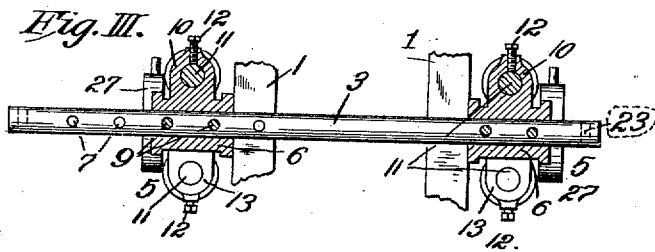
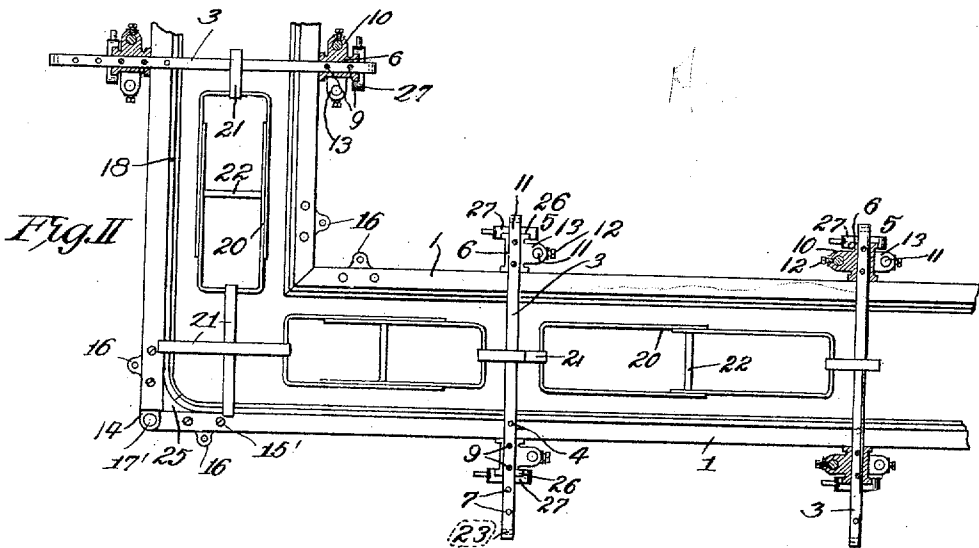
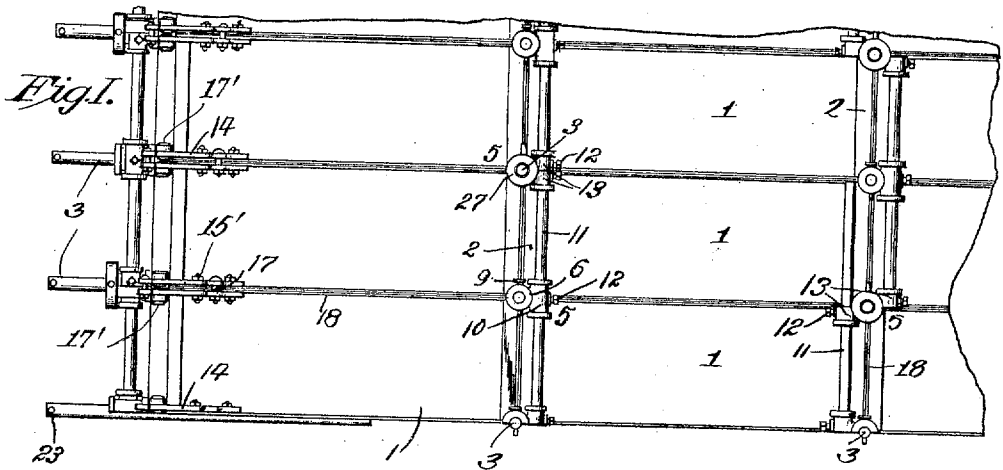


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 APPARATUS FOR FORMING CONCRETE STRUCTURES.  
 APPLICATION FILED FEB. 8, 1909.

967,408.

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2 SHEETS—SHEET 1.



WITNESSES:  
*B. B. Cahill.*  
*Myde & Jackson.*

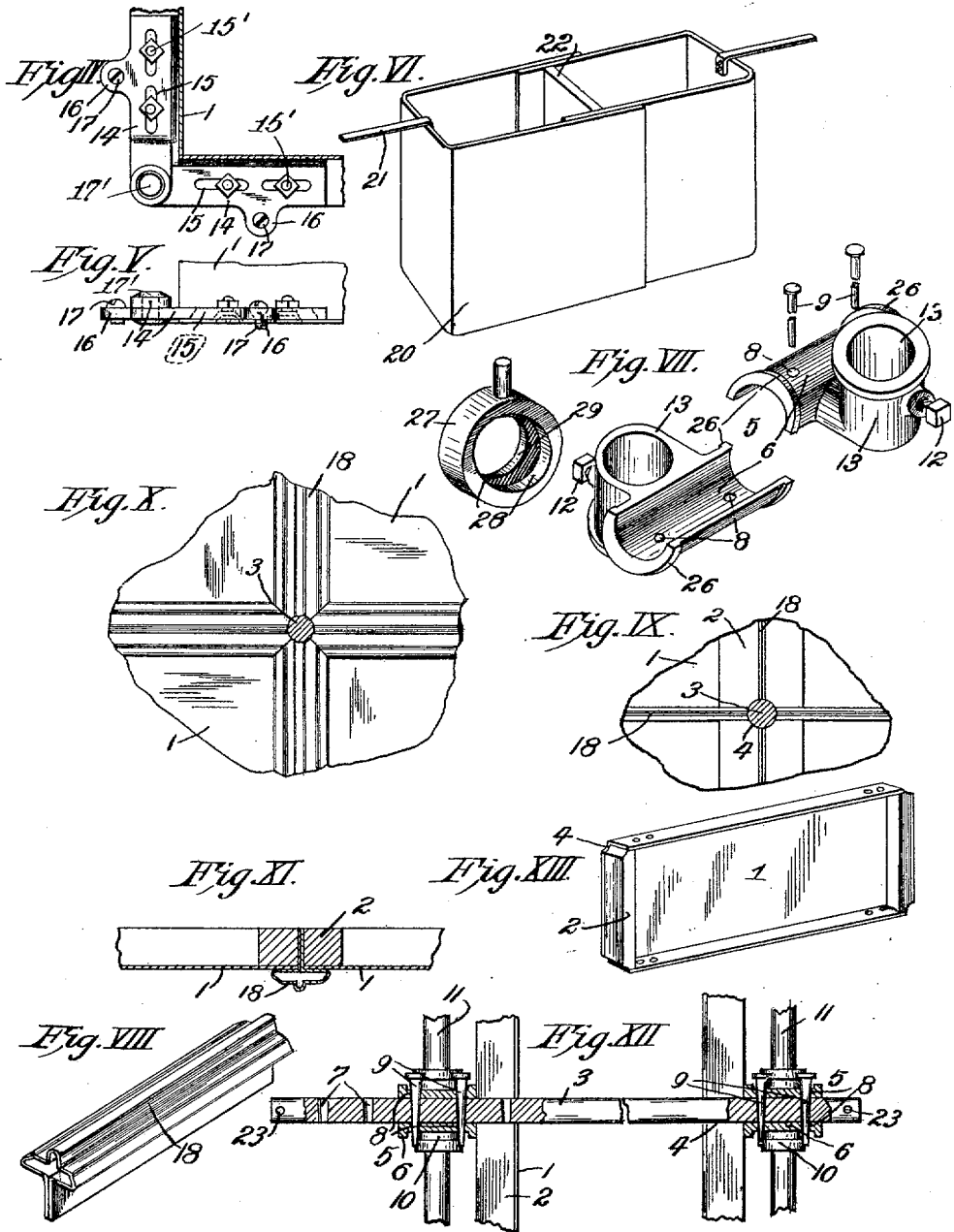
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2 SHEETS—SHEET 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALVA S. MERRIETT, OF KANSAS CITY, KANSAS.

APPARATUS FOR FORMING CONCRETE STRUCTURES.

967,408.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed February 8, 1909. Serial No. 476,715.

To all whom it may concern:

Be it known that I, ALVA S. MERRIETT, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Apparatus for Forming Concrete Structures; 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 and figures of reference marked thereon, which form a part of this specification.

My invention relates to an apparatus for forming concrete structures and has for its object to provide an apparatus of that class comprising mold parts which may cooperate with each other to form a continuous wall, or the like.

It is a further object of my invention to provide supporting parts for the mold plates, by means of which such plates may be built upon each other and connected at the ends in a manner to form an unbroken wall surface.

It is a further object of my invention to provide other improved details of structure such as the cores for forming air spaces within the walls, ridge plates for forming grooves at regular intervals in the wall face during the molding process, to give the finished wall an appearance of a block structure, and other details which will presently be fully described and pointed out in the claims, reference being had to the accompanying drawings in which like reference numerals refer to like parts throughout the several views, and in which:—

Figure I is a view in side elevation of a number of sections of an apparatus constructed according to my invention. Fig. II is a plan view of same. Fig. III is an enlarged detail view of a mold guide frame. Fig. IV is an enlarged plan view of one of the corner hinges. Fig. V is an edge view of same. Fig. VI is a perspective view of the mold core. Fig. VII is a similar view of one of the frame joints. Fig. VIII is a similar view of one of the groove forming members. Fig. IX is a view of the abutting corners of four of the mold plates, showing the groove forming members carried thereby, together with a frame cross bar. Fig. X is an inner view of the same parts. Fig. XI is a

horizontal sectional view of same. Fig. XII is a vertical sectional view of one of the mold frames. Fig. XIII is a detail view of one of the mold plates.

Referring more in detail to the parts:—1 designates the mold plates which are preferably constructed of sheet metal and are bent at the edges and provided with strengthening pieces 2 to provide a rigid structure and prevent buckling.

3 designates cross bars, preferably consisting of rounded metal rods, which are adapted to extend transversely across the wall space and fit within grooves 4, in the corners of the mold plates 1, to enable the edge flanges of the latter to fit snugly against each other.

5 designates the frame joints which preferably consist of the collars 6 which are carried by and adapted for sliding travel on the rods 3 and are provided with the apertures 8 through which, and through the apertures 7 in the frame rods 3, the pins 9 are adapted to project, for the purpose of anchoring the joint collars firmly thereon, a plurality of such pins being preferably projected through each joint collar in order to obviate revoluble movement of the collar on its rod; also forming part of the frame joint is a collar 10 which is preferably formed integral with the collar 6 and extends at a right angle thereto.

11 designates perpendicular frame rods which are adapted to slide in the channels of the collar 10 and to be anchored therein by set screws 12.

13 designates top or bottom joints which are constructed similarly to the joints 6—10 but are cut in half, transversely of the collar 10 and longitudinally through the channel of the collar 6, so that the collar 6 may be fitted onto the rods 3 or the rods set into such channels, while the body of the joint is flush with the lower or upper edge of one of the mold plates. The full collars are provided with the end flanges 26, which are preferably wider at the sides of the collar than at the top or bottom.

27 designates a keeper ring which has an inturned flange 28 at one end of substantially the same formation as the collar flanges, in order that said ring may fit over the collar rings and be turned behind same to lock the ring upon the collar. At the side of ring 27, opposite flange 28, is a wide flange 29 which is adapted to bear against

the ends of the joint collars and limit the inward travel of the rings, the collar flanges 26 being inclosed between the ring flanges 28 and 29 when the pair are assembled.

5 On the top and bottom flanges of each mold plate which is to be used in forming the corner of a structure I attach a hinge plate 14. Each of the hinge plates is provided with the longitudinal slots 15, through  
10 which the bolts 15' that attach same to the mold plate flanges are projected. Projecting laterally from one edge of each of the hinge plates is a perforated lug 14'. The hinge plates are bolted to the mold plate  
15 flanges with their apertured ends projecting from the mold frame. After the mold plates are built upon each other the hinge plate of a lower member is secured to the hinge plate on the lower flange of the super-  
20 imposed mold plates by passing a bolt 17 through the apertures in the lugs 14' of the superimposed hinge members. On the mold plates of the wall that is set at an angle to the one just described, are hinge plates  
25 which are identical with those spoken of, with the exception that their projecting ends are offset to overlap the ends of the first plates.

17' designates a rivet which is projected  
30 through the rivet holes in the overlapped ends of the hinge plates and thus fastens the corner molds together.

18 designates a groove forming member which is preferably constructed of a single  
35 piece of sheet metal, the edges of which are bent upon each other and adapted to seat between the abutting flanges of adjoining mold plates, so that the grooving member may be held firmly in position, one of such  
40 members being arranged between each mold plate when it is desired to have the finished structure bear the appearance of having been built of blocks or cut stone.

In order to provide air spaces in the  
45 molded structure, I provide the cores 20, which preferably consist of a pair of U shaped sheet metal bodies, one of which is adapted to slide within the other in order that the length of the core may be varied.  
50 Attached to the base of each of the U pieces is a bracket 21 which is adapted for support on the cross bars 3 of the mold frame and 22 designates a spreading piece which is adapted to fit within the core and retain the  
55 spring sides in extended position and in such close frictional engagement that they will form a rigid body when assembled, and may be supported from the brackets 21.

In order to facilitate the handling of the  
60 cross rods 3, I provide same with the perforations 23 into which hooks, or the like, may be projected to secure a hold on the bars when it is desired to move or draw same from the set structure.

25 designates a corner block which may be

set within the mold chamber for the purpose of shaping the corner of the molded structure.

In using the apparatus the cross rods 3 of the mold frame are set on a suitable foundation, and mold members 1 posited thereon,  
70 the cut out portions at the corners of the mold plates allowing the latter to set over the rods, so that their edge flanges abut against each other at the end and extend in  
75 the same plane at the bottom. The joints 6—10 are then fitted onto the cross rods and succeeding mold plates built on, the succeeding plates being anchored in position by the  
80 succeeding joints 6—10 which are attached to the perpendicular frame rods 11, by the set screws 12, and to the cross rods 3 by the pins 9, the width of the structure being regulated  
85 by the position of the joint collars 6 on the cross rods, as by providing a plurality of apertures 7 in the cross rods, the joint collars on opposite sides of the mold may be anchored at suitable distances apart to provide the desired mold width.

As shown in Fig. I, the split joint mem-  
90 bers 6—13 should be alternated with the solid joint members 6—10, along horizontal lines, for stiffening the mold structure, which would be somewhat weakened were  
95 all the split members arranged in horizontal lines. At the abutting ends of the vertical rods 11, the divided joint members 6—13 are placed.

As the mold plates are being assembled, the groove plates 18 are set therewith by  
100 projecting their holding flanges between the mold plate flanges, so that when material is placed within the completed mold it is formed around the groove pieces and set to resemble a block structure.

By providing cores such as I have shown  
105 and described, the air spaces within the structure may be varied in length by moving the U pieces toward or from each other, and by providing the end brackets for the  
110 U pieces, the core body may be supported within the mold before the material is placed therearound.

With the mold plates of the inner and  
115 outer mold sections, provided with hinges, a corner of a desired angle may be set, the pin and slot connection of the hinge plates with the mold frame allowing the mold plates to be moved toward and from each  
120 other to provide the proper adjustment.

It is readily apparent that lower mold  
plates may be removed from the inner and outer sets when the material has hardened and used to build up on those thereabove, and that the cross rods 3 may be loosened  
125 and drawn from the hardened material.

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

1. A mold structure comprising upright 130

mold plates, arranged in two tiers, trans-  
 verse rods connecting the tiers and project-  
 ing at both ends, coupling members each  
 5 having a horizontal and a vertical bore there-  
 through, said members being mounted on  
 said transverse rods, vertical rods passing  
 through the vertical bores and connecting  
 superposed coupling members, said trans-  
 verse rods passing entirely through said  
 10 horizontal bores and means for securing said  
 members adjustably upon the vertical and  
 the horizontal rods.

2. In a mold structure of the kind de-  
 scribed, mold plates, vertical and horizontal  
 15 stays, in combination with a two-part coup-  
 ling comprising similar halves adapted to

fit together, said coupling when assembled  
 having a vertical and a horizontal bore  
 adapted to receive a vertical and a horizontal  
 stay respectively, the division between the 20  
 parts being through the center of the hori-  
 zontal bore, flanges on the ends of the hori-  
 zontal bore, and keeper rings adapted to  
 pass over said flanges and be rotated, for the  
 purpose specified.

In testimony whereof I affix my signature 25  
 in presence of two witnesses.

ALVA S. MERRIETT.

Witnesses:

MYRTLE M. JACKSON,  
 E. A. CAHILL.