

No. 753,536.

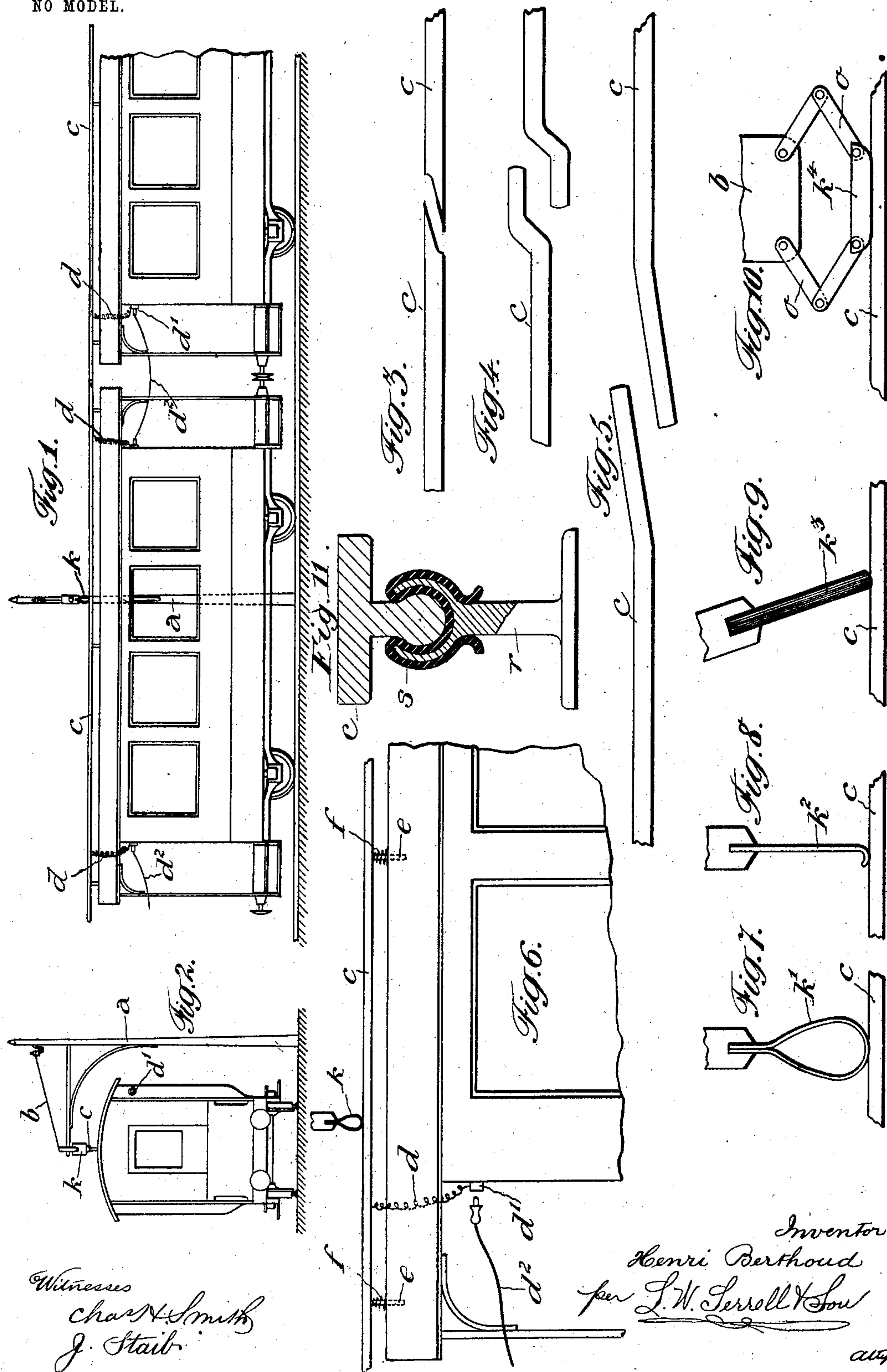
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H. BERTHOUD.

CONTACT DEVICE FOR ELECTRICALLY PROPELLED RAILWAYS.

APPLICATION FILED JULY 10, 1902.

NO MODEL.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## CONTACT DEVICE FOR ELECTRICALLY-PROPELLED RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 753,536, dated March 1, 1904.

Application filed July 10, 1902. Serial No. 114,988. (No model.)

*To all whom it may concern:*

Be it known that I, HENRI BERTHOUD, gentleman, of Neuchatel, Switzerland, have invented certain new and useful Improvements in and Relating to Contact Devices for Electrically-Propelled Railways, of which the following is a specification.

This invention consists of certain improvements in and relating to contact devices for the feeding of the electric current to the railway-cars of a train rolling on a railroad. The said railroad is provided at intervals with suitable fixed contact-pieces connected to an electric circuit, and the cars of the train are provided with suitable contact rods or bars which are longer than the car and the ends of which are adapted to overlap those of the adjacent cars of the train without being in contact with the same. Either the fixed contact-pieces of the track or the contact bars or rods of the cars, or both, may be arranged or constructed so as to work in a yielding condition when meeting one another.

In view of having the invention the better understood I will now proceed to describe the same with reference to the annexed drawings, which illustrate several constructions embodying the same.

Figure 1 is a side elevation, and Fig. 2 an end view, of a railway provided with my improved contact devices. Fig. 3 is a plan view of one form of construction of the ends of the contact-bars of two adjacent cars. Fig. 4 is a similar plan view of another construction of those ends. Fig. 5 shows still another construction of the same. Fig. 6 shows, at a larger scale, some portions of the construction shown in Figs. 1 and 2. Figs. 7 to 10, inclusive, show each a different construction of the yielding and fixed contact-pieces belonging to the electric circuit. Fig. 11 is a cross-section and partial elevation of the contact-bar and support from which the same is insulated.

The electric line may be of any kind whatever suitable for the feeding of the contact-posts *a*, placed at suitable intervals along the railroad and provided each with a contact-piece *k*, connected to the feeder *b*. Each railway-car is provided with a suitable contact

bar or rod *c*, the ends of which project beyond the ends of the car, so as to overlap the ends of the similar contact bars or rods *c* of the preceding and of the next following car of the train, and the said ends of the contact bars or rods *c* are of such a form as to have the fixed contact-piece *k* of the line remaining in contact with the contact bar or rod of one car somewhat after it has made contact with the contact bar or rod of the next following car. This may be obtained by means of either of the constructions shown in the Figs. 3, 4, or 5, as it will be readily understood without further explanation. The contact bars or rods *c* of each car are preferably connected to the top of the car by means of suitable bearers *e* and may be supported in a yielding condition by means of suitable springs *f*, or the contact-bars *c* may be mounted in supports *r* (see Fig. 11) and from which the contact-bars are insulated by a suitable material *s*. The contact-bars are connected, by means of suitable conductors *d*, with a contact-nipple *d'*, which may be electrically connected with a similar nipple of the next car by means of a flexible conductor *d''*, having a suitable contact pin or bolt at each of its ends. The fixed contact *k*, connected to each feeding-post *a* of the line, may be made of a loop-shaped spring *k'*, as shown in Fig. 7, or of a straight spring, as shown in Fig. 8, or of a metallic brush, as shown in Fig. 9, or of a combination of links *o o*, as shown in Fig. 10, so as to work in a yielding condition when meeting the contact bars or rods *c* of the cars.

I claim as my invention—

1. In electric railways, the combination with a plurality of cars and a track, of a contact-rail above each car extending the whole length of the car and the ends thereof overhanging, said overhanging ends being so arranged as to be spaced apart from the overhanging ends of the contact-rails on the adjacent cars, means for insulating the said contact-rails from the said cars and contact devices with which the said contact-rails come into electrical connection and to form simultaneous and momentary contact with the juxtaposed ends of adjacent rails for insuring continuity of current.



2. In electric railways, the combination with a plurality of cars and a track, of a contact-rail above each car running the whole length of the car, overhanging the ends thereof and  
5 extending beyond the ends of the contact-rails of the next adjacent cars, the ends of said contact-rails being spaced apart so as not to contact with each other, means for insulating said  
10 contact-rails from the cars, and contact devices with which the said contact-rails are adapted to come into electrical connection.

3. In electric railways, the combination with a plurality of cars and a track, of a contact-rail above each car running the whole length  
15 of the car, overhanging the ends thereof, and extending beyond the ends of the contact-rails of the next adjacent cars, the ends of said contact-rails being spaced apart so as not to contact with each other, insulating-supports upon  
20 which the said rails rest, and contact devices with which said contact-rails make electrical connection.

4. In electric railways, the combination with a plurality of cars and a track, of a contact-rail above each car extending the whole length  
25 of the car and the ends thereof overhanging, said overhanging ends being so arranged as to be spaced apart from the overhanging ends of the contact-rails on the adjacent cars, means  
30 for insulating the said contact-rails from the said cars, contact devices with which the said contact-rails come into electrical connection and to form simultaneous and momentary contact with the juxtaposed ends of the adjacent  
35 rails for insuring continuity of current and

electrical connections between the adjacent ends of the contact-rails.

5. In electric railways, the combination with a plurality of cars, and a track, of a contact-rail above each car running the whole length  
40 of the car, overhanging the ends thereof, and extending beyond the ends of the contact-rails to the next adjacent cars, the ends of said contact-rails being spaced apart so as not to contact with each other, means for insulating said  
45 contact-rails from the cars, contact devices with which the said contact-rails are adapted to come into electrical connection, and electrical connections between the adjacent ends  
50 of the contact-rails.

6. In electric railways, the combination with a plurality of cars and a track, of a contact-rail above each car running the whole length  
55 of the car, overhanging the ends thereof, and extending beyond the ends of the contact-rails of the next adjacent cars, the ends of said contact-rails being spaced apart so as not to contact with each other, insulating-supports upon  
60 which said rails rest, contact devices with which the said contact-rails make electrical connection, and electrical connections between the adjacent ends of the contact-rails.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HENRI BERTHOUD.

Witnesses:

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JULES CHAPUY.