

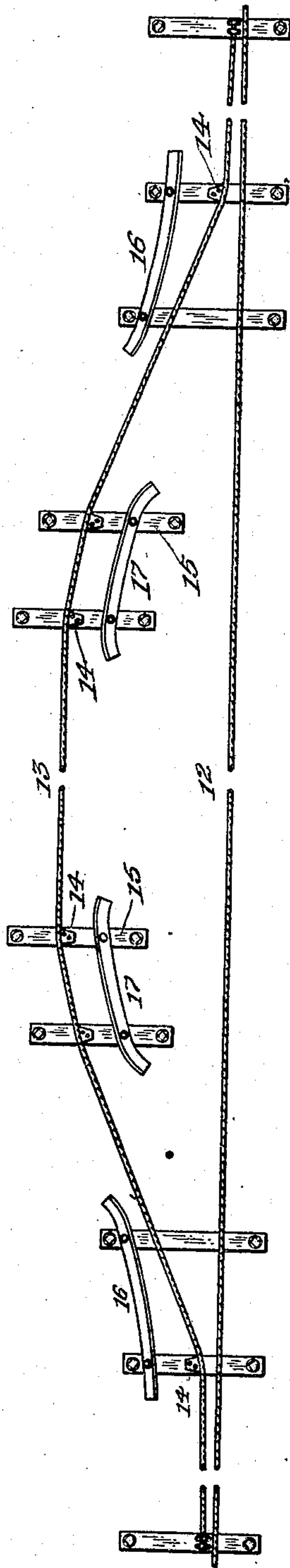
G. S. FOUTS, DEC'D.
H. J. FOUTS, ADMINISTRATRIX.
SWITCH FOR AUTOMATIC CABLE CHAIN GRIP SYSTEMS.
APPLICATION FILED DEC. 13, 1907.

920,856.

Patented May 4, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

J. C. Fiedner
T. M. Bartel

INVENTOR

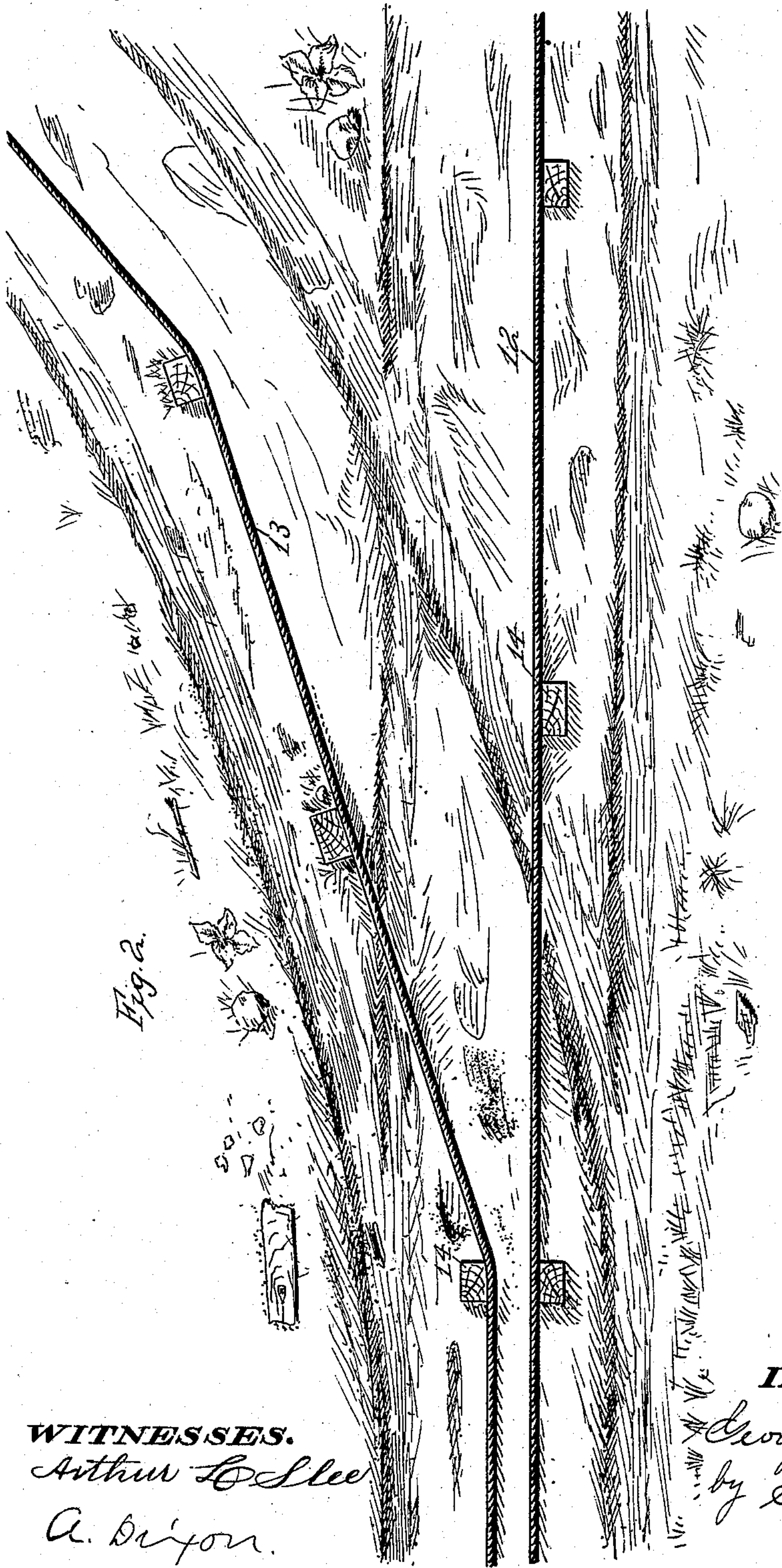
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WITNESSES.

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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. 920,856.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed December 13, 1907. Serial No. 406,327.

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 way upon which it actually travels is immaterial. The nature of such a way depends upon the conditions under which it is installed. If it be found feasible in view of the topography and of commercial and economical conditions, to lay rails of any kind and to provide rail switches at proper points, the cable traction devices will operate in connection with such a rail. 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 rails, running directly upon the ground. The arrangement of switching devices for the stationary cables is different, in case rails are employed, from an arrangement of such cable switches used when rails are not employed; and I have in the present application described and shown

cable switches as used without rails. In another application for patent filed on the same day as the present case, and Serial Number 406,328, I have described an arrangement of cable switches as used in connection with rail switches.

The embodiment of the invention shown in the accompanying drawing in which Figure 1 is an arrangement of a cable switch according to the present invention, the same being shown in plan view while Fig. 2 is a view showing the relation of the two cables to a fork in the roadway.

In this drawing, 12 indicates the main line cable, laid along the ground between terminal points at any distance apart, and upon which the locomotive truck alone or with any attached load, such as a wagon or a train of wagons, propels itself with its carrying and steering wheels running upon the ground, and with its gripping devices clamped upon said cable in the manner described in my patent before referred to. The illustration shows a complete switch or siding, comprising a switch cable 13, supposed to be anchored in the roadway at a suitable distance from the beginning of the switch then generally continuing for a sufficient distance substantially parallel with the main cable, then diverging from the main cable and continued for a sufficient distance in a direction generally parallel to it, and then reëntering the main line in the same manner in which it left it. Should the diverging line be a branch line instead of a siding or turn-out, it would continue in its proper direction, forming in itself another main line and, as such, provided with its appropriate switches, sidings and turn-outs constructed and arranged in accordance with the present invention. The switch cable is given its proper direction as it diverges from the main cable, or converges again, by inner and outer guides 14, somewhat elevated above the roadway, and which may be supported in any suitable manner, as by partially embedding them in the ground, (see Fig. 2) or, as shown in Fig. 1, by securing them to cross ties. These guides may have plain faces without projections where the cable comes into contact with them, so that the cable can be easily removed from such contact by the locomotive and as easily replaced. I mean

by this, that supposing the locomotive to be approaching from the right-hand of the drawing, and that its chain grip has dropped the main cable 12 and has seized the switch-cable 13, it will release the switch cable from the first stop shown, and being properly steered, will continue along the line of the switch cable as far as the latter extends; removing the cable from the guides and replacing the cable upon the guides as it proceeds. All this takes place without affecting the position of the main cable.

I have referred to the locomotive as being properly steered, and I alluded to this feature of its operation in the patent referred to. In connection with switching means employed without a track it may sometimes be desirable to make the steering or change of direction wholly or partly automatic, so that such change of direction may be independent of the actual steering means which form part of the construction of the locomotive. For this purpose I have shown in the drawing a series of guide-rails or shoes arranged at intervals along the extent of the switch. In the illustration I have shown two exterior guide-rails 16, and two interior guide-rails 17. Each rail is preferably a somewhat curved shoe, bolted or otherwise secured to the cross-ties 15. The first guide-rail, for instance the one at the right of the drawing is located at the point of divergence of the switch cable. As the direction of the locomotive is changed to make the switch, its carrying wheels bear upon said first guide-rail which holds the machine in the proper line of divergence. The locomotive then proceeds along the switch, and as the direction of movement changes, the switch cable is raised from the successive guides 14, being always free at the point where the gripping devices are engaged with it. At each point where the cable is released from a guide 14, one of the guide-rails 16 or 17 holds the carrying wheels in their proper line of movement. The machine replaces the cable in contact with the guides 14 as it proceeds.

By the employment of the present invention, I obtain the same result in the matter of switching as if the carrying wheels of the locomotive were running upon actual track rails, and can with the utmost facility make turn-outs, sidings, switches and branch lines without a regular track and with stationary cables which are practically free and without pulleys or sheaves or any complicated guiding system whatever. The switch cable is shown in the drawing as running again into the main line in the manner of an ordinary switch or turn-out; but evidently such a cable can continue to diverge and form a part of a branch line instead of a returning switch. Such a branch line may have switches of its own, and my invention is in-

tended to supply all such requisites of traffic according to the general system to which it is adapted.

I do not limit myself to the precise constructions and arrangements 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.

The carrying vehicle referred to in this application may be a wagon, sled, or any other device suited to carry the gripping mechanism.

What I claim is:

1. In a surface system of cable traction in which a locomotive propels itself by means of movable gripping devices adapted to be engaged with and released from a stationary cable, the combination of such stationary cable with a stationary branch cable, said cables at the branching point, lying in the same horizontal plane, substantially as and for the purposes set forth.
2. In a surface system of cable traction of the character described, a stationary cable, and another stationary cable lying for a distance in proximity thereto and then diverging therefrom, said cables at point of diversion being in the same horizontal plane.
3. In a surface system of cable traction of the character described, a stationary cable and another stationary cable lying in proximity thereto, continuing substantially parallel thereto for a sufficient distance, and then diverging therefrom, and at the point of divergence being in the same horizontal plane.
4. In a surface system of cable traction of the character described, a main roadway, a branch roadway leading therefrom, a stationary main cable in the main roadway, and a stationary branch cable in the branch roadway, said cables at point of branching being in the same horizontal plane.
5. In the surface system of cable traction of the character described, the combination with a main roadway, and a branch roadway leading therefrom, of a stationary main line cable lying between the main line tracks made by the wheels of the vehicle carrying the gripping device, and a stationary switch line cable placed for a sufficient distance between said main line tracks, and then diverging therefrom, and lying thence between the tracks made by the carrying vehicle on the branch roadway.
6. In a surface system of cable traction of the character described, a stationary cable, a diverging stationary cable, lying for a distance in proximity thereto, and guides for holding the diverging cable in a normal line of direction.
7. In a surface system of cable traction of the character described, a stationary cable, a diverging stationary cable lying for a dis-

tance in proximity thereto, and guide rails for the described purpose arranged in the general line of direction of the diverging cable.

5 8. In a surface system of cable traction of the character described, a stationary cable, a diverging stationary cable, lying for a distance in proximity thereto, inner and outer guide rails for the purpose described, arranged in the general line of direction of the diverging cable.

10 9. In a surface system of cable traction of the character described, a stationary cable, a diverging stationary cable lying for a distance in proximity thereto, guides for holding the diverging cable in a normal line of direction, and guide rails for the described purpose arranged in the general line of direction of the diverging cable.

15 10. In a surface system of cable traction of the character described, a stationary cable, a diverging stationary cable lying for a distance in proximity thereto, inner and outer guides for holding the diverging cable in a normal line of direction, and inner and outer guide rails for the described purpose arranged in the general line of the diverging cable.

20 11. In a surface system of cable traction of the character described, the combination with a main roadway, and a branch roadway leading therefrom, of a main roadway stationary cable, and a branch roadway stationary cable, and guides for holding the

branch roadway cable in its proper line of direction.

12. In a surface system of cable traction of the character described, the combination with a main roadway, a branch roadway and switch means, of a main roadway cable, and a branch roadway cable, and guides for holding the branching cable in its proper line of direction.

13. In a surface system of cable traction of the character described, the combination with a main roadway, and a branch roadway leading therefrom, of a main roadway cable, a branch roadway cable, and guide rails for the described purpose arranged in the general line of direction of the diverging roadway.

14. In a surface system of cable traction of the character described, a main roadway, a branch roadway leading therefrom, a main cable in the main roadway, a diverging cable in the branch roadway, guides for holding the diverging cable in its proper line of direction, and guide rails for the purpose of holding the carrying vehicle in the general line of direction of the diverging cable.

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. SIMP