PATENT SPECIFICATION

629,672

Convention Date (Switzerland): April 30, 1943.

Application Date (in United Kingdom): Dec. 20, 1946. No. 27583/46.

Complete Specification Accepted: Sept. 26, 1949.

Under Rule 17G of the Patents Rules 1939-47, the proviso to Section 91 (4) of the Patents & Designs Acts, 1907 to 1946 became operative on Sept. 4, 1947.

Index at acceptance:—Class 132(iii), S27.

COMPLETE SPECIFICATION

A Track Section for Use in a Remote-Controlled Model or Toy Electric Railway System

I, FRITZ DÜSCHER-CERRI, a Swiss Citizen, of Dornecksstrasse 656, Dornach

may be provided which can serve for the remote control of trains operating [illegible]

ERRATUM

SPECIFICATION No. 629,672.

In the heading on page 1, *for* "No. 27583/46" *read* "No. 37583/46"

THE PATENT OFFICE,
28*th March*, 1950.

with the centre rail two circuits controlled independently of one another.

The present invention provides a track section for use in a remote-controlled model or toy electric railway system over which at least two trains can be operated, comprising at least two electrically conductive rails, at least one of which rails comprises at least two longitudinal conductor strips electrically insulated from one another.

In order to obviate short circuits which might be produced by the wheels of a common chassis coming into contact with two or more separate current conducting parts of the rails, rolling stock is preferably employed having wheels electrically insulated from each other, or having flanged wheels, the flanges of which are electrically insulated from the bosses.

By sub-dividing the individual rails into two or more mutually insulated conductors, a number of independent circuits

[*Price* 2/-]

the accompanying drawings, in which:

Figures 1 to 12 are diagrammatic end elevations of twelve different track sections according to the invention,

Fig. 13 is a diagrammatic end elevation of a track section according to the invention showing a pair of wheels running thereon, and

Fig. 14 is a diagrammatic end elevation of a similar track section showing one wheel of the chassis of a locomotive running thereon.

In all the Figures of the drawings, *a* indicates the base of the track to which individual rails *b*, *c* and *d* are secured. The parts indicated in the drawings by shaded lines represent parts of the rails which consist of insulating material and therefore are not current-conducting.

The base of the track sections may consist of insulating material or alternatively insulating material may be inserted between the base and the rails.

Price 7½

Price 25p

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COMPLETE SPECIFICATION

A Track Section for Use in a Remote-Controlled Model or Toy Electric Railway System

I, FRITZ DÜSCHER-CERRI, a Swiss Citizen, of Dorneckstrasse 656, Dornach, Switzerland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a track section for use in a remote-controlled model or toy railway system over which at least two trains can be operated.

Two remote-controlled toy or model electric railway systems are already known over which two trains can be controlled independently of one another. In both systems the track consists of three rails, the centre rail being a current conductor. The difference between the two systems consists in that in one system an overhead conductor is provided so as to make it possible to control two trains operating on the same track system independently of one another, whilst in the other system the two outer rails form with the centre rail two circuits controlled independently of one another.

The present invention provides a track section for use in a remote-controlled model or toy electric railway system over which at least two trains can be operated, comprising at least two electrically conductive rails, at least one of which rails comprises at least two longitudinal conductor strips electrically insulated from one another.

In order to obviate short circuits which might be produced by the wheels of a common chassis coming into contact with two or more separate current conducting parts of the rails, rolling stock is preferably employed having wheels electrically insulated from each other, or having flanged wheels, the flanges of which are electrically insulated from the bosses.

By sub-dividing the individual rails into two or more mutually insulated conductors, a number of independent circuits may be provided which can serve for the remote control of trains operating on the same track system. One or more of the circuits can however be used for other purposes, for example for illuminating the trains or for operating signals, points and the like. By use of an overhead conductor known *per se*, the number of separate circuits can be still further increased.

The bearing surface of the individual rails is preferably curved, so that the boss of the wheel only makes contact with the centre of the upper surface of the rail, and thus prevents contact being made between conductor strips disposed on either side of the rail. Alternatively one part, for example the centre part, of the bearing surfaces of the rail may be raised so as to prevent contact being established with other current-conducting parts of the rail.

Some embodiments of the invention will now be described with reference to the accompanying drawings, in which:

Figures 1 to 12 are diagrammatic end elevations of twelve different track sections according to the invention,

Fig. 13 is a diagrammatic end elevation of a track section according to the invention showing a pair of wheels running thereon, and

Fig. 14 is a diagrammatic end elevation of a similar track section showing one wheel of the chassis of a locomotive running thereon.

In all the Figures of the drawings, *a* indicates the base of the track to which individual rails *b*, *c* and *d* are secured. The parts indicated in the drawings by shaded lines represent parts of the rails which consist of insulating material and therefore are not current-conducting.

The base of the track sections may consist of insulating material or alternatively insulating material may be inserted between the base and the rails.

[*Price 2/-*]

Price 75p

Price 25p

The maximum number of trains which may be operated by remote control over the track section illustrated in the drawings, are as follows:

Figures 1, 4 and 5	3 trains
Figures 2, 3, 6 and 10	4 trains
Figures 7 and 13	5 trains
Figures 9 and 12	6 trains
Figure 11	7 trains
Figure 8	8 trains.

One or more of the circuits provided by the track sections may however be employed for other purposes. When an overhead conductor is employed the number of circuits to be employed may be increased. Current is picked up by the wheels or by special current pick-up devices.

Referring now to Fig. 13 it will be seen that the wheel rims *f* connected to the axle *e* run on the rails *b* and *c*, the flange *g* of the wheels being formed of insulating material. Current is picked up by the wheel rim *f* directly from the rail *b* and by pick-up devices (not shown) from the longitudinal conductor strips on the inside and outside of each rail.

Referring now to Fig. 14, the square h_1 indicates the motor of a locomotive which receives current from the central conductor bar of the rail (connected to the negative pole of a source of current) via the boss *f* of the wheel, the axle *e* and the chassis *h* and returns current via the pick-up device 1 which bears against the longitudinal conductor strip *b* (connected to the positive pole of the course of current).

The circuit diagram shown in Fig. 14 for the arrangement according to Fig. 13 shows five locomotives I, II, III, IV and V which are electrically connected on the one hand through the wheel bosses *f* with the negative conductor of the rail length *b*, and on the other hand through the current pick-ups 1—5 with the positive conductors of the rail lengths *b* and *c*. The wheel flange *g*, as well as the shaded surfaces in the rail lengths *b* and *c* are non-conducting. The axle *e* is journalled in the chassis *h* of the locomotive and is electrically connected to the wheel bosses *f*. As a result the negative current taken by the wheel bosses *f* from the running surface of the rail length *b* is conducted through the shaft *e* and the chassis *h* of the motors of the locomotives I—V.

Apart from the possibility of controlling a larger number of trains on a single track system than with the previous systems, the present invention makes it possible by subdivision of the individual rails into a number of current conducting parts, to omit altogether a third rail, which represents a considerable saving in material and also enables the model track to approximate as nearly as possible to a normal railway.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A track section, for use in a remote-controlled model or toy electric railway system over which at least two trains can be operated, comprising at least two electrically conductive rails, at least one of which rails comprises at least two longitudinal conductor strips electrically insulated from one another.

2. A track section as claimed in claim 1, in which the bearing surfaces of the rails are curved.

3. A track section as claimed in claim 1 or claim 2, at least one rail of which comprises a central insulator bar constituting the rail proper and a longitudinal conductor strip arranged at each side of this bar.

4. A track section as claimed in claim 1 or claim 2, at least one rail of which comprises a central conductor bar constituting the rail proper, a longitudinal conductor strip arranged at each side of this bar, and an insulator at either side of the bar separating the bar from the longitudinal conductor strips.

5. A track section as claimed in any of the preceding claims, in which the longitudinal conductor strips are provided with flanges which are secured to the base of the track section.

6. A track section as claimed in claim 3 or claim 4 in which the central bar constituting the rail proper projects so far above the longitudinal conductor strips arranged at either side that the rim of a train wheel running on the track section cannot make contact with the longitudinal conductor strips.

7. A track section, for use in a remote-controlled model or toy electric railway system over which at least two trains can be operated, substantially as described with reference to any one of Figs. 1—12 of the accompanying drawings.

Dated the 20th day of December, 1946.

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Fig.1

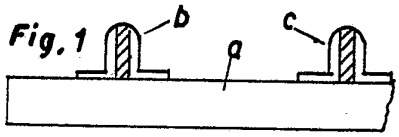


Fig.7

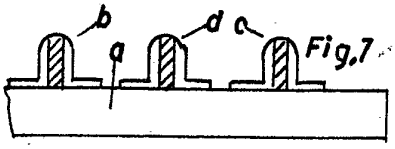


Fig.2

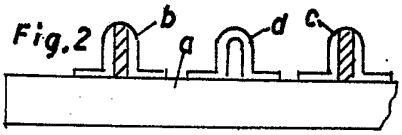


Fig.8

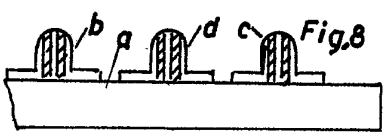


Fig.3

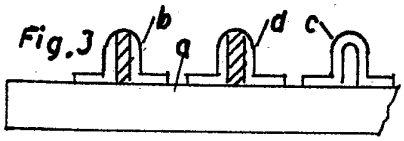


Fig.9

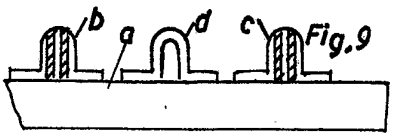


Fig.4

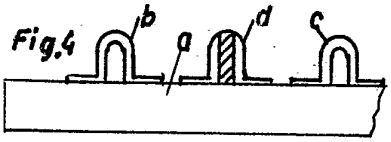


Fig.10

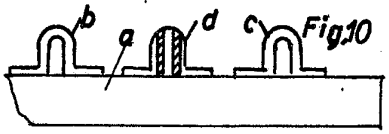


Fig.5

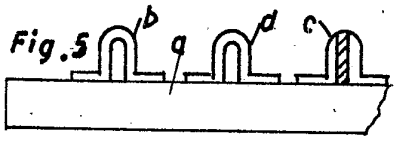


Fig.11

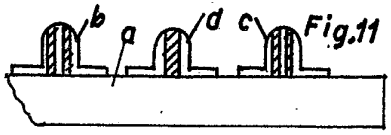


Fig.6

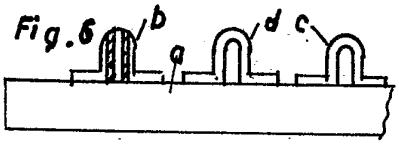
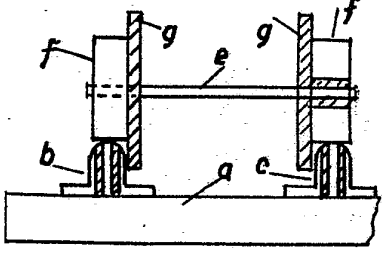


Fig.12

Fig.13



H.M.S.O.(Ty. P.)

[This Drawing is a reproduction of the Original on a reduced scale.]

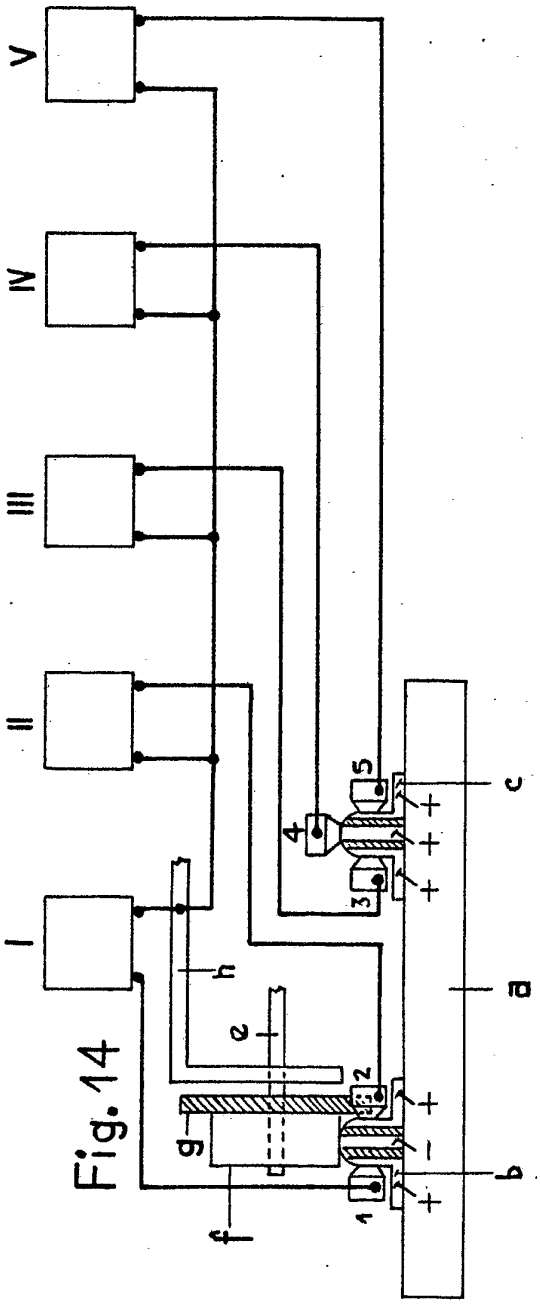


Fig. 14

H.M.S.O. (Ty.P.)