

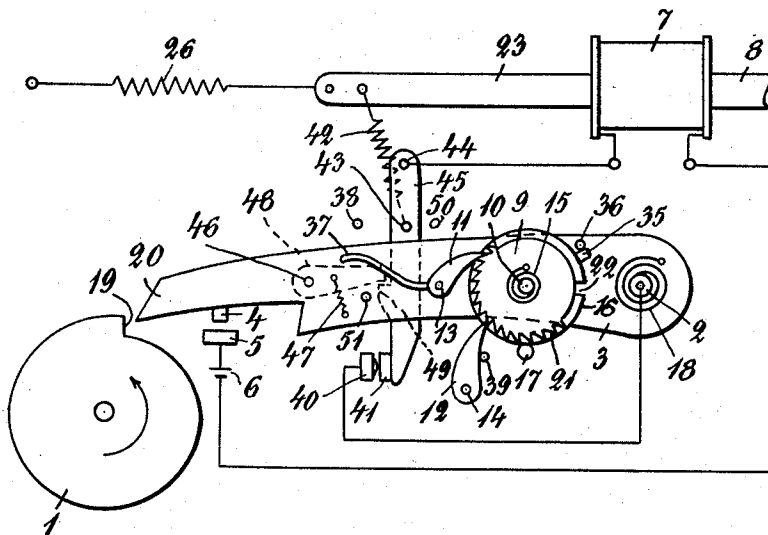
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DELAYED TAXIMETER OPERATING MECHANISM

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DELAYED TAXIMETER OPERATING MECHANISM

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The present invention refers to electrical impelling contrivances intended particularly for the calculating mechanisms of taximeters, of the type consisting of a mechanical impeller, which is arranged in taximeters to be driven from the wheels of the car or from a clockwork, and of an electrical impeller cooperating with said mechanical impeller, as well as of an electromagnetic impulse receiver adapted to actuate the calculating mechanism. In known impelling contrivances of this kind, the movable contact member of the electrical impeller is adapted to be actuated by a mechanical impeller in the form of a toothed wheel, in a manner such that the impulse circuit will be alternately interrupted and closed, according as the teeth of the toothed wheel actuate the contact member in due order. Should the toothed wheel remain stationary in a contact-making position, for instance when the car is brought to a standstill, the impulse circuit will remain closed for a longer period, which may result in that the electromagnetic impulse receiver is burnt asunder by the relatively strong current required for a safe operation of the contrivance. This drawback is avoided through the present invention by the fact that the electromagnetic impulse receiver is arranged to interrupt its own impulse circuit by actuating a contact member connected into the circuit, said contact member being then locked in open position by a locking device adapted to be released by a following impulse from the mechanical impeller. Hereby the impulse receiver will always be actuated only by a current impulse of a short duration, independently of the contact-making time of the electric impeller. By reason of this the impulse receiver actuating the calculating mechanism need not be overdimensioned, it being then possible to design its magnet winding for a minimum of current consumption.

The invention will be described more closely with reference to the accompanying drawing, which illustrates a form of embodiment of an impelling contrivance for the calculating mechanisms of taximeters by way of diagrammatic representation.

The mechanical impeller consists of a toothed wheel or a rotating cam disk 1, which is arranged in known manner to be operated from the car or from a clockwork for the calculation of the length of road and time. The electric impeller consists of an arm 3 swingable about an axis 2, said arm constituting the movable contact member of the impeller, the contact 4 of which member cooperates with a stationary cooperating contact 5. The contact arm 3 and said contacts 4, 5 are connected into a circuit comprising a source of current 6 and a further contact 40, 41, and a solenoid 7, which latter constitutes the electromagnetic impulse receiver adapted to actuate the calculating mechanism (not shown) by means of its armature 8.

The electric impeller is combined with an arrangement adapted in known manner to bring about a retardation of the sending of the electric impulses, corresponding to the distance covered or time representing the fundamental

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fare, which consequently is not to be recorded by means of impulses.

In the example shown, said contrivance consists of an escapement wheel 9, which is rotatably mounted on a pin 10 secured to the contact arm 3, and which is arranged to be operated by means of a driving pawl 12 and to be locked by means of a locking pawl 11. The pawl 11 is rotatable about a pin 13 secured to the arm 3, and the pawl 12 is rotatable about a fixedly arranged pin 14. The pawls are spring-actuated in a suitable manner to be kept in constant engagement with the teeth of the escapement wheel. The escapement wheel is actuated by a spiral spring 15 tending to turn the wheel in a counter-clockwise direction. Arranged on the escapement wheel or on the pin 10 is a disk 16 non-rotatably connected with the escapement wheel, said disk 16 bearing with its cylindrical rim surface on a stationary pin 17, the contact arm 3 then taking the position shown in the drawing, in which the contact 4, 5 is open. The contact arm is kept by a spiral spring 18 in the position thus locked.

The contact arm 3 is adapted to cooperate with the tooth or cam 19 on the toothed wheel 1, in a manner such that the outer end 20 of the arm is raised once for each revolution of the toothed wheel. The mechanical impeller is started at the engagement of the taximeter, the toothed wheel 1 then rotating in the direction shown by the arrow. The contact arm 3 will thus have a reciprocating motion imparted to the same between the position shown in the drawing and an extreme position determined by the height of the tooth 19. The pawl 12 will then feed the escapement wheel by a number of steps determined by the number of teeth on the escapement wheel. When the driving pawl 12 falls in behind the last tooth 21 on the escapement wheel, a recess 22 in the rim of the disk 16 will be located in register with the pin 17, the disk 16 and the arm 3 thus falling down, until the contact member 4 makes contact with the fixed counter-contact 5. The circuit is thus closed through the solenoid 7, which attracts its armature and brings about a corresponding adjustment of the calculating mechanism.

The armature 8 is connected to a rod 23 displaceable in its longitudinal direction together with the armature, said rod being actuated by a drawspring 26 and being connected through another drawspring 42 with a point on a contact arm 45 swingably mounted about a stationary point 44, said contact arm carrying the contact member 41 at the outer end thereof. In the currentless condition of the solenoid 7, the rod 23 and the contact arm 45 take the positions shown in the drawing, the contact 40, 41 being then closed, while the contact arm 45 is kept in a closed position by the spring 42. The contact arm 45 is adapted to cooperate with a catch 43 arranged on the rear side of the contact arm 3 and swingable about a pin 46 on this contact arm, said catch being actuated by a spring 47 and bearing in the position shown with its outer end on an abutment 49 of the contact arm 45.

When the solenoid attracts its armature under the influence of the first electrical impulse, the rod 23 is shifted into a position such that the moment of torsion exerted by the spring 42 on the contact arm 45 changes its direction, the contact arm being then shifted to bear on a pin 50, while the contact 40, 41 is opened. At the same time the catch 48 is swung to bear against a pin 51 on the contact arm 3, in which position the point of the catch is in a position in register with the abutment 49. When the contact 40, 41 is thus opened, the solenoid 7 is made currentless, the moment of torsion exerted by the spring 42 then changing its direction again. However, the contact 40, 41 remains open, inasmuch as the contact arm 45 is now locked by the catch 48. When the tooth 19 actuates the extreme end 20 of the contact arm the next time, the contact arm and the catch 48 are raised so much that the

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locking of the contact arm 45 is interrupted so that the abutment falls in beneath the catch, the contact 40, 41 being then closed again. At this moment, however, the contact 4, 5 is open. Only when the tooth 19 has moved past the end of the contact arm 3 will said contact and thus the circuit of the solenoid be closed, the cycle of operations just described being then repeated. In this way the impulsation proceeds, until the car comes to a standstill, the toothed wheel 1 then ceasing to rotate. Should the toothed wheel then come to a standstill in the position shown in the drawing, the contact 4, 5 certainly remains closed, but on the other hand the contact arm 45 remains locked in its swung-back position, in which the contact 40, 41 is open and the solenoid is consequently currentless. Should the toothed wheel come to a standstill in a position, in which the contact arm 3 is raised, the contact 4, 5 remains open with the solenoid currentless in this case too.

To release and to restore the retardation device 9, 11, 12, 16, 17, 22, the contact arm 3 may be so connected with the spindle through which the calculating mechanism is zeroized when disengaged that the contact arm is raised for a moment into a position at a level higher than the highest level to which it can be raised by the tooth 19. The pin 17 is thus brought out of engagement with the recess 22. At the same time the pawl 11 is actuated by the fact that an arm 37 projecting from the pawl is brought into contact with a fixed pin 38 so as to turn the pawl out of its locking position. By the raising of the escapement wheel the driving pawl 12 will also be disengaged so as to be caused to bear on a pin 39. By reason of this the escapement wheel 9 is restored under influence of the spring 15 into the initial position, in which it is locked by a pin 35 on the disk 16 being caused to bear against a stop pin 36 on the contact arm 3. The contact arm 3 is then supported by the pin 17 in the partly raised position shown in the drawing, in which the contact 4, 5 is open.

What is claimed is:

1. A device for actuating a counter mechanism comprising, an impulse generator including a normally open electrical circuit having a source of current, a normally stationary, pivotally mounted member carrying a first contact, a stationary second contact connected in said circuit, first means constantly biasing said contact carrying member toward a first position for normally maintaining said first and second contacts in electrical contact, said contact carrying member being movable between said first position and a second position corresponding to a circuit interrupting position, a pivotally mounted arm operably connected to a third electrical contact in series with said stationary second contact, a stationary fourth electrical contact in series with said third contact, second means biasing said arm in a direction for causing the third and fourth electrical contacts to make electrical contact, driven mechanical means cooperative with said arm for periodically allowing the arm to be displaced by said second biasing means to cause it to place the third and fourth contacts in electrical contact for intermittently closing the circuit thereby to generate successive, periodic, electrical impulses of relatively short duration and for restoring said arm to a rest position holding said third contact spaced from said fourth contact, normally deenergized impulse-responsive means connected in series with said first and second contacts and receptive of the successive impulses thereby to operate the counter mechanism and including means arranged for actuating the first pivotally mounted member to the second position parting the first and second contacts thereby to interrupt said electrical circuit and determine the duration of the impulses, means rendered operative subsequent to generation of an impulse for retaining said first pivotally mounted member in said circuit-interrupting position and means operated by said driven mechanical means for moving said retaining means to a position for allowing

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said contact carrying member to be restored automatically to said first position subsequent to interrupting the circuit and prior in time to the next successive electrical impulse.

2. A device for actuating a counter mechanism for taximeters for taxis comprising, an impulse generator including a normally open electrical circuit having a source of current, a normally stationary pivotally mounted member carrying a first contact, a stationary second contact connected in said circuit, first means constantly biasing said contact carrying member toward a first position for normally maintaining said first and second contacts in electrical contact, said contact carrying member being movable between said first position and a second position corresponding to a circuit interrupting position, a pivotally mounted arm having a third electrical contact mounted thereon in series with said stationary second contact, a stationary fourth electrical contact in series with said third contact, second means biasing the arm in a direction for causing the third and fourth electrical contacts to make electrical contact, means comprising a cam disc driven as a function of the distance covered by the taxi cooperative with said arm for periodically allowing the arm to be displaced by said second biasing means to cause it to place the third and fourth contacts in electrical contact for intermittently closing said circuit thereby to generate successive, periodic, electrical impulses, of relatively short duration and for restoring said arm to a rest position holding said third contact spaced from said fourth contact, normally deenergized impulse-responsive means connected in series with said first and second contacts and receptive of the successive impulses thereby to operate the counter mechanism intermittently and including means arranged for actuating the first pivotally mounted member to the second position parting the first and second contacts thereby to interrupt said electrical circuit and determine the duration of the impulses, means rendered operative subsequent to generation of an impulse for retaining said first pivotally mounted member in said circuit-interrupting position and means operated by said driven cam disc for moving said retaining means to a position for allowing said contact carrying member to be restored to said first position subsequent to interrupting the circuit and prior in time to the next successive electrical impulse.

3. A device for actuating a counter mechanism for taximeters for taxis comprising, an impulse generator including a normally open electrical circuit having a source of current, a normally stationary pivotally mounted member carrying a first contact, a stationary second contact connected in said circuit, first means constantly biasing said contact carrying member toward a first position for normally maintaining said first and second contacts in electrical contact, said contact carrying member being movable between said first position and a second position corresponding to a circuit interrupting position, a pivotally mounted arm having a third electrical contact mounted thereon in series with said stationary second contact, a stationary fourth electrical contact in series with said third contact, second means biasing the arm in a direction for causing the third and fourth electrical contacts to make electrical contact, means comprising a cam disc rotatably driven as a function of the distance covered by the taxi cooperative with said arm for periodically allowing the arm to be displaced by said second biasing means to cause it to place the third and fourth contacts in electrical contact for intermittently closing said circuit thereby to generate successive, periodic, electrical impulses, of relatively short duration and for restoring said arm to a rest position holding said third contact spaced from said fourth contact, normally deenergized impulse-responsive means connected in series with said first and second contacts and receptive of the successive impulses thereby to operate the counter mechanism intermittently and including means arranged for actuating the first piv-

otally mounted member to the second position parting the first and second contacts thereby to interrupt said electrical circuit and determine the duration of the impulses, means rendered operative subsequent to generation of an impulse for retaining said first pivotally mounted member in said circuit-interrupting position and means operated by said driven cam disc for cyclically moving said retaining means to a position for allowing said contact carrying member to be restored to said first position subsequent to interrupting the circuit and prior in time to the next successive electrical impulse, and means for allowing actuation of said arm for generating the periodic impulses

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only upon a given number of revolutions of said cam disc.

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