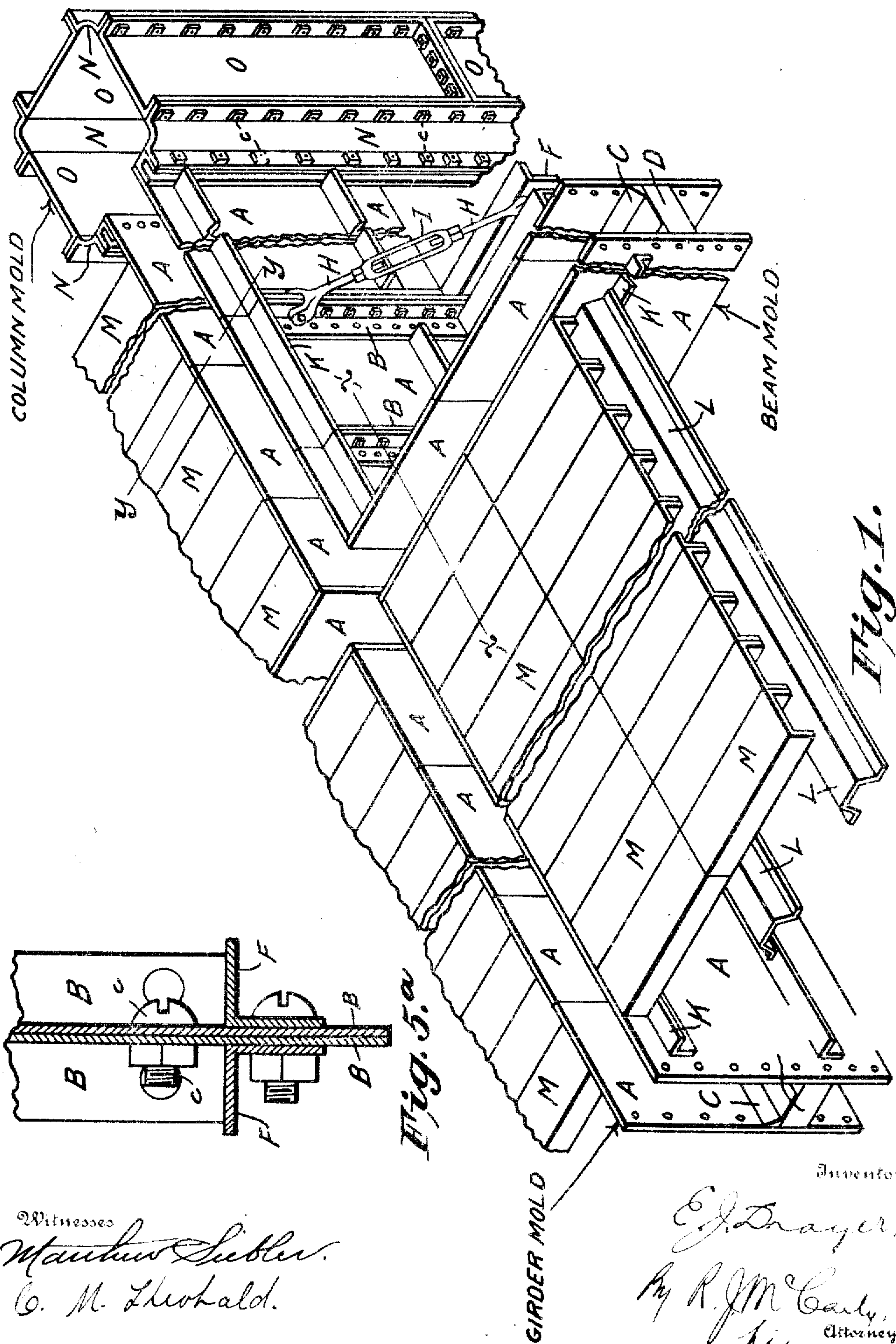


E. J. DRAYER.
MOLD FOR CONCRETE BUILDING CONSTRUCTION.
APPLICATION FILED NOV. 8, 1907.

910,515.

Patented Jan. 26, 1909.
3 SHEETS—SHEET 1.



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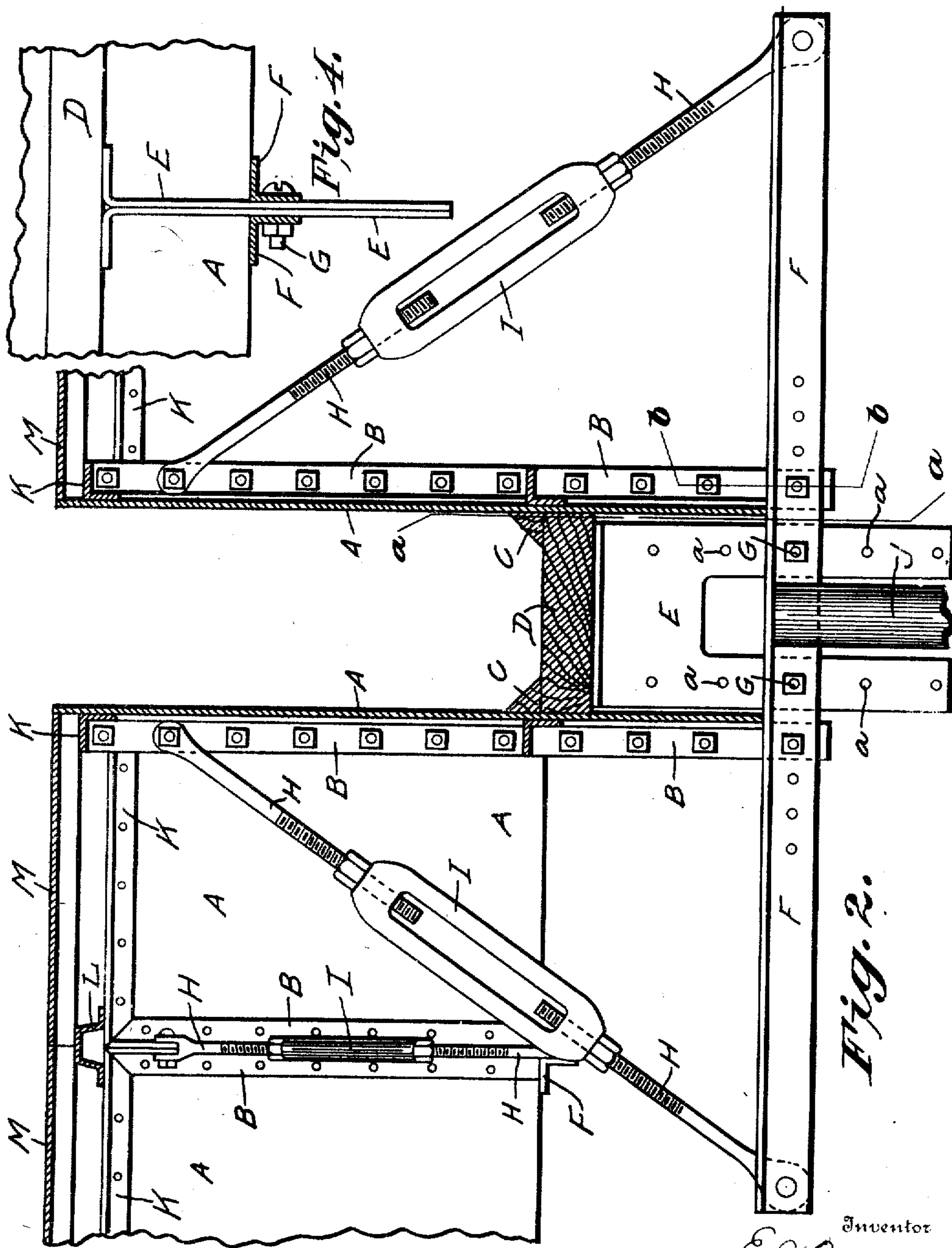
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UNITED STATES PATENT OFFICE.

EDGAR J. DRAYER, OF DAYTON, OHIO.

MOLD FOR CONCRETE BUILDING CONSTRUCTION.

No. 910,815.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed November 8, 1907. Serial No. 401,204.

To all whom it may concern:

Be it known that I, EDGAR J. DRAYER, citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Molds for Concrete Building Construction; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention comprises a universal metal concrete form for reinforced concrete work.

The object of the invention is to provide a metal form in which the entire concrete structure of each floor, to-wit—the columns, girders, beams and floor may be laid, and a single set of forms used.

The parts of the form may be put up or assembled in a comparatively short time, and taken apart in an equally short space of time for each succeeding operation until the entire floor structure of a building is completed.

Preceding a detail description of the invention, reference is made to the accompanying drawings, of which—

Figure 1, is a perspective view of my improved universal metal concrete form by means of which the concrete girders, beams and corner posts or columns, together with the concrete flooring are constructed. Fig. 2, is a sectional elevation on the line $y-y$ of Fig. 1. Fig. 3, is a sectional elevation on the line $x-x$ of Fig. 1. Fig. 4, is a detail view of the support for the bottom of the girder or beam molds on the line $a-a$ of Fig. 2. Fig. 5, is a detail sectional view showing the manner of uniting the sections of the molds on the line $v-v$ of Fig. 3. Fig. 5^a is a sectional view on the line $b-b$ of Fig. 2.

In a detail description of the invention, similar reference characters indicate corresponding parts.

The forms or molds by means of which the corner columns, the girders extending between the corner columns, the beams extending between the girders and the floor, are formed from concrete are illustrated more fully in the assembled view Fig. 1. The girder molds or forms and the beam molds or forms extend at right angles and intersect each other, and the upright post or column forms or molds join the ends of the girder forms or molds.

A A' designate the sections of the girder and beam forms or molds, said sections being joined by double angle irons B which lie vertically on the outer sides of said sections and overlap the abutting edges of said sections; the angle irons B are joined by bolts c to unite said sections. At the points where the girder forms or molds intersect the beam forms or molds, they are united by angle irons B' which are likewise united by bolts c to the abutting sections.

C designates angle beads fastened to the mold bottoms D to provide chamfers on the lower longitudinal edges of the concrete girders or beams when finished. The bottoms D are adjustable with their supports to obtain the desired depth of beam or girder when the molds are assembled as in Fig. 1. The said bottoms are supported on adjustable brackets E secured to double angle irons or bars F by means of bolts G which are insertible in the desired openings a . The double angle irons or bars F are secured to the angle irons B B' which unite the mold sections A A' by bolts G' which enter openings F' in the horizontal angle irons F. There is one of the double angle irons F placed at each joint between the mold sections A A'. Different horizontal widths of the beams and girders may be obtained by increasing the width of the molds, which is done by moving outwardly the angle irons B B and securing them to the angle irons F by the bolts G'. It will be observed that the angle irons F are provided with a series of bolt orifices F' into which the bolts G' may pass in thus moving outwardly the angle irons B. The molds for forming the concrete girders are of greater depth than the molds for forming the concrete beams owing to the girders having to sustain a greater weight. The sections A A' are braced by tie rods H which connect with the angle irons B B' and the angle irons or bars F, and have turn-buckles I for tightening them.

J designates a shoring or support of which there is one at every other section of the molds to take the entire weight of the girders, beams and flooring; they are adjusted to raise or lower the molds or forms by means of a jack (not shown.)

K designates angle irons attached to the upper outer sides of the mold sections A and which support the floor joists L, said floor joists being also formed of angle irons. The angular metallic floor panels M are supported upon the joists L at the adjoining ends of

said panels, and the ends of said panels that abut with a girder are supported upon the angle irons K. Where there is a concrete beam, the panels M are supported upon joists 5 L' which extend between parallel beams and the ends of which rest upon the angle irons K of the sections A of the beam mold or molds.

N designates vertical angle irons forming the four rounded corners of the column molds, 10 the sections O are the vertical walls of the column molds and these are united to the corner pieces N by flanges and bolts c similar to the manner of uniting the sections A A' of the girder and beam molds. All the bolt 15 openings are preferably two inches from centers to centers. There is a column mold or form united to each end of each girder form or mold by angle irons and bolts. In Fig. 1, only one of the column molds is shown as 20 united to one end of the girder form or mold. The column molds communicate with the ends of the girder molds a distance equal to the depth of the girder molds, the portion or portions of the column molds below the 25 girder molds being inclosed on all sides.

P designates adjustable sections in the girder molds at points where the beams intersect. These adjustable sections may be raised or lowered to suit the required depth 30 of beams by bolts; these sections P are attached to the sections A' by bolts c which pass through the angle irons B'.

In the use of my improved universal metal concrete form for reinforced concrete work, I 35 preferably put the column forms in position first, joining the girder forms thereto, and next, the beam forms are assembled in position, and the joists and floor panels are then placed in position. The concrete is then 40 poured to form the columns, girders, beams and floor for the first floor, the concrete for the floor being of suitable thickness. The concrete is then permitted to stand in the forms or molds until properly set, after which

the forms are separated and are re-assembled 45 in the same manner to lay the next section or floor, and the same operation is repeated until all the floors are laid.

It will be understood that the columns are extended as each floor structure is completed 50 and when the entire series of floors are laid, the columns each become practically one integral piece throughout the height of the structure.

I claim: 55

1. In a mold for concrete floor construction, girder and beam molds intersecting each other and united by vertical angle irons, horizontal angle irons to which said vertical angle irons are adjustably connected and 60 whereby different widths of beams and girders are obtainable, tie rods connecting the vertical and horizontal angle irons, turn buckles interposed between the ends of the tie rods, brackets adjustably connected to 65 the horizontal angle irons and whereby said brackets may be adjusted vertically, and mold bottoms supported on said brackets, substantially as specified.

2. In a mold for concrete floor construction, girder and beam molds intersecting each 70 other, the sides of said molds being joined by vertical angle irons, horizontal angle irons to which the vertical angle irons are adjustably connected and by means of which connections the widths of the molds may be in- 75 creased to obtain different widths of beams or girders, adjustable brackets lying within the molds, said brackets being adjustably connected to the horizontal angle irons, and 80 mold bottoms supported upon said brackets.

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

EDGAR J. DRAYER.

Witnesses:

R. J. McCARTY,
MATTHEW SIEBLER.