No. 820,078. PATENTED MAY 8, 1906.

A. R. L. WILLE.

TIMING MECHANISM FOR ELECTRIC CIRCUITS.

APPLICATION FILED SEPT. 18, 1903.

Fig. 1.

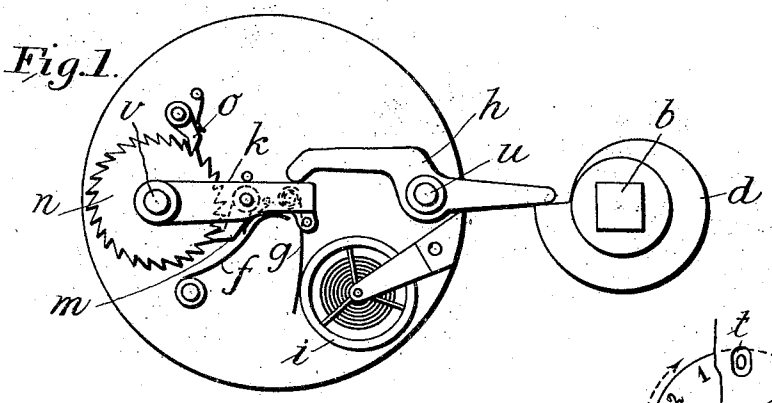


Fig. 3.

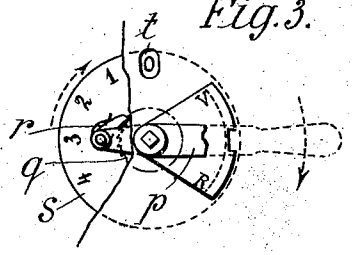


Fig. 2.

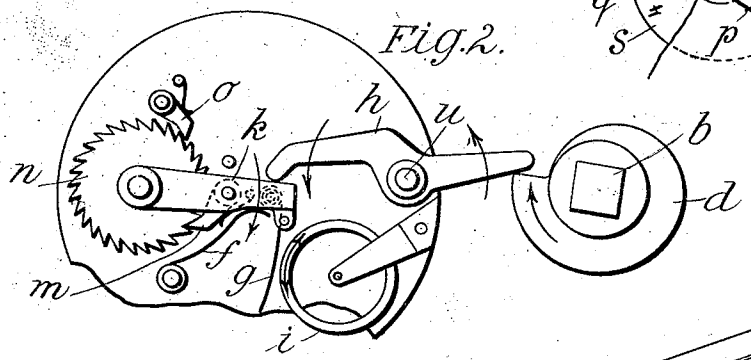
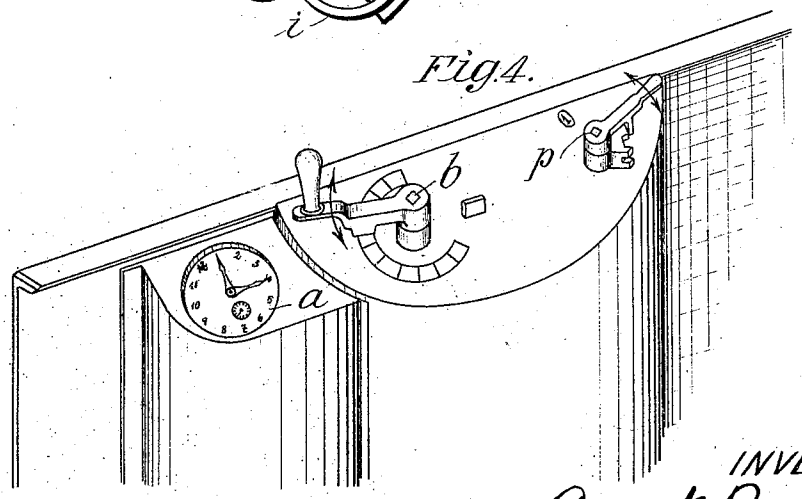


Fig. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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TIMING MECHANISM FOR ELECTRIC CIRCUITS.

No. 820,078. Specification of Letters Patent. Patented May 8, 1906.

Application filed September 18, 1903. Serial No. 173,703.

To all whom it may concern:

Be it known that I, AUGUST RICHARD LOUIS WILLE, a subject of the German Emperor, residing at 5 Mozartstrasse, Leipsic, Germany, have invented certain new and useful Improvements in Timing Mechanism for Electric Circuits; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a device applied to motor electrically-driven vehicles, especially tram-cars, which is intended to check the car-driver by enabling the period during which the motor is under the action of the current to be determined even after the journey is ended, and thus ascertaining whether the car-driver manages the working current economically or extravagantly.

One form of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the improved device, the current being interrupted; Fig. 2, a similar view during the passage of the current; Fig. 3, the device for determining the number of times the current has been reversed; Fig. 4, the general arrangement of the controller with the controlling device on the front platform of the vehicle.

Adjoining the ordinary controller which serves for starting the motor a clock *a* is arranged, which is so connected with the controller that when the current is interrupted—that is to say, when the car is traveling without current—it ceases to go, and, inversely, when the working current is switched on is set free to go again, and thus when the journey is ended the exact period can be seen from the dial-plate during which the motor was under the influence of current.

In the form of the invention as illustrated the shaft *b* of the controller is furnished with a cam *d*, which is so arranged that when the current is switched on it causes the two-armed lever *h* to swing around its pivot *u*. Opposite the lever *h* a lever *k* is pivoted on the shaft *v* and pressed by the spring *f* against the lever *h*. At the free end of the lever *k* is a spring *g*, which ordinarily—that is to say, when the current is interrupted—lies against the balance-wheel *i* of the clockwork, and thereby stops the latter. If now current is switched on by suitable rotation of the shaft *b*, the lever *h*, which is swung by the cam *d* around pivot *u*, forces the lever *k* so far back, Fig. 2, that the spring *g* leaves the balance-wheel *i*, and the clock *a* can begin and continue to go without hindrance. In order that it may be possible to employ the movement of the lever *k* likewise for winding up the clockwork, this lever is loosely arranged on the shaft *v* of the spring-casing (not shown in the drawings) and is furnished with a pawl *m*, which engages in the teeth of the intermediate wheel *n*, firmly connected with the shaft *v* and prevented from turning backward by the pawl *o*. Moreover, the reversing device *p*, adjoining the controller—in other words, the shaft thereof—is furnished with an engaging arm carrying a pawl *r*, Fig. 3, which pushes the ratchet-wheel *q*, and therewith the numbering-disk *s*, forward to the extent of one division when the lever *p* is operated for the purpose of reversing the direction of the current. The number of times when the operation just referred to is effected is indicated by the number-disk *s*, the particular figure appearing through the opening *t*.

What I claim, and desire to secure by Letters Patent, is—

An improved check or indicator for determining the time that the current is used in vehicles driven by electricity, consisting in the combination with the controller, of a clock, and means for connecting the wheelwork of the clock with the controller in such a manner that when the current to the motor is switched off the clock is stopped, and when the motor is running the wheelwork is set free and the clock started, said means comprising a cam fixed on the controller-shaft, a two-armed lever arranged with one arm bearing against said cam, a spring-pressed single-armed lever bearing against the other arm, and a spring on the single-armed lever arranged to normally bear on the balance-wheel of the clock but capable of being removed therefrom to release said balance-wheel, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

AUGUST RICHARD LOUIS WILLE.

Witnesses:
HERM. SACK,
LEON ZEIKIN.