A. L. McMASTER.

RAILROAD FROG AND SWITCH.

APPLICATION FILED JUNE 7, 1909.

947,752. Patented Jan. 25, 1910.

3 SHEETS—SHEET 1.

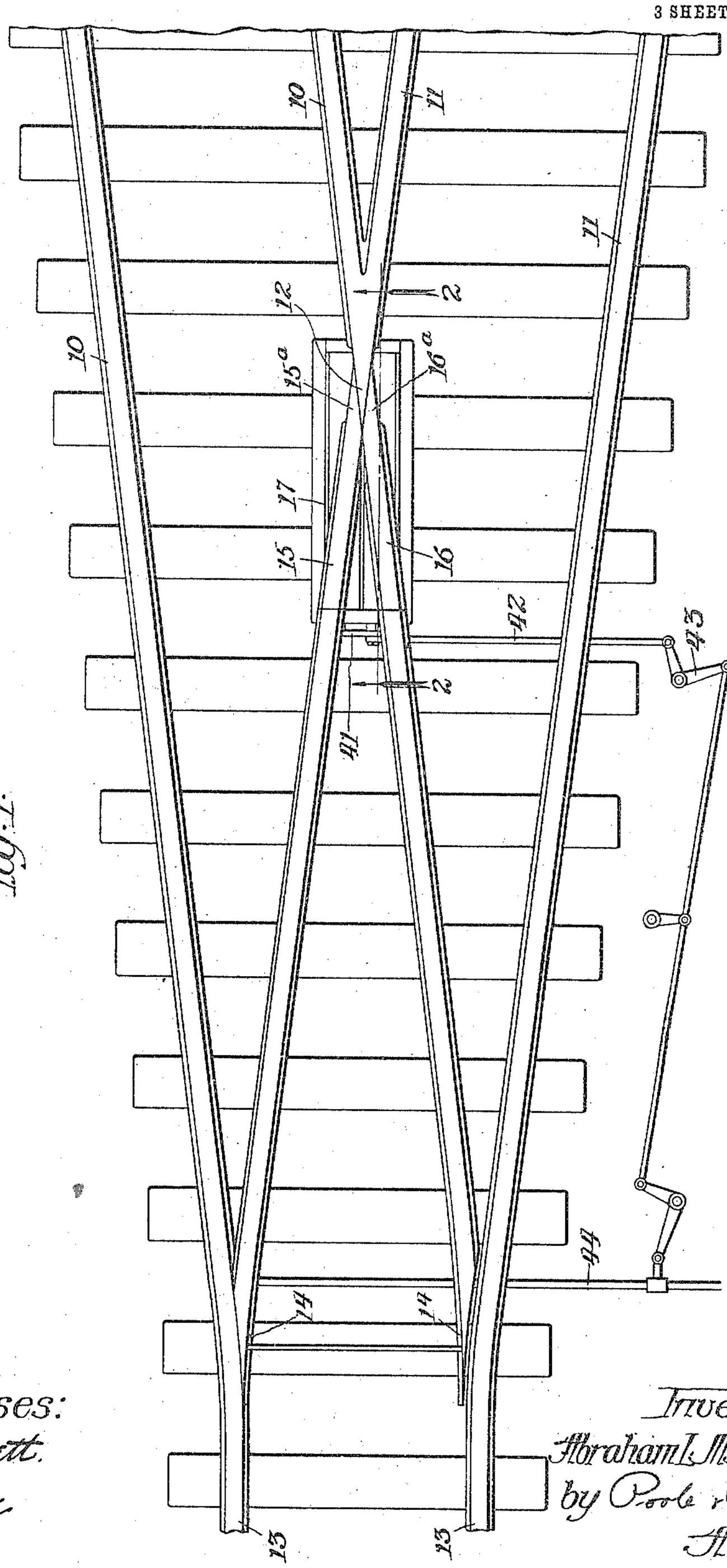

Fig. 1.

Witnesses:
J. M. Daggett.
J. N. Hyde

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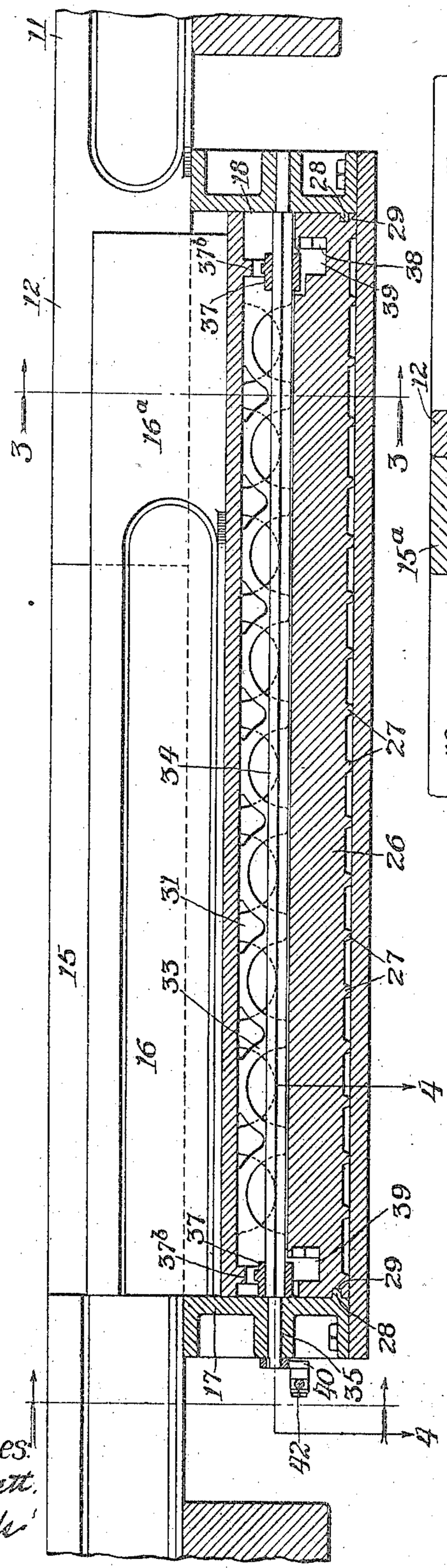

Fig. 2.

Fig. 3.

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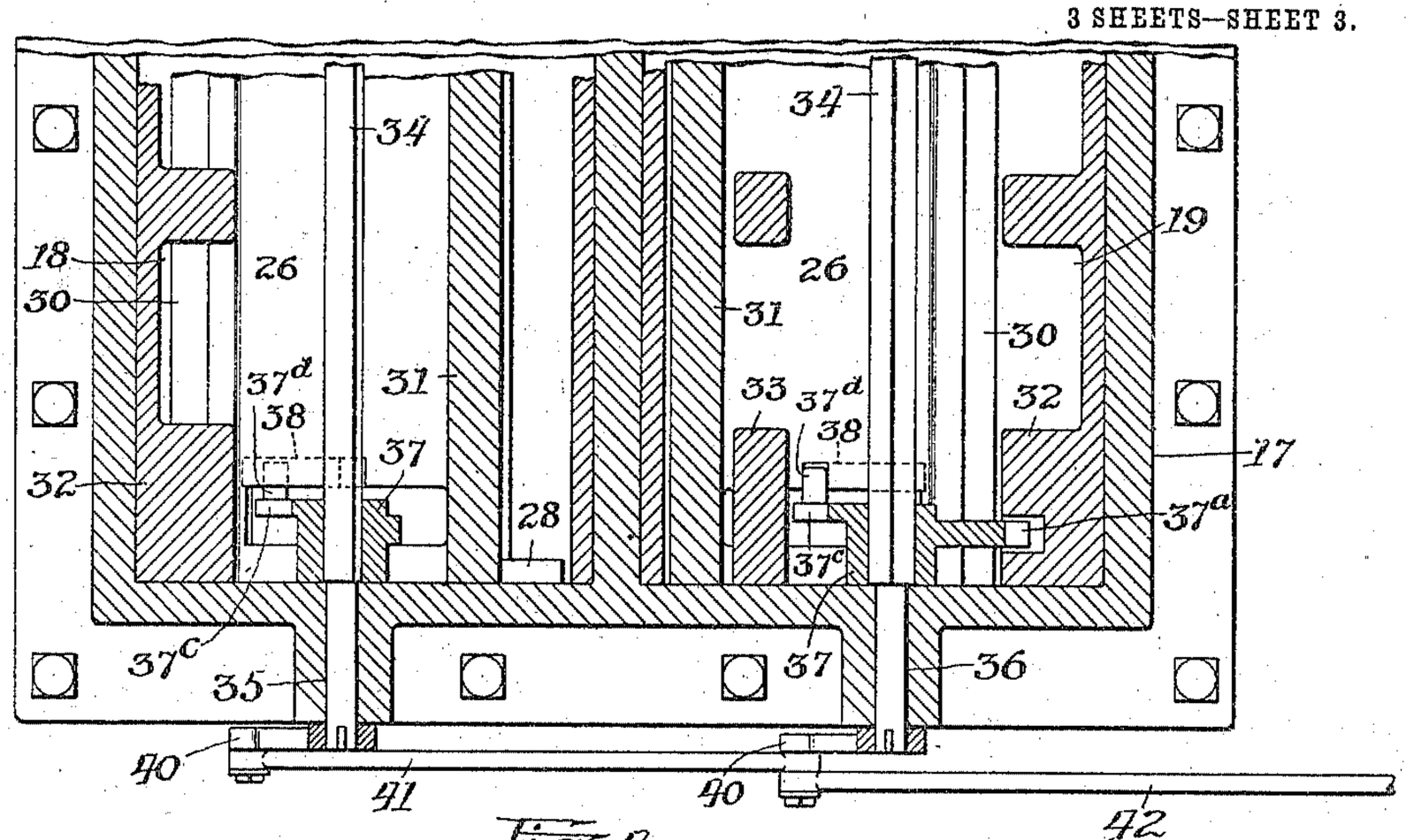

Fig. 4.

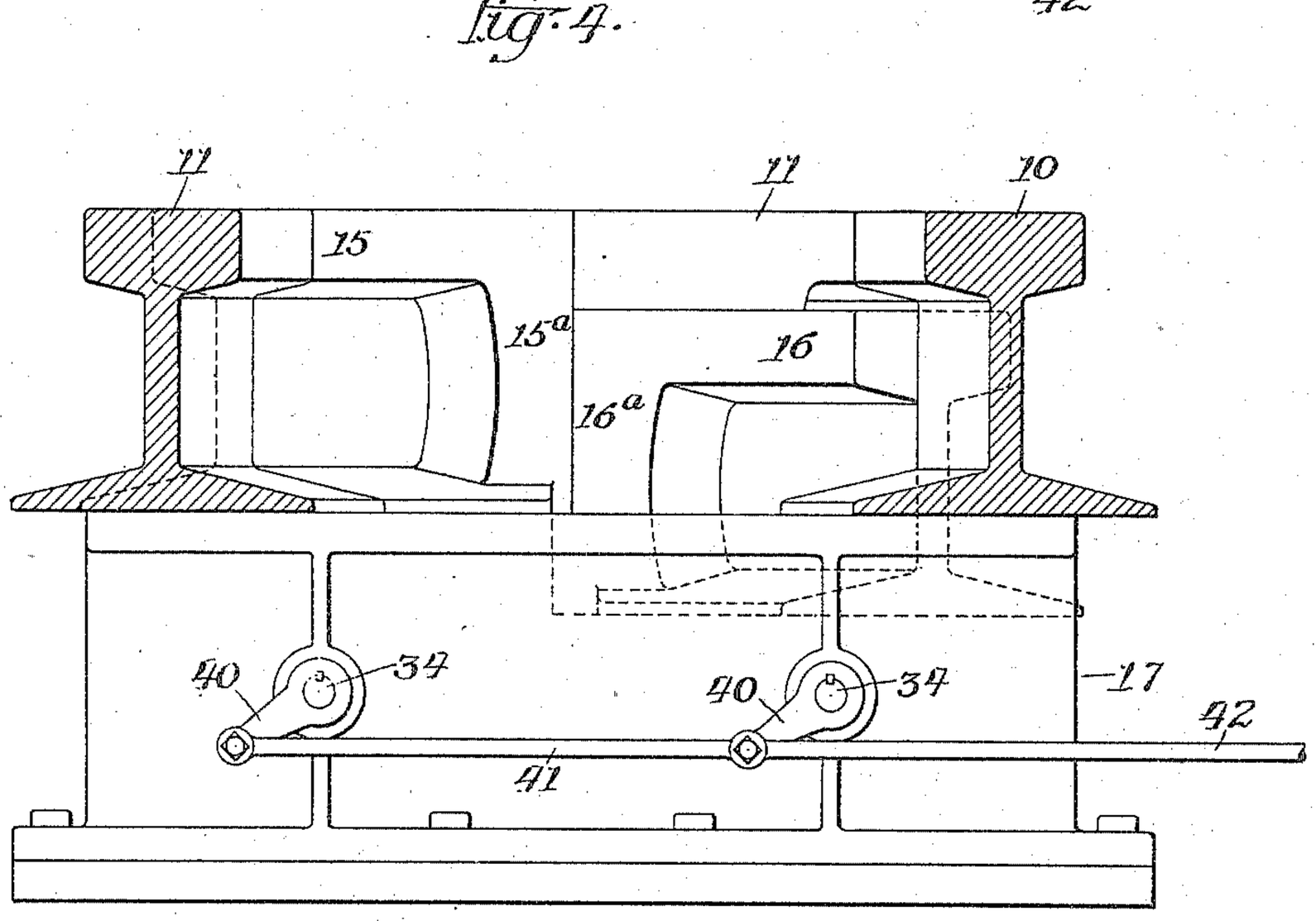

Fig. 5.

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UNITED STATES PATENT OFFICE.

ABRAHAM L. McMASTER, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR OF ONE-THIRD TO JAMES M. STREET AND TWO-THIRDS TO GEORGE H. FULLER, BOTH OF CHICAGO, ILLINOIS.

RAILROAD FROG AND SWITCH.

947,752. Specification of Letters Patent. Patented Jan. 25, 1910.

Application filed June 7, 1909. Serial No. 500,552.

To all whom it may concern:

Be it known that I, ABRAHAM L. McMASTER, a citizen of the United States, and a resident of Chicago Heights, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railroad Frogs and Switches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to frogs and switches of that type in which the frog or switch section which connects the tracks is movable vertically in a box located under the frog or switch, and as applied to a frog, one section is arranged to move up as the other moves down, thus connecting and disconnecting the respective rails, and maintaining the continuity of the rail to be used.

The invention is also applicable to derails. As illustrated herein it is shown applied to a frog.

The invention consists of the combinations of parts hereinafter described and more particularly pointed out in the claims.

In the drawings:—Figure 1 is top plan view of a section of railroad having a frog provided with my improvement. Fig. 2 is a longitudinal section through the operating plate of one frog section, as indicated by the line 2—2 of Fig. 1. Fig. 3 is a transverse section through Fig. 2 on the line 3—3 thereof. Fig. 4 is a partial horizontal section through Fig. 2 on the line 4—4 thereof. Fig. 5 is an end elevation of the box which contains the operating parts of the mechanism.

10 and 11 represent branch rails which cross by means of the frog 12 and run into the main track rails 13 at the switch points 14. The switch points are connected together and operate in the usual manner.

15, 16 indicate the sections of the frog, the one section 15 in the plan view shown in Fig. 1 being represented as up, while the one 16 is represented as down, so that a car running on the track rails 11 will be properly guided onto the main track 13.

17 indicates a box below the frog sections in which the operating and supporting members are located. The box 17 is provided with two compartments running the full length thereof, the one 18 containing the lifting and supporting parts for the frog section 15 and the other 19 containing the lifting and supporting parts for the frog section 16. Said frog sections are of the usual rail form in cross-section except when nearing the point of the frog where the web is extended out to the full width of the tread of the rail, and the flanges are discontinued, as indicated at 15^a, 16^a.

The operating and supporting parts contained in the chambers 18 and 19, now to be described, are alike in construction and arrangement and a description in the one case will suffice for both.

26 indicates a supporting block running the full length of the chamber 18 and movable in a direction transverse of its length. It is provided on its under surface with transverse ribs 27 which engage the floor of the chamber 18. Each end wall of the chamber is provided with shoulders or tongues 28 which engage similarly located grooves 29 on the ends of said block to guide it in its movement on the floor of said chamber. Longitudinal shoulders 30, 31 are located on the opposite sides of said block, the same being of unequal height with the shoulder 31 higher than the shoulder 30. These shoulders are adapted to engage and support depending ribs 32, 33 formed on the lower surface of the plate 20, the rib 32 being engaged by the shoulder 30 and the rib 33 by the shoulder 31 on the block, as indicated in Fig. 3. To lighten the weight of metal that it is necessary to lift when raising the movable section into its upper position, I prefer to web these ribs as more particularly shown in Fig. 2. The engaging portions or legs of the ribs are spaced apart, the distance between them being determined by the weight of traffic and the necessary support for the rail section.

34 indicates an operating shaft which runs in the direction of the length of the chamber 18 and is suitably journaled in the end walls thereof, as indicated at 35, 36.

37, 37 indicate cams located preferably at each end of the chamber 18 and keyed to the shaft 34. By means of these cams the plate 20 and the frog section carried thereby are raised into their upper position and the block 26 is shifted laterally to bring its supporting shoulders under and into engagement with the depending ribs on the plate.

The cams 37, 37 are alike and each is provided with an arm 37^a which engages a cam surface 37^b arranged on the under side of the plate 20, and with an arm 37^c diametrically opposite, carrying a pin 37^d which engages a cam slot 38 formed in one face of a transverse channel 39 cut in the block 26. These cams, cam-surfaces and slots are so constructed and arranged with relation to each other that the operation of the cams 37 in one direction will lift the plate 20 to bring the rail section carried thereby up into its upper position, while at the same time the block 26 is caused to slide laterally in the chamber 18 to bring its shoulders 30, 31 under and into supporting engagement with the depending ribs 32, 33 on the plate 20. The reverse movement of the cam slides the block 26 in the opposite direction so as to withdraw it from its support of the plate 20. The cam surface 37^b on the under surface of the plate 20 is formed to temporarily support the plate 20 until the block 26 has been withdrawn entirely from its supporting position. Thereupon said cam is withdrawn from the support of the plate and the same drops into its lower position, as indicated on the right of Fig. 3.

To lock the parts together when the frog section is in its upper position, I provide the depending rib 32 on the plate 20 with a longitudinal groove 39 which is adapted to be engaged by a tongue 39^a formed above the shoulder 30 on the block 26. The cam surface 37^b is formed as indicated at 37^e, so that in the lower position of the parts the cam arm 37^a will bear down upon it and thus lock the movable section in this position.

To operate the vertically movable sections, the ends of the shafts 34 are provided with rock arms 40 connected together by a link 41 and adapted to be rocked by a rod 42 which passes under the rails and is pivotally connected to one arm of a bell-crank lever 43. Said lever is operated from the switch rod 44 which throws the switch points, in any convenient manner as, for example, by the mechanism illustrated in Fig. 1. It is apparent that the movement of the rod 42 in one direction will rotate the shafts 34 in unison and thus cause one frog section to rise and the other to fall, while at the same time the supporting blocks are shifted laterally, the one to engage and support its frog section and the other to disengage its frog section and permit it to drop. At the end of the movement the parts are locked in their respective positions. In the case of the application of the invention to a switch but one movable section with its corresponding parts should be used.

While I have described in this application certain details of mechanical construction, it is to be understood that I do not wish to limit myself to them as it is apparent that they may be modified in a number of ways without departing from the spirit of my invention.

I claim as my invention:—

1. The combination with alined rails, of a rail section located intermediate of and adapted to connect said rails to form a continuous track, the said rail section being movable up and down to make or break the continuity of the track, a supporting member adapted to be brought into supporting position with respect to said rail section when the latter is in raised position, and means for raising and lowering said rail section and for shifting said supporting member.

2. The combination with alined rails, of a rail section located intermediate of and adapted to connect said rails to form a continuous track, the said rail section being movable up and down to make or break the continuity of the track, a supporting member adapted to be brought into supporting position with respect to said rail section when the latter is in raised position, means for locking in place said rail section and said supporting member in said position, and mechanism for raising and lowering said rail section and for shifting said supporting member.

3. The combination with alined rails, of a rail section located between and adapted to connect the same to form a continuous track, the said rail section being movable up and down to make or break the continuity of the track, a support adapted to engage said rail section when in its elevated position, means to elevate and lower said rail section, and means to operate said support.

4. The combination with alined rails, of a rail section located therebetween and adapted to connect the same to form a continuous track, said rail section being movable up and down to make or break the continuity of the track, depending ribs located below said rail section, a movable block below said rail section, shoulders located thereon adapted to engage the said ribs on said rail section, means for raising and lowering said rail section, and means for moving said block into and out of engaging position with said depending ribs.

5. The combination with alined rails, of a rail section located between them and adapted to connect the same to form a continuous track, said rail section being movable up and down to make or break the continuity of the track, a support adapted to engage said rail section when in its elevated position, means for locking said support in its operative position, means to elevate and lower said rail section, and mechanism to operate said support.

6. The combination with alined rails, of a rail section located therebetween and

adapted to connect the same to form a continuous track, said rail section being movable up and down to make or break the continuity of the track, depending ribs located below said rail section, a movable block located below said ribs, shoulders formed on said block adapted to engage the lower faces of said ribs, means for locking said block in place when in supporting position below said rail section, cams constructed to raise and lower said rail section, and to shift said movable block into and out of supporting position.

7. The combination with alined rails, of a rail section located therebetween and adapted to connect the same to form a continuous track, said rail section being movable up and down to make or break the continuity of the track, depending ribs located below said rail section, a movable block extending the length of said rail section and located below the same, longitudinal shoulders located at each side of said block adapted to engage under the said ribs, a longitudinally extending tongue and groove formed respectively on one of the shoulders on said block, and on one of said ribs, cams constructed to operate said block and to raise and lower said rail section, and means for operating said cams.

8. The combination with alined rails, of a rail section located therebetween and adapted to connect the same to form a continuous track, said rail section being movable up and down to make or break the continuity of the track, a plate to which said rail section is secured, depending flanges formed at the sides of said plate, a chamber having side and end walls in which said plate is movable with its lateral flanges in engagement with the side walls of said chamber, depending ribs formed on the under side of said plate, a block extending the length of said plate and sliding laterally on the bottom of said chamber, shoulders formed on said block adapted to engage the bottoms of the ribs formed on said plate, a tongue and groove formed respectively on one of said shoulders and one of said ribs to lock them together, cams constructed to raise and lower said plate and to laterally shift said block, and means for operating said cams.

In testimony that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 2nd day of June, A. D. 1909.

ABRAHAM L. McMASTER.

Witnesses:
CLARENCE E. MEHLHOPE,
J. M. STREET.