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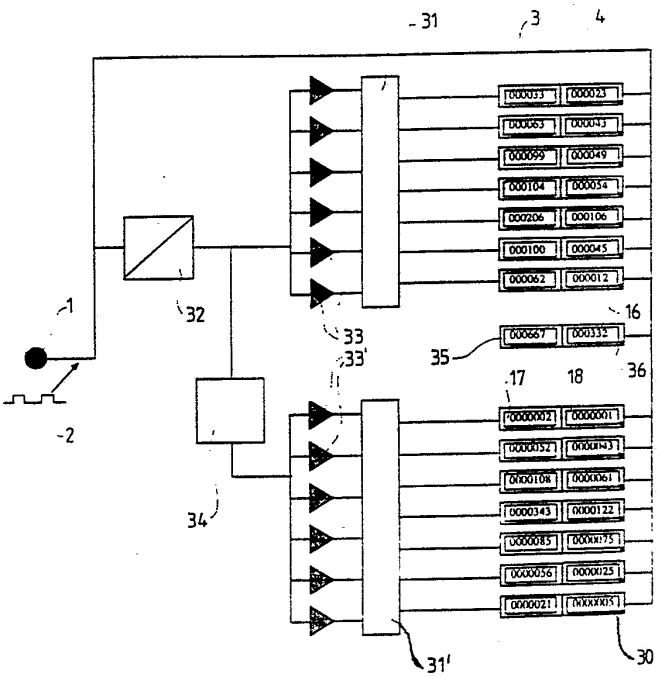
(54) Title: A METHOD FOR THE REGISTERING OF THE DRIVING PATTERN OF A MOTOR VEHICLE, AND AN APPARATUS IN THE FORM OF AN INTERVAL COUNTER FOR CARRYING OUT THE METHOD

(57) Abstract

A method and an apparatus for the registering of the driving pattern of a motor vehicle are adjusted to enable an evaluation of the total driving behavior. The speeds and the accelerations/retardations of the motor vehicle are being converted into pulse signals (2) and sorted into two different groups, one speed counter group (3-16) and one acceleration/retardation counter group (17-30), each being divided into sub-groups indicating number of kilometers driven within a first, a second, a third, etc., speed interval and a first, a second, a third, etc., acceleration/retardation interval, respectively. The sum of the kilometer statements of the sub groups of each group corresponds to the totally driven distance of the motor vehicle measured in kilometers. The apparatus comprises a pulse generator (1) adapted to be mountd to the propulsion system of the motor vehicle, e.g. wheels or gear box, and adapted to supply a pulse signal (2) simultaneously to all counters of both groups, each of which is assigned a logic circuit (31, 31′) controlled by comparators (33, 33′). The pulse generator (1) is connected to the comparators (33) of the speed counters via a pulse frequency/voltage-converter (32) connected to the comparators (33′) of the acceleration/retardation counters via a derivation circuit (33′) deriving speed into acceleration/retardation.



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A METHOD FOR THE REGISTERING OF THE DRIVING PATTERN OF A MOTOR VEHICLE, AND AN APPARATUS IN THE FORM OF AN INTERVAL COUNTER FOR CARRYING OUT THE METHOD

This invention relates to a method for the registering of the driving pattern of a motor vehicle, and an apparatus in the form of an interval counter for carrying out the method.

Recording of the driving pattern of a motor vehicle may be of interest for car owners as well as car insurance companies. The car insurance companies may fit the motor vehicles of their policy holders with the apparatus and read the same at equal intervals. On the basis of these readings, the company may e.g. set a more fair bonus arrangement, i.e. that policy holders having a "careful" driving pattern - low speeds and low accelerations - may be allotted a higher bonus. By that very fact that the policy holders know that their driving pattern is being controlled and recorded, many will be stimulated to change their driving pattern; this will again reduce driving speed, number of accidents, and consequently also the size of the disbursements from the insurance companies. Moreover, when leasing or renting motor vehicles it will be possible to control how the driving has occured. When motor vehicles are to be resold, the apparatus will give an indication of how the motor vehicle has been driven, whereby favorable/unfavorable driving pattern may influence the selling price quite substantially. Car owners may also take an interest in seeing their own driving pattern, for possibly comparing it with others.

The object of the present invention is to provide a method and an apparatus for the registering of the driving patterns of motor vehicles and thereby enable an evaluation of the total driving behavior.

This object is achieved through the features as set forth in the following claims.

In contrast with prior art apparatus for the purpose concerned, which only measure speed above a certain limit, i.e. record speed excesses and take note of these, the method and apparatus according to the invention are based on the registering of speed and acceleration/retardation and and on the sorting of these in different groups.

The apparatus uses the speed of the motor vehicle, i.e. driven distance per unit of time, to generate data describing the driving pattern of the motor vehicle. The apparatus is connected to the propulsion system of the motor vehicle, i.e. wheels or gear box, via a pulse generator adapted to generate a signal proportional to the speed of the motor vehicle. This signal is processed further in the apparatus so that individual kilometer counters are incremented; there being one counter for each speed interval, e.g. 0-10 km/h; 10-20 km/h and so forth. The sum of all counters will constitute the totally driven distance.

On the basis of the speed signal, the apparatus also generates a signal representing the acceleration/retardation (the time derivative of the speed) of the motor vehicle. This signal will be positive when accelerating and negative when decelerating. The acceleration/retardation-signal controls the kilometer counters counting the number of kilometers driven by the motor vehicle in the different areas of acceleration/retardation. Thus, the apparatus comprises two sets of counters, one set of which is

controlled by the speed signal of the motor vehicle, the other set being controlled by the acceleration/retardation-signal of the motor vehicle. Both sets of counters count the number of kilometers driven. By reading the apparatus, one may form oneself an idea of the driving pattern of the motor vehicle, the apparatus stating exact number of kilometers in the different speed zones and acceleration/retardation zones.

The interval counter according to the invention is far more versatile and advanced than prior art technique; this should also appear from the following description of an embodiment of the invention.

Said embodiment is diagrammatically illustrated in the accompanying drawing figure showing a circuit design of an interval counter for motor vehicles.

The interval counter shown comprises a pulse generator 1 which, in a manner not closer shown, is fitted for mounting on a propulsion system of a motor vehicle, i.e. wheels or gear box. The pulse generator 1 having a pulse frequency proportional to the speed of the vehicle, is adapted to give a certain number of pulses per kilometers driven.

Reference numeral 2 denotes a square wave puls from the pulse generator 1. The pulse signal 2 is simultaneously supplied to all of a row of counters.

The counters comprise fourteen speed counters 3, 4 ....16 in two sets, one set of which can be reset to zero, as well as fourteen acceleration/retardation counters 17, 18 ....30 in two sets, one set of which can be reset to zero, and being arranged in two separate groups each of which is assigned a logic circuit 31 and 31', respectively. When supplying the pulse signal 2, only one speed counter, say 3, and one

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