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Patented Sept. 3, 1901.

C. F. BUENTE.
FIREPROOF FLOOR CONSTRUCTION.

(Application filed July 26, 1900.)

(No Model.)

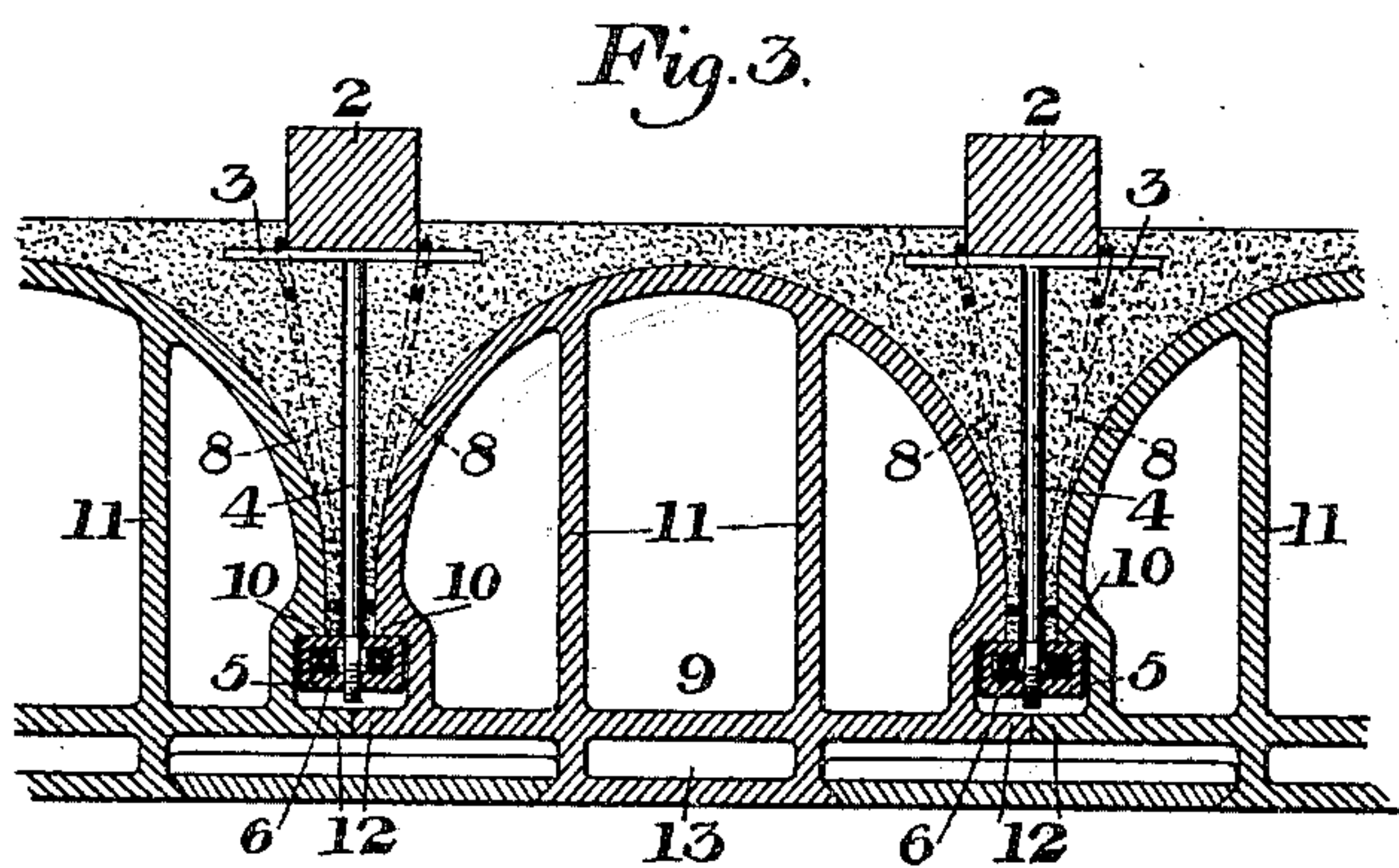
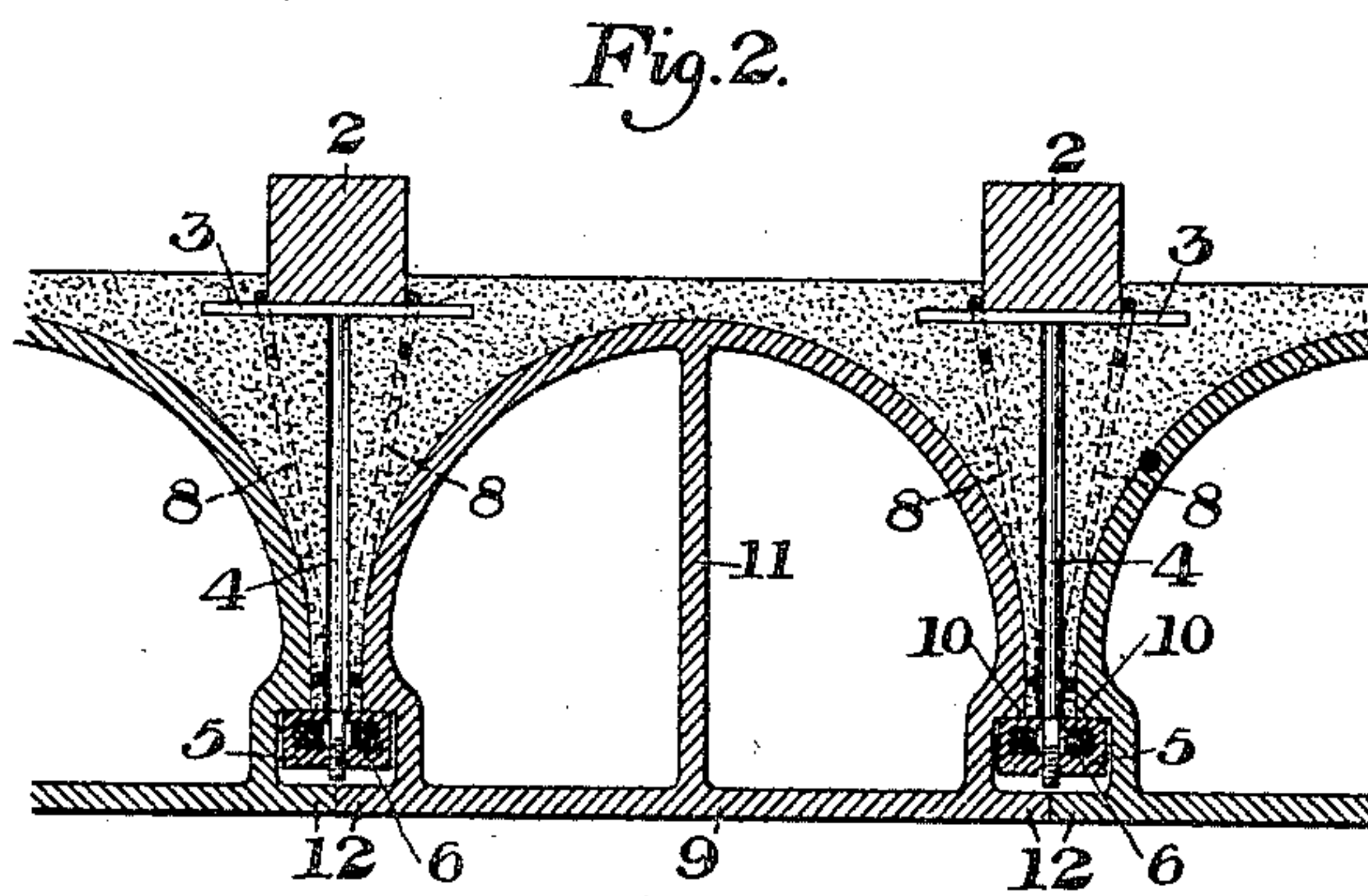
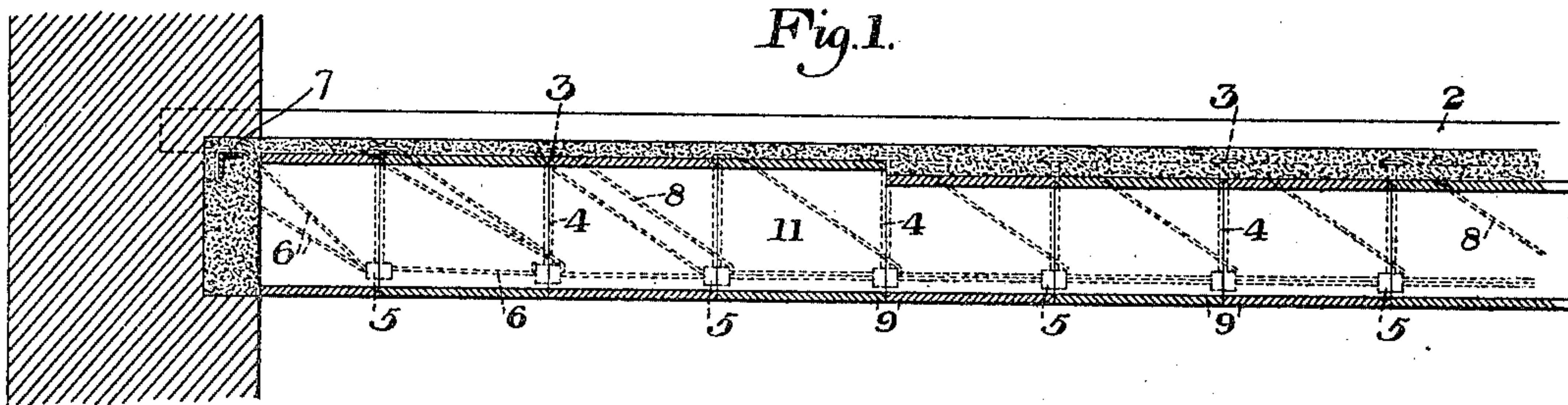
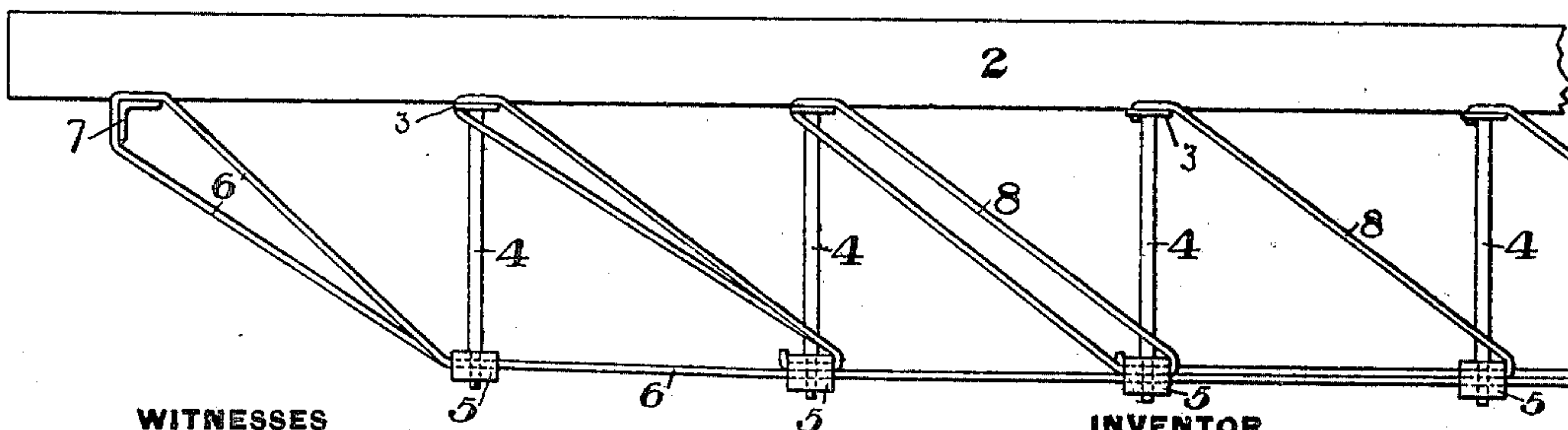


Fig. 4.



WITNESSES

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FIREPROOF FLOOR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 681,870, dated September 3, 1901.

Application filed July 26, 1900. Serial No. 24,884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. BUENTE, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Fireproof Floor Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a partial vertical section taken at right angles to the main floor-beam of fireproof flooring constructed in accordance with my invention. Figs. 2 and 3 are broken cross-sections at right angles to Fig. 1, showing two different forms of construction in accordance with my invention; and Fig. 4 is a partial side elevation of the trussed floor-sleeper employed in my improved construction.

My invention relates to fireproof floor constructions and is intended to provide flooring which can be easily and quickly constructed in place without the use of temporary supports and which shall give great strength with the use of a comparatively small amount of concrete or cement and in which the material is distributed in proportion to the strains to which it is subjected.

In the drawings, 2 represents a wooden floor-sleeper which connects the main floor-beams or extends from the floor-beam to the wall, and 3 a series of cross bars or plates projecting beyond the sides of the beam. Each of these plates is provided with a depending support 4, having a clip 5 secured at its lower end, preferably by screw-thread connections, as shown. A truss-wire 6, preferably secured to angle-bars 7 at the ends of the sleeper, extends through these clips, forming a trussed structure, and, further, wires or rods 8 are secured in diagonal position, as shown, extending from the end portions of each cross-bar 3 downwardly to the clip at the lower end of the next rod 4 and being secured in its clip. The number of these wires at any point in the length of the sleeper will be proportioned according to the amount of tensile strain to which they are subjected, and similarly the cross-sectional area of the horizontal truss-wires 6 will be increased toward

the center of the sleeper by adding further wires, as indicated in Figs. 1 and 4. The supplemental truss-wires 8 are inclined in opposite directions on opposite sides of the center of the sleeper, all of them extending downwardly and inwardly toward the center. A strong trussed floor-sleeper is thus obtained, and a series of these sleepers is laid parallel with each other across the main beams and spaced apart at suitable distances to receive the hollow tiles or refractory centers 9. These tiles are provided with outer side recesses having shoulders 10, which rest upon the clips of the trussed sleepers, thus supporting them temporarily in position while the concrete is applied. The tiles are provided with inner vertical webs 11, which may be of any desired number and may be formed with side flanges 12, which close the joints between the tiles, as shown in Fig. 2, or may be provided with a bottom cell structure 13, as shown in Fig. 3, to afford air-spaces for the ceiling. The height of these hollow centers may be varied, the tiles at the ends of the sleepers being higher than those at the center, as shown in Fig. 1, so that the thickness of the concrete over them is increased toward the center of the floor-section, where the compressive strains above the tiles are increased. After the tiles are supported in place upon the clips the concrete is filled in, as shown, so as to embed the depending truss structure of the sleepers and complete the floor structure proper.

The advantages of my invention will be appreciated by those skilled in the art. The trussed sleepers form temporary core-joists which support the hollow centers while the concrete is applied, the trussed structure greatly increases the strength of the floor, the metal of the truss being distributed in proportion to the strains carried at different points, and the varying sizes of the tiles give a varying amount of concrete, proportioned according to the compressive strains to which it is subjected. The structure is cheap and easily formed and laid in place. If the sleepers are burned, the metal plates or bars will transmit the strains from the diagonals to the

concrete and hold the structure intact. The lower air-spaces also serve as a protection against fire.

Many variations may be made in the form and arrangement of the trussed structure and the tiles without departing from my invention as defined in the claims.

I claim—

1. In fireproof floor construction, a floor-sleeper having cross-bars secured thereto and having end portions extending beyond its sides, and a depending truss structure secured to said cross-bars, said end portions being arranged to support the stress if the sleeper is burned away; substantially as described.

2. In fireproof flooring, a floor-sleeper having a depending trussed structure, and hollow refractory centers supported upon the trussed structure; substantially as described.

3. A fireproof flooring comprising floor-sleepers having depending truss structures, hollow tiles between the trussed structures and engaging them, and a layer of concrete inclosing the trussed structures between the tiles; substantially as described.

4. In fireproof flooring, a series of concrete joists containing reinforcing truss structures and hollow refractory centers between the trussed structures; substantially as described.

5. A fireproof flooring having hollow refractory centers, the centers near the middle being smaller than those at the ends, and concrete between the centers; substantially as described.

6. In fireproof floor construction, a trussed sleeper having ledges, hollow refractory cen-

ters having shoulders resting on the ledges, and concrete between the hollow centers; substantially as described.

7. In fireproof floor construction, a wooden floor-sleeper having a depending trussed structure secured thereto, hollow refractory centers on the sides of the trussed structure, and concrete filling embedding the truss in the lower part of the sleeper and covering the tiles; substantially as described.

8. In fireproof floor construction, a floor-sleeper forming the top member of a depending trussed structure embedded in the concrete, said trussed structure being proportioned according to the strains brought upon its different parts; substantially as described.

9. Fireproof flooring containing hollow refractory centers and concrete joists, said centers having lower air-spaces below and in line with the concrete joists; substantially as described.

10. In fireproof floor construction, a series of laterally-separated floor-sleepers, having cross-bars secured thereto, and having end portions extending a considerable distance beyond the sides of the sleepers, and depending truss structures secured to said cross-bars, the end portions of the bars and truss structures being embedded in concrete; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES F. BUENTE.

Witnesses:

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G. I. HOLDSHIP.