

F. DANGEL.
 RHEOSTAT FOR TOY ELECTRIC RAILWAYS.
 APPLICATION FILED MAR. 9, 1914.

1,096,800.

Patented May 12, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

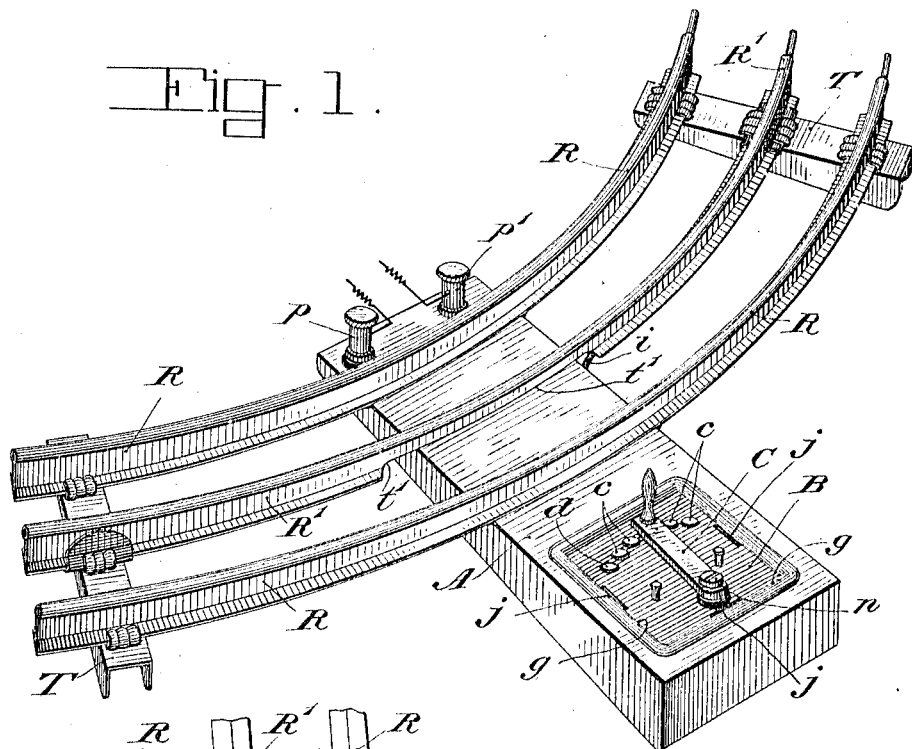
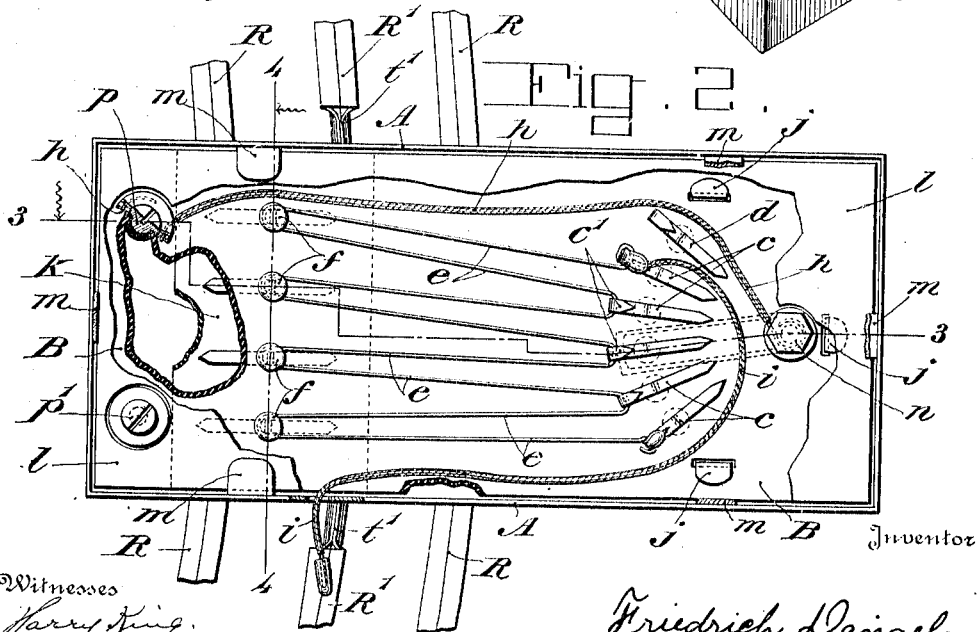


Fig. 2.



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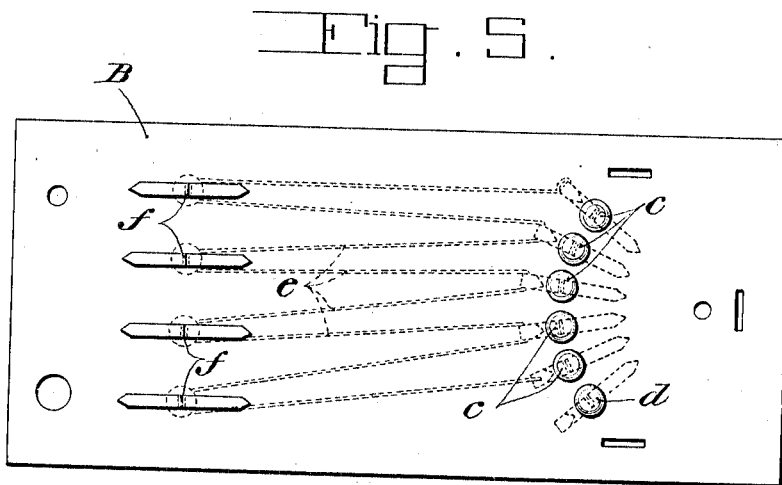
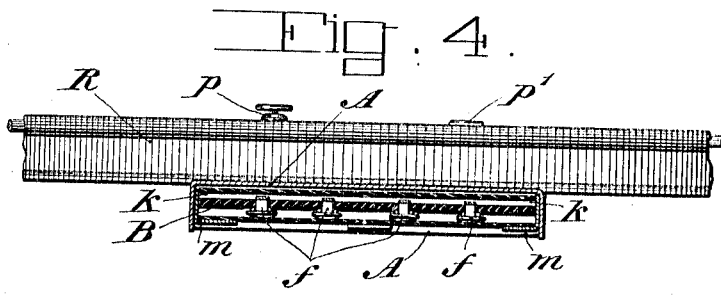
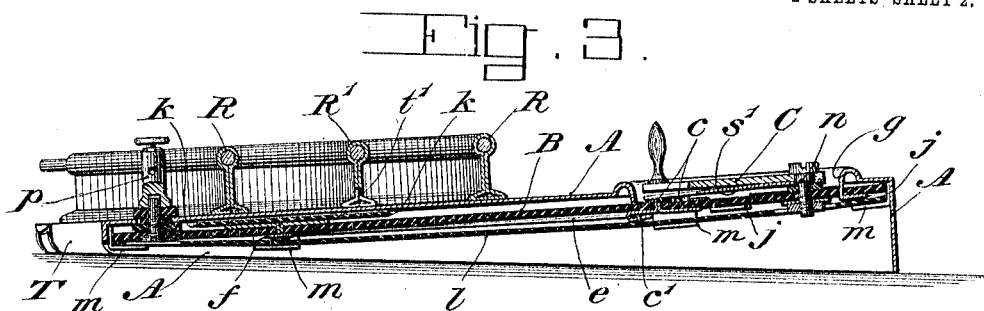
Inventor
Friedrich Dangel
 By *Marshall Bailey*
 his Attorney

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 his Attorney

UNITED STATES PATENT OFFICE.

FRIEDRICH DANGEL, OF NUREMBERG, GERMANY, ASSIGNOR TO NÜRNBERGER METALL- & LACKIERWARENFABRIK VORM. GEBRÜDER BING A. G., OF NUREMBERG, GERMANY.

RHEOSTAT FOR TOY ELECTRIC RAILWAYS.

1,096,800.

Specification of Letters Patent.

Patented May 12, 1914.

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To all whom it may concern:

Be it known that I, FRIEDRICH DANGEL, subject of Germany, and resident of the city of Nuremberg, Bavaria, Germany, have invented a certain new and useful Improvement in Rheostats for Toy Electric Railways, of which the following is a specification.

In accordance with this invention, the parts of the rheostat, including the resistance, the fixed contacts and the movable contact lever, are all assembled and mounted upon a plate of insulation or non-conducting material which is housed in one of the railway ties, which for this purpose is widened, the lever and fixed contacts being exposed through an opening in the top of the railway tie.

The invention consists of certain improvements which will first be described in connection with the accompanying drawings forming part of the specification, and will then be more particularly pointed out in the claims.

In the drawings—Figure 1 is a perspective view of a section of a toy railway track with which my improvements are associated; Fig. 2 is a bottom plan of the widened tie with the insulation plate carrying the parts of the rheostat and housed therein; Fig. 3 is a section of the same on line 3—3 Fig. 2; Fig. 4 is a section of the same on line 4—4 Fig. 2; Fig. 5 is a top view of the insulation plate and parts mounted thereon removed from the railway tie.

The track section shown in the drawing is one intended for use in a third rail toy railway system.

R R are the railway rails on which the trains run; R' is the insulated third rail; T T are the ordinary railway ties made of sheet iron, usually tinned; and A is the widened tie, also made of sheet iron (or other conducting material), in which insulation plate B, consisting of a stiff sheet of vulcanized fiber or other non-conducting material, on which the parts of the rheostat are mounted, is housed. The widened tie A is a box-like structure having a top, sides and ends, but no bottom. The train rails R R are secured to and have electrical connection with the tie A. The third rail R' is insulated from the ordinary ties T, as well as from the tie A, for which latter purpose it

is cut away as seen at *t'* Fig. 1 so as to be out of contact with the tie A. The insulation plate B is of a size to fit snugly within the box-like tie A. On its upper face are the movable contact lever C and series of contacts *e* of a graduated resistance *e*; and also a "dead" contact *d* for use when desired to shut off the current as customary in this class of devices. These contacts are formed by the heads of clips, the prongs of which pass through the insulation plate B and are clenched on the under face thereof as seen in Fig. 2, one of the prongs of each clip, as at *e'*, being bent back upon itself to form retaining hooks for the loops of the resistance wire *e* at that end of the plate, the loops of said wire at the other end passing around and being held by the heads of clips *f*, which extend through the insulation plate B from the bottom, and have their prongs clenched upon the top face thereof. The contacts *e*, *d* and movable contact lever C, when the insulation plate B is in place and housed in the tie A, appear through an opening *g* of proper dimensions, cut in the top of the tie.

Two binding posts *p p'* are mounted on the tie A, to receive the wires leading from the opposite poles of some source of electrical supply. The binding post *p'* is electrically connected with the tie A. The other binding post *p* is insulated from the tie A, and electrically connected by a wire *h* with the post *n* of the pivoted contact lever C, which post is of course in electrical connection with the spring contact tongue *s'* of said lever.

The third rail R' is in electrical connection with the resistance *e* through a wire *i* (which, like the wire *h*, has an insulation wrapping or covering) leading from the third rail to one end of the resistance *e*—in this instance that end which is connected to the "live" contact *e* next to the "dead" contact *d*.

The insulation plate B is held in place one end by the devices which fasten the binding posts *p p'* to said plate, and at the other end by clips *j* integral with the tie A, extending down from the sides of the opening *g* in the top of the tie, through the plate B, and clenched upon the under face of the same, as seen in Fig. 2. A thin sheet of insulation *k* is interposed between the top of

the tie and the plate B at the point where the prongs of the clips *f* of the resistance appear on the upper face of said plate, so as to keep them from electrical connection with the tie. A sheet *l* of insulation is also employed as a cover for the under side of the housed rheostat plate B, said cover being removably secured to the tie A by clips *m* or other devices which will permit the ready detachment and removal of this sheet whenever it is desired to expose the under face of the rheostat plate. Under this construction and arrangement of devices, all parts of the rheostat are carried by and appear on one or the other faces of an insulation sheet or plate so housed in a box-like railway tie as to permit the ready exposure of either face of said plate for convenient access to the parts of the rheostat thereon.

The electric circuit for the purpose of operating trains will be from binding post *p* and the third rail by way of resistance *e* to motor on the train and thence by way of the rails R to the binding post *p'*, as will be understood without further explanation.

What I claim herein as new and desire to secure by Letters Patent is:

1. A rheostat, the parts of which are mounted on and carried by an insulation

plate, in combination with a box-like railway tie in which said plate is received and housed, said tie having an opening in its top and bottom to expose the portions of both faces of the insulation plate on which the parts of the rheostat are located.

2. An insulation plate and rheostat devices carried by the same, the pivoted contact lever and the series of fixed contacts cooperating with said lever mounted on the upper face, and the resistance itself mounted upon the under face, of the insulation plate, in combination with a box-like railway tie in which said insulation plate is housed, said tie having an opening in its top to expose that portion of the insulation plate on which the movable contact lever and series of cooperating fixed contacts are located, and with an open bottom to expose the under face of the said insulation plate and the parts thereon, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRIEDRICH DANGEL.

Witnesses:

MAX GUSDENDORFF,
OSCAR BOCK.