

No. 768,171.

PATENTED AUG. 23, 1904.

W. H. H. ELLIOT.
CONTINUOUS RAILWAY CROSSING FROG.

APPLICATION FILED NOV. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. I.

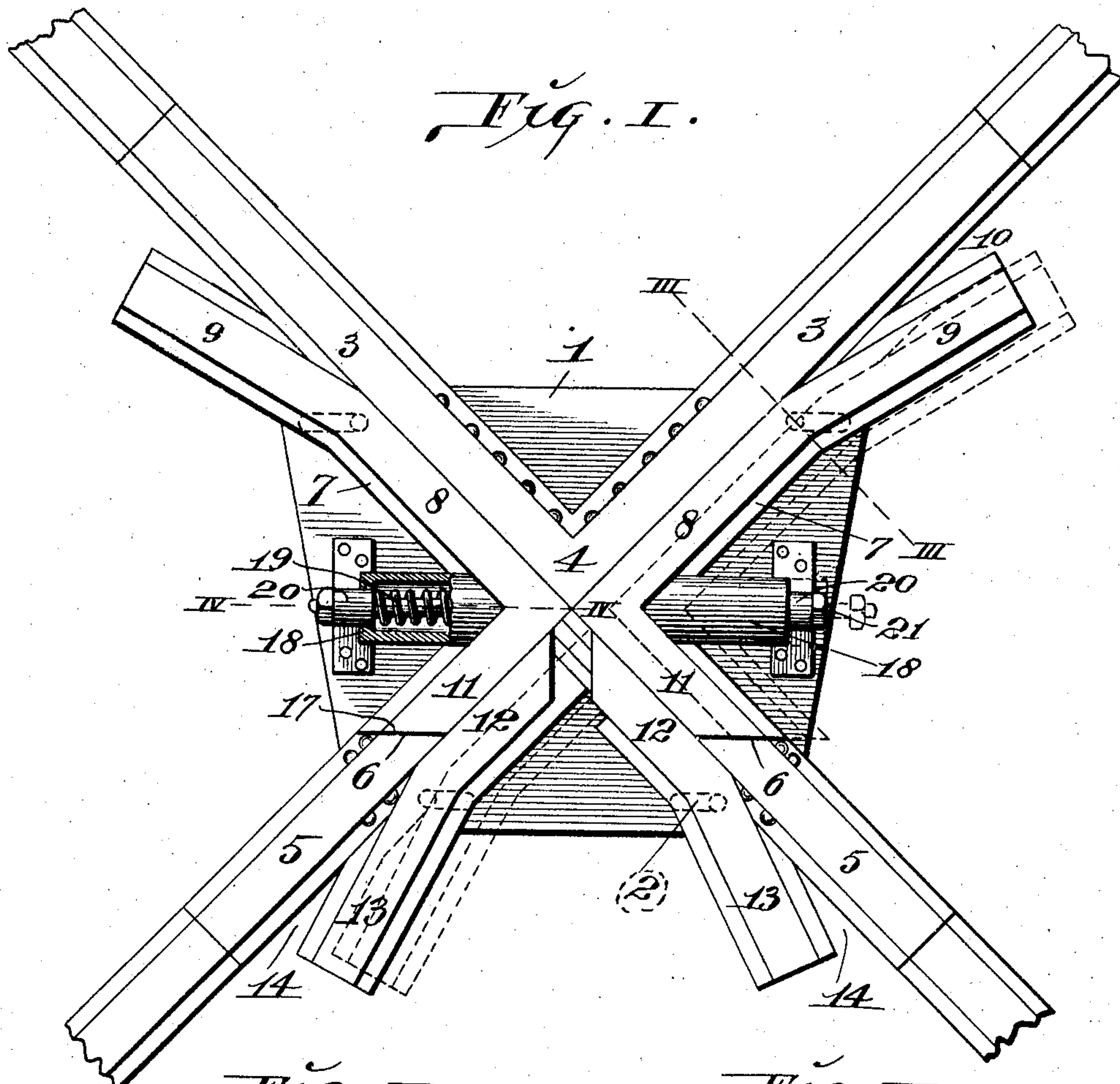


Fig. II.

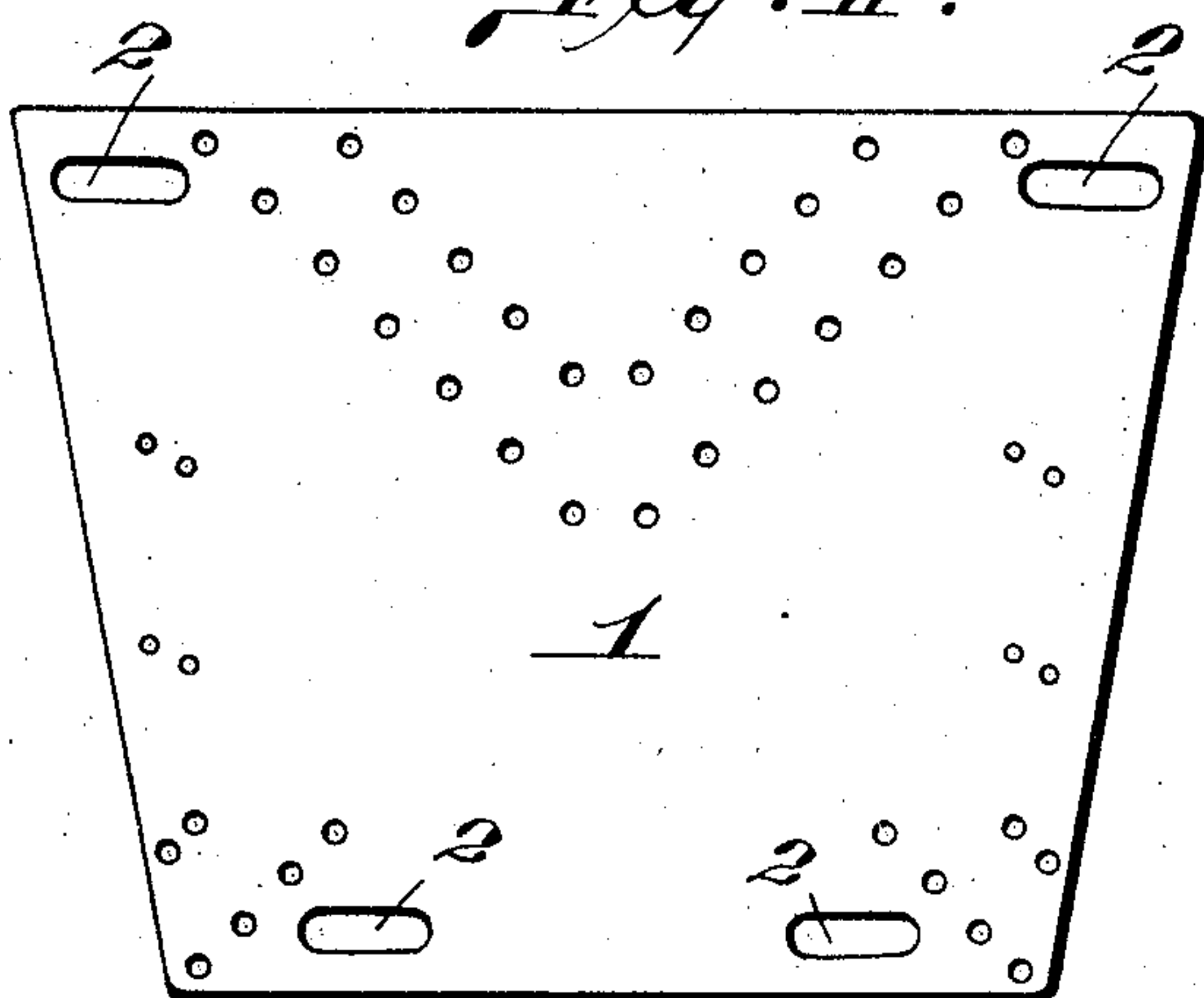


Fig. III.

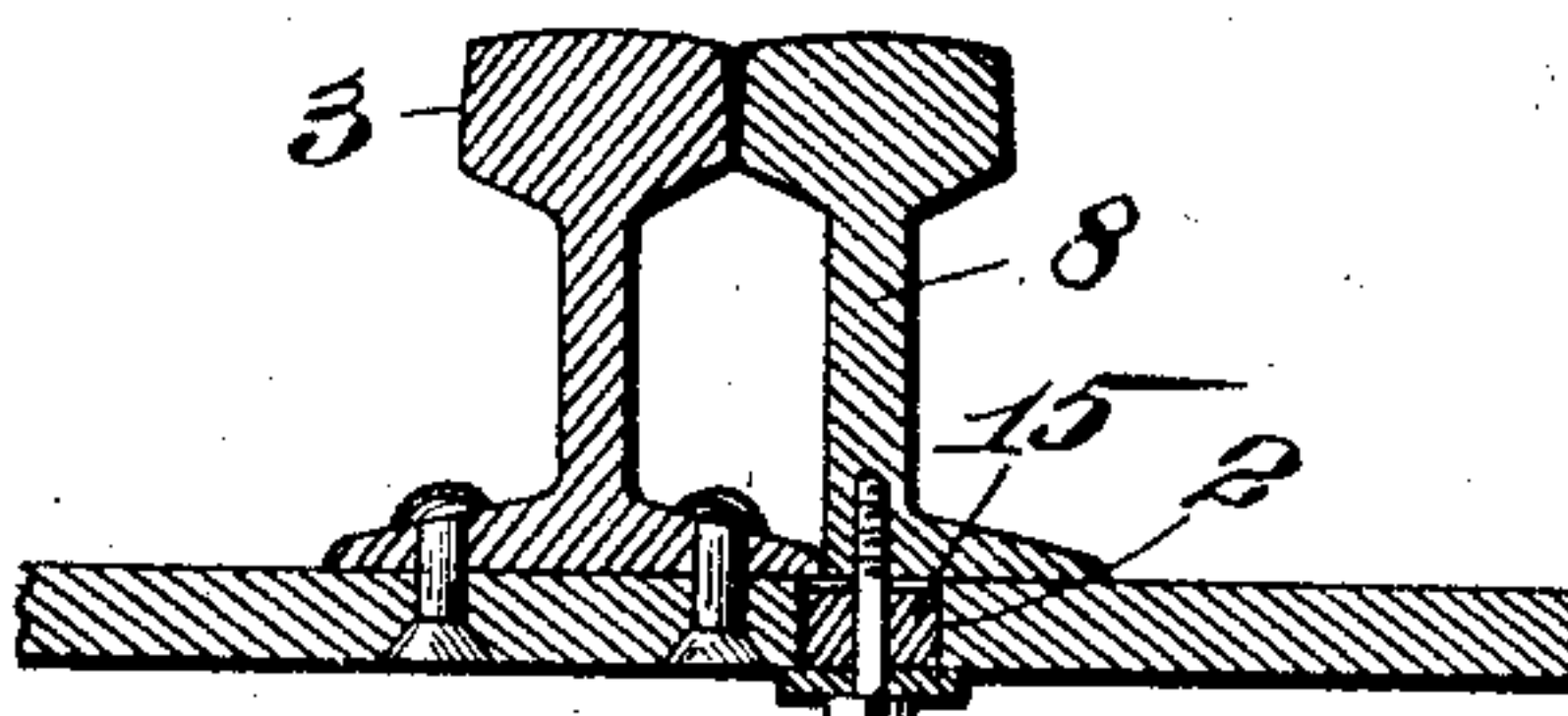
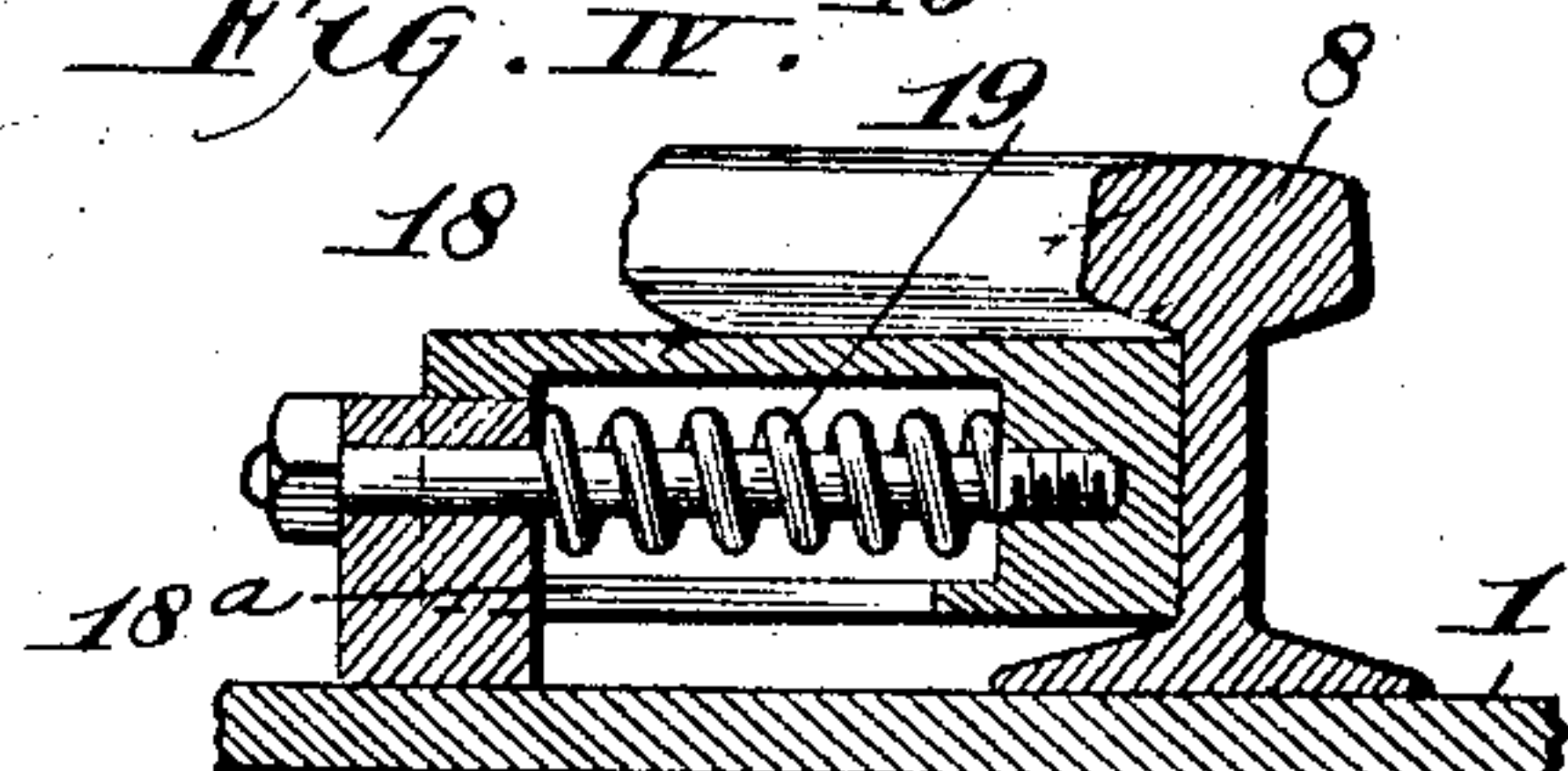


Fig. IV.



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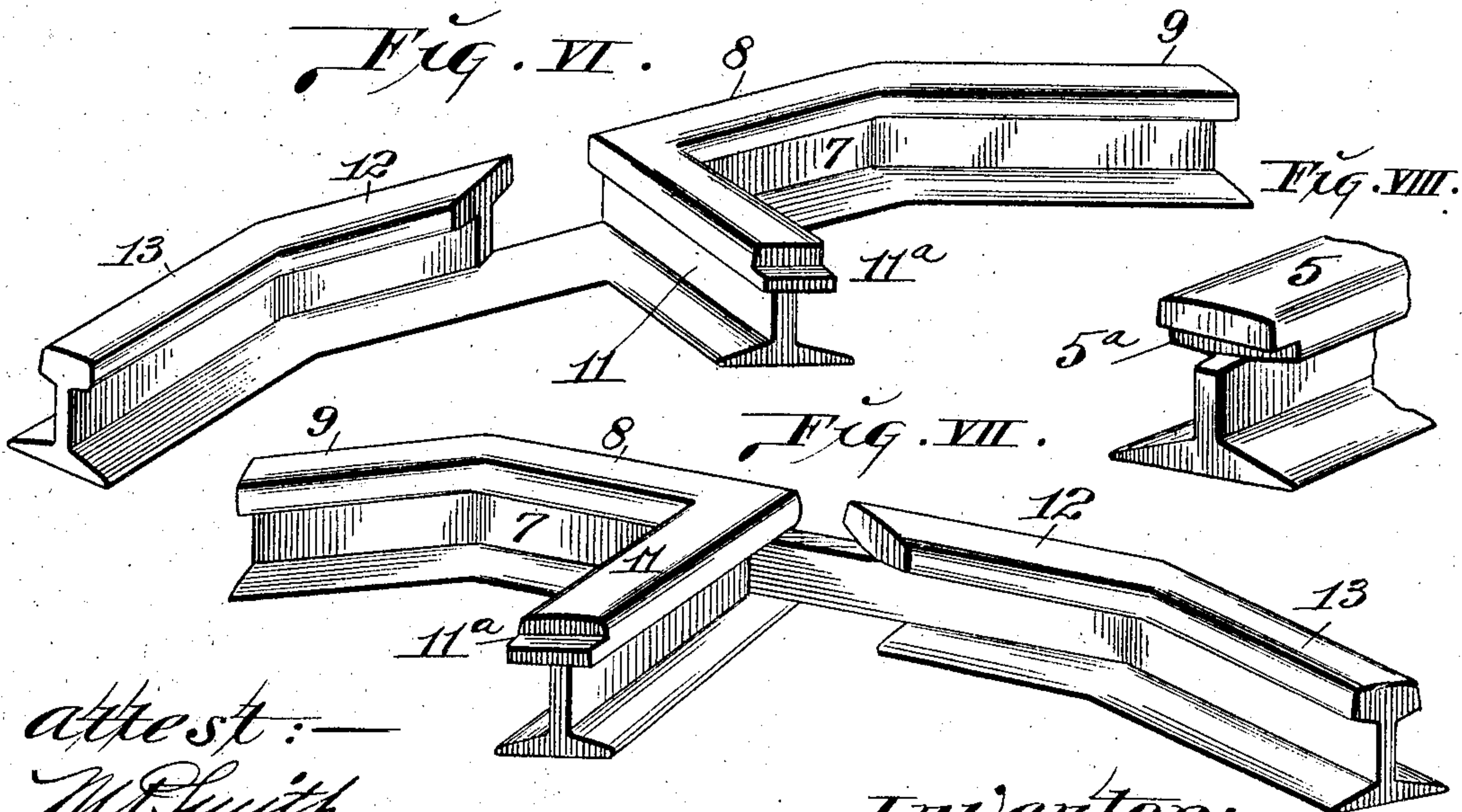
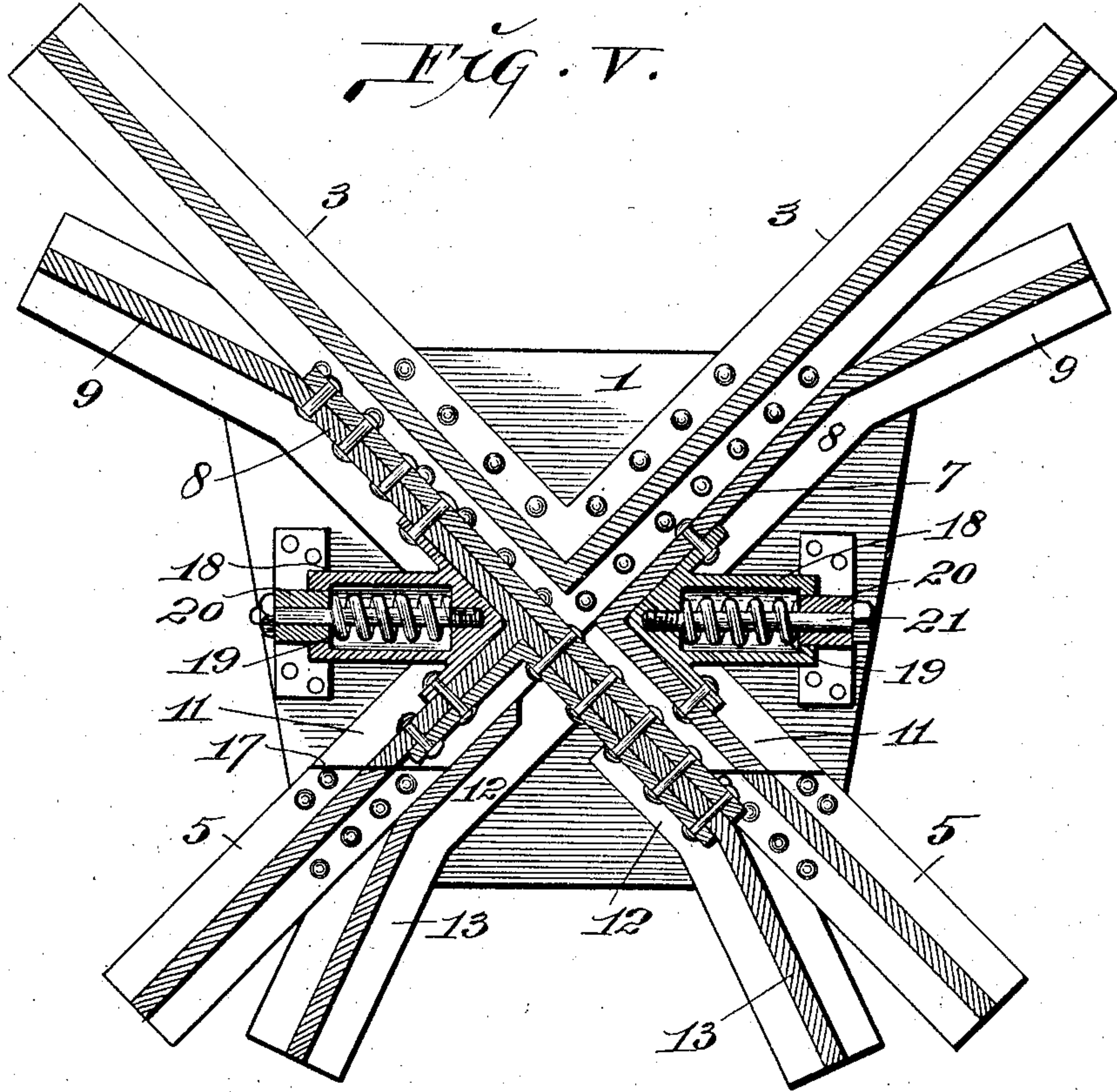
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2 SHEETS—SHEET 2.



attest:—
M. Smith
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Inventor;
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UNITED STATES PATENT OFFICE.

WILLIAM H. H. ELLIOT, OF EAST ST. LOUIS, ILLINOIS.

CONTINUOUS-RAILWAY-CROSSING FROG.

SPECIFICATION forming part of Letters Patent No. 768,171, dated August 23, 1904.

Application filed November 23, 1903. Serial No. 182,253. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. ELLIOT, a citizen of the United States, residing in East St. Louis, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Continuous-Railway-Crossing Frogs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a railroad-crossing frog for use in the crossings of steam or street railroads, the object of the invention being to furnish a crossing that is continuous in a manner to avoid the presence of gaps at the junction of the crossing-rails, thereby overcoming the jarring and pounding action such as now exists in railroad-crossings, thereby relieving the railway equipment from strain and adding to the comfort of the traveling public. By my continuous construction I furthermore furnish a wheel-flangeway that is protected from the ingress of snow, sleet, and other foreign substances.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a plan view of one of my frogs. Fig. II is a top view of the frog bed-plate. Fig. III is a cross-section taken on line III-III, Fig. I. Fig. IV is a vertical section taken on line IV-IV, Fig. I. Fig. V is a horizontal section through the frog. Figs. VI and VII are perspective views of the two wing-rails and thrust-rail sections of a frog. Fig. VIII is a perspective view of the end of one of the running-rails leading to the frog.

1 designates the bed-plate on which my frog is supported, there being one of these plates beneath each of the four frogs used in a railroad-crossing. In the bed-plate are vertical slots 2, that are arranged in lines parallel with each other and preferably located near the corners of said plate, as seen in Figs. I and II.

3 designates running-rails that approach each other and the ends of which are slotted at a junction 4. These running-rails are

mounted upon the bed-plate 1, to which they are secured by rivets, bolts, or other suitable means.

5 designates running-rails leading onto and secured to the bed-plate 1 in lines respectively parallel with the running-rails 3. These running-rails 5 terminate at points 6, remote from the junction of the running-rails 3, so as to furnish a space between the junction of the rails 3 and the facing ends of the rails 5.

7 designates wing-rails movably mounted on the bed-plate 1 and each having an arm 8 extending in line with and in juxtaposition to the running-rails 3, as seen most clearly in Fig. I. The arms 8 terminate in outturned ends 9, projecting away from the running-rails 3 to thereby furnish throats 10 between said running-rails and arms into which the flanges of car-wheels may enter to bear against the inside faces of said wing-rail arms. Each wing-rail also has an arm 11 projecting at an angle from the arm 8 and extending to the ends of the running-rails 5 to in such position serve as a tread for the car-wheels during their travel from one of the running-rails 3 to one of the running-rails 5, or vice versa.

12 designates thrust-rails that are spliced to the wing-rails 7 and occupy positions adjacent to the wing-rail arms 11 and the ends of the running-rails 5. These thrust-rails have outwardly-turned ends 13, that project away from the running-rails 5 to furnish throats 14 between said members, into which the car-wheel flanges may enter to exert pressure against the inside faces of the thrust-rails to move them in the manner hereinafter explained.

15 designates guide-rollers positioned in the slots 2 (see Fig. III) in the bed-plate 1 to operate therein, the said rollers being secured to the wing-rail arms 8 and the thrust-rails 12 by screws or pins 16, that pass through the rollers and enter said members above them.

The ends of the wing-rail arms 11 and the facing ends of the running-rails 5 are tapered, as seen at 17, Figs. I and V, to secure a close fit of said members when the wing-rails are in their inward positions, thereby avoiding the presence of any gap between said mem-

bers. These members are also mitered at 11^a and 5^a, (see Figs. VI to VIII, inclusive,) so that they will overlap at the treads of the rails.

18 designates spring-boxes carried by the wing-rails 7 and extending horizontally from the angle at the junction of the wing-rail arms 8 and 11. In these spring-boxes are springs 19.

20 designates posts surmounting the bed-plate 1 and arranged to receive the spring-boxes 18, which are adapted for sliding movement thereon, that is permitted by the boxes being provided with a slot 18^a at their bottoms, as seen in Fig. IV.

21 designates guide-rods loosely seated in the posts 20 and passing longitudinally through the spring-boxes 18, into the inner ends of which the rods are seated. These guide-rods bear the springs 19, which rest between the inner ends of the spring-boxes and the posts 20.

The operation of my frog in practical use is as follows: When the parts of the crossing are at rest, the movable members thereof occupy the positions illustrated in the drawings, thereby furnishing a continuous treadway across the frog over either of the crossing-tracks. When a car-wheel approaches the frog on either of the running-rails 3 or 5, the flange of the wheel, according to the direction in which the wheel is traveling, enters either into the throat 10 at the outturned wing-rail arm 8 or the throat 14 at the outturned end of the thrust-rail 12, to which the wheel-flange travels. As a consequence the wheel-flange exerts pressure against the inside face of the wing-rail or thrust-rail and forces the member away from the adjacent other members of the frog against the action of the corresponding pressure-spring 19 without affecting the other wing-rail or thrust-rail, thereby affording a continuous unbroken tread either from a running-rail 3 to a running-rail 5, or vice versa, across the unmoved arm 11 of the wing-rail that remains stationary. The wheel-flange then travels through the space afforded by the movement of the wing-rail and thrust-rail, engaged thereby and shifted laterally, so that the car-wheel will pass steadily and without jar across the frog. As soon as the wheels of the car have passed over the frogs of the crossing the shifted wing-rails and thrust-rails are returned to their normal positions under the action of the springs 19, they being guided in both their outward and inward movements by the guide-rollers 15, operating in the bed-plate 1, and the spring-boxes 18, carried by the wing-rails and moving longitudinally on the posts 20.

I claim as my invention—

1. In a railroad-crossing frog, the combination with running-rails, of movable wing-rails located at the junction of said running-rails and free of connection therewith, and means

for yieldingly holding said wing-rails to said running-rails, substantially as set forth.

2. In a railroad-crossing frog, the combination with running-rails, of spring-pressed wing-rails and free of connection to said running-rails and movably positioned adjacent to said running-rails to provide a continuous treadway between the running-rails, substantially as set forth.

3. In a railroad-crossing frog, the combination with running-rails, of movable wing-rails and free of connection to said running-rails and each having an arm positioned alongside of one of the running-rails, and an arm extending in line with another running-rail, and means for yieldingly holding said wing-rails to said running-rails, substantially as set forth.

4. In a railroad-crossing frog, the combination with running-rails, of movable wing-rails located adjacent to said running-rails and free of connection therewith, means for yieldingly holding said wing-rails to said running-rails, and thrust-rails connected to said wing-rails, substantially as set forth.

5. In a railroad-crossing frog, the combination with running-rails, of movable wing-rails located adjacent to said running-rails and free of connection therewith, means for yieldingly holding said wing-rails to said running-rails, and thrust-rails connected to said wing-rails; each of said wing-rails and thrust-rails having an outturned end to furnish a wheel-flange-receiving throat, substantially as set forth.

6. In a railroad-crossing frog, the combination with running-rails and free of connection therewith, of wing-rails arranged adjacent to said running-rails, spring-boxes carried by said wing-rails, springs in said boxes, and posts on which said spring-boxes travel, substantially as set forth.

7. In a railroad-crossing frog, the combination with a pair of running-rails, of a second pair of running-rails separated from the first-named pair and spring-pressed wing-rails having arms lying alongside of the first-named running-rails and free of connection therewith, said wing-rails having arms extending in line with said second-named running-rails to abut thereagainst, substantially as set forth.

8. In a railroad-crossing frog, the combination of a bed-plate, running-rails mounted on said bed-plate, movable wing-rails mounted on said bed-plate adjacent to said running-rails and free of connection therewith, means for yieldingly holding said wing-rails, and means for guiding the wing-rails, substantially as set forth.

9. In a railroad-crossing frog, the combination of a bed-plate, running-rails mounted on said bed-plate, movable wing-rails mounted on said bed-plate adjacent to said running-rails and free of connection therewith, means for yieldingly holding said wing-rails, and guide-

rollers carried by said wing-rails and operating in said bed-plate, substantially as set forth.

10. In a railroad-crossing frog, the combination of a bed-plate, running-rails mounted on
5 said bed-plate, wing-rails mounted on said bed-plate adjacent to said running-rails and free of connection therewith, means for yieldingly holding said wing-rails, thrust-rails connected to said wing-rails, and means for guiding
10 said wing-rails and thrust-rails in their movement, substantially as set forth.

11. In a railroad-crossing frog, the combina-

tion of a bed-plate, running-rails mounted on said bed-plate, wing-rails mounted on said bed-plate adjacent to said running-rails and free of
15 connection therewith, means for yieldingly holding said wing-rails, thrust-rails connected to said wing-rails, and guide-rollers carried by said wing-rails and thrust-rails and operating in said bed-plate, substantially as set forth. 20

WILLIAM H. H. ELLIOT.

In presence of—

NELLIE V. ALEXANDER,
E. S. KNIGHT.