

ABSTRACT

"DRIVER SEAT POSITIONED ON LOW FLOOR FOR REAR ENGINE VEHICLES"

This invention relates to rear engine low floor vehicles with a wide service door (24) ahead of the front axle (8). The driver seat (4) which is usually positioned
5 at certain height from the low floor level has considerable amount of blind distance. In this invention the driver seat is positioned directly in the low floor (2) so as to minimize the blind distance. The steering gear box (3) is positioned well behind the driver seat and in a similar manner the bevel box (12) is positioned to the front of the vehicle thereby ensuring no hindrance on low floor space to driver. The torque
10 from the steering wheel is transferred to the bevel box through the steering column & further to the steering gear box through two intermediate links (16,20) connected to each other by an universal joint (21).

Fig. 2

WE CLAIM

1. A low floor vehicle comprising :

a step-less entry low floor arrangement;

a passenger door ahead of a front axle of the vehicle;

5 a driver workspace on the low floor of the vehicle;

wherein a steering system is positioned below the low floor arrangement such that the driver workspace, including a driver seat, is accommodated directly on the low floor of the vehicle thereby providing a step-less entry for a driver.

10 2. The low floor vehicle according to claim 1, wherein the steering system comprises a steering gear box positioned fully behind the driver seat, the axis of the steering gear box being parallel to the plane of the ground.

3. The low floor vehicle according to claim 2, wherein a drop arm is installed on the
15 steering gear box having an axis perpendicular to the axis of the steering gear box and swingable in a horizontal plane parallel to the plane of the ground.

4. The low floor vehicle according to claims 1-3, wherein torque from a steering wheel is transferred to a bevel box positioned in the front portion of the vehicle at
20 an angle with the ground so as to clear an angle of approach.

5. The low floor vehicle according to claims 1-4, wherein two links interconnected with universal joints transmit torque from the bevel box to the steering gear box.

6. The low floor vehicle according to claim 5, wherein the first link connected to the bevel box is supported by a bracket and bearing arrangement affixed to the bottom of the floor, the first link being installed at an angle to clear the angle of approach.

7. The low floor vehicle according to claim 5, wherein the second link connecting the first link with the steering gear box is of telescopic type, which aids when the front overhang is customized to any length.

8. The low floor vehicle according to the preceding claims, wherein the bevel box, first and second links and the steering gear box are positioned so as to lay below the low floor level of the vehicle.

9. The low floor vehicle according to claim 1, wherein the passenger door is a wide door.

10. The low floor vehicle according to the preceding claims, wherein the vehicle is a bus.

Dated this 02 day of December 2013



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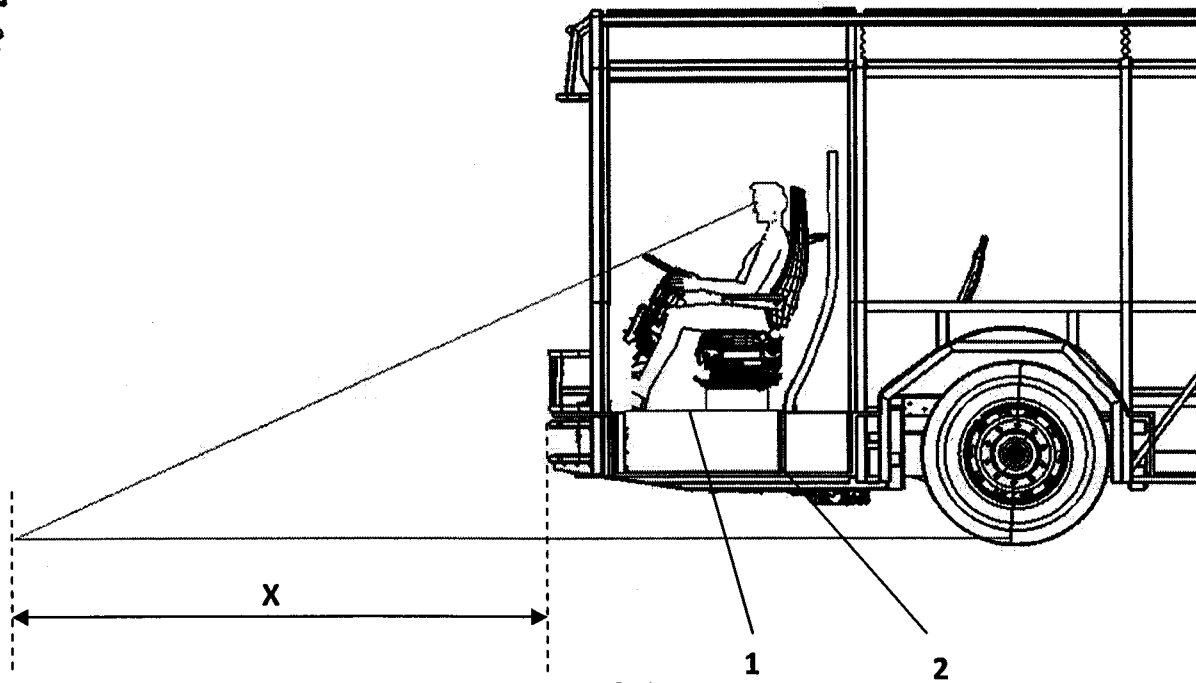


FIG 1

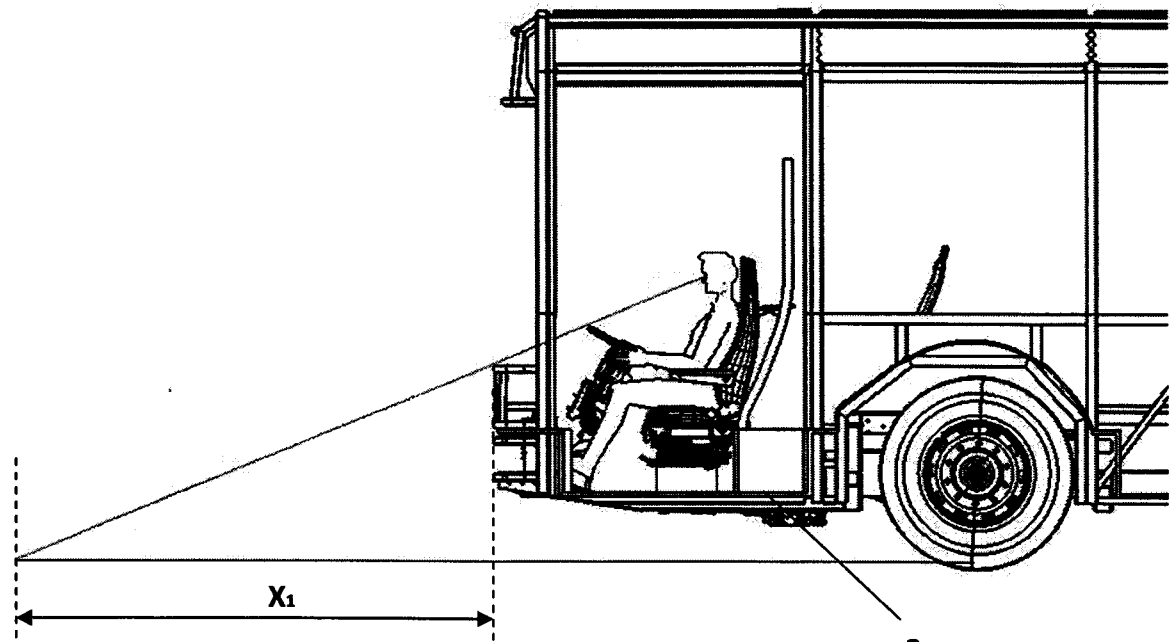


FIG 2

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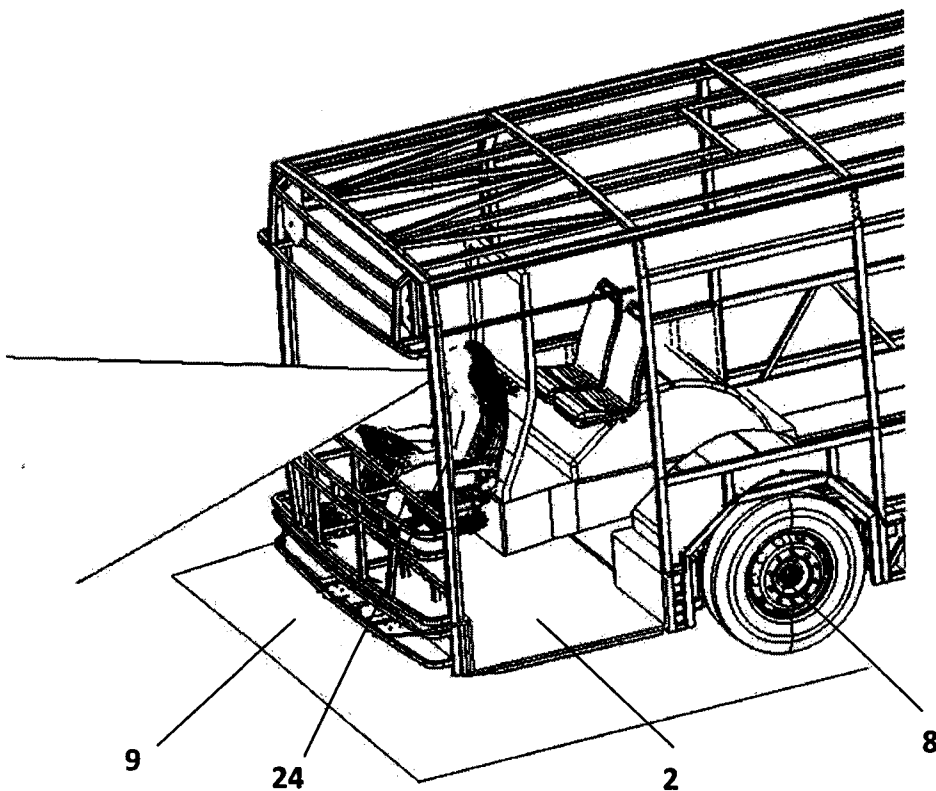


FIG 3

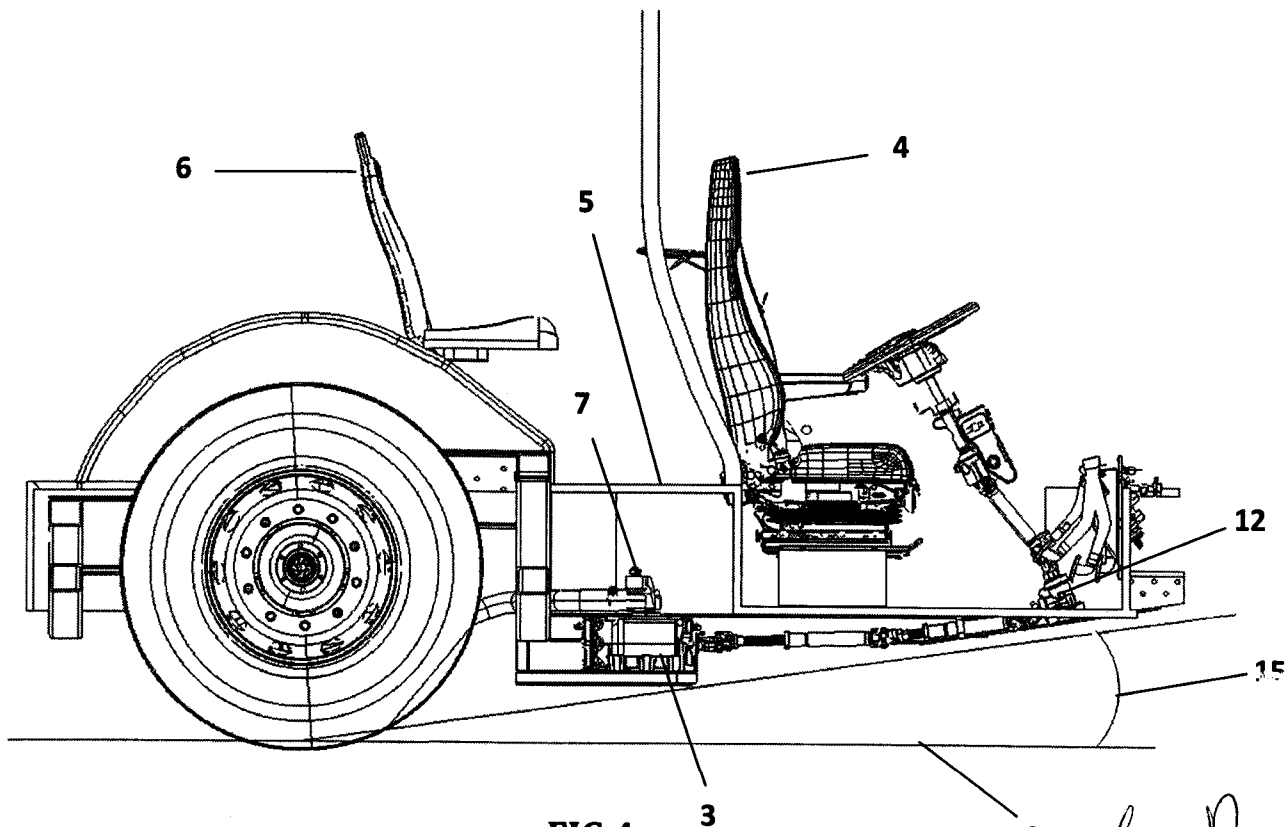


FIG 4

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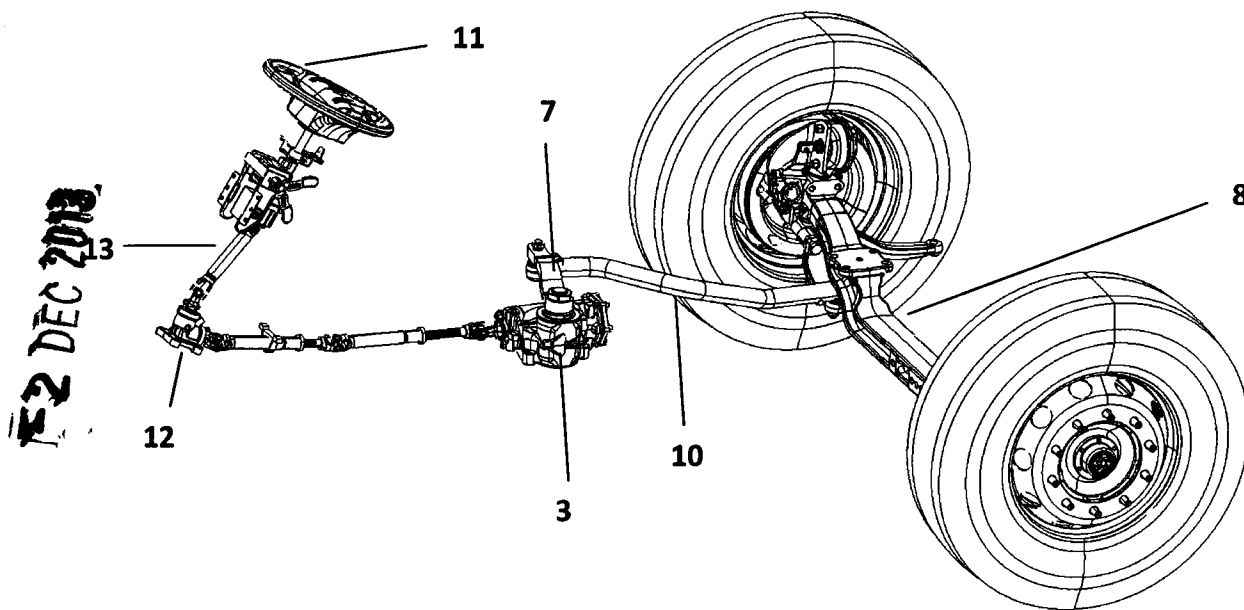


FIG 5

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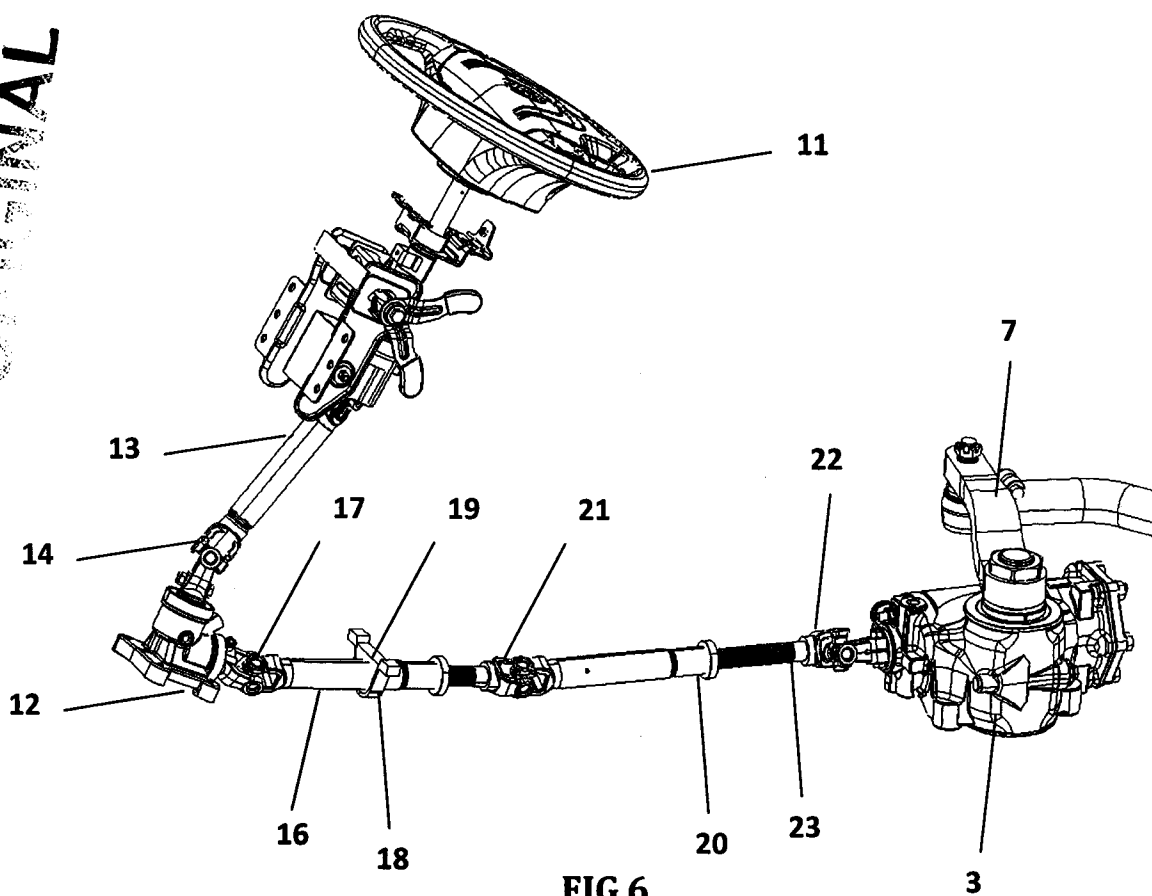


FIG 6

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Presently, the driver being seated at an elevated position increases the blind distance, thus creating a blind spot (X) of considerable length from the front of the vehicle to the line of vision on the driver fig 1.(b).

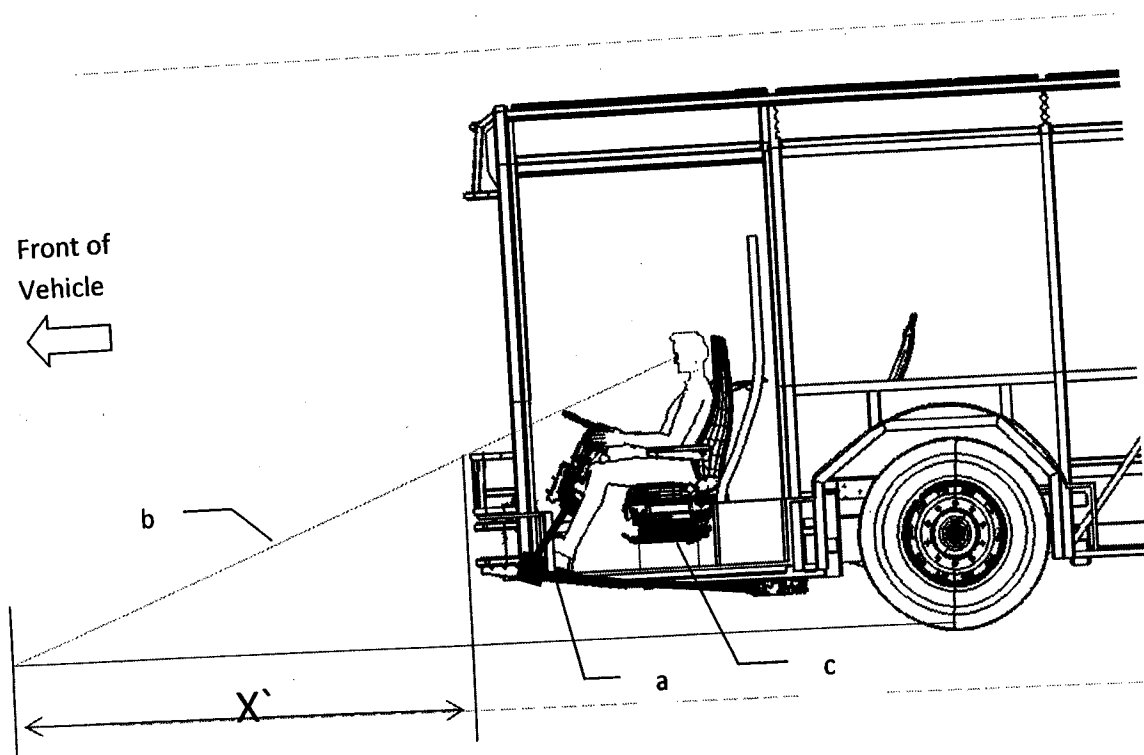


Fig (2)

In order to reduce the blind distance (X'), increase the driver visibility fig 2. (b).and too for a less tedious step less entry/exit to the driver compartment area fig 2. (c). The driver seat has been positioned directly on the low floor fig 2. (c).

The Blind Distance for driver positioned on the low floor area is much lesser than the Blind Distance for the driver positioned at an elevation.

$$X' \ll X$$

This provides the basis of creation of the Invention.

SUMMARY OF INVENTION

The objective of this invention is achieved by efficiently packaging the aggregates like the bevel box, steering gear box, linkages, frame etc. fig 2. (a). The elements are so packaged that there is no elevated floor for the driver compartment and the driver seat is located in the low floor area at an Entry+0 height from the ground. fig (3) c.

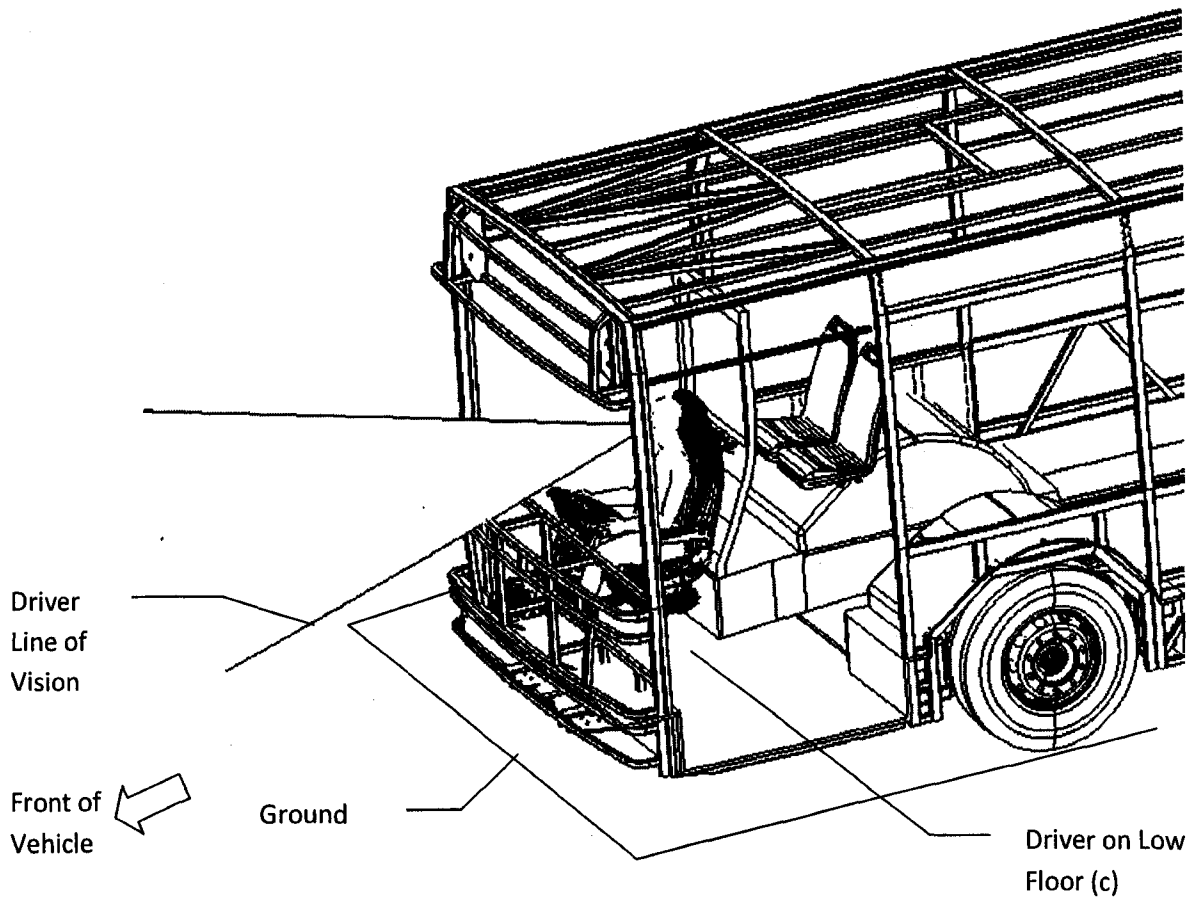


Fig (3)

MECHANISM TO PACKAGE THE STEERING SYSTEM BELOW THE LOW FLOOR

The aggregates of the steering system are intelligently packaged in order to achieve the driver position at low floor.

The image alongside depict the aggregates in the driver workspace consisting of the pedal box Fig(4) a, steering column, steering wheel Fig(4) b, instrument cluster Fig(5) c and driver seat.

The image also depicts the aggregates of the steering system, where the bevel box Fig(4) d, the steering linkages Fig(4) e, and the steering gear box Fig(4) f, are packaged in order to attain the low floor in the driver compartment area.

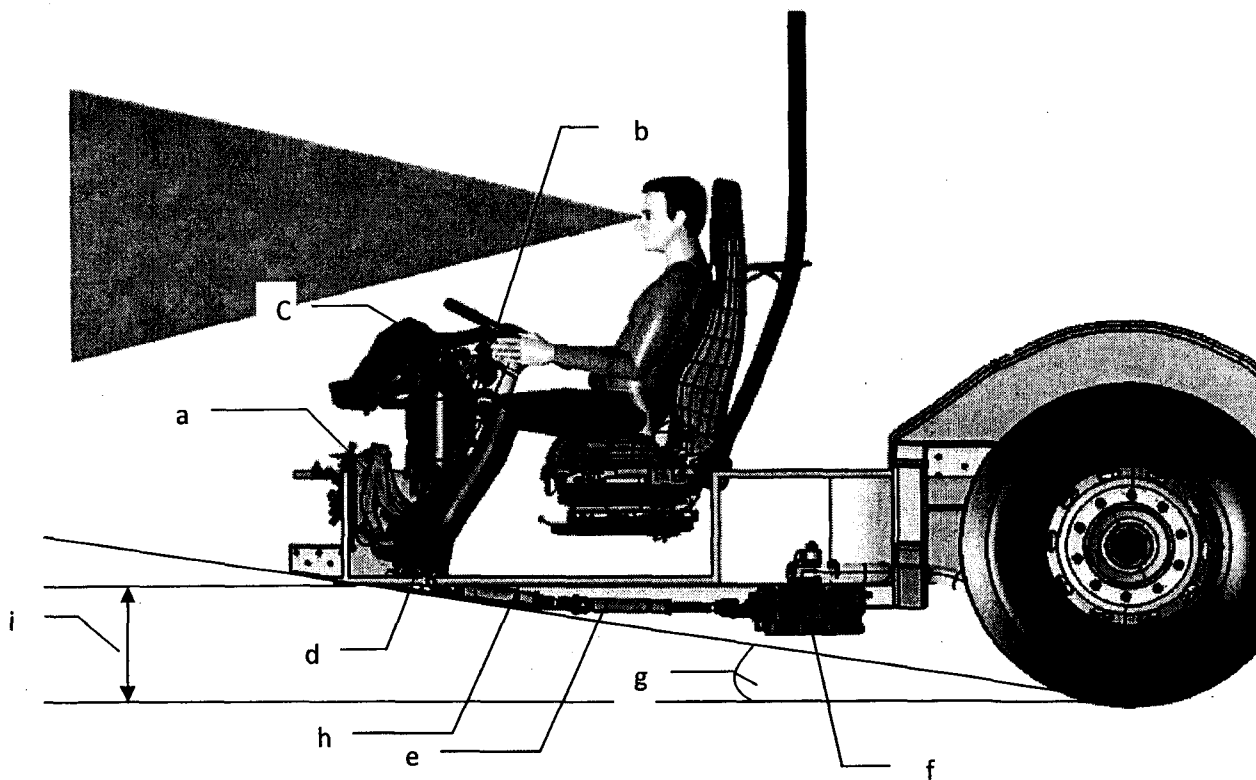


Fig (4)

The bevel box Fig(4) d, is mounted at an angle and enclosed by the steering column cover Fig(5) d .The linkage which connect the bevel box to the steering gearbox is split into two and connected by a Universal Joint (UJ) Fig(5)a.

The working angles of the UJ's Fig(5)a, Fig(5)b and Fig(5)c are well within their limit and provide the necessary arrangement to offer the low floor area Fig(4)h, for the driver compartment.

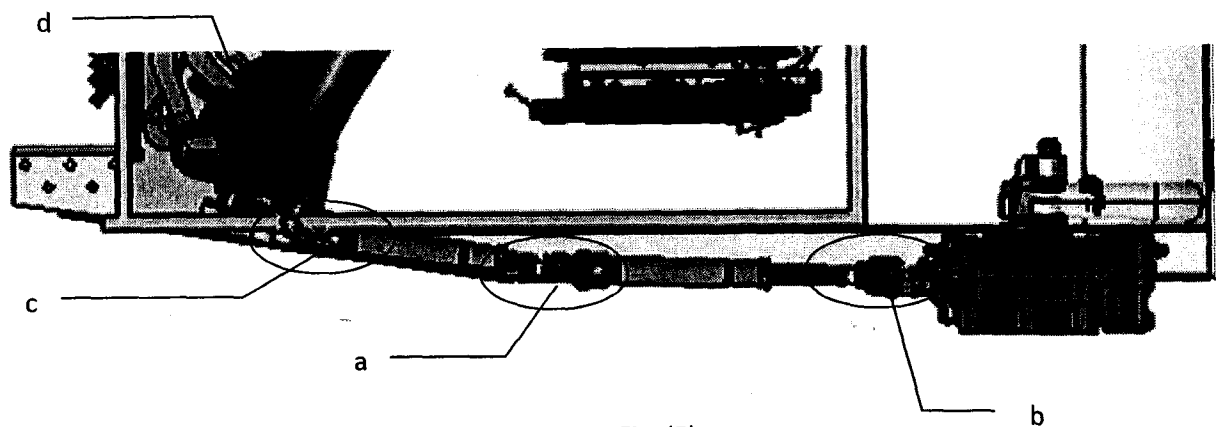


Fig (5)

Another highlight of the invention is that the packaging is so done that it does not reduce the floor height Fig(4)i, nor the angle of approach Fig(4)g, of the vehicle and they are well within the legislative standards laid down by the various Bus Body Codes.

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DRIVER SEAT POSITIONED ON LOW FLOOR FOR REAR ENGINE BUSES WITH WIDE DOOR AHEAD OF FRONT AXLE

ABSTRACT

In Rear Engine Low floor buses, with a wide door ahead of the front axle, the driver seat is usually positioned at a minimum of one step height from the low floor area fig 1.(c). This is generally done to accommodate/package the steering system aggregates and linkages fig 1.(a).

This invention is aimed at positioning the driver on the low floor area fig 2.(c). It is achieved by improvising on the steering linkages of a conventional steering system and intelligently packaging the steering system aggregates below the low floor.

Doing so would reduce the blind distance (X'), increase the driver field of vision and would also provide a step less entry and exit to the driver work space.

FIELD OF INVENTION

The invention relates to Rear Engine Low Floor Buses with a Wide Service Door ahead of the front axle.

BACKGROUND OF INVENTION

Today one of the prime concerns in Buses especially in City Buses is the Driver visibility. Heavy traffic congestions, maneuverability in cramped and lanky roads all require maximum driver visibility in order to reduce the frequency of accidents and enhance the safety of passengers and pedestrians.

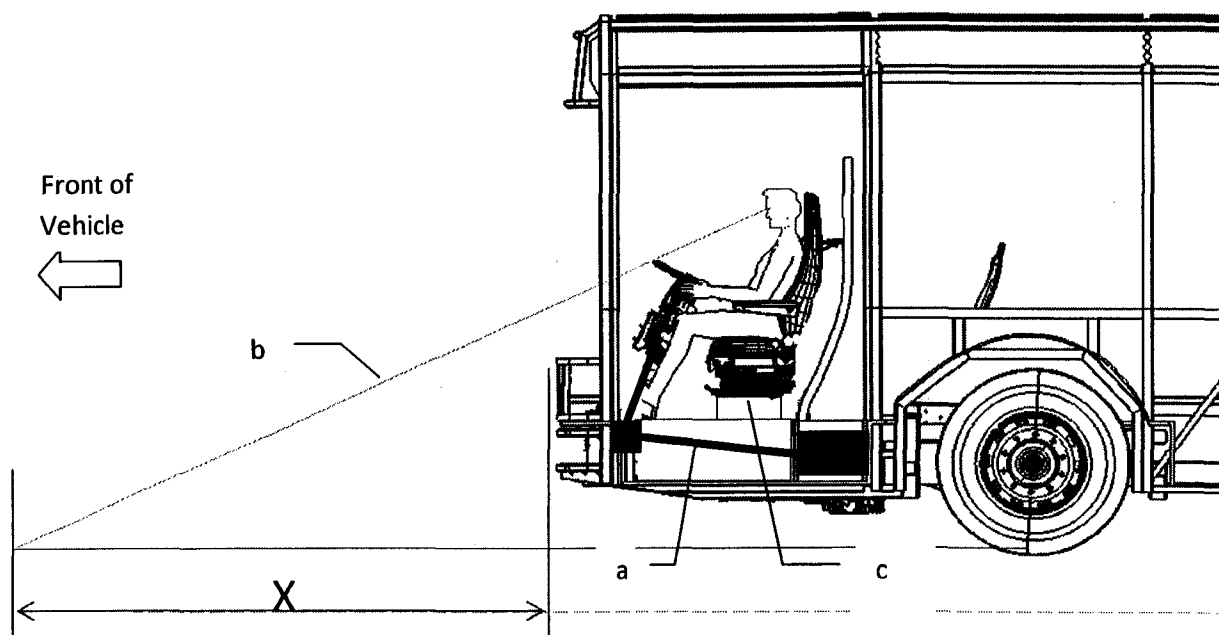


Fig (1)