

(No Model.)

2 Sheets—Sheet 1.

E. L. RANSOME.

MOLD OR CRIBBING FOR CONCRETE STRUCTURES.

No. 314,398.

Patented Mar. 24, 1885.

Fig. 1.

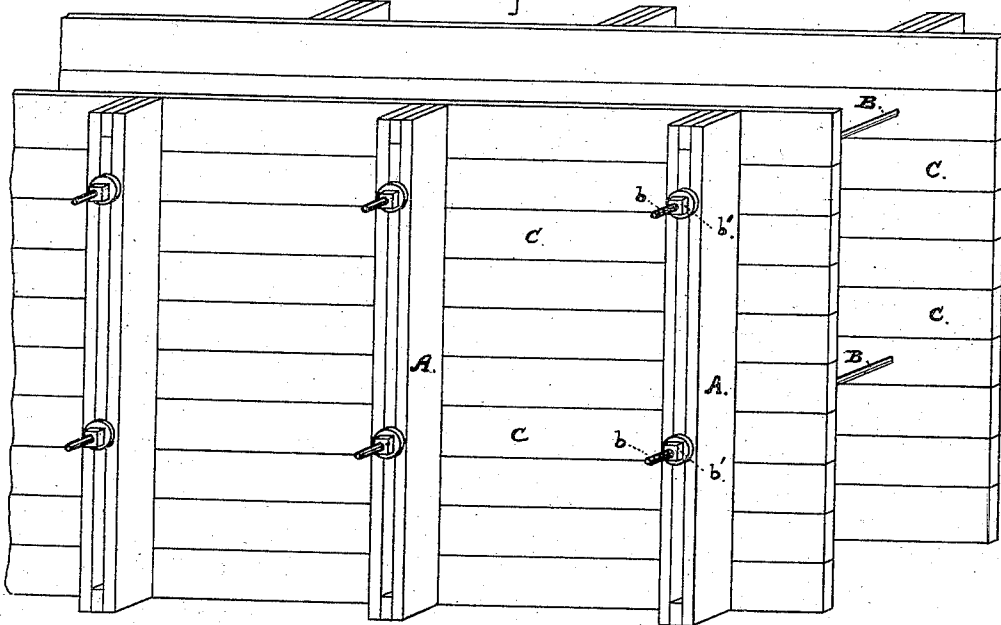
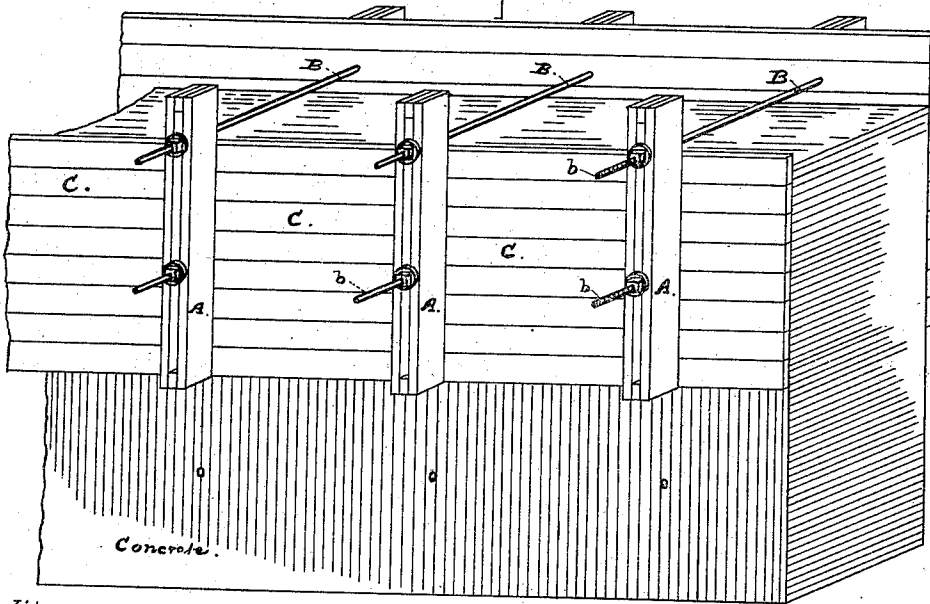


Fig. 2.



Witnesses:

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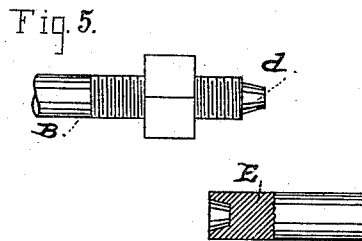
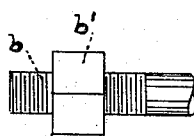
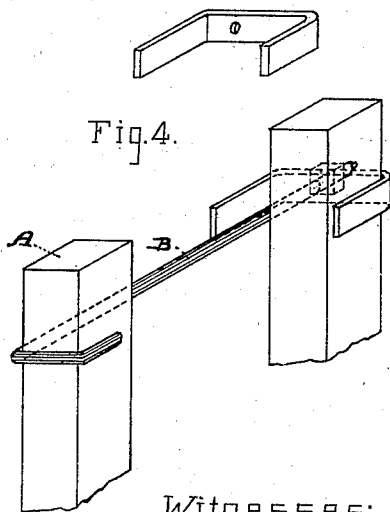
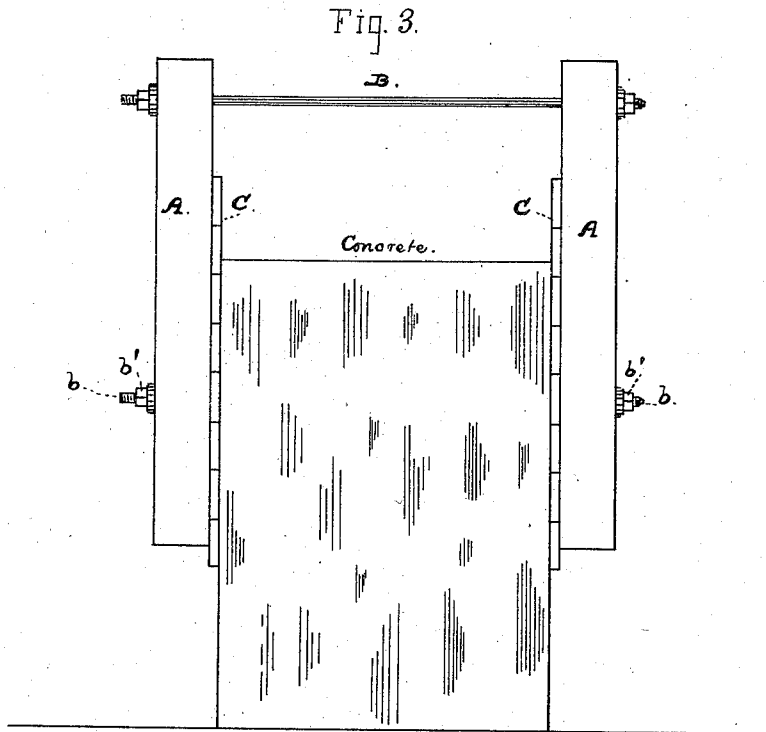
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UNITED STATES PATENT OFFICE.

ERNEST L. RANSOME, OF OAKLAND, CALIFORNIA.

MOLD OR CRIBBING FOR CONCRETE STRUCTURES.

SPECIFICATION forming part of Letters Patent No. 314,398, dated March 24, 1885.

Application filed October 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, ERNEST L. RANSOME, a subject of the Queen of England, but residing in the city of Oakland, county of Alameda, and State of California, have invented certain new and useful Improvements in Molds or Cribbing for Concrete Structures; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the accompanying drawings, that form part of this specification.

In building walls and other structures of concrete the material is confined and kept in form until set by the use of a crib or temporary mold formed of loose boards placed edgewise one upon another for both sides or faces of the structure, and retained by upright braces on the outside, held together by tie-rods. Such crib or frame is best adapted to the rapid and economical prosecution of the work when it is capable of being readily built up and raised at intervals as the structure advances, the lowest portion being withdrawn and employed for the upper part of the mold, and the braces being shifted upward to support this addition to the top part, for by such means the work can be carried to any height with a limited amount of framework, and the expense for material greatly reduced; but the manner of running the tie-rods through holes in the braces to tie one brace to the other of the pair greatly reduces the limit of adjustment and prevents ready movement and change of the parts in the progress of the work, as it is necessary then to remove the nuts, draw out the tie-rods, move the braces upward, and bring the holes into line and then insert the rods again at each time of adjustment; also, in the progress of the work the rods become embedded in the concrete, and to permit them to be easily withdrawn they are surrounded by a sleeve, which is left in the material when the rod is withdrawn, to be afterward driven out. As an improvement on these parts or appliances for constructing such frame-work, I have devised and produced a standard or upright brace, which can be shifted or raised vertically at frequent intervals without disconnecting the rods or disturbing the connection of

rods and standards, and in connection therewith a tie-rod for use without a sleeve.

The accompanying drawings clearly show the construction of my said improvements, and represent also the manner of using them in building a wall.

Figure 1 is a perspective view of a mold. Fig. 2 is a similar view with part of the side boards removed and the mass of concrete in place. Fig. 3 is an end elevation of Fig. 2. Fig. 4 is a view showing a modified form of standard and rod. Fig. 5 is a detail of the bolt and tool for removing it.

A A represent the "upright" braces or "standards," as I shall term them; B B, the bolt or tie-rods with threaded portion *b* and nuts *b**, and *c c* the boards or panels used to form the sides of the crib.

In constructing a concrete wall I usually place the standards in pairs, with the space between them equal to the required thickness of the wall and such additional space as the boards will take up, and also at convenient distance apart one pair from the other. For a wall twelve inches thick the standard would be set with this space between them, and as much more as the thickness of the boards would require—say one inch for each board. The standards are then connected together by placing the tie-rods and putting on the nuts, and the boards are laid in edgewise one upon another, to form the sides of the mold. Now, as the wall is carried up to the top of the standards the nuts are slackened and the standards pushed up the height of another board or panel and the nuts tightened again. This movement of the standard releases the lowest board and leaves it free to be removed and placed for the top of the mold. This operation can be continued until the bottom of the standard is raised up to the lower bolt, when it becomes necessary to withdraw the bolt and reinsert it at or near the upper end of the standard, when the other bolt then becomes the lower one. In this way, the standards being moved up gradually a small distance at each change, they are always bearing for the greater part of their length upon the first set or earlier-formed portion of the wall, the result of which is to keep them upright and

preserve the perpendicularity of the structure as it is carried upward.

In forming the standard any suitable material can be made use of; but I have found it convenient to make them of one by six inch lumber, four feet long, the two pieces placed one inch apart, and secured together by two blocks of one inch by four inches inserted between them at the top and bottom, the whole well nailed or bolted. Through the slot thus produced the tie-rods are inserted with a head on one end, and the threaded portion and nut on the other on the outside bearing against the outside edges of the standards, so that when the nuts are slackened the standards can be moved upward without disturbing the bolts or rods. Rods with both ends threaded for nuts could be also used.

A form of standards made of a single piece of timber and a tie-rod to work with it is represented in Fig. 4 as another possible form in which a standard could be produced to operate in the same manner as the slotted standard and its bolts—that is, to move vertically any given distance at a time without requiring the bolts or rods to be disconnected. In this construction, however, the simple form of standard would not offset the more expensive character of the tie-rod shown. In bolting the braces or standards together in this character of work it is customary to pass the bolts or tie-rods through sleeves that are of suitable length to cover the portion of the rod lying within the mold, as the bolt is then easily withdrawn, the sleeve being left in the concrete to be driven out afterward; but by providing a means of driving in the bolt without injury to the thread I can dispense with these sleeves, and thus simplify the parts of the apparatus or appliance.

To draw the rods from the concrete without destroying the screw-threads, I place a drift or driving tool against the end of the rod and then loosen it sufficiently by the use of a hammer; but the blows, if given directly against the end of the rod, would soon destroy the thread. I provide a projection, *d*, on the end of smaller diameter than the bolt, and preferably of conical shape, and use a tool, *E*, with a corresponding recess in the end, or I reverse this construction and form this recess in the end of the bolt.

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

1. In a mold or cribbing for concrete work, the combination, with the boards or panels *C* and rods *B*, embedded in the concrete of the standards *A*, arranged in pairs or sets, and free to move upon said panels and tie-rods without disturbing said panels or removing said rods, as set forth.

2. In a mold or cribbing for concrete work, the combination of the tie rods or bolts, as *B*, embedded in the concrete, and standards adapted to slide on said rods without removing them from the concrete and without removing the standards from the rods, as set forth.

3. A mold or cribbing consisting of the boards or panels *C*, and tie-rods *B*, passing through said panels and through the body of concrete, and the slotted standards *A*, detached from the panels *C* and free to move thereon and on the tie-rods, while both the panels and the tie-rods remain undisturbed against and in the concrete, as set forth.

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Witnesses:

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