

No. 768,325.

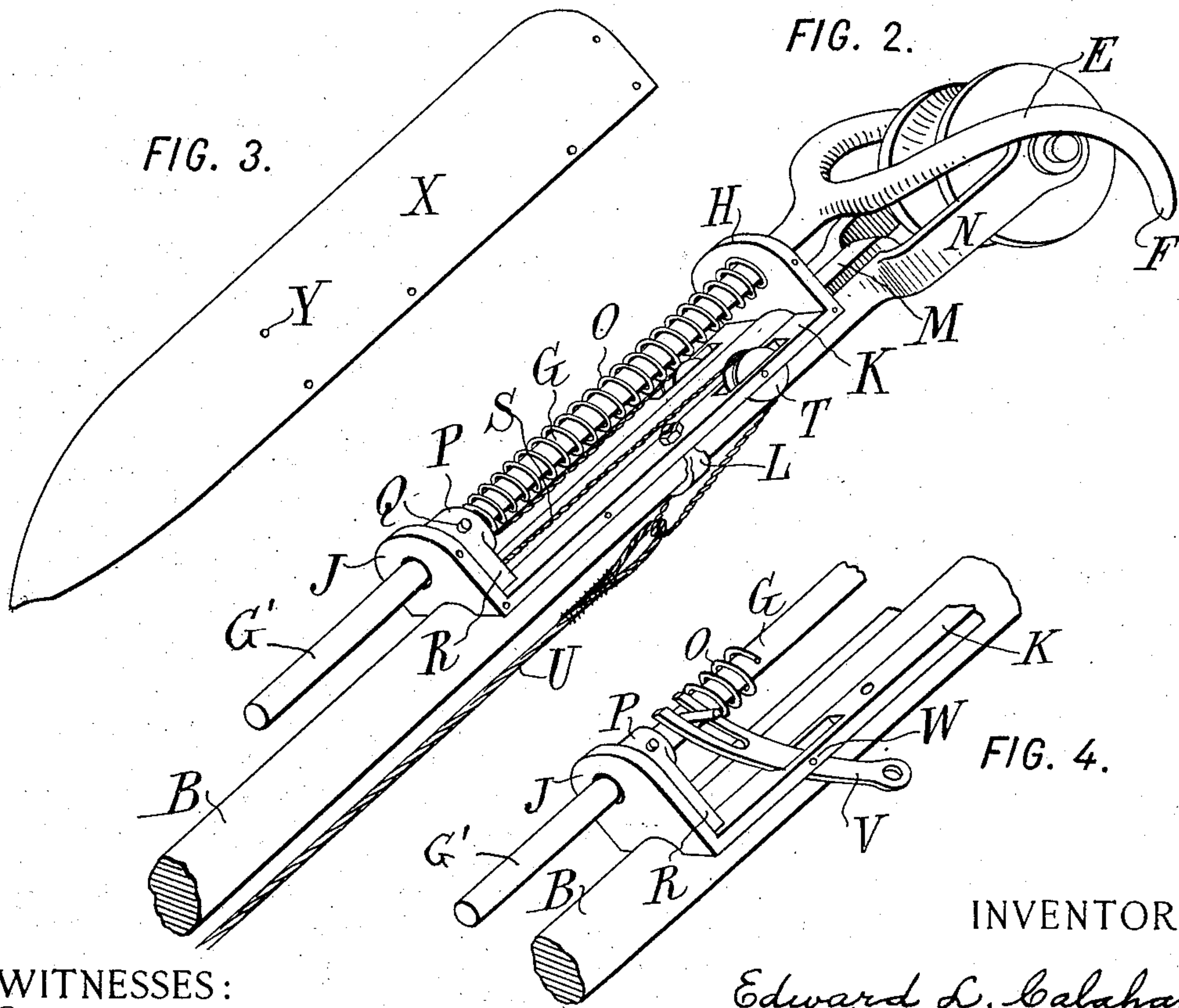
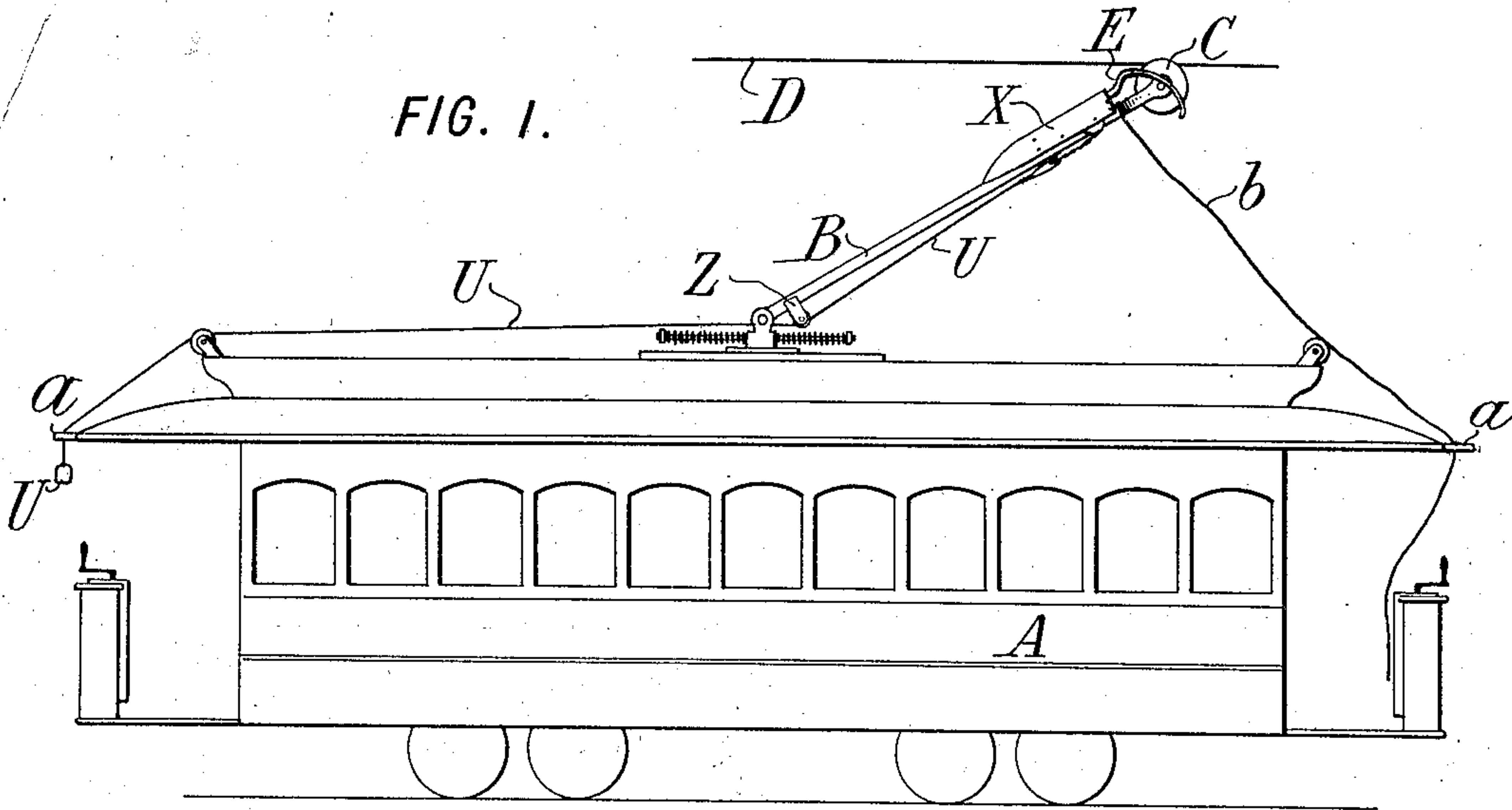
PATENTED AUG. 23, 1904.

E. L. CALAHAN.

TROLLEY RESTORER.

APPLICATION FILED NOV. 6, 1903.

NO MODEL,



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UNITED STATES PATENT OFFICE.

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TROLLEY-RESTORER.

SPECIFICATION forming part of Letters Patent No. 768,325, dated August 23, 1904.

Application filed November 6, 1903. Serial No. 180,132. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. CALAHAN, a citizen of the United States, residing in the city of Clifton, county of Passaic, State of New Jersey, have invented certain new and useful Improvements in Trolley-Restorers, of which the following is a specification.

Under the systems at present in use when the trolley of a trolley-car gets off the wire the conductor has to go to the rear of the car and pull down the trolley-rope and swing the trolley from one side to the other and up and down until it engages the wire again. On a dark night or in rainy or snowy weather this is a very difficult thing to do. The conductor is so far away from the end of the trolley which he is trying to manipulate that it requires much movement of the trolley-rope to effect a slight lateral movement of the pole. The lights from the car always go out. Furthermore, if the conductor is inside of a car jammed full of passengers there is great delay and inconvenience in his getting to the rear of the car. Also when the conductor runs ahead, as is usual at a steam-railroad crossing, the trolley may run off the wire while the car is in a most dangerous situation. Indeed, it is most apt to run off at crossings and switches. My invention aims to provide a device which gets rid of these several disadvantages. Instead of relying upon the conductor to restore the trolley it enables the motorman to accomplish this. As the motorman is always on the platform, there need be no delay, with its consequent inconvenience and danger. The trolley-pole is provided with a restorer operated by a rope or other connection which extends to the front of the car within easy reach of the motorman. The pole may also be provided with the usual pull-rope running to the rear of the car, by which it can be manually swung to a desired position; but this is useful chiefly for reversing the trolley.

Other points of improvement are referred to hereinafter in detail.

The accompanying drawings represent an embodiment of my invention.

Figure 1 is a side elevation of a car with my

improvements applied thereto. Fig. 2 is a perspective view of the upper end of the trolley-pole and the restorer. Fig. 3 is a perspective view of a guard which may be used to cover the mechanism of the restorer. Fig. 4 is a perspective view illustrating another style of mechanism.

Referring to the embodiment of the invention illustrated, the trolley-car A is provided with a pole B, rearwardly inclined and carrying at its upper end a trolley C, running under a wire D. These parts may be of any usual or suitable construction. For example, the trolley C may be either a rolling or a sliding contact member, from which the current is taken through the metal of the pole to the motors. A fork E is arranged to extend on opposite sides of the trolley, its normal position being preferably slightly below the top of the trolley or the wire, so as to be out of danger of engagement with switches or crossing or supporting wires. When the trolley escapes from the wire, the pole immediately swings upward, and the fork E will engage the wire at one or the other side of the trolley. The fork E may then be moved upward by the motorman in the manner described, which movement will lift the wire and press down the trolley-pole. When the fork has moved upward until its central point is above the top of the trolley, the wire will lie in the center of the fork, and this center being in line with the trolley C the wire will lie immediately over the trolley. The fork is then lowered and drops the wire directly onto the groove of the trolley. The fork E besides having its arms spread laterally is inclined from its forward ends gradually upward and then gradually downward with long rear ends F, so that in moving forward or backward it may lift any crossing wire or other obstruction which it engages or depress itself and pass safely under it.

A great variety of mechanisms for securing the desired movements of the fork E is possible. The drawings show a very simple mechanism for this purpose, in which the fork slides up and down along the pole. The fork

is provided with a long sliding shank G, working in a pair of guides H J, which are preferably formed integrally with and at opposite ends of a supporting-base K, attached in any
 5 suitable manner to the pole B. For example, the base K may be attached by bolts L and may be held against downward movement by means of a hook M at its upper end engaging the fork N of the trolley. A spring O bears
 10 against the upper guide H and holds the device down, pressing at its lower end against the collar P, which is fastened by a pin Q to the shank G. The collar P is provided on each side with a leg R. These two legs bear
 15 on the face of the plate K and prevent the shank and the fork E from turning. The engagement of the collar P with the lower guide J limits the downward movement of the fork. The upward movement of the fork
 20 necessary to mechanically restore the trolley may be effected in a variety of ways. In Fig. 2 are shown cords or cables or other flexible members S, attached to the lower portion of the shank and running upward and
 25 over guide-pulleys T and connected finally to the operating-rope U. Another mechanism for moving the fork upwardly is shown in Fig. 4, in which the lever V, pivoted at W, engages the shank G at one end of the lever
 30 and is connected to the operating-rope U at the other end of the lever.

In order to protect the mechanism from injury in case of accidental contact with overhead devices and also to protect it from dust
 35 in ordinary usage, there is provided a guard, preferably in the form of a shell X, fitting over the mechanism between the two guides H and J and preferably also over the projecting end G' of the shank G. The guides
 40 H and J are preferably of such form as to fit the inside of the shell X, so that the latter may be fastened thereon by means of screws Y and so as to close the ends of the shell.

A feature of importance in this invention
 45 is that the actual movement of the trolley-pole is all effected at the top of the pole. The application of a force at this point is most efficient—much more efficient, obviously, than the sidewise pull of the usual trolley-rope extending
 50 down to the rear of the car and applied at the latter point; but the chief feature of importance, as previously stated, is that the operating-rope U may be run, as shown, to the front end of the car, where the motorman is
 55 always present. He has but to pull the operating-rope and then let it go. The trolley therefore can be restored in the quickest possible time and always from a point at which the operator is continually standing. As shown
 60 in Fig. 1, the rope U extends down along the trolley to a point near its base and then under a guide-pulley Z to the front of the car and over another pulley *a* to a point within reach of the motorman. Preferably, also, a trolley-
 65 rope *b* runs from the upper part of the trol-

ley-pole to the rear of the car, by means of which the conductor may perform the usual manipulations and may also restore the trolley in the old way, if it should ever be necessary; but this is chiefly of service in reversing the trolley. 70

Where the metal of the trolley-pole itself is used as the conductor, the current may be maintained even when the trolley is off the wire by making the fork and the base-plate
 75 of the restorer of conducting material, or the current may be carried by special wire from the fork of the restorer to the trolley-pole or other conductor.

It is not essential that the restorer should
 80 be operated actually by hand. It may be operated by any suitable device carried on the car, automatic or otherwise, but is to be distinguished from devices designed to be entirely
 85 at the top of the trolley-pole and to restore the trolley automatically by mechanism controlled at the same point.

The block or frame of the pulley *a* is open at its outer end, and there is one such pulley and block at each end of the car, so that the
 90 operating-rope may be changed from one end of the car to the other when the car changes its direction.

Though I have described with great particularity of detail certain specific embodiments
 95 of the invention, yet it is not to be understood that the invention is limited to the specific constructions disclosed. Various modifications thereof in detail and in the arrangement and combination of the parts may be made by
 100 those skilled in the art without departure from the invention.

What I claim is—

1. The combination of a pole having a trolley, with means for restoring said trolley to
 105 the feed-wire, said means operable from the front of the car.

2. The combination of a pole having a trolley, means for catching the feed-wire when the trolley slips therefrom, and means oper-
 110 able from the front of the car for actuating said catching means to restore the trolley to said wire.

3. The combination of a car having a rearwardly-inclined trolley-pole carrying a trolley, with means for restoring said trolley to
 115 the feed-wire without moving said trolley-pole from its rearward position, and a connection to the front of the car for actuating said means. 120

4. The combination of a car having a rearwardly-inclined trolley-pole carrying a trolley, with means for restoring said trolley to
 125 the feed-wire without moving said trolley-pole from its rearward position, and a connection to the front of the car for actuating said means adapted to be operated by a movement in a single direction.

5. The combination of a trolley-pole having a trolley, a restorer adapted to mechanically
 130

restore said trolley to the feed-wire, and a pull-rope leading from said restorer to the front of the car, said restorer adapted to be operated by a pull upon said rope.

5 6. The combination of a trolley-pole having a trolley, a restorer adapted to mechanically restore said trolley to the feed-wire, and means for operating said restorer exerting a stress substantially longitudinally of said trolley-
10 pole to avoid tilting the latter.

7. The combination with a trolley-pole having a trolley and a restorer at its end, said restorer comprising a V-shaped broad member adapted to contact with the feed-wire
15 when the latter is disengaged from said trolley, said member being mounted to move substantially longitudinally of the pole, and means for so moving said member to force said wire above said trolley.

20 8. The combination with a trolley-pole having a trolley and a restorer at its end, said restorer comprising a V-shaped broad member adapted to contact with the feed-wire when the latter is disengaged from said trol-
25 ley, said member being mounted to move substantially longitudinally of the pole, and means for so moving said member to force said wire above said trolley, said means acting with a stress exerted substantially longitudinally of
30 the pole to avoid tilting the latter.

9. The combination with a trolley-pole having a trolley and a restorer comprising a fork normally maintained below the trolley, and

adapted to slide along said pole, and means for lifting said fork to force the feed-wire to
35 a point above said trolley.

10. The combination with a fork of a sliding shank and a collar thereon carrying legs on opposite sides, and a fixed plate against which said legs bear to prevent the shank from
40 turning.

11. The combination with a fork of a sliding shank, a supporting-base, guides for said shank carried on said base and means for at-
45 taching said base to the pole.

12. The combination with a fork of a sliding shank, a supporting-base K carrying guides for said shank and held against downward movement by a hook M.

13. The combination with a fork of a sliding shank therefor, guides for said shank and mechanism for moving the shank, and a shell
50 for covering said mechanism.

14. The combination with a fork of a sliding shank therefor, guides for said shank and
55 mechanism for moving the shank, and a shell for covering said mechanism, said shell fitting and being attached to said guides.

In witness whereof I have hereunto signed my name in the presence of two subscribing
60 witnesses.

EDWARD L. CALAHAN.

Witnesses:

DOMINGO A. USINA,
FRED WHITE.