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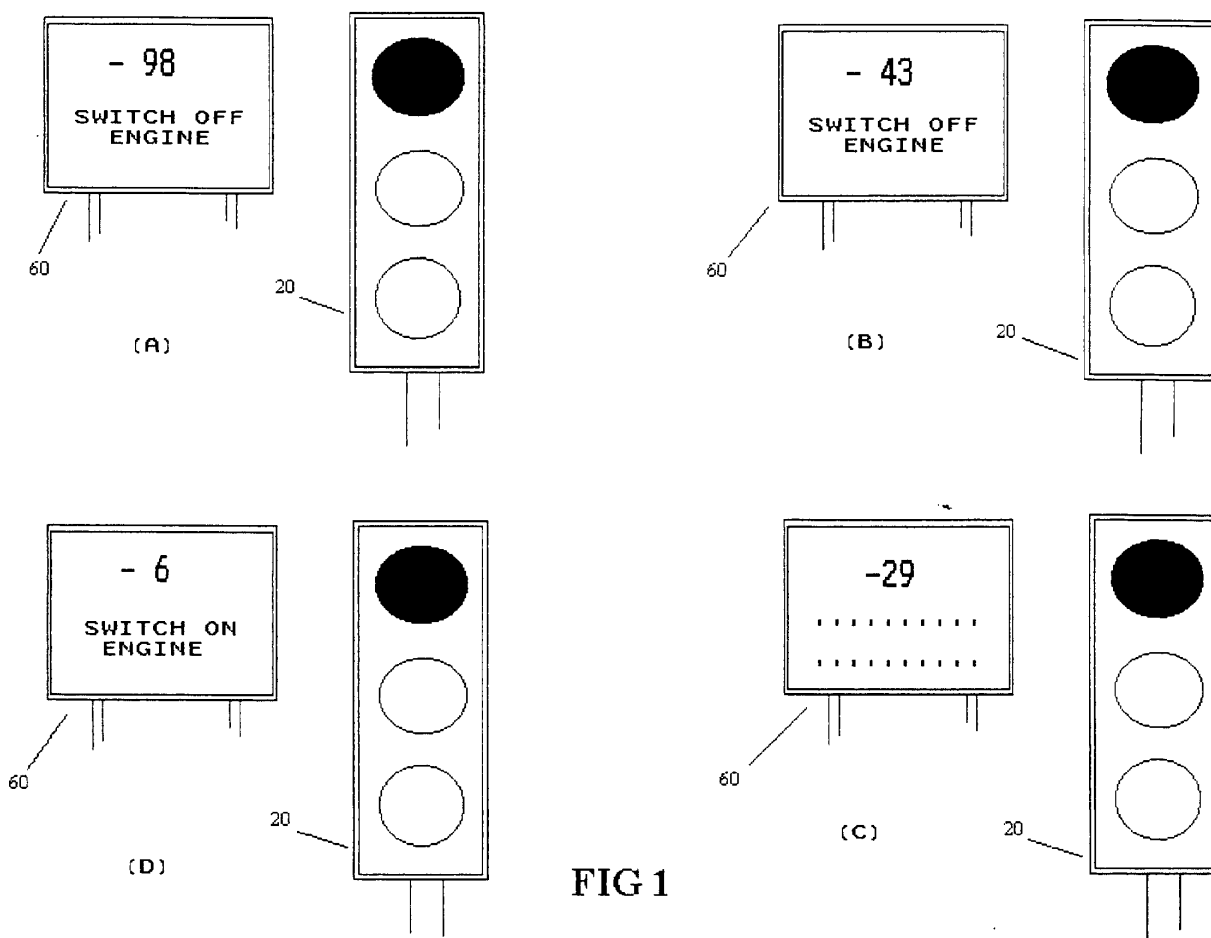
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(54) **Saving pollution by advising drivers to switch off engines at traffic light**

(57) The object of the present invention is to provide a conventional traffic light with a variable message display that indicates the remaining time before traffic signal turns from red to green and a notice that contains

the sentence "switch off" or "switch on", in order to push the drivers to switch off their engines, the main target being to save gasoline and to protect the environment by reducing emission of gas in the atmosphere.



Description

BACKGROUND OF THE INVENTION

[0001] In the current environment where the pollution generated by the gas expelled by the vehicles is increasing day after day, all the experts agree that this human pollution is the main cause of the evolution of the climate condition in the world, and is a serious risk for the future of the planet.

[0002] This invention intends to bring a solution to the problem of the pollution generated by the increasing consumption of petrol and gasoline.

[0003] Millions and millions of cars are stopped every second at traffic lights all around the world and I wondered the following: Why would not drivers switch off their engines stopping in this way to consume gasoline and therefore reducing pollution (and noise)?

[0004] The present invention proposes a method to give the possibility to the drivers to switch off the engines of their vehicles when they are stopped in a line, waiting at the red light of the traffic light.

[0005] People stopped at the level crossing are used to switching off their engines. In this specific case, the situation is clear: the time cars will remain stopped is generally long enough, and the bar movement indicates very clearly to the drivers the moment when they have to switch on again.

[0006] Similarly, it is possible, in general, in the traffic, to indicate to the drivers the time the red light will last so that they can decide whether they have to switch off or not. We only need to apply to the traffic light and especially to the red light a count down timer that provides a display of the seconds remaining before traffic signal turns from red to green.

[0007] In some patents, there are applications of countdown timer to traffic lights (US 6,268,805 / GB 2 248 136/US 5,519,390/CH622117/DE3106804, especially in the last two patents, the countdown is only linked to the red phase of the traffic light).

[0008] The very important point is that switching off the engine for a very short time and switching it on again, can increase the consumption of gasoline and petrol and therefore the pollution. Research from very important European car manufacturers indicates that switching off the car for more than 30 or 40 seconds allows to save gasoline or petrol and to reduce pollution. One reason for this is that a car consumes more gasoline at the moment of the ignition of the engine.

[0009] For this reason, applying only a count down timer to a traffic light is absolutely not enough to reach our target to reduce gas emission and pollution. We need to add a proper signal to give to the drivers the crucial indication, that is to say to switch off or switch on the car, otherwise we run the risk to miss our goal and even increase pollution (if a car arrives at a traffic light indicating that the remaining time to the green is 20 seconds, and that he decides to switch off his engine, he

can increase the gas emission in the atmosphere).

[0010] To solve the above problem, the idea is to apply to the traffic light a countdown, linked to a display panel with a written message: the countdown starts with the red light and the variable message signs shows the message including the sentence "switch off engine" (in the appropriate language). When the countdown reaches minus approximately 30 or 40 seconds, then the "switch off" signal disappears and approximately 5 seconds before the green light, a new message appears, indicating to "switch on" again the engine.

[0011] The object of the countdown is to avoid that the drivers have to watch constantly the written message on the screen to see when they have to switch on again and therefore to reduce the stress: the combination is the perfect way to reach the target.

[0012] The present method will be described further below with more details in the description.

[0013] It is useful in all the crossroads where the red light is long enough to permit it. The implementation of this method could lead to some changes of the traffic organisation, with an extended red phase and a longer green phase in order to push stopped cars to switch off engines.

[0014] Just to close this background chapter, I would like to give an example to show how useful these measures could be to support the environment protection policy:

[0015] According to personal calculation: In a crossroad of 2 streets (one main and one secondary) with 4 traffic lights, I experienced that in the secondary street the red light lasted 90 seconds, the yellow 5 seconds and the green 25 seconds. Taking into consideration the period of the day from 08 am to 06 pm, it is easy to calculate that the red phase will be on 30 times per hour so 300 times in 10 hours. That means $300 \times 90 = 27000$ seconds, ie a red light for 7 hours and 30 minutes.

[0016] Taking into account an average of 15 cars stopped at the red lights, during our 10 hours period, it means that we can estimate that 15 vehicles could have been switched off almost 7 hours and 30 minutes on the secondary road.

[0017] I personally calculated that some traffic lights could have a 2.5 minutes red phase with only 25 seconds green.

DESCRIPTION

[0018] The first object of the present invention is to provide a traffic light with a variable message signs that indicates 1. the remaining time before traffic signal turns from red to green 2. a notice that contains the sentence "switch off", for example "when vehicle is stopped switch off".

[0019] The countdown and the written message can be part of the same screen or can be 2 separated entities as soon as they are linked and synchronised.

[0020] It is possible to use two separated displays

such as a data display and a timer display, but as above mentioned the two screens have to be linked in order to have the message and the countdown working together.

[0021] The Technologies used in the variable message signs can be LED-based technology or LCD-based technology or full matrix solution.

[0022] The countdown works only with the red light and starts when the red light appears, counting down the number of seconds left in the red light.

[0023] The message including the sentence "switch off" will appear at the same time as the count down or immediately after.

[0024] Another important object of the invention is that when the count down reaches (approximately) minus 30 or 40 seconds, the message including "switch off" disappears: We want to avoid that drivers switch off their engines if the remaining time to the green is not long enough to reduce pollution and emission of gas. Research from very important European car manufacturers indicates that switching off the car for more than 30 or 40 seconds allows to save gasoline or petrol and to reduce pollution.

[0025] It is also an object of the invention that at approximately minus 5 to 10 seconds before the green light a new message appears including the sentence "switch on". This message must remain on the screen enough to give time to drivers to react and switch on.

[0026] An object of the invention is also that the time between the message including the sentence "switch off" and the one including the sentence "switch on" can change if new research indicates that the time the vehicle needs to be switch off to save gasoline and petrol and reduce pollution can be different from 30/40 seconds.

[0027] Another object is that the colour of the written messages and the numeric countdown must be red, in order not to create confusion for the drivers approaching the traffic light.

[0028] The last object of the invention is that the variable message signs display used to indicate whether the driver has to "switch on" or "switch off" the engine can be used for other purpose when there is no notice (between approximately minus 30/40 seconds and approximately minus 5 seconds before green light): in particular this time can be used for advertising or traffic information.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] Fig 1 is an illustration of the invention showing different phases from A to D where the variable message display (60) is connected with the traffic light (20) and gives indications to the drivers regarding the moment when they have to switch off or switch on their engines and regarding the time left for the red phase.

[0030] In particular, in the phase C, when there is no message including the sentence "switch off" or the sentence "switch on", it is possible to use the screen to give

traffic information to the drivers or to make advertising, whereas the countdown is still working.

[0031] The traffic light can be connected to a unique screen indicating to the drivers the countdown as well as the advise (switch on or switch off) like in the Fig 1 or to two different screens like in the figure 2: the traffic light (20) is then connected to two separated screens (60a and 60b) linked and synchronised.

[0032] Fig 3 is an electronic block diagram of the invention. The configuration A corresponds to the use of a unique screen (60) for both the countdown and the written message. The configuration B corresponds to the use of two separated screens (60a and 60b), linked and synchronised.

Claims

1. A conventional, currently used, traffic light (standard 3 colours, red, amber and green) **characterised in that**

A display including:

- a) a message that contains the sentence "switch off" or "switch on"
- b) a countdown indicating the number of seconds left in the red light before the traffic signal turns from red to green

is attached to it.

2. A traffic light as claimed in claim 1, **characterised in that** the message indicating "switch on" or "switch off" and the countdown for the red light are linked and synchronised.

The message including "switch off" appears at the beginning of the red phase and disappears approximately 30 to 40 seconds before the end of the red phase. The message including "switch on" appears approximately 5 to 10 seconds before the red light turns into green.

3. A traffic light as claimed in claim 1 and 2, **characterised in that** the time between the messages including the sentence "switch off" and "switch on" is not fixed and can be changed. At the moment, 30 to 40 seconds are necessary to justify to switch off the car instead of leaving it switched on, allowing to reduce the consumption of gasoline or petrol and to reduce gas emission and pollution. This 30/40 seconds period could evolve thanks to new engines and technologies, less polluting or according to local regulations.

4. A traffic light as claimed in claim 1 and 2, **characterised in that** the fact that the countdown and the written message can be part of the same variable message display or can be separated on 2 different

screens, as soon as they are linked and synchronised.

5. A traffic light as claimed in claim 1 **characterised in that** the colour of the written message including "switch on" or "switch off" and the colour of the countdown have to be red, in order to avoid confusion for the drivers approaching. 5
6. A traffic light as claimed in claim 1, 2 and 3 **characterised in that** the screen including the written message mentioning "switch off" or "switch on" can be used to give traffic information or for advertising as soon as the countdown is still proceeding. 10

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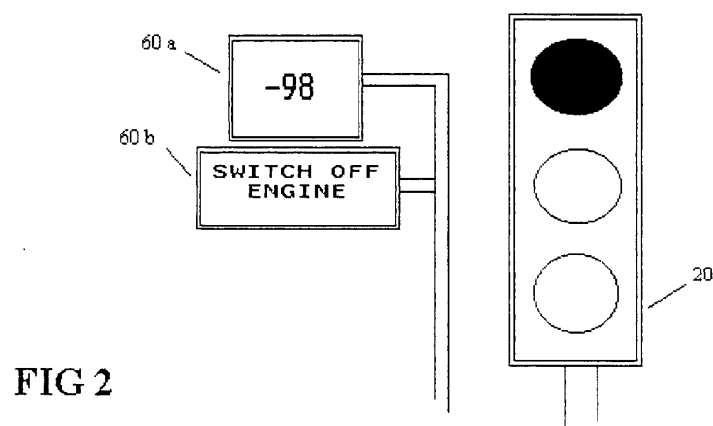
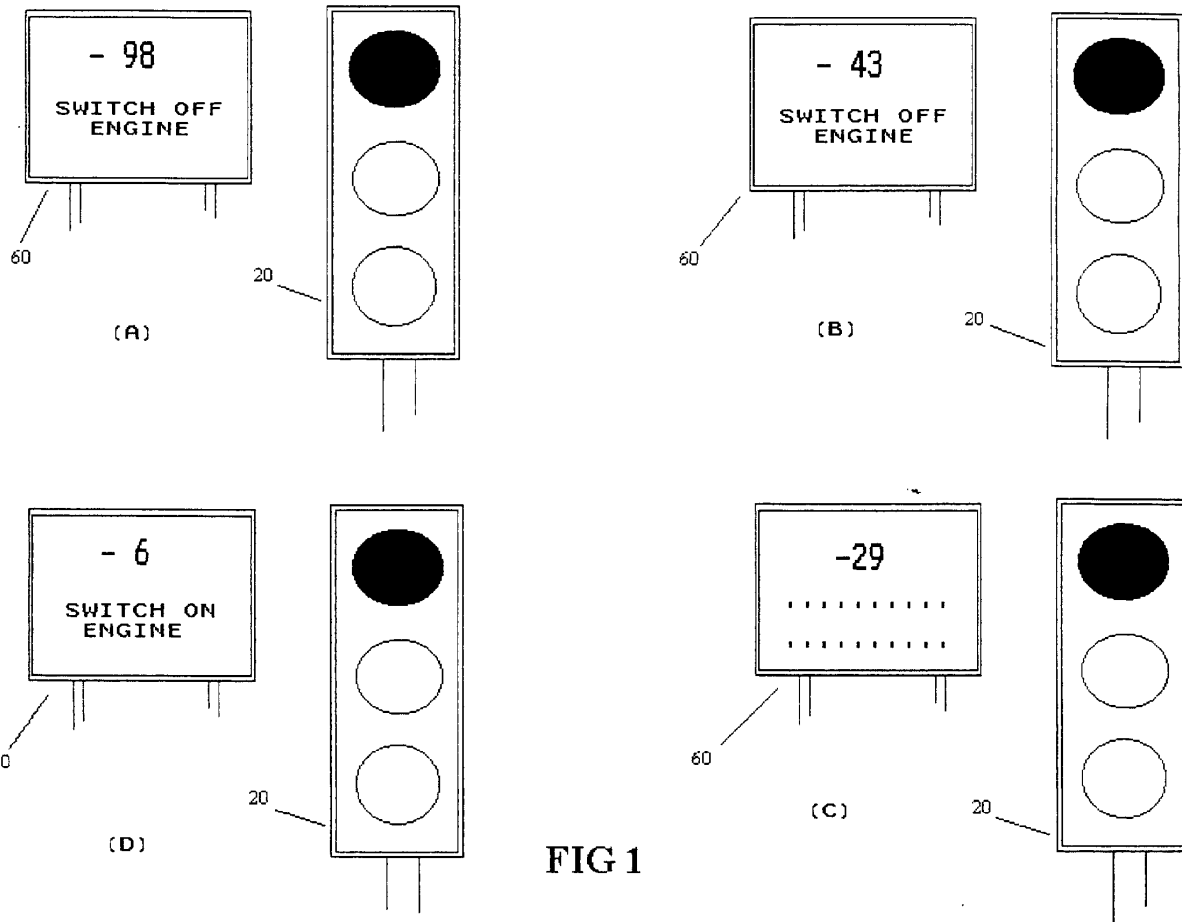
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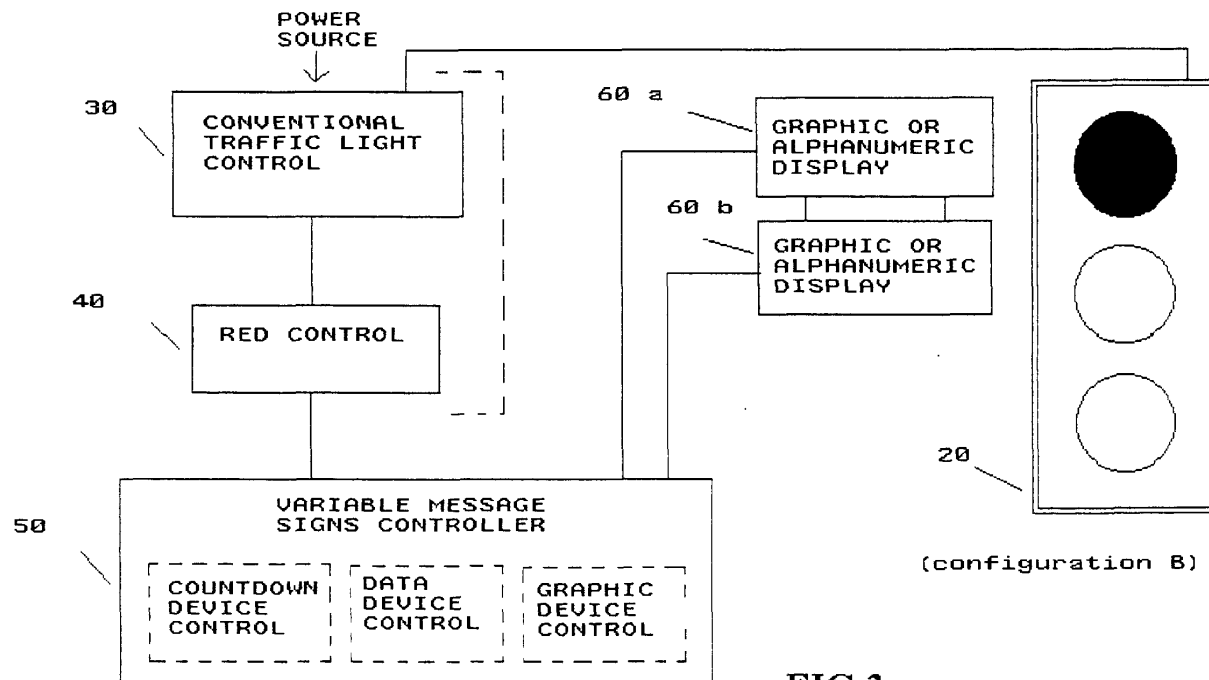
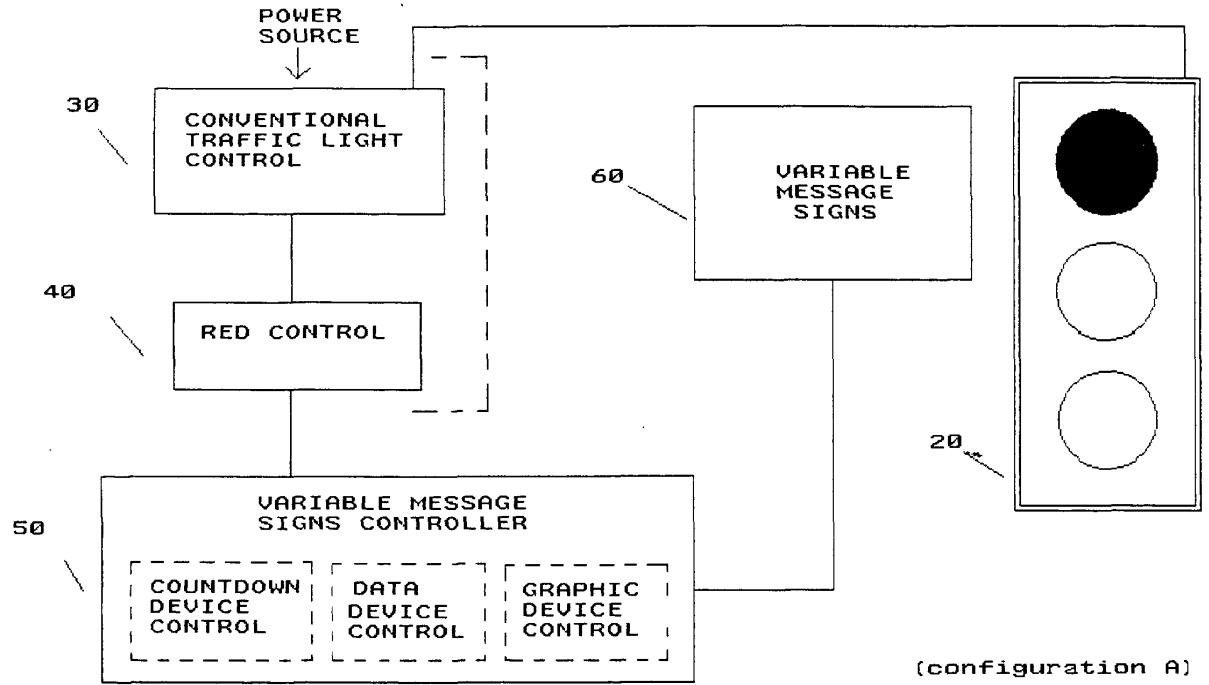


FIG 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 40 2759

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
D,X	US 5 519 390 A (CASINI PETER) 21 May 1996 (1996-05-21) * abstract *	1,2,4-6	G08G1/096 G08G1/095
A	* column 2, line 46 - line 49; figure 2 * * column 2, line 56 - column 2, line 67; figures 4,5 *	3	
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A	* page 7, paragraph 2 - page 8, paragraph 3; claims 1,10 *	3	
X	US 6 087 962 A (ROJAS HECTOR REYNALDO) 11 July 2000 (2000-07-11) * abstract *	1,2,4,6	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 28 January 2002	Examiner Heß, D
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 40 2759

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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