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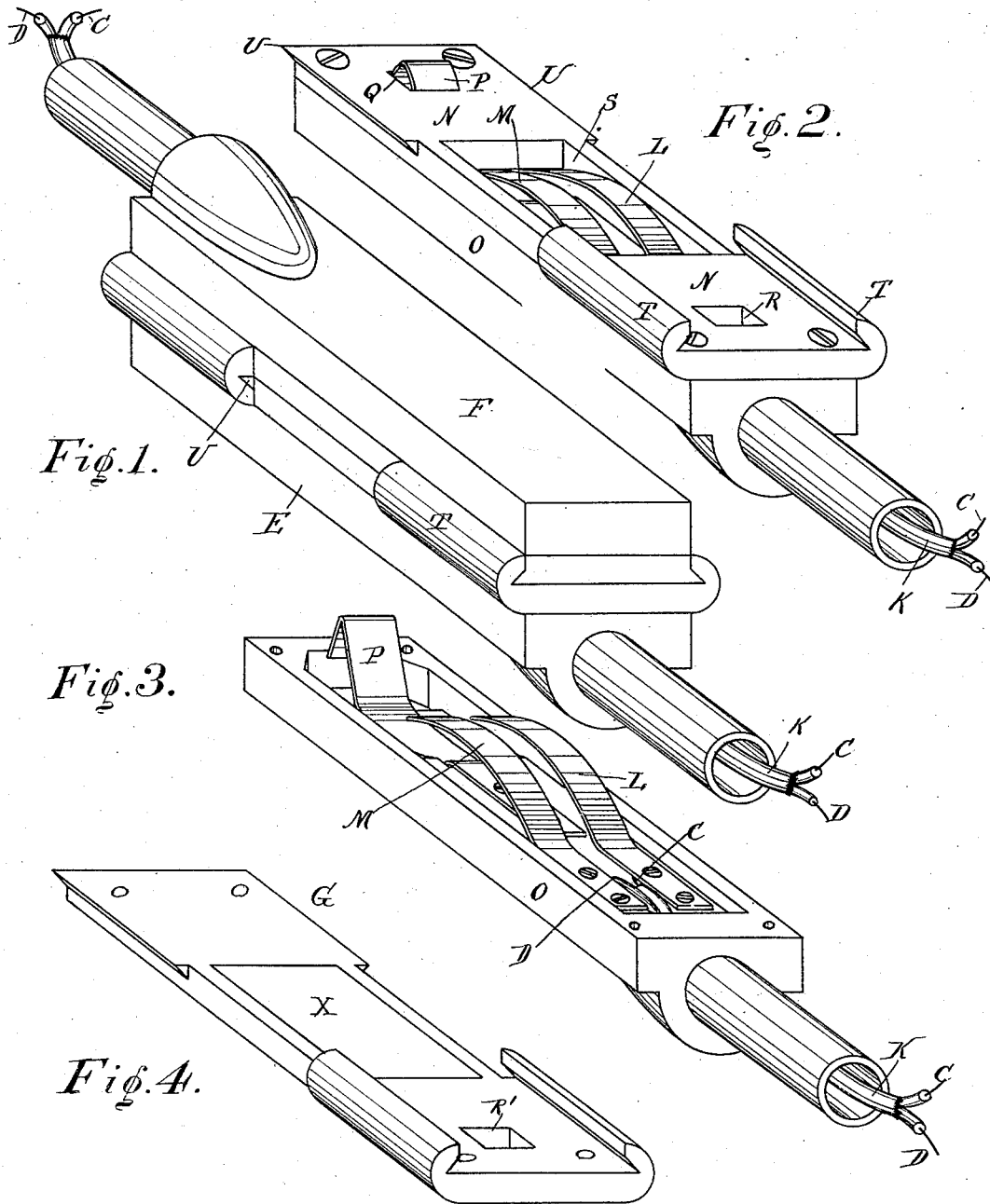
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F. P. MARSHALL.

CONNECTOR FOR ELECTRIC RAILWAY TRAIN SIGNALS.

No. 307,314.

Patented Oct. 28, 1884.



Witnesses.

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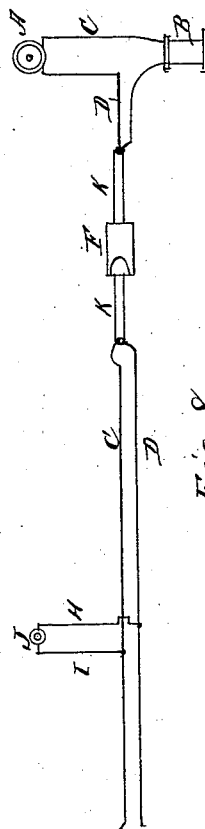
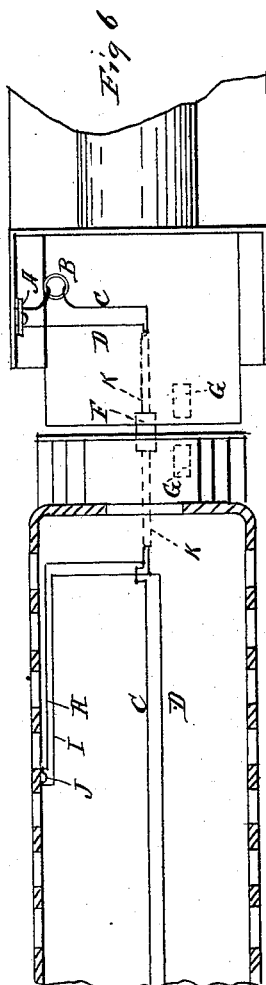
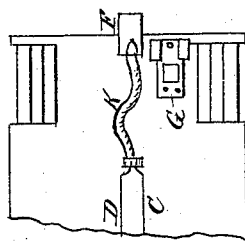
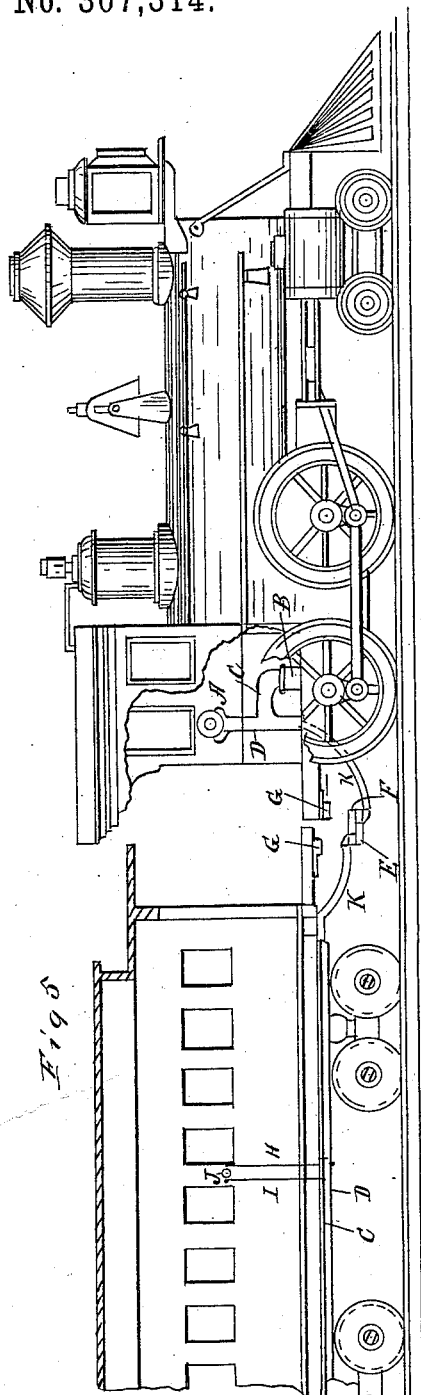
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UNITED STATES PATENT OFFICE.

FRED PERRY MARSHALL, OF SOUTH EVANSTON, ASSIGNOR OF TWO-THIRDS
TO F. R. MYERS AND G. W. P. ATCHISON, BOTH OF CHICAGO, ILL.

CONNECTOR FOR ELECTRIC RAILWAY-TRAIN SIGNALS.

SPECIFICATION forming part of Letters Patent No. 307,314, dated October 28, 1884.

Application filed October 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRED PERRY MARSHALL, a citizen of the United States, and residing at South Evanston, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Connectors for Electric Railway-Train Signals, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective view of my coupler, which couples the electric wires between the cars of the train. Fig. 2 is a perspective view of one half of the coupler. Fig. 3 is a perspective view of one half of the coupler with the plate removed. Fig. 4 is a perspective view of a plate which is attached to the platform of a car. Fig. 5 is a side elevation of a locomotive and one car, portions being broken away to show how the electric circuit is applied. Fig. 6 is a plan view of a portion of the same. Fig. 7 is a bottom view of the platform, showing the plate and one end of the coupler; and Fig. 8 is a diagram of the wires and one coupler with the battery and bell.

The object of my invention is to apply to a railway-train wires, battery, and bell, with coupling devices whereby the wires can be coupled between the cars so that an electric circuit can be closed from either car and signal the engineer on the locomotive. The circuit may be closed by the conductor in either car, and also will be closed if the cars uncouple, thereby uncoupling the wires between any of the cars, so that the signals will be given to the engineer, notifying him of such accident.

My invention consists in the construction of the coupler by which I couple the wires between the cars; and it also consists in the combination of the coupler with a plate arranged beneath the car-platform, to which one half of the coupler is attached when the cars are uncoupled, for the purposes hereinafter specified.

In the accompanying drawings, A represents the bell attached to the locomotive with in hearing of the engineer.

B represents a galvanic battery.

C and D represent the two wires extending from the bell under the cars throughout the entire length of the train. These wires are connected with the battery B in the ordinary manner, and are so connected with the bell that whenever the two wires are brought together, so as to close the circuit, the bell is rung. The method of attaching these wires to the battery and the bell is any well-known method used in ringing a bell by opening and closing an electric circuit.

E and F are halves of a coupling device for coupling the wires C and D between the cars when the train is made up. When these couplers are coupled together, the wires C D are disconnected from each other, and the wire C connected with the locomotive is coupled with the wire C under the car, and the wire D on the locomotive is connected with the wire D under the car, and the same when two cars are coupled together. The wires D are connected, so as to make a continuous wire from one car to the other, and the wires C under each car are connected together, so as to make it continuous from one car to the other. When the couplers E F are uncoupled, then the wires C and D are brought together in each half of the coupler, so that the circuit is closed through it and signal is given by ringing the bell on the locomotive.

G is a plate screwed to each platform of each car, and is adapted to receive one half of the coupler which couples the wires under the platform, and when it does receive that half of the coupler the wires C D which come together in that half of the coupler are separated by the plate G, and the circuit is opened. When a train is made up, the half of the coupler that is attached to the rear platform of the rear car is secured in the plate G, as hereinafter described, and the circuit is held open by said plate, so that as long as the train remains intact no signals are given excepting by closing the circuit by connecting the wires C D in the cars, as hereinafter described.

H and I are two wires located in each car of the train, one of which is connected with the wire C, and the other with the wire D, and they are brought together at a convenient

point in the car by means of a button, J. This button J is the ordinary push-button used for closing a circuit, and is placed in any convenient point in the car to be readily reached by the conductor when he desires to close the circuit and signal the engineer on the locomotive by ringing the bell. The wires C D are brought together at the coupler and extend into a strong flexible tube, K. This tube K is attached to the car under the platform, and is sufficiently strong to hold the weight of one half of the coupler. The wires C D extend through this tube, and the wire C connects with a metallic spring-plate, L, and the wire D with a metallic spring-plate, M. They are insulated from each other, and so are the plates M and L.

N is a strong metal plate, which is screwed to the metallic case O of each half of the coupler.

P is a spring-catch, which is also screwed to the metallic case O, as clearly shown in Fig. 3 of the drawings. This catch extends up through an opening, Q, in the plate N, and when the couplings are shoved together it projects into the opening or recess R near the opposite end of the plate N of the other half of the coupler, and holds the two halves of the coupler securely together. The spring-plates L and M are curved so that they extend up through an opening, S, in the metallic plate N when the halves of the couplers are separated, and the free ends of these spring-plates under such circumstances strike against the metallic plate N, which makes the electric connection between the wires C and D, and these wires being extended to the battery and the bell on the locomotive the circuit is closed and the bell continues to ring. Each of the plates N is provided with projecting ledges T, and with laterally-projecting edges U. The laterally-projecting edges U slide under the projecting ledges T, as clearly shown in Fig. 1 of the drawings. These securely fasten the two halves of the coupler together, and when in that position the spring-catch P in one half of the coupler rests in the recess or opening R in the other half of the coupler, holding the couplers together until sufficient force is applied to break the tension of the spring-catches and pull them apart. When they are coupled together, the spring-plate M in one half of the coupler rests against the corresponding spring-plate, M, in the other half of the coupler, and the spring-plate L in one half of the coupler rests against the corresponding spring-plate, L, in the other half of the coupler, and their free ends are thereby forced away from the plate N, so that the circuit is opened in the coupler and the wire C in one car is connected with the wire C in the other car through said coupler, and the wire D in one car is connected with the wire D in the other car through said coupler. When the two halves of the coupler are separated, the free ends of the plates L and M are no longer compressed, and

strike against the plate N, closing the circuit, as above described.

G is a metallic plate, which corresponds to the plate N in shape, but is screwed to the under side of the platform of the car in a convenient position where the one half of the coupler can be coupled to it in the same manner that it is coupled to the other half of the coupler. The opening in said plate corresponding to the opening S in the plate N is filled with an insulated block, X, which serves to compress the plates M and L and remove the free ends thereof from the plate N and open the circuit.

It will be observed that it is always necessary to attach the half of the coupler that is connected with the rear platform of the rear car of a train to this plate G in order to open the circuit made by the wires C and D at that point and prevent a continuous ringing of the bell. This plate is provided with a recess, R', corresponding to the recess R in the plate N, to receive the spring-plate P. When another car is coupled to the train, that part of the coupler which is attached to the plate G on the rear platform of the rear car of the train is removed from the plate G and coupled with that part of the coupler which is attached to the front platform of the car which is coupled to the train, as shown in Fig. 1, and that part of the coupler which is attached to the rear platform of this added car must be attached to the plate G on the rear platform of the added car, so that the circuit made through the wires C D will always extend from the locomotive through all of the cars of the train, but always remain open excepting when it is closed in either one of the cars by a circuit-closer, as above described, or when the train parts and one of the couplers coupling these wires together between the cars is uncoupled. Such an uncoupling immediately closes the circuit and notifies the engineer of that fact.

It will be observed that I am able to dispense with the ordinary bell-cord used in a train for signaling the engineer; and when I use the bell-cord in each car for closing the circuit in that car I do not couple the bell-cord between the cars. The electric circuit takes the place of the bell-cord for signaling the engineer, and also serves to always notify the engineer immediately whenever the train for any reason uncouples.

It is exceedingly important to attach the couplers for coupling the wires from car to car under the platform of car, for the reason that the operator has to couple the air-brake so generally used at that place, and can at the same time, without any additional risk or trouble, couple the electric wires by the coupling above described; and, furthermore, it is a much more convenient place to place the plate G on the under side of the platform of the car out of the way from danger or molestation, where that part of the coupler attached to the same platform can be readily connected with it in a place

out of the way from molestation and danger, for the purposes above specified.

I am aware that electric wires have been coupled between cars for the purpose of ringing a bell and signaling the engineer; but heretofore such couplings have been located at or near the top of the cars, where they are inconvenient of access, and when uncoupled are liable to fall down by the door of the car, to the annoyance of those passing in and out; and it is also inconvenient to dispose of each individual half-coupler when uncoupled when they are placed in that position. I place my couplers under the platform of a car, where they can readily be coupled at the same time the air-brake tubes are coupled, and where each half-coupler, when they are uncoupled, can be readily attached to a plate secured to the under side or bottom of the platform of the car.

Having thus fully described the construction and operation of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The car-platform, the half E of an electric coupler suspended from the under side of the platform and provided with laterally-projecting edges U, arranged to slide into projecting ledges on a corresponding half-coupler similarly suspended from another car, and the

flat plate G, attached to the bottom of the platform and provided with projecting ledges T, arranged to receive the edges U of the half-coupler E, all in combination, for the purpose of securing the half coupler when the same is not in use, substantially as described.

2. The half-couplers E and F, each provided with spring-plates M and L, arranged to close an electric circuit when free and to break it when depressed, and also arranged on the half-couplers so as to be depressed when the half-couplers are joined, each half-coupler being also provided with a spring-catch, P, of limited tension, projecting toward the other and arranged to interlock with a socket, R, correspondingly arranged on the other, for the purpose of joining and separating the coupler by pushing and pulling, respectively, substantially as described.

3. The plate G, provided with a non-conducting surface, X, and adapted to receive one half of the coupler E F, in combination with the spring-plates L and M of said coupler, as specified and shown.

FRED PERRY MARSHALL.

Witnesses:

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A. M. BEST.