

(No Model.)

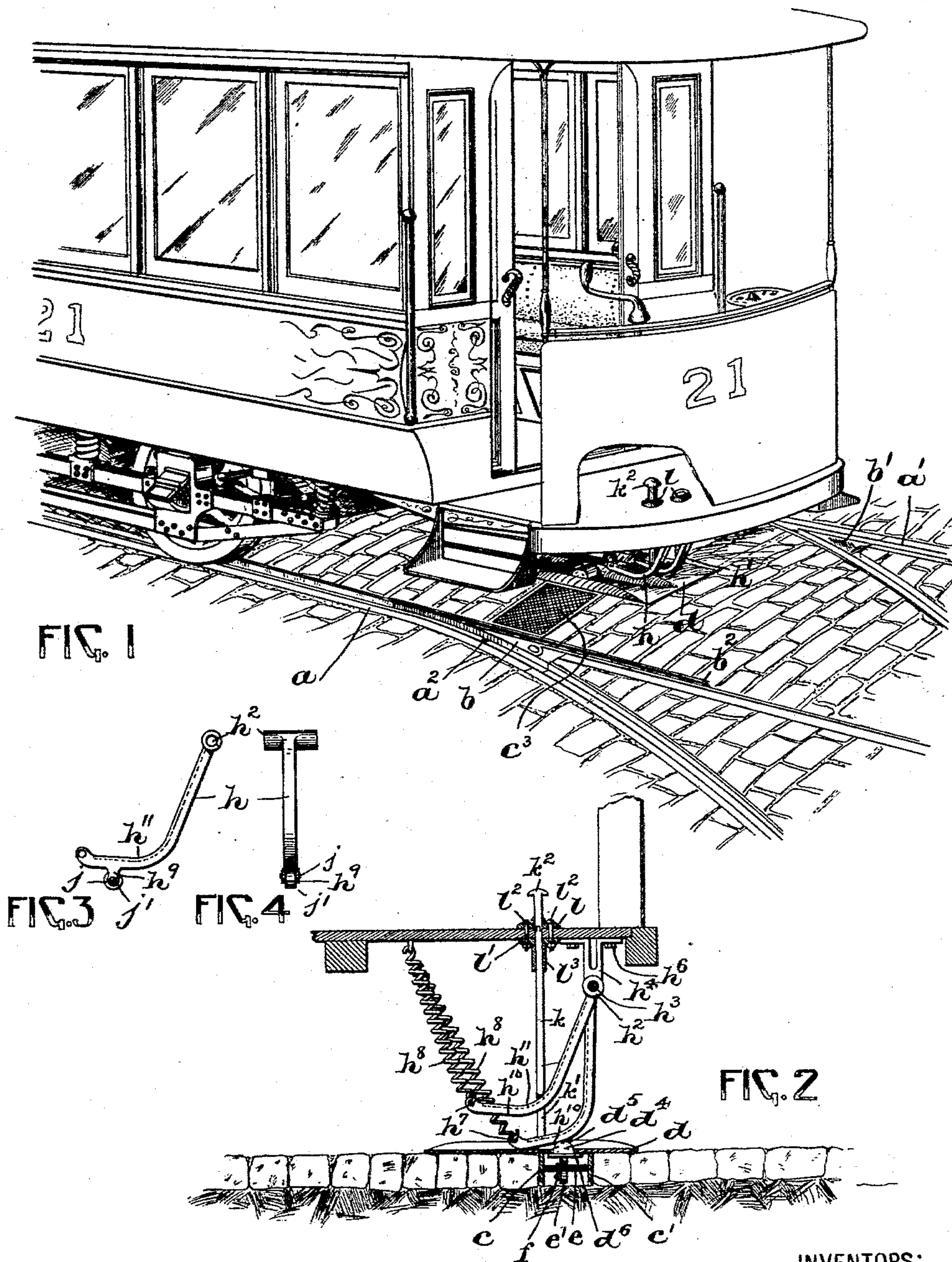
2 Sheets—Sheet 1.

C. & A. SCHEID.

RAILWAY SWITCH AND OPERATING MECHANISM.

No. 584,016.

Patented June 8, 1897.



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

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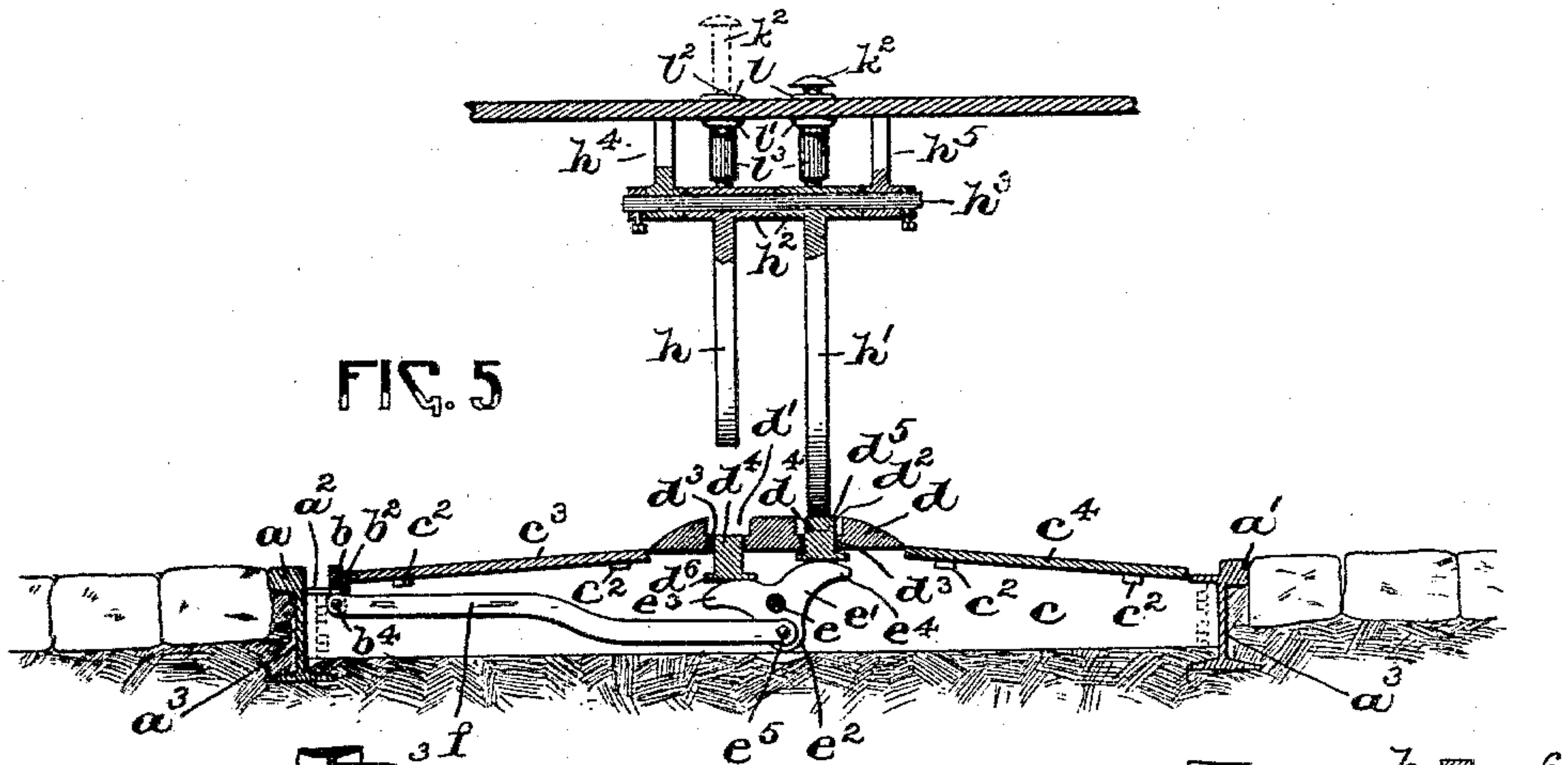


FIG. 5

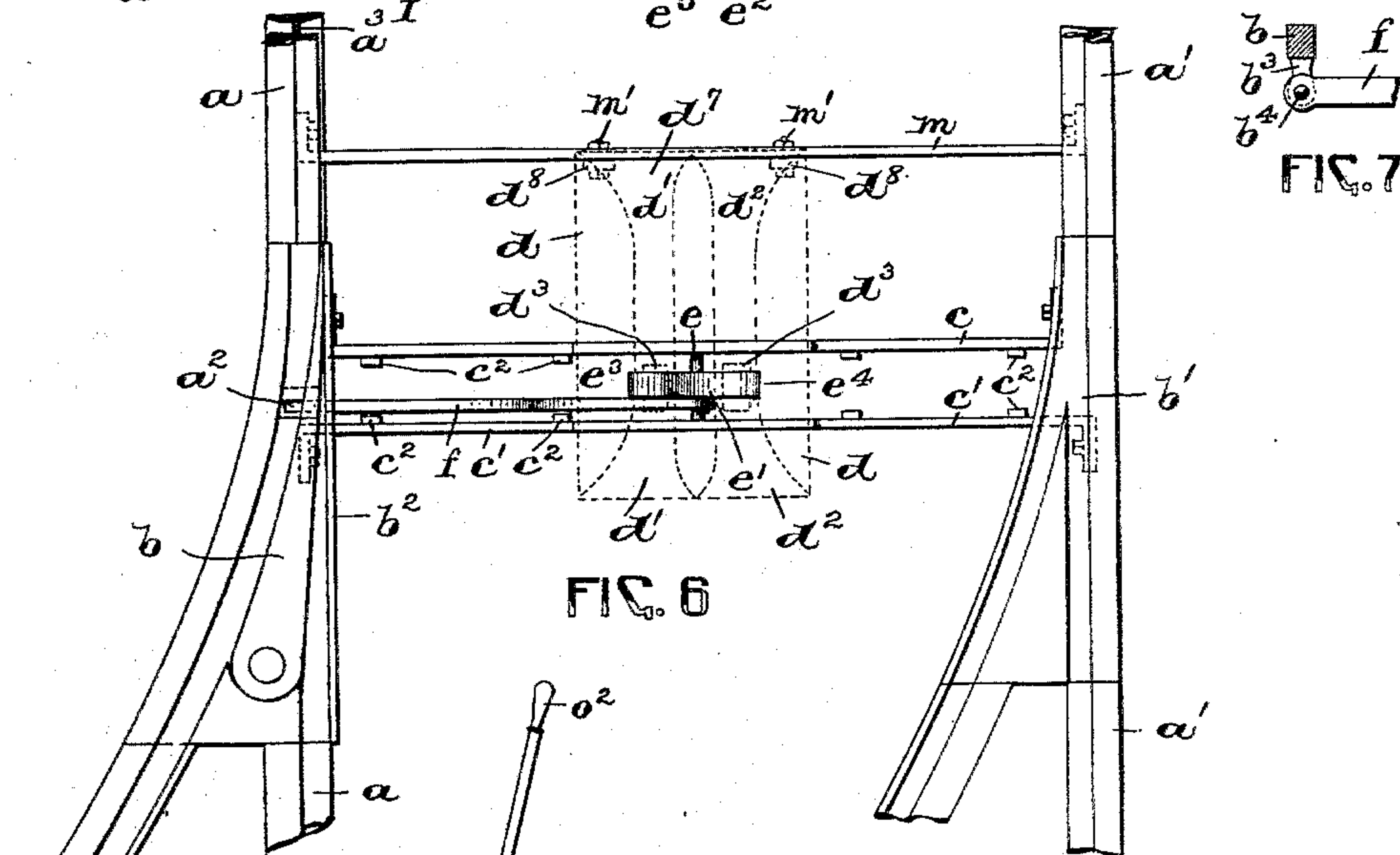


FIG. 6

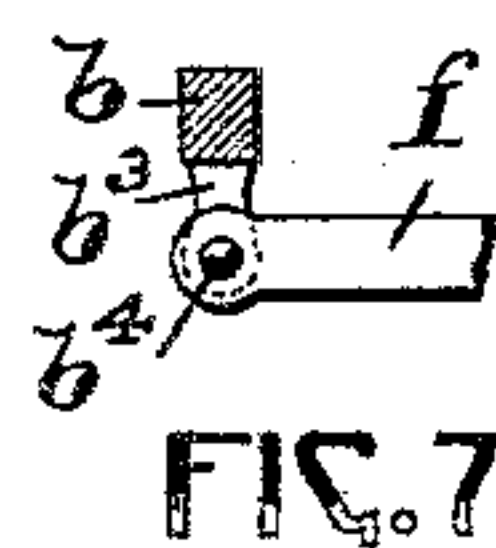


FIG. 7

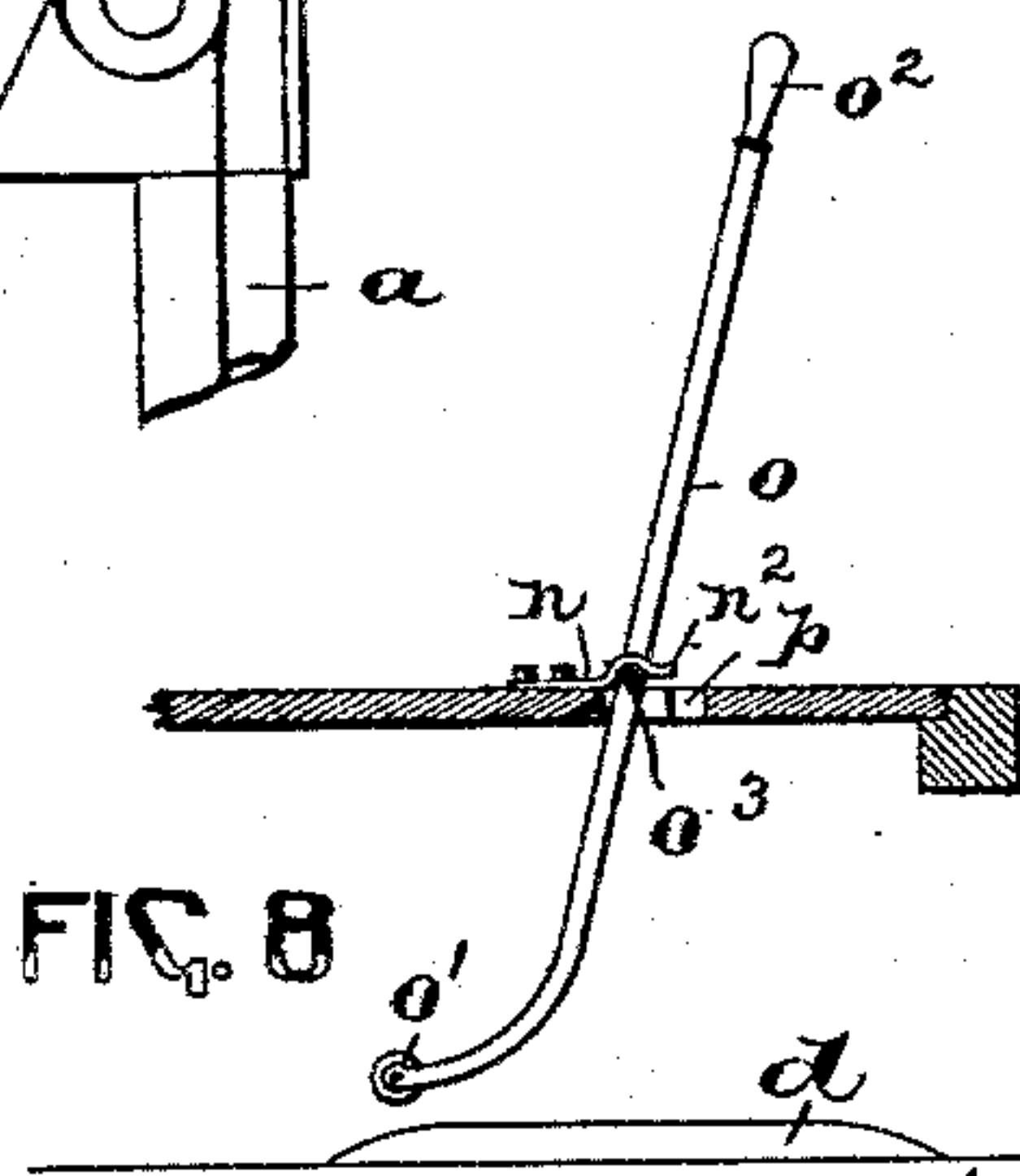


FIG. 8

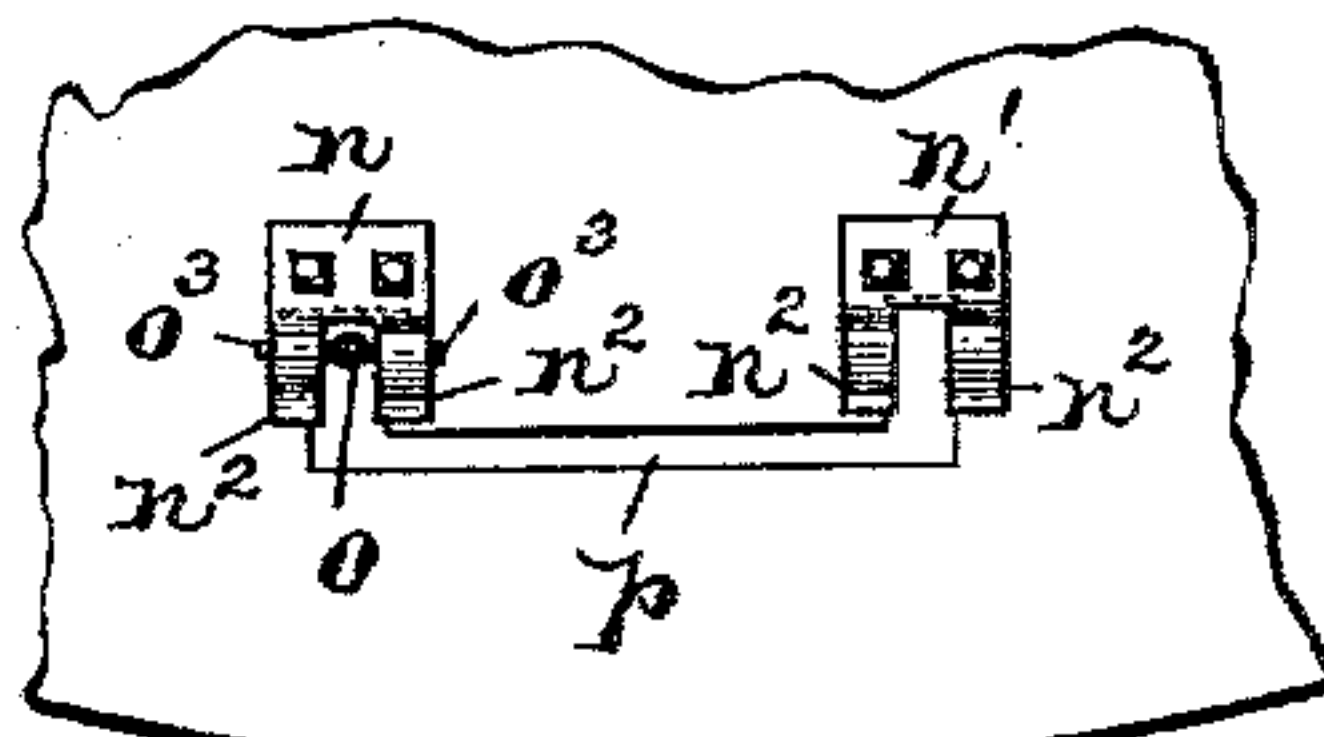


FIG. 9

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FIG. 10

UNITED STATES PATENT OFFICE.

CARL SCHEID AND ADAM SCHEID, OF HARRISON, NEW JERSEY.

RAILWAY-SWITCH AND OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 584,016, dated June 8, 1897.

Application filed November 20, 1896. Serial No. 612,805. (No model.)

To all whom it may concern:

Be it known that we, CARL SCHEID and ADAM SCHEID, citizens of the United States, residing at Harrison, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Railway-Switches and Operating Mechanism; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has reference to that class of switches for surface railways which are automatic in their action and are provided with a controlling mechanism adapted to be actuated by means of independent mechanism arranged beneath the platform of a car, which can be controlled by a person on said platform to actuate the parts of the switch-controlling mechanism.

The invention has for its primary object to provide an automatic and perfectly-operating device of this character which is under the control of the operator on the platform of the car to cause the latter to run in a straight direction on the main track or to turn off therefrom, as may be desired.

The invention therefore consists in the novel construction of switch operating and controlling mechanism herein set forth and in the novel arrangements and combinations of parts and details of construction to be fully described in the accompanying specification and finally embodied in the clauses of the claim.

The invention is illustrated in the accompanying sheets of drawings, in which—

Figure 1 is a perspective view of a portion of a railway-car with the novel form of switch controlling and operating mechanism. Fig. 2 is a sectional view of the platform of a car and the switch-controlling mechanism with the mechanism for operating the switch mechanism illustrated in side elevation. Fig. 3 is a side view, and Fig. 4 a front view, of a pivoted arm provided with a wheel or roller adapted to be brought into operative engagement with the switch-controlling mechanism.

Fig. 5 is a sectional view of the switch-controlling mechanism arranged between the rails, illustrating in connection therewith, partly in front elevation and partly in section, a pair of operating-arms pivotally secured in a shaft in bearings beneath the platform of the car. Fig. 6 is a plan view of the switch-controlling mechanism, and Fig. 7 is a detail view illustrating the switch-tongue in cross-section and the pivotal connection of the lever or rod for operating the switch-tongue on a slightly-enlarged scale. Fig. 8 is a side view of a hand-lever pivotally arranged on the platform of a car for operating the switch-controlling mechanism, and Fig. 9 is a plan view of a portion of the platform of a car and spring-bearings in connection with which said hand-lever is to be used. Fig. 10 is a sectional view of a switch-controlling mechanism of a slightly-modified form of construction, but still embodying the principles of the present invention.

Similar letters of reference are employed in all of the above-described views to indicate corresponding parts.

In said drawings, a and a' are the two rails. b is a suitable switch-tongue pivotally arranged in the channel b^2 , connected with the rail a , and b' is the usual form of frog in the rail a . Said switch-tongue b is provided on its under side with a downwardly-extending stud or finger b^3 , which is capable of a lateral movement in a slot a^2 in the rail a and extends through the upper portion of said rail and down along the side of the web thereof, as clearly indicated in Figs. 5 and 10.

Secured to the webs a^3 of the two rails are a pair of plates c and c' , having suitable supporting lugs or projections c^2 , on which are placed the plates c^3 and c^4 in the manner shown, with a guide-plate d between them, said parts thus forming a suitable casing, substantially as illustrated in the several figures of the drawings. Pivotaly arranged on a pin e , which is secured in the sides of said plates c and c' , is a cam-plate e' , provided with a downwardly-extending part e^2 and two oppositely-projecting horns e^3 and e^4 . Operatively connected with a pin b^4 on the stud or finger b^3 and with a suitable pin or stud e^5 on the part e^2 of said cam-plate e' is a connecting bar or lever f , substantially as illustrated

in Figs. 5 and 6. Said guide-plate d , herein-
above mentioned, is provided with a pair of
longitudinally-arranged grooves d^1 and d^2 ,
which are parallel with the rails a and a' ,
5 said grooves being provided with openings d^3 ,
in each of which there is a movable block d^4 ,
preferably provided with the upper curved
surfaces d^5 . Said blocks d^4 are loosely ar-
ranged upon the horns e^3 and e^4 of the cam-
10 plate e' and are provided with suitable shoul-
ders d^6 , projecting from the sides thereof,
substantially as illustrated in Figs. 5 and 10,
to prevent the withdrawal of the said blocks
from the openings d^3 in the grooves d^1 and d^2
15 after these parts have been arranged in their
operative positions between the rails a and a' .

In lieu of the pivotal arrangement of the
cam-plate e' (illustrated more especially in
Fig. 5) the portion e^2 of said plate may be
20 pivotally arranged on the pin e , as represented
in Fig. 10, and on a pin or stud e^6 on said
plate e' is pivoted a screw-socket g , in which
can be adjustably arranged the screw-threaded
end f^2 of a rod or lever f' , which is piv-
25 otally connected at its opposite end with the
stud or finger b^3 on the switch-tongue b . A
lock-nut f^3 may be employed on the threaded
end portion of the rod or lever f' , which can
be screwed against the end of the socket g
30 when the said rod or lever has been adjusted
in its operative position to retain said rod or
lever in this position. From an inspection
of said Figs. 5 and 10 it will be seen that the
arrangement of the several parts of the mech-
35 anism for controlling the movement of the
switch-tongue b is such that it may be re-
versed to suit the position of said tongue
when placed in either of the rails a or a' to
produce a right or left turnout in the rails.

40 In order to operate the blocks d^4 , connected
with the guide-plate d , to operate the switch-
controlling mechanism, a pair of arms h and
 h' are employed, which are provided at the
top with perforated eyes h^2 for pivotally se-
45 curing them on a journal or shaft h^3 , suitably
fixed in position in a pair of bearings h^4 and
 h^5 , secured to the bottom of the platform of
a car by means of the screws or bolts h^6 . Said
arms h and h' are provided with the perfo-
50 rated ends h^7 or other suitable means, with
which are connected the ends of suitable
springs h^8 , having their opposite ends at-
tached to the bottom of the body of the car
to normally hold said arms h and h' in their
55 raised positions, as will be clearly understood.
In some instances said arms h and h' may be
provided with perforated lugs or ears h^9 on
their under sides, in which may be secured
a pin j and a wheel or roller j' , as illustrated
60 in Figs. 3 and 4, for operating the blocks d^4 ,
instead of the lower part h^{10} of said arms,
which can be brought into operative sliding
contact with said blocks d^4 , as particularly
indicated in Fig. 2.

65 In operative sliding engagement with suit-
ably-recessed portions h^{11} in the arms h and
 h' are a pair of vertically-arranged push-rods

k and k' , which are operatively held and re-
ciprocate in suitable bearings secured to the
platform of the car, and which consist, essen- 70
tially, of an upper plate l and a lower plate
 l' , permanently secured to the top and bottom
of the platform by means of bolts l^2 in the man-
ner shown. To properly guide said arms or
posts k and k' , the lower plate l' is provided 75
with a long socket l^3 , and detachably con-
nected with the upper end of each arm or post
 k and k' is a plug k^2 , upon which the operator
can place his foot to force either of said rods k
and k' in a downward direction and by so 80
doing operating the proper arm h or h' and
the block d^4 in engagement therewith as it
passes over the latter during the forward
movement of the car on the rails a and a' , as
clearly illustrated in said Fig. 2. According 85
to the operative engagement of either one of
said blocks d^4 the horns e^3 and e^4 on the said
cam-plate e' are forced over to the right or
the left, as the case may be, and in conse-
quence the switch-tongue b receives a corre- 90
sponding action or motion to open or close
the switch.

As will be seen from Fig. 6, the rear end d^7
of the guide-plate d may also be provided
with downwardly-projecting lugs d^8 , whereby 95
said end can be secured, by means of suit-
able bolts m' , to a cross piece or rod m , suit-
ably connected with the webs of the rails a
and a' to more firmly fasten said guide-plate
 d in its proper position between the rails. 100

In place of the mechanism just described
for operating the blocks d^4 , connected with
the switch-controlling mechanism, a hand-
lever o may be employed, which is provided
at the bottom with a roller or wheel o' and at 105
the top with a handpiece o^2 and also with the
oppositely-projecting pivots o^3 for operatively
and pivotally securing said lever o beneath
the spring-tongues n^2 of two plates or bear-
ings n and n' , secured on the platform of the 110
car. The action of said lever o to operate
the controlling mechanism of the switch will
be clearly evident from an inspection of Fig.
8, and one lever may be used to engage either
of the blocks d^4 by providing the platform of 115
the car with a slot p , in which said lever is
movably arranged, whereby said lever o can
be forced from the spring-tongues on the plate
 n , moved along said slot p , and again oper-
atively connected with the spring-tongues of 120
the plate n' to open or close the switch, as
may be necessary.

While we prefer to retain the details of con-
struction herein shown, it is manifest that
they may be variously modified without de- 125
parting from the scope of our invention, and
we therefore do not limit our invention to the
exact details of construction herein shown,
although the construction presented in the
drawings is deemed the best, the same being 130
simple, easy of manipulation, and not liable
to get out of order.

Having thus described our invention, what
we claim is—

1. In a switch, the combination, with the switch-tongue in one of the rails, having a downwardly-projecting stud or finger, of a casing between said rails, consisting, essentially, of plates c and c' , covers c^3 and c^4 , and a guide-plate d , a cam-plate e' pivotally arranged between said plates c and c' , having a pair of horns e^3 and e^4 , and a rod or lever operatively connecting said cam-plate with the stud or finger on the switch-tongue, grooves d' and d^2 in said guide-plate d having openings, blocks d^4 in said openings and resting in operative engagement on the horns of said cam-plate, and mechanism adapted to engage with said blocks, substantially as and for the purposes set forth.

2. In a mechanism for operating railway-switches, a pair of spring-actuated arms, pivoted on a shaft in bearings on the platform of a car, and vertical rods, as k and k' , adapted to reciprocate in bearings on the platform, said rods being in operative sliding engagement with said arms, all in combination, with a switch-controlling mechanism arranged between said rails, adapted to be actuated by said spring-actuated arms, when depressed, consisting, essentially, of a casing arranged at right angles between and connected with the rails, comprising plates c and c' , covers c^3 and c^4 , a switch-tongue-operating mechanism between said covers, a cam-plate e' , pivotally arranged in said casing, having a pair of horns e^3 and e^4 , all in a plane at right angles to the sides of the rails, a switch-tongue in one of the rails, and a rod or lever moving and operating in a plane at right angles to the sides of the rails and connecting said cam-plate with said switch-tongue, substantially as and for the purposes set forth.

3. In a mechanism for operating railway-switches, a pair of spring-actuated arms, pivoted on a shaft in bearings on the platform of a car, and vertical rods, as k and k' , adapted to reciprocate in bearings on the platform, said rods being in operative sliding engagement with said arms, all in combination, with a switch-controlling mechanism arranged between said rails, adapted to be actuated by said spring-actuated arms, when depressed,

consisting, essentially, of a casing arranged at right angles between and connected with the rails, comprising plates c and c' , covers c^3 and c^4 , a switch-tongue-operating mechanism between said covers, a cam-plate e' pivotally arranged in said casing, having a pair of horns e^3 and e^4 , all in a plane at right angles to the sides of the rails, a switch-tongue in one of said rails, and a rod or lever moving and operating in a plane at right angles to the sides of the rails and connecting said cam-plate with said switch-tongue, a guide-plate d arranged above said cam-plate, having grooves therein provided with openings, and blocks, as d^4 , in said openings, resting in operative engagement on the horns of said cam-plate, substantially as and for the purposes set forth.

4. In a mechanism for operating railway-switches, a pair of spring-actuated arms, pivoted on a shaft in bearings on the platform of a car, and vertical rods, as k and k' , adapted to reciprocate in bearings on the platform, said rods being in operative sliding contact with said arms, all in combination, with a switch-controlling mechanism arranged between the rails, and adapted to be actuated by said spring-actuated arms, when depressed, consisting, essentially, of a casing between the rails, comprising therein, plates c and c' , covers c^3 and c^4 , and a guide-plate d , a cam-plate e' pivotally arranged between said plates c and c' , having a pair of horns e^3 and e^4 , a switch-tongue in one of said rails, and a rod or lever operatively connecting said cam-plate with said switch-tongue, grooves d' and d^2 in said guide-plate d having openings, and blocks, as d^4 , in said openings resting in operative engagement on the horns of said cam-plate, substantially as and for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 16th day of November, 1896.

CARL SCHEID.
ADAM SCHEID.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.