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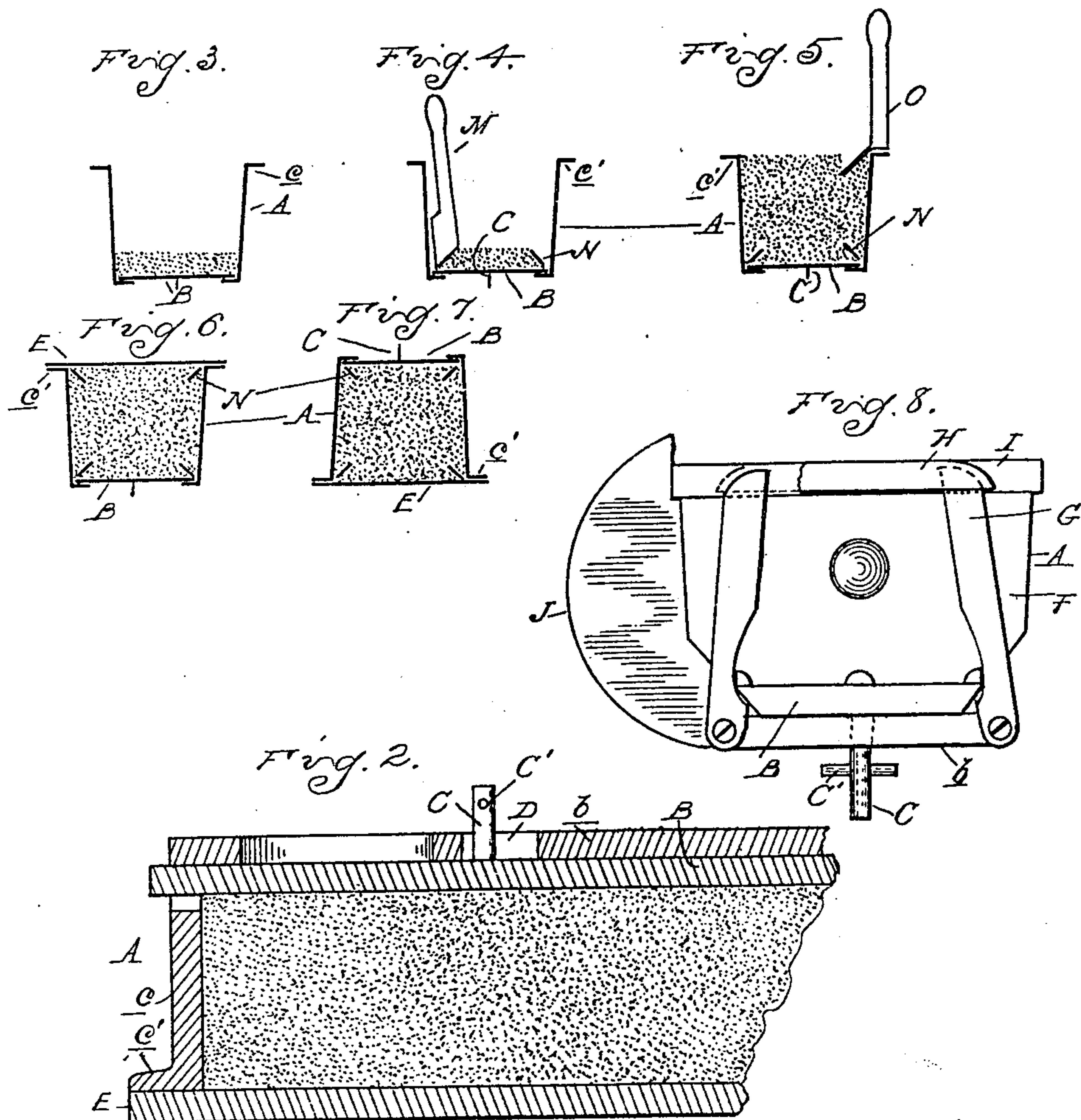
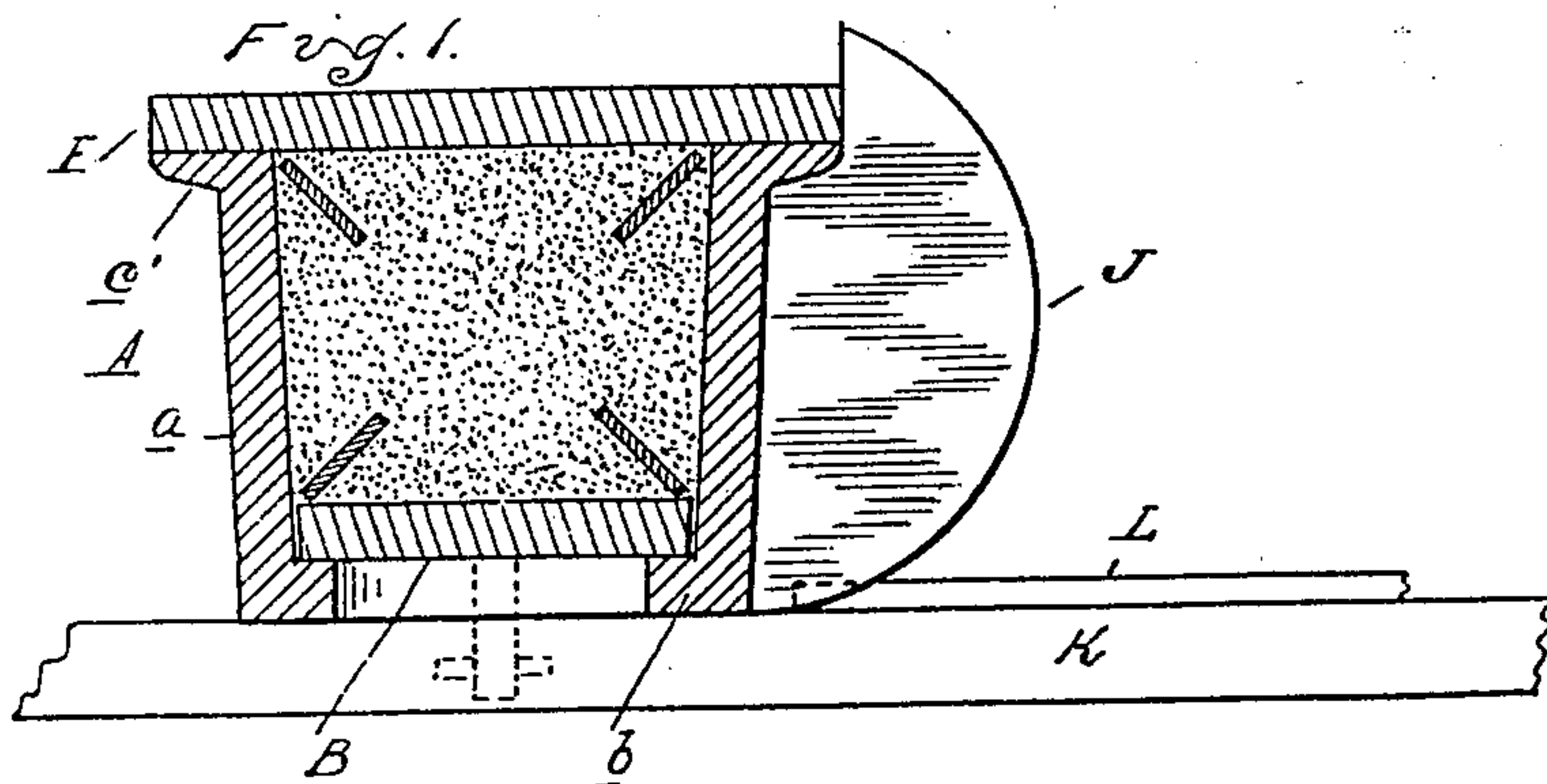
PATENTED APR. 10, 1906.

A. P. ROBERTSON.

METHOD AND MACHINE FOR FORMING CEMENT POSTS.

APPLICATION FILED MAY 4, 1905.

2 SHEETS—SHEET 1.



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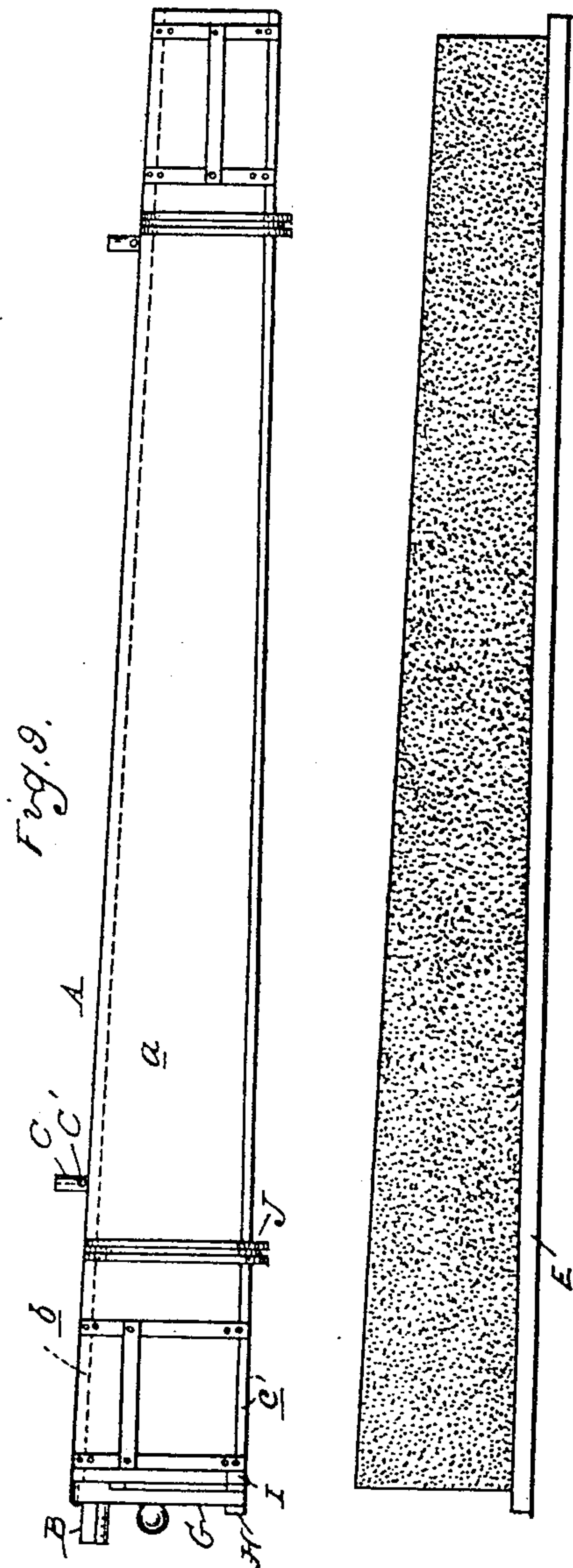
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AVAILABLE COPY

Wanam, 160, 444. 7 Mar. 18. 1879 (25-119)
Allen & Duffy, #213,371. 7 Mar. 18. 1879 (25-119)
Coble, #768,424. Aug. 23. 1904 (25-121)

UNITED STATES PATENT OFFICE.

ALONZO P. ROBERTSON, OF ROCHESTER, MICHIGAN, ASSIGNOR TO
WILLIAM F. COWHAM, OF JACKSON, MICHIGAN.
British to Knights #11,357 of 1903
METHOD AND MACHINE FOR FORMING CEMENT POSTS.

No. 817,670.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed May 4, 1905. Serial No. 258,848.

To all whom it may concern:

Be it known that I, ALONZO P. ROBERTSON, a citizen of the United States, residing at Rochester, in the county of Oakland and State of Michigan, have invented certain new and useful Improvements in Methods and Machines for Forming Cement Posts, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to the manufacture of posts formed from cement strengthened by metallic members embedded therein.

The present invention relates to the method of forming posts of such character, and, further, in the apparatus which is employed for that purpose.

In the drawings, Figure 1 is a cross-section through the mold for forming the posts. Fig. 2 is a longitudinal section thereof. Figs. 3, 4, 5, 6, and 7 are diagrammatic views illustrating the successive steps performed in the manufacture. Fig. 8 is an end elevation; and Fig. 9 is an elevation of the complete mold, illustrating the body portion as raised and the molded post resting on the plate E.

The particular construction of post which it is the object of the invention to produce is one in which the cement body is reinforced by thin metallic bars arranged at the several corners of the post and extending diagonally inward. In the manufacture of this post I employ a mold A, which is preferably substantially rectangular in cross-section, but is provided with sufficient flare of its side walls to furnish the necessary draft. The side walls *a* of this mold are connected to each other by a false bottom piece *b* and also preferably by an end wall *c* at the small end of the mold, which, as shown, tapers longitudinally. Between the side walls *a* is arranged a detachable bottom B, which has a movement limited by pins C, passing through slots D in the false bottom *b*.

E is a top plate for the mold, preferably resting upon laterally-projecting flanges *c'* of the side walls *a*.

F is an end plate for the large end of the mold, which is detachably locked in position, preferably by swinging bars G, pivoted to the ends of the side walls *a* and adapted to engage

with a wedge-shaped keeper H, secured to a cross-bar I. Thus by turning the bars G inward the end plate F will be locked in position and the taper of the wedge H will force the plate in tight contact with its seat upon the ends of the walls *a*.

Upon one side of the mold are arranged a pair of rocker-segments J, upon which the mold is adapted to be rotated to reverse the same. The mold is preferably supported on ways K, which are provided with V-shaped tracks L for engaging corresponding grooves in the rockers J.

With a mold constructed as above described the post may be formed by the following method: The mold is first placed upon the ways K in the position indicated in Fig. 1. A layer of cement is then thrown into the bottom of the mold, as shown in Fig. 3, and, after suitably tamping, a tool M is employed, as indicated in Fig. 4. This tool has an angling nose-piece, preferably at substantially an angle of forty-five degrees, and by tamping with the tool adjacent to the side walls of the mold the plastic material is shaped to incline from the corner upward and inward. The metallic strengthening-strip N is then laid into the mold so as to rest against the inclined face of the cement, after which additional cement is thrown into the mold to fill the same and is suitably tamped. The next operation is preferably by a tool O, which is so shaped that it may be used for tamping or pressing down the cement at the upper edges of the mold, so as to form inclines, as indicated in Fig. 5. Metallic strips N are then placed against these inclined faces, and the cement is then struck off flush with the top of the mold and the top plate E placed in position. The operator next reverses the mold, which may be done by rocking it over upon the segments J, so that it will rest upon the top plate E, as shown in Fig. 7. The bottom B is then reciprocated longitudinally, this being permitted by the slots D in the false bottom *b* and the pin C projecting therethrough. This reciprocation of the bottom loosens the cement from adhering to its inner face. Following this the swinging bars G are turned back and the end plate F is removed from the large end of

Shreffler, #53, 191. Mar. 13. 1866 (25-121)
Mason, #790, 697. May 23. 1905

the mold. The operator then lifts the body portion of the mold, preferably first moving it longitudinally a slight distance to free the sides. During the lifting of the mold the bottom plate B is permitted to rest on the top of the molded block, and thus tearing of the corners, which might otherwise result from the adhesion of the cement to the side plates of the mold, is prevented. The independent upward movement of the mold in relation to the plate B is permitted by reason of the pins C, which loosely engage the slots D and have cross-pins C', sufficiently separated from the plate B to afford the necessary lost motion. Upon further lifting of the mold the pins C', engaging with the false bottom b, will lift the plate B with the mold, and the whole may be disengaged from the molded post, leaving the latter resting upon the plate E, where it remains until the cement is hardened.

By the method and by use of the apparatus described posts may be quickly manufactured, and when complete the cement body will be materially strengthened by the metallic strips arranged at the corners.

What I claim as my invention is—

1. The herein-described process of forming composite cement and metal posts which consists in placing a layer of the cement in the bottom of a mold, tamping the cement to free the same from the sides and form inclines from the lower corner of the mold, then placing metallic strips upon said inclines, then completely filling the mold and striking off the same, whereby said metallic strips will be embedded in the cement so as to extend diagonally inward from the corners of the post.

2. The herein-described method of forming composite cement and metal posts which consists in partially filling a mold with plastic material, in tamping said material adjacent to opposite sides of the mold to form inclines, placing metallic strengthening-bars, so as to rest against the inclined faces of the cement, filling the mold and tamping to form downwardly-inclined surfaces from the upper corners of the mold and placing metallic strengthening bars so as to rest against said inclined faces and in striking off the cement flush with the top of the mold.

3. A mold for cement posts comprising separated side walls, a connecting false bottom and a superposed bottom plate longitudinally movable in relation to said false bottom, the side walls and the molded post, and means for limiting said movement.

4. A mold for cement posts comprising separated side walls tapering toward one end, a false bottom connecting said side walls, and a bottom plate fitting between said side walls and arranged for longitudinal reciprocation in relation thereto to free from the molded

post, and means for limiting said reciprocation.

5. A mold for cement bodies comprising separated side walls cross-connected to each other, and a bottom plate having a limited longitudinal and vertical reciprocation in relation to said side plates.

6. A mold for cement bodies comprising a reversible box-mold having separated side walls cross-connected to each other, a bottom plate fitting between said side walls, means whereby when said mold is reversed, said bottom plate may be reciprocated longitudinally to free the same from the cement surface, and means permitting said plate to rest upon the molded body during the lifting of said body-mold.

7. A mold for cement bodies comprising a reversible box-mold having separated side walls and a bottom plate fitting between said side walls and having a longitudinal and vertical reciprocation in relation thereto, means for limiting said reciprocation, for the purpose described.

8. A mold for cement posts comprising a tapering reversible box-mold having separated side walls, a bottom plate fitting between said side walls and having a longitudinal and vertical reciprocation in relation thereto, means for limiting said reciprocation, and a detachable end plate at the large end of said box-mold.

9. In a mold for cement bodies, a tapering box-mold, an end plate for the large end thereof and locking devices therefor comprising the swinging bars G pivoted to the ends of said box-mold, the cross-bar I and the wedge-shaped keeper H with which said bars G engage, for the purpose described.

10. A mold for cement bodies comprising separated side walls cross-connected to each other, a bottom plate having a longitudinal and a vertical movement in relation to said side plates, and rockers on one side of said box-mold by means of which the mold may be reversed.

11. A mold for cement bodies comprising a reversible box-mold having separated side walls and a false bottom and top and bottom plates movable in relation thereto whereby the molded article may remain in contact with said plates while being loosened from the sides of the mold.

12. In a mold for cement bodies, the combination with separated side walls cross-connected to each other, of a removable top plate and a bottom plate longitudinally and vertically movable within limits in relation to said side walls, whereby the molded article may rest in contact with said plates while loosened from said side walls.

13. In a mold for cement bodies, the combination with side walls cross-connected to

each other and end plates, of a removable top plate and a bottom plate longitudinally and vertically movable within limits in relation to said sides and ends, whereby the molded article may rest in contact with said movable plates while loosened from said sides and ends.

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

ALONZO P. ROBERTSON.

Witnesses:

H. W. GRIFFIN,
S. L. WILTSE.