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(54) Title: THE CAR INDICATOR WITH FOUR MODES OF TURN TO LEFT/RIGHT AND U TURN TO LEFT/RIGHT

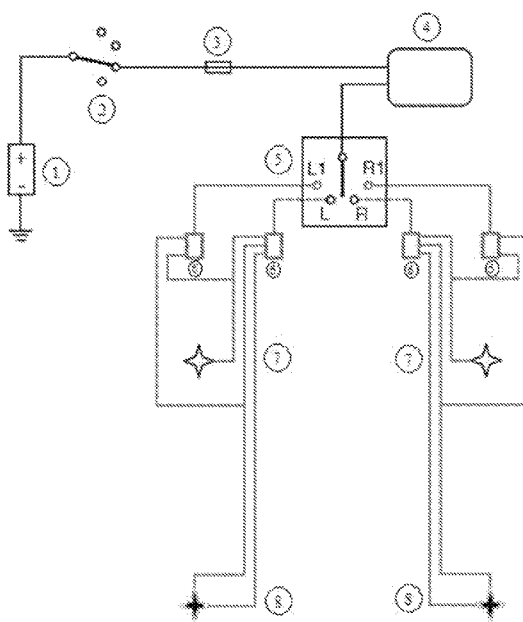


Fig. 1

(57) Abstract: The invention of car indicator with four modes of turn to left/right and U turn to left/right is an indicator to inform other drivers from making 180 degree U turn to the left or right. This light can be used with small change in the LED lighting system. The design is such that when the indicators are half-lit (oval), show the U turn operation, and when the indicators are fully lit (fully), show the turning. Because the indicator has 4 modes, the indicator lever changes from 2 modes to 4 modes. So when the car turn to left and right, the indicator blinks in a solid form and when the car making U turn blinks in the form of a hollow oval. The number of accidents due to other driver's surprisal when using indicators reduced by using this invention.

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- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

TITLE OF THE INVENTION**THE CAR INDICATOR WITH FOUR MODES OF TURN TO LEFT/RIGHT
AND U TURN TO LEFT/RIGHT****5 TECHNICAL FIELD OF THE INVENTION**

The present invention relates to the automobile manufacturing and automobile parts industry.

PURPOSE OF THE INVENTION

10 After the emergence of cars and gradually with the increase in their number, also the number of accidents increased. In many cases, accidents are the result of speeding or the driver carelessness, but there are also accidents that can be easily prevented or reduced. A car indicator may seem like a trivial device; while the use of indicators, informs other drivers from movement of the car to
15 the sides (left and right) and the driver of the car using the indicators reduces the other driver's surprisal by his change of direction.

In many cases, the car in the blind spot is out of sight of the driver, but the driver will see the indicator blinking before changing the direction. Avoiding to use indicators, is the cause of many traffic accidents. Also confusion when
20 using current indicators, due to unclear intention of the driver of the vehicle using indicators to other drivers, another accident may occur.

1. Turn to left or right
2. U turn to left or right

But among these, there is a problem. The car indicating lever currently has no more than two modes: left and right. To turn left the lever is moved down and to turn right the lever is moved up.

But if the driver wants to turn 90 degrees or 180 degrees instead of turning right, how can the side or rear drivers find out this fact? In many cases, other driver's unawareness of the decision of the car that used the indicator causes accidents.

The present invention is designed to solve the above problems, in which by changing the indicator lever of the car from 2 to 4 modes, the driver's intention from using indicator, determined and prevents accidents and traffic.

PRIOR ARTS

Lighting in vehicles like cars and motorcycles has an old history such that before addition of electricity to automobiles and other vehicles, there were some lighting tools in cars (such as Ford model T), these cars usually used carbide lights. In 1908, for the first time dynamo was used in cars. Since 1920, dynamo was used in all cars as an essential tool. Brake light was used in cars since 1919, but the tail light has longer background and was used about 4 years earlier, in 1915. After the cars became popular and increscent in car drivers, using informer signals became unavoidable. Therefore, since 1940 car indicators were used in cars in order to show turning. Halogen lamps in 1960 and HID lamps in 1991 were introduced in Europe. In 1993, the fist LED lamps were used in car's tail lights and in early 21 century, the LED lamps were used as main lamps in the cars. The standard for the car's headlight is similar around the world; but different name are using in different countries such as main, driving, dip or passing light.

In addition to main lights, some other lights such as auxiliary fog lamps and also day lights may place in front of the cars. The auxiliary fog lamps usually

inserted below the main light and are yellow or white. In some countries, using auxiliary fog lamp in an unessential situation consider as a driving malfeasance.

These conditions existed for indicators as well and in some models, by turning the car steering wheel, the indicators automatically start blinking. But it was
5 another problem and cause other drivers surprisal and accidents occur.

In this regard, there are some similar inventions as below:

The invention with TWI238126B number which is filed in 19/04/2004 in Taiwan's patent office named "Two-step controlled car turn signals having U-turn display function". This invention relates to a two-step controlled car turn
10 light having U-turn display function, wherein one further set of light is arranged around a car turn signal, which is composed of a plurality of indicator lights and surrounds the turn signal. The light set and the turn signal are driven by a two-step switch mechanism. When the car is simply making a turn, the driver can utilize the first step in the two-step switch mechanism to drive the turn signal;
15 and when the car is making a U-turn, the driver, after turning on the turn signal, can further switch on the light set to generate the effect of twinkling or horse-revolving light style to signal the U-turn message to the cars coming or behind, to effectively make sure the traffic safety. Another invention with US7245209B2 which is granted 17/07/2007 in USPTO, named "U-turn
20 indicator". A U-turn indicator for motor vehicles having a light fixture housing and a plurality of light sources located therein. The housing is divided into a U-turn indicating region and a non-U turn indicating region, and the plurality of light sources located in the U-turn indicating region are lightable separately from the plurality of light sources in the non-U turn indicating region. The light
25 fixture housing forms a light fixture housing for one of a left and right turn signal indicator on a front and rear of a automobile. The light fixture functions as one of a left and right turn signal indicator when the plurality of light sources in both the U-turn indicating region and the non-U turn indicating region are

activated, and as a U turn indicator when only the plurality of light sources in the U-turn indicating region are activated.

The next invention with US4994786A number, which is filed on 04/12/1989 in USPTO, named "U-turn signal". A U-turn signal for vehicles, which includes a plurality of lights forming an inverted "U", a flashing arrangement for sequentially flashing the lights to indicate the intended direction of the U-turn, and an actuating arrangement for actuating the flashing arrangement, and wherein the U-turn signal is positioned rearwardly facing from the vehicle. There may further be provided a U-turn signal for vehicles with a driver's location, wherein the actuating arrangement includes a u-turn switch located at the driver's location.

Another invention with US20040263325A1 publication number which was published in 30/12/2004 in USPTO, named "U turn indicator". According to this disclosure, this invention demonstrates that a U turn is taking place, by flashing, blinking, or displaying, a U turn symbol. Other art shows things like right hand turning indicators, left hand indicators, and or backing up lights. The U turn indicators art shows a blinking U in the middle of the regular car light, although that function can take many forms. No other art exhibits what our art displays, and that is a sign that a U turn is in progress. So to sum it up; our art is different because it is the only art that indicates a blinking, or flashing U for the purpose of displaying that a U turn is in progress.

An invention with US5003289A patent No., which is granted on 06/07/1990 in USPTO, named "U-turn signal attachment". In this invention an auxiliary U-turn signal indicating light attachment having a generally U-shaped housing designed to be mounted on the lower left corner of the rear window of a vehicle, wherein an indicating light compartment encloses a U-turn signal indicating lamp. A manually operated switching apparatus for energizing the U-turn signal lamp is adapted for mounting on and interconnection with a conventional turn

signal lever. A mounting bracket is pivotally secured to a rod slidably received within an apertured mounting tab within the housing, wherein a set screw associated with the mounting tab is utilized to secure the rod in a selected adjusted position. By virtue of this arrangement, the elevation and inclination of the housing on the intended mounting surface can be varied to enable usage with a wide variety of differently configured vehicles.

The other invention with US2453421A patent number which is filed on 09/11/1948 in USPTO, named "Lamp box type direction signal". This invention relates to automobile turning signals of the general type having a plurality of translucent signaling members of colored glass or the like, to be selectively illuminated to indicate the driver's intentions. The object of this invention is to provide a novel signaling device having a right-turn; arrows indicate turning to left or right, and a letter U indicates a U-turn, or a letter S to indicate that a stop will be made. The U is preferred but the S may be used in cities which prohibit U-turns.

Another invention with US4387361A patent No. which is granted in 06/07/1983 in USPTO, named "U-Turn vehicle light". This invention is a signal device for indicating a U-turn of a motor vehicle mounted on the vehicle for movement between an extended position above the hood of the vehicle and a stored position beneath the hood. The signal device includes a housing mounted on top of a rack in meshing engagement with a pinion drivingly connected to a reversible electric motor. The signal device is supported by a U-shaped bracket which may be attached to the hood of the automobile by tack welds and is supported solely by the relatively thin sheet metal of the hood. The housing has an inverted U-shaped window to expose a bulb mounted in a socket within the interior of the housing covered by a colored lens. When the bulb is activated, the lens will transmit light through the window to indicate to oncoming

motorists that the vehicle operator intends to execute a turn. When retracted the top of the housing is flush with the sheet metal hood.

DESCRIPTION OF THE INVENTION

- 5 The present invention designing a four modes car indicator includes: turn to left or right and U turn to left or right.

This design can be used only with a small change in the LED lighting system. The design is such that when the indicators are half-lit (oval), show the U turn operation, and when the indicators are fully lit (fully), show the turning.

- 10 In fact, these two types of lighting the car indicators, i.e. 90 degrees (solid, figure No. 3) and 180 degrees (hollow, figure No. 4), show the position of the car to other drivers and prevent accidents while driving.

In this design, because the indicator has 4 modes (turn left, U turn left and turn right, and U turn right), the indicator lever changes from 2 modes to 4 modes.

- 15 As shown in Figure 1, the indicator lever has 4 modes, and with this small change, drivers are made aware of our decision when using indicators.

- This indicator works in such a way that when the lever is in the L (left) or R (right) position, the power is connected to 1A and 2A (Figures 5 and 6) and the whole LED lamps lights up (solid) and flashes, indicating the car is turning left
20 or right.

- When the lever is in the 1L (left turn) or 1R (right turn) mode, 2A is cut off to turn left and right, and only 1A turns on as an oval bar (hollow) and flashes, indicating a complete turning of the car. Therefore, the manner of blinking of car indicator in turning mode is solid and the manner of blinking of car indicator
25 in U turning mode is hollow.

Because LED lights have lots of potential for various designs, different methods and designs can be used to design lights, for example, instead of ovals, triangles, circles and many other geometric shapes can be used.

The list of four-mode car indicator circuit components includes the following:

- 5 1. Battery
2. Starter
3. Flasher timer
4. A pairs of car's headlight indicator
5. A pairs of car's new design tail light indicator
- 10 6. New designed indicator lever
7. Wire in size of 1 mm
8. four 12 V,dc-6A relays

Mechanical design:

15 Mechanically in this design, the indicator lever and a pairs of tail light indicator changed, which is described as below:

Indicator lever:

By creating the possibility for the indicator lever to move in 4 modes instead of 2, and mounting electrical switch in added modes, can reach to its control in necessary situations.

20 Tail light indicator:

In this design, the electrical board map of tail light indicator on which LED lamps were edited, changed in the way that the electronic board produced in 2 pieces and can obtain to the desirable result by sending suit electrical order from related relay.

DESCRIPTION OF FIGURES

Figure 1 shows the electrical circuit of four modes indicator, includes:

1. Battery
2. Starter
- 5 3. Fuse
4. Flasher timer
5. Indicator lever
6. Relay
7. Pair of headlight indicator
- 10 8. Pair of taillight indicator

Figure 2 shows the size of electrical board.

Figure 3 shows the steering wheel position related to the Mode R or turning to right.

Figure 4 shows the steering wheel position related to the Mode R1 or making U
15 turn to right.

Figure 5 shows the schematic image of the steering wheel position related to the Mode R or turning to right.

Figure 6 shows the schematic image of steering wheel position related to the Mode R1 or making U turn to right.

20 Figure 7 shows the image of 4 modes car indicator lever, includes:

1. Turn to right
2. Turn to left
3. U turn to right

4. U turn to left

It should be noted that for the left side tail light indicator, figures 5 and 6 are used symmetrically.

5 ADVANTAGES OF THE INVENTION

- Reducing the number of accidents due to other driver's surprisal when using indicators.
- Reducing traffic
- Utilizable in all vehicles
- 10 • Required low cost for changing the old lever to the newly design lever

EXPLISIT APPLICATION OF THE INVENTION

The present design can be used in all heavy and light automobiles and can operate the considered design by making changes in electrical circuit,
15 previously used parts, lever and tail light indicator.

What is claimed is;

1. The invention of car indicator with four modes of turn to left/right and U
turn to left/right contains at least a flasher timer, at least a pair of LED tail
light indicator, at least a battery, at least a four mode new design indicator
5 lever, at least a micro switch, at least a fuse, at least a 1 nm wire and at
least four 12V relays.
2. The invention of claim one by which it will be possible to inform other
drivers from making 180 degree U turn to the left or right.
3. The invention of claim one in which can make possible to select between
10 the four modes by changing in electrical board map of tail light indicator
which LED lamps edited on them and make electrical board in 2 pieces
and sending appropriate order from related relays.
4. The invention of claim one in which by creating mobility in the car
indicator lever from 2 modes to 4 modes and by using electrical switch in
15 the added modes, the possibility to choose between 4 modes creates.
5. The invention of claim one in which when the car turn to left and right,
the indicator blinks in a solid form and when the car making U turn blinks
in the form of a hollow oval.
6. The invention of claim one in which many other shapes include
20 geometric shapes can be used for the blinking and flashing.

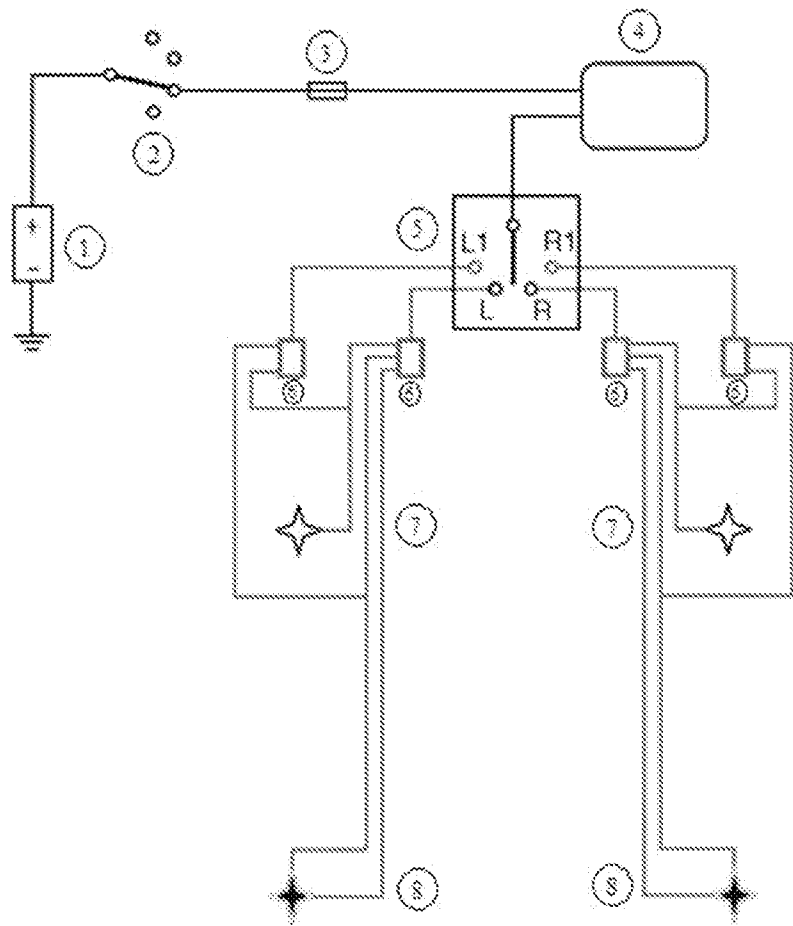


Fig. 1

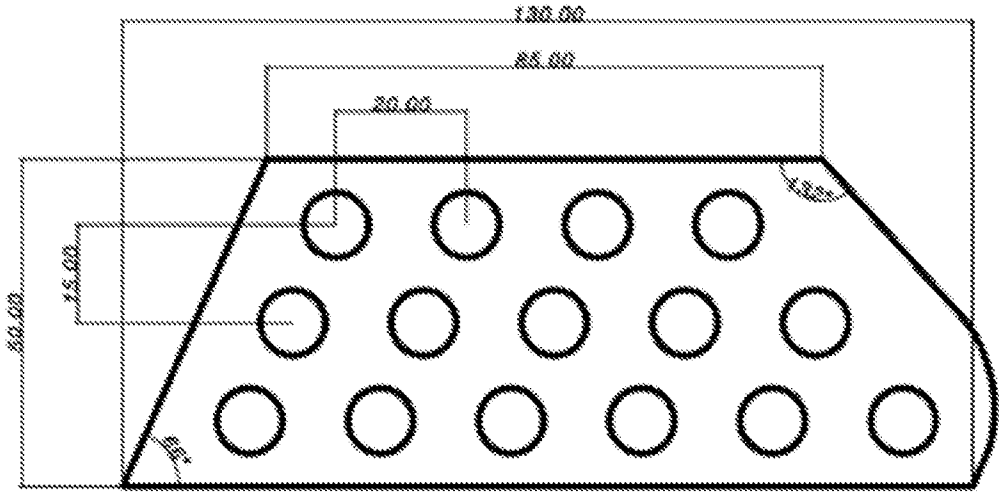


Fig. 2

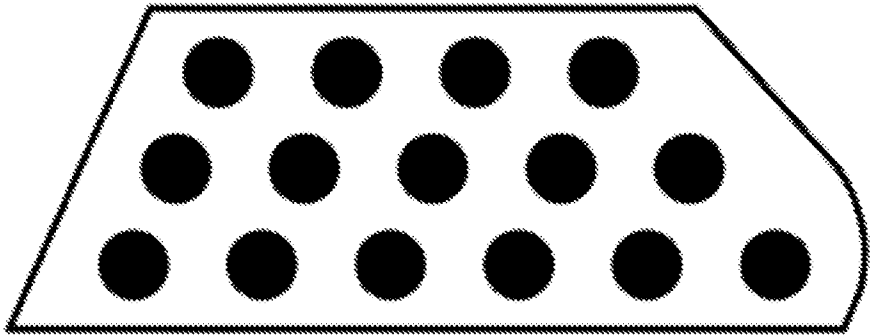


Fig. 3

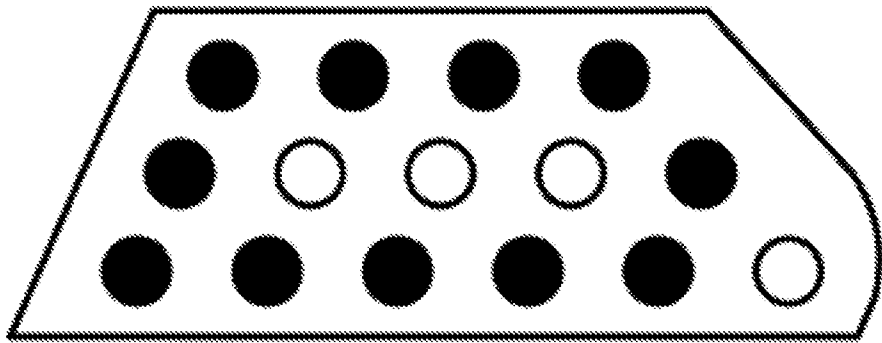


Fig. 4

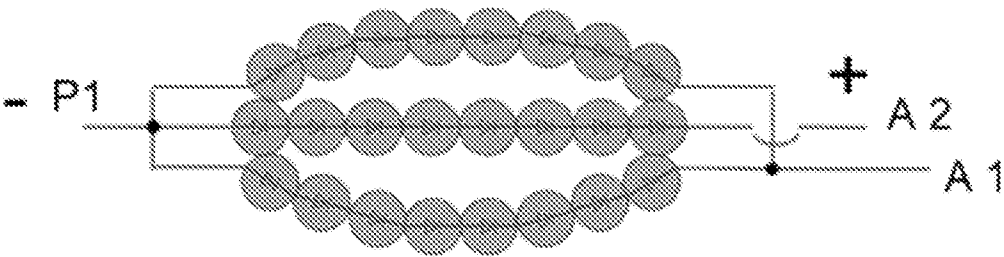


Fig. 5

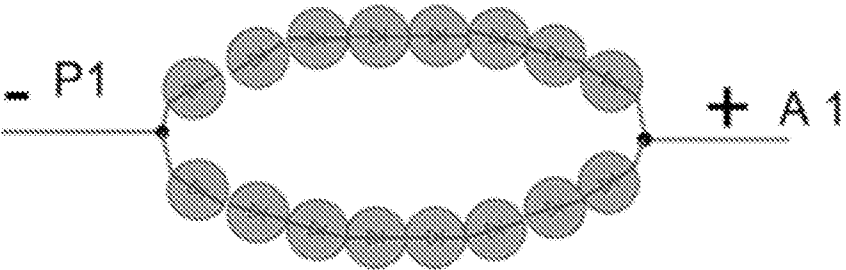
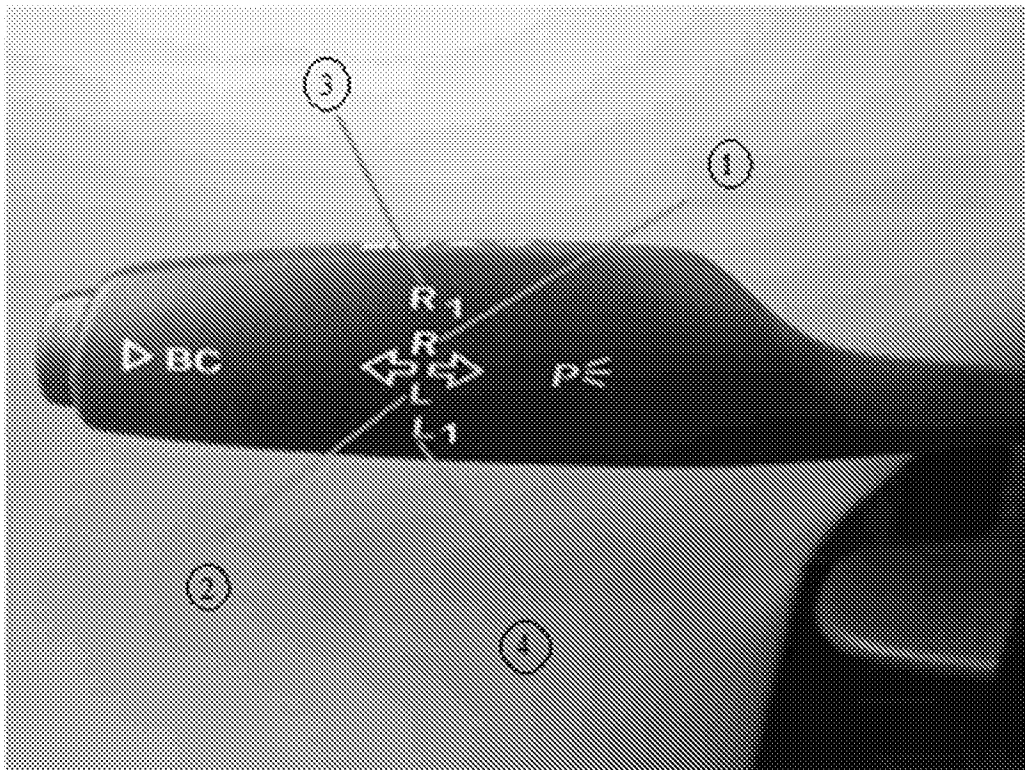


Fig. 6

**Fig. 7**

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2020/060259

A. CLASSIFICATION OF SUBJECT MATTER
B60Q1/34, B60Q1/50 Version=2021.01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B60Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Databases:- TotalPatent One, IPO Internal Database

Keywords Used:- flasher, indicator, lever, u-turn

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US20070069881A1 (DOHAN, Jewel) 29.03.2007 (29 March, 2007) paragraphs [0022], [0088] and [0090]; claims 1, 5, 6 and 12; figures 1-3, 7 and 9 and abstract	1-6

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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