H. F. ROACH.

RAILWAY TRACK STRUCTURE.

APPLICATION FILED MAR. 5, 1909.

929,882.

Patented Aug. 3, 1909.

4 SHEETS—SHEET 1.

Fig. 1.

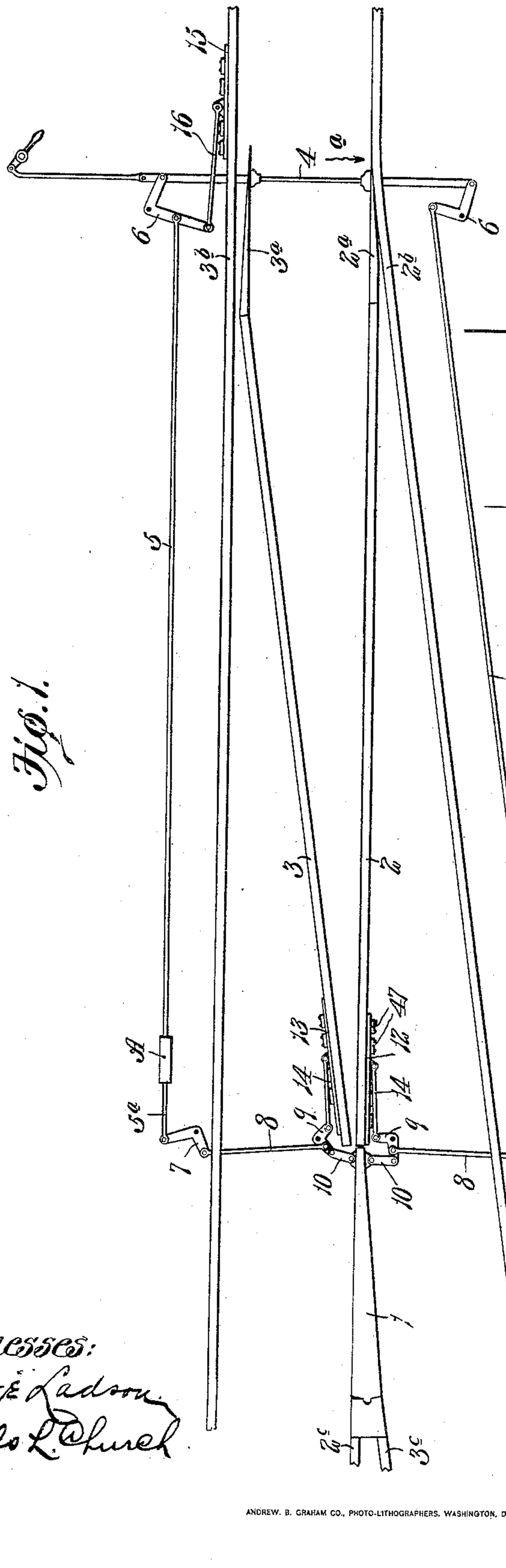


Fig. 3.

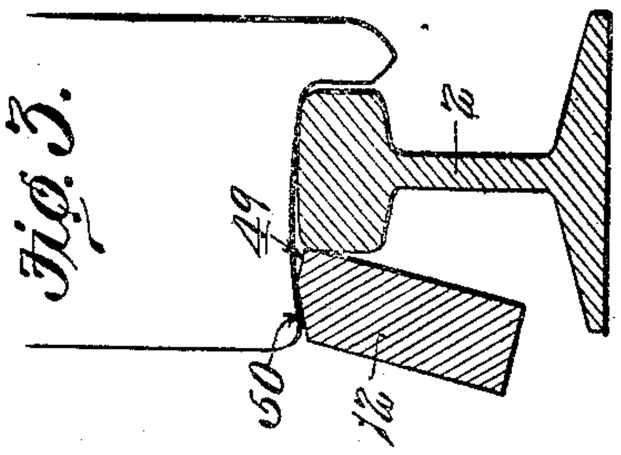
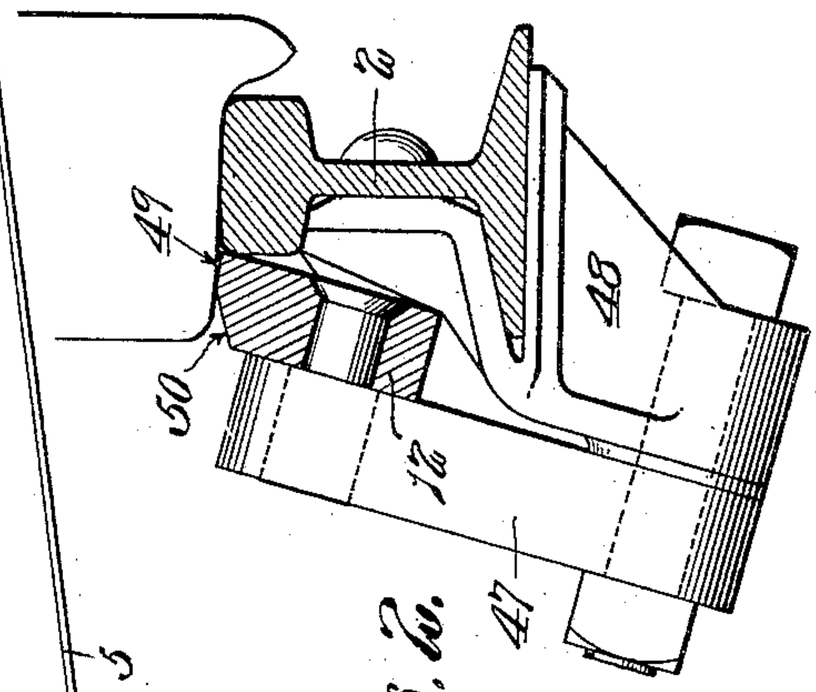


Fig. 2.



Witnesses:
George Ladson.
Nellie L. Church.

Inventor:
Harry F. Roach.
by Paul Bakewell
Atty.

H. F. ROACH.

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4 SHEETS—SHEET 2.

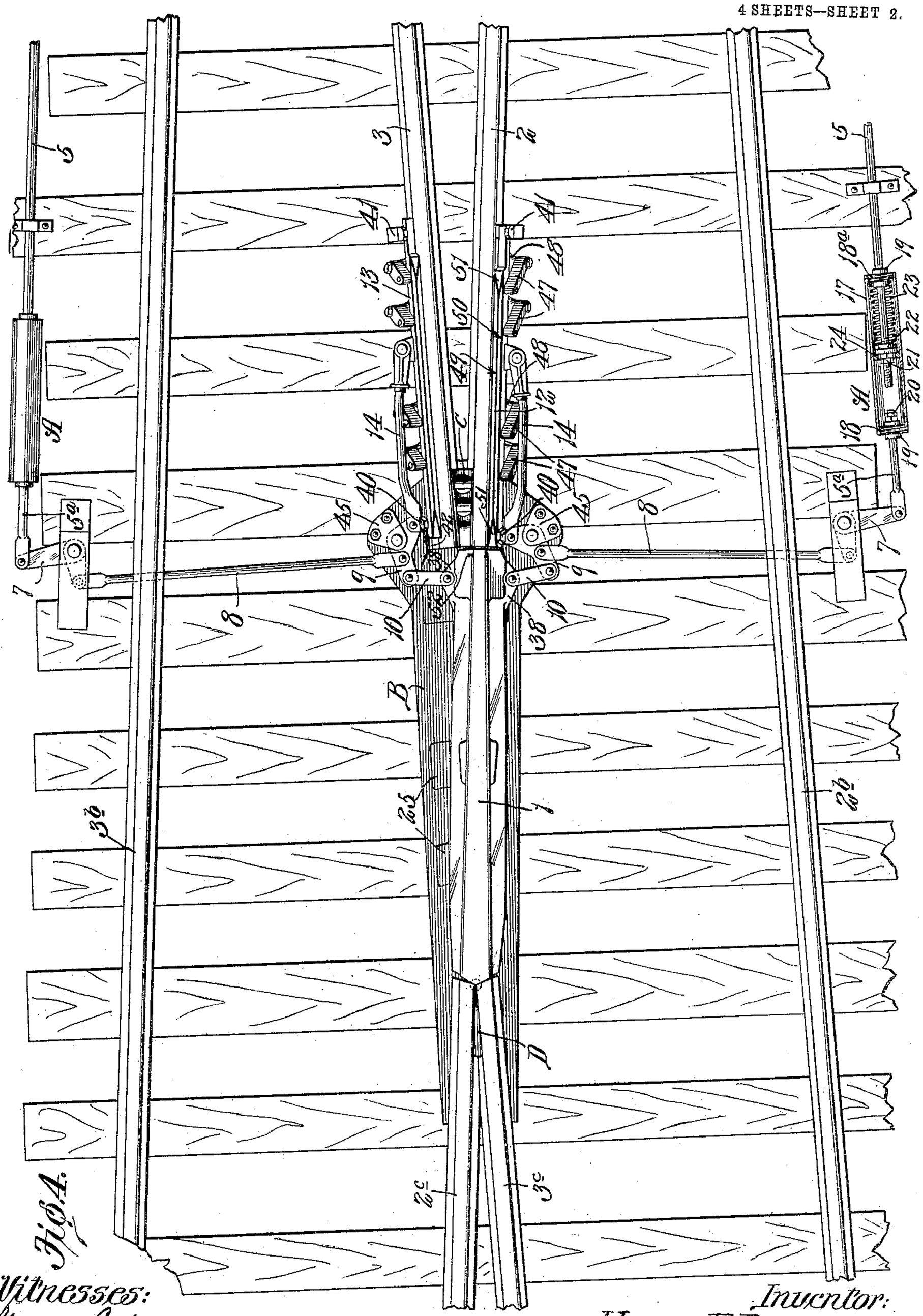

Fig. 4.

Witnesses:
George Ladson.
Wells L. Church.

Inventor:
Harry F. Roach.
by Paul Bakewell Atty.

H. F. ROACH.

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4 SHEETS—SHEET 3.

Fig. 6.

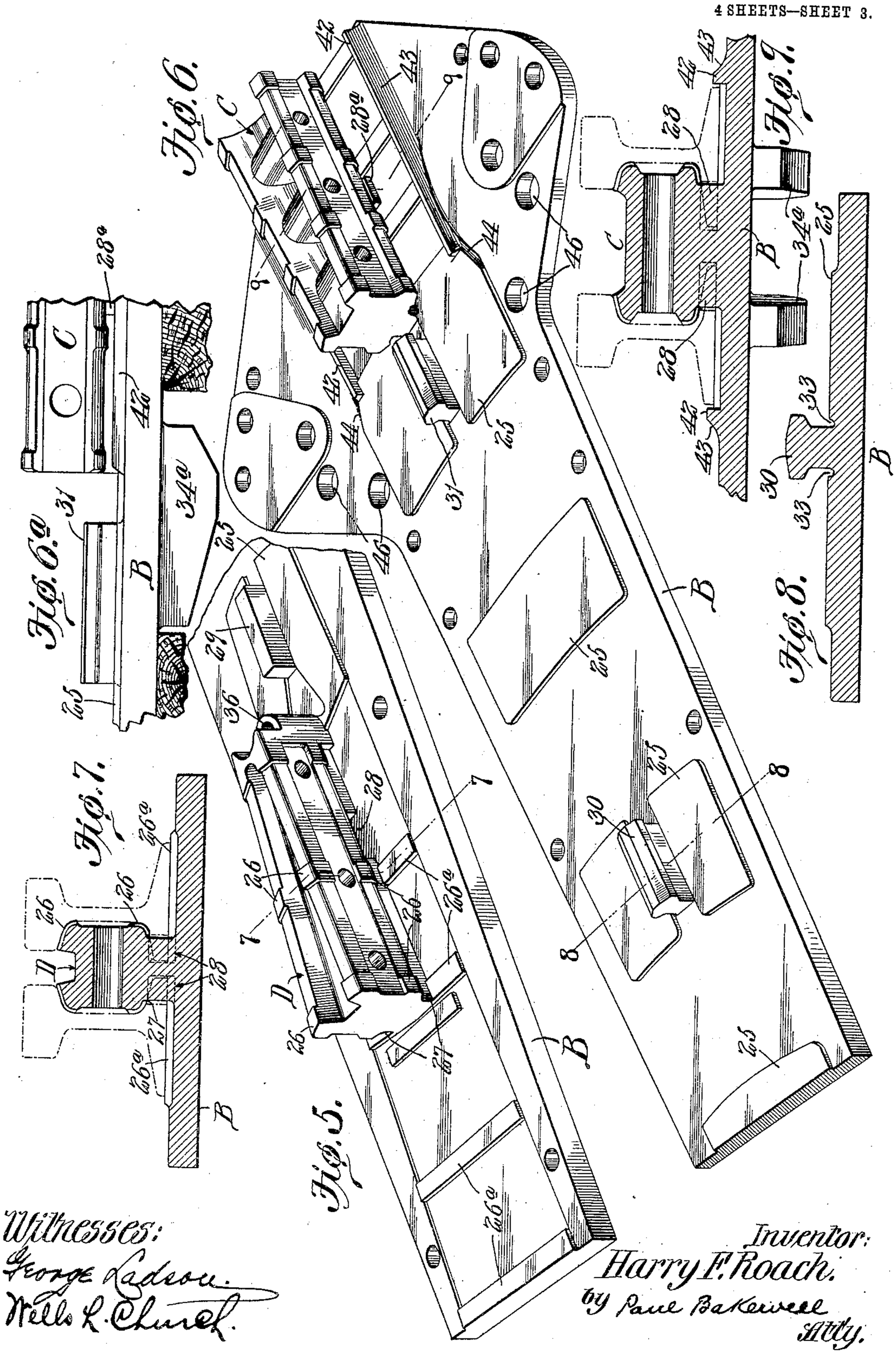

Fig. 6a.

Fig. 7.

Fig. 5.

Fig. 7.

Fig. 8.

Witnesses:

George Ladeow.

Wells L. Church.

Inventor:

Harry F. Roach.

by Paul Bakewell

Atty.

H. F. ROACH.

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4 SHEETS—SHEET 4.

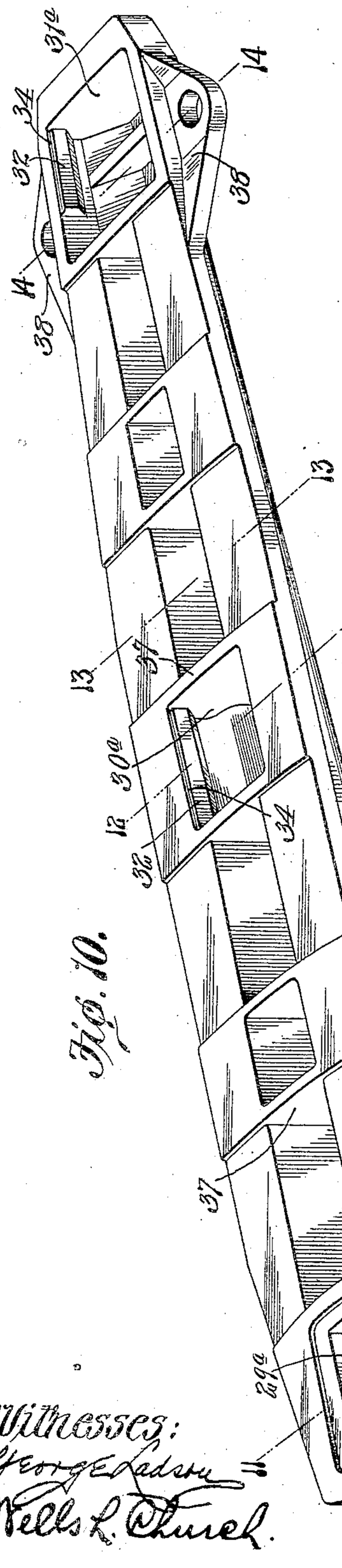

Fig. 10.

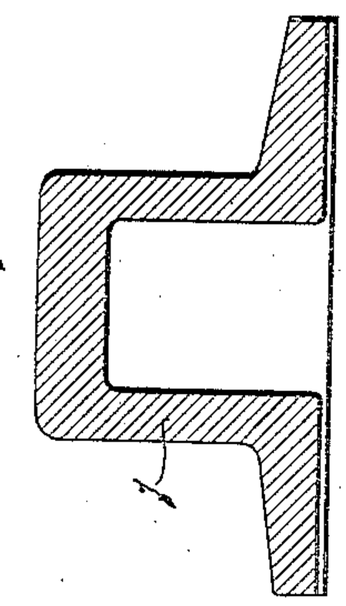

Fig. 13.

Fig. 11.

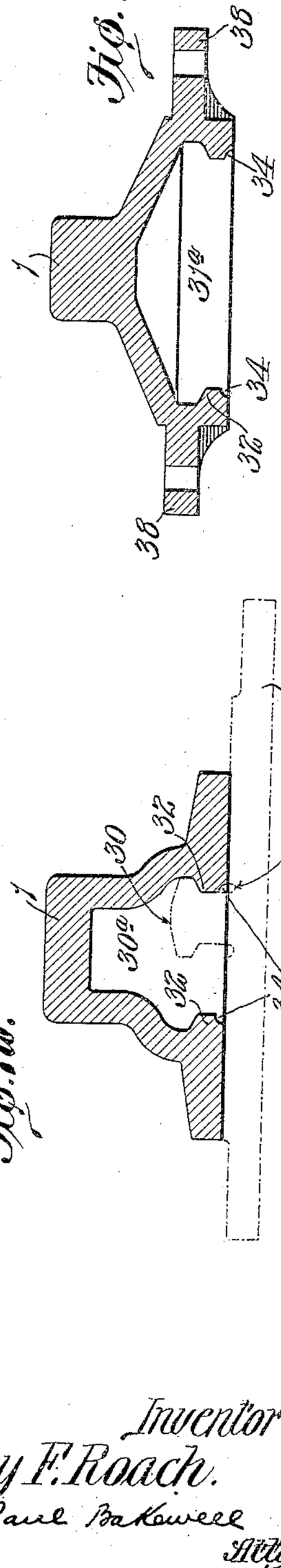

Fig. 14.

Fig. 12.

Witnesses:
George Ladson
Wells L. Church.

Inventor:
Harry F. Roach.
by Paul Bakewell
Atty.

UNITED STATES PATENT OFFICE.

HARRY F. ROACH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CONTINUOUS RAIL & SAFETY SWITCH CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

RAILWAY-TRACK STRUCTURE.

No. 929,882. Specification of Letters Patent. Patented Aug. 3, 1909.

Application filed March 5, 1909. Serial No. 481,371.

To all whom it may concern:

Be it known that I, HARRY F. ROACH, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Railway-Track Structures, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to railway track structures, and particularly to that type which comprises a movable tongue arranged at the intersection of the inside rails of two tracks and adapted to be moved laterally into alinement with either of said rails so as to form a continuous rail.

My prior patents Nos. 902,451, dated October 27, 1908, and 904,278, dated November 17, 1908, cover railway track structures of the type above referred to, and one object of my present invention is to provide a novel form of base plate and movable tongue for track structures of this character.

Another object is to provide a railway track structure of the character described having wheel-operated members for correcting misplacement of the tongue, which members are so constructed that they will coöperate with perfect or imperfect or double flanged wheels.

Another object is to provide a railway track structure of the type above referred to comprising switch-points, means for causing the tongue to move when the switch-points are shifted, and a wheel-operated member connected to the switch-points in such a manner that said switch-points will be moved into proper position in case the switch point-shifting mechanism has not positioned them properly, and also held locked in this position while a train is passing through the switch.

Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 is a diagrammatic view of a railway track structure embodying my present invention; Fig. 2 is a detail vertical sectional view of one of the wheel-operated members and shows a perfect wheel traveling on the rail with which said wheel-operated member coöperates; Fig. 3 is a view similar to Fig. 2, and shows an imperfect or double-flanged wheel traveling on said rail; Fig. 4 is an enlarged top plan view of the movable tongue, the wheel-operated member for correcting misplacement of said tongue, and also the yielding links that form part of the connection between the tongue and the switch-points; Fig. 5 is a perspective view of the heel end portion of the base plate; Fig. 6 is a perspective view of the toe end portion of the base plate; Fig. 6^a is a side elevational view of same; Fig. 7 is a vertical sectional view taken on approximately the line 7—7 of Fig. 5; Fig. 8 is a vertical sectional view taken on approximately the line 8—8 of Fig. 6; Fig. 9 is a vertical sectional view taken on approximately the line 9—9 of Fig. 6; Fig. 10 is a perspective view of the movable tongue in an inverted position; and Figs. 11, 12, 13 and 14 are vertical sectional views taken on the lines 11—11, 12—12, 13—13, and 14—14 of Fig. 10.

Referring to the drawings which illustrate the preferred form of my invention, 1 designates a movable tongue arranged at the intersection of the inside rails 2 and 3 of a main line and siding, respectively, and 2^a and 3^a designate switch-points that coöperate with the outside rails 2^b and 3^b of the siding and main line, respectively. The switch-points are connected to a head rod or switch-operating bar 4 that can be actuated manually, or by some suitable mechanical, electrical or pneumatic means, not shown, and the movement of said rod is transmitted to the movable tongue 1 by means of long rods 5 connected at one end to bell crank levers 6 to which the head rod is fastened, and connected at their opposite ends to bell crank levers 7 which are connected to the opposite side of the toe end of the movable tongue by means of links 8, bell crank levers 9 and short links 10, as shown clearly in Fig. 1. When the head rod 4 is actuated to shift the switch-points the tongue will be moved simultaneously to bring it into alinement with the other track rail with which it coöperates and thus form a continuous rail. Wheel-operated members 12 and 13 are arranged alongside of the rails 2 and 3 adjacent the toe end of the movable tongue, and said wheel-operated members are connected by means of rods 14 to the bell crank levers 9 so as to correct misplacement of the tongue in case the tongue-actuating means fails to move the tongue into its proper position. A wheel-operated member 15 is also arranged alongside of the track rail 3^b adjacent the switch-points, and said member is connected by

means of a rod 16 to one of the bell crank levers 6 to which the head rod is fastened, so as to correct misplacement of the switch-points in case the means which shift same to close the siding fails to move the switch-point 2^a tightly against the rail 2^b with which it coöperates.

The wheel-operated members 12 and 13 and also the wheel-operated member 15 are carried by pivotally mounted links hereinafter described, and said links are so arranged that the wheel-operated members lie approximately flush with the treads of their coöperating rails when the movable tongue and switch-points are in proper position. Whenever the movable tongue or switch-points are in an improper position said wheel-operated members project slightly above the treads of the rails with which they coöperate so that the wheels of an approaching train will depress said members and move them longitudinally so as to complete the movement of the tongue-operating means and the switch-point-operating means and thus arrange said tongue and switch-points in proper position before the wheels of a train strike same. For example, suppose that when the head rod 4 is shifted in the direction indicated by the arrow *a* in Fig. 1 to close the siding, said head rod fails to move the switch-point 2^a tightly against the rail 2^b. This would cause the wheel-operated member 15 to come to rest in such a position that it would be engaged and depressed by the wheels of the next train that approaches the switch, the movement which said member received from the wheels of the train causing the head rod to move far enough in the direction indicated by the arrow in Fig. 1 to bring the switch-point 2^a into its proper position up against the rail 2^b and thus close the siding. If the head rod 4 fails to move the switch-point 3^a against the rail 3^b when said head rod is shifted in the opposite direction to open the siding the wheel-operated member 15 will come to rest in such a position that it will be engaged and actuated by the next train that approaches the switch and thus cause the switch-point 3^a to move into its correct position. This wheel-operated member 15 also holds the switch-points locked while the train is passing over them, for the head rod and wheel-operated member are connected together in such a manner that it will be impossible for the switch-points to move laterally while the train is passing over the wheel-operated member 15. The connection between the head rod and movable tongue causes said tongue to be shifted simultaneously with the switch-points, as previously described, but if said connection should break, or if, for any other reason, the tongue should fail to move to its extreme position in alinement with either the rail 2 or 3, the wheel-operated member that coöperates with the track on which the approaching train is traveling, will come to rest in such a position that said approaching train will depress it and move it longitudinally, and thus complete the movement of the tongue or remove it into its proper position before the wheels engage same.

The long rods 5 which form part of the connection between the movable tongue and the switch-point-shifting means, are provided with yielding links A that permit the tongue to move without affecting or changing the position of the switch-points, thus enabling a train on the siding to trail through from the heel end of the tongue when said tongue is in alinement with the main line rail, or a train on the main line to trail through from the heel end of the tongue when the tongue is in alinement with the siding rail. The function of these yielding links is the same as that of the yielding links shown and described in my prior patent No. 904,278, above referred to, but as the yielding links herein shown are of novel construction, I will specifically describe same. Each of said links comprises a cylinder 17 provided with removable ends or heads 18 and 18^a having external screw-threads that cooperate with internal screw-threads on the cylinder 17 so as to enable said heads to be removed easily. Each of the rods 5 consists of two sections, the short section 5^a, which is connected to the bell crank lever 7 passing freely through a tubular-shaped guideway 19 on the head 18 of the cylinder, and the other section of said rod passing freely through a similar guideway 19 on the other head 18^a of the cylinder. The section 5^a is provided at its inner end with an adjustable stop 20 that limits the outward movement of said section but does not interfere with the inward movement thereof. The long section of the rod that projects through the head 18^a in the cylinder is provided with an adjustable stop 21 that coöperates with a spring seat 22 loosely mounted on the rod and bearing against a coiled expansion spring 23 whose opposite end bears against the head 18^a of the cylinder, the cylinder being provided at approximately its center with a stationary stop 24 which the spring seat 22 normally engages. The head 18^a can be adjusted to vary the tension of the spring 23 and the stops 20 and 21 on the sections of the rod 5 can be adjusted so as to take up any slack in the tongue-moving mechanism.

The base plate B on which the movable tongue 1 is mounted, is provided with a number of bearings 25 on which the tongue slides, and said base plate is provided at its toe end with an integral portion C to which the track rails 2 and 3 are connected, and at its heel end with an integral portion D to which the rails 2^c and 3^c are connected, said rails forming continuations of the inside rails 2 and 3.

As both of the rail-attaching members C and D are of substantially the same construction I will describe only the member D. This member is formed integral with the base plate and is provided on its sides and top with ribs 26 against which the webs and under sides of the heads of the rails 2° and 3° bear. The base plate is also provided with a number of ribs 26ª on which the base flanges of said rails bear. Portions of the base flanges of said rails are cut away so that the remaining portions of said base flanges can project into grooves 27 formed in the sides of the member D adjacent the point where it is connected to the base plate, and said member D is provided at approximately its center with recesses 28 which receive extensions on the base flanges of the rails, as shown in dotted lines in Fig. 7. The object of providing the member D and the base plate with the ribs 26 and 26ª, respectively, is to provide for variations in the dimensions of the rails and also to enable the rails to be lined up properly. For example, if the rails do not fit snugly against the member D the ribs on said member or the ribs on the base plate can be chipped off enough to make the rails fit snugly against the member D with their treads in the proper horizontal plane. The recesses 28 in the member D into which the extensions on the base flanges of the rail project, prevent the rails from creeping longitudinally, and the overhanging portions of said member D, which are formed by the grooves 27 in the sides of said member, bear upon portions of the base flanges of the rails and thus prevent the rails from moving upwardly or vertically relatively to the base plate.

The base plate is provided with a number of integral stops 29, 30 and 31 that project into coöperating pockets 29ª, 30ª and 31ª on the under side of the tongue 1 so as to limit the lateral movement of said tongue. The stop 31, that is located adjacent the toe end of the tongue, and also the intermediate stop 30, are provided with laterally projecting portions that coöperate with inwardly projecting flanges 32 on the side walls of the pockets into which said stops project so as to overcome any tendency of the tongue to move upwardly from the base plate. As shown in Figs. 8 and 12 the bearings 25 on the base plate that are located adjacent said stationary stops, do not extend clear up to same but terminate a short distance from the sides of said stop so as to form grooves 33. The lower edges of the inwardly projecting flanges 32 in the pockets of the tongue are also cut away at 34, as shown in Figs. 12 and 14 so that when the tongue is in either of its extreme positions against the stationary stops there will be a slight clearance between the base of each of said stops and the portion of the tongue with which it coöperates, thereby providing for inequalities in the tongue and base plate and also eliminating the possibility of dirt becoming clogged between the stops and tongue and thus preventing the tongue from moving into its extreme position.

The rail-attaching member C at the toe end of the base plate is provided with laterally projecting lugs 28ª that fit in notches in the base flanges of the rails, as shown in Figs. 6 and 9, so as to prevent longitudinal creepage of said rails. The base plate is also provided on its under side with depending lugs 34ª, as shown in Figs. 6ª and 9, that reinforce and strengthen that portion of the base plate which is located underneath the meeting ends of the track rails 2 and 3 and the movable tongue. These lugs 34ª also perform another function; namely, they prevent a track tie from being placed directly under the toe of the tongue and the terminals of the rails 2 and 3, as I have found in practice that better results are obtained when the track ties are located a short distance from the meeting ends of the tongue and rails, as shown in Fig. 6ª. It is also preferable to arrange the track ties in this manner so that a space or channel will be provided for the links 8 and also to enable the pins which connect the bell crank levers 9 to the operating mechanism, to be inserted upwardly from the underside of the base plate, as hereinafter described. The tongue is provided at its inner end with an integral pivot pin 35 that projects into a socket 36 formed in the rail-attaching member D, and the heads of the rails 2° and 3° are so formed that they project over the upper end of said pivot pin and thus prevent the heel end of the tongue from rising upwardly. The tongue herein shown is practically hollow and is provided with a number of cross webs 37 that strengthen same and also form the end walls of the pockets into which the stationary stops on the base plate project.

The short links 10, which connect the toe end of the tongue to the bell crank levers 9, are fastened to laterally projecting lugs 38 on the tongue, and the top faces of said lugs are inclined downwardly toward the base plate so that a wheel that has become derailed or slipped from the tongue onto the base plate, can ride up over one of said lugs onto the track rail with which the tongue alines, there being sufficient metal in these lugs to prevent the wheel from shearing them off as said wheel rides up over the lug. The short rods 14 that connect the wheel-operated members 12 and 13 to the bell crank levers 9, are cambered slightly so that they can bow outwardly or bend outwardly slightly in case the tongue reaches its extreme limit of movement before the wheel-operated member has been fully depressed. In other words, these rods are so formed that if they are subjected

to abnormal strains they will bend outwardly intermediate their ends and thus prevent breakage of any of the members which they actuate. I prefer to provide each of the rods 14 with an upwardly projecting guiding lug 40 that bears against the wheel-operated member with which said rod coöperates, and thus tends to force said member inwardly toward the track rail alongside of which it is arranged. The opposite ends of the wheel-operated members are prevented from moving outwardly away from the track rails by means of guides 41 that are connected to the track ties. To overcome the possibility of a bolt, nut or other rigid object being wedged underneath the base flange of either of the rails 2 and 3 or between the base flanges of the rails and the bell crank levers 9, I have provided the toe end of the base plate with upwardly projecting flanges 42 that extend parallel to the rail-attaching member C, as shown in Figs. 6 and 9, the upper edges of these flanges 42 terminating above the ribs on the base plate on which the stationary track rails rest. The outer side face of each of these flanges 42 is curved at 43, as shown clearly in Fig. 9, so that any object or substance that lies in the path of movement of the bell crank levers 9 will be forced upwardly on said curved faces 43 onto the upper sides of the base flanges of the rails instead of becoming wedged between said base flangesand the base plate or between said base flanges and the levers 9. The corners of the bearing 25 on the base plate on which the toe end of the tongue rests, are also cut away at 44, as shown in Fig. 6, so as to provide a clearance for any object that gets in the path of movement of the bell cranks 9. These bell cranks 9 are pivotally connected to brackets 45 on the base plate, and said base plate is provided with a number of holes 46 located in such a position that the pins which connect said bell cranks to their coöperating links can be arranged in position easily, said pins being inserted from the underneath side of the base plate into the openings provided for them in the bell cranks and their coöperating links.

The wheel-operated members 12, 13 and 15 are so formed that they will coöperate with a perfect wheel and also with an imperfect or double-flanged wheel. It is well-known that the tread surface of the car wheel becomes concaved or double-flanged after it has been in use for a short while on account of the wearing away of the tread of the wheel and the lateral movement of the wheel relatively to the rail which has a smaller tread than the wheel, and I have therefore provided the tread surface of each of said wheel-operated members with a portion that is adapted to be engaged by the tread of a perfect wheel and a portion that is adapted to be engaged by the tread of an imperfect or double-flanged wheel. As all of the wheel-operated members are of substantially the same construction I will only describe the member 12. Said member is carried by a plurality of pivotally mounted links 47 that are carried by brackets 48 connected to the rail 2, as shown in Fig. 2, the tread surface of said wheel-operated member consisting of a portion 49 that is adapted to be engaged by the tread of a perfect wheel, as shown in Fig. 2, and also a portion 50 that conforms to the outside flange or outer concaved portion of an imperfect wheel and is adapted to be engaged thereby, as shown in Fig. 3. By forming the wheel-operated member in this manner I can make it heavy enough to withstand the strains and shocks to which it is subjected, and also insure that it will be operated by either a perfect wheel or an imperfect wheel. I prefer to bevel the end portions of the tread surface of the wheel-operated member at 51, as shown in Fig. 4, so as to gradually guide an imperfect wheel onto the portion 50 of the tread surface of said member that conforms to the outer flange of an imperfect wheel. I also prefer to bevel off the opposite sides of the tread surface of the tongue at 52, as shown in Fig. 4, so that if said tongue is not in exact alinement with either of the rails 2 or 3 the approaching wheel will strike the beveled portion of the tongue and shift it laterally into exact alinement with the rail.

I have herein used the term "inside rails" merely for the purpose of designating the track rails with which the movable tongue coöperates and I do not wish it to be understood that my invention is limited to the type of track structure herein shown for this same idea could be embodied in a crossing.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A railway track structure, comprising a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, switch-points, mechanism for actuating said switch-points and tongue, means for correcting misplacement of said tongue and independent means for correcting misplacement of said switch-points.

2. A railway track structure, comprising a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, switch-points, means for shifting said switch-points and tongue simultaneously, and independent wheel-operated members arranged adjacent the tongue and adjacent the switch-points and connected to the actuating mechanism of said tongue and switch-points for correcting misplacement of said members and holding them locked in their adjusted positions.

3. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, switch-points, mechanism for shifting said tongue and switch-points, and a wheel-operated member arranged in advance of the switch-points and operatively connected to the switch-point-shifting means for the purpose described.

4. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, switch-points, means for shifting said switch-points, mechanism for transmitting the movement of said switch-point-shifting means to said tongue, and means adapted to be operated by an approaching train and connected to said switch-point-shifting means for completing the movement thereof and also hold the switch-points locked in proper position while a train is passing over same.

5. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, switch-points, a switch-point-operating means, a connection between said means and the movable tongue for causing said tongue to move simultaneously with the switch-points, a wheel-operated member arranged adjacent the switch-points and connected to said switch-point-shifting means so as to correct misplacement of the switch-points, and wheel-operated members arranged adjacent the toe end of the tongue and operatively connected thereto for correcting misplacement of said tongue.

6. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, switch-points, mechanism for shifting said switch-points, a yielding connection between the tongue and said switch-point-shifting means, and a wheel-operated member arranged in advance of the switch-points for correcting misplacement of the switch-points and holding them locked in position while a train is passing over them.

7. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, means for shifting said tongue laterally to bring it into alinement with either of said rails, and wheel-operated members operatively connected to the toe end of said tongue and being provided with tread surfaces that will accommodate perfect wheels and imperfect or double-flanged wheels, the surfaces of said members which accommodate perfect wheels normally lying approximately flush with the tread surfaces of the track rails with which they coöperate.

8. In a railway track structure, a base plate provided with a movable tongue, a rail-attaching member on said base plate, and ribs on said member against which the rails bear, said ribs being adapted to be chipped off to provide for variations in the dimensions of the rails.

9. In a railway track structure, a base plate provided with a movable tongue, a rail-attaching member on said base plate, and ribs on said member that form bearing surfaces for the web and the under side of the head of a rail.

10. In a railway track structure, a base plate provided with a movable tongue, an integral rail-attaching member on said base plate, and ribs on the base plate and on said rail-attaching member that form bearing surfaces for the base flange of the rail, the web and the under side of the head of the rail, said ribs being adapted to be chipped off or cut away slightly to provide for variations in the dimensions of the rails.

11. In a railway track structure, a base plate provided with a movable tongue, and an integral rail-attaching member on said base plate having overhanging portions that bear upon the base flanges of the rails, and also provided with recesses that receive extensions on the base flanges of the rails so as to prevent longitudinal creepage.

12. In a railway track structure, a base plate provided with a movable tongue, an integral rail-attaching member on said base plate, rails connected to said member, and extensions on the base flanges of said rails that project into recesses or pockets in said member so as to prevent longitudinal creepage.

13. In a railway track structure, a base plate provided with a stationary stop, a movable tongue mounted on said base plate and provided on its under side with a recess or pocket into which said tongue projects, and grooves formed in the base plate adjacent the lower end of said stop.

14. In a railway track structure, a base plate provided with an integral stop, a movable tongue mounted on said base plate and provided on its under side with a recess or pocket into which said stop projects, the lower edges of the side walls of said pocket being cut away and the base plate being provided with grooves at the sides of said stop so as to form a clearance between the stop and the tongue.

15. In a railway track structure, a base plate provided with a stationary stop having laterally projecting flanges, a movable tongue mounted on the base plate and provided on its under side with a pocket into which said stop projects, the side walls of said pocket having inwardly extending flanges, one of which lies under a coöperating flange on the stop when the tongue is in one of its extreme positions, and grooves formed in the base plate on opposite sides of the stop to prevent

dirt or other foreign matter from jamming between the stop and the portion of the tongue that bears against same when in its extreme position.

16. In a railway track structure, a base plate provided with a stationary stop, a movable tongue mounted on said base plate and provided on its under side with a recess into which said stop projects for limiting the lateral movement of the tongue, and means for preventing dirt or other foreign matter from becoming packed around the base of said stop and thus preventing the tongue from moving into its extreme positions.

17. In a railway track structure, a base plate provided at its toe end and at its heel end with integral rail-attaching members, track rails connected to said members, bearing ribs on said members that are adapted to be chipped off to provide for variations in the dimensions of said rails and thus permit them to fit snugly against said members, bearings on said base plate, and a tongue arranged between said rail-attaching members and slidingly mounted on the bearings of the base plate.

18. In a railway track structure, a base plate, a rail-attaching member on said base plate provided with a socket, a cast metal tongue mounted on the base plate and provided at its heel end with an integral pivot pin that projects into said socket, and rails connected to said rail-attaching member and having portions of their head projecting over the upper end of said pivot pin.

19. In a railway track structure, a base plate provided with a rigid stop, raised bearings on said base plate that terminate a short distance away from the sides of said stop so as to form grooves between said stop and bearings, and a tongue slidingly mounted on said bearings and provided on its under side with a recess or pocket into which said stop projects.

20. In a railway track structure, a base plate provided with a movable tongue, a rail-attaching member secured to said base plate, rails connected to said member and having their ends terminating at the tongue so that a wheel will pass directly from the tongue onto the tread of the rail with which the tongue alines or vice versa, and coöperating means on said rails and member for preventing longitudinal creepage of the rails.

21. In a railway track structure, a base plate, a tongue slidingly mounted on said base plate and arranged at the intersection of two rails, and laterally projecting lugs on the toe end of said tongue to which an actuating mechanism is adapted to be connected, the top faces of said lugs being inclined downwardly toward the base plate for the purpose described.

22. In a railway track structure, a base plate provided at its toe end with a rail-attaching member, rails resting on the base plate and connected to the opposite sides of said member, a movable tongue coöperating with said rails, a bell crank lever arranged on the base plate adjacent one of said rails for operating said tongue, and means for causing an object or any foreign matter that lies in the path of movement of said bell crank lever to move into such a position that it will not become wedged between said bell crank lever and the base flange of the rail which said lever is arranged adjacent to.

23. In a railway track structure, a base plate, a rail-attaching member arranged at one end of said base plate and securely connected thereto, track rails connected to opposite sides of said member and resting upon the base plate, and devices on the base plate that extend parallel to the outer edges of the base flanges of said rails so as to guide an object up onto the base flanges of the rails.

24. In a railway track structure, a base plate provided at one end with a rail-attaching member and raised ribs, track rails resting on said ribs and connected to said rail-attaching member, and flanges on said base plate extending parallel to the outer edges of the base flanges of said rails for preventing objects from becoming wedged underneath the base flanges of the rails, the flanges on said base plate being so formed that objects which come in contact with same will be guided up onto the base flanges of the rails.

25. In a railway track structure, a base plate provided at one end with horizontally disposed brackets, bell crank levers interposed between the base plate and brackets and pivotally connected thereto, and openings in the base plate which permit pivot pins to be inserted upwardly through the base plate into said bell crank levers for connecting said levers to an actuating mechanism.

26. In a railway track structure, a base plate, converging track rails resting on said base plate, and a movable tongue mounted on the base plate and adapted to be brought into alinement with either of said track rails, said tongue having a stub toe end and the end portion of the tread surface of said tongue being of less width than the treads of said rails so as to cause it to be shifted into its proper position by the flange of an approaching wheel that strikes the toe end of the tongue.

27. In a railway track structure, a base plate, converging track rails resting on said base plate, and a movable tongue mounted on the base plate and adapted to be brought into alinement with either of said track rails, the end portion of the tread surface of said tongue being beveled slightly so as to cause it to be shifted into its proper position by the flange of a wheel that strikes said beveled portion.

28. In a railway track structure, a mov-

able tongue arranged at the intersection of two rails, and mechanism for operating said tongue comprising a yielding link which consists of a cylinder having removable heads, rods passing freely through said heads and projecting into the cylinder, a stop on one of said rods that limits the outward movement thereof, and a coiled expansion spring interposed between a stop on the other rod and one head of the cylinder.

29. In a railway track structure, a movable tongue arranged at the intersection of two rails, and mechanism for operating said tongue comprising a yielding link which consists of a cylinder provided with heads, rods passing freely through said heads and projecting into the cylinder, a stop on one of said rods that limits the outward movement thereof, a stationary stop on the interior of the cylinder, a spring seat loosely mounted on the other rod and bearing against the stop on the cylinder, and a coiled expansion spring arranged between said spring seat and one head of the cylinder.

30. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, and mechanism for operating said tongue comprising a yielding link which consists of a cylinder provided at its opposite ends with internal screw-threads, heads for said cylinder screwed into the opposite ends thereof, rods passing freely through said heads and projecting into the cylinder, a stop on one of said rods that limits the outward movement thereof, an adjustable stop on the other rod, a spring seat loosely mounted on said rod and in engagement with said stop, a coiled spring interposed between said spring seat and one head of the cylinder, and a stationary stop inside of the cylinder with which said spring seat coöperates.

31. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, mechanism for moving said tongue laterally, depressible wheel-operated members arranged alongside the track rails adjacent the toe end of said tongue, rods for connecting said wheel-operated members to the tongue-operating mechanism, and guides on said rod which bear against the wheel-operated members and prevent them from moving outwardly away from the track rails with which they coöperate.

32. In a railway track structure, a movable tongue arranged at the intersection of the inside rails of two intersecting tracks, mechanism for actuating said tongue comprising pivotally mounted bell crank levers arranged adjacent the toe end of the tongue, depressible wheel-operated members arranged alongside of the track rails adjacent the toe end of the tongue, and bowed or cambered rods connected to said wheel-operated members and to said bell crank levers and provided with guides that bear against the wheel-operated members and prevent them from moving outwardly away from the rails with which they coöperate.

33. In a railway track structure, a base plate provided with a movable tongue, an integral rail-attaching member on said base plate, rails connected to said member, and lugs on said member that project into notches in the base flanges of said rails to prevent longitudinal creepage thereof.

34. In a railway track structure, a base plate, rails resting on said base plate, a movable tongue mounted on said base plate and coöperating with the terminals of said rails, and means on said base plate for preventing a track tie from being arranged underneath that portion of the base plate that is located directly under the terminals of said rails and tongue.

35. In a railway track structure, a base plate, rails resting on said base plate, a movable tongue coöperating with the terminals of said rails, and integral ribs on the under side of the base plate for strengthening that portion thereof which is located under the terminals of said rails and tongue.

36. In a railway track structure, a base plate provided with raised bearings, a movable tongue provided with a base flange that slides upon said raised bearings, and a bell crank lever mounted on said base plate adjacent the raised bearing at the toe end of said tongue for operating said tongue, the raised bearing at the toe end of the tongue being so formed that a clearance is provided between said bearing and bell crank lever so as to prevent an object or any foreign matter which the bell crank comes in contact with from becoming jammed between the bell crank and said raised bearing.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this first day of March 1909.

HARRY F. ROACH.

Witnesses:
WELLS L. CHURCH,
GEORGE BAKEWELL.