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SWITCH FOR AUTOMATIC CABLE CHAIN GRIP SYSTEMS.
APPLICATION FILED DEC. 13, 1907.

926,058.

Patented June 22, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

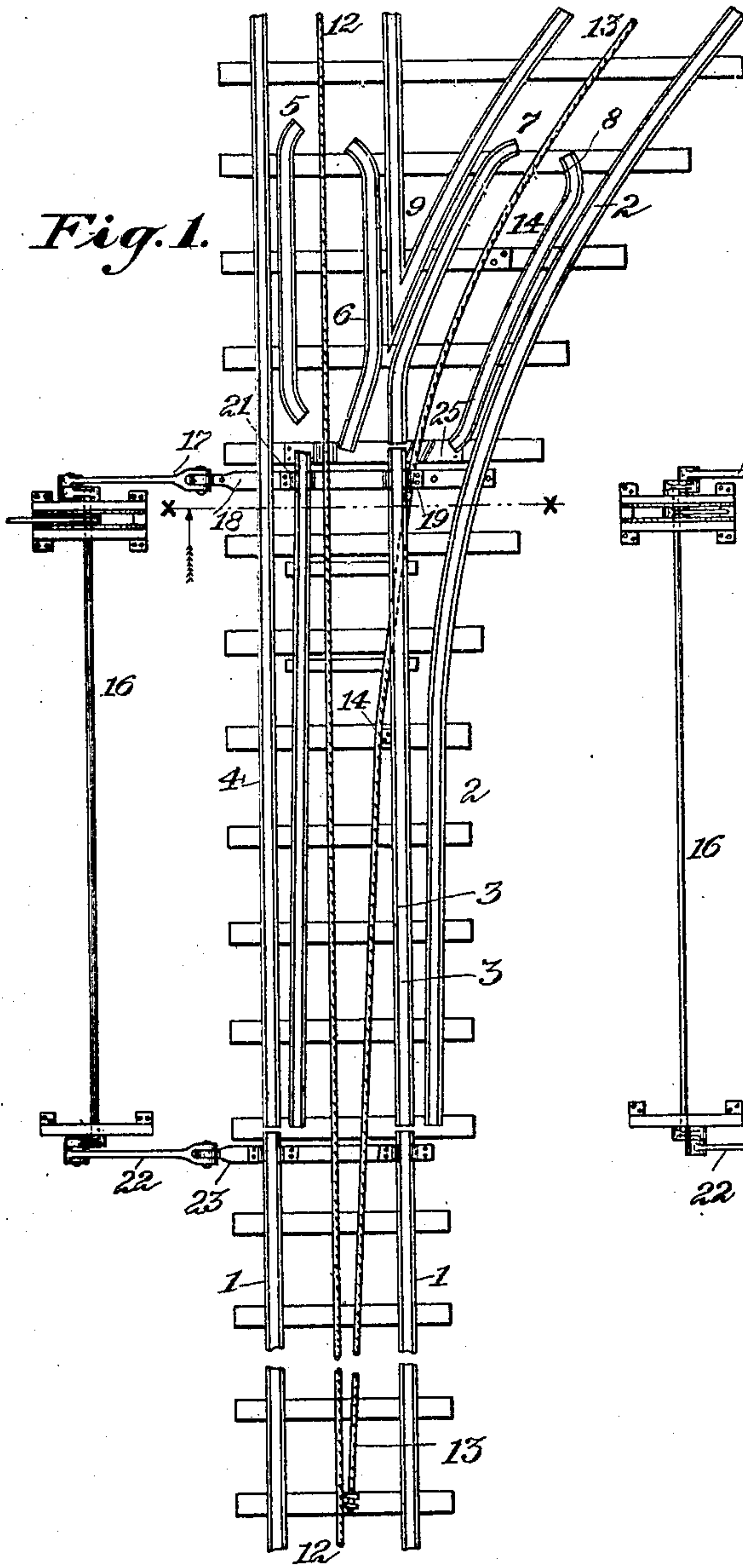


Fig. 2.

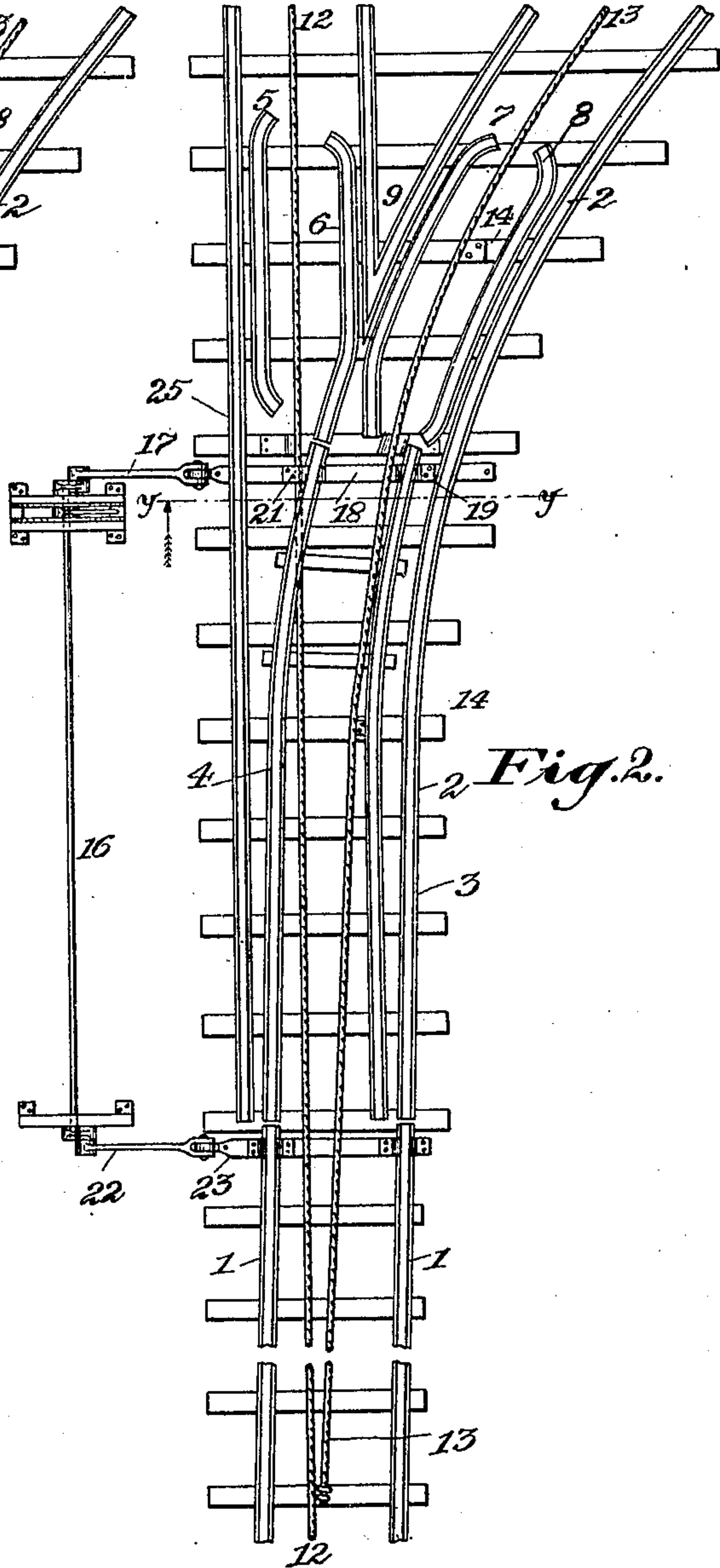
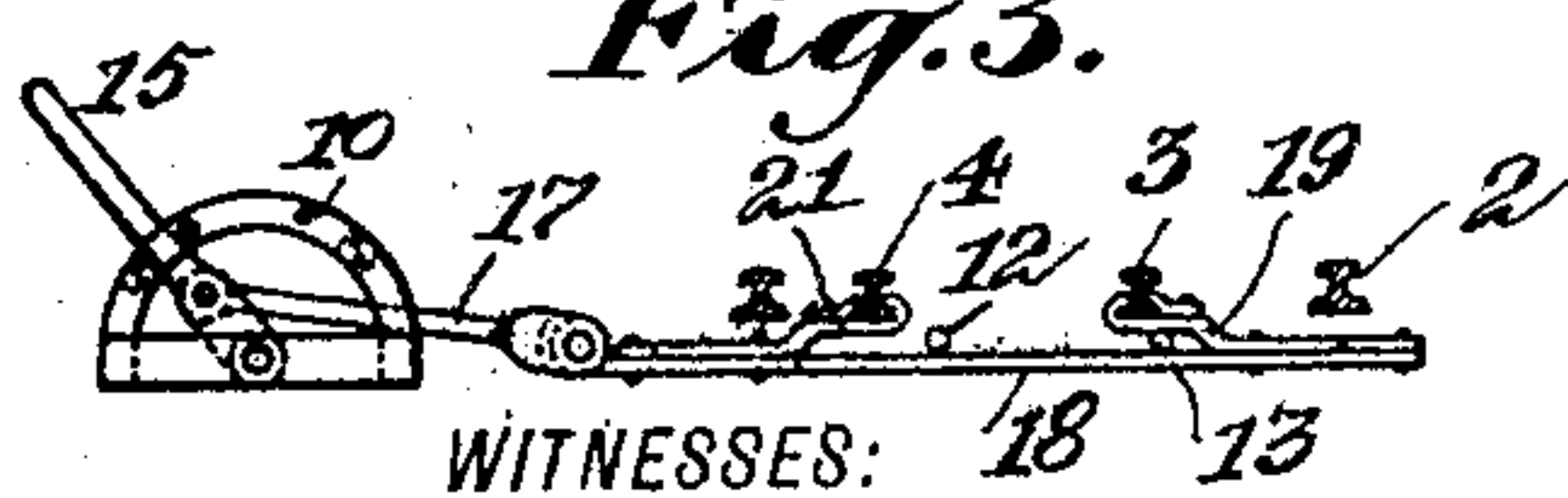


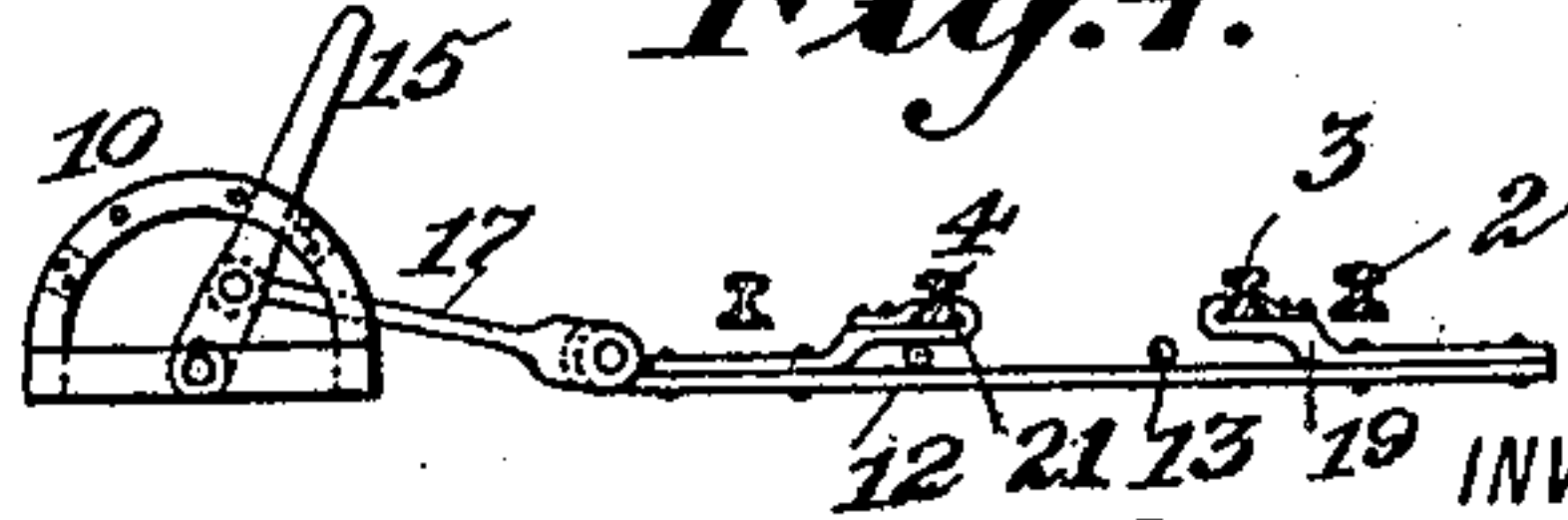
Fig. 3.



WITNESSES:

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Fig. 4.



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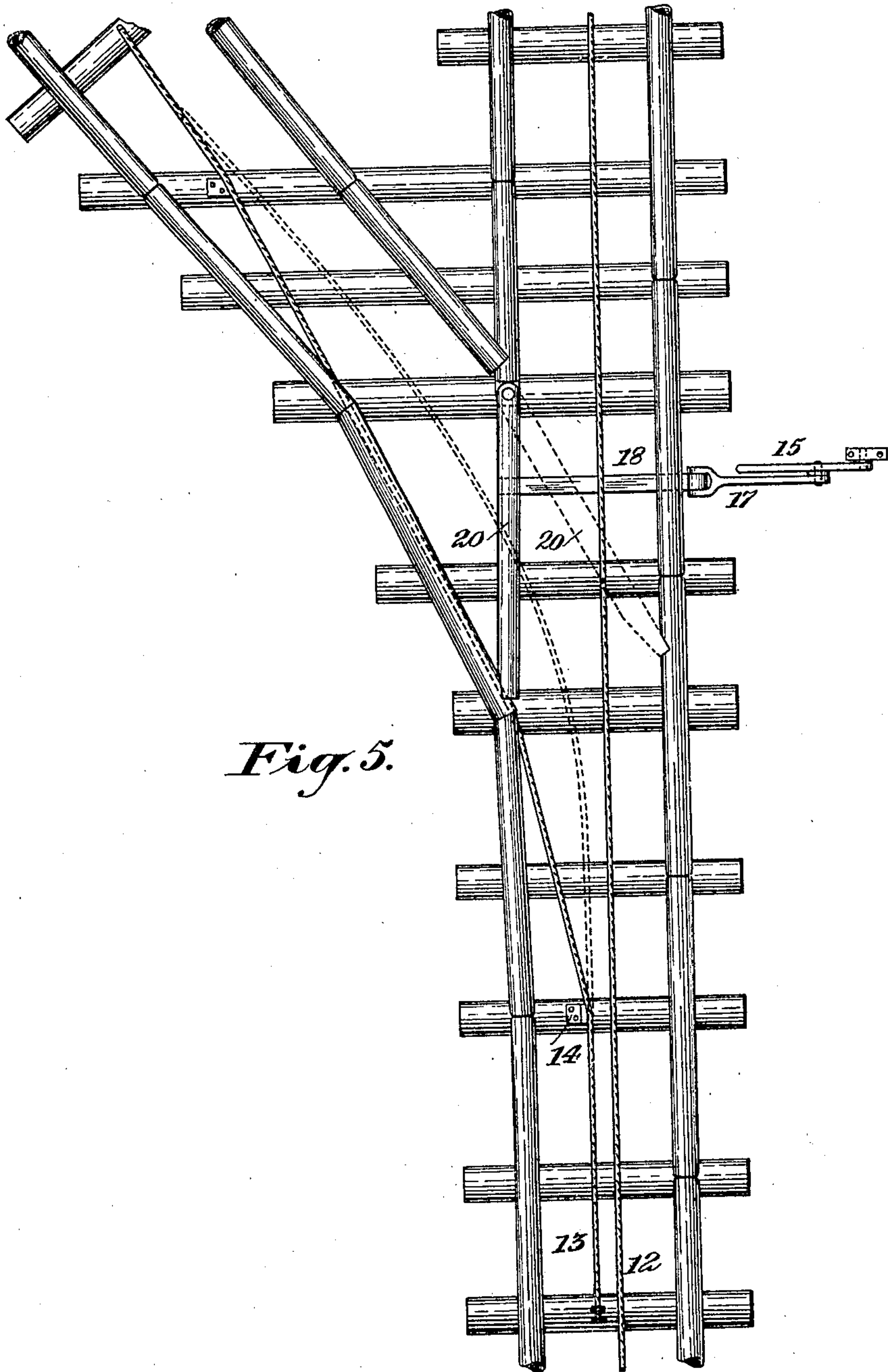


Fig. 5.

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UNITED STATES PATENT OFFICE.

GEORGE S. FOUTS, OF ALAMEDA, CALIFORNIA; HILDA J. FOUTS ADMINISTRATRIX OF SAID
GEORGE S. FOUTS, DECEASED.

SWITCH FOR AUTOMATIC CABLE-CHAIN-GRIP SYSTEMS.

No. 926,058.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed December 13, 1907. Serial No. 406,328.

To all whom it may concern:

Be it known that I, GEORGE S. FOUTS, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented certain new and useful Improvements in Switches for Automatic Cable-Chain-Grip Systems, of which the following is a specification.

Letters Patent were granted to me August 14, 1906 and numbered 828,645, in which was described a system of traction wherein a wheeled truck or locomotive provided with power means and with an endless chain gripping device driven thereby, is caused to travel by means of a stationary cable which is gripped by the said device, so that the locomotive truck pulls itself along the cable together with any load which it may carry or to which it may be connected. The said patent also described devices for causing the chain grip to take the cable and release it, and indicated, although it did not describe in detail that such wheeled trucks or locomotives might pass each other, and that for such and other purposes, switches, turn-outs and branches might be associated with the cable which forms the main traction line. Since the inventive idea in the system described in the said patent involves the association of the wheeled truck or locomotive with its gripping devices and the cable along which it is pulled by the operation of such devices, it is evident that so far as the running of the locomotive is concerned the character of the way upon which it actually travels is immaterial. The nature of such a way depends upon the conditions under which the system is installed. If it be found feasible in view of the topography and of commercial and economical conditions, to lay tracks of any kind and to provide track switches at proper points thereon, the cable traction devices will operate in connection with such track. Under conditions where it is not feasible or economical or desirable to lay railway tracks, the locomotive will be operated in connection with the cable without such tracks, running directly upon the ground.

The association of cable switching devices with track switches involves a construction different from that employed where cables are used without tracks; and I have, in the present application described and shown an arrangement of cable switches

in connection with track switches. In another application for patent filed December 13, 1907 Serial Number 406,327, I have described the construction and arrangement of cable switches, where the system is operated without tracks.

In the drawings forming part of this application: Figure 1 is a plan view of a railway track at a switching point, and shows the arrangement of cables at such a point and the means for operating the switch, the switch being set for main line. Fig. 2 is a similar view with the switch set for a siding or branch line. Fig. 3 is a cross section of the main and switch rails in about the line of the main switch-stand, said rails being in the same position as in Fig. 1. Fig. 4 is a similar section in the position of Fig. 2. Fig. 5 is a plan view of a track composed of logs, with cables and switching devices.

In all the drawings, I have shown at 1 and 3 the main rails of a line of railway track, at 2 and 4 switch rails, at 5, 6, 7 and 8 guard rails, and at 9 an ordinary switch point comprising a main and a switch rail. The switch rail 4 and main rail 3 are movable and are connected together. The main cable is shown at 12 extending about midway between the main rails. This is the cable along which the motor or locomotive truck travels between terminal points. At any suitable place in the main track, before arriving at the switch, is anchored the switch cable 13, the point of anchorage being in proximity to the main cable so that the chain-grip can easily drop one and seize the other. The switch cable diverges from the main cable in the general line of direction of the switch and is guided in such general line of direction by guides 14. In its normal position and when not in use and so as to leave the main line unobstructed it passes beneath the main rail 3, which is then set for the main line, and continues out along the switch, as shown in Fig. 1. If divergent rails shown in Fig. 1 simply constitute a switch, siding or turn-out they will reënter the main line along with the switch cable in the same manner in which they left it. If the divergent rails are the beginning of a branch line such rails and the divergent cable extend to the terminal of said branch, being provided intermediately with such appropriate switches constructed according to my invention as their necessities may require.

The main switch stand may be of any suitable construction. As shown, it comprises the quadrant 10, the switch lever 15 connected to the longitudinal shaft 16, and the arm or link 17 hinged to the operating lever. The other end of this arm is hinged to the switch bar 18, which extends transversely beneath all the rails of the switch. Upon the top of the bar and at its ends, are lugs 19 and 21, upon which the rails 3 and 4 rest supported in suitable chairs formed with or secured to the said lugs. Both lugs are offset or recessed at their inner ends so that such ends are elevated facing each other above the switch bar as shown in Fig. 2. The switch cable in normal position, that is when out of operation, passes beneath one of these offset ends 19, in about the middle line of the switch, the main line being free. The longitudinal shaft 16 extends along the track to another switch stand in which is a connecting rod 22 connected to a switch bar 23 which is in turn connected to the movable main rails at the lower part of Fig. 1, which can be set to main line, (as shown in Fig. 1,) or to the switch when the lever is thrown, as shown in Fig. 2. This switch stand may have an operating lever of its own, but ordinarily the operation at the main switch-stand is to throw the rail 4 into alinement with the guard rail 6, and the movable rails 1 into alinement with rails 2 and 4. At the same time the switch bar 18 is thrown over carrying with it the lugs 19 and 21. The lug 19 which has been holding the cable, releases it, and the rail 3, below which the cable has been passing in order to leave the main line clear, also releases it, and leaves it free so that it can remain in engagement with the gripping devices in the new direction. The same movement that accomplishes these results causes the lug 21 to pass over and cover the main cable which latter is temporarily out of operation. The switch cable now held and grasped by the gripping devices on the motor or locomotive, is free so that the locomotive can follow the switch, changing its direction according to that of the switch, siding or turn-out. After the motor and its load have fully passed upon the switch the switch-bar 18 can be moved in the other direction so as to throw the switch to the main track, to again engage the switch cable beneath the lug 19, and to free the main cable from the lug 21. I have indicated at 25 a covering plate on a cross tie, having recesses which enables both cables to be depressed in the manner described.

In the drawings to which so far allusion has been made, I have described my invention in connection with railway tracks of usual construction, and what I consider the best manner of employing it in connection with such tracks; but in Fig. 5 I have shown

its adaptation to those rough lines of track employed in lumbering regions and which are composed of logs, arranged as tracks upon which cars can run and which, according to my invention, can be provided with stationary main and switch cables operating in accordance with the present invention. In describing these logs as "rails" I consider them as equivalents of the ordinary rails heretofore described, since they form ways upon which the wheels of the locomotive and its attached load travel in the same manner.

The drawing very clearly illustrates the arrangement of main rails and switch rails and also shows the main stationary cable and the switch cable arranged in their proper relation thereto. The movable portion of the track, which in the preceding description was represented by the connected rails 3 and 4 is here represented by the single movable rail 20, pivoted at about the intersection of the main track and switch track. This rail is preferably provided with a switch bar and switch lever as shown, so that it can be thrown in either direction. As the drawing shows the switch is set for the main track, and the rail 20 covers the switch cable and leaves the main cable free. When the rail 20 is moved to the dotted position shown in the drawing it will be in line with the switch track, will leave the switch cable free, and will cover the main cable. The dotted position of the switch cable in this figure is intended to illustrate the position of such cable when engaged by the gripping devices as the locomotive follows the switch.

It will be observed that by the construction described stationary cable switches can be easily operated in connection with track switches. In ordinary use on the main line, the main line cable is free for the passage of the locomotive with its gripping means engaging that cable along such main line; while in that position the switch cable lies beneath one of the main line rails and is entirely out of the way. In changing to the switching position, not only is the switch-cable released and freed, but the main line cable is crossed by the switch rail 4, and remains beneath it until it is automatically freed by the replacement and resetting of the rails for the main line. Neither cable ever interferes with the other; and the simplicity of the means by which this is accomplished is one of the noteworthy features of the present invention.

I do not limit myself to the particular construction and arrangement herein described and shown in the drawing, as I desire to avail myself of such modifications and equivalents as fall properly within the spirit of my invention.

What I claim is:

1. In a system of cable traction of the

character described, the combination with main rails, switch rails and switch means, of a stationary main cable between the main line rails, and a stationary switch cable between the switch rails.

2. In a cable traction system, main rails and branch rails, a portion of the track movable so as to make connection with either the main rails or the branch rails, a stationary main cable in the general line of the main rails, and a stationary branch cable in the general line of the branch rails; the movable portion of the track being adapted in either position, to cover one of said cables and leave the other free.

3. In a system of cable traction of the character described, a railway switch, movable members of the same comprising a main rail and a switch rail connected together so as to be moved in order to close either the main line or the switch, a stationary main traction cable, and a diverging stationary switch cable; the main cable, when the switch is open, being free and unobstructed and the switch cable passing beneath said movable main line, while, when the switch is closed, the switch cable is free and unobstructed and the main cable passes beneath said movable switch rail.

4. In a system of cable traction of the character described, a railway switch, a movable member of the same comprising a main rail and a switch rail, a switch bar forming such connection between said rails, oppositely facing open lugs on said switch bar upon which the ends of said rails rest, a stationary main traction cable, and a diverging stationary switch cable; the main cable, when the switch is open, being free and unobstructed, and the switch cable passing beneath one of said lugs, while, when the switch is closed, the switch cable is free and unobstructed and the main cable passes beneath the other lug.

5. In a system of cable traction of the described character, a stationary main cable and a stationary switch cable; a railway line and a railway switch associated with said cables; and a switch bar for operating the switch; said switch bar having means for alternately covering and uncovering the respective cables according to the position of the switch.

6. In a system of cable traction of the described character, the combination with main and switch tracks, of stationary main and switch cables lying between the rails of the respective tracks, means for operating the railway switch, and means for supporting and directing the cables, whereby in either position of the railway switch one of said cables shall be left free and unobstructed relatively to the track with which it is associated.

7. In a system of cable traction of the described character, connected and jointly movable main rails, (1, 1,) connected and jointly movable main and switch rails, (3, 4,) the fixed rails of the main line, fixed switch rails, (2), guard or bridge rails, a switch bar connecting the main and switch rails, (3 and 4), a switch bar connecting the movable main rails, (1, 1,), a shaft connecting the two switch bars, a stationary main cable, a diverging stationary switch cable, and means for supporting and directing said cables whereby in either position of the switch one of said cables shall be left free and unobstructed relatively to the track with which it is associated.

In testimony whereof I have affixed my signature in the presence of two witnesses on this 26th day of November, 1907.

GEORGE S. FOUTS.

Witnesses:

ALBERT C. AIKEN,
HUGH T. SIME.