E. C. MARQUA.

DOME FOR CONCRETE STRUCTURES.

APPLICATION FILED JAN. 11, 1918.

1,305,299.

Patented June 3, 1919.

Fig. I.

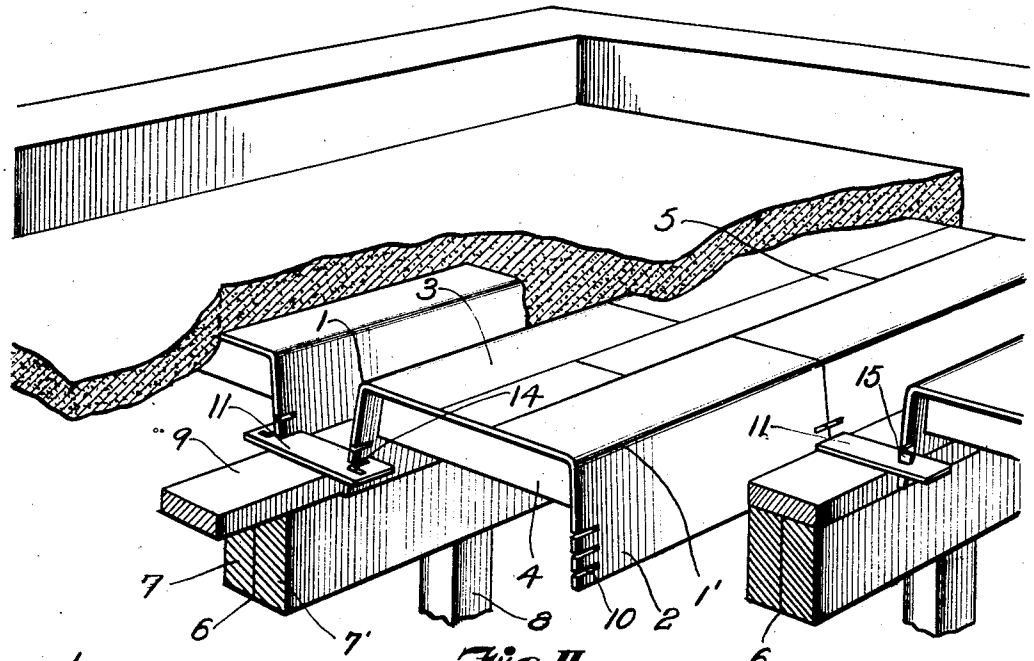


Fig. II.

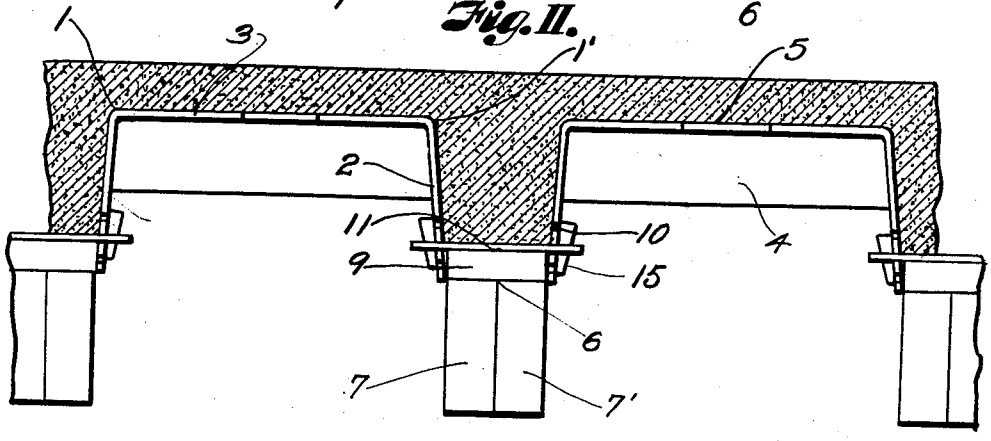


Fig. IV.

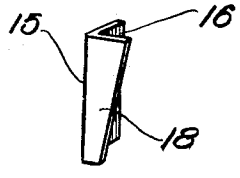
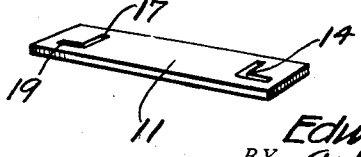


Fig. III.



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DOME FOR CONCRETE STRUCTURES.

1,305,299. Specification of Letters Patent. Patented June 3, 1919.

Application filed January 11, 1918. Serial No. 211,415.

To all whom it may concern:

Be it known that I, EDWARD C. MARQUA, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Domes for 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 forms for concrete floor and joist construction and more particularly to vertically adjustable form domes for use in such work; the principal object of the invention being to provide domes of this character together with supporting members whereby the domes may be supported on soffits or centering beams and whereby they may be held at an adjusted position so as to form a beam of a desired depth.

Heretofore various forms of adjustable domes have been used to obtain a desired spacing of joists but no practical dome has been provided whereby a variation in depths of the joists may be obtained, and it is common practice to provide separate sets of domes of different depths when it is desired to form beams or joists of different depths.

By the present construction I have made it possible to use the same domes in the construction of floor joists of various depth, and have so constructed the same that the supporting members may be easily and quickly applied to support the same to form a beam of any desired depth between certain limits.

In accomplishing the object of the present invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Figure I is a perspective view of a concrete floor partially formed showing the arrangement of domes constructed according to the present invention on the centering soffits, and particularly illustrating the application of the supporting plates thereto.

Fig. II is a transverse vertical section of the finished floor before the domes are removed.

Fig. III is a detail perspective view of one of the dome connecting and supporting plates.

Fig. IV is a detail perspective view of an anchor pin used with the connecting plate.

Referring more in detail to the drawings—

1—1′ designates the opposite side sections of a dome embodying the present invention each of which comprises a substantially vertical side wall 2 and a top portion 3 which coöperate, when the parts are in position, to form the walls of a mold for the joists and intervening floor slab. The sections 1—1′ are here shown as a single piece, but I do not wish to be limited to any particular construction as it is apparent that single piece domes, or an adjustable dome comprising several sections of either metal or wood could be used in the presently described manner with the same results.

In the present instance I have shown an adjustable dome, wherein the opposite side sections are spaced apart by transversely arranged removable beams or webs 4 of a length desired to give the joist to be formed certain spaced relation and the space between the adjacent edges of the top members 3 of the sections is closed by a filler strip 5 which it is intended to extend beyond the end of the dome so that it may seat in the space of an abutting dome to lock the domes in proper alinement so that displacement wherein the concrete is poured, is not possible.

When it is desired to construct a floor of the character shown, the supporting soffits or centering beams 6 are first arranged in parallel alinement at a distance apart equal to the desired spacing of the joists for supporting the finished floor. The preferred method of building these supporting beams consists in placing the flat side faces of two 3″x6″ beams 7—7′ together and supporting the same edgewise on posts 8 of sufficient strength to substantially support the floor until it sets. On the top edge of the beams 7—7′, I place a 2″x6″ beam or soffit 9, however, the width of this latter beam depends upon the width of joist desired.

With the supporting beams so constructed, the domes to be used are adjusted to fit there-between and are moved into position.

In order that the domes may be supported at a position to give the desired depth of joist, I provide the opposite end or vertical

edges of each of the side walls 2 with regularly spaced recesses 10 which are adapted when the domes are arranged in end abutment to coöperate to form horizontally disposed slots of such size to snugly receive the end portion of supporting plates 11; the latter being placed transversely across the supporting soffits with their opposite ends extending beyond the edges of the beams and seated in the registering recesses of the abutted domes, so that the plates not only support the domes but also retain the same locked together in vertical adjustment. Each of the supporting plates 11 is provided at its opposite ends with an L-shaped slot 14 adapted to receive wedge pins 15, the latter comprising a flat side 16 adapted to move within the portion 17 of the slots 14 and a tapered side 18 adapted to move within the portion 19 of the slot so that the pins may be wedged within the slots to draw the domes tightly against the form beams.

To locate the domes for a floor of this character, the supporting soffits are first erected in parallel alinement and the domes adjusted for the proper span are placed in end abutment therebetween and are supported at opposite sides of the beams by extending the oposite ends of the plates 11 through the coöperating recesses 10 in the side walls to support the domes at the desired height, it being apparent that if a deep joist is to be formed the plates are extended into the slots adjacent the lower side of the dome walls while if a shallow joist is desired, they are inserted in the recesses adjacent the upper edge of the walls.

After the plates have been inserted, they may be locked by projecting the wedge pins through the end slots therein and the parts drawn tightly together to prevent any possible displacement from alinement wherein the concrete is poured thereon.

It is apparent that by so constructing the domes, and supporting the same from the centering soffits, the domes may be supported at a number of different elevations to form joist of different depths and by using a dome adjustable to different spans, a floor of any desired weight may be made by the use of the same domes.

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

1. The combination with parallel supporting beams of domes arranged in end abutment between the beams, each of said domes having substantially vertical side walls adjacent the beams provided at their opposite end with notches or recesses adapted to register coöperatively with like recesses of abutting domes, dome supporting plates having openings adjacent to their respective ends and mounted transversely on the beams having their openings in the opposite ends extending into said coöperating recesses to support the domes at opposite sides of the beams and wedge pins inserted through the opposite ends of said plates and engaging the inner faces of said dome walls to retain the same locked to the supporting plates and the latter in functional position.

2. The combination with parallel supporting beams of domes arranged in end abutment between the beams, each of said domes having substantially vertical side walls adjacent the beams provided at their opposite ends with notches or recesses adapted to register coöperatively with like recesses of abutting domes, supporting plates mounted transversely on the beams having their opposite ends extending into said coöperating recesses to support the domes at opposite sides of the beams; said plates having slots adjacent their opposite ends and wedge pins removably inserted in said slots and tightened against the inner sides of said dome walls to hold the domes and supporting plates in functional position.

3. The combination with parallel supporting beams, of domes arranged in abutting alinement between said beams, each of said domes having substantially vertical side walls adjacent to the beams and provided at their respective ends with notches registering with corresponding notches in the abutting end of the next succeeding dome, plates resting upon the beams and having their respective longitudinal edges engaging alining notches in adjacent domes, the plates being provided with angular slots adjacent to their respective ends and keys comprising angles engaging the slots and having their respective edges bearing against the sides of the domes to relock the domes to the supporting plates.

4. The combination with parallel supporting beams, of domes in longitudinal alinement between said beams, the domes being of substantially inverted form, the meeting edges of the alining beams having coinciding notches, flat plates fitting in the coinciding notches in the side edges of one set of domes and resting upon a beam, and engaging coinciding notches in an adjacent set of domes on the opposite side of the beam, said plates having openings near their respective ends and keys passing through the openings in the plates and bearing against the sides of the domes to lock them to the plates and to the beams.

In testimony whereof I affix my signature.

EDWARD C. MARQUA.