

No. 683,927.

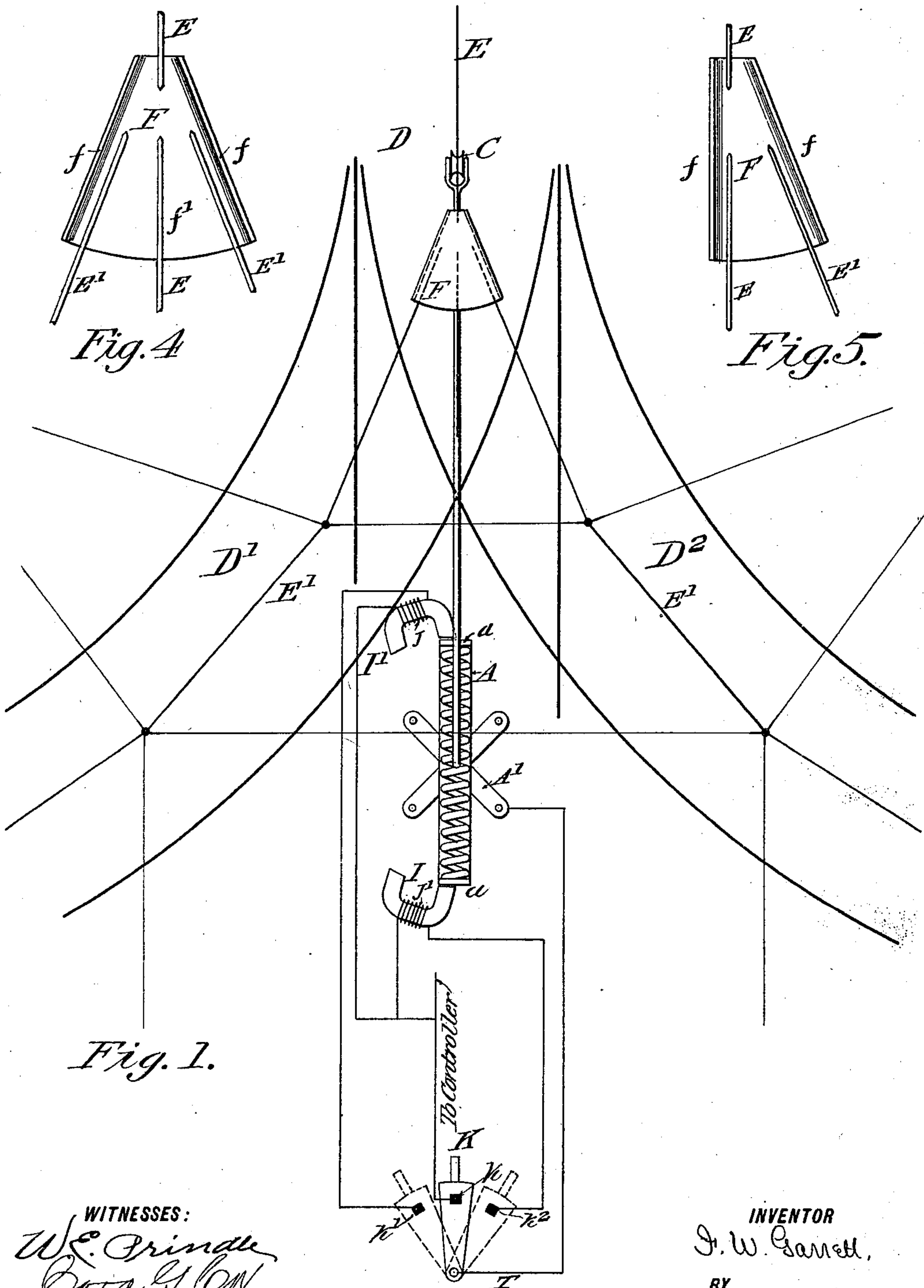
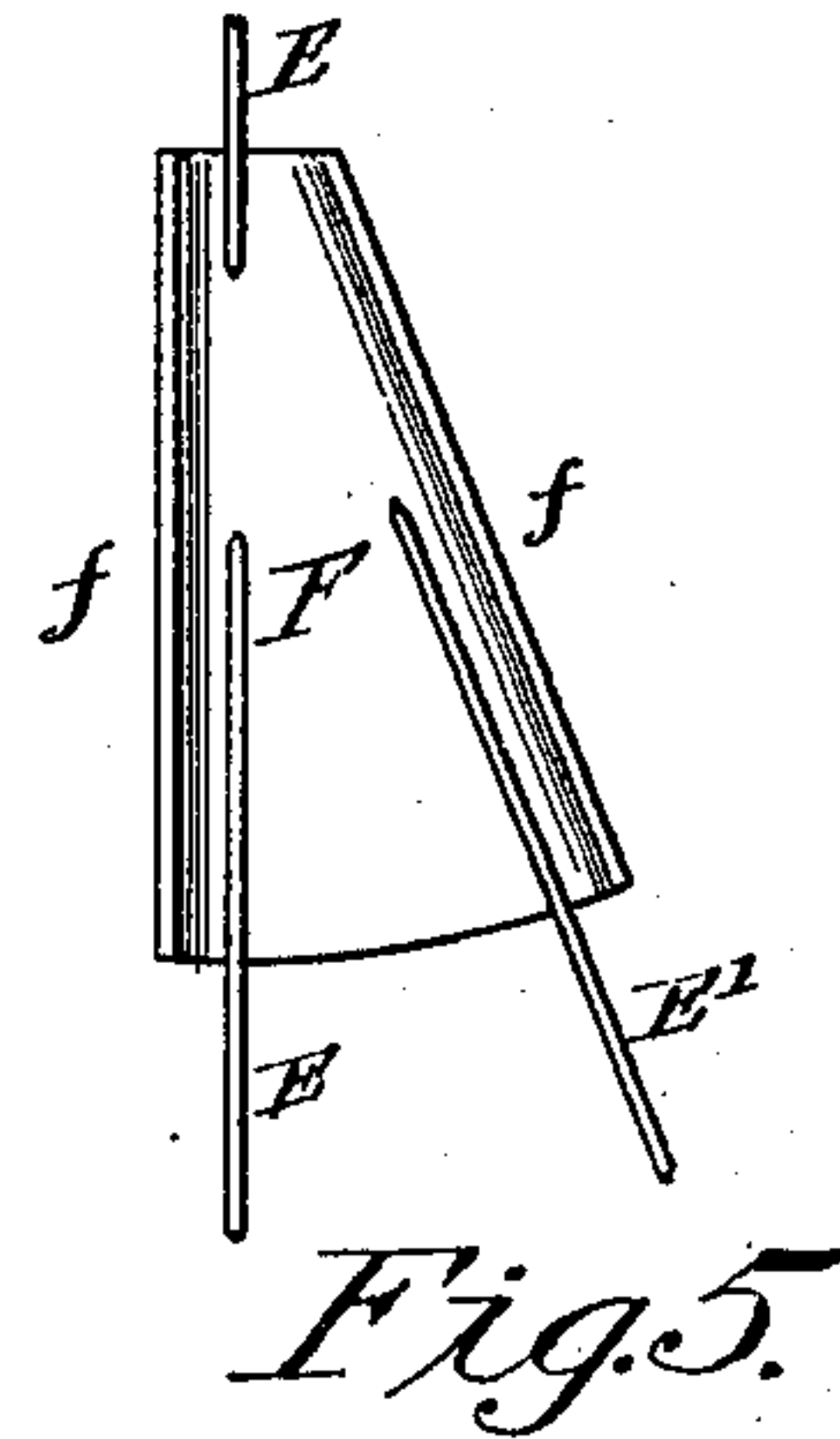
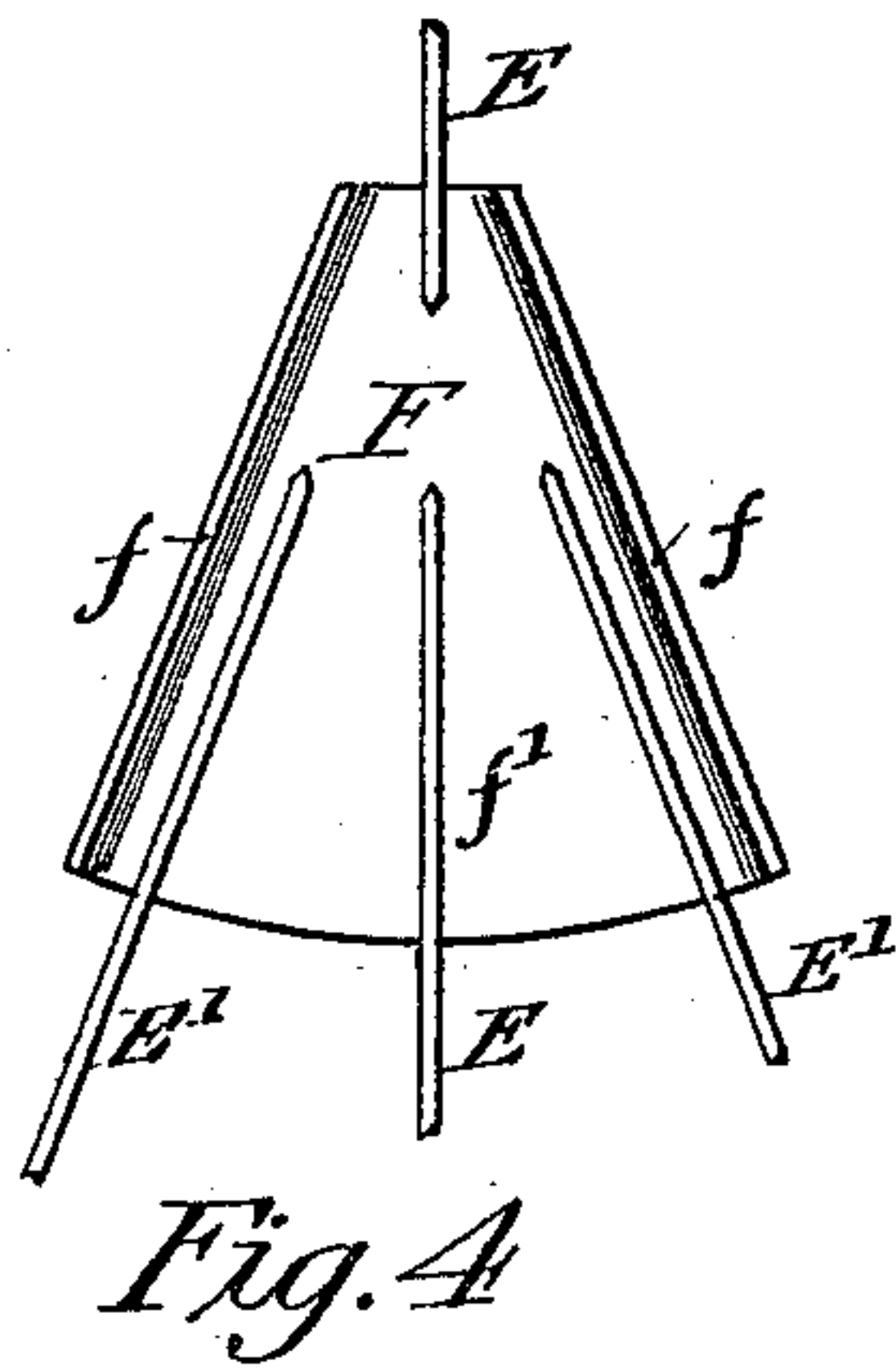
Patented Oct. 8, 1901.

F. W. GARRETT.
TROLLEY SWITCHING DEVICE.

(Application filed Dec. 3, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
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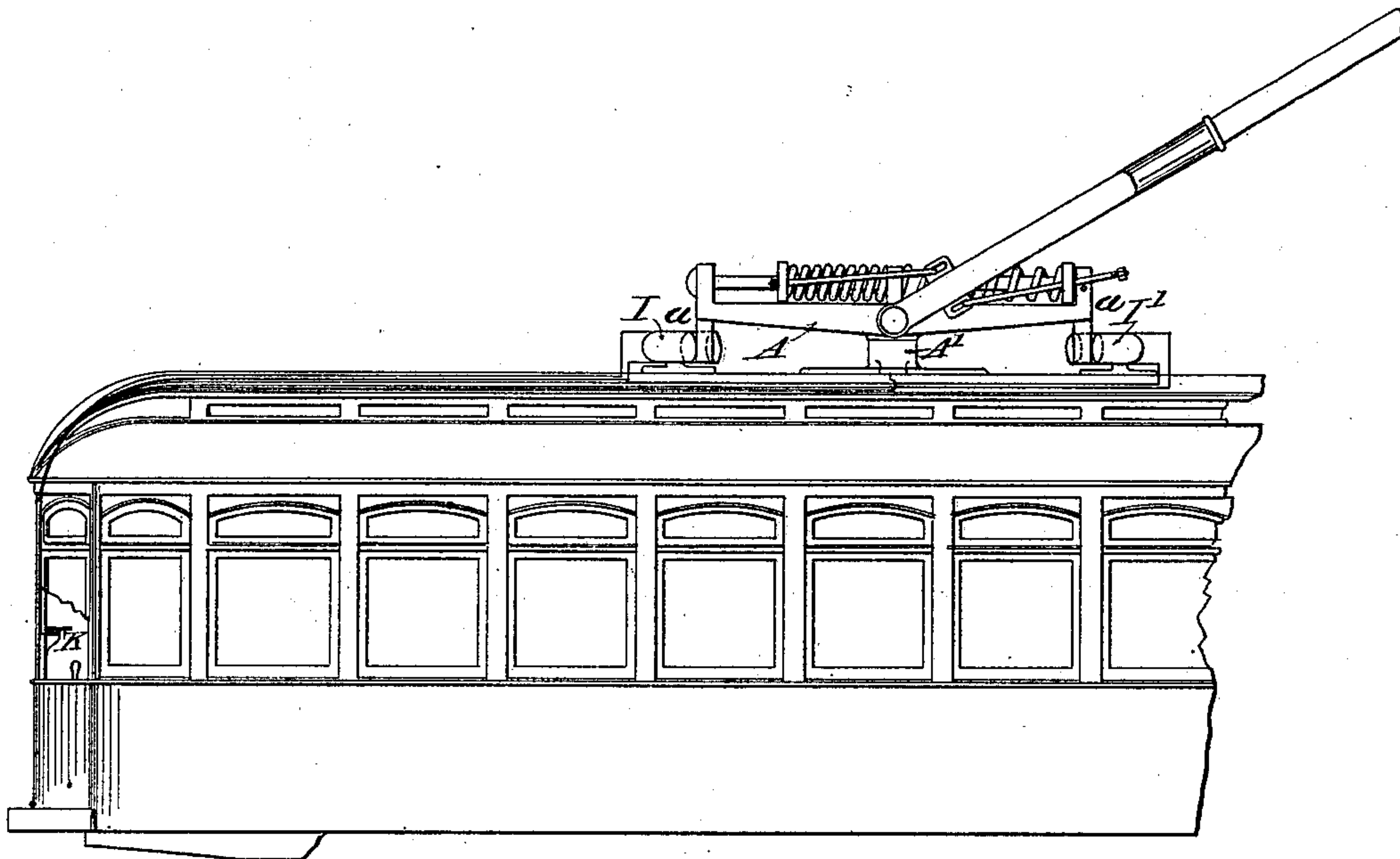


Fig. 2.

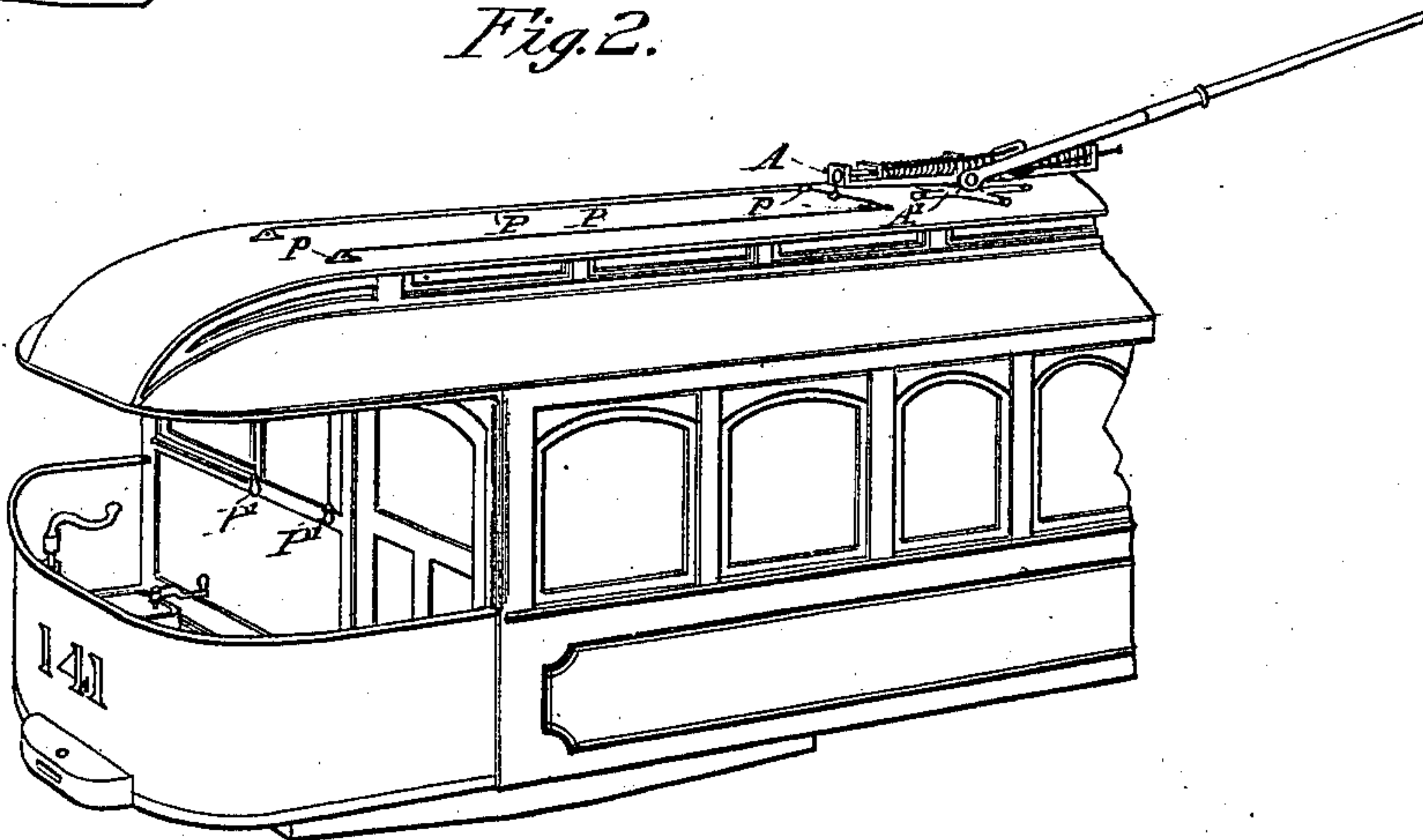


Fig. 3.

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UNITED STATES PATENT OFFICE.

FRANK W. GARRETT, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE
LORAIN STEEL COMPANY, OF PENNSYLVANIA.

TROLLEY-SWITCHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 683,927, dated October 8, 1901.

Application filed December 3, 1900. Serial No. 38,421. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. GARRETT, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Trolley-Switching Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to certain new and useful improvements in electric railways of the overhead-system type, and is designed to provide means of simple and efficient character under the control of the motorman whereby the trolley-wheel may be diverted or deflected from one conductor to another when the car passes onto a branch track or turnout.

To this end my invention consists in the combination, with a trolley-pole and a pivotal base to which it is attached, of means under the control of the motorman whereby said base may be turned on its pivot to change the angular relation of the trolley-wheel sufficiently with respect to the conductor on which it has been traveling to divert or deflect it into position to cause it to take a branch conductor; also, in the combination, with means of this character, of means in connection with the main and branching conductor whereby the trolley-wheel is free to move laterally a limited distance into line with the branch conductor when the base is moved in the manner described.

My invention also consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a plan view, largely diagrammatic, illustrating one form of my invention. Fig. 2 is a side elevation showing the same applied to a car. Fig. 3 is a perspective view showing a modification. Fig. 4 is an inverted plan view of one form of guide and connecting plate, and Fig. 5 is a similar view of a different form of such plate.

In the drawings the letter A designates a trolley-base, B a trolley-pole attached to the said base, and C the usual grooved trolley-wheel.

D designates a main-line track, D' a right-hand turnout or branch track, and D² a left-hand turnout or branch track. These two turnouts or branch tracks are for convenience of illustration shown as leaving the main track at the same point; but it is immaterial to my invention (except as to the form of guide-plate required for the trolley-wheel, as hereinafter described) how they are located or whether there are turnouts or branches in more than one direction.

E is the main-line overhead conductor and E' and E' are the branch conductors for the respective branch tracks and connected to the main conductor by a plate F, which is interposed in said main conductor to form a short section thereof. This plate has depending lateral guard-flanges *f*, which converge toward the narrower end of the plate to form a throat or entrance for the trolley-wheel. It is also provided with a central depending guide-rib *f'*, which, however, does not extend entirely into the said throat. Where there is but a single branch track or turnout, this plate is modified to the form shown in Fig. 5.

The trolley-base A is a pivotal base—that is to say, the bracket A', to which the pole is pivoted, is mounted in its support on the top of the car to rotate in a horizontal plane. The particular base shown in the drawings is similar to that described and claimed in the application for patent filed jointly by F. A. Merrick and myself August 16, 1900, Serial No. 27,052; but this is for the purpose of illustration only, as any suitable form of rotary base may be employed.

It is obvious that if at the time the trolley-wheel C is about to enter the narrow end of the plate F, in which it has room for a limited angular lateral movement, the base A be somewhat rotated in the proper direction, said wheel will be diverted from the line of the main conductor and turned into position to take one of the branch conductors. My invention provides means whereby this can be readily accomplished by the motorman. This can be done either by mechanical or electromagnetic agencies, either of which is within the scope of my invention.

In the arrangement shown in Figs. 1 and

2 I employ electromagnets I I', which are se-
cured to a suitable support on the roof of the
car, one near each end of the pivotal bracket
A', with its poles adjacent to the end portion
5 a thereof, which is of magnetic metal. These
magnets are respectively wound with the
coils J J'.

The energization of the magnets is con-
trolled by a switch, which may be located in
10 the car-vestibule or on the platform conven-
iently to the motorman. The particular
switch shown consists of a movable arm K
and three fixed contacts k k' k², any one of
which may be engaged by said arm, which
15 has a permanent trolley connection T. The
middle contact k' is permanently connected
to the controller of the car (not shown) and
also to one terminal of each of said magnetic
coils, and the other terminals of said coils
20 are respectively connected to the contacts k
k². When the arm K is in its middle or nor-
mal position, as shown in Fig. 1, there is a
direct circuit from the trolley to the control-
ler; but if the said arm is moved to engage
25 either of the contacts k or k² the correspond-
ing magnet-coil is connected in circuit be-
tween the trolley and controller. The arm
is of sufficient breadth to engage the contact
k or k² before it entirely leaves the contact
30 k', so that the trolley-circuit is not opened.

The operation is as follows: As the car ap-
proaches a branch track or turnout which
it is to take the motorman moves the arm K
either to the right or left, according to the
35 direction the car is to turn. This energizes
the corresponding magnet, which acts upon
the rotary base and tends to give it a slight
rotary movement. Until the plate F is
reached, however, this movement is resisted
40 by the engagement of the grooved trolley-
wheel with the main conductor G under the
pressure of the trolley-spring. As soon, how-
ever, as the wheel enters the throat of the
plate F it is relieved from engagement with
45 said conductor and the pole and base re-
spond to the action of the magnet, the wheel
being thereby turned to the proper angle to
take the branching conductor. After the
car passes onto the branch track the arm K is
50 moved back to its normal position. In case
the car is to go straight ahead the switch is
not operated and the rib f' forms a guide for
the trolley-wheel.

It is obvious that various forms of switches
55 may be employed instead of that shown and
that such switches may be arranged to be op-
erated either by the hand or the foot of the
motorman.

Fig. 3 shows means for effecting the same
60 operation wholly by mechanical means, con-
sisting of cords or cables P, connected to the
end portions of the bracket A' and passing
around pulleys p, and then down within reach
of the motorman, their free end portions be-
65 ing provided with suitable handles P'.

I do not wish to be limited to the particular

construction and arrangement of parts which
I have herein shown and described, as various
changes may be made therein without depart-
ing from the spirit and scope of my invention. 70

Having thus described my invention, what
I claim, and desire to secure by Letters Pat-
ent, is—

1. In an electric railway, the combination
with a main track, a branch track or turnout, 75
a main conductor, a branch conductor, and
a connection between the main and branch
conductors arranged to permit angular lat-
eral movement of a trolley-wheel, of a car
having a pivotal trolley-base, a trolley pole 80
and wheel carried by said base, and means
under the control of the motorman of the car
for effecting a limited rotary movement of
said base, whereby the wheel may be caused
to move from the main to the branch con- 85
ductor.

2. In an electric railway, the combination
with a main conductor, a branch conductor
and a plate connecting said conductors, and
forming a short section of the main conduc- 90
tor, said plate having guides for the trolley-
wheel arranged to permit angular movement
of said wheel, of a car having a rotary trol-
ley-base, and means for effecting a slight ro-
tation of said base at the will of the motor- 95
man, whereby the angular position of the
wheel may be changed to enable it to pass
from one conductor to another.

3. The combination with a trolley pole and
wheel, and a pivoted base to which said pole 100
is attached, of an electromagnet arranged to
act upon said base to effect a rotary move-
ment thereof, and means for controlling the
said magnet.

4. The combination with a trolley pole and 105
wheel, and a pivotal base to which said pole
is attached, of electromagnets upon opposite
sides of the pivot of the base, and means for
energizing each of said magnets separately.

5. The combination of a pivotal trolley- 110
base, of electromagnets arranged to exert op-
posite rotative action on said base, and a
switch for controlling the said magnets.

6. In an electric railway, the combination
with a main track, a branch track, a main 115
overhead conductor, and a branching conduc-
tor, a plate connecting said conductors and
forming a section thereof, said plate having
a throat or guide in which is a trolley which
may have lateral movement, of a car having 120
a rotary trolley-base, a pole carried by said
base, and an electro magnet or magnets ar-
ranged to exert a rotative action on said base,
together with means for controlling the ex-
citation of said magnets. 125

In testimony whereof I have affixed my sig-
nature in presence of two witnesses.

FRANK W. GARRETT.

Witnesses:

CORA G. COX,
H. W. SMITH.