

No. 704,573.

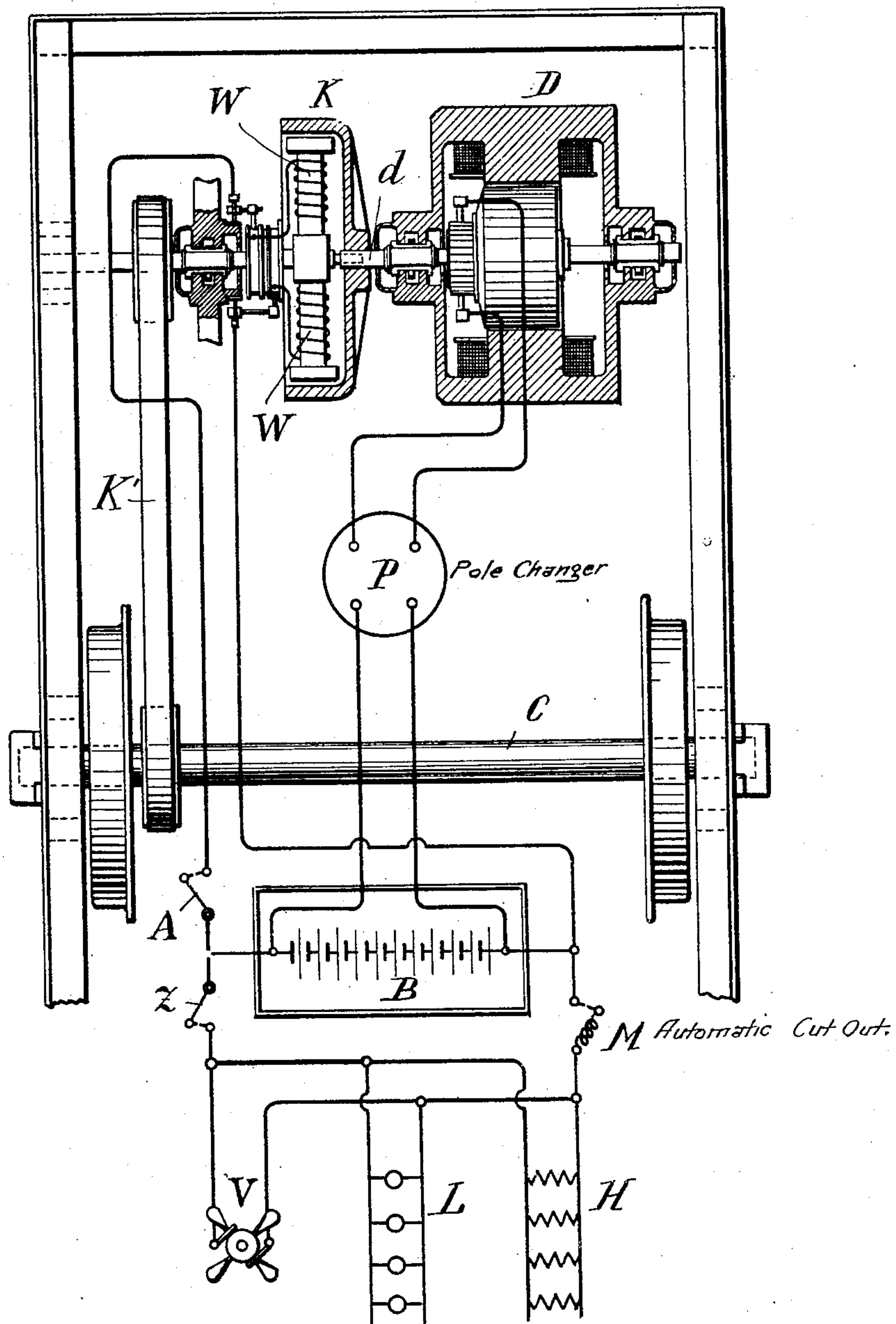
Patented July 15, 1902.

R. PINTSCH.

DEVICE FOR GENERATING ELECTRICITY ON RUNNING CARS.

(Application filed Nov. 14, 1901.)

(No Model.)



Witnesses:-

K. Munster
Arthur M. B. B. B.

Inventor:-
Richard Pintsch

by Eustace M. Hopewell
att'y

UNITED STATES PATENT OFFICE.

RICHARD PINTSCH, OF BERLIN, GERMANY.

DEVICE FOR GENERATING ELECTRICITY ON RUNNING CARS.

SPECIFICATION forming part of Letters Patent No. 704,573, dated July 15, 1902.

Application filed November 14, 1901. Serial No. 82,176. (No model.)

To all whom it may concern:

Be it known that I, RICHARD PINTSCH, a subject of the Emperor of Germany, and a resident of Berlin, Empire of Germany, have invented a certain new and useful Improved Device for Generating Electricity on Running Cars, of which the following is a full, clear, and exact description.

The present invention relates to means for electrically lighting, heating, and ventilating cars of every description in which the current is supplied by a generating medium deriving its driving power from the motion of the car. In the machinery of this description hitherto employed the disadvantage has been noticed that the current-generating machine has always been kept running as long as the car is in motion, it being indifferent whether the current was being utilized or not. Consequently much power was wasted and the moving parts of the machinery were subjected to unnecessary wear and tear. The employment of a mechanical connection between the current-generating machine and the driving member of the car—for instance, the car-axle, which could be easily disconnected while the car is running—would take up considerable space, rendering the placing and fitting up of the current-generating machine correspondingly difficult. With a view to obviating these disadvantages according to the present invention the transmission of power is effected with the aid of an electromagnetic coupling, the operation thereof being controlled by a switch, as hereinafter set forth.

In order to render the present specification easily intelligible, reference is had to the accompanying drawing, which shows a diagram of the device.

C represents the driving member of the plant—for instance, the car-axle—but it will be obvious that any other moving part of the car might be employed.

K designates an electromagnetic coupling, the driving member of which is connected to the driving member of the car by means of a belt K' or other suitable power-transmitting device. The driven member of the coupling is keyed to the driving-shaft of the current-generating machine D. Spools W are applied to one or both members of the coupling, the

said spools being adapted to produce or intensify the magnetic field of the coupling as soon as the current passes through them. The current employed to electrify the said spools W is derived from a source of energy available when the generator is idle—for instance, from an accumulator B, which may be connected up to the spools by means of a switch A. The said switch may be mounted in any convenient part of the car. When the switch is adjusted to make connection to the spools, the coupling K comes into operation and the motion of the car-axle or other moving part of the car is transmitted to the current-generating machine, while, on the other hand, if the connection through the said switch is broken the current-generating machine will stop, even if the car is running. Any suitable electromagnetic coupling may be employed, it being immaterial whether the driving and driven shafts are coaxially mounted or not.

The source of electric energy B may be adapted to supply current for other purposes, as illustrated in the accompanying drawing—for instance, to the lamps L, to the ventilator V, or to the heating-plates H, or to an electric cigar-lighter. The current-consuming devices may be connected up to the current-generating plant in any known manner. The diagram shows the simple parallel connection. Instead of employing the whole of the current from the accumulator B for energizing the electromagnetic coupling a part only of the same might be utilized for this purpose. If it is required to operate the coupling from various points of the car, several switches A may be employed, and these switches may be connected up with the main switch Z for the feed-conductors or they may be positively influenced by the said main switch in any manner, as will be readily understood.

In order to prevent the current from the accumulator B from being entirely exhausted—for instance, in case the feed-conductors may not have been cut out of the circuit at the proper time—or to prevent it from being so far exhausted that it would not have sufficient tension to operate the electromagnetic coupling, an automatic cut-out device M may be employed, said automatic device being so influenced by the tension at the contact-points

that it will automatically cut off the feed as soon as the tension has sunk to a predetermined minimum. A saving of the electric energy necessary for exciting the coupling 5 may be effected by deriving the magnetic field of the coupling partially from steel magnets; but the field derived from the magnets must not be strong enough to operate the driven member of the coupling. It would 10 then only be necessary to have an auxiliary field for driving the coupling, which might be produced by a correspondingly less number of ampere-windings; but this would of course render the running of the coupling 15 when not operative correspondingly heavier.

If an accumulator is employed to excite the coupling, it is advantageous to connect the same to the current-generating machine in such manner that it may be charged by the 20 same, as illustrated in the drawing, in which case the accumulator or storage battery B also supplies current for other purposes than that of energizing the coupling. The current-regulating devices, switches, measuring 25 instruments, and safety devices employed in connection with electric power-generating plant are not described in the present specification, being unnecessary to a proper understanding of the invention and not forming 30 part of the same. A pole-reversing device P is diagrammatically represented, which is necessary in order to retain the proper connection between the poles of the storage battery and the current-generating machine 35 when the poles are reversed by reversing the direction of motion of the car. It will be obvious that several storage batteries may be charged from one and the same generating-machine or that several generating-machines 40 may be operated by one storage battery. The means for regulating the tension of the cur-

rent-generating machine D are not shown, since this may be effected in any known manner, either by keeping the rotation of the machine constant or by means of electrical regulation with the aid of resistances, or by otherwise influencing the magnetic field by counterwindings or the like. The regulating means form no part of the present invention, it being immaterial what class of regulating 50 is employed. It is also immaterial whether the switches and regulating devices are operated automatically or by hand.

I claim as my invention—

1. In a plant in which power is transmitted 55 from the running-gear of a car, to generate electricity, the combination of a power-transmission train, an electromagnetic coupling interposed therein, an electric-current generator operated thereby, and a switch controlling the operation of said coupling, and, 60 by means thereof, controlling the operation of said generator; all substantially as described and for the purpose specified.

2. In a plant in which power is transmitted 65 from the running-gear of a car to operate mechanism mounted on said car, the combination of a power-transmission train, an electromagnetic coupling interposed therein, and an electric accumulator furnishing a current 70 for energizing said coupling, with an automatic cut-out so operated as to prevent the electrical storage in the accumulator from falling below a tension sufficient for the purpose mentioned; all substantially as set forth 75 and described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

RICHARD PINTSCH.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.