

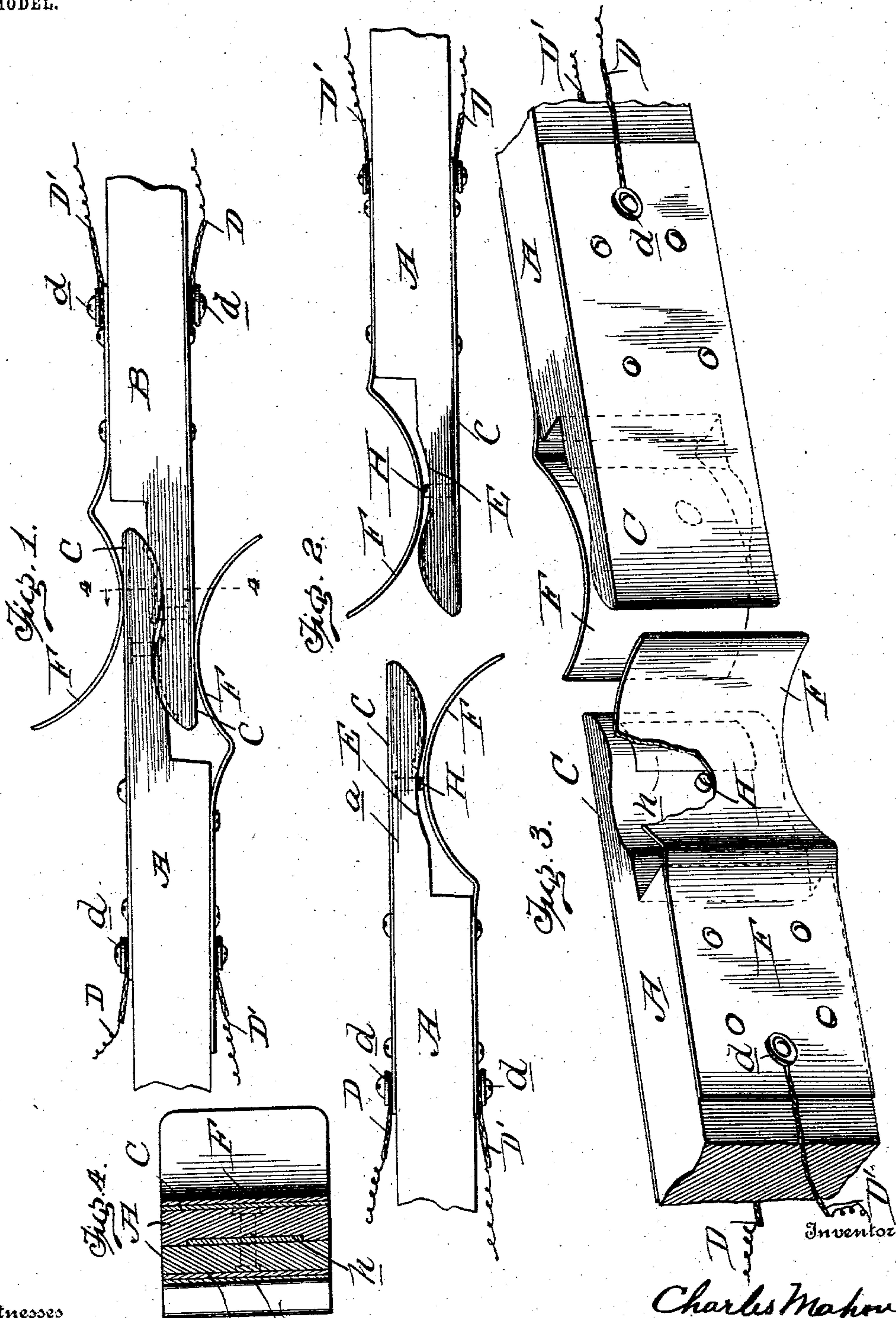
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C. MAHON.
AUTOMATIC COUPLING FOR ELECTRICAL CONDUCTORS.

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NO MODEL.



Witnesses

Le G. Handy.

Jos. Milane

By

Charles Mahon

A. S. Macou

Attorney.

UNITED STATES PATENT OFFICE.

CHARLES MAHON, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO
MINNA LEGARÉ MAHON, OF WASHINGTON, DISTRICT OF COLUMBIA.

AUTOMATIC COUPLING FOR ELECTRICAL CONDUCTORS.

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Application filed January 4, 1902. Renewed February 10, 1903. Serial No. 142,803. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MAHON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Automatic Couplers for Electrical Conductors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in automatic couplers for electrical conductors, especially such as are intended for coupling electric conductors on adjacent cars; and it is embodied in the construction and arrangement of parts presently to be described, and defined in the claims.

The purpose of the present invention is to provide an automatic coupler for electrical conductors which will overcome the objections existing in automatic couplers heretofore suggested and which will successfully and satisfactorily meet the general requirements incident to use in train-service.

A further object of the invention is the provision of an automatic electrical coupler which in the act of coupling and uncoupling will both make and break positive electrical contacts, so that an operative contact will be maintained between leads on adjacent cars and a broken contact between the leads on individual cars and when the cars are uncoupled the breaking of the contact between the leads of adjacent cars will result in the completion or making of a contact between the leads on the individual or detached car and also form a closed contact between the leads on the end car of the remaining portion of the uncoupled cars of the train.

In the accompanying drawings I have shown a device embodying the invention; but the general features and special arrangement of parts can be varied in many respects without departing from the principle and nature of the invention.

In said drawings, Figure 1 is a plan view showing the members coupled. Fig. 2 is a view showing the members uncoupled. Fig. 3 is a perspective view showing the members broken away and the two members uncou-

pled, and Fig. 4 is a section view through the line 4 4 of Fig. 1.

As above stated, the invention is designed largely for use in connection with cars and as such is adapted to successfully render useful electrical apparatus in signaling from the cars to the engine and in automatically signaling or actuating alarms upon the accidental breaking of the train or severing of the coupling connection. Many systems for electric train-signaling have been heretofore suggested; but the objections to their use have largely been in the lack of proper economical and successful means of perfecting the coupling of the conductors. In most cases such coupling has been effected by hand manipulation. In other cases automatic couplers have been suggested; but in all cases, so far as I am advised, no automatic coupler has been suggested which would meet the general requirements of train-service. My invention is designed to accomplish this important purpose.

The construction, as illustrated in the accompanying drawings, comprises conveniently twin members A and B, and each member is constructed of a single block of wood or other insulating material having one of its side faces or surfaces fashioned straight throughout, as at *a*. On these surfaces are secured flat metallic plates C, which form terminals of electrical conductors D, the union between the conductors and terminals being effected in any convenient manner, such as a securing-screw and washer *b*. The opposite side of the insulating-support is cut away, as shown, the faces of the tongue or cut-away portion being curved from the outermost end in a substantially ogee curve, leaving what be stated, in effect, a depression E intermediate the ends of the reduced portion and an inclined outer surface or end portion. This reduced curved surface is wholly of the insulated material.

F designates springs of extended width, their innermost portions being flat and secured to the insulated blocks opposite the plates C. These spring members form terminals of the other leads D' of the electrical circuit and are movable relative to the fixed terminals C. The outermost ends of these

springs or plates F project over the curved side faces of the blocks and are curved or bowed inwardly, and their tension is such as to normally carry the springs or bowed portions into contact with the curved surface of the reduced tongue or end portion of the blocks. The extreme outer ends of the springs are curved outwardly to a point beyond the plane of the side of the insulating-block or carrier. The width of the springs is conveniently substantially that of the blocks.

Located in the reduced portions of the blocks or carriers are terminal members consisting of the metallic contact-pins H, the outer ends of which rest against the plates C, while the inner ends project into the recess E, for purposes presently to be stated. A suitable wear-plate h may be applied between the recess and ends of the tongues.

In use the construction and position of the springs and end of the carrier is such as to leave a substantially V-shaped space. The couplers on adjacent ends of two cars are arranged in opposite relation to each other, and when the cars carrying the carriers or insulating-blocks are brought together the opposite ends of the twin blocks will enter the V-shaped spaces, lifting the bowed-spring contacts and permitting an interlocking of the opposite curved surfaces of the members, a portion of each tongue entering the depression of the other. When so interposed intermediate the terminals, the twin-block insulating members of course open the circuit between the adjacent terminals D D' of one coupler and establish circuits between the terminal D of each coupler and terminal D' of the other. While in this position the curved springs rest forcibly on the sides of the plates C, thereby forming an electrical contact of wide area. When the cars carrying the couplers are separated, the curved springs immediately snap down into contact with the interposed terminal pin H, thus completing the electric circuit through the pins as conductors. This is important in that an accidental breaking of the train will close the circuit on the broken section or individual cars, if it be such, and by well-known mechanism sound an alarm. It will be seen that the particular construction of the members is such that when they are arranged in opposite direction it will require but a single coupler at each end of the car in a manner similar to that of the ordinary car-coupler. It will also be observed that owing to the extended surface and the peculiar construction of the couplers the two members can be moved to different angles relative to each other without breaking the electrical contact between the terminals. In turning curves the members are permitted a relative transverse movement by the particular construction of the bowed springs. Such movement will simply change the point of contact slightly between

the springs and their contact-plates, but will not break the contact.

While the invention is particularly adapted for train-service, it may be used for other purposes.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A coupling member for electrical conductors, consisting of an insulating carrier-block having a reduced end portion, formed with a plane outer surface and a curved inner surface, a fixed terminal on the plane surface and a yielding spring-terminal on the opposite side of the block projecting over the curved surface of the reduced end portion, substantially as described.

2. A coupling member for electrical conductors, consisting of an insulating carrier-block having a reduced end portion, formed with a plane outer surface and a curved inner surface, a fixed terminal on the plane surface and a yielding spring-terminal on the opposite side of the block projecting over the curved surface of the reduced end portion and curved away from it at its outer end, and a conducting member connected to the fixed plate adapted to be engaged by the yielding spring member, substantially as described.

3. A coupling member for electrical conductors, consisting of an insulating carrier-block having a reduced end portion, formed with a plane outer surface and a curved inner surface, provided with a wear-plate, a fixed terminal on the plane surface and a yielding spring-terminal on the opposite side of the block projecting over the curved surface of the reduced end portion and curved away from it at its outer end, and a conducting member connected to the fixed plate adapted to be engaged by the yielding spring member, substantially as described.

4. A coupling member for electrical conductors, consisting of an insulating carrier-block having a reduced end portion, formed with a plane outer surface and a curved inner surface, adapted to interlock with the curved surface of a complementary reduced end portion, a fixed terminal plate on the plane surface and a yielding spring-terminal on the opposite side of the block projecting over the curved surface of the reduced end portion and curved away from it at its outer end, and a conducting member connected to the fixed plate adapted to be engaged by the yielding spring member, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES MAHON.

Witnesses:

FANNY L. MAHON,
CORNELIA C. MILLER.