

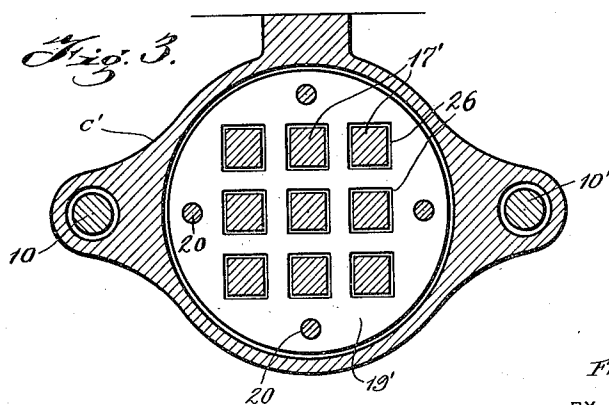
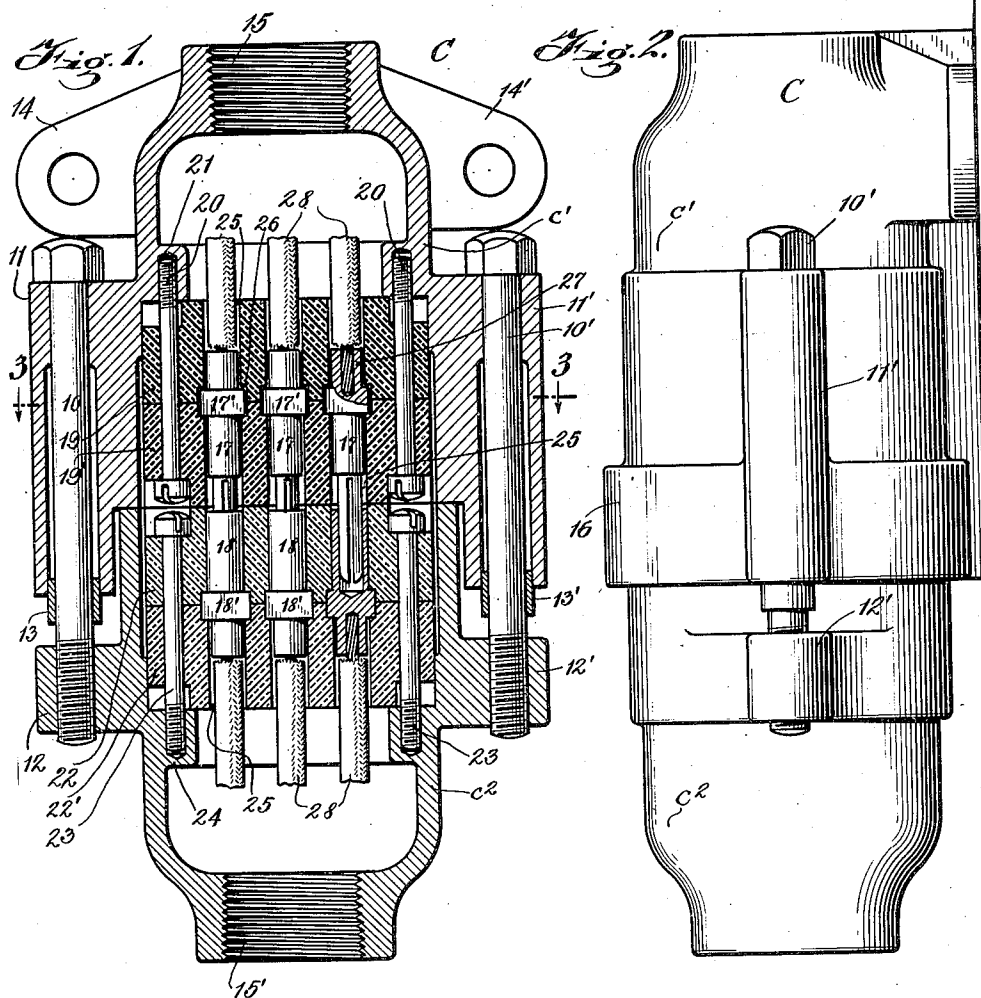
Oct. 9, 1928,

F. M. ROSENZWEIG

1,686,534

ELECTRIC COUPLING

Filed March 13, 1924



INVENTOR  
FRED M. ROSENZWEIG

BY  
Meyers & Cavanagh  
ATTORNEYS

## UNITED STATES PATENT OFFICE.

FRED M. ROSENZWEIG, OF NIAGARA FALLS, NEW YORK, ASSIGNOR TO THE REGAN SAFETY DEVICES COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## ELECTRIC COUPLING.

Application filed March 13, 1924. Serial No. 699,140.

This invention relates to an electric coupling device, and has special reference to the provision of a coupling device for connecting vehicle carried electrical circuits in automatic train control systems.

In automatic train control systems of the type disclosed for example in the application of Shaver & Rosenzweig, Ser. No. 673,088, filed Nov. 6, 1923, to which the present invention appertains, a plurality of vehicle control circuits are carried by the engine and tender of the train, these circuits being interconnected so as to selectively produce a plurality of different train indications or effects in response to varying roadside or traffic conditions.

When the tender is coupled to and uncoupled from the engine of the train, it is highly desirable that the partial circuits carried by the tender be connected to and disconnected from the partial circuits carried by the engine with rapidity and ease. A further desideratum in connecting these partial circuits is that of maintaining the identity or integrity of the separated circuit parts, as by keeping the connecting parts which differ in potential effectively insulated one from the other and from ground. Another important consideration in the connecting of the tender and engine partial circuits is that of providing for ready assembling and disassembling of the connecting parts for purposes of quick inspection and repair.

A prime object of the present invention therefore relates to the provision of an electric coupling device especially intended for service in train control systems designed so that the circuits may be quickly coupled and uncoupled, with the parts so designed and arranged that the integrity of the connections may be maintained and the connections inspected and repaired if necessary, with facility and convenience.

To the accomplishment of the foregoing and such other objects as will hereinafter appear, my invention consists in the elements and their relation one to the other, as hereinafter particularly described and sought to be defined in the claims; reference being had to the accompanying drawings which show a preferred embodiment of my invention, and in which:

Fig. 1 is a longitudinal cross-sectional view

of the electric coupling device of my invention,

Fig. 2 is a side elevational view thereof, and

Fig. 3 is a horizontal view taken in cross-section on the line 3—3, Fig. 1.

Referring now more in detail to the drawings, the coupling device comprises a casing C formed of two mating casing sections  $c'$  and  $c^2$  detachably connected together by means of the spaced bolts 10 and 10' held by the apertured extensions 11 and 11' which preferably are formed integrally with the wall of the casing section  $c'$ , the said bolts being preferably threaded at their lower ends for reception in correspondingly threaded apertured lugs 12 and 12' which form part of and are preferably formed integrally with the lower casing section  $c^2$ . For the purpose of preventing the complete outward movement and loss of the bolts 10, 10' the same may be provided with the ferrules 13 and 13' respectively.

The casing section  $c'$  and  $c^2$  are thus adapted to be detachably connected together to form the casing unit C and the parts are designed so as to permit the said unit to be suspendedly attached to the engine or tender frame. For attaching the unit the upper section  $c'$  may conveniently be provided with the apertured ears 14 and 14' which may appropriately be formed integrally with the body of such casing section. The conductors leading from the tender and engine partial circuits are insertable from opposite ends of the casing unit, the top casing section  $c'$  being threaded as at 15 and the bottom casing section  $c^2$  being threaded as at 15' for the reception of correspondingly threaded conduits. For the purpose of preventing the entry of moisture and other foreign matter at the junction of the casing sections, the top section  $c'$  is preferably provided with a circumferential skirt portion 16 fitting over and overlapping the top of the casing section  $c^2$ .

As has heretofore been stated, a prime object of the present invention relates to the provision of a coupling device in which the circuit connecting parts are associated to maintain the integrity of the circuits and to permit rapid detachability and separability of the parts for facilitating the making of connections, inspection and repair. To ac-

comply these and other ends, as will be more evident hereinafter, the circuit connecting means comprises a plurality of sets of mating coupling members, each set including a male coupling member 17 and a female coupling member 18 arranged to mate therewith, the said coupling members being carried by insulation pieces or blocks which are removably secured interiorly to the casing sections, the male coupling members 17, 17 being carried by a pair of blocks 19 and 19' which are removably secured to the casing wall by means of the spaced bolts 20, 20 threadedly receivable by an annular flange or lug 21 formed integral with the casing section *c'* and the female coupling members 18, 18 being carried by a lower pair of insulation blocks 22, 22' which are removably attached by means of the spaced bolts 23 to the annular flange or lug 24 formed integrally with the casing section *c*<sup>2</sup>.

The pair of insulation blocks 19, 19', for the purpose of economy of manufacture and simplicity of assembly, are made alike and are turned in opposite directions, as clearly shown in the drawings, the blocks being provided with the plurality of sets of aligned openings 25, 25, each set receiving the body of the coupling member 17, each of the openings 25 terminating in an enlargement 26 so that when the blocks are turned with similar ends adjacent, the enlargements define a cavity which seats an enlarged portion 17' formed intermediate the ends of the coupling members 17. The lower pair of blocks 22 and 22' are similarly contoured to receive the bodies of the female coupling members 18, 18 and to seat enlarged portions 18', 18' formed intermediate the ends of the female coupling members. Each of the coupling members is provided with an axial bore 27 at its outer end for receiving the ends of the circuit conductors 28, 28.

With this construction it will be apparent that the coupling members 17, 17 and 18, 18 are held in position against axial displacement by the insulation blocks, and that upon removal of the bolts 20 and 23 the coupling members and insulating supports therefor may all be separated for permitting the attachment of the circuit conductors and for permitting rapid inspection and repair. To prevent any rotative displacement of the cou-

pling members in their insulating supports, the portions 17' and 18' may be made square and the walls of the cavities defined by the enlargements 26 may be similarly contoured, as clearly shown in Fig. 3 of the drawings. With this construction, it will be further evident that no means is employed for attaching the coupling members to the insulation supports so that under limited space requirements, maximum insulation leakage paths, both surface and dielectric, are provided between the coupling members of differing circuits.

While I have shown my invention in the preferred form, it will be obvious that many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention, defined in the following claim.

I claim:

An electric coupling device comprising a casing consisting of upper and lower mating sections, means for removably securing the said sections together to form a coupling unit, the upper of said sections being provided with a plurality of apertured ears for suspendedly attaching the unit to a support, and being further provided with a protectively depending skirt overlapping the lower section, the opposite ends of the said sections being threaded for receiving connecting conduits, a pair of twin separable blocks of insulation material in each casing section, the blocks of a pair having aligned openings terminating in adjacent enlargements defining a cavity, means for detachably securing each pair of blocks together and to its casing section, a coupling member received by the aligned openings in each pair of blocks and having a part seated in said cavity whereby the coupling member is held in position against axial displacement by and between the blocks of the pair when the same is secured to the casing and is releasable from the blocks when the same are separated, the coupling member of one pair of blocks being arranged to mate with the coupling member in the other pair of blocks.

Signed at Niagara Falls, in the county of Niagara and State of New York, this 8th day of February, A. D. 1924.

FRED M. ROSENZWEIG.