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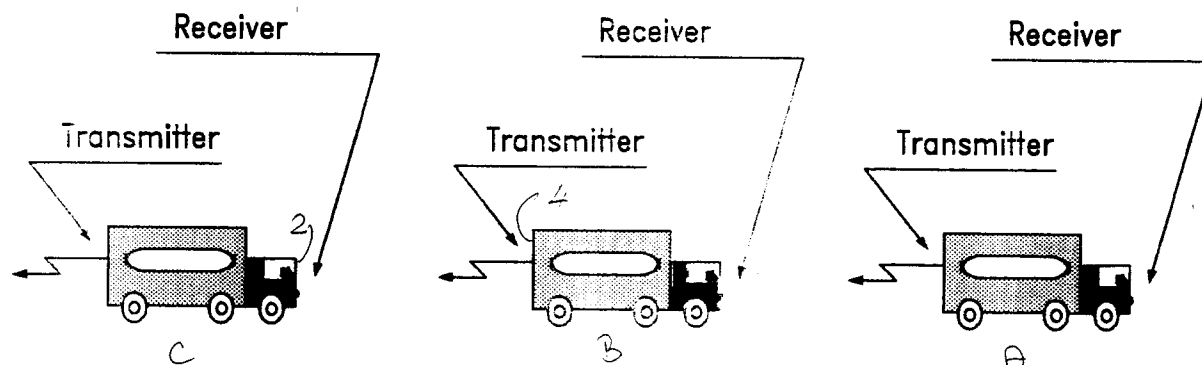
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Siebertstrasse 4 P.O. Box 86 07 67
W-8000 München 86(DE)(54) **Signal warning system for vehicles.**

(57) An automatic signal warning system which activates the brake lights of vehicles (A, B, C). The system comprises a receiver (2) to be mounted on the front part of a given vehicle (A, B, C). The receiver (2) is connected to an OR gate and a transmitter (4) which is mounted on the rear part of

the vehicle (A, B, C). The transmitter (4) is also connected to the OR gate and the brake light system. When the brake pedal is pressed and the brake light switch is activated, the signal from the brake light will go through the OR gate and activate the transmitter (4).

**FIG. 1****EP 0 466 045 A2**

The present invention relates to a signal warning system and more particularly to an automatic signal warning system which activates the brake lights of vehicles.

Large numbers of automobiles commonly follow closely behind each other at high rates of speed on today's modern highways and expressways. If one automobile decelerates and brakes in an unexpected manner, the following cars often collide in a series of rear end chain reaction collisions.

It is known that those collisions are the majority of car collisions. In the U.S. these collisions are 23% of all car collisions while in Israel it is as high as 30%.

There are a number of reasons which cause these car collisions:

- a) not keeping sufficient distance between two travelling vehicles relative to the speed of travelling,
- b) short time of response of the driver,
- c) bad driver, and
- d) unalerted driver.

In other words, the drivers fail to anticipate, for various reasons, the deceleration or stopping of the cars ahead of him.

By the time a first car immediately ahead of a second automobile begins to decelerate, the driver of a third car does not have sufficient time in which to react and stop his vehicle. Consequently, it is not unusual for a large number of cars to be involved in a series of rear end collisions which results in serious personal injuries and extensive property damage.

It is quite obvious that the best mode to avoid such accidents is to keep a large distance between the cars, nevertheless, the fact is that most drivers do not keep sufficient distance between cars.

To employ warning systems on the rear of automobiles is the most common form of prior art used to solve the problem described above. The warning system lights warn a following driver that the car immediately ahead is slowing down or braking. However, the warning signal of a car further ahead of a following car cannot warn a following driver of a sudden slowdown or stop in the line of cars further ahead.

In order to give a following car an even earlier signal, it has been suggested to equip vehicles with a device which will activate the brake lights even before the driver has depressed the brake pedal i.e. the removal of the foot from the accelerator pedal will activate the brake lights. This device will no doubt improve the situation a little, however, will certainly not prevent chain or reactive collisions.

It is thus the main object of the present invention to provide an improved signal warning system which will provide warning to several car drivers

behind a vehicle that decelerates or stops.

It is a further object of the present invention to provide an improved signal warning system which is actuated either by depressing the brake pedal or by removing the foot from the accelerator.

According to the invention there is provided a signal warning system which comprises a receiver to be mounted on the front part of a given vehicle, said receiver being connected to an OR gate and a transmitter to be mounted on the rear part of the vehicle, said transmitter being connected to said OR gate, which is connected to the vehicle's existing electric brake light system.

The invention will now be described with reference to the annexed drawings in which:

Fig. 1 is a schematical illustration of three vehicles following each other.

Fig. 2 is a schematical illustration of the new device.

Turning first to Fig. 1, as can be seen a convoy of lorries, on the front of each lorry a receiver 2 is mounted while at the rear end a transmitter 4 is mounted.

The transmitter will have to be of a directional type, probably a light transmitter in the infra-red range or similar, with an operating range of about 100 meters and an angular divergence of about $\pm 15^\circ$.

When the brake pedal is pressed and the brake light switch is activated, the signal from the brake switch will go through the OR gate 5 to activate the transmitter 4 mounted on the rear end of the vehicle, and the brake light.

Receiver 2 upon receiving the signal from the transmitter 4 will give a signal which will operate - through the OR gate 5 - both the brake light and the transmitter mounted on the rear side of the vehicle.

In a practical operation, lorry A brakes. The braking operation causes the transmitter 4 and the brake light to be activated. The signal from the activated transmitter will activate the receiver in car B which is following car A. This in turn will cause the brake light of car B to be activated, and its transmitter. This process will continue for all cars in a line, as long as the distance between any two cars is less than 100 meters. This is to say, that if there are 100 cars in a row, and car A pressed on the brake pedal, immediately all cars in the row will have their brake lights activated, each by the car in front of it, and in a matter of a fraction of a second.

It is quite obvious that in this manner many collisions could be avoided.

It is within the scope of the invention to add to the system flickering means so as the brake lights will flicker to attract the attention of the following drivers.

Claims

1. A signal warning system which comprises a receiver (2) to be mounted on the front part of a given vehicle (A, B, C), said receiver (2) being connected to an activating means (5) which is operated when at least one signal is received, and a transmitter (4) to be mounted on the rear part of the vehicle (A, B, C), said transmitter (4) being connected to said activating means (5), which is connected to the vehicle's existing electric brake light system. 5 10
2. A signal warning system as claimed in claim 1, wherein the activating means (5) is an OR gate (5). 15
3. A system as claimed in claim 1 or 2 where the transmitter (4) is a light transmitter (4) in the infra-red range or similar range. 20
4. A system as claimed in any of claims 1 to 3 wherein the transmitter (4) operates in the range of about 100 meters. 25
5. A system as claimed in claim 3 wherein the transmitter (4) has an angular divergence of about $\pm 15^\circ$. 30
6. A system as claimed in any of claims 1 to 5, characterized in that it is activated by depressing the brake pedal. 35
7. A system as claimed in any of claims 1 to 5, characterized in that it is activated on releasing the accelerator. 40
8. A system as claimed in any of claims 1 to 7, characterized in that the brake lights flicker. 45

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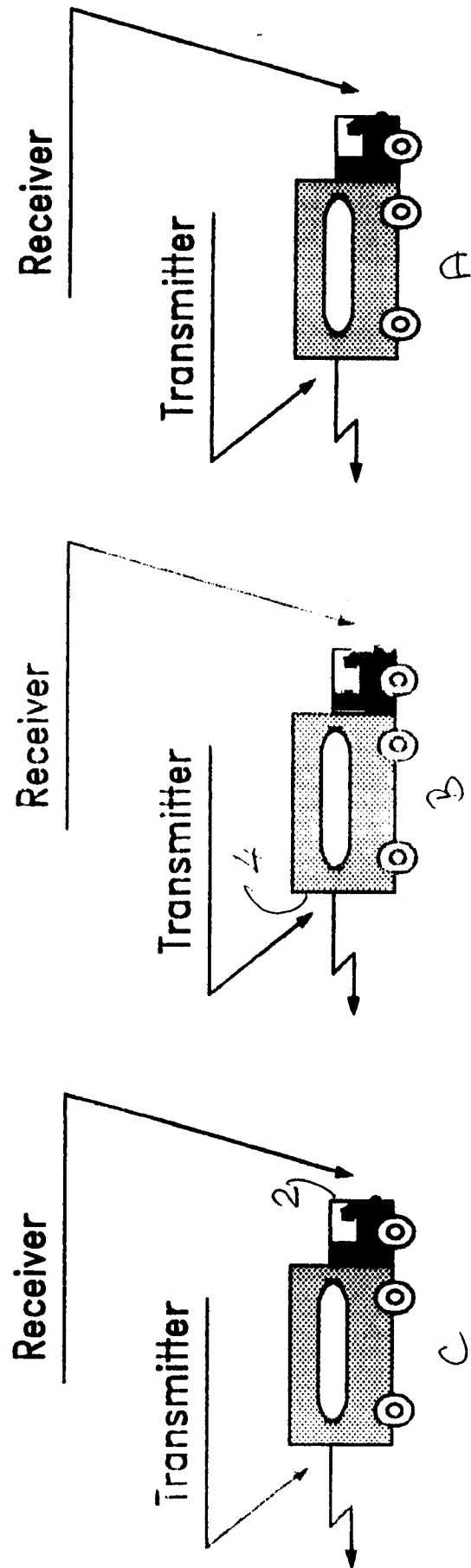


FIG. 1

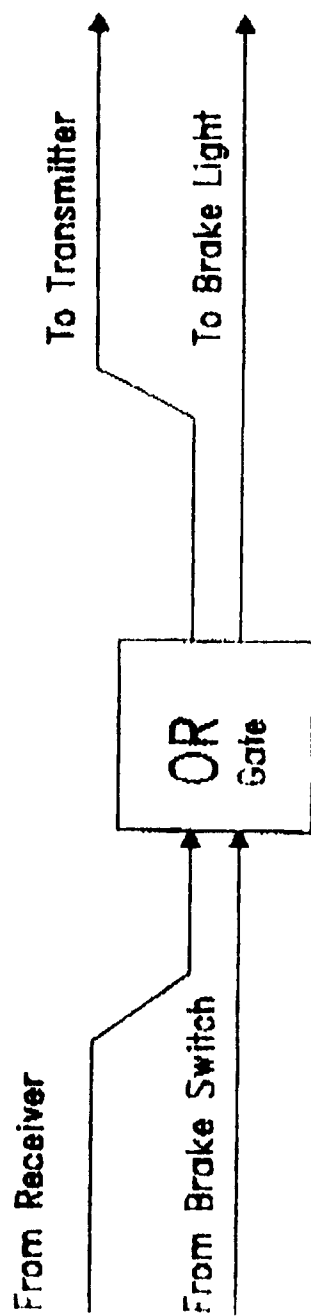


Fig. 2