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(54) **Computer controlled system concerning dynamic speed advice for motor vehicles**

(57) The present invention relates to a strongly improved in a very inventive way work method and system for controlling traffic flows consisting of the vehicles (7, 8, 9) over mainly roads with speeds varying of approximately 50-80 km an hour, in which, by specific software on a signal (1) with matrix signal indicators a speed advise (2, 10, 11, 12) and phased traffic lights (3, 13, 14,

15) are indicated, in which the mentioned software incorporates the data of the traffic lights (16, 17, 18, 19, 20) of the crossing (21) in the route (5) into the mentioned speed advise, in which the driver for psychological reasons adjusts to that speed, because he discovers that he is rewarded by green traffic lights (16, 17) at the end of the road section.

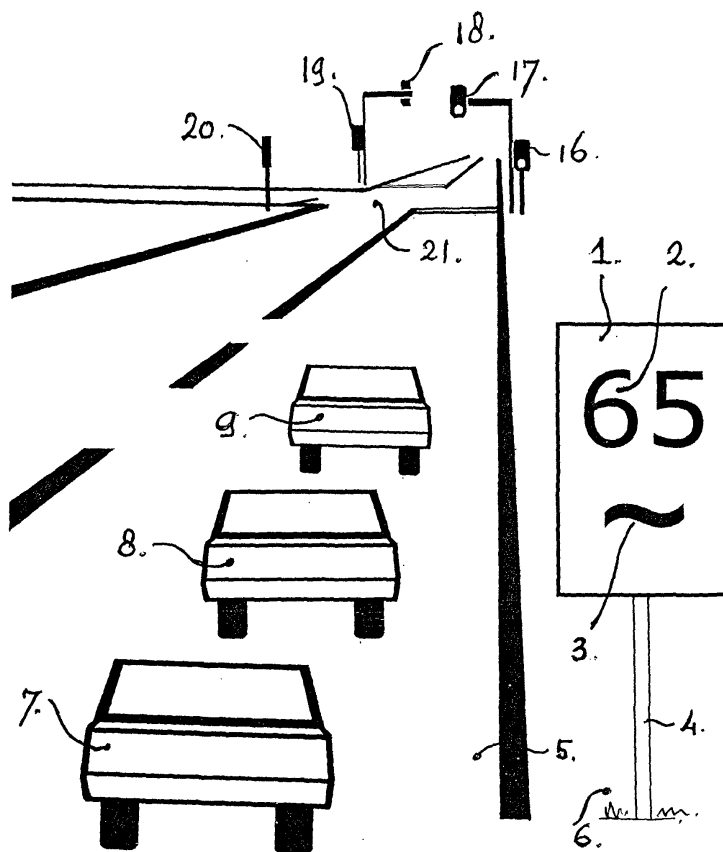


FIG. 1.

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Description

[0001] The present invention relates to a work method for controlling traffic flows on a road section by means of signals, in which, under circumstances determined speed advice is used at the beginning of a section or route for, for example motor vehicles or track vehicles.

[0002] Somewhat similar work methods and systems are known as speed indicators by means of signs with electronic indications of the maximum speed above roads and highways. With this system the intensity of the traffic is determined by means of cameras or inner detection loops and with an accepted traffic model the most desirable speed is determined to handle the traffic on the highway. Here it concerns simple traffic means which count for a road section or route section with multiple lanes. The traffic from approach and exit roads in between is dosed separately on the concerned traffic flow on the lane on pre-calculated speeds of the highway. The concerned traffic models have the disadvantage that they cannot be used on routes with traffic lights. A number of traffic lights on a route, where mostly a maximum speed is allowed of 50-80 km an hour and to which several side roads join onto the route, are controlled by means of crossings with traffic lights. Therefore a complex situation is created in such a way, that the whole must be managed including the crossings with traffic lights to side roads and with that the road user must become convinced that the speed advice gives him or her phased traffic lights. So actually, this is the reward which the road user gets through which he more or less spontaneously and certainly adjusts to the speed advice after using the route several times and groups of vehicles start using the speed advice for the road or route in a platoon-like manner. The existing traffic programming and technologies have the disadvantage that a dynamic speed advice for vehicles is not possible.

[0003] The aim of the present invention concerns to provide such a work method and system, that the aforementioned disadvantages are eliminated and that it can come to a reliable speed advice for vehicles on roads of 50-80 km an hour and which leads to a very efficient traffic control and of which the system can be build-in in existing situations in an economic favourable way.

[0004] Therefore a computer controlled work method for controlling traffic flows by means of signs on a stretch or route between two or more crossings with traffic lights is further developed in a very inventive way, so that at the beginning of the mentioned stretch or route between two or more by traffic lights controlled crossings by means of a sign, with matrix signal indicators placed alongside or above the lane or route, the mentioned speed advice with below that the phased traffic lights signal is given, in which the matrix signal indicators are controlled by means of computer software, in which the data of the operation of the traffic lights with mentioned software are processed so, that on the mentioned sign with matrix signal indicators an optimal driving speed for

the road or route user including a phase traffic lights signal is given, in which the mentioned driving speed is a speed advice, in which the dealing of the vehicle flow, can optimally take place in a platoon-like manner and can be adjusted by means of a new speed advice at a too fast or too slow speed during the course of the route.

[0005] The advantage is that an optimal dealing with traffic over the concerned stretch or route is created.

[0006] Furthermore the device according to the invention is further developed in such a way, that the mentioned sign with matrix signal indicators for the traffic, placed beside or above the route, has suitable dimensions and is mostly fixed to a post for lead-through of cabling to a computer system, which is also connected with cabling to the mentioned traffic lights and in which the mentioned computer system is provided with a voltage source or a connection to the electricity grid.

[0007] The advantage is a functioning that is not influenced by unwanted signals from outside or magnetic fields.

[0008] Furthermore the device according to the invention is further developed in such a way, that the mentioned speed advice lies mostly between approximately 40 and 80 km an hour and that the indication is done in steps of approximately 5 km an hour, which speed advice is the most desirable speed for the mentioned stretch or route to use the phased traffic lights system, and that outside the mentioned area of the speed advice preferably no speed is indicated and the phased traffic lights' signal is crossed out.

[0009] The advantages are that in the concerned speed interval from 40 to 80 km an hour, a suitable speed is given every time and outside that no speed is given and in which then also the phased traffic lights mark is crossed out.

[0010] Furthermore the device according to the invention is further developed in such a way, that the mentioned software has been further developed from so called basic software for realizing the so called semi-rigid control, in which mentioned basic software is already used in practice successfully for quite some time.

[0011] The advantage is that software used is a further surprising development of the so called semi-rigid controls, which have already shown their usefulness in practice.

[0012] The preferred construction of the invention will be described by way of example, and with reference to the accompanying drawing, in which:

- Fig. 1 shows a view in oblique projection of a sign with matrix signal indicators forming a part of the work method and the system according to a preferred embodiment of the invention; and
- Fig. 2 shows three possible manifestations of the sign of figure 1 provided with matrix signal indicators, with which according to the invention the speed advice is communicable.

[0013] Figure 1 shows a view of sign 1 with matrix signal indicators with speed advice 2, in which this forms a part of the work method and the system according to the invention. The part of the matrix signal indicators for the phased traffic lights is indicated with 3. The signal 1 is mounted to a post 4 for placement in the correct position beside the lane 5 in the soft shoulder 6. Further in post 4 cabling has been applied to couple this sign to the computer system not shown. In figure 1, the private cars 7, 8, 9 and so on drive as a platoon in order to use the stretch optimally. This has a psychological effect for the private car 7, 8, 9 drivers because they discover that by using the speed advice 2 they will be rewarded by green lights at the traffic lights 16 and 17, through which the road users will automatically adjust their speed. The mentioned speed advice 2, 10, 11, 12 of the matrix signal indicators of the signal 1 is controlled by software not indicated, with which amongst others the data of the traffic lights 16, 17, 18, 19 and 20 of, for example, a crossing 21 is incorporated.

[0014] The same system can also be used for track vehicles over rails and public transport over bus lanes and such which are not further indicated.

[0015] Figure 2 shows three possible manifestations of the speed indicators 10, 11 and 12 with the accompanying indication whether the phased traffic lights 13, 14, 15 are working or not. If this is not present the signal is crossed out, as at 13, and no speed advice is given.

[0016] Finally it has to be emphasized, that the above description constitutes a preferred embodiment of the present invention and that further variations and modifications are still possible without departing the scope of this patent description.

Claims

1. Work method for controlling traffic flows on a road section by means of signals, in which, an under circumstances determined speed advice is used at the beginning of a section or route for, for example, motor vehicles or track or rail vehicles, **characterized in that**, at the beginning of the mentioned stretch or route between two or more by traffic lights (16, 17, 18, 19, 20) controlled crossings (24) by means of a sign (1) with matrix signal indicators, placed alongside or above the lane or route (5), the mentioned speed advice (2, 10, 11, 12) with below that the phased traffic lights signal (3) is given, in which the matrix signal indicators are controlled by means of computer software, in which the data of the operation of the traffic lights (16, 17, 18, 19, 20) controlled with mentioned software are processed in such a way, that on the mentioned sign (1) with matrix signal indicators an optimal driving speed for the road or route user including a phased traffic lights' signal (3, 13, 14, 15) is given, in which the mentioned driving speed is a speed advice (2, 10, 11, 12), in which

the dealing of the vehicle flow, consisting of vehicles (7, 8, 9) can optimally take place in a platoon-like manner and can be adjusted by means of a new speed advice (2, 10, 11, 12) at a too fast or too slow speed during the course of the route (5).

2. Work method as claimed in claim 1, **characterized in that**, the mentioned sign (1) with matrix signal indicators placed beside or above the route (5) for the traffic, has suitable dimensions and is mostly fixed to a post (4) for lead-through of cabling to a computer system, which is also connected with cabling to the mentioned traffic lights (16, 17, 18, 19, 20) and in which the mentioned computer system is provided with a voltage source or supply or a connection to the electricity grid.
3. Work method as claimed in claims 1 and 2, **characterized in that**, the mentioned speed advice lies mostly between approximately 40 and 80 km an hour and that the indication is given in steps of approximately 5 km an hour, which speed advice (2, 10, 11, 12) is the most desirable speed for the mentioned stretch or route (5) to use the phased traffic lights system (3, 13, 14, 15).
4. Work method as claimed in claim 3, **characterized in that**, that outside the mentioned area of the speed advice (2, 10, 11, 12) preferably no speed is indicated and the phased traffic lights' signal is crossed out.
5. Work method as claimed in aforementioned claims, **characterized in that**, the mentioned software has been further developed from so called basic software for realizing the so called semi-rigid control, which mentioned basic software is already used in practice successfully for quite some time.
6. System or device for designing and executing the work method of the aforementioned claims, **characterized in that**, this consists of a set up Central Processor Unit (CPU) with accessories in a housing and is supplied with specific software, which is coupled by means of cabling to a voltage source or supply and to an operating system for traffic lights (16, 17, 18, 19, 20) and matrix signal indicators of the mentioned signs (1) alongside the route (5).

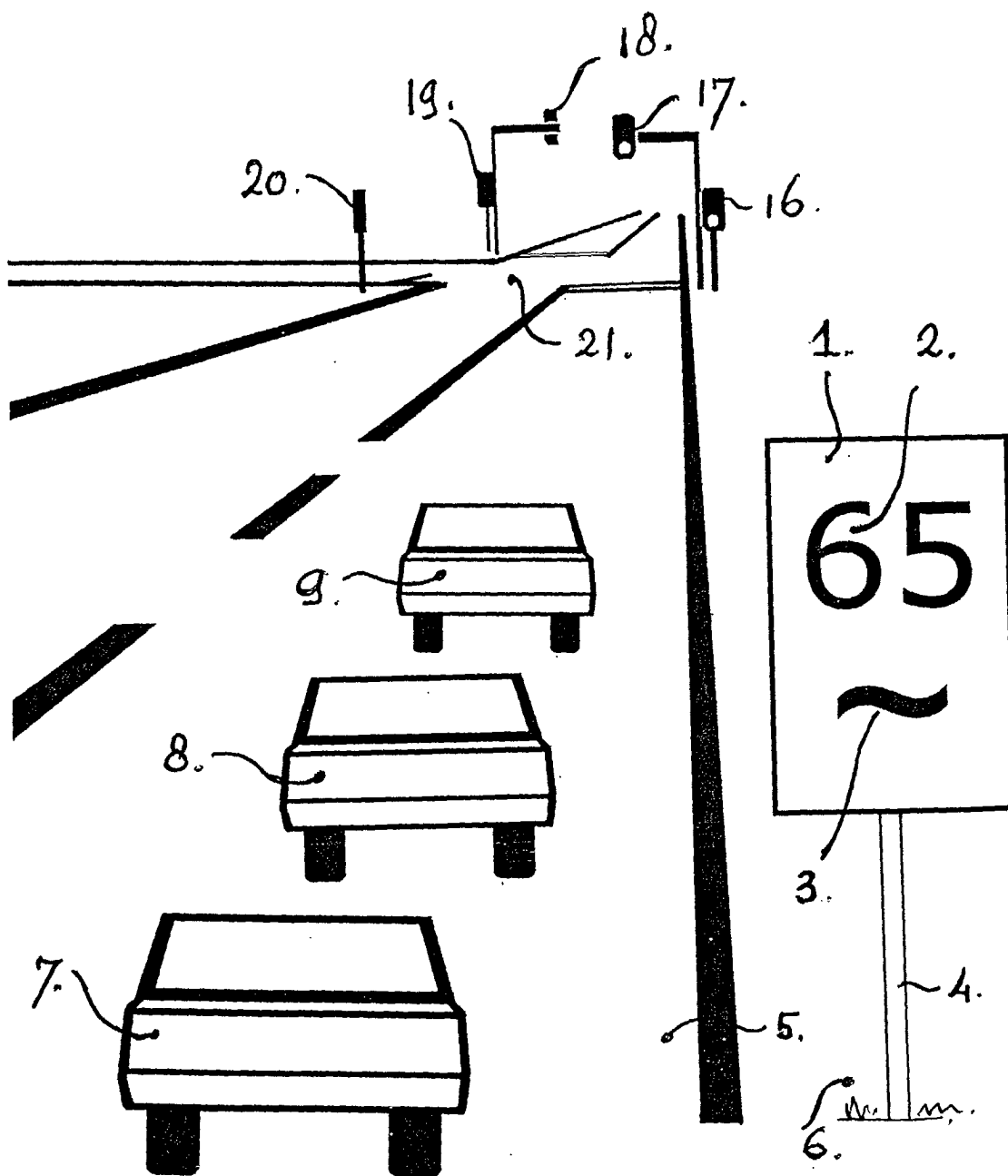


FIG. 1.

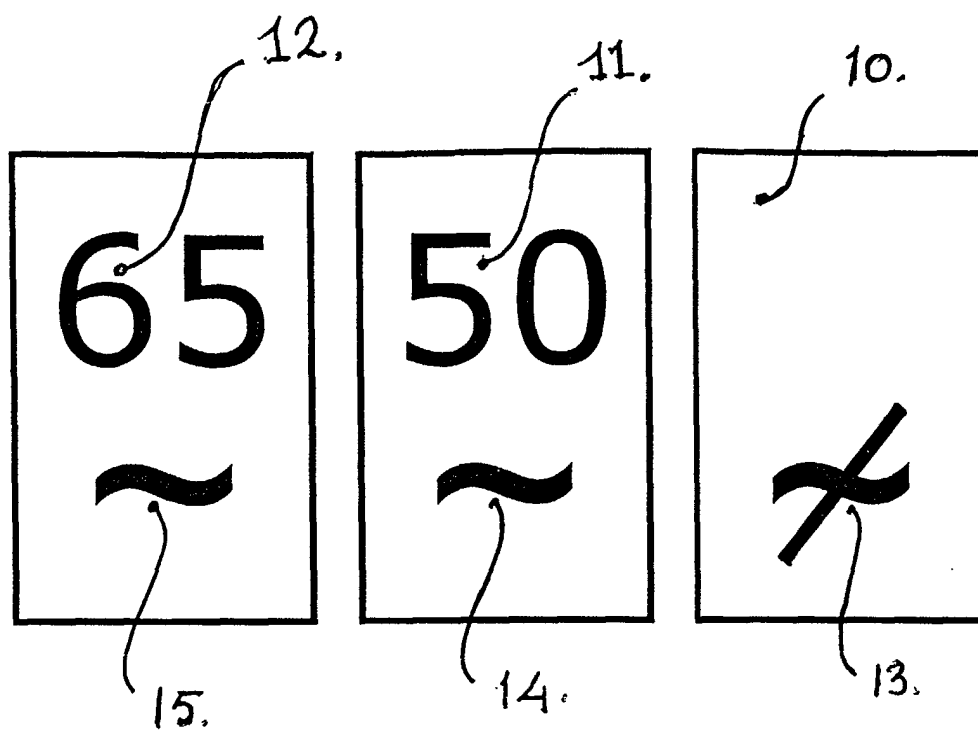


FIG. 2.



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EUROPEAN SEARCH REPORT

Application Number
EP 02 07 7332

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)
X	US 5 617 086 A (KLASHINSKY ROD ET AL) 1 April 1997 (1997-04-01) * column 2, line 9-23 * * column 4, line 49-55 * * column 5, line 7-22 * * column 9, line 25-34 * * figures 1,7,9,11 * ---	1-6	G08G1/09 G09F19/22
X	US 5 278 554 A (MARTON LOUIS L) 11 January 1994 (1994-01-11) * column 6, line 7-15 * * column 21, line 21-28 * * figure 1 * ---	1-6	
X	WO 96 36032 A (JEON YOUNG IL) 14 November 1996 (1996-11-14) * figures 3,10,15 * -----	1-6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			G08G G09F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		6 November 2002	Flores Jiménez, A
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 02 07 7332

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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06-11-2002

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