J. A. LONGEVIN.

ADJUSTABLE METAL FORM FOR CONCRETE CONSTRUCTION.

APPLICATION FILED APR. 29, 1912.

1,119,969.

Patented Dec. 8, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

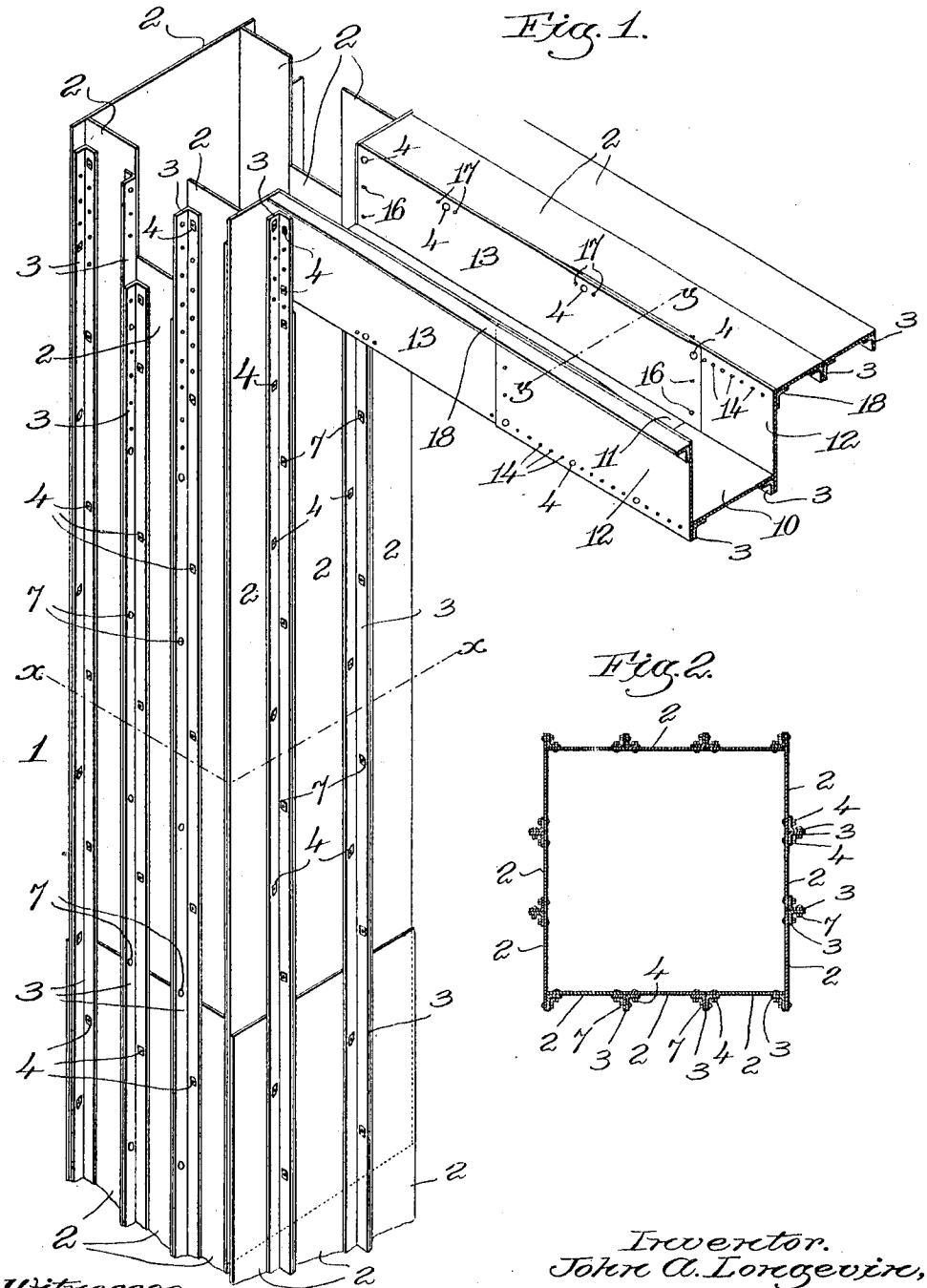


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

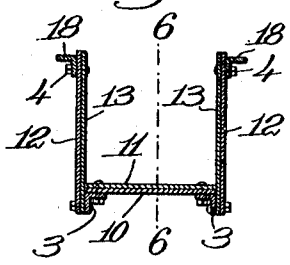


Fig. 6.

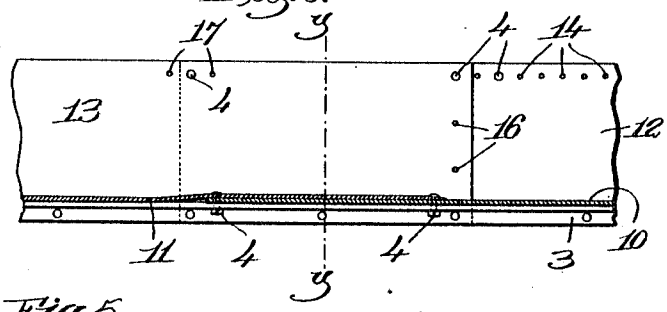


Fig. 4.

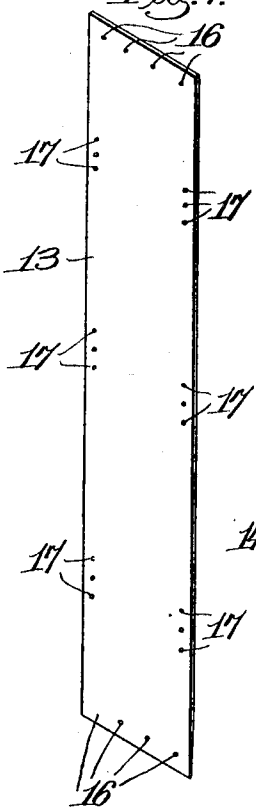


Fig. 5.

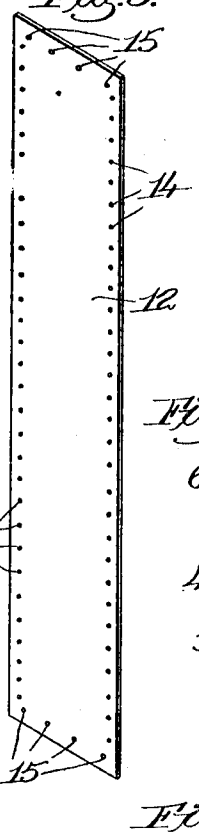


Fig. 7.

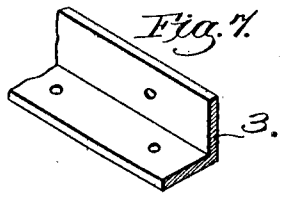


Fig. 8.

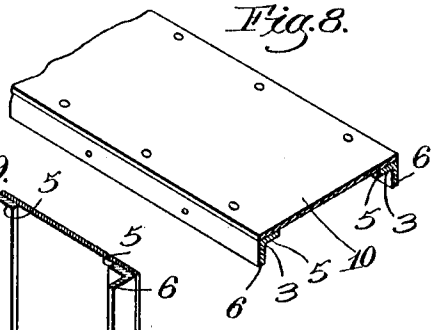


Fig. 9.

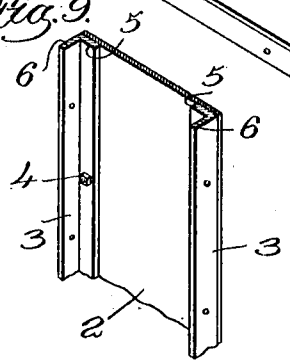
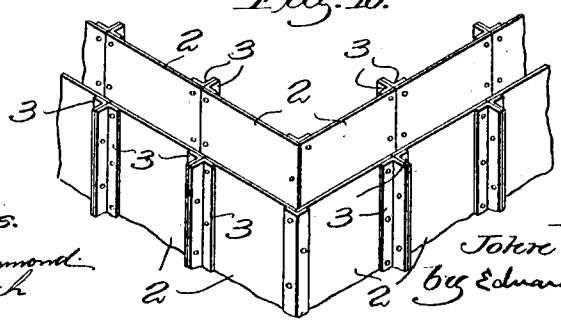


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN A. LONGEVIN, OF BOSTON, MASSACHUSETTS.

ADJUSTABLE METAL FORM FOR CONCRETE CONSTRUCTION.

1,119,969. Specification of Letters Patent. Patented Dec. 8, 1914.

Application filed April 29, 1912. Serial No. 693,963.

To all whom it may concern:

Be it known that I, JOHN A. LONGEVIN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Adjustable Metal Forms for Concrete Construction, of which the following is a specification.

This invention relates to adjustable forms for concrete construction and it has for its object to provide a novel adjustable form which can be quickly assembled for producing columns and beams of different sizes, shapes and lengths, and which is so constructed that the interior faces of the beam and column molds are smooth so that the concrete construction will have a smooth surface.

My improved form is made of plates which are arranged with their edges abutting so as to make a butt joint instead of a lap joint and angle-iron connecting members by which the sheets can be connected to make forms of the desired size, said sheets and angle-iron connecting members being so constructed that when the form is completed there will be no holes or cracks through which the water can leak as the cement is poured.

In the accompanying drawings I have illustrated some embodiments of my invention which I will now proceed to describe and will then point out the novel features thereof in the appended claims.

Figure 1 is a perspective view showing the upper end of a column form embodying my invention and a beam form associated with the column form; Fig. 2 is a section on the line *x—x*, Fig. 1; Fig. 3 is a section through the beam form on the line *y—y*, Fig. 1; Figs. 4 and 5 show the two plates which are used for constructing the beam form; Fig. 6 is a longitudinal section through a beam form on the line 6—6, Fig. 3; Fig. 7 is a perspective view of a portion of one of the angle-iron connecting members; Fig. 8 is a perspective view of the sheet which constitutes the bottom of the beam form with the angle-iron secured thereto; Fig. 9 is a perspective view of one of the sheets which are used in making the column mold with the angle-iron connecting members secured thereto; Fig. 10 is a perspective view showing a wall form embodying my invention.

The column mold is designated generally by 1 and it is formed of sheets 2 and angle-iron connecting members 3. The sheets 2 may be made of different widths and different lengths and I plan to have on any job a large number of sheets 2 of various widths and lengths.

In making the complete column mold a plurality of the sheets 2 will be used on each side of the mold from which a beam mold is to extend and may be used on all sides of the column mold if desired. In Fig. 1 each of three sides of the column mold is formed with three sheets 2, the center sheet being selected of a width equal to the width of the beam mold which is to extend from that side of the column mold. These three sheets 2 are placed edge to edge so that their edges make a butt joint and each sheet has an angle-iron connecting member 3 secured to each edge thereof by bolts 4. These angle-irons are arranged as shown with one leg 5 resting against the outer face of the sheet 2 and the other leg 6 extending outwardly at right angles from said face and flush with the edge. The sheets and angle-iron will be provided with suitable holes to receive the bolts 4.

In building up a column mold the sheets 2 of the required width are selected, each sheet having two angle-irons 3 secured to the edges thereof, and these sheets are then arranged with their longitudinal edges abutting each other and with the legs 6 of the connecting angle-irons in engagement with each other. The connecting members are secured together by bolts 7 which pass through the legs 6 of the connecting members. When the proper number of sheets 2 for each side of the mold have thus been assembled the sides of the mold are placed in proper position relative to each other and said sides are connected at the corners, as shown in Fig. 2, that is, the edges of the outside sheets 2 on two opposite sides of the mold overlap and are secured directly to the legs 6 of the connecting members 3 that are located at the outside edges of the other two sides of the mold, it being understood that the first-named sides of the mold do not have any angle-iron connecting members at their outer edges.

Where a beam is to connect with the column the intermediate or central sheet 2 will be selected to have a width equal to that of the beam mold, and in assembling said sheets the upper edge of this central

sheet will terminate below the upper edge of the column mold a distance equal to the depth of the beam mold. For instance, in Fig. 1, the central sheets 2 on two opposite sides of the column mold terminate below the top of said mold a sufficient distance to form the opening for a beam mold. All four sides of the column may be made of a plurality of sheets or if any side of the column is not to have a beam connected therewith, then the mold for said side can be made from a single sheet of the proper width, as shown in Fig. 1. The column mold can be made of any desired length by simply adding extra sheets and arranging the sheets in overlapping relation, one above the other, as shown in Fig. 1.

The beam mold is made with a bottom formed of two or more sections 10 and 11 and with sides, each formed with two sections 12 and 13. The bottom sections 10 and 11 are arranged in overlapping relation and may be overlapped more or less depending on the length of the beam desired. The bottom has secured to each edge thereof an angle-iron connecting member 3. The section 12 of each side member is provided with a plurality of holes 14 along each edge thereof and with holes 15 across the ends. The section 13 of each side is provided with holes 16 across each end and with groups of holes 17 along each edge arranged at suitable distance apart, the holes of each group being placed closely together. In setting up the beam mold the two sections of the bottom are placed so as to give a beam of the desired length and the angle-iron connecting members 3 of the proper length are then bolted to the bottom sections. The side sections 12 and 13 for each side are then arranged in overlapping relation so as to give the proper total length and are connected together and connected to the legs 6 of the connecting members 3 by bolts 4 which are placed through the apertures 17 and 14 of the two sections 12 and 13. The beam mold is finished by placing other angle-iron members 18 along the upper edges of the sides and securing them thereto by suitable bolts 4. When the beam mold is thus completed it is connected to the column mold by placing the end thereof in the opening formed in the upper end of the column mold by the displacement of the central sheet 2 and the ends of the beam molds are then connected to the legs 6 of the angle-irons that are connected to the outer sheets 2 of the column mold, the bolts extending through the apertures 15 and 16 of the side sections.

The section 13 of the sides of the beam mold will preferably be placed on the interior of the section 12 and the edge of the section 13 which overlaps the section 12 will be thin so that there will be no appreciable shoulder where the sections overlap. Similarly the inner section 11 of the bottom of the mold will be made thin at its edge so as to eliminate any shoulder at this point.

When the column and beam molds thus made are assembled all apertures which are formed in the different sheets and sections are covered either by other sheets or sections or by the angle-iron connecting members, and the joints between the sheets in a direction longitudinally of the columns or beams are all butt joints so that a smooth-faced column or beam can be cast. The advantage of having all apertures covered is that there will be no possibility that the water will leak out from the mold when the concrete is poured. The leakage of water in this way is detrimental because the water carries with it some of the sand or cement thus making an inferior cement mixture at the point where the leakage occurs.

In Fig. 10 I have shown a portion of a wall form made in accordance with my invention. This is made by sheets 2 having the angle-irons 3 secured thereto at their edges, said angle-irons operating to connect the sheets together as described with reference to the column mold. In practice I propose to make the sheets 2 of various widths, ranging all the way from four to thirty-six inches, and by means of my construction it is possible to quickly assemble the parts necessary for either a column mold or a beam mold of any desired size. Since my molds are made simply from sheet metal and angle-iron it will be seen that no specially-constructed parts are required and that the material necessary for the molds can be readily and inexpensively purchased in the open market.

In making the floor molds I use similar sheets 2 which are connected together by the angle-iron connecting members 3 and the outer edge of the sheets for the floor mold is secured to the laterally-extending legs 6 of the angle irons at the upper edge of the beam mold, as clearly seen in Fig. 1.

By means of my invention I can build forms for concrete to suit all work, such as foundations, floors, roofs, stairs, as well as columns and beams.

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

1. A mold for casting concrete columns, having at least one of its sides formed of a plurality of extensible and contractible sheet metal sections, each of which extends from one end to the other of the mold, and each of which comprises two sheets of the same width arranged in overlapping relation, an angle-iron connecting member secured to both longitudinal edges of each section on the exterior thereof and maintaining the sheets of each section in their adjusted posi-

tion relative to each other, the sections forming any side of the mold being placed with their adjacent edges abutting, and bolts connecting the angle-iron connecting members of the various sections.

2. In a form for casting concrete columns having a beam extending therefrom, the combination with three extensible and contractible sheet metal sections extending longitudinally of the form and arranged with their edges abutting each other, the center section having a width equal to that of the beam and arranged with its upper end a distance below the top of the column form equal to the depth of the beam, and angle-iron connecting members secured to the edges of the sections and connecting them together.

In testimony whereof I have affixed my signature, in presence of two witnesses.

JOHN A. LONGEVIN.

Witnesses:
MITCHELL J. LONGEVIN,
FRANK A. PAGE.

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