

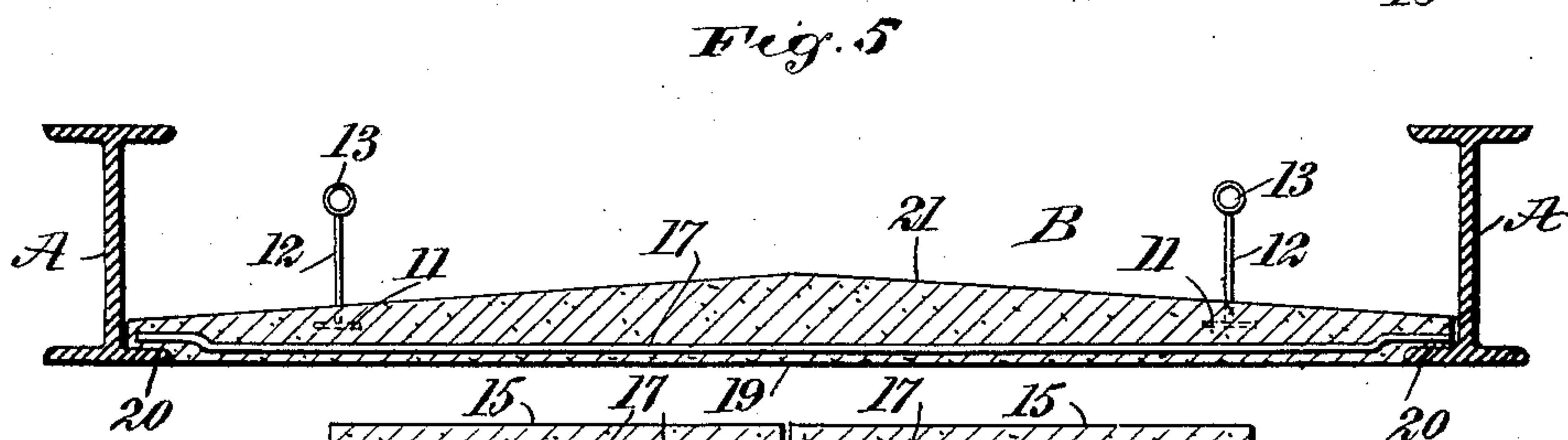
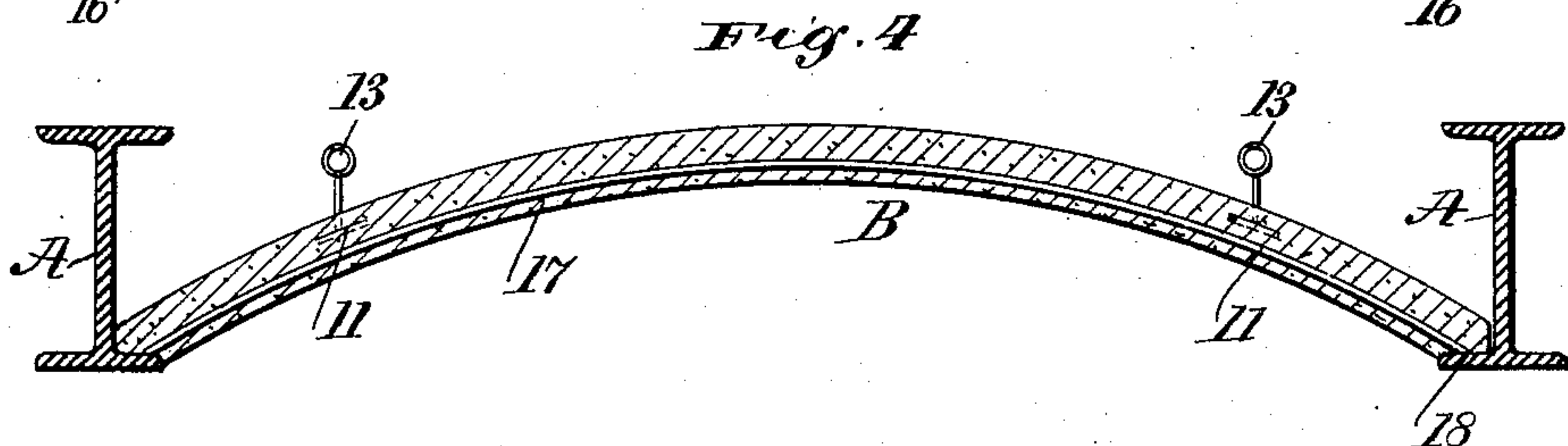
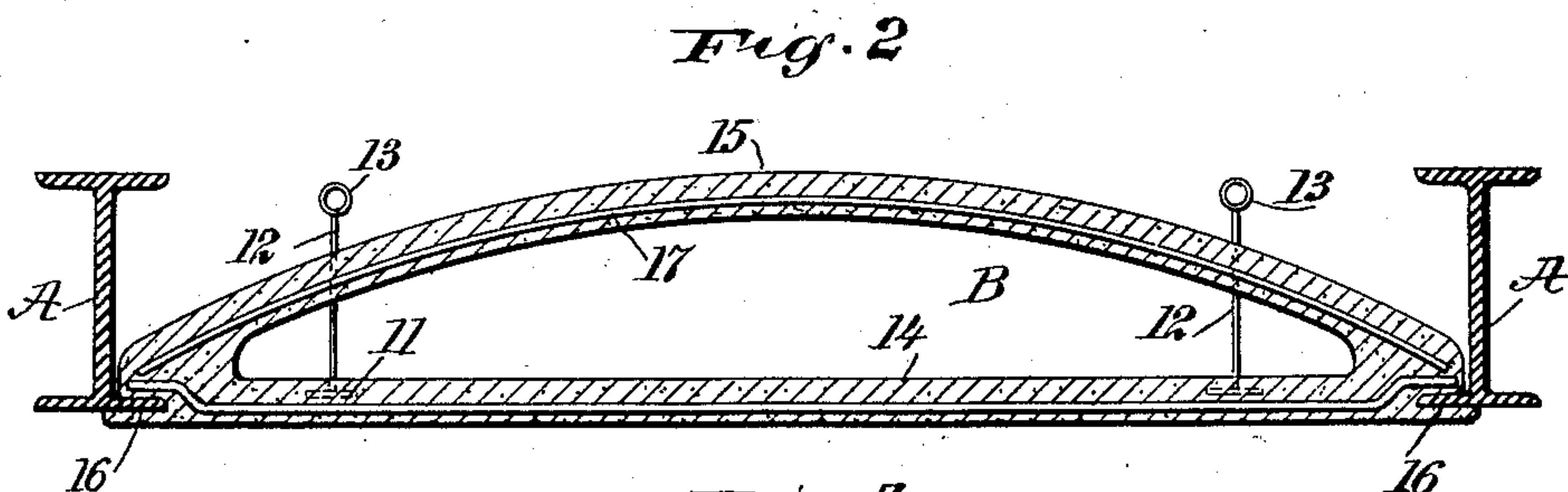
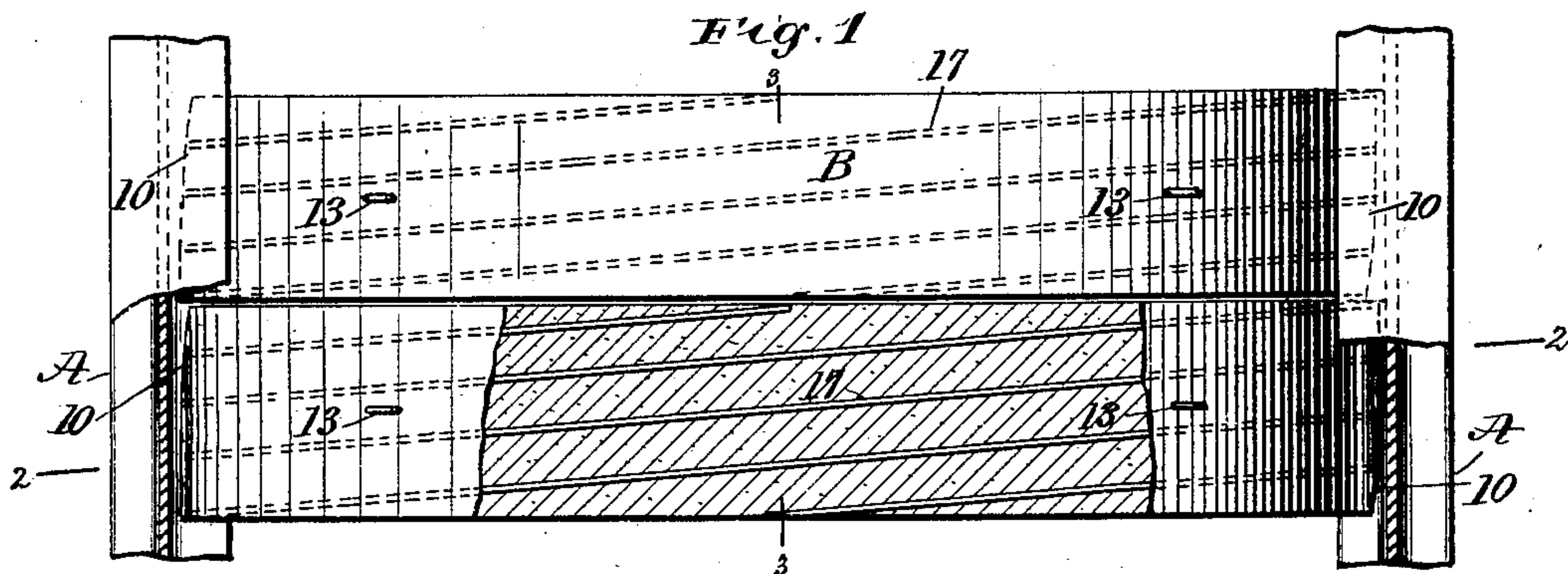
No. 763,690.

PATENTED JUNE 28, 1904.

H. & C. D. OLIVER.  
FIREPROOF FLOOR AND CEILING CONSTRUCTION.

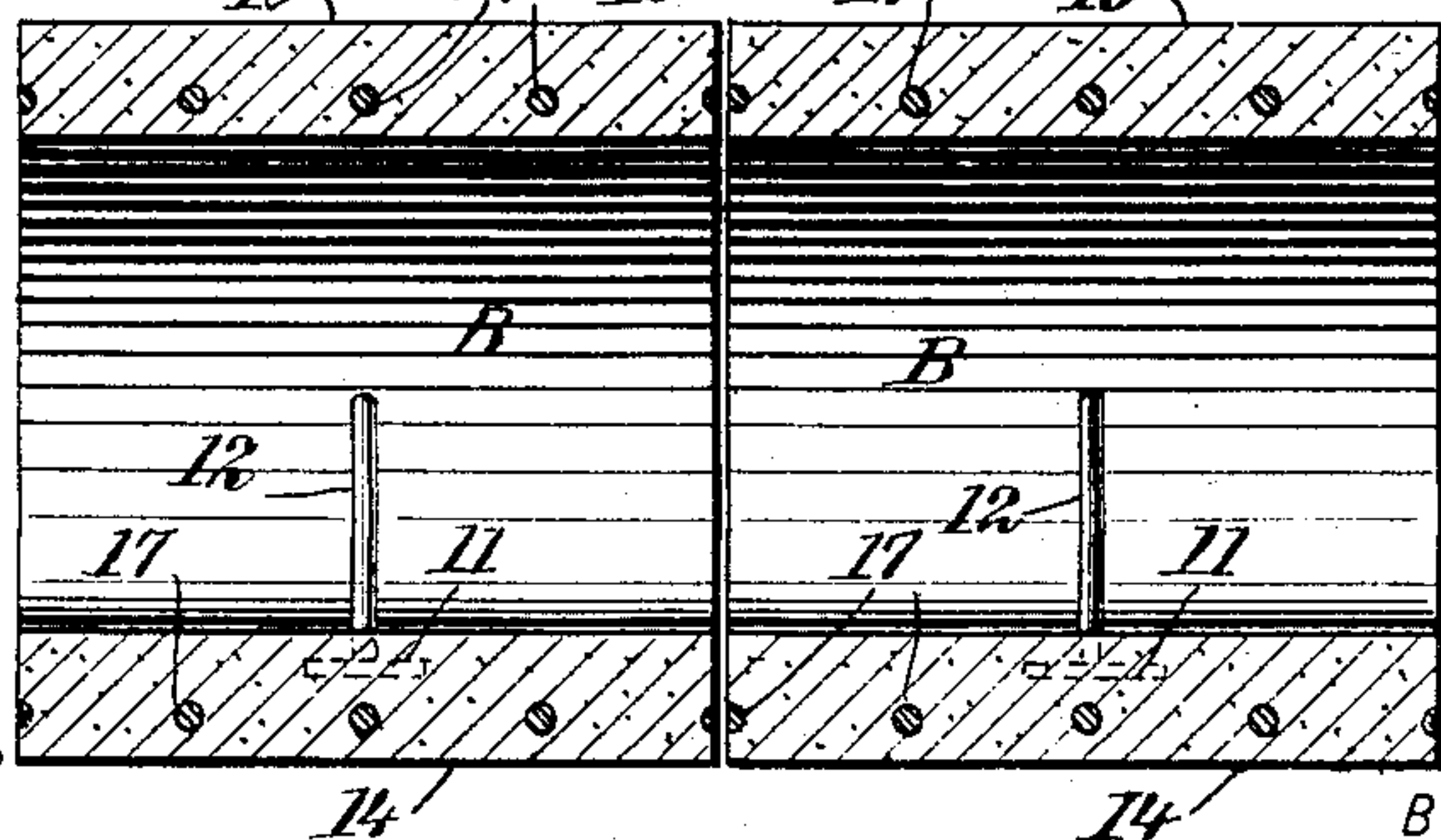
APPLICATION FILED SEPT. 4, 1902.

NO MODEL.



WITNESSES:

*John B. Simpson*  
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*Fig. 3*

INVENTORS

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# UNITED STATES PATENT OFFICE.

HARRY OLIVER AND CHARLES D. OLIVER, OF NEW YORK, N. Y.

## FIREPROOF FLOOR AND CEILING CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 763,690, dated June 28, 1904.

Application filed September 4, 1902. Serial No. 122,129. (No model.)

*To all whom it may concern:*

Be it known that we, HARRY OLIVER and CHARLES D. OLIVER, citizens of the United States, and residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Combined Fireproof Floor and Ceiling Construction, of which the following is a full, clear, and exact description.

The purpose of our invention is to provide a cast block of cement, plaster, or concrete, or a plastic mixture adapted for use in fireproof floors and ceilings, which blocks may be tubular with opposing flat and arched surfaces or solid either curved, angular, or flat, and to provide said blocks with metal tension members concealed within the substance of the block.

Another purpose of the invention is to so construct the blocks that they may be inserted diagonally between the webs of beams or other supports and quickly and conveniently brought to a position at right angles to such webs and to a resting engagement with the flanges of the beams.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a sectional plan view of portions of opposing beams and a sectional plan view of blocks laid upon the beams. Fig. 2 is a longitudinal section taken practically on the line 2 2 of Fig. 1. Fig. 3 is a transverse section taken substantially on the line 3 3 of Fig. 1; and Figs. 4 and 5 are longitudinal sections through the improved blocks, showing a slight departure in their formation.

A represents the ordinary I-beams used in the ceiling and floor construction of buildings, upon the opposing bottom flanges of which the improved blocks are adapted to rest. The blocks B, as is usual with blocks of a similar type, are adapted to transversely span the space between adjacent beams A and are laid close together in suitable numbers. The

blocks B are cast from cement, plaster, concrete, terra-cotta, or the like, or a plastic compound of any suitable fireproof material. Each block has its ends 10 diagonally formed, the inclination of the ends being in opposite directions, as is shown in Fig. 1. Each block has cast or otherwise formed therein anchor plates or sections 11 for wire hangers 12, which hangers extend a suitable distance beyond the upper surface of the block, so that they may be readily grasped, and to facilitate grasping the hangers they have handles 13 at their upper ends in the shape of eyes, as shown, or otherwise formed.

When a block is to be placed in position between beams A, the blocks are handled through the medium of the hangers 12 and are diagonally entered into the space they are designed to close and may then be turned to a true transverse position at right angles to the sides of the beams, but rest at their ends upon the lower flanges of the beams, owing to the oppositely-inclined diagonal formation at the ends of the block.

The blocks may be of any desired shape—as, for example, they may be tubular, as shown in Figs. 1, 2, and 3, having a flat bottom member 14 to present a ceiling-surface and an upwardly-arched upper member 15 of greater or less radius to support the filling for the floor construction, and when the blocks B are thus made they have horizontal slots 16 in their ends to so receive the end flanges of their supporting-beams so that the end portion of the blocks will extend both above and below such flanges to conceal and fireproof the same and the bottom portion of the beams, as is shown in Fig. 2.

When a block B is cast, each member of the block is provided with longitudinally-arranged concealed tension-wires 17, of suitable gage, extending practically from end to end of the block; and in order to give the greatest possible strength to the block, particularly at its ends, the tension-wires are run diagonally, as is shown in Fig. 1. By arranging the tension-wires diagonally, as shown, and having the two outer wires of the series, one at each side of the cast block, touch and terminate at the outer surface or edge of the



block and the two wires of the series adjacent the two beforementioned-wires touch the outer sides of the block at diagonally - opposite corners a much stronger structure is obtained, this being due to the fact that the wires run from the edge of the block inward through the body thereof, where they are firmly embedded.

In Fig. 4 we have illustrated a form of block designed for use where the ceiling is to be arched, and this form of block has a concaved under and a convexed upper surface, and the end portions of its under surface are flattened, as is shown at 18 in Fig. 4, or otherwise shaped to rest firmly and uniformly upon the upper surfaces of the flanges of the supporting-beams.

The block shown in Fig. 5 is designed to be employed when a flat flush ceiling is to be constructed and when a large amount of concrete or other filling is to be used in the floor construction. Under this latter form of block the bottom or under surface 19 is flat, but at the ends of said surface 19 recesses 20 are made of such a nature that the under surfaces 19 of the blocks when laid will be flush with the under surfaces of the beams A, and in order that such blocks may be of great strength the upper surfaces 21 of the blocks are inclined from their centers downward in direction of their ends; but said upper surfaces of said blocks may be flat or segmental, as desired.

It will be understood that the tension-wires 17 conform as nearly as possible to the shape of the members in which they are placed.

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

1. A block for floor or ceiling construction, consisting of a body of cast, plastic material, the upper and lower surfaces of which are of substantially the same width throughout, and the said upper surface being inclined from the center downward toward the opposite ends of the block, the said block having diagonally-formed ends inclined in opposite directions, anchor-plates embedded and concealed in the block, and hangers each having one end attached to one of said anchors, and its other end extending beyond the upper surface of the block.

2. A block for floor or ceiling construction, consisting of a tubular body the bottom of which is straight and flat and the upper portion upwardly arched, the said body having diagonally-formed ends inclined in opposite directions and horizontal slots in said end portions, hangers attached to the body and extending beyond its upper surface, and tension-wires located and concealed within the members of the body, as set forth.

3. A block for floor or ceiling construction, consisting of a tubular body, the bottom of which is straight and flat and the upper portion upwardly arched, a series of arched ten-

sion-wires embedded in said upper section, said wires being disposed parallel with each other and diagonal to the longitudinal extent of said section, and a second series of tension-wires embedded in the lower section of the block, said second series being also disposed parallel with each other and diagonal to the longitudinal extent of said section as specified and for the purpose set forth.

4. A block for floor or ceiling construction consisting of a tubular body the bottom of which is straight and flat and the upper portion upwardly arched, the said body having diagonally-formed ends inclined in opposite directions and horizontal slots in said end portions, a series of arched tension-wires embedded in said upper section, said wires being disposed parallel with each other and diagonal to the longitudinal extent of said section, and a second series of tension-wires embedded in the lower section of the block, said second series being also disposed parallel with each other and diagonal to the longitudinal extent of their section as specified and for the purpose set forth.

5. A block for floor or ceiling construction consisting of a tubular body the bottom of which is straight and flat and the upper portion upwardly arched, the said body having diagonally-formed ends inclined in opposite directions and horizontal slots in said end portions, hangers attached to the lower section of the block and extending beyond its upper surface, a series of tension-wires embedded in each of said sections of the block, said wires being disposed parallel with each other and diagonal to the longitudinal extent of the block as set forth.

6. A block for floor or ceiling construction, consisting of a body of cast plastic material, and a series of parallel tension-wires equidistant from each other and from the sides of the block, said wires being disposed diagonal to the longitudinal extent of the block, the two outer members of said series, one at each side of the block, touching the outer surface of the block at its center and terminating at that point, the two wires of the series adjacent the two latter wires touching the outer sides of the block at diagonally opposite corners.

7. A block for floor or ceiling construction, consisting of a body of cast, plastic material, the upper and lower surfaces of which are of substantially the same width throughout, and the said upper surface being inclined from the center downward toward the opposite ends of the block, the said body having diagonally-formed ends inclined in opposite directions, hangers each having a portion thereof embedded in the block and a portion extending beyond its upper surface, and longitudinal tension-wires located and concealed within the said body, substantially as described.

8. A block for floor or ceiling construction, consisting of a body of cast, plastic material,



the upper and lower surfaces of which are of substantially the same width throughout, and the said upper surface being inclined from the center downward toward the opposite ends of  
5 the block, and a series of parallel tension-wires equidistant from each other and from the sides of the block, said wires being disposed diagonally to the longitudinal extent of the block, the two outer wires of said series,  
10 one at each side of the block, touching the outer surface of the block at its center and terminating at that point, and the two wires

of the series adjacent the two latter wires touching the outer sides of the block at diagonally opposite corners.

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In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HARRY OLIVER.

CHARLES D. OLIVER.

Witnesses:

J. FRED. ACKER,

JNO. M. RITTER.