

A THREE-WHEELED VEHICLE ADAPTABLE FOR DIFFERENT PURPOSES

FIELD OF THE INVENTION

- 5 This invention relates to a three-wheeled vehicle adaptable for different purposes and refers particularly, though not exclusively, to three-wheeled a vehicle capable of being used as an ambulance, fire-fighting platform, load-carrying vehicle, passenger carrying vehicle, and so forth.

10 BACKGROUND TO THE INVENTION

- It is a global practice that whenever a traffic accident happens and there are casualties, the vehicles involved in the accident should remain at their post-accident positions until the scene of the accident has been recorded by the police to aid later
15 investigations. Consequently, traffic inevitably comes to a near or total standstill from the scene of the accident.

- With traffic backed up over a long distance, ambulances have difficulty reaching the casualties unless the ambulance travels along the lay-bys or against traffic flow,
20 where available. Smaller/minor roads do not have all this and ambulances may not be able to reach the casualties for some time.

- An alternative solution has been to have a paramedic or a motorcycle to assist in traveling through traffic congestion and thus to reduce the delay in arrival of medical
25 help for casualties in traffic accidents. However, the equipment that such motorcycles carry is usually quite limited. All the paramedic is able to do is to stabilize the condition of the casualty while awaiting the arrival of an ambulance. Lives may be lost because of delays in casualties arriving at hospitals.

- 30 A similar situation may arise for a medical emergency such as, for example, a heart attack or stroke during peak traffic periods. Delays in reaching a hospital may prove fatal.

The only alternative is a helicopter but that may not be practical in built-up areas.

A similar scenario also occurs at the scene of a fire. Crowds usually gather and this, together with heavy traffic, may hamper the progress of fire trucks heading to the scene of the fire. Due to this delay, lives and/or property may be lost.

SUMMARY OF THE INVENTION

In accordance with a first aspect there is provided a three-wheeled vehicle adaptable for different purposes. The vehicle includes a mechanical linkage system for adapting to the vertical movement of wheels of the vehicle as the wheels roll over terrain; and a control system for controlling the linkage system. The linkage system and the control system combine to respond to the movement of the wheels of the vehicle.

The vehicle may include a mechanical linkage system for controlling the vertical movement of wheels of the vehicle; and a control system for controlling the linkage system. The linkage system and the control system combine to control the movement of the wheels of the vehicle.

The vehicle may further include a body, the body being able to be changed. The linkage system may be lockable. The mechanical linkage system may be locked when the vehicle is traveling at a speed below a set speed. The set speed may be in the range 10 to 30kph, preferably 20kph. The set speed may be set by an operator, or is pre-set.

The control system may be selected from the group consisting of: automatic-assisted and manual.

The control system may be able to control a banking angle of the vehicle by control of the mechanical linkage system. The banking angle may also be determined by centripetal force. The banking angle may be in the range 0° to 20° . The control system may be one of: mechanical and electro-mechanical.

The three wheels may comprise a front wheel and two rear wheels, the two rear wheels being for providing motive power, and the front wheel being for steering.

5 According to a second aspect there is provided a passenger carrying vehicle comprising a body defining an operator's cockpit and a passenger compartment, the operator's cockpit being for use by only one operator, the passenger compartment being for accommodating a prone passenger with at least a part of the prone passenger being locatable beneath a seating platform of a further
10 passenger. The prone passenger may be located on a floor of the body. The prone passenger may be on a stretcher on the floor of the body.

The body may be shaped to allow for movement of the vehicle in narrow gaps, and may further comprise at least one external rear vision mirror at a height above
15 external rear vision mirrors of passenger cars.

The operator's cockpit may have a forwards-facing seat, and the seating platform may be rear-facing; the forwards-facing seat and the seating platform being in a back-to-back arrangement.

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The body may be one of: ambulance, fire fighting platform, load carrying vehicle, and passenger carrying vehicle.

25 **BRIEF DESCRIPTION OF THE DRAWINGS**

In order that the invention may be better understood and readily put into practical effect, there shall now be described by way of non-limitative example only preferred embodiments of the present invention, the description being in reference to the
30 accompanying illustrative drawings in which:

Figure 1 is a front perspective view of a preferred embodiment;

Figure 2 is a rear perspective view of the preferred embodiment;

Figure 3 is a view of the fascia of the operator's cockpit of the preferred embodiment;

Figure 4 is a perspective view of the preferred embodiment when cornering;

Figure 5 is a preferred setup of the preferred embodiment;

5 Figure 6 is a preferred mechanical linkage when used on the underside of the preferred embodiment;

Figure 7 is a side view of the preferred embodiment;

Figure 8 is a side view of a second embodiment;

Figure 9 is a rear perspective view of a third embodiment;

10 Figure 10 is a perspective view of a frame used in the preferred embodiment;

Figure 11 is a top view of an alternative arrangement for the mechanical linkage (in a locked position) when used on the underside of the preferred embodiment;

Figure 12 is a top view of an alternative arrangement for the mechanical linkage (in an unlocked position) when used on the underside of the preferred embodiment;

15 Figure 13 is a top view of an alternative arrangement for the mechanical linkage (in an unlocked position with one wheel being raised) when used on the underside of the preferred embodiment; and

Figure 14 is a perspective view of an alternative arrangement for the mechanical linkage (in an unlocked position with one wheel being raised) when used on the

20 underside of the preferred embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Figures 1 and 2, there is shown a front and rear perspective view
25 respectively of a preferred embodiment. A vehicle such as, for example, an ambulance 80 for a single passenger/casualty on a stretcher is shown. The ambulance 80 has three wheels (as shown) and is driven by an operator 82. The ambulance 80 may also have a beacon and siren 83 mounted on the roof 18 of the ambulance 80. The ambulance 80 may have one or two front doors 84, 86 along its
30 sides for the entry and exit of the operator 82. There may also be one or two side doors 88, 90 immediately behind the front doors 84, 86 for the entry and exit of rear passengers/casualties. The front doors 84, 86 and side doors 88, 90 may be sliding doors, gull wing doors or swing doors. A rear door 92 may be provided for the

loading of a stretcher-laden passenger/casualty into the ambulance 80. The rear door 92 may open upwards (as shown in Figure 2), sideways, downwards providing a ramp, or may be two doors opening sideways in opposite directions. An area directly behind the operator 82 may be known as a passenger/casualty compartment 91.

Cowlings 85, 87 on the sides of the ambulance 80 conceal the engine 72, batteries 71 and cooling unit 16 for the ambulance 80. The cowlings 85, 87 may also allow fast and convenient access to the engine 72, batteries 71 and cooling unit 16 for maintenance purposes. The cowlings 85, 87 may also act as a step to enter the passenger/casualty compartment 91 via the side doors 88, 90. With the use of the cowlings 85, 87, the front area of the vehicle may be smaller and the weight of the ambulance 80 may be more evenly distributed. However, even though the front area of the vehicle is smaller, the ambulance 80 remains highly visible when viewed from the rear view mirrors of other vehicles. The cowlings 85, 87 are located relatively low in vehicle 80.

Side mirrors 96, 98 have been located to enable the ambulance 80 to be able to pass cars or other road vehicles at close quarters without contact when the ambulance 80 drives past. The side mirrors 96, 98 may be located in a position such that they are unlikely to contact the sides, or external mirrors, of surrounding vehicles. This may be by allowing for the curvature of the sides of most passenger vehicles, and the location of their external mirrors at the top of door panels. By having the height of mirrors 96, 98 above the height of the external mirrors of most passenger vehicles they will be in a region of reduced width due to the curvature of the sides of other vehicles.

Referring to Figure 10, there is shown a perspective view of a frame used in the preferred embodiment. A telescopic suspension unit 14 may be connected to a main frame 15. A front wheel 94 may be connectable to the telescopic suspension unit 14. The telescopic suspension unit 14 may comprise at least one suspension stanchion 13. Figure 10 shows a suspension unit 14 with two suspension stanchions 13. The suspension unit 14 may be pivoted and may enables the front

wheel 94 to change direction for steering the preferred embodiment. The suspension stanchions 13 of the telescopic suspension unit 14 may be biased using coil springs, gas springs, hydraulic springs, or any suitable biasing devices. The suspension unit 14 enhances the steering capability of the ambulance 80 by
5 absorbing vibrations/undulations caused by a surface that the ambulance 80 travels on. The steering of the ambulance 80 may be by the operator 82 turning a wheel 81 connected to a stem 78 that is connected to the suspension unit 14. Thus, steering the ambulance 80 is akin to steering a conventional car. The rotation of front wheel 94 may also be stopped using at least one disc brake (not shown). The disc may be
10 stopped by calipers with at least a single piston. The ambulance 80 may have an anti-lock braking system and electronic brake distribution.

Referring to Figure 3, there is shown a view of the fascia of the operator's cockpit 100 of the ambulance 80. There is a speedometer 102, a tachometer 104, and
15 gauges 106 showing the requisite readings such as, for example, level of fuel, voltage readings and so forth. The aforementioned meters 102, 104 and gauges 106 may be replaced by a multi-purpose liquid crystal display (not shown) showing all pertinent information. This may be able to be switched to enable the operator 82 to view the passenger/casualty compartment 91 via a video link (not shown). There
20 may also be air vents 108 that allow the ingress of cool air from the cooling unit of the ambulance 80 onto the operator 82 in the cockpit 100. The cockpit 100 may also have another liquid crystal display screen 110 that displays maps with the location of the ambulance 80 in real-time using known GPS-based systems. This enables the ambulance 80 to take the shortest route to any preferred destination.
25 Driving into areas of traffic congestion will not pose a significant problem for the ambulance 80 because it is a relatively narrow width (a little more than a motorcycle) and thus it is able to navigate narrow gaps in traffic to arrive at its destination. The cockpit 100 may also contain heart rate and blood pressure displays showing the vital signs of the rear casualty(s).

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Referring to Figure 5, there is shown a preferred arrangement in the passenger/casualty compartment of the ambulance 80. The ambulance 80 may be configured such that the engine 72 is located at a position that maximizes the

passenger/casualty compartment 91 of the ambulance 80. The engine 72 may be located at the left side of the operator 82. The cooling unit (not shown) and batteries 71 may be located at the right side of the operator 82. Such an arrangement distributes weight over the wheelbase of the ambulance and creates a serviceable
5 area in the passenger/casualty compartment 91 of the ambulance 80. A wheel arch 16 for the front wheel 94 is also provided.

As shown in Figure 5, the legs 4 of the passenger/casualty 26 on a stretcher may be located under the seat 12 of the operator 82. Such an arrangement allows for
10 the stretcher 10 to slide in easily into and out of the passenger/casualty compartment 91 once the rear door 92 is opened. The passenger/casualty compartment 91 may also be used to carry medical devices such as, for example, ventilators, defibrillators, and so forth. The passenger/casualty compartment 91 may also carry medical supplies such as, for example, bandages, splints, neck
15 braces, medication and so forth. Such an arrangement to transport the passenger/casualty 26 also minimizes the effective length of the ambulance 80 which may enhance the maneuverability of the ambulance 80.

A third passenger 29 may be seated behind the operator 82 facing the rear door 92
20 of the ambulance 80. The third passenger 29 may be a paramedic or a lightly injured casualty. If the passenger 29 is a paramedic, the paramedic 29 may be able to move rearwards by sliding a seating platform 27 to tend to the casualty 26 lying on the stretcher. This allows the paramedic 29 to attend to any complications arising during transit to a medical institution. By having the legs 4 of
25 passenger/casualty 26 beneath operator 29, the head 8 and torso 6 of the passenger/casualty 26 are directly accessible by the paramedic 29.

Referring to Figure 6, there is provided a mechanical linkage system 20 that allows the vertical movement of a pair of wheels 22, 24 of the vehicle. Rotation of the
30 wheels may be stopped by disc (as shown) or drum brakes. The disc may be stopped by calipers with at least a single piston. The mechanical linkage system 20 may be employed in the undercarriage of the vehicle 80. The chassis of the vehicle

is not shown in Figure 6 hence the passenger/casualty 26 and the legs 28 of a rearward facing seated passenger 29 can be seen.

The first link arm 60 and the second link arm 64 may incorporate power
5 transmission mechanisms that are connectable to the drive axle 66 to power wheels
22, 24. The drive axle 66 may be driven by at least one belt 68 (as shown in a
friction drive) such as, for example, a soothed belt, at least one chain and sprocket,
a gears system, chain drive, shaft drive, hydraulic drive or by a directly coupled
motor or any other suitable drive system. The belt 68 may be attachable to a driving
10 drive shaft 70 of an engine 72. The engine 72 may be fueled by petrol, diesel,
natural gas, liquid hydrogen, or electricity. The transmission system paired with the
engine may be manual or automatic. The automatic transmission system employed
may be a CVT or a conventional automatic transmission utilizing torque converters.
The engine 72, transmission system and batteries 71 may be located at positions
15 that lower the centre of gravity. They may also be distributed to balance the weight
of the vehicle so and, consequently, to improve the stability and handling of the
vehicle 80. The engine 72 may be used to drive at the least two wheels 22, 24.

Referring now to Figure 4, there is shown an ambulance 80 negotiating a left
20 corner. The working of the mechanical linkage system 20 in the ambulance 80 will
be described according to the labels as shown in Figure 6. Assuming that the
mechanical linkage system 20 is controlled automatically, when the ambulance 80
turns into the left corner, the tail 40 of the first actuator 32 is actuated away from the
head link 30, the first end 34 of the central link 44 will rotate away from the head
25 link 30. Consequently, the head 46 of the first suspension actuator 48 is moved
away from the head link 30. This leaves the first suspension actuator 48 in a state
of compression. For the first suspension actuator 48 to return to equilibrium, the first
link arm 60 rotates about the drive axle 66 and consequently lowers first wheel 22
generally vertically. Simultaneously, the tail 42 of the second actuator 36 is
30 actuated towards the head link 30 and the second end 56 of the central link 44 will
rotate towards the head link 30. Consequently, the head 52 of the second
suspension actuator 54 is moved towards the head link 30. This leaves the second
suspension actuator 54 in a state of tension. For the second suspension actuator

54 to return to equilibrium, the second link arm 64 rotates about the drive axle 66 and consequently raises the second wheel 24 generally vertically. The mechanical linkage system 20 may be similarly employed when the ambulance 80 is traversing on banked paths. It may be possible to attain a maximum banking angle of 20° . The
5 first actuator 32 and second actuator 36 may be manually controlled by foot or hand levers, or may be controlled by an automatic system with sensors. When the ambulance 80 is traversing on a flat path, the first actuator 32 and second actuator 36 may be locked to lock the position of the first wheel 22 and second wheel 24 respectively for a ride subject to less vibrations. Locking may be speed dependent
10 so that above a pre-set speed, or a speed set by operator 82, the actuators 32, 36 may be unlocked; and below that speed they may be locked. The speed may be in the range 10 to 30kph, preferably 20kph. This is able to be achieved in a known manner using known electronic devices.

15 Figures 7 and 8 show different bodies and wheelbases for an ambulance 80. Figure 7 shows a normal wheelbase version of an ambulance 80 that may be able to carry two passengers in the passenger/casualty compartment 91 of the ambulance 80, one seated and one lying on a stretcher. Figure 8 shows a short wheelbase version of the ambulance that may be able to carry one seated passenger in the
20 passenger/casualty compartment 91 of the ambulance 80. The different bodies and wheelbases may be deployed in different scenarios where required. The short wheelbase version shown in Figure 8 may be used to accompany normal sized ambulances as transport vehicles for additional paramedics and medical personnel. The wheelbases may also have different widths to meet different capacity/size
25 requirements.

Figure 9 shows an alternative embodiment of the present invention. The vehicle shown is a fire-fighting platform 120. The mechanics of the fire-fighting platform 120 are similar to those of the ambulance 80. However, the fire-fighting platform 120
30 has an exposed flat bed 122 akin to a lorry for the placement of equipment for fire fighting. A tailgate 124 may be hinged from the side or from the bottom. A bottom hinged tailgate 124 may also be used as a ramp to facilitate the loading and unloading of items from the exposed flat bed 122. There is shown a water jet nozzle

126 mounted on the flat bed 122. The water expelled from the nozzle may be drawn from portable tanks 128 or may be drawn from street side fire hydrants. Alternatively, it may be able to be used for discharge of dry powder or foam.

- 5 A chassis and/or body may be interchangeable between that of the ambulance 80, the fire-fighting platform 120, a load carrying vehicle, or a passenger carrying vehicle. The chassis of the load carrying vehicle may be a bare version of the fire-fighting platform 120 and the chassis of the passenger carrying vehicle may be a bare version of the ambulance 80. The chassis may be interchangeable as long as
10 the wheelbase is of the same length and width.

Referring to Figures 11 to 14, there is provided an alternative mechanical linkage system 20 that allows the vertical movement of a pair of wheels 22, 24 of the vehicle. Rotation of the wheels may be stopped by disc 74 or drum brakes. The
15 discs 74 may be stopped by calipers with at least a single piston. The mechanical linkage system 20 may be employed in the undercarriage of the vehicle 80. The chassis of the vehicle is not shown in Figures 11 to 14.

There is a head link 30 in the mechanical linkage system 20. A main actuator 33
20 may be connectable to the head link 30. The head link 30 has a head 31 of a first actuator 32 attached to or adjacent a first end 34 of the head link 30 and a head 35 of a second actuator 36 attached to or adjacent a second end 38 of the head link 30. The first 32 and second 36 actuators may not necessarily be attached only to the ends 34, 38 of the head link 30 and may be attached to the head link 30 at any
25 location provided sufficient mechanical advantage gained thereby. The positioning of the first 32 and second 36 actuators may affect the amplitude of the vertical movement of the wheels 22, 24 of the vehicle when the vehicle is in motion. The actuators 32, 36, 33 may be hydraulic rams (as shown) or may be pneumatic, electric, or any other suitable drive system. The actuators 32, 36, 33 may use
30 maintenance-free bearings for better durability.

A tail 40 of the first actuator 32 and a tail 42 of the second actuator 36 are attached to a central link 44 intermediate its length. The length of the central link 44 may

depend on the width of the vehicle. A head 46 of a first suspension actuator 48 is attached to a first end 50 of the central link 44. Similarly, a head 52 of a second suspension actuator 54 is attached to a second end 56 of the central link 44. The first 48 and second 54 suspension actuators may be biased using coil springs (as shown), gas springs, hydraulic springs, or any suitable biasing device or system. A tail 58 of the first suspension actuator 48 is attached to a first link arm 60 of the mechanical linkage system 20. A tail 62 of the second suspension actuator 54 is attached to a second link arm 64 of the mechanical linkage system 20. The first wheel 22 is attached to the first link arm 60 while the second wheel 24 is attached to the second link arm 64. The central link 44 and the head link 30 are separate. The central link 44 may be pivoted at its centre such that the central link 44 is able to rotate about the pivot. The central link 44 may also be jointed to be able to move towards or away from the head link 30 should the first 32 and second 36 actuators be actuated in the same direction with the same amplitude.

The first link arm 60 and the second link arm 64 may be connected to a drive axle 66. The first link arm 60 and the second link arm 64 may incorporate power transmission mechanisms that are connectable to the drive axle 66 to power wheels 22, 24. The drive axle 66 may be driven by at least one belt 68 (as shown in a friction drive) such as, for example, a soothed belt, at least one chain and sprocket, a gears system, chain drive, shaft drive, hydraulic drive or by a directly coupled motor or any other suitable drive system. The belt 68 may be attachable to a driving drive shaft of an engine (not shown). The engine may be fueled by petrol, diesel, natural gas, liquid hydrogen, or electricity. The transmission system paired with the engine may be manual or automatic. The automatic transmission system employed may be a CVT or a conventional automatic transmission utilizing torque converters.

The operation of the mechanical linkage system 20 as shown in Figures 11 to 14 is such that the first actuator 32 and second actuator 36 may be controlled by mechanical or electro-mechanical devices.

When a head 41 of the main actuator 33 that is connected to the head unit 30, is actuated away from the central link 44, a connecting member 47 of the central link

44 is disengaged from the head link 30 (Figure 12). When this happens, the wheels 22, 24 are free to move in a vertical direction. When the tail 40 of the first actuator 32 is actuated towards the head link 30 (Figures 13 and 14), the first end 34 of the central link 44 will rotate towards the head link 30. Consequently, the head 46 of the first suspension actuator 48 is moved towards the head link 30. This leaves the first suspension actuator 48 in a state of tension. In order for the first suspension actuator 48 to return to equilibrium state, the first link arm 60 rotates about the drive axle 66 and consequently raises first wheel 22 vertically. Conversely, when the tail 40 of the first actuator 32 is actuated away from the head link 30, the first end 34 of the central link 44 will rotate away from the head link 30. Consequently, the head 46 of the first suspension actuator 48 is moved away from the head link 30. This leaves the first suspension actuator 48 in a state of compression. For the first suspension actuator 48 to return to equilibrium state, the first link arm 60 rotates about the drive axle 66 and consequently lowers first wheel 22 generally vertically. The same movement occurs for second wheel 24 when the tail 42 of the second actuator 36 is actuated either towards or away from the head link 30. When the tail 40 of the first actuator 32 and the tail 42 of the second actuator 36 are actuated towards the head link 30 by the same amplitude, the wheels 22, 24 are both raised generally vertically. Similarly, when the tail 40 of the first actuator 32 and the tail 42 of the second actuator 36 are actuated away from the head link 30 by the same amplitude, the wheels 22, 24 are both lowered generally vertically.

Whilst there has been described in the foregoing description preferred embodiments of the present invention, it will be understood by those skilled in the technology concerned that many variations or modifications may be made to details of design or construction without departing from the present invention.

The present invention extends to all features disclosed either individually, or in all possible permutations and combinations.

CLAIMS

1. A three-wheeled vehicle adaptable for different purposes, including: a mechanical linkage system for adapting to the vertical movement of wheels of the vehicle as the wheels roll over terrain; and a control system for controlling the mechanical linkage system, wherein the control system and the mechanical linkage system combine to respond to the movement of the wheels of the vehicle.
2. A three-wheeled vehicle adaptable for different purposes, including: a mechanical linkage system for controlling the vertical movement of wheels of the vehicle as the wheels roll over terrain; and a control system for controlling the mechanical linkage system, wherein the control system and the mechanical linkage system combine to respond to the movement of the wheels of the vehicle.
3. The vehicle as claimed in either claim 1 or 2, further including a body, the body being able to be changed.
4. The vehicle as claimed in any one of claims 1 to 3, wherein the mechanical linkage system is lockable.
5. The vehicle as claimed in claim 4, wherein the mechanical linkage system is lockable when the vehicle is traveling at a speed below a set speed.
6. The vehicle as claimed in claim 5, wherein the set speed is in the range 10 to 30kph.
7. The vehicle as claimed in claim 5 or claim 6, wherein the set speed is 20kph.

8. The vehicle as claimed in any one of claims 5 to 7, wherein the set speed is set by an operator, or is pre-set.
- 5 9. The vehicle as claimed in any one of claims 1 to 8, wherein the control system is one of: automatic-assisted and manual.
- 10 10. The vehicle as claimed in any one of claims 1 to 9, wherein the control system is able to control a banking angle of the vehicle by control of the mechanical linkage system.
- 11 11. The vehicle as claimed in any one of claims 1 to 9, wherein a banking angle of the vehicle is determined by centripetal force.
- 15 12. The vehicle as claimed in either claim 10 or 11, wherein the banking angle is within the range 0^0 to 20^0 .
- 20 13. The vehicle as claimed in either claim 10 or 12, wherein the banking angle is varied using one selected from the group consisting of: mechanical and electro-mechanical.
- 25 14. The vehicle as claimed in any one of claims 1 to 13, wherein the three wheels comprise a front wheel and two rear wheels, the two rear wheels being for providing motive power, and the front wheel is for steering.
- 30 15. A passenger carrying vehicle comprising a body defining an operator's cockpit and a passenger compartment, the operator's cockpit being for use by only one operator, the passenger compartment being for accommodating a prone passenger with at least a part of the prone passenger being locatable beneath a seating platform of a further passenger.
16. The vehicle as claimed in claim 15, wherein the prone passenger is locatable on a floor of the body.

17. The vehicle as claimed in claim 15, wherein the prone passenger is locatable on a stretcher on the floor of the body.
- 5 18. The vehicle as claimed in any one of claims 15 to 17, wherein the body is shaped to allow for movement of the vehicle through narrow gaps.
19. The vehicle as claimed in any one of claim 15 to 18, further comprising at least one external rear vision mirror at a height above external rear vision mirrors of passenger cars.
- 10 20. The vehicle as claimed in any one of claims 15 to 19, wherein the operator's cockpit has a forwards-facing seat, and the seating platform is rear-facing; the forwards-facing seat and the seating platform being in a back-to-back arrangement.
- 15 21. The vehicle as claimed in any one of claims 3 to 20, wherein the body is selected from the group consisting of: ambulance, fire fighting platform, load carrying vehicle, and passenger carrying vehicle.
- 20 22. An ambulance utilizing the vehicle as claimed in any one of claims 1 to 21.
23. A fire fighting platform utilizing the vehicle as claimed in any one of claims 1 to 21.
- 25 24. A load carrying vehicle utilizing the vehicle as claimed in any one of claims 1 to 21.
- 30 25. A passenger carrying vehicle utilizing the vehicle as claimed in any one of claims 1 to 21.

Reference Numerals

4	legs of 26
6	torso of 26
8	head of 26
10	Stretcher
12	seat of 82
13	suspension stanchion
14	telescopic suspension on unit
15	Frame
16	wheel arch
18	roof of 80
20	mechanical linkage system
22	wheel
24	wheel
26	casualty
27	seating platform for 29
28	legs of 29
29	third passenger (paramedic)
30	head link
31	head of 30
32	first actuator
33	main actuator
34	first end of 30
35	head of 36
36	second actuator
38	second end of 30
40	tail of 32
41	head of 33
42	tail of 36
44	central link
46	head of 48

47	connecting member
48	first suspension actuator
50	first end of 44
52	head of 54
54	second suspension actuator
56	second end of 44
58	tail of 48
60	first link arm of 20
62	tail of 54
64	second link arm of 20
66	drive axle
68	belt
70	shaft
71	batteries
72	engine
74	rear disc brake
76	
78	stem
80	vehicle
81	steering wheel
82	operator
83	beacon & siren
84	front door
85	cowling
86	front door
87	cowling
88	side door
90	side door
91	passenger compartment
92	rear door
94	front wheel
96	side mirror
98	side mirror

100	operator's cockpit
102	speedometer
104	tachometer
106	gauges
108	air vents
110	screen
120	fire fighting platform
122	flat bed
124	tailgate
126	nozzle
128	tanks