composed of a mold box, said mold box comprising a pair of arcuate spaced flat iron bars, a pair of vertical sections disposed in the space between said bars, an angle iron riveted to the lower edges of said sections, a second angle iron riveted to the upper edges of said sections, a T angle iron riveted to the meeting edges of said sections, a pair of curved sections, a T-shaped angle iron connected to the meeting edges of said curved sections, curved angle irons connected to the outer ends of the curved sections, hinges connected to the vertical and curved sections, an angle iron connected to the upper longitudinal edges of the curved sections, and a cover, said cover being composed of two sections, said last named sections having angle irons connected to their adjoining edges, the angle irons being bolted together.

2. A mold for making concrete pipes, composed of a mold box and a tubular core therein, said core being composed of two sections, a pair of T irons carried by the lower core section, a stay connected to each of said T irons, a pair of T irons riveted to the upper section of the core, said last named T irons having portions of their bases extending beyond the free side edges of the upper section, the projecting portions of said T irons being for engagement with the inner side faces of the free side edges of the lower core section, a shaft extending through the core, a pair of eccentric rods connected to the T irons of the upper core section, a pair of eccentrics fixed to the shaft and engaging said eccentric rods, a T iron extending throughout the length of the upper core

section and arranged at the highest point thereof, radial suspension rods carried by said T irons and receiving said shaft, a radial stop arm carried by the shaft, said stop
5 arm being adapted to engage the web portions of either of the T irons carried by the upper core section to thereby limit the rotating movement of said shaft.

In testimony whereof we have affixed our signatures in presence of two witnesses.

WILLIAM HENRY KIPP.
HENRY BERGER.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
