

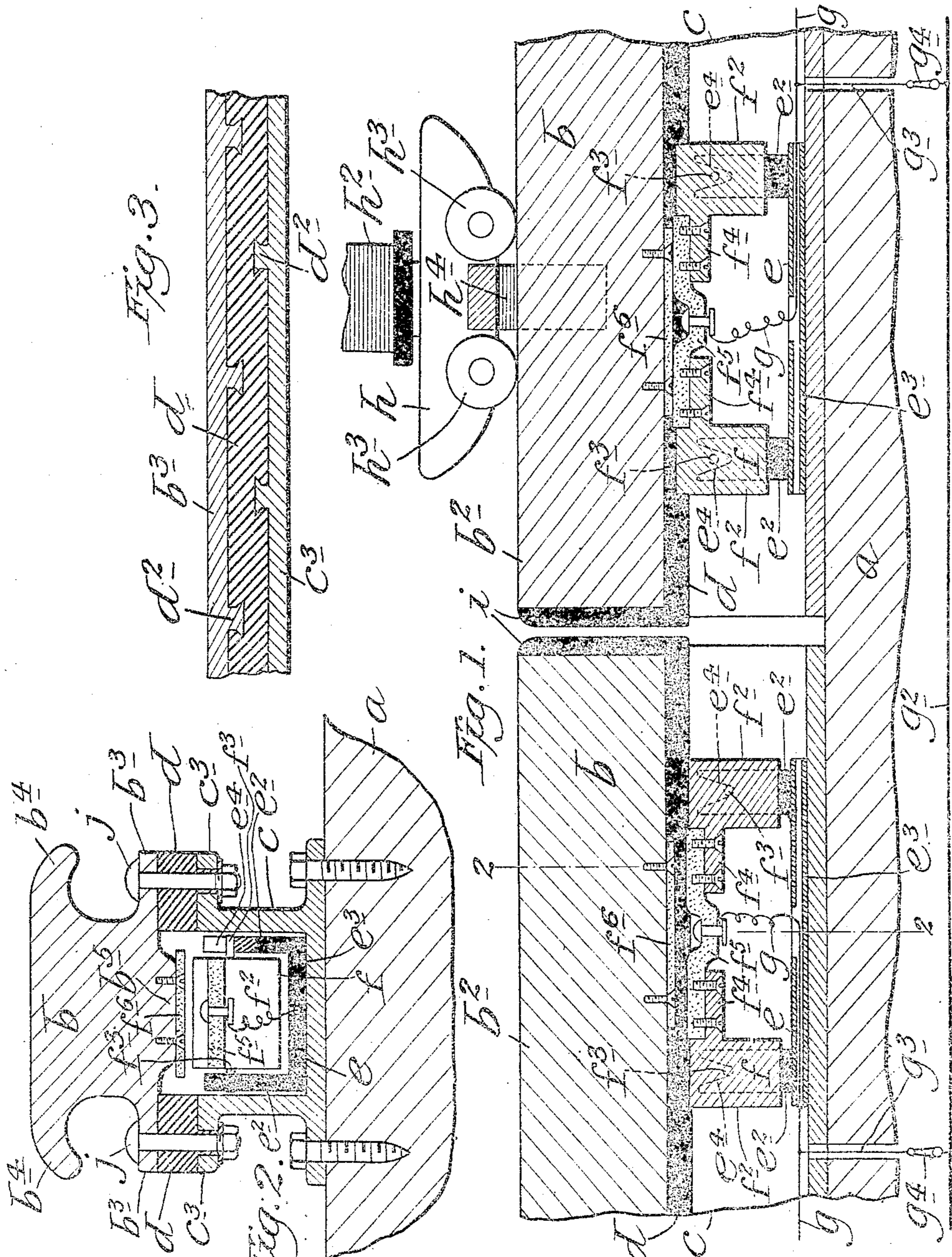
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C. KOZESNIK.

THIRD RAIL ELECTRIC RAILWAY SYSTEM.

APPLICATION FILED DEC. 17, 1907.



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THIRD-RAIL ELECTRIC-RAILWAY SYSTEM.

No. 884,170.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed December 17, 1907. Serial No. 406,828.

To all whom it may concern:

Be it known that I, CHARLES KOZESNIK, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Third-Rail Electric-Railway Systems, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The invention described and claimed herein is an improvement on that described and claimed in United States Letters Patent No. 870,564, granted to me November 12, 1907; and also an improvement on that described and claimed in an application for Letters Patent of the United States filed by me on October 30, 1906, Serial No. 341,256; and the object of the invention which forms the basis of this application is to improve the construction described in said patent and in said application, and the operation thereof, and to make said construction more substantial and to improve the magnetic action involved which last object is accomplished by the shape of the third rail or the bottom part thereof, together with other details of construction hereinafter described; and with these and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed.

The invention described and claimed herein also particularly relates to third rail electric railway systems in which the third rail or conductor in connection with which the contact shoes of the cars operate is composed of separate sections, which are in circuit only when the contact shoes of the cars or motors are bearing thereon, whereby danger from coming in contact with the third rail, or that part thereof which is in circuit is avoided.

The invention is fully disclosed in the following specification of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a sectional side view of separate sections of the third rail of an electric railway system and showing one of the car or motor shoes in connection with one of said sections

together with the circuit forming and closing devices used in connection with said sections, Fig. 2 a section on the line 2, 2 of Fig. 1, and; Fig. 3 a detail view of the construction employed in connecting the separate sections of the third rail which I employ with the supports thereof.

In the drawing forming part of this specification, reference being made to Fig. 1, I have shown at *a* the sleepers or supports of the third rail *b*, and said third rail is composed of separate sections *b*², and on said sleepers or supports are secured box-shaped holders *c* which correspond with the separate sections *b*² of the third rail, and the separate sections of the third rail and said box-shaped holders *c* extend the full length of the track, the rails of which are not shown. The box-shaped holders *c* are open at the top and the separate sections *b*² of the third rail are provided with laterally directed bottom flanges *b*³ and the sides of the box-shaped holders *c* are provided with corresponding flanges *c*³, and between the flanges *b*³ and *c*³ is placed insulating material *d* as clearly shown in Fig. 2. The top of the rail *b*, or the separate sections thereof are also provided with longitudinally and laterally directed flanges *b*⁴ which are downwardly curved as shown in Fig. 2, and this construction particularly adapts the rail for use when side contact devices are employed, as in the application hereinbefore referred to and these flanges *b*⁴ keep the sides of the rail free from ice or other foreign substances which would interfere with a proper contact therewith. The rail *b*, or the separate sections thereof are also provided at the bottom thereof with a central thickened depending or downwardly directed portion *b*⁵ forming a longitudinal rib or projection which improves the magnetic action of the rail, in the operation of the apparatus as hereinafter described.

At regular intervals within the box-shaped holders *c* are placed armature supports *e* which rest on the bottom of the box-shaped holders *c* and are composed of insulating material. Each of the armature supports *e* consists of two pairs of uprights *e*² connected with a base plate *e*³, and the uprights *e*² range transversely of and beneath the third rail and are provided in their upper ends

with notches or recesses e^4 as shown in dotted lines in Fig. 1, and one of which is shown in full lines in Fig. 2, and mounted in the recesses e^4 of the uprights e^2 are armatures f which range longitudinally of the rail sections and consist of end parts or blocks f^2 having pins f^3 which rest in the recesses e^4 , and are also provided at the top thereof with inwardly directed projections f^4 to which are secured contact devices f^5 preferably composed of carbon, and corresponding contact devices f^6 are secured to the bottom of the rail or rail sections b^2 directly over the armatures f . The contact devices f^5 beneath the sections b^2 of the rail are connected by a wire g , and running parallel with the rail and incased and supported in any desired manner is a main supply wire g^2 which is connected with the wires g by feed wires g^3 preferably provided with switches g^4 . I have also shown at h one of the contact shoes carried by the car or motor and which operate in connection with the third rail, and these contact shoes are provided with magnets h^2 as in the patent and in the application hereinbefore referred to. In the form of construction shown, the contact shoe h is provided with contact rollers h^3 which bear on the rail, and with said contact shoe is also connected one of the side arm contact devices h^4 which bear on the side of the rail as in the application hereinbefore referred to, but the invention described and claimed herein is not involved in the contact shoe or shoes or their connections.

It will be understood, that as in the patent and application hereinbefore referred to the shoes h are energized by the current from the rail, as the car or motor moves along the track and as the shoes h come in contact with the separate third rail sections the armatures f are raised or picked up and assume the position shown at the right of Fig. 1, and a circuit is completed from the main wire or conductor g^2 through the contact devices f^5 and f^6 , the separate sections of the third rail to the contact shoes and the proper connections to the motor, which is not shown. It will therefore be seen that the separate third rail sections b^2 are never in circuit except when the contact shoes h are resting thereon, and said third rail sections are thus made entirely harmless and no injury occasioned by coming in contact therewith.

It will be understood that the improvement herein described may be applied to third rail electric railway systems of any kind or class, and to motors of any form or construction, and in practice any form of device suitable for making contact with the third rail or the separate sections thereof may be employed, and while I have described each of the third rail sections as pro-

vided with two armatures, other arrangements may be employed if desired.

Although I have stated that any suitable contact devices may be employed for making electrical connection with the motor and the third rail, the form of rail shown in Fig. 2 is particularly adapted for use in connection with said contact devices as shown in the patent hereinbefore referred to.

It will also be observed that the separate sections b^2 of the third rail are insulated at their ends one from another as shown at i in Fig. 1, and as I have shown in Fig. 2, the rail or its separate sections may be secured to the box-shaped supports c by bolts j which pass through the insulated material d , or the insulated material d may be poured in between the flanges b^3 and c^3 in a liquid state and afterwards allowed to become hard, and when this form of construction is adopted the flanges b^3 and c^3 and the insulating material d will be locked together by a tongue and groove construction as shown at d^2 in Fig. 3.

From the foregoing description it will be seen that as herein described, the third rail or the separate sections thereof consists of a hollow rail composed of upper and lower parts united but insulated from each other, thus forming box-shaped devices in which the armatures, connecting wires etc. are placed.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A third rail for electric railways consisting of separate hollow sections composed of top and bottom portions connected but insulated one from another, the ends of the top portions of said sections being also insulated, the bottom of the top portions of the said sections being longitudinally thickened or extended downwardly, and provided at intervals with contact devices, vertically movable armatures supported beneath said contact devices and composed of separate end members, and a central contact member secured thereto, and an electrical connection for said armatures.

2. A third rail for electric railways consisting of separate hollow sections composed of top and bottom portions connected but insulated one from another, the end of the top portions of said sections being also insulated, the bottom of the top parts of the sections being longitudinally thickened or extended downwardly, and provided at intervals with contact devices, vertically movable armatures supported beneath said contact devices and consisting of separate end members connected by a central contact device, and an electrical connection for said armatures, said armatures being oblong in form and ranging longitudinally of the rail sec-

tions, and being supported in transversely arranged uprights provided with notches or recesses in the tops thereof, and said armatures being provided with pins adapted to rest in said recesses.

In testimony that I claim the foregoing as my invention I have signed my name in pres-

ence of the subscribing witnesses this 14th day of December, 1907.

CHARLES KOZESNIK.

Witnesses:

M. E. DOODY,

C. E. MULREANY.