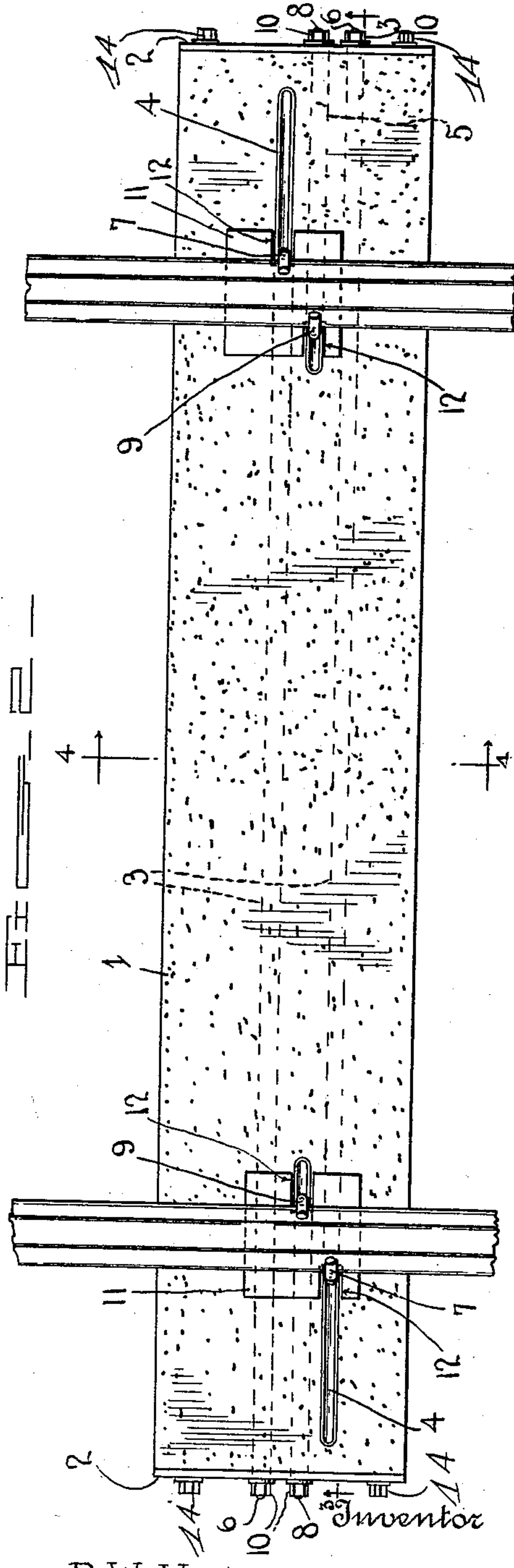
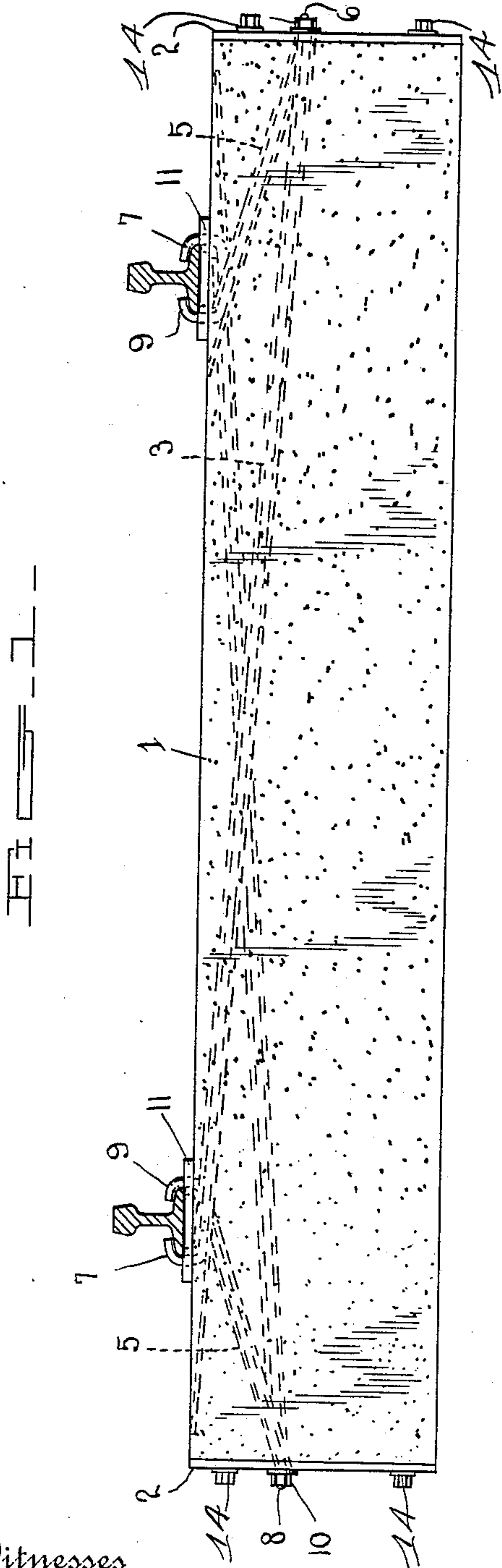


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Patented May 9, 1911.

2 SHEETS—SHEET 1.



Witnesses  
 L. B. James  
 O. B. Hopkins.

by *A. B. Wilson & Co*  
 Attorneys

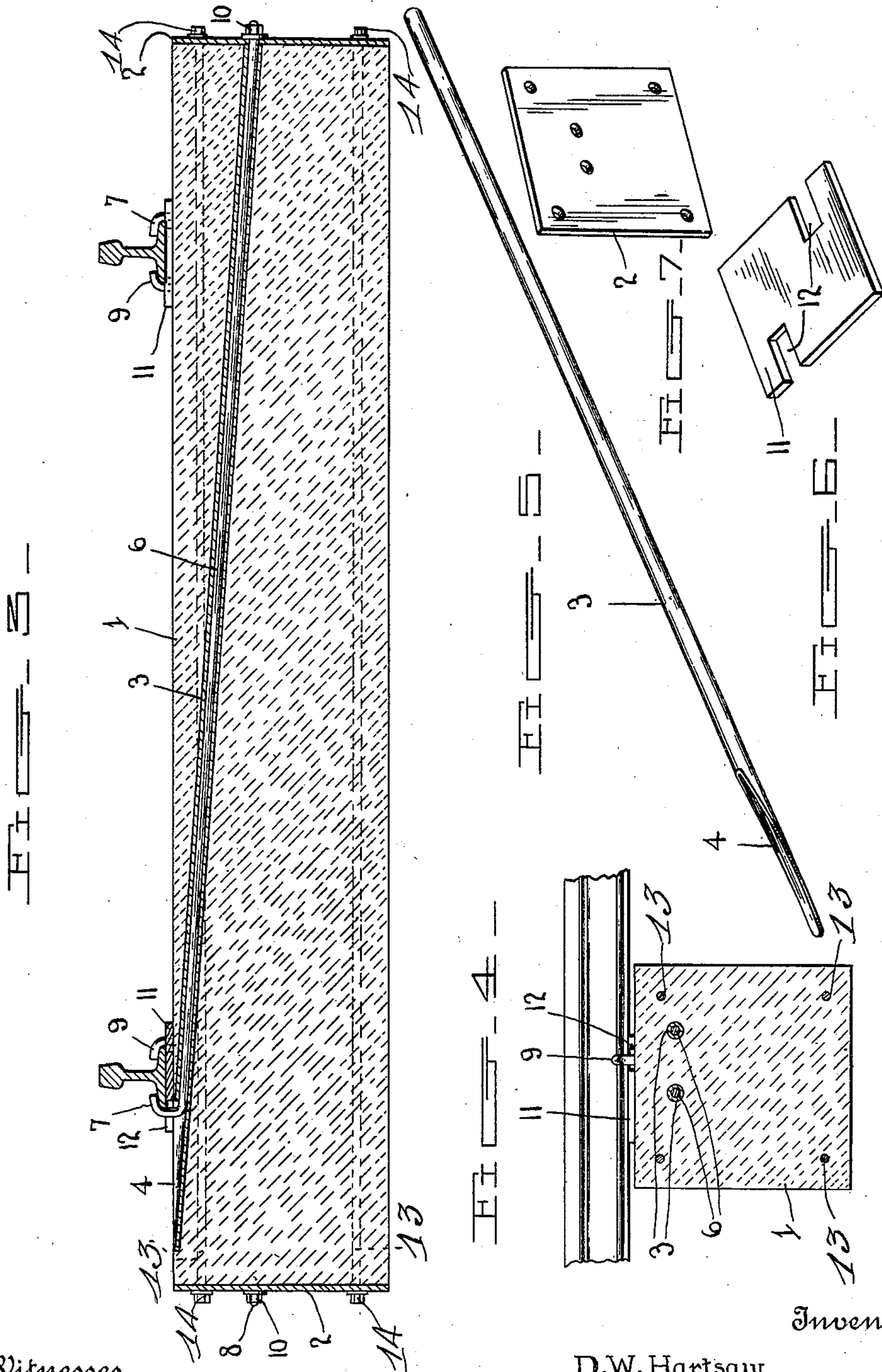
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# UNITED STATES PATENT OFFICE.

DAVID WALTER HARTSAW, OF MEDFORD, OKLAHOMA.

REINFORCED-CONCRETE RAILWAY-TIE AND RAIL-FASTENING.

991,615.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed December 19, 1910. Serial No. 597,988.

*To all whom it may concern:*

Be it known that I, DAVID WALTER HARTSAW, a citizen of the United States, residing at Medford, in the county of Grant and State of Oklahoma, have invented certain new and useful Improvements in Reinforced-Concrete Railway-Ties and Rail-Fastenings; 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.

This invention relates to improvements in reinforced railway ties and rail fastenings.

One object of the invention is to provide a concrete railway tie having therein an improved arrangement of reinforcements which also serve as means for securely fastening the rails to the ties.

Another object is to provide an improved rail fastening device of this character which will be simple, strong and durable in construction, efficient and reliable in operation and which may be quickly and easily released when desired to permit the removal and replacing of any of the rails.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side elevation of my improved tie showing the rails in section and in dotted lines showing the arrangement of the rail fastening devices; Fig. 2 is a top plan view of the same; Fig. 3 is a vertical sectional view through the tie and one of the rail fastening devices; Fig. 4 is a cross sectional view on the line 4-4 of Fig. 2; Fig. 5 is a detail perspective view of one of the combined reinforcing tubes and casings for the rail fastening devices; Fig. 6 is a detail perspective view of one of the rail supporting plates of the ties; and, Fig. 7 is a detail view of one of the end plates of the ties.

Referring more particularly to the drawing, 1 denotes my improved tie which is preferably formed of concrete and on the outer ends of which are arranged metal end plates 2. Embedded in the tie are long inclined metal reinforcing tubes and rod casings 3 which extend from the opposite ends of the tie to points in the upper surface thereof adjacent to the opposite ends as

shown. The upper ends of the tubes where the same come through the top of the tie are cut on or terminate at an angle flush with the upper surface of the tie. In thus cutting the upper ends of the tube the elongated opening or passage 4 is formed, the purpose of which will be hereinafter described. Arranged in the opposite ends of the ties in planes parallel with the planes of the adjacent ends of the long tubes 3 are short obliquely disposed reinforcing tubes 5 the upper ends of which open through the upper sides of the ties beyond the openings 4 of the long tubes projecting from the opposite ends of the ties.

In the plates 2 opposite to or in line with the outer ends of the tubes 3 and 5 are formed bolt holes. Through the bolt holes and long tubes 3 of the tie are inserted outer rail fastening rods or bolts 6 the inner ends of which project through the openings 4 in the upper ends of the tubes 3 and have formed thereon rail fastening hooks 7 which are engaged with the outer base flanges of the rail thereby securely holding the outer sides of the rail into engagement with the tie. Through the short tubes 5 and the holes opposite the ends of the same in the plates 2 are inserted inner rail fastening bolts or rods 8 the inner upper ends of which project through the open upper ends of the short tubes 5 and have formed thereon rail fastening hooks 9 which are engaged with the inner base flanges of the rail and which, together with the hooks 7 securely fasten the rails to the tie. On the threaded lower or outer ends of the bolts or rods 6 and 8 are screwed clamping nuts 10 whereby the hooked upper ends of the rods are drawn downwardly and the rails thus tightly clamped in place.

Between the rails and the ties and between the open upper ends of the tubes 3 and 5 are preferably arranged rail supporting plates 11 having in their opposite outer edges inwardly extending notches 12 which are disposed in line with the open upper ends of the tubes and through which the hooked upper ends of the rods or bolts 6 and 8 project when engaged with the flanges of the rails as shown.

In the tie near the opposite corners thereof are arranged longitudinally disposed reinforcing rods 13 which extend entirely through the tie and through the end plates 2 as shown. The projecting ends of the rods



13 are threaded and on said threaded ends are screwed retaining nuts 14 whereby the rods are held in position in the tie.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a rail tie and fastening of the character described, a tie, reinforcing tubes arranged through said tie from its opposite ends and opening through its upper side on opposite sides of the rail, rail fastening rods arranged in said tubes, rail fastening hooks formed on the upper ends of said rods and clamping nuts arranged on the outer ends of said rods and adapted to draw the hooked upper ends thereof down into engagement with the rails whereby the latter are fastened to the ties.

2. In a rail tie and fastening, a concrete tie, reinforcing tubes arranged through said tie, said tubes having their outer ends projecting through the ends of the tie and their inner ends projecting through the upper surface of the tie, rail fastening bolts or rods arranged through said tubes and projecting beyond the opposite ends thereof, rail engaging hooks formed on the inner ends of said rods and adapted to engage the inner and outer flanges of the rails, rail supporting plates arranged between said rails and ties, said plates having formed therein notches adapted to receive the fastening hooks of the rods, and clamping nuts arranged on the outer ends of the rods and adapted to be screwed into engagement with the ends of the ties whereby the rails are securely clamped in place.

3. In a railway tie and rail fastening, a concrete tie having arranged therein long

and short pairs of obliquely disposed reinforcing tubes, said tubes opening at their outer ends through the outer ends of the tie and at their inner ends through the upper surface of the tie on opposite sides of the rails, end plates arranged on opposite ends of the tie, pairs of long and short rail fastening rods inserted through said plates and engaged within said tubes, said rods having their inner ends projecting through the open inner ends of the tubes, rail fastening hooks formed on the inner ends of said rods and adapted to engage the flanges on the opposite sides of the rails, clamping nuts arranged on the outer ends of said rods and adapted to draw the hooked inner ends thereof into engagement with the flanges on the rails to thus clamp the latter into engagement with the ties, and rail supporting plates arranged between the rails and the upper surfaces of the tie, said plates having formed therein notches adapted to receive the hooked upper ends of the rail fastening rods.

4. In a rail tie and fastening of the character described, a tie, reinforcing tubes arranged therein, said tubes opening through the upper side and opposite ends of the tie, the upper open ends of the tubes opening through the upper side of the tie on opposite sides of the rails, rail fastening bolts arranged in said tubes, means on the upper ends of said bolts to engage the flanges of the rails, clamping nuts arranged on the lower outer ends of the bolts and adapted to draw the upper ends thereof into operative engagement with the rails whereby the latter are fastened to the tie and reinforcing rods arranged through the tie, said rods having threaded outer ends projecting through the outer ends of the tie and retaining nuts arranged on the threaded ends of said rods.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DAVID WALTER HARTSAW.

Witnesses:

A. C. GLENN,  
J. L. GODFREY.