

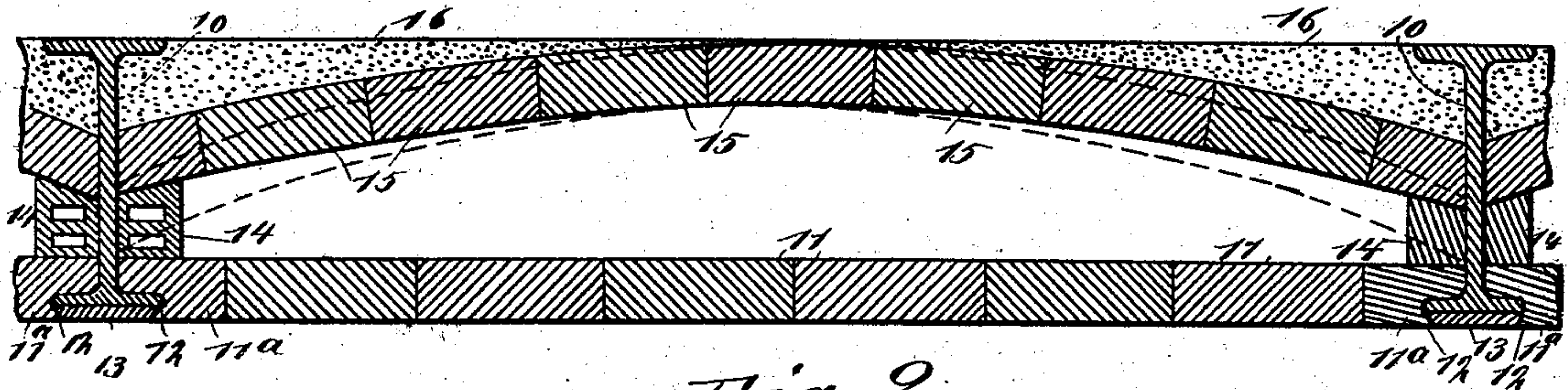
(No Model.)

P. J. L. DE RACHE.  
CONSTRUCTION OF FLOORS, CEILINGS, ARCHES, &c.

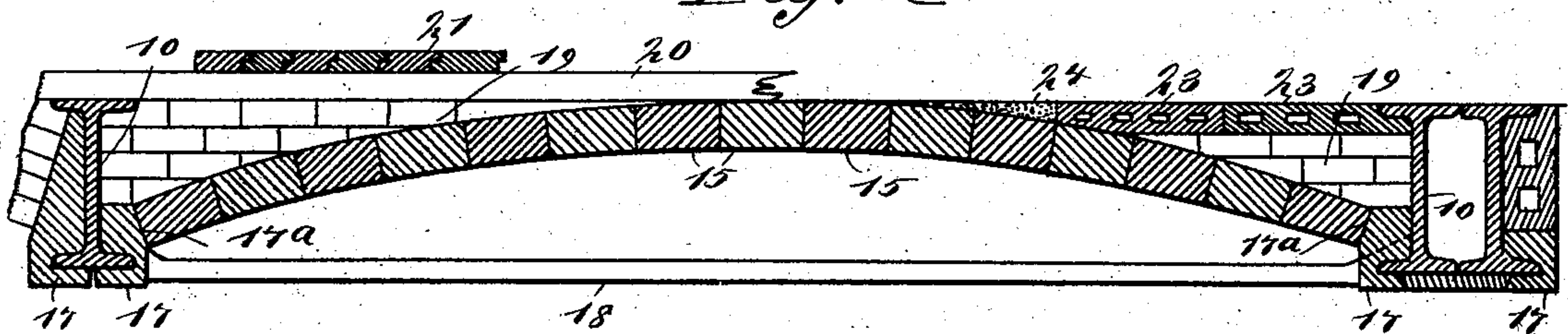
No 506,478.

Patented Oct. 10, 1893.

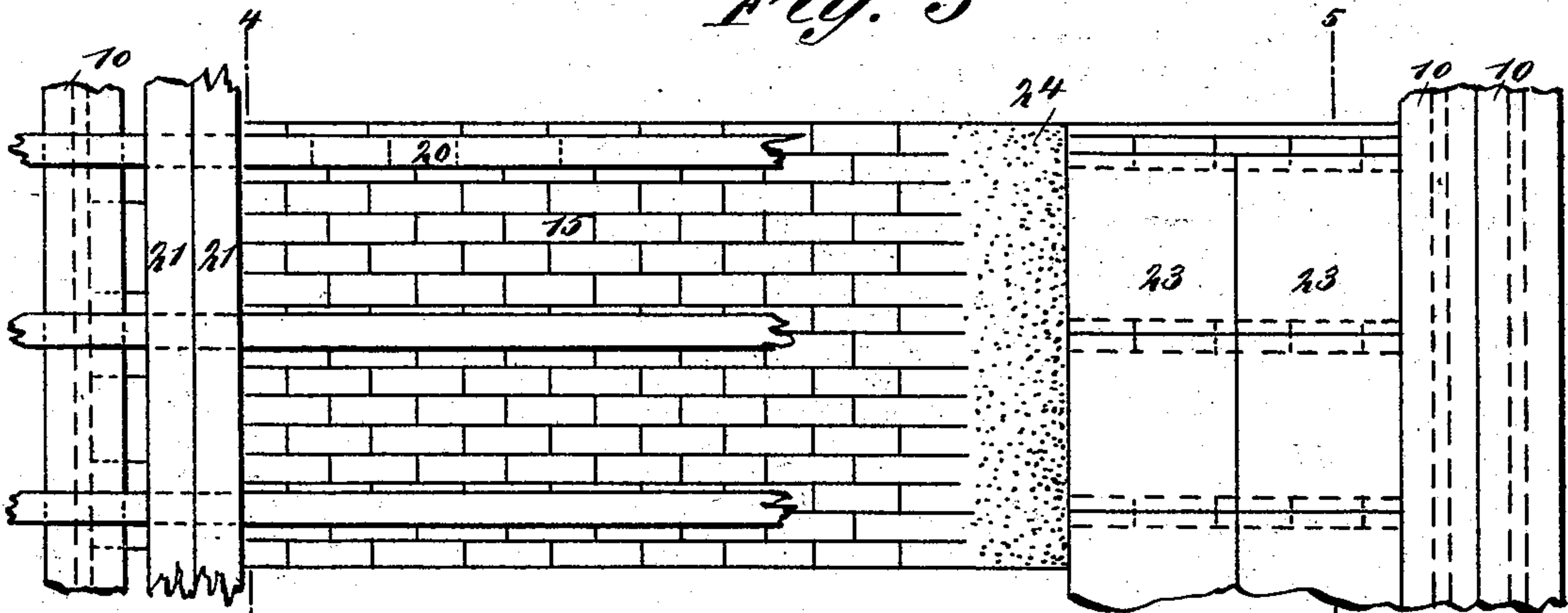
*Fig. 1*



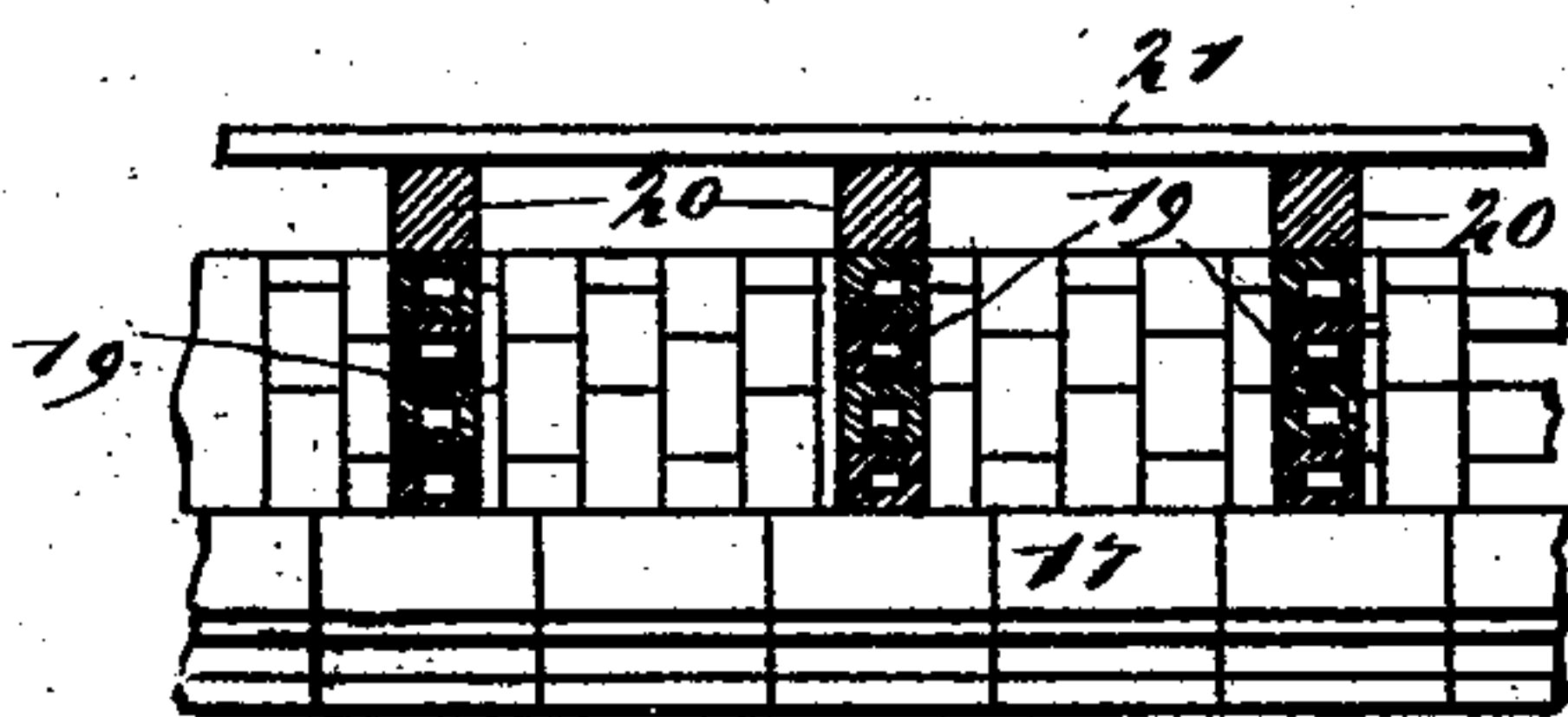
*Fig. 2*



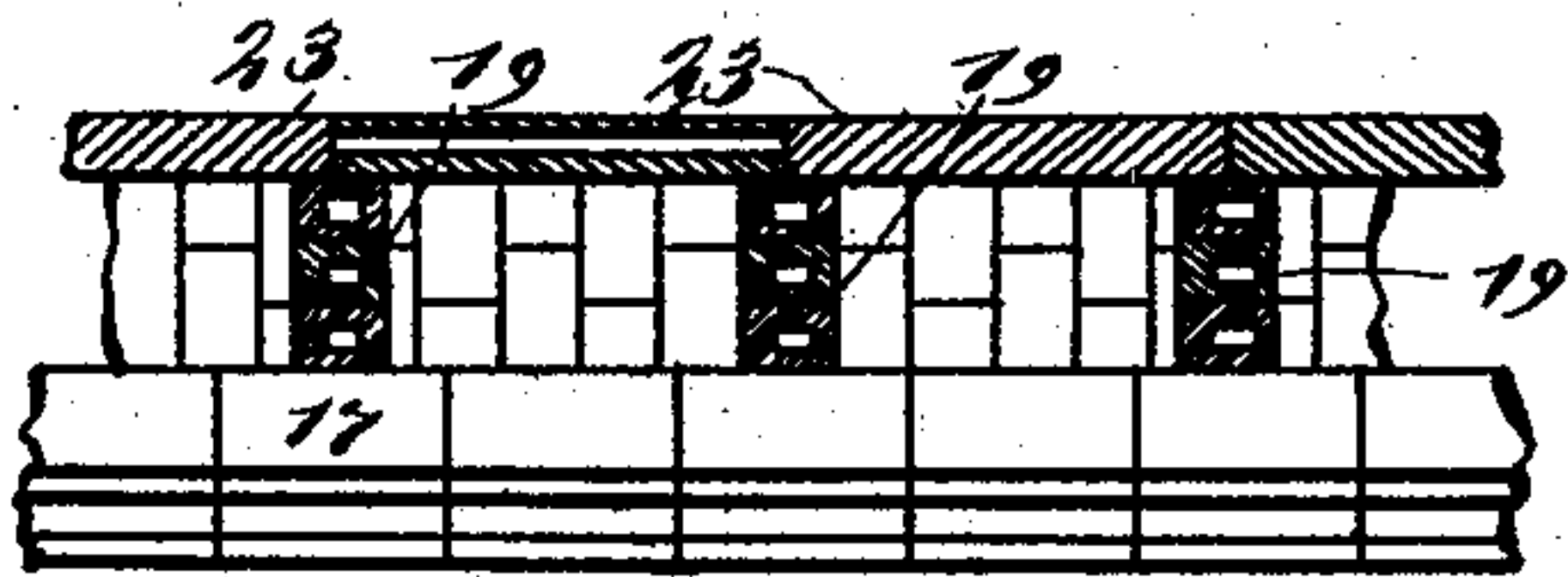
*Fig. 3*



*Fig. 4*



*Fig. 5*



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# UNITED STATES PATENT OFFICE.

PIERRE J. LEONARD DE RACHE, OF NEW YORK, N. Y.

## CONSTRUCTION OF FLOORS, CEILINGS, ARCHES, &c.

SPECIFICATION forming part of Letters Patent No. 506,478, dated October 10, 1893.

Application filed June 11, 1892. Serial No. 436,316. (No model.)

*To all whom it may concern:*

Be it known that I, PIERRE J. LEONARD DE RACHE, of New York city, in the county and State of New York, have invented new and useful Improvements in the Construction of Floors, Ceilings, Arches, and Similar Structures, of which the following is a full, clear, and exact description.

My invention relates to improvements in the construction of floors, ceilings and arches.

The object of my invention is to produce a combined floor, arch and ceiling in which the ceiling is flat, the floor arched, but provided with a flat top surface, and in which a comparatively large and unobstructed air chamber is arranged between the floor and ceiling, this chamber serving as a deafening chamber and preventing sound from being carried vertically through the floor and ceiling.

A further object of my invention is to construct a floor, ceiling and arch which may be cheaply made and will have great strength.

To this end my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a cross section of an arched floor and ceiling. Fig. 2 is a view of a slightly modified form of the same, the ceiling in this case not being shown. Fig. 3 is a plan view of the arched floor illustrated in Fig. 2. Fig. 4 is a cross section on the line 4—4 in Fig. 3; and Fig. 5 is a cross section on the line 5—5 in Fig. 3.

The arched floor and ceiling illustrated in Fig. 1 is arranged between parallel beams or girders 10 of the usual kind, and the ceiling is composed of bricks, blocks, tiles 11, or similar things commonly used for the purpose, these being laid in parallel courses but so as to break joints; and the said bricks, blocks, or tiles are laid perfectly flat while the blocks 11<sup>a</sup> which bear upon the flanges of the girders 10 and which come at the ends of the courses, are recessed to fit snugly upon the flanges of the girders and have lips 12 which project beneath the girders so that a key 13 may be inserted between the lips of opposite

and adjacent bearing blocks, thus covering the girder bottom and making a smooth finish.

On the bearing blocks 11<sup>a</sup>, next the girders 10, are preferably placed supporting blocks or skew backs 14 which may be solid, as shown at the right-hand in Fig. 1, or hollow, as shown at the left-hand, and these support the end blocks, tiles, or similar things 15 which are laid end to end and which are arched to form the floor, these being held, as illustrated in Fig. 1, a sufficient distance above the ceiling 11 to form a dead air chamber between the floor and ceiling. If greater strength is required, however, the skew backs 14 may be dispensed with and the end blocks 15 placed directly upon the bearing blocks 11<sup>a</sup> and against the girders 10, as shown by dotted lines in Fig. 1. The floor may be evened up by laying concrete at the ends of the arch, as illustrated at 16 in Fig. 1. As shown in Figs. 2 to 5, the arch is constructed with a view of giving it great strength, and the ceiling is not shown. In this construction the girders 10 are placed parallel with each other, as above described, and skew backs or bearing blocks 17 are fitted to the lower portions of the girders in substantially the way the blocks 11<sup>a</sup> are fitted, as described above, and between the girders are placed cross beams or tie bars 18 which may be of any approved form and the ceiling, made of blocks, tiles, or similar things 11, may be laid between girders and parallel with the beams or tie bars 18, as already described.

The skew backs or bearing blocks 17 have bearing faces 17<sup>a</sup> on their upper and inner sides, which are inclined so that the arch blocks or tiles 15 may be built out from the bearing faces at a right angle. The floor or arch made up of the blocks or tiles 15, bears, at necessary intervals upon its upper side and near the ends, vertical supports 19 formed of bricks, blocks, tiles or similar things which are built up so as to be level on top, and these may support stringers 20, as shown at the left-hand in Figs. 2 and 3, or instead of laying this sort of a floor, slabs 23 of suitable material may be laid upon the supports 19, as shown at the right-hand in Figs. 2, 3 and 5, and the floor between the center of the arch and the slabs leveled up with concrete 24.

It will be observed that the form of arch



shown in Figs. 2 to 5, is very strong and capable of sustaining a great weight; and it will be further observed that the construction of the arched floor, as shown in Figs. 2 to 5 may be combined with the ceiling, as illustrated in Fig. 1, and that the deafening chamber will be produced in the same way between the floor and ceiling.

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

— In the construction of floors, ceilings, arches, and similar structures, an arch formed of

parallel beams, parallel courses of bricks, blocks, tiles, or similar things arranged between the beams and forming a ceiling, supporting blocks or skew backs arranged above the courses and adjacent to the beams, and a curved floor supported on the skew backs between the beams, the floor and ceiling having a clear and unobstructed space between them, substantially as described.

PIERRE J. LEONARD DE RACHE.

Witnesses:

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