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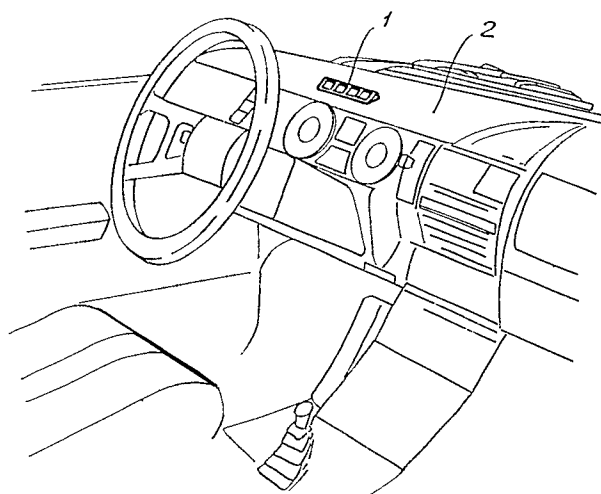
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(54)

An automatic electronic elapsed time indicator.

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An automatic electronic elapsed time indicator has a display (1) linked to two counters, one of which produces signals to display chronological time and the other of which produces signals representing elapsed time since the counter was triggered. The display and counters are connected to an electrical component (3) of the engine of a motor vehicle to be automatically activated whenever the engine is switched off to display elapsed time and connected when the engine is switched on, to zero the elapsed time counter and display the output of the chronometer counter.



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"An Automatic Electronic Elapsed time indicator"

The present invention relates to an automatic electronic elapsed time indicator.

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To indicate the elapsed time for which a motor vehicle has been stopped it is known to make use of a so-called "time disc", which in practice is constituted by a support on which are indicated the
10 various hours of the day with an index or reference element which is positioned by the user in correspondence with the time (in hours and minutes) at which the vehicle was stopped and from which time, in practice, the time allowed for parking is calculated.
15

Such a time disc, whilst being widely utilised has a

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plurality of significant disadvantages, the first of which is constituted by the fact that often the user forgets to set the starting time when the vehicle is first parked, leaving the vehicle without setting the time disc and thus being liable to a penalty for contravention of the law where such time discs are a legal requirement. Another disadvantage is constituted by the fact that the known time disc can allow the unscrupulous to attempt at fraud by deliberately setting the indicator of the time disc to show a starting time after that when the vehicle was actually parked in order wrongly to prolong the duration of the time for which parking is permitted.

15 The present invention seeks therefore to eliminate the above indicated disadvantages by providing a new type of time indicator which has electronic timing means which by automatically commencing a display of elapsed time when the vehicle is stopped gives the user the certainty of having a precise indication of the time at which parking commences without the necessity of having to set a time disc indicator manually.

25 A feature of the present invention is that by providing an automatic electronic time indicator there is no possibility of inadvertent or fraudulent mis-setting of the time of commencement of the parking period because the device is fully automatic and not subject to manual intervention.

According to the present invention, therefore, there

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is provided an automatic electronic elapsed time indicator device characterised by the fact that it comprises a digital display which can be fitted to the interior of a motor vehicle and by the fact that
5 it includes first counter means for producing signals representing chronological time, second counter means for producing signals representing elapsed time, and means for connecting the display device and the two counters to the engine of a motor vehicle such that
10 the first counter is connected to the display when the engine is switched on so that the device displays chronological time and the second counter is connected to the display when the engine is switched off so that the device displays the time elapsed since the
15 engine was last turned off.

Embodiments of the present invention thus allow the user always to have a reliable indication of the residual time of a permitted parking period.
20 Embodiments may also be provided with means for "warning" the user that the whole of a permitted parking period has elapsed.

An advantage of the present invention is that because of its particular constructional characteristics the device is able to offer a certain and reliable timing device for indicating elapsed time for measuring the length of time for which a vehicle has been parked, which has the additional value of serving
25 as a chronometer during use of the vehicle.
30

Another advantage of the present invention is that it

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provides an automatic electronic time indicator which is easily produced from components which are commonly available on the market and which, moreover, is competitive from an economic point of view.

One embodiment of the present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

10 Figure 1 is a schematic perspective view of an electronic elapsed time indicator formed as an embodiment of the invention, fitted to the interior of a motor vehicle; and

15 Figure 2 is a schematic front view showing the connection of the electronic elapsed time indicator of Figure 1 to a component of the car.

Referring now to the drawings, the automatic electronic elapsed time indicator of the invention comprises a digital display device, generally indicated with the reference numeral 1, which advantageously is so shaped that it can be fitted to the dashboard 2 of a motor vehicle in such a way as to be easily visible both from the interior and exterior of the motor vehicle.

The digital display device 1 incorporates first counter for producing signals representing chronological time which, in operation, behaves as a normal chronometer to cause the device 1 to indicate the time of day in hours and minutes, and a second counter for producing signals representative of elapsed time, which automatically starts operating as soon as the engine of the motor vehicle is switched

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off. Thus, as soon as the engine stops the digital display switches from its chronometer counter to its elapsed time counter to provide a reliable indication of the length of time elapsed since stopping;chron-
5 ological time, that is to say time as determined by the chronometer counter remains in this counter without being displayed.

Advantageously, a switching circuit for the second
10 counter is connected to the distributor 3 of the motor vehicle, or alternatively to another electric component of the vehicle such as the ignition coil or the ignition switch, which is activated during operation of the engine and is inactive whenever the
15 engine is switched off. In this way, whenever the operation of the engine is interrupted, the second counter is automatically activated. This counter is automatically zeroed as soon as the engine is started so that when it is turned off the device is able
20 immediately to start to indicate on the display the passage of time since stopping the engine, therefore providing on the display screen an indication of the elapsed time since stopping which is always precise and accurate. In this way there is no possibility that the user, either by forgetting or deliberately,
25 may fail to set the indicator.

Whenever the engine is started the display device immediately reverts to its chronometer function displaying chronological time and the second, or
30 elapsed time counter is automatically zeroed.

Because of this automatic operation the user cannot

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fraudulently vary the setting of the indication of the elapsed time.

5 The electronic display device of the invention may also be complemented by a portable acoustic indicator made, for example, in the form of a key case or the like, which can be actuated by a push-button by the motorist at the time of commencement of parking, or may be mounted on the display device 1 and triggered by the same signal as initiates the operation of the second counter when the engine is switched off, and which indicates the elapse of time with an acoustic signal at regular intervals, or at other intervals in such a way as to give the motorist always
10 an indication relating to the elapse of time, thereby serving in practice as a portable warning for the user that the permitted parking time has expired or is about to expire.

20 From what has been explained above it will therefore be seen how the invention achieves the proposed object.

In particular, it is to be underlined that an electronic timing device is thus provided which is able
25 to perform several functions, which are those of a traditional chronometer, as well as an elapsed time indicator for indicating the time for which a vehicle has been stopped. By arranging for automatic commencement of the elapsed time indication it is possible to secure a precise and true display of the
30 time for which a vehicle has been parked, without any possibility of any intervention by the driver. It

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is also possible to provide an associated
timing device which is able to warn the motor-
ist whenever a predetermined elapsed time has
passed to indicate that the period of permitted
5 parking is over.

Claims:

1. An automatic electronic elapsed time indicator device, characterised by the fact that it
5 comprises a digital display (1) which can be fitted to the interior of a motor vehicle (2) and by the fact that it includes first counter means for producing signals representing chronological time and second
10 counter means for producing signals representing elapsed time, and means for connecting the display device and the two counters to the engine of a motor vehicle such that the first counter is connected to the display when the engine is switched on so that the device displays chronological time and the
15 second counter is connected to the display when the engine is switched off, so that the device displays the time elapsed since the engine was last turned off.

2. An automatic electronic elapsed time
20 indicator device according to Claim 1, characterised by the fact that the said second counter means is linked to an electrical component of the engine to detect when the engine is operating.

25 3. An automatic electronic elapsed time indicator device according to Claim 1 or Claim 2, characterised by the fact that the said second counter means are associated with the distributor of the motor vehicle.

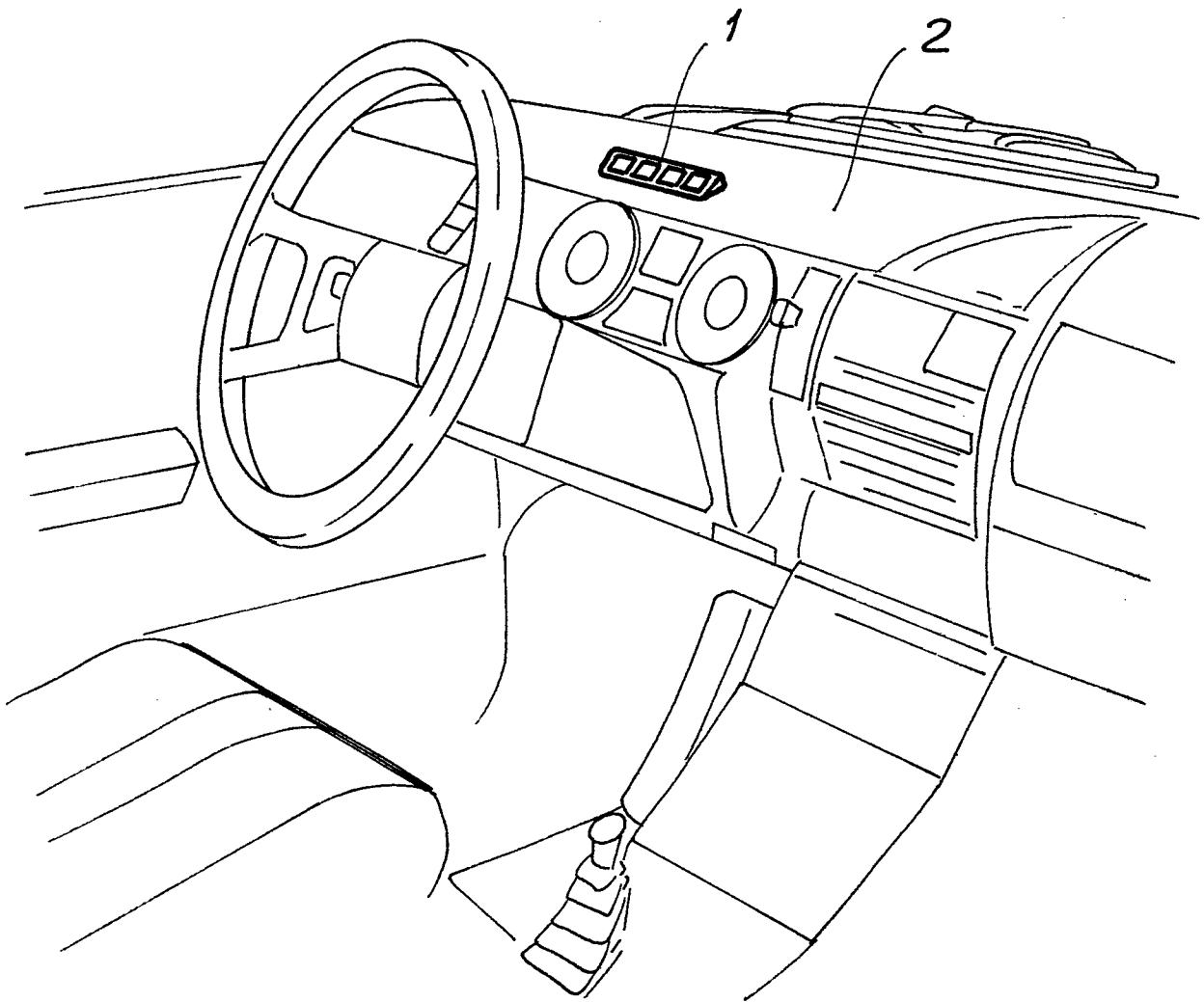
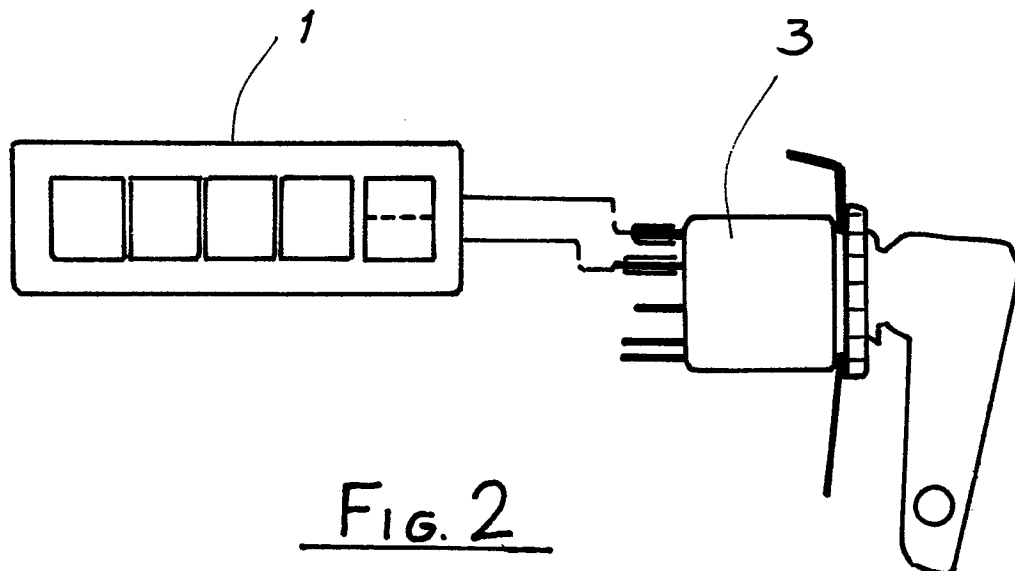
30 4. An automatic electronic elapsed time indicator device according to any preceding Claim,

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characterised by the fact that the said digital display is electrically connected to the battery of the motor vehicle.

- 5 5. An automatic electronic elapsed time display device according to any preceding Claim, characterised by the fact that it includes a removable and portable electronic timing device which may be started by a push-button or by the same signal
- 10 as triggers the said second counter, the timing device being operable to provide acoustic output signals after the elapse of one or more selected or predetermined time periods.

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FIG. 1FIG. 2