No. 762,684. PATENTED JUNE 14, 1904.

F. E. CASE.

CONNECTOR.

APPLICATION FILED OCT. 3, 1902.

NO MODEL.

Fig. 1.

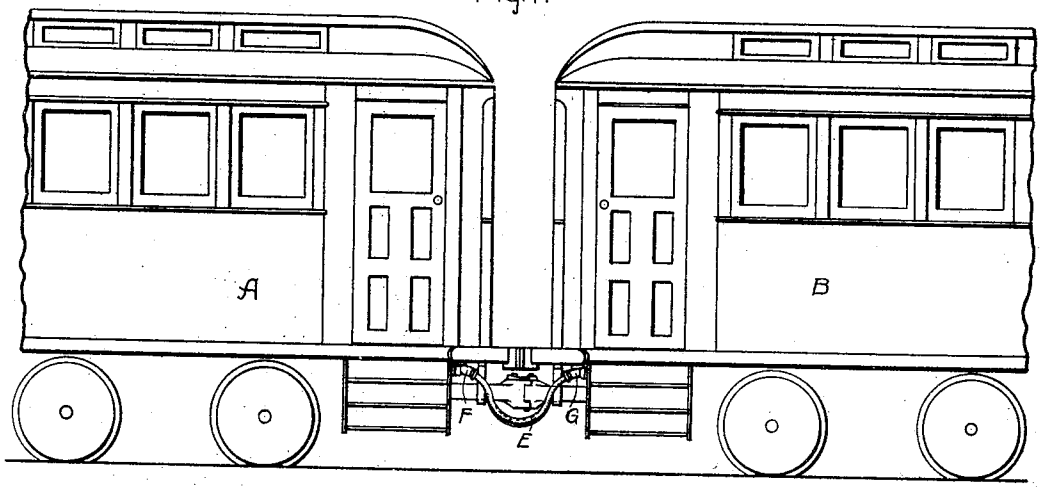


Fig. 2.

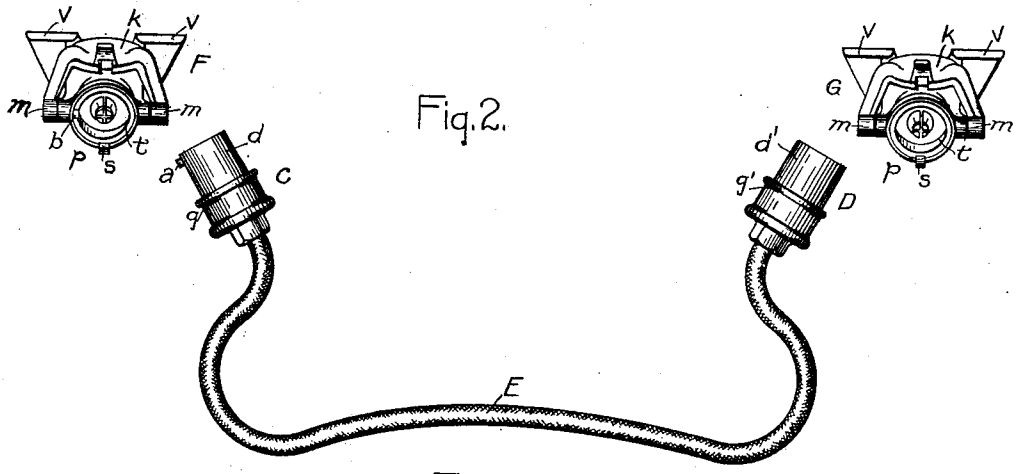


Fig. 3.

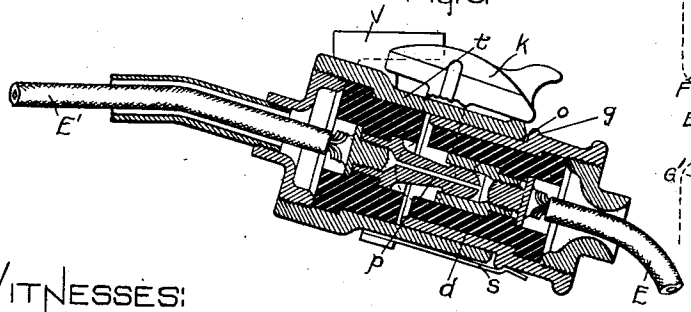
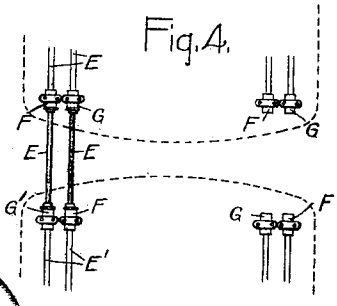


Fig. 4.



WITNESSES:

Robt. E. Hopkins

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INVENTOR:

Frank E. Case.

by Albert G. Davis Atty.

No. 762,684. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

FRANK E. CASE, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

CONNECTOR.

SPECIFICATION forming part of Letters Patent No. 762,684, dated June 14, 1904.

Application filed October 3, 1902. Serial No. 125,822. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. CASE, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Connectors, of which the following is a specification.

My present invention relates to connectors or jumpers, with especial reference to such as are used on electric railways to connect the wires or conductors of one vehicle to those of another.

In electric or steam railway work it is often desirable to connect a plurality of wires or conductors to corresponding wires or conductors through the different cars or vehicles comprising the train—for instance, the conductor which is connected to the lighting-circuit is often run through the train independent of the motor-control circuits and of the circuit connected with the motors which drive the air-brake pumps, and it would be disastrous if the said wires or conductors were cross-connected or wrongly coupled in passing from one car to the next.

The object of my invention is to prevent the cross-connecting of dissimilar wires or conductors in making up a train of cars.

In the accompanying drawings, Figure 1 represents in elevation the adjacent ends of two cars of a train, showing my improved connector or jumper in position. Fig. 2 shows the jumper and jumper-terminals and also the fixed terminals with which said jumper-terminals engage. Fig. 3 is a sectional view of the plug jumper-terminal and the fixed socket-terminal in their operative position. Fig. 4 is a diagrammatic representation of the jumper connections between two adjacent cars.

Referring now to the drawings, F and G represent two socket-terminals attached to the front and rear platforms, respectively, of the cars A and B.

E represents a jumper or flexible connector carrying the plug-terminals C and D at the ends thereof, said plug-terminals being adapted to engage the socket-terminals F and G, respectively. The plug portion d of the terminal C is made of a smaller diameter than the plug portion d' of the terminal D and is also provided with a projecting pin a, which is adapted to engage the recess b or slot of the fixed socket-terminal F.

When the plug portions d and d' of the plug-terminals C and D are forced into the socket portions t of the terminals F and G, respectively, the electrical contact o of the plug-terminals C and D engage the electrical contacts p of the socket-terminals F and G. The said plug-terminals are held in place in the socket-terminals by means of the springs s, which engage with the shoulders g and g' of the plug-terminals C and D, respectively.

As shown in Fig. 3, the contact p is electrically connected with the lead E′ and is formed of a split pin, which is adapted to be compressed as it is forced into the cup-shaped contact o. The contact o is electrically connected with the flexible connection E. The socket-terminals F and G, respectively, are attached to the under side of the platform of the cars by means of bolts or screws which are passed through the flanges v. In order to prevent the accumulation of dust and dirt within the socket-terminals F and G when not in use, I provide the covers k, which are pivoted at m and are adapted to be swung down over the ends of the said socket-terminals.

As shown in Fig. 4, where two conductors are employed which run through the train side by side, the arrangement of the socket-terminals F and G is such that it is impossible to cross-connect said conductors—that is, to connect the conductors of one circuit with the conductors of the other circuit—since a single one of each of the differently-shaped socket-terminals is placed on one side of each platform. It will be readily seen that the plug-terminal D will not fit in the socket-terminal F, since the outside diameter of the plug is greater than the inside diameter of the socket, and also that the plug-terminal C will not fit in the socket-terminal G, since it is prevented from entering said socket-terminal by the pin a.

Although I have shown and described my invention as applied to electrical wires or conductors, I do not care to so limit my invention,

and in the appended claims I aim to cover all modifications of my invention which do not involve a departure from its spirit and scope.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A connector having plug-terminals at either end, and socket-terminals with which said plug-terminals are adapted to engage, one of said plug-terminals being provided with a projection which is adapted to coact with a slot in one of said socket-terminals and which prevents said plug-terminal from entering the other socket-terminal.

2. The combination of terminals permanently mounted on suitable supports, a connector for establishing connection between said terminals, the said connector being provided with terminal plugs of different diameters which fit into corresponding cup-shaped sockets in the permanently-mounted terminals, and a projection on the smaller of said terminal plugs, which coacts with a recess formed in the socket corresponding to said plug but prevents said plug from entering the socket corresponding to the other terminal plug.

3. In combination, a connector having a plug-terminal at one end provided with a projection, a socket-terminal with which said plug-terminal is adapted to engage provided with a slot with which said projection is adapted to register, a plug-terminal at the other end of said connector of a different size and shape from the first-mentioned plug-terminal so that it cannot enter said socket-terminal, a socket-terminal with which said last-mentioned plug-terminal is adapted to engage, and means for holding said plug-terminals in said socket-terminals.

In witness whereof I have hereunto set my hand this 2d day of October, 1902.

FRANK E. CASE.

Witnesses:
BENJAMIN B. HULL,
HELEN ORFORD.