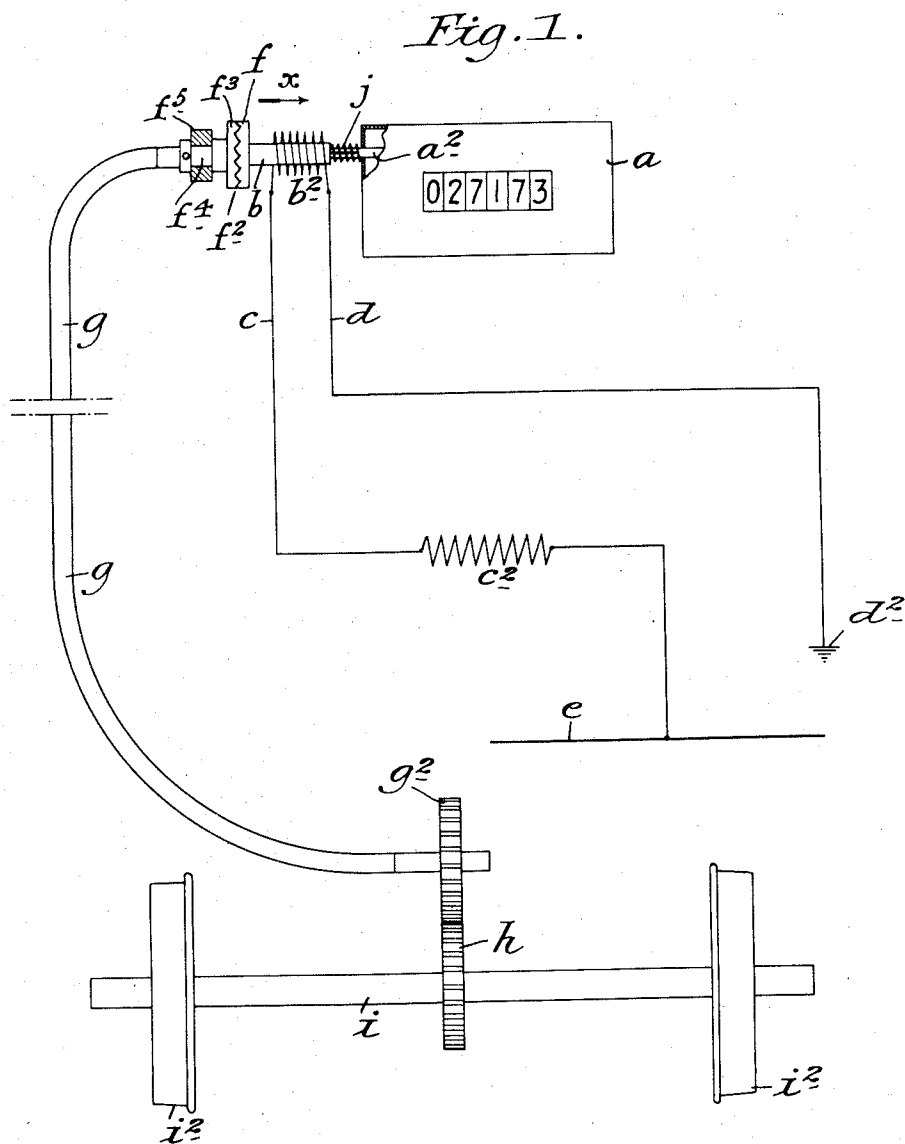


P. LINDEMANN & E. B. RICH.
MILEAGE COASTING REGISTER FOR ELECTRIC CARS.
APPLICATION FILED APR. 28, 1910.

986,299.

Patented Mar. 7, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

A. R. Appleman
C. E. Mulreany

INVENTORS

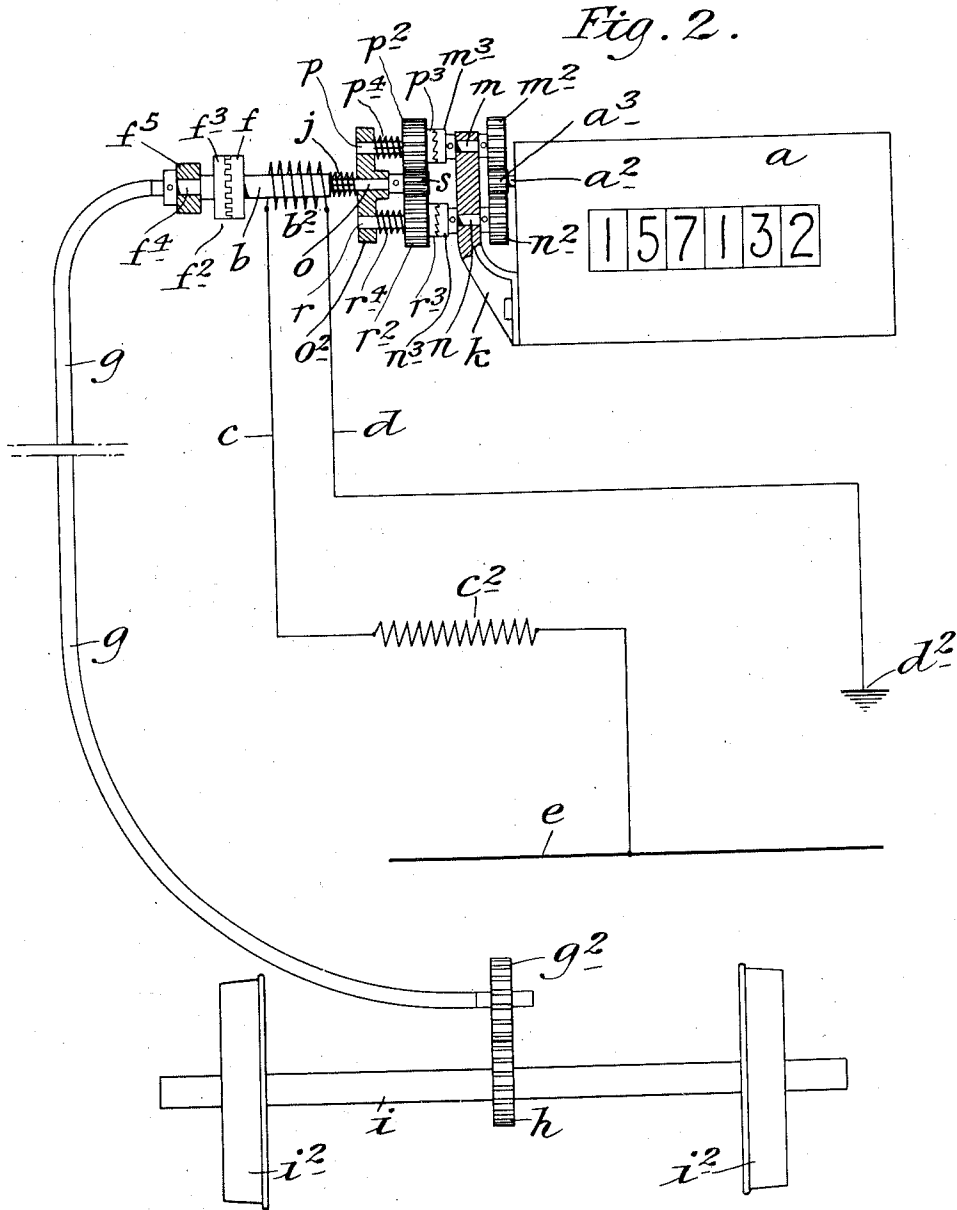
Peter Lindemann
Edward B. Rich
BY *Edgar Tate & Co.*
ATTORNEYS

P. LINDEMANN & E. B. RICH.
MILEAGE COASTING REGISTER FOR ELECTRIC CARS.
APPLICATION FILED APR. 28, 1910.

986,299.

Patented Mar. 7, 1911.

2 SHEETS-SHEET 2.



WITNESSES

A. R. Appleman.
b. E. Quibrey.

BY

INVENTORS
Peter Lindemann
Edward B. Rich
BY
Edgar C. V. Co.
ATTORNEYS

UNITED STATES PATENT OFFICE.

PETER LINDEMANN, OF WESTCHESTER, AND EDWARD B. RICH, OF NEW YORK, N. Y.

MILEAGE COASTING-REGISTER FOR ELECTRIC CARS.

986,299.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed April 28, 1910. Serial No. 558,212.

To all whom it may concern:

Be it known that we, PETER LINDEMANN and EDWARD B. RICH, citizens of the United States, and residing, respectively, at Westchester and New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Mileage Coasting-Registers for Electric Cars, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to registering devices for use in determining the mileage or space passed over by an electric car or train while moving under its own momentum, or after the motor current has been turned off and the object thereof is to provide a simple and effective device or apparatus of this class, particularly designed for use in connection with an electric car or train to determine the mileage or distance through which a car or train passes when moving in either direction under its own momentum or after the motor current has been turned off, as for instance when approaching a station; a further object being to provide a register device of the class and for the purpose specified which is thrown into action at the moment that the motor current is turned off and the action of which ceases when the movement of the car or train ceases, and with these and other objects in view the invention consists in a device or apparatus of the class specified, constructed and operated as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of our improvement are designated by suitable reference characters in each of the views, and in which;—

Figure 1 is a diagrammatic view of our improvement with a part of the construction or details thereof broken away or shown in section, and;—Fig. 2 a similar view showing a modification.

In the drawing forming part of this specification reference being made to Fig. 1, we have shown an ordinary registering device *a* adapted to register miles and operated by a shaft *a*² which passes into one end thereof and on which is longitudinally movable, the core *b* of an electric solenoid *b*², with which is connected wires *c* and *d*, the latter of

which is grounded as shown at *d*², and the former of which is connected with a motor circuit wire or a motor control circuit wire *e*, the motor being not shown and said wire *e* is provided with a resistance or resistance coil *e*². The core *b* of the solenoid *b*² is provided with a circular head *f* forming one part of a clutch device *f*², the other part *f*³ of which is provided with a shank *f*⁴ rotatably mounted in a support *f*⁵, and with which is connected a flexible shaft *g* connected with a suitable supported gear wheel *g*², which meshes with a gear wheel *h* mounted on one of the axles *i* of a motor car or train. No part of the car is shown except the axle *i* and the wheels *i*² thereof, but it will be understood that in practice the register device *a* is suitably supported in the car, or in the motor car thereof, or in the motor car of a train, and the clutch member *f*³ is also suitably supported in said motor car or train, and a suitable motor is also provided with which the motor circuit wire or motor controlling circuit wire *e* is connected. The core *b* of the solenoid *b*² is free to slide on the shaft *a*² of the register device but cannot turn thereon and placed on the shaft *a*² of the register device is a spring *j* which normally forces the core *b* of the solenoid outwardly so that the head *f* thereof engages the part *f*³ of the clutch device *f*². With this construction whenever the motor is in operation and the car or train moving under the control of said motor the circuit formed by the wires *c*—*d* and solenoid *b*² is closed and the core *b* of the solenoid *b*² is moved in the direction of the arrow *x* against the operation of the spring *j*, and the clutch members *f* and *f*³ are separated and the registering device *a* is not operated. As soon however as the motor is thrown out of operation or the circuit through the wire *e* broken, the circuit through the solenoid *b*² is also broken, and the core *b* thereof moved toward the clutch member *f*³ by means of the spring *j* on the shaft *a*² of the register device *a*, and the clutch members *f*² and *f*³ are thrown into engagement and the shaft *a*² of the registering device *a* will be operated by the gears *h* and *g*², the flexible shaft *g* and the clutch device *f*² operating through the core *b* of the solenoid *b*². With this construction it will be seen that the register device *a* is only operated when the motor car or train is coasting and when said car or train is moving under the control of the

motor the registering device is not in operation.

In Fig. 2 of the accompanying drawing we have shown a modification, which will operate with the train or car moving in either direction and is particularly designed for use in connection with electric cars or trains, or in connection with an electric railway system, in which a car or train reaches the end of the line or track it goes backwardly over the line or track without being turned around. In this construction the shaft a^2 of the registering device is provided with a pinion a^3 and a suitable support k is also provided which may be connected with the registering device a if desired and in which are mounted parallel shafts m and n having gear wheels m^2 and n^2 which mesh with the pinion a^3 , and the shafts m and n are also provided with clutch heads or members m^3 and n^3 . In this form of construction the core b of the solenoid b^2 is longitudinally movable on a shaft o provided with a suitable support o^2 and the spring j is placed between said support and the core of the solenoid. Mounted in and movable in the support o^2 are two parallel shafts p and r having gear wheels p^2 and r^2 provided with clutch members or heads p^3 and r^3 , which operate in connection with the clutch members or heads m^3 and n^3 and the clutch members or heads m^3 and p^3 are provided with teeth which project in opposite directions as are also the clutch members or heads n^3 and r^3 . The shaft o is provided with a pinion s which meshes with the gears p^2 and r^2 and between said gears and the support o^2 are placed springs p^4 and r^4 which normally hold the clutch members in engagement. With this form of construction, the shaft a^2 will always be turned in the same direction regardless of the direction in which the car or train is moving as it will be understood that when the shaft o is turned in one direction by the shaft g one of the clutch devices m^3-p^3 , or n^3-r^3 will be in operation and the other will be turned in the opposite direction this operation of the clutch devices will be reversed and the registering device a will always indicate the mileage or space passed over by the car or train when the motor current has been turned off or when said car or train is moving under its own momentum.

Our invention is not limited to any particular details of construction herein shown and described and various changes therein

and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of our invention or sacrificing its advantages.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent is;—

1. In a coasting mileage register apparatus for electric cars or trains, the combination with an axle of a car, and a motor control circuit of a register device, and a device placed in said circuit and connected with said axle and said register device whereby said register device will be thrown out of operation when the motor control circuit is closed and the car or train is moved under the control of the motor, and into operation when the motor control circuit is open and the car or train running under its own momentum.

2. In a coasting mileage register apparatus for electric cars or trains, the combination with an axle of a car and a motor control circuit of a register device, a solenoid placed in said circuit, devices forming a connection between said solenoid and the axle of the car, and devices forming a connection between said solenoid and the register device, whereby said register device will be thrown out of operation when the motor control circuit is closed and the car or train is moving under the control of the motor, and into operation when the motor control circuit is open and the car or train running under its own momentum.

3. In a coasting mileage register apparatus for electric cars or trains, the combination of an axle of a car or train, a motor control circuit, a register device, and devices placed in said circuit and connected with said axle and with said register device, whereby said register device will be thrown out of operation when the motor control circuit is closed and the car or train moving under the control of the motor, and into operation when the motor control circuit is open and the car or train running under its own momentum.

In testimony that we claim the foregoing as our invention we have signed our names in presence of the subscribing witnesses this 26th day of April 1910.

PETER LINDEMANN.
EDWARD B. RICH.

Witnesses:

C. E. MULREANY,
B. M. RYERSON.