

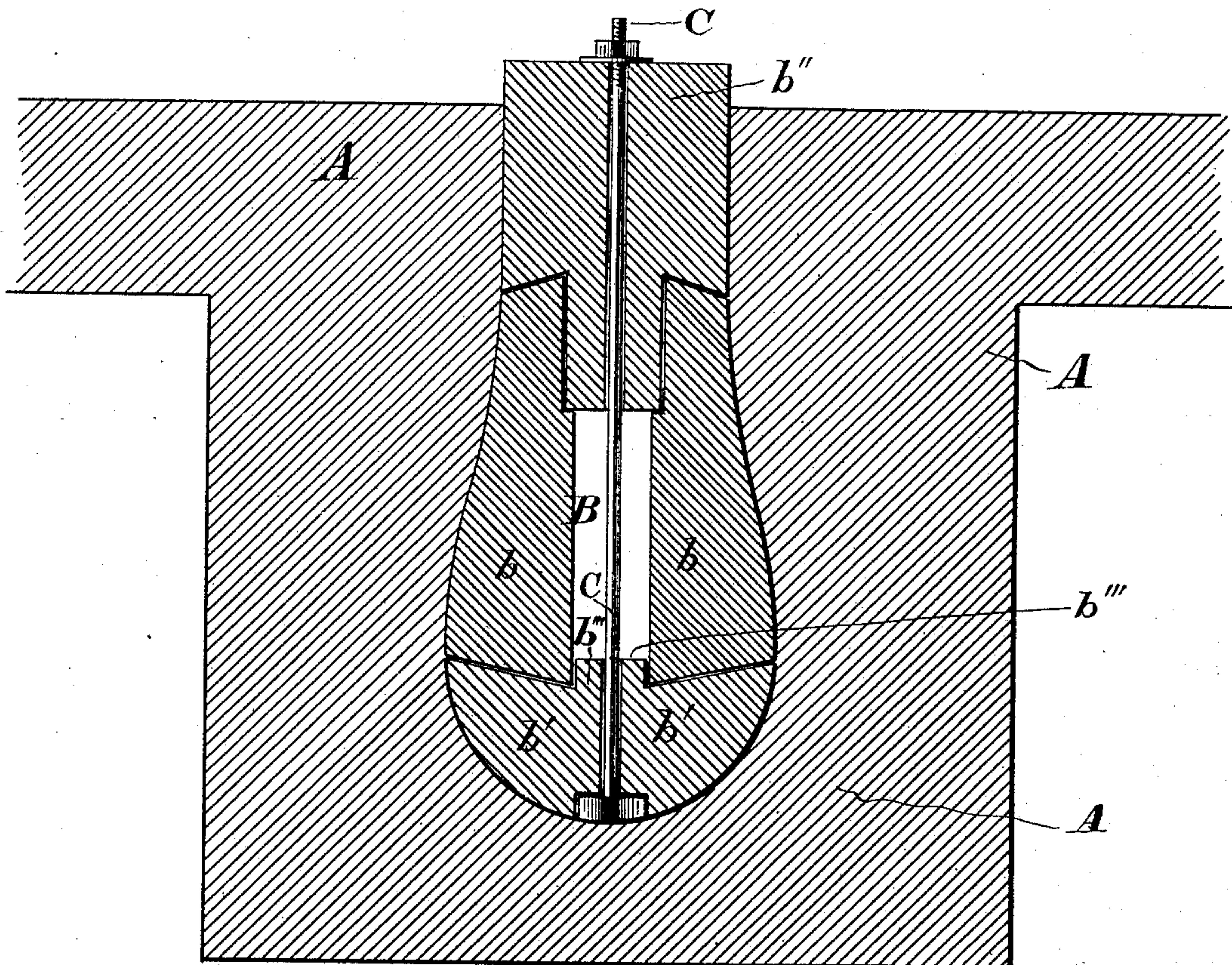
(No Model.)

J. D. ISAACS.

METHOD OF MOLDING CONCRETE TUBES FOR CABLE RAILWAYS.

No. 333,755.

Patented Jan. 5, 1886.



WITNESSES

Wilmer Bradford
Wm. Howe.

INVENTOR

John D. Isaacs
by George Parry
Atty

UNITED STATES PATENT OFFICE.

JOHN D. ISAACS, OF OAKLAND, CALIFORNIA.

METHOD OF MOLDING CONCRETE TUBES FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 333,755, dated January 5, 1886.

Application filed October 30, 1884. Renewed August 21, 1885. Serial No. 175,013. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. ISAACS, of Oakland, Alameda county, State of California, have invented an Improved Method of Molding Concrete Tubes for Cable Railways, of which the following is a specification.

This invention relates to the constructing of those tubes which are placed below ground to carry therein the cable of a street-railway, and which are made by molding a concrete mass around a former corresponding in its outer surface with the inner contour of the tube.

It consists in the manner in which the former or molding-block is made, and in the method of forming the tube therewith, by which the labor of molding the tube is lessened, the tube itself is more expeditiously laid in a perfectly true course, and the work is more smoothly done than by other known methods.

In the accompanying drawing of the tube the concrete part only is shown. The sleepers, slot-irons, rails, pulley-brackets, &c., are omitted, so as to simplify my illustration and not confuse it by introducing matters not embraced in the invention.

The single figure of the drawing is a transverse sectional elevation, this being esteemed amply sufficient by way of drawing to illustrate the invention.

In the drawing, A is the mass of concrete in which the tube is formed. It will extend in most cases on either side to form a bed for the rails to rest on.

B is the molding-block, formed of four pieces—that is, two side pieces, *b b*, a bottom piece, *b'*, and a cap or top piece, *b''*, all fitting and being held together, substantially as shown. The bottom piece must have its under surface corresponding with the bottom of the tube, while its upper face will form a seat for the side pieces, *b b*. There will be a rib, *b'''*, on this bottom piece, which will separate the side pieces and maintain them an unvarying distance apart. The cap-piece *b''* will overlap the side pieces, and, like the bottom piece, it will have a rib which will separate the upper part of the side pieces and maintain them an unvarying distance apart. Several bolts, *C'*, set four or five feet apart, will, when screwed up tightly, hold the four pieces firmly together.

It will be noticed that the top and bottom edges of the side pieces slant where they fit into the cap and bottom piece. This makes the block firmer and less liable to spread sideways if the bolts are not tightly drawn. The length of each block may be as long as can be conveniently handled—say from twenty to thirty feet—or, for the sake of convenience, let the former be long enough to mold the straight part of the tube between pulley-brackets, for here the tube will have its recesses for both brackets and man-holes, which recesses may be separately molded.

The method of proceeding will be as follows: First, lay a bed of concrete in the trench which has been dug to receive the tube, then lay down the bottom piece of the former upon it and tamp around it. Then set your side pieces and put on the cap, running the bolts through the holes therein to receive them. Finally, put the washers and nuts on the bolts, screw them up tightly, and then ram the concrete about the former until the tube is formed. As soon as it is desirable to remove the former, the nuts and washers are taken off the bolts, and piece by piece the former is removed by lifting each piece vertically.

Care must be taken to provide for the bottom piece being drawn out of the narrower part of the tube at top. Ordinarily, it will be sufficient to cant the bottom piece over a little and bring it up edgewise, with the bolts in place; but, if necessary, the bolts may be entirely removed by having a nut instead of a solid head on the bottom of each bolt, so that after they are entirely withdrawn the bottom piece may be drawn out edgewise.

To give the former and tube their true alignment, the lines of the finished portion of the tube may be projected, as by a straight edge or string, to match with longitudinal lining-marks scratched on the side of the cap-piece, a matter easily understood by those practiced in the art.

If there are to be set and embedded in the concrete any anchor-bolts or other iron-work, this must be done while the concrete is being filled in. The slot-irons will be set after the former has been withdrawn.

I claim as my invention, and desire to secure by Letters Patent, as follows:

1. The method herein described of forming concrete tubes for cable railways, consisting of building the tube around a former, made of separate wooden pieces bound together, so as to form a solid mold, and which are arranged so as to be separated and withdrawn piece by piece out from the molded tube vertically, substantially as and for the purpose herein described.
2. A former for molding concrete tubes for cable railways, consisting of several separate wooden blocks matched and bolted together to form a solid mold, the blocks being arranged so as to be separated and withdrawn vertically from the tube after it has been formed, substantially as and for the purpose herein described.

JOHN D. ISAACS.

Witnesses:

GEORGE PARDY,
FREDERICK T. NEWBERY.