(No Model.)

3 Sheets—Sheet 1.

T. W. CARRICO.

MOLD AND ANGLE PIECE USED IN CONSTRUCTING CONCRETE WALLS.

No. 340,070. Patented Apr. 13, 1886.

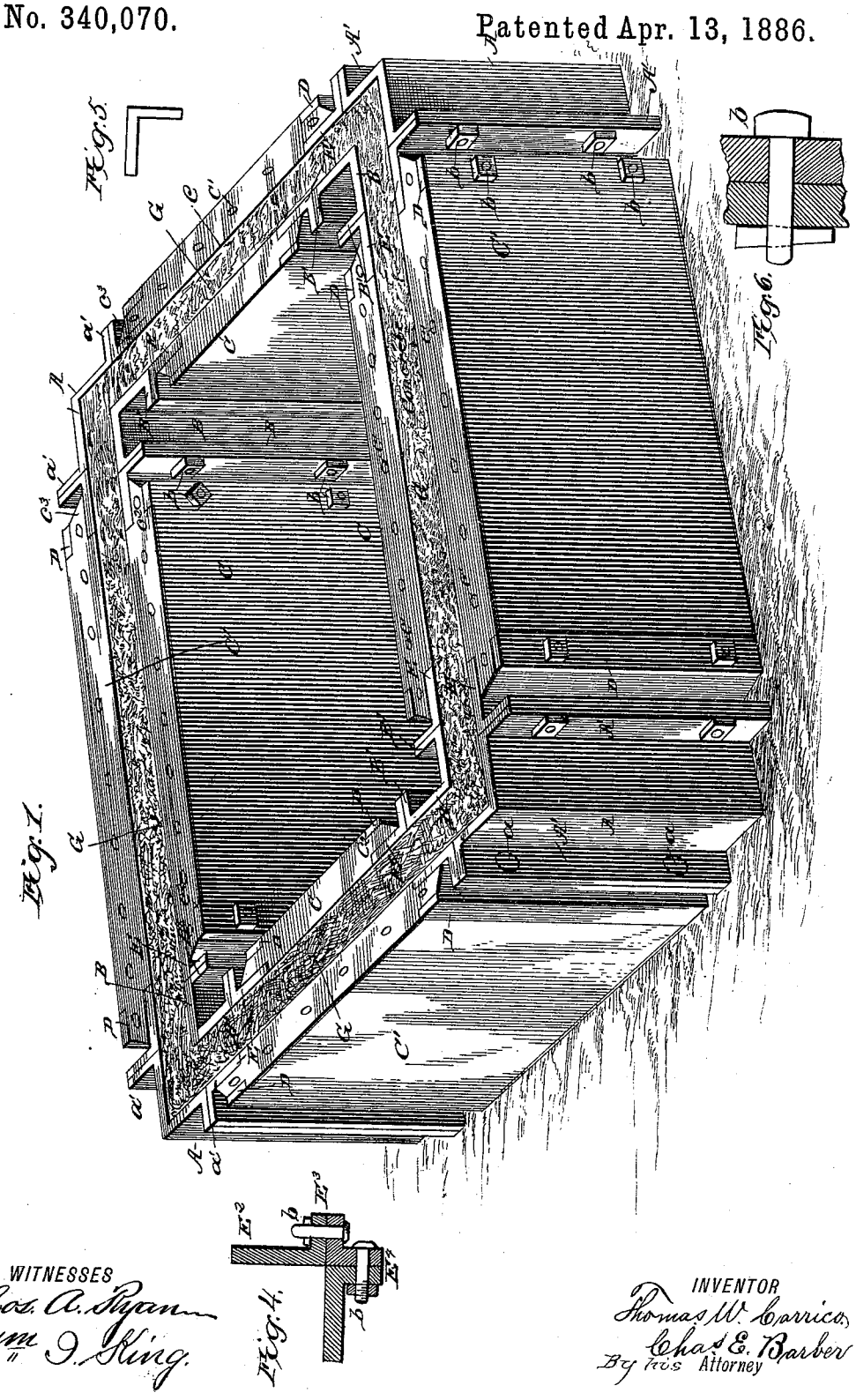


Fig. 1.

Fig. 5.

Fig. 6.

Fig. 4.

WITNESSES

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3 Sheets—Sheet 2.

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Fig. 3.

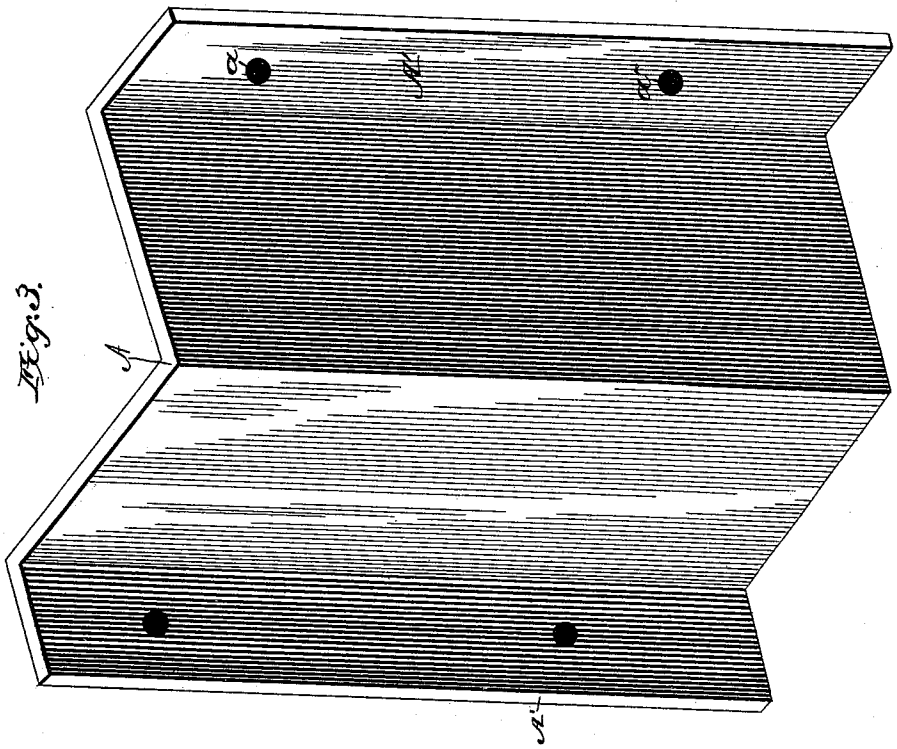
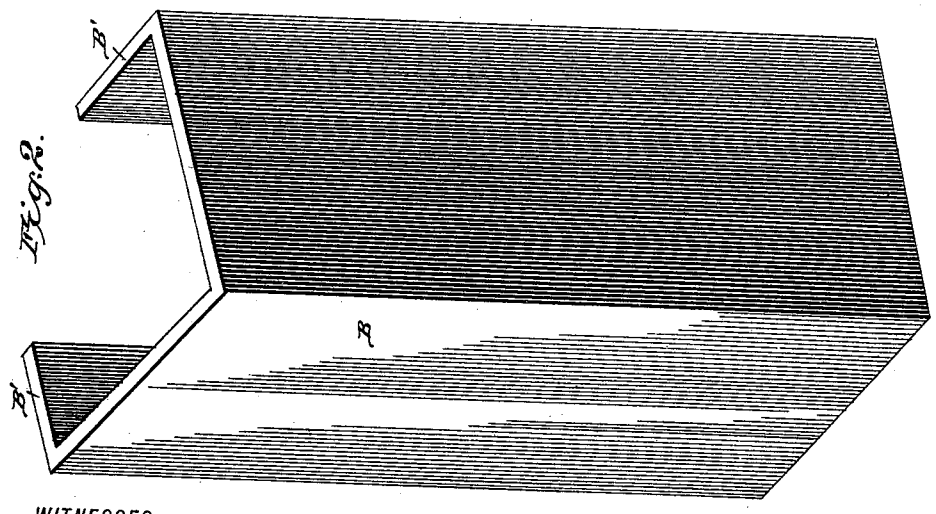


Fig. 2.



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Fig. 7.

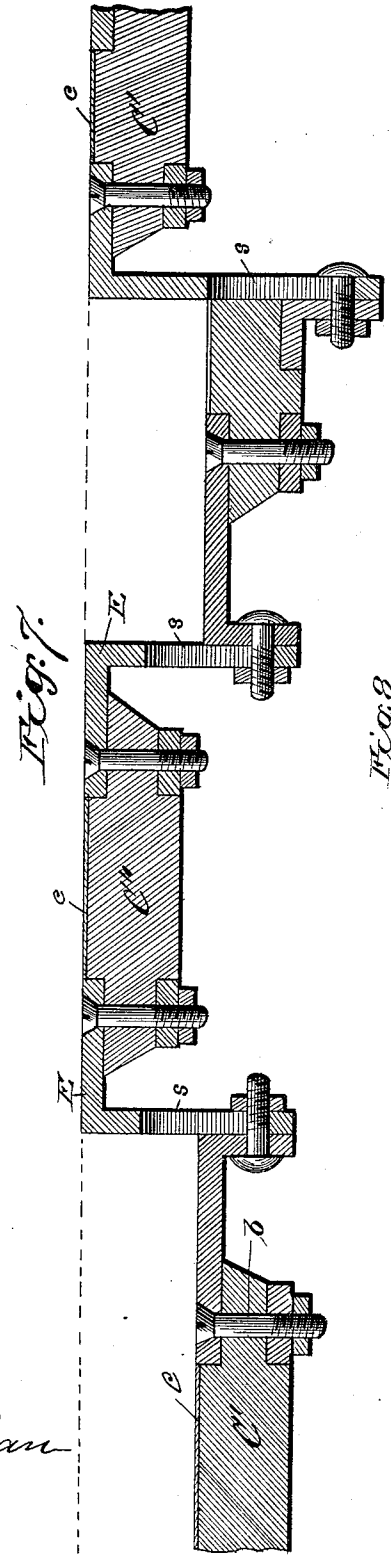
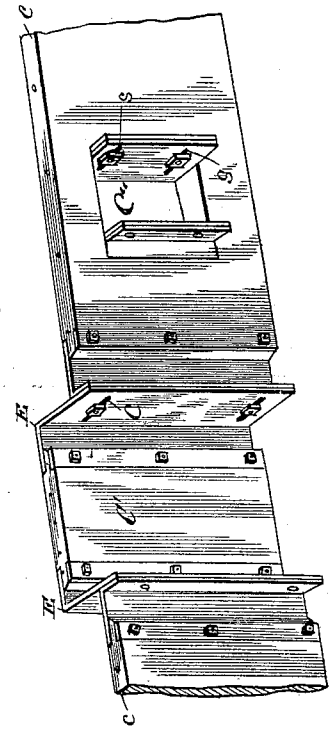


Fig. 8.



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UNITED STATES PATENT OFFICE.

THOMAS W. CARRICO, OF SAN ANTONIO, TEXAS.

MOLD AND ANGLE-PIECE USED IN CONSTRUCTING CONCRETE WALLS.

SPECIFICATION forming part of Letters Patent No. 340,070, dated April 13, 1886.

Application filed November 10, 1885. Serial No. 182,370. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. CARRICO, a citizen of the United States, and residing at San Antonio, county of Bexar, and the State of Texas, have invented a new and useful Improvement in Apparatus for Use in the Construction of Concrete Walls, of which the following is so full, clear, and exact a description as shall enable one skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective of my improved apparatus as it appears in use in molding or constructing a wall out of plastic material, cement, or concrete. Fig. 2 is a detail view of the inner angle-piece. Fig. 3 is a detail view of the outer angle-piece. Fig. 4 is a modification showing the corner-piece made of three angle-plates bolted together. Fig. 5 is an outside angle-piece extending the height of the wall. Fig. 6 shows a slotted bolt and key for securing the angle-pieces together. Figs. 7 and 8 are views of a modification of my angle-pieces.

The object of my invention is to provide a means whereby the walls of a cellar, vault, or concrete or cement wall of any kind may be molded into shape where it is to remain and have the wall of uniform thickness.

Another object of my invention is to provide a means whereby the wall may be made perfectly straight up and down without variation.

Another object of my invention is to provide a means whereby the apparatus may be readily and quickly taken apart or loosened to raise it up after one course of the wall has become hard and solid.

Still another object of my invention is to provide an apparatus which shall facilitate the construction of the wall and at the same time have a provision made which shall prevent the wall from adhering to the molds.

Still another object of my invention is to provide the lateral walls of my mold with a means of fastening or strengthening device which shall prevent the warping of the same, which would be a natural consequence of the moisture absorbed from the wet material.

With these objects in view I proceed to accomplish the same by the construction, combination, and arrangement of parts, as will be hereinafter fully explained.

By reference to Fig. 1 it will be seen that the concrete wall G is clearly shown in between the side pieces, C and C′. These side pieces I shall, for convenience, call the "inner" side pieces, C, and the "outer" side pieces, C′. Each of these side pieces has metal lining *c* at the side which comes next to the wall G, to prevent the moisture from the wet concrete from soaking into the side pieces and to prevent warping of these side pieces. At the ends of these side pieces are rectangular recesses c^2 c^2, which receive the metal plates D. These plates D also assist in keeping the side pieces, C and C′, from warping. It will also be observed that these side pieces, C and C′, are beveled at c^3, where they overlap the metal pieces E. This beveling facilitates the removal and replacement of the bolts *b*. The metal pieces E are formed of two flat straight flanges adjacent to each other, to which are secured the side pieces and angle-pieces, respectively, all of which are so arranged as to always present a straight smooth surface to the concrete wall, and these several parts are secured together by bolts, which are readily separable by removing the bolts *b*, which may be easily done without interfering with or disturbing the wall G.

By reference to the drawings it will be seen that the side pieces are securely held in place at their ends by the metal strips D and E, which extend the entire width of the side pieces, and are securely bolted together through these side pieces. It is obvious that the angles may be made acute or obtuse, as the case may require; or, if it were so desired, the angle-pieces might be made to form round corners inside and outside. Instead of being smooth they might be ribbed. The advantages of this construction are that the molds may be readily and quickly detached from the wall when desired. The side pieces are held firmly in position, whereas in the use of devices now known and used in the art, when the set-screws are operated to tighten up the joints in the molds, the mold-board slips out of level, while with my present device this is avoided. To illustrate, suppose that one side of the mold-board is removed, it will be seen at a glance that it is entirely free from the angle-pieces on

that side of the house, there being no overhanging ears in the way of raising the other mold or the mold on the side.

In Fig. 7 I show a modification in which I provide slots *s* for the bolts, and this facilitates the adjustment of the mold-piece C″ to make depressions, moldings, or intaglio projections on the inside or outside of the wall. All will be readily understood from the drawings.

In Fig. 2 I show the inner angle-plate, B, and it will be seen at a glance that by securing this angle-piece between the plates E E a perfectly-straight inner corner mold is formed, whereas in Fig. 3, which shows the outer angle-piece, A, it will be observed that by attaching the pieces E E to its flanges A′ A′ a straight outer corner of the mold is formed.

In the modification, Fig. 4, I form the outer angle by three angle-shaped pieces, E^2 E^3 E^4, and bolting all three together.

In Fig. 5 I show an outside angle-piece, which I design to make of, say, two-inch lumber, and make it the full height of the wall designed to be built, either in one continuous piece or in sections, as the case may require, and along up the angle I provide metal angle-cleats with bolt-holes, as shown in the other angle-pieces. This forms a guide and support for the mold as it is moved up from time to time.

In connecting the angle-pieces the same might be cast or otherwise formed with lugs or projections and corresponding recesses to serve as a means of fastening instead of bolting, or I might use the slotted and headed bolt shown in Fig. 6. These angle-pieces are light, simple in construction, and cheap, and easily handled.

The operation and the device and its general use are as follows: Having first determined how long and how wide the wall is to be, and also having decided about the size of area to be inclosed between the walls, the side pieces are made the desired length, using the angle-pieces E and the strips D wherever it is necessary to splice the side pieces. Then the whole frame or mold is drawn snugly together by the bolts *b*, either by the screw-nuts or keys and slots. Then by setting the mold in position it is ready to receive the concrete in a soft state. It is poured into the space between the side pieces, and there it hardens, and the operation may be repeated as often as desired.

I claim—

1. The herein-described angle-piece A, having outwardly-projecting flanges provided with holes, in combination with the second angle-piece, B, having inwardly-projecting flanges having holes therein, and the side pieces provided with angle-pieces and bolts for securing the whole together, substantially as described.

2. The herein-described angle-pieces having elongated holes or slots extending at right angles to the line of the wall and extending at right angles to the side pieces, in combination with the side pieces, the bolts, and means for securing the flanges together, as set forth.

3. In apparatus for making concrete walls, &c., the sheet-metal-lined side pieces, C and C′, in combination with the laterally-adjustable angle-pieces having flanges provided with slots which extend at an angle to the side pieces, and means for securing the same together, as set forth.

4. In a device of the character described, the side pieces and angle-pieces adjustable to and from the wall and having horizontal slots, in combination with the bolts *b*, provided with tightening devices, whereby the angle-pieces may be drawn tightly together and adjusted, as set forth.

5. The angle-pieces A and B, having two long sides and two short sides or flanges having holes or lugs, as set forth, in combination with bolts and side pieces for securing and holding said angle-pieces in place, substantially as shown, and for the purposes explained.

6. In apparatus for forming concrete walls, the mold-pieces C″, having angle-irons secured thereto, said angle-irons having flanges provided with slots extending at right angles to the side pieces, in combination with the side pieces having corresponding angle-pieces or flanges and bolts for securing them together, substantially as described, whereby the mold-pieces C″ may be moved in and out to form depressions or projections in the wall, as set forth.

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Witnesses:
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