Nov. 15, 1927. 1,649,129

S. B. SCHENCK

SOLENOID COUPLER FOR CARS

Filed June 10, 1922

Fig. 1.

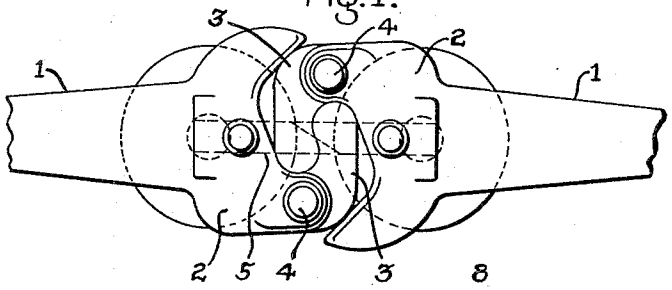


Fig. 2.

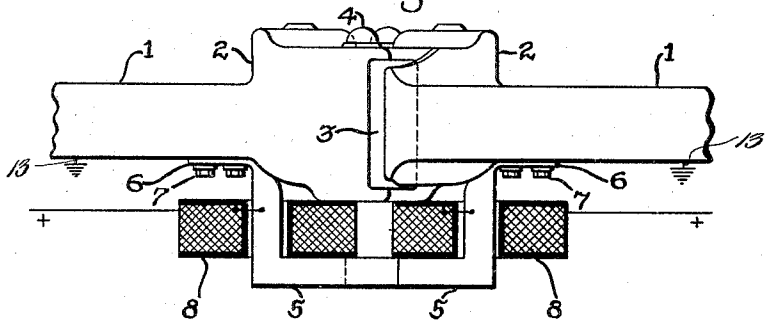
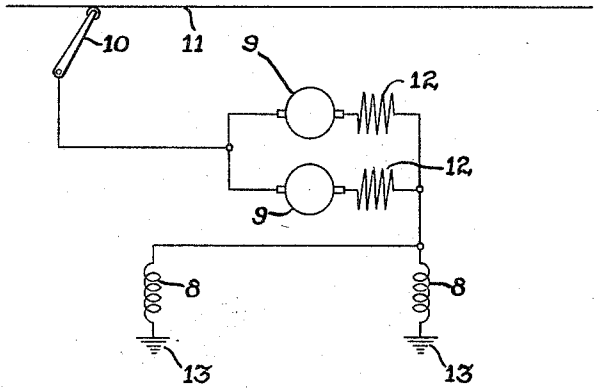


Fig. 3.



WITNESSES:

R. J. Butler.

W. B. Jaspert.

INVENTOR

Samuel B. Schenck.

BY

Wesley G. Carr

ATTORNEY

Patented Nov. 15, 1927. 1,649,129

UNITED STATES PATENT OFFICE.

SAMUEL B. SCHENCK, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

SOLENOID COUPLER FOR CARS.

Application filed June 10, 1922. Serial No. 567,494.

My invention relates to coupling devices, more especially to couplers employed on railway car units and the like.

It is among the objects of this invention to provide a coupler that shall be adapted to securely lock the several parts constituting the coupler connection to prevent breakage when subjected to sudden shocks or impacts and which shall function automatically with the control of the traction motors.

It is a further object of this invention to provide a device of the above-designated character which shall be of simple compact structure, which shall be inexpensive to manufacture and which may readily be adapted for use in conjunction with standard coupler devices of the well-known interlocking type now employed in railway units.

It is well known that car couplers break frequently because of sudden shocks and impacts caused by sudden applications of power at slightly different intervals on the cars of a train. Various means have been devised to secure the couplers in a manner to prevent separation when they break at the joint and it has been found necessary to provide auxiliary chains and connections to guard against accidents accruing therefrom.

My present invention is designed to provide an auxiliary device comprising a magnetic device, such as a solenoid, energized by an electrical current, which is secured to the draw-bar couplers and which functions to take up slack or prevent loose mechanical play between the coupler members comprising the coupling and also to provide a secure locking mechanism reinforced by magnetic attraction of the solenoid.

In the accompanying drawings constituting a part hereof and in which like reference characters designate like parts,

Figure 1 is a plan view of a coupler device such as is commonly employed on railway-car units;

Fig. 2 is a side elevational view thereof showing the elements of this invention; and

Fig. 3 is a diagrammatic view of my device and the circuits of an electrical railway train.

The coupler, Fig. 1, consists of a pair of draw bars 1 secured to the draft gear of a locomotive for railway cars (not shown). The engaging ends of the draw bars are provided with enlarged end members 2 having knuckles 3 pivotally mounted thereon by knuckle pins 4. The knuckles 3 function to interlock with each other when the coupler is in engagement, as illustrated in Fig. 1.

As shown in the Fig. 2, I provide a pair of brackets 5 having seating flanges 6 provided thereon by which they are secured to the coupler members 1 by suitable bolts or cap screws 7. The brackets 5 are adapted to overlap each other in alignment with the coupler joint to form a substantially channel-shape member when brought in engagement, and a solenoid 8 is secured to each bracket to establish a magnetic circuit for preventing relative movement of the coupler members and for reinforcing the interlocking thereof when energized. The brackets 5 and solenoids 8 are in such proportion as to provide sufficient capacity to materially relieve the stress accumulating at the coupler junction and may be designed to carry the load in case of failure of the knuckles or other coupler parts.

As illustrated in Fig. 3, the solenoids 8 are connected up in the main power circuit which energizes the driving motors 9 by connecting them in series with the motors through the accelerating resistors 12. The solenoids are grounded on one side to the frame of the cars 13, and the motors 9 are connected by a trolley 10 to a power line 11.

It will be readily understood from the above description of my invention that a coupler device formed in accordance therewith provides a secure and reliable coupler connection between a plurality of cars connected up in an electrical railway train and that such a device supplements the mechanical car couplers to maintain secure connection between the cars. The device when operative reduces the stress and play between the couplers, thereby reducing the possibility of breakage and promoting smoothness of acceleration.

Although I have described a specific embodiment of my invention, it will be obvious to those skilled in the art that various changes may be made in the details of construction without departing from the principles herein set forth. For instance, the couplers may be designed to have the solenoid mounted therein instead of on the outside, as shown, or they may be energized from an independent source and not through the traction motor current, making them independent units which could be controlled

by a regulating device. The shape of the solenoids and mounting brackets may be modified to obtain any suitable design or capacity and in general such changes may be made as will facilitate assembly and operating conditions to which such a device may be subjected.

I claim as my invention:

1. In a coupling, in combination, a plurality of interlocking coupling members, and means for inducing lines of magnetic force in the coupling members when interlocked to restrain relative movement of the coupling members during operation.

2. In a coupling, in combination, a plurality of interlocking coupling members disposed to form, when interlocked, a link in a magnetic circuit, and means for inducing lines of magnetic force in the coupling members, when interlocked, to check relative movement of said members.

3. In a coupling for vehicles, in combination, a plurality of interlocking coupler members and a coil disposed to induce, in the coupler members, lines of magnetic force to restrain the relative movements of said coupler members.

4. In a coupling for vehicles, in combination, a plurality of interlocking coupler members and a solenoid secured to each coupler member and disposed to induce, in the coupler members, lines of magnetic force to restrain the relative movements of said coupler members.

5. A coupling for vehicles comprising a plurality of interlocking coupler members, a plurality of iron cores secured to the coupler members, a coil wound on each of said cores and means for energizing said coils to induce lines of magnetic force in the cores and the coupler members.

In testimony whereof, I have hereunto subscribed my name this 6th day of June, 1922.

SAMUEL B. SCHENCK.