(No Model.) 2 Sheets—Sheet 1.

T. S. STEVENSON.

ELECTRIC WIRE CONNECTOR.

No. 294,928. Patented Mar. 11, 1884.

Fig. 1.

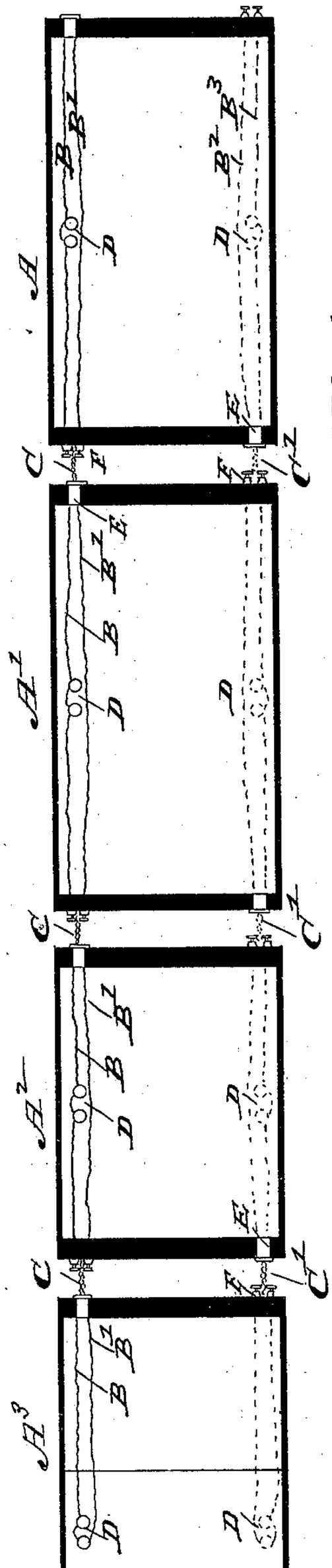


Fig. 4.

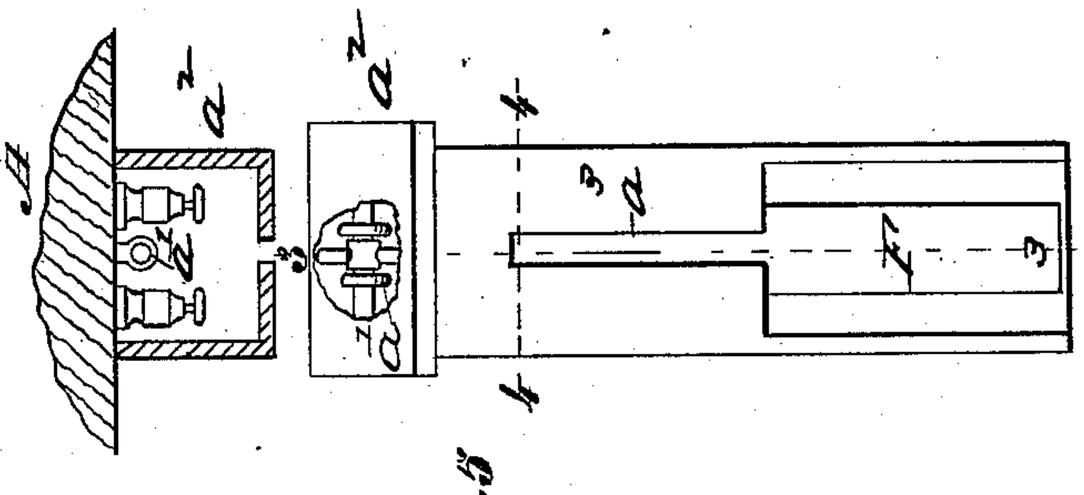


Fig. 5

Fig. 3.

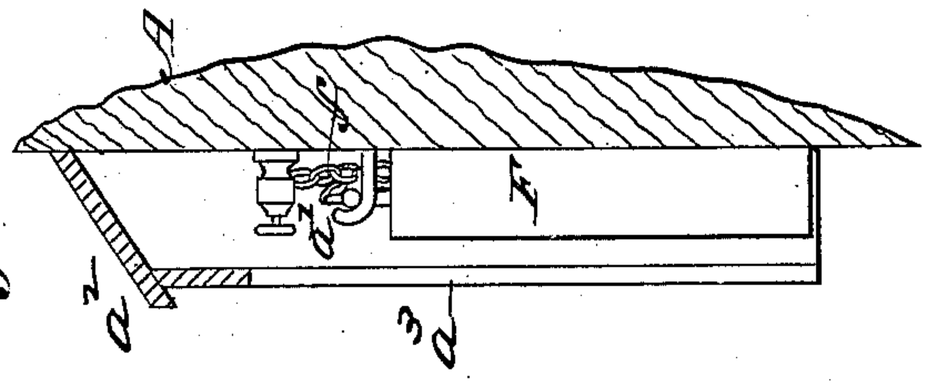
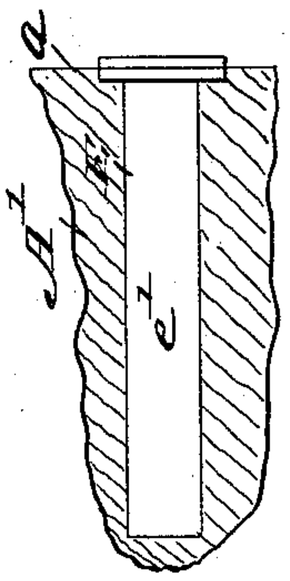


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

T. S. STEVENSON.

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No. 294,928. Patented Mar. 11, 1884.

Fig. 6.

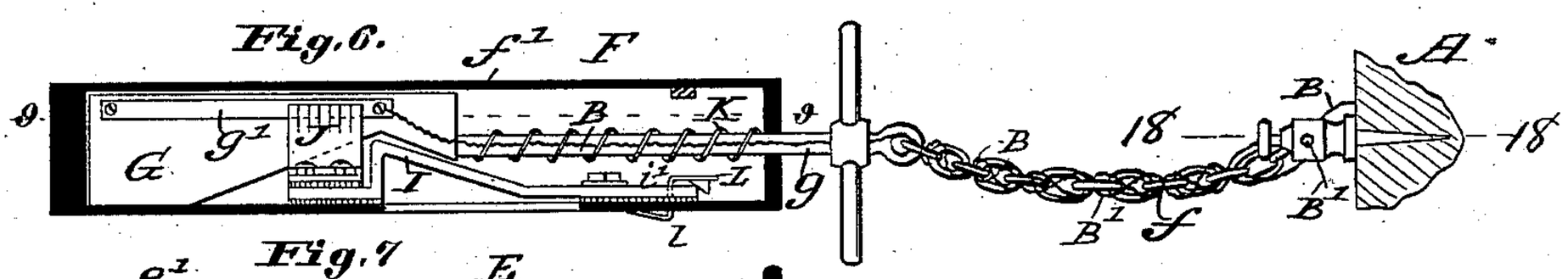


Fig. 7

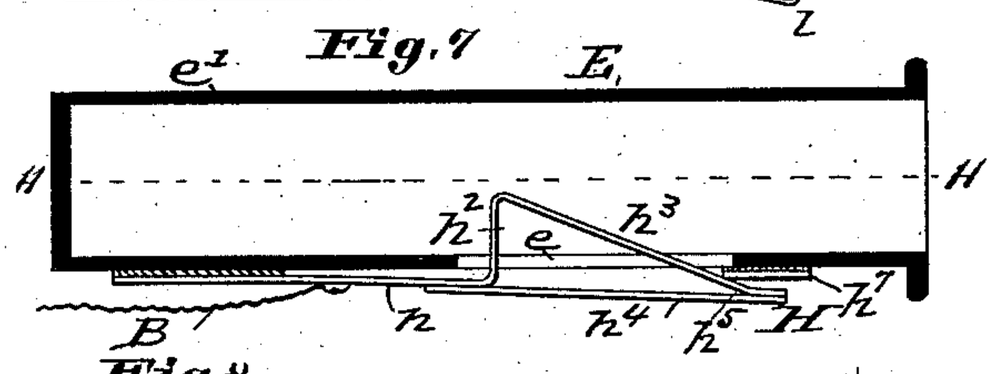


Fig. 8.

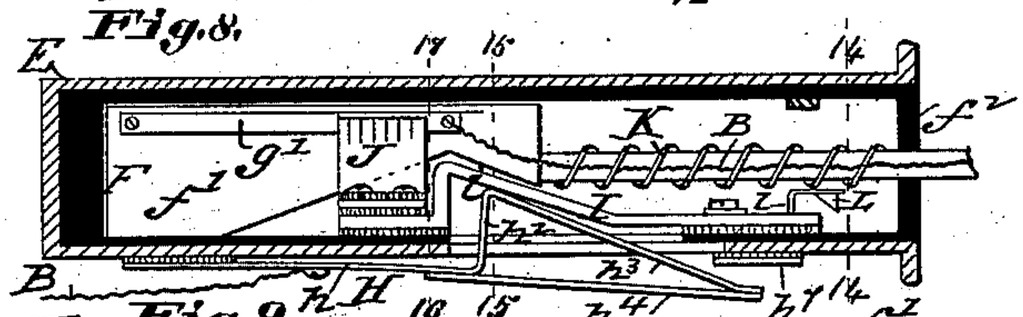


Fig. 9.

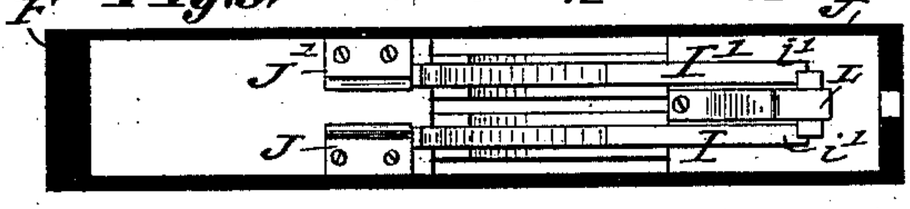


Fig. 10.

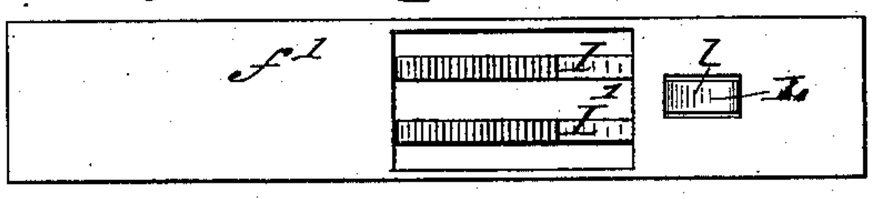


Fig. 11

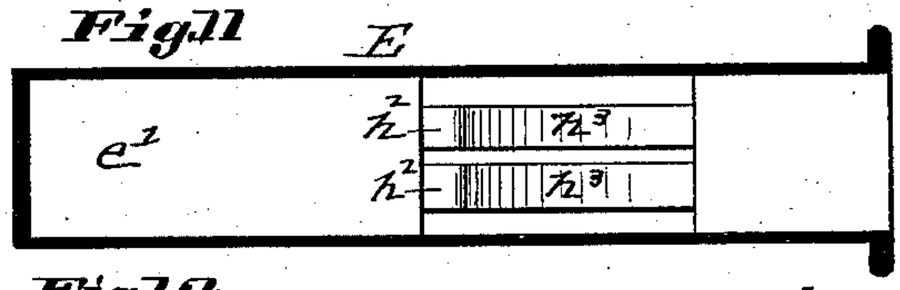


Fig. 12.

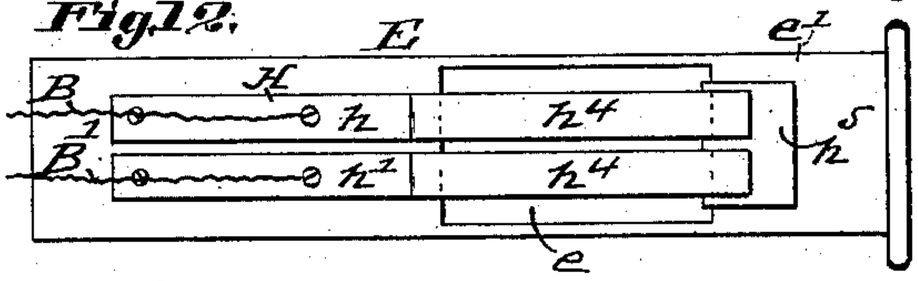


Fig. 13.

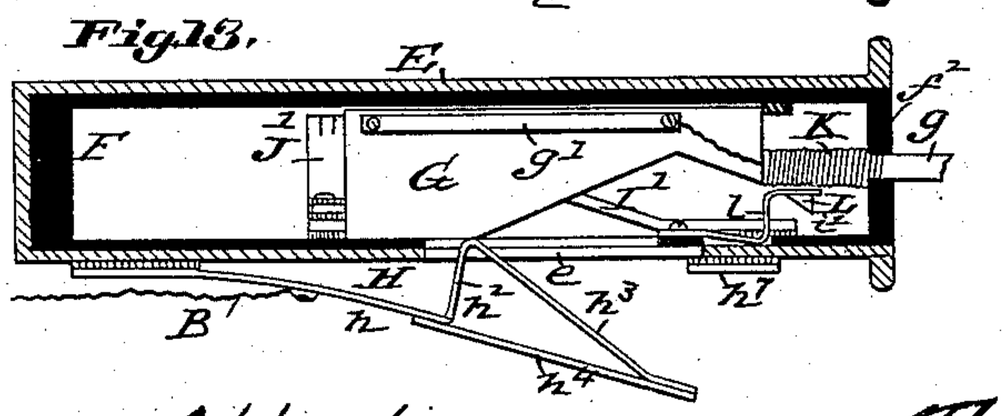


Fig. 14.

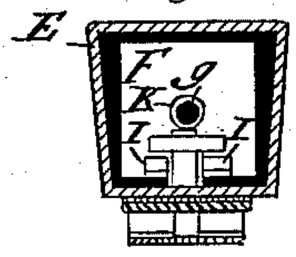


Fig. 15.

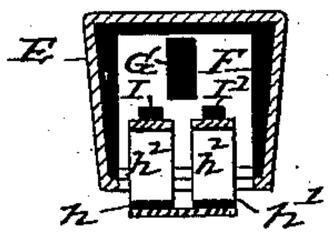


Fig. 16.

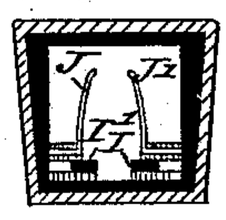


Fig. 17.

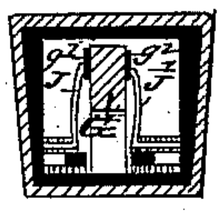


Fig. 18.

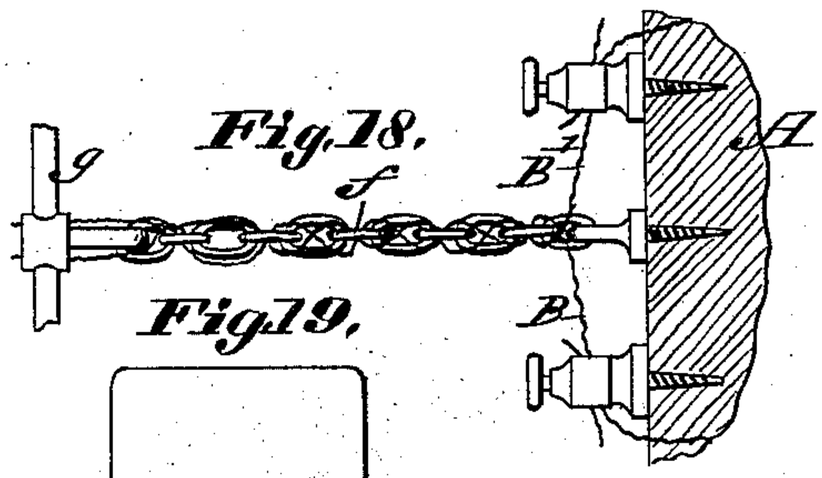


Fig. 19.

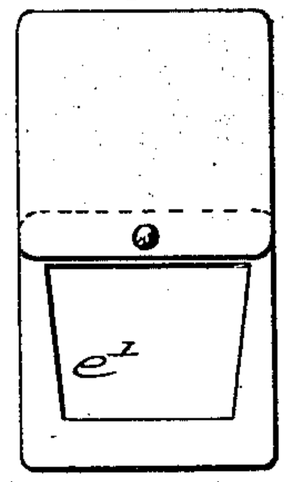
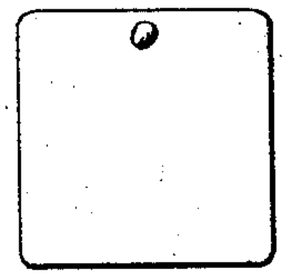


Fig. 20



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Attest:

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UNITED STATES PATENT OFFICE.

THOMAS S. STEVENSON, OF ST. LOUIS, MISSOURI.

ELECTRIC-WIRE CONNECTOR.

SPECIFICATION forming part of Letters Patent No. 294,928, dated March 11, 1884.

Application filed September 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS S. STEVENSON, of St. Louis, Missouri, have made a new and useful Improvement in Electric-Wire Connectors, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a horizontal section, representing a train of cars having the improvement; Fig. 2, a detail, being a longitudinal section, showing the position of one part of the joint; Fig. 3, a detail, being a vertical section on the line 3 3 of Fig. 5, and showing the mode of attaching to the opposing car the other part of the joint; Fig. 4, a section on the line 4 4 of Fig. 5; Fig. 5, a front elevation of the parts shown in Fig. 3; Fig. 6, a vertical longitudinal section of the movable part of the joint; Fig. 7, a vertical longitudinal section of the stationary part of the joint; Fig. 8, a vertical longitudinal section of the joint, the tongue of the stationary part being depressed; Fig. 9, a horizontal section on the line 9 9 of Fig. 6; Fig. 10, a bottom view of the movable part of the joint; Fig. 11, a horizontal section on the line 11 11 of Fig. 7; Fig. 12, a bottom view of the stationary part of the joint; Fig. 13, a vertical longitudinal section, the parts being as when the spring is compressed and the two parts of the joint about to separate; Fig. 14, a cross-section on the line 14 14 of Fig. 8; Fig. 15, a cross-section on the line 15 15 of Fig. 8; Fig. 16, a cross-section on the line 16 17 of Fig. 8, the wedge being withdrawn; Fig. 17, a similar section, the wedge being inserted; Fig. 18, a horizontal section on the line 18 18 of Fig. 6; and Figs. 19 and 20, front end elevations of the stationary part of the joint, the cover being upturned in Fig. 19 and closed in Fig. 20, and the tongue not being shown in Fig. 19.

The same letters of reference denote the same parts.

This invention is a convenient mode of connecting and disconnecting wires used in transmitting electric currents. It is especially useful upon railway-trains, and for signaling or telephoning from one car to another, or from one car of the train to another. Should a car break loose or the train part, the circuit is automatically established upon both parts of the train.

A A′ A^2 A^3, Fig. 1, represent cars made into a train. B B′ represent electric wires leading throughout the train and between the various cars, united by the improved connectors C C C. If desired, a battery, D, may be placed in every car. The improvement, however, is operative by means of a single battery. One part, E, of the joint may be considered the stationary one, as it may be permanently attached to the car, and preferably as shown in Figs. 1 and 2. In Fig. 2 the part E is shown inserted in a mortise in the frame *a* of the car. The other part, F, of the joint may be considered the movable one, it being connected with the opposing car, and in such manner as to enable it, as the train is made up, to be moved and inserted in or attached to the part E.

When not in use, the part F may be suspended upon a support, *a′*, Figs. 3, 5, upon its car A, and it may be protected from the weather by means of a hood, a^2. This hood is slotted at a^3, to provide for the passage of the wires, and also of the supporting-chain *f*, which, when the part F is withdrawn from the part E, upholds it from the ground. The chain is also a convenience in supporting the wires B B′, as seen in Figs. 6, 18. These wires pass from the car A, Figs. 1, 6, 18, along the chain *f*, to the handle *g* of what may be termed the "wedge" G, thence along the handle, and finally they are respectively connected with conductor-plates *g′* g^2, which are respectively attached to the sides of the wedge G, Figs. 6, 8, 13, 17. From the opposing car A′, Fig. 1, the wires B B′ pass, respectively, to the two parts *h* *h′* of what may be termed the "tongue" H, Figs. 7, 8, 12, 13, 15, 16, 17. This tongue is of springy material, and is also a conductor of the electric currents. The parts *h* *h′* are each bent into the shape shown at h^2 h^3, Figs. 7, 8, 15. The parts h^4 are only for strengthening the other parts, and do not serve as conductors. The parts *h* *h′*, thus made, are adapted (saving when depressed, as hereinafter explained) to spring upward through a slot, *e*, in the bottom of the casing *e′*, which serves as a frame to support the tongue H, and also to receive the part F; and when thus sprung upward (and the part F detached) the current passes from one wire, B, to the part *h*, thence up its extension h^2, and to the end h^5

of the part h^3, thence through the fixed insulated plate h^7, Figs. 7, 8, 12, to the end h^5 of the part h^3 belonging to the other part, h', of the tongue H, and thence through the parts h^3 h^2 of the part h' to the wire B'. To form the joint, the part F is inserted in the casing e', as shown in Fig. 8. The electric current then passes as follows: From the part h of the tongue H the current passes at i, Fig. 8, to a part, I, which is fixed to the bottom of the casing f' of the part F of the joint. There are two parts, I and I', attached to the casing-bottom—one at each side thereof. They are respectively above the parts h h', are hook-shaped, as shown in Fig. 8, to conform somewhat to the shape of the extensions h^2 h^3, and they are far enough apart to admit between them the wedge G. When the joint is made, the part h, or, rather, its extension h^2, is in contact with the part I. The current passes along the part I to the spring J, Figs. 6, 8, 16, 17. This spring, at its upper edge, is adapted, when the joint is made, to bear against the conductor-plate g' upon one side of the wedge. The current in this way passes to the plate g', and thence to the corresponding wire, B, of the part F. The other wires, B' B', of the parts E F of the joint are simultaneously connected through the parts h' I', the spring J', and conductor-plate g^2. As long, then, as the two parts of the joint are thus connected, the electric current passes around and round through the wires B B B' B'; but when it is desired to disconnect the joint, the handle g of the wedge is drawn outward from the casing f'. A spring, K, Figs. 6, 8, 13, encircles the handle g, bearing at one end against the wedge and at the other against the outer end, f^2, of the casing f'. As the wedge is withdrawn, the spring is compressed, as shown in Fig. 13. The wedge, as it moves, rides upon the parts h h', causing the tongue H to be depressed, as shown in Fig. 13, and sufficiently to disconnect the hook-shaped tongue from the hook-shaped parts I I'. The part F of the joint is then free and it can be withdrawn from the casing e' of the part E. As soon as it is thus withdrawn, the spring K forces the wedge G backward into the casing f', as in Fig. 6. The current then passes from one wire, B, to the other wire, B', as follows: through the conductor-plates g' g^2, the springs J J', the parts I I', and plate L, Figs. 6, 8, 9. This last-named plate is attached to the spring-arm l, and as soon as the joint is separated the arm l (which has been pressed upward by the tongue H, as in Fig. 8) springs downward and comes into contact with the ends i' i' of the parts I I'. This closes the circuit, and the current, as stated, is transmitted from one wire to the other wire. Thus, whether the joint is made or unmade, the current is transmitted—if made, then through the joint; if unmade, then through each part of the joint.

To enable the joints C C to be made whichever way the cars are turned, a second set of wires, B^3 B^3, and joints C' C' are employed on the opposite side of the cars, as shown in Fig. 1. In this last-named set the parts f are at the same end of the car as the parts E in the first-named set.

It is obvious that the joints C C can be used in joining electric wires in other constructions than railway-cars.

I claim—

1. The combination of the car A, the removable part F of the joint, the support a', and the hood a^2, both support and hood being attached to said car, as described.

2. The combination of the car A, the supporting-chain f, the wedge G, and its casing f', substantially as described.

3. The combination of the electric wires B B', the wedge G, and the conductor-plates g' g^2, attached to the side of said wedge, substantially as described.

4. The combination of the electric wires B B', the conductor-tongue H, made of springy metal, and the part E of the joint, substantially as described.

5. The combination of the electric wires B B', the tongue H, made of springy metal, the part E of the joint, and the plate h' of said tongue H, substantially as described.

6. The combination of the tongue H, as described, the parts I I', and the wedge G, substantially as described.

7. The combination of the parts E F of the joint, the tongue H, made of springy metal, the wedge G, the parts I I', fixed to the bottom of casing f', and the electric wires B B', substantially as described.

8. The combination of the wedge G, the conductor-plates g' g^2, attached to said wedge, the conductor-springs J J', the parts I I', fixed to the casing-bottom, and the spring-tongue H, substantially as described.

9. The combination of the electric wires B B', the wedge G, having connected therewith the plates g' g^2, the conductor-springs J J', the parts I I', attached to the casing, and conductor-plate L, substantially as described.

10. The combination of the parts E F of the joint, the spring-arm l, and the spring-tongue H, substantially as described.

11. The combination of the part F of the joint, the wedge G, having conductor-plates g' g^2 and a handle, g, the spring K, the part E of the joint, and the spring-tongue H, substantially as described, and for the purpose set forth.

Witness my hand this 7th day of September, 1883.

THOMAS S. STEVENSON.

Witnesses:
C. D. MOODY,
C. T. BISER.