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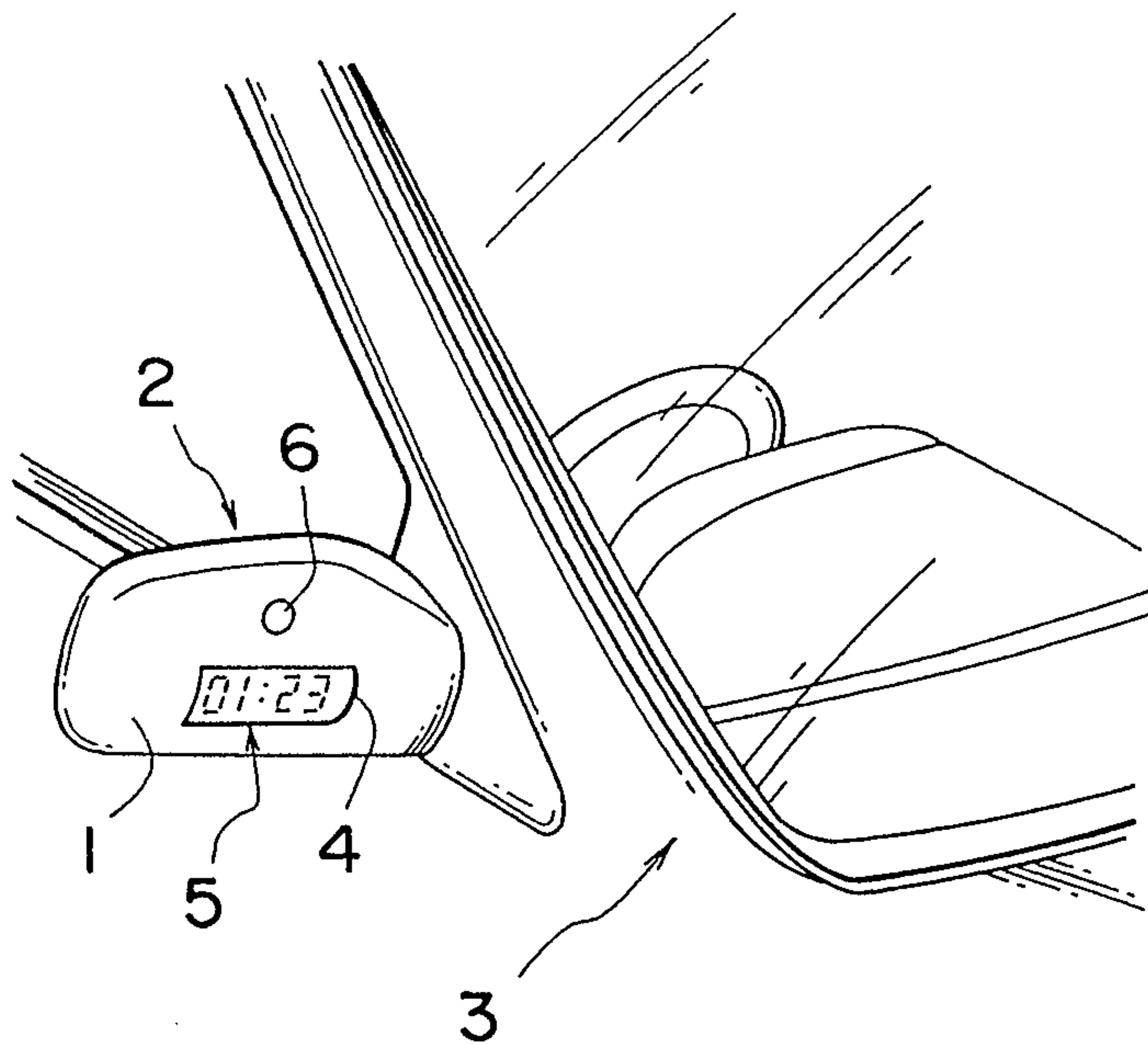
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(54) **DISPOSITIF D’AFFICHAGE DU TEMPS DE STATIONNEMENT
POUR MONTAGE A L’INTERIEUR D’UN VEHICULE
MOTORISE**

(54) **PARKING TIME DISPLAY DEVICE EQUIPPED IN A VEHICLE
WITH A MOTOR**



(57) A vehicle parking time display device mounted in the vehicle consists of a sensor for detecting stopping or parking of the car, a counter for counting time, a control circuit for controlling the counter, and a display arranged at a position on the vehicle such that it can be seen from outside the vehicle.

Abstract

5 A vehicle parking time display device mounted in the vehicle consists of a sensor for detecting stopping or parking of the car, a counter for counting time, a control circuit for controlling the counter, and a display arranged at a position on the vehicle such that it can be seen from outside the vehicle.

PARKING TIME DISPLAY DEVICE EQUIPPED
IN A VEHICLE WITH A MOTOR

The present invention relates to a parking time display device installed in a vehicle for displaying the parking time of said vehicle.

Among various urban problems, unlawful parking is serious because it often causes heavy traffic jams which are very difficult to control. Usually, parking or stopping is deemed unlawful after a predetermined time. Accordingly, it is important to know how long the car has been stopped or parked at a place.

However, at a glance, it is difficult to determine if a car has been stopped or parked illegally. This can only reliably be done at a location provided with a parking meter. Although the parking meter can warn when a predetermined parking time has elapsed, it does not serve to fully control unlawful parking, since additional fees can cancel the indication of elapsed time.

An essential object of the present invention is to provide a parking time display device for displaying the parking time of a vehicle.

Another object of the present invention is to provide a display means that enables anyone to recognize the parked time of a vehicle at a glance.

A further object of the present invention is to provide a parking time display device for a vehicle, that starts to count the parking time automatically when the vehicle is stopped or parked.

In accordance with one aspect of the present invention there is provided in combination with a vehicle, a parking time display device for displaying the time during which the vehicle has been parked, said device comprising: means for displaying a parking time of said vehicle at a location observable from a position outside of said vehicle, said display means comprising electronic digital means for displaying a numerical indication in a plane which is

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substantially flush with an exterior surface of said vehicle,
said displaying means comprising a pilot lamp positioned on a
body of said vehicle for indicating that said display device
is in operation, means for automatically turning said pilot
5 lamp ON when said vehicle is parked, said vehicle comprising a
side mirror mount and said displaying means is positioned
within an exterior surface of said side mirror mount,
detecting means for detecting a parked state of said vehicle
and for outputting a detection signal when said parked state
10 is detected, counting means for counting time, and control
means for starting said counting means when said detection
signal is output from said detection means, for enabling said
displaying means to display the time counted by said counting
means.

15 In the drawings:

Fig. 1 is a partial perspective view of a car having a
side mirror to which an embodiment of the present invention
has been applied,

Fig. 2 is a block diagram of a parking time display device for a vehicle according to an embodiment of the present invention, and

Fig. 3 is a partial rear view of a car having a parking time display device arranged near the number plate.

As shown in Fig. 1, a holder case 1 of a side mirror 2 of a car 3 has a small display window 4 for displaying the parking time of the car at its rear wall. Inside the display window 4, there is a digital display means 5 such as a liquid crystal display or the like. In Fig. 1, the display means 5 indicates for instance one hour and 23 minutes as a parking time from when the car was stopped or parked. It is convenient to arrange a pilot lamp 6 at the upper side of the display 5 for indicating that the parking time display device is in operation.

The display means 5 can be arranged at any position on the car provided that one can observe it from the outside. For instance, in Fig. 3, it is arranged on a number plate 8 that is mounted on a rear end panel 9.

Fig. 2 shows a block diagram of the display device.

It is comprised of a detection means 11 for detecting the stopped or parked state of the car, a counter 12 for counting time, a control circuit 13 for starting and resetting the counter 12, a driver circuit 14 and the digital display means 5.

The detection means 11 can be a switch that is switched on or off when the acceleration pedal of the car is released or a side (parking) brake lever is operated to park the car. It may also be a switch that cooperates with the ignition key to detect that the same has been turned off. Further, it may be an idle switch that is operated when the car is brought into an idle state.

The control circuit 12 causes the counter 12 to start when the detection means 11 detects stopping or parking of the car. The counter 12 counts clock pulses generated by a clock signal generator 15 when started. The driver 14 drives the digital display 5 in accordance with output signals from the counter 12.

The control circuit 13 also controls the pilot lamp 6 to turn it on when the detection means outputs a detection signal.

When the car is restarted and hence the detection means 11 is switched off, the control circuit 13 resets the counter 12 and the display 5.

No further explanation about the compositions of the control circuit 13, the counter 12, the driver 14 and the clock signal generator 15 is necessary as they are well known to those skilled in the art.

However, it is to be noted that the display device should be backed-up by a battery (not shown) after the ignition key switch has been switched off.

Further, it is to be noted that a microcomputer, if the car is so equipped, can be utilized to control the display device instead of the control circuit 13.

Although the present invention has been fully described in connection with the preferred embodiments thereof with reference to the accompanying drawings, it is to be noted that various changes and modifications are apparent to those skilled in the art. Such changes and modifications are to be understood as included within the scope of the present invention as defined by the appended claims unless they depart therefrom.

Claims:

1. In combination with a vehicle, a parking time display device for displaying the time during which the vehicle has been parked, said device comprising:

5 means for displaying a parking time of said vehicle at a location observable from a position outside of said vehicle, said display means comprising electronic digital means for displaying a numerical indication in a plane which is substantially flush with an exterior surface of said vehicle, said displaying means comprising a pilot lamp positioned on a
10 body of said vehicle for indicating that said display device is in operation, means for automatically turning said pilot lamp ON when said vehicle is parked, said vehicle comprising a side mirror mount and said displaying means is positioned
15 within an exterior surface of said side mirror mount, detecting means for detecting a parked state of said vehicle and for outputting a detection signal when said parked state is detected, counting means for counting time, and control means for starting said counting means when said detection
20 signal is output from said detection means, for enabling said displaying means to display the time counted by said counting means.

2. The parking time display device according to claim 1, wherein said numerical indication comprises a row of digits.

25 3. The parking time display device according to claim 1, wherein said displaying means comprises an electronic digital display.

30 4. The parking time display device according to claim 1, wherein said exterior surface of said side mirror mount extends vertically at a side of said mirror mount which is opposite a mirror located within said mirror mount.

5. The parking time display device according to claim 1, further comprising:

detection means for detecting a state of said vehicle and for outputting a detection signal when said state is detected;

5 count means for counting time; and

control means for starting said count means when said detection signal is output from said detection means and for enabling said displaying means to display the time counted by said count means.

10 6. In combination with a vehicle, a parking time display device for displaying the time during which the vehicle has been parked, said vehicle comprises an area for receiving a number plate, said device comprising:

15 means for displaying a parking time of said vehicle at a location observable from a position outside of said vehicle, said displaying means comprising an electronic digital display provided within said number plate receiving area, a pilot lamp positioned on a body of said vehicle for indicating that said display device is in operation, means for automatically
20 turning said pilot lamp ON when said vehicle is parked, detecting means for detecting a parked state of said vehicle and for outputting a detection signal when said parked state is detected, counting means for counting time, and control means for starting said counting means when said detection
25 signal is output from said detection means, for enabling said displaying means to display the time counted by said counting means.

30 7. In combination with a vehicle, a parking time display device for displaying the time during which the vehicle has been parked and an area for receiving a number plate, said device comprising:

35 means for displaying a parking time of said vehicle at a location observable from a position outside of said vehicle, said displaying means comprising an electronic digital display provided within said number plate receiving area, a pilot lamp

positioned on a body of said vehicle for indicating that said display device is in operation, means for automatically turning said pilot lamp ON when said vehicle is parked, detecting means for detecting a parked state of said vehicle and for outputting a detection signal when said parked state is detected, counting means for counting time, and control means for starting said counting means when said detection signal is output from said detection means for enabling said displaying means to display the time counted by said counting means.

8. In combination with a vehicle, a parking time display device for displaying the time during which the vehicle has been parked, said device comprising:

means for displaying a parking time of the vehicle at a location observable from a position outside of said vehicle, said displaying means comprising means for electronically displaying a numerical indication in a plane which is substantially flush with an exterior surface of said vehicle, a pilot lamp positioned on a body of said vehicle for indicating that said display device is in operation, means for automatically turning said pilot lamp ON when said vehicle is parked;

said vehicle comprising an area for receiving a number plate, and said displaying means is provided within said number plate receiving area;

detecting means for detecting a parked state of said vehicle and for outputting a detection signal when said parked state is detected;

counting means for counting time; and

control means for starting the counting means when said detection signal is output from said detection means for enabling said displaying means to display the time counted by said counting means.

9. The parking time displaying device according to claim 8, wherein said numerical indication comprises a row of digits.

5 10. The parking time displaying device according to claim 8, wherein said displaying means comprises an electronic digital display.

Fig. 1

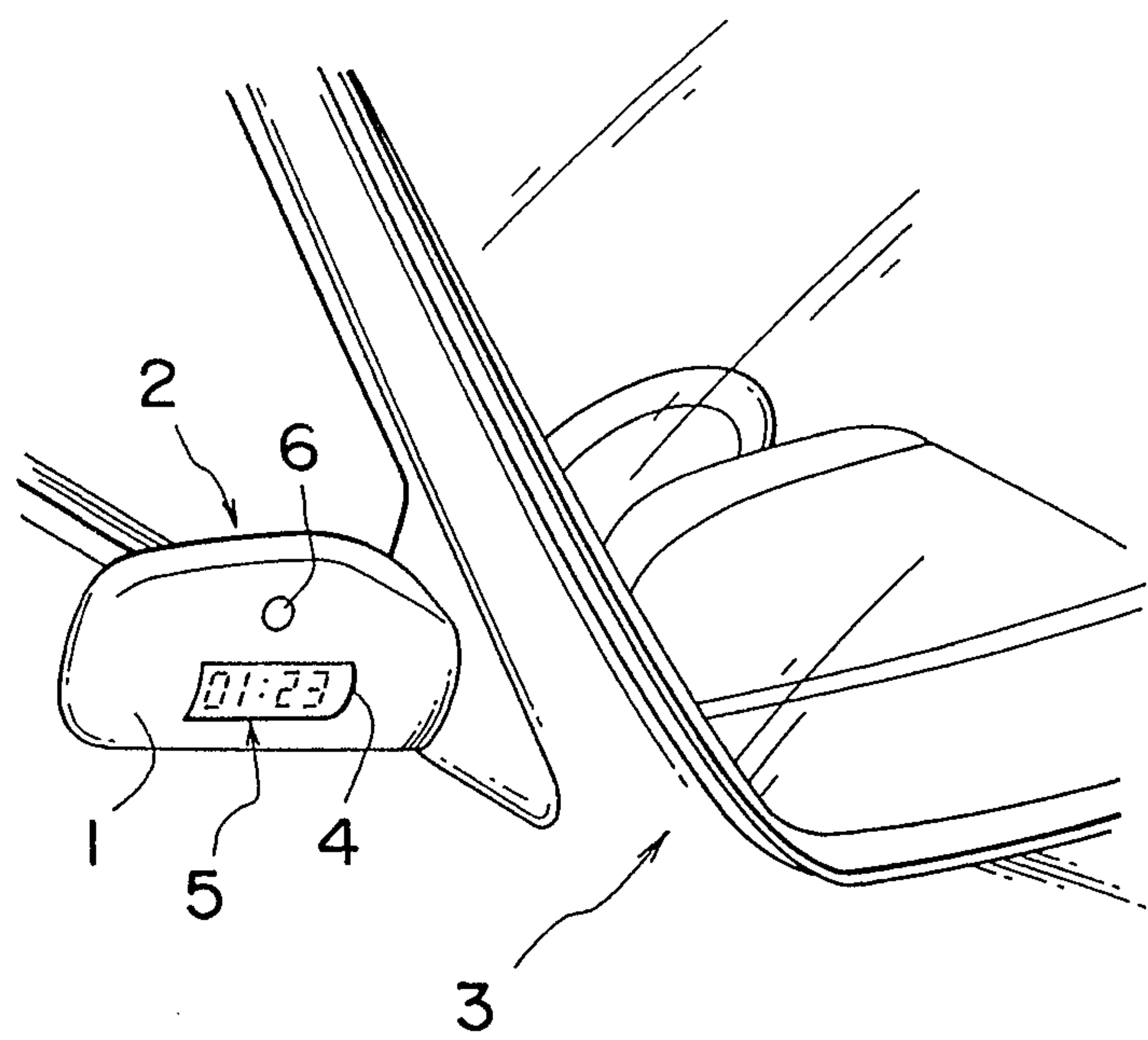
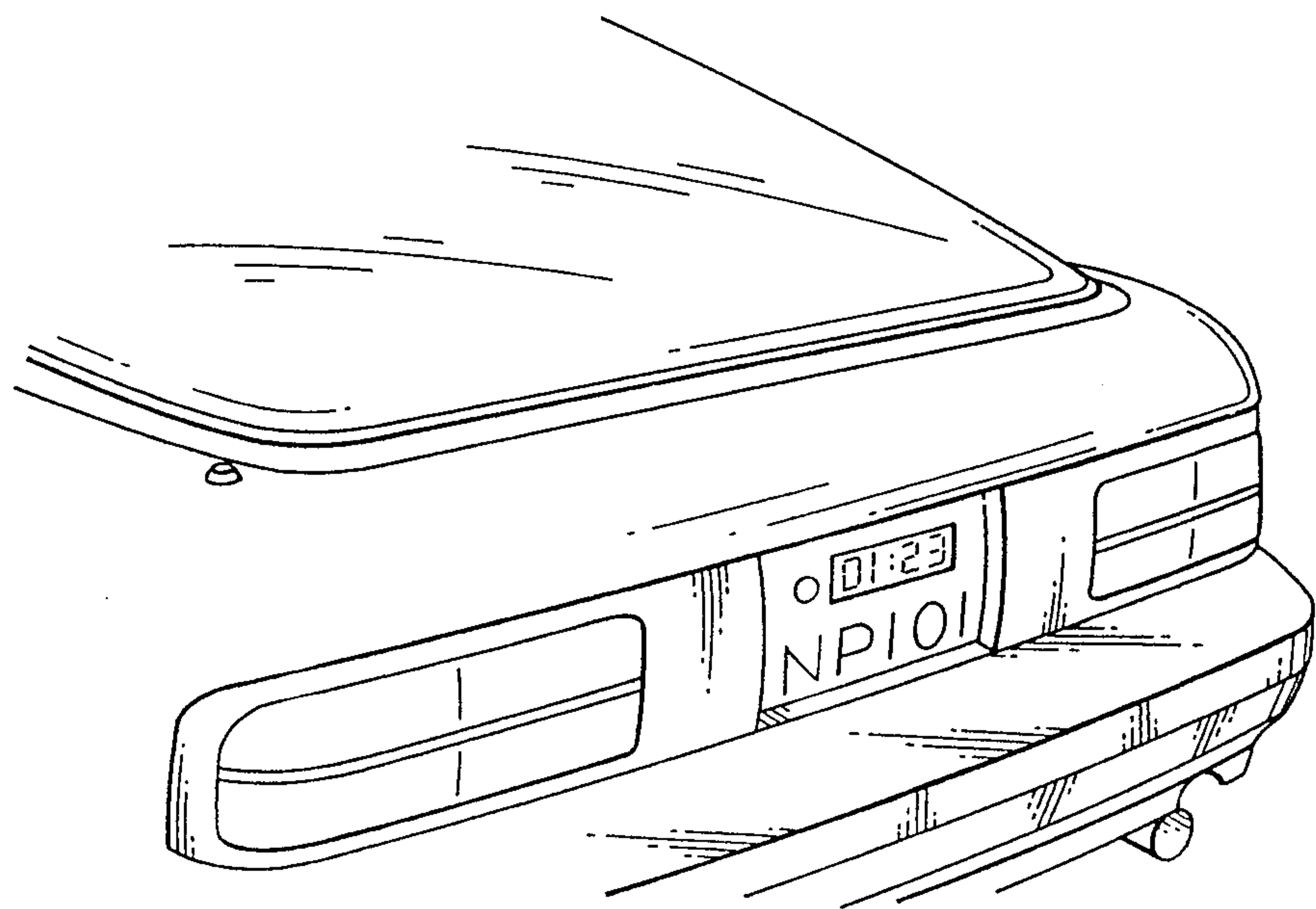
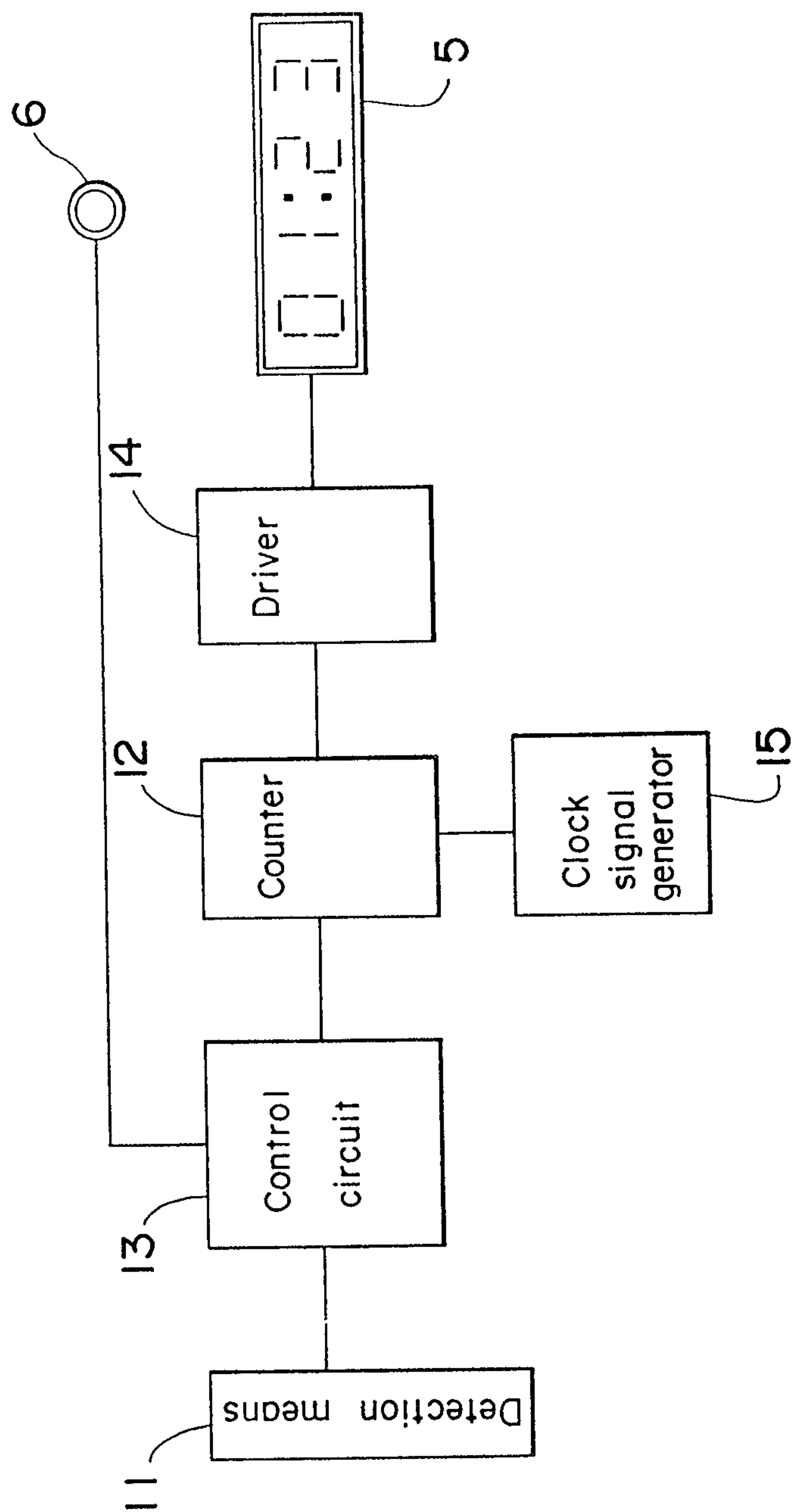


Fig. 3



Kirby, Fades, Gale,
Baker & Potvin

Fig. 2



Kirby, Endes, Gale,
Baker & Patton