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(54) **A vehicle superstructure with a variable interior space**

(57) The superstructure 1 has two extension compartments 3, 4 which are mounted for displacement relative to a central compartment 2 in longitudinal guides 8.

A supply unit 12 formed by a sanitary block, a cooking facility and a storage space is arranged substantially at the longitudinal centre of the central compartment in a plane perpendicular to the longitudinal direction, this supply

unit being arranged at a distance from one of the two vertical longitudinal side walls of the central compartment which is large enough to allow people to pass through. The arrangement allows the superstructure to be collapsed with little, if any, rearrangement of its interior fittings. The superstructure may be used on a trailer or may, Figures 7-9 (not shown), be mounted on a self-propelled chassis for movement to an erected condition in which it lies across or beside the chassis.

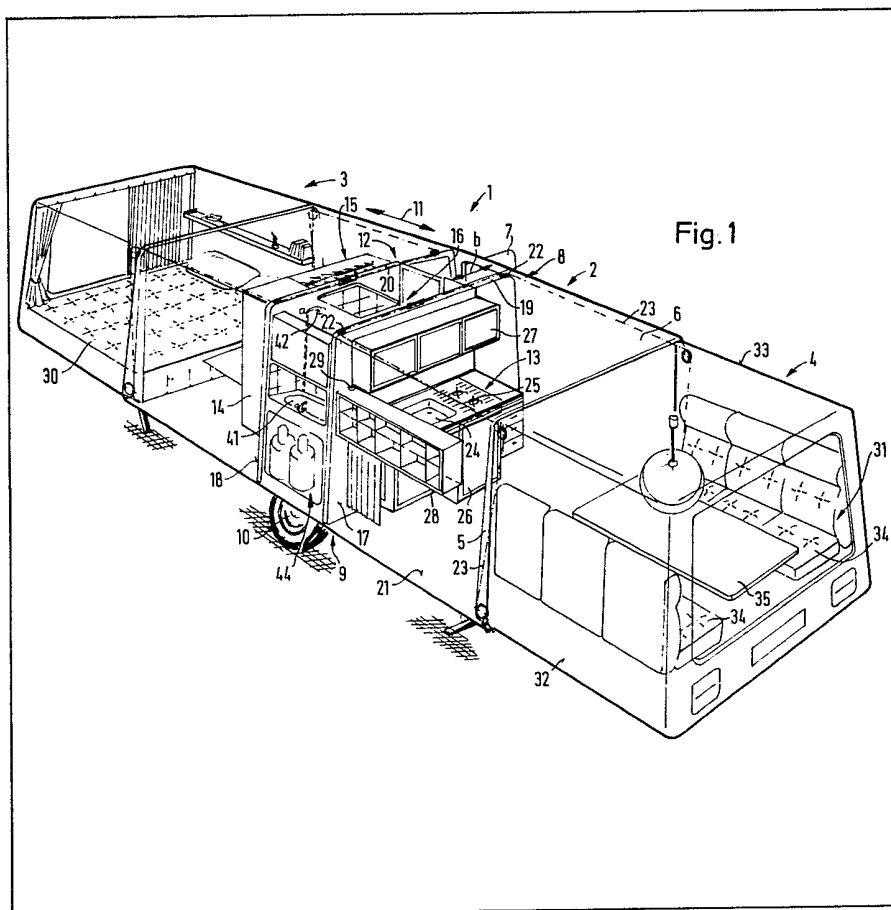
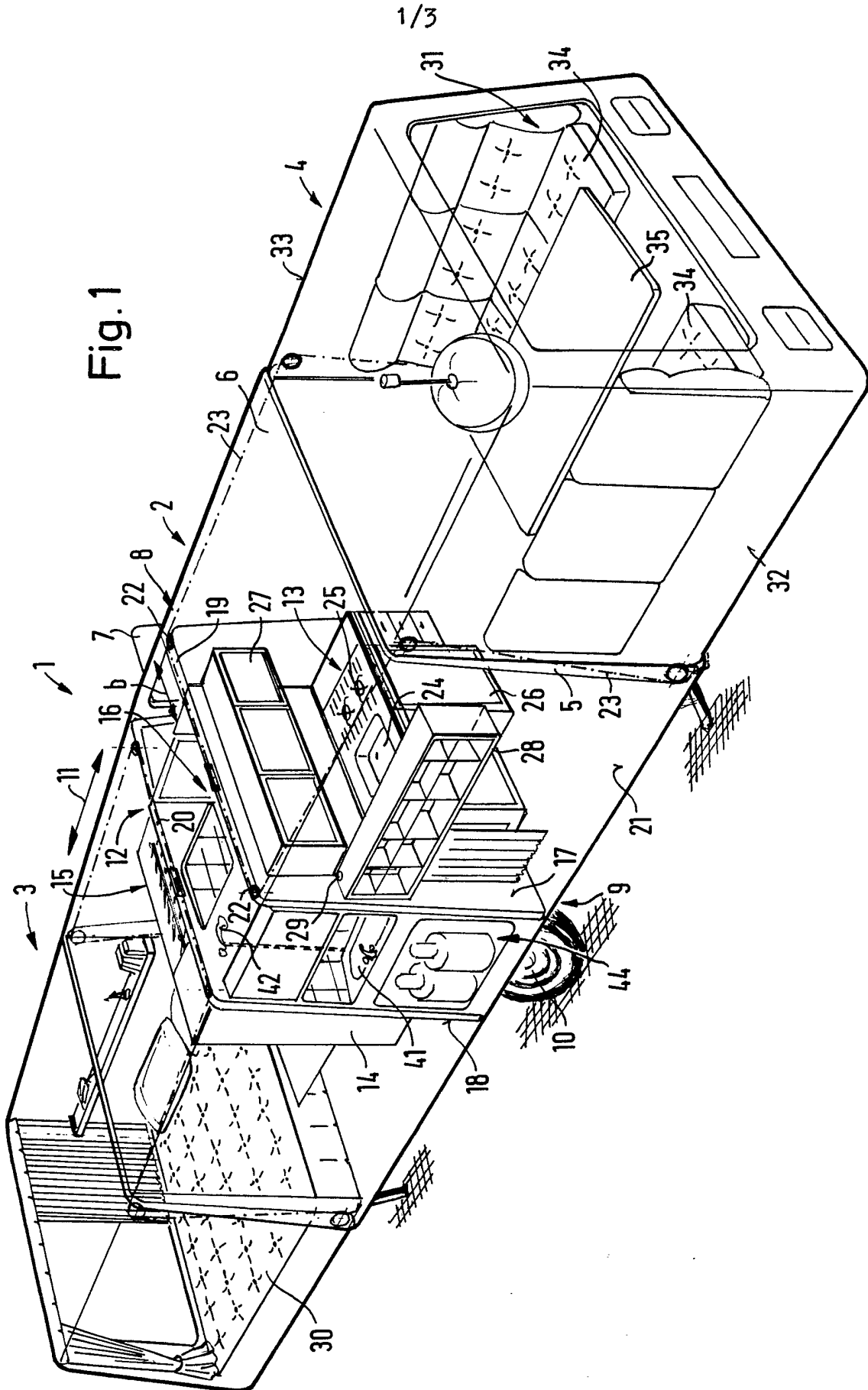


Fig. 1



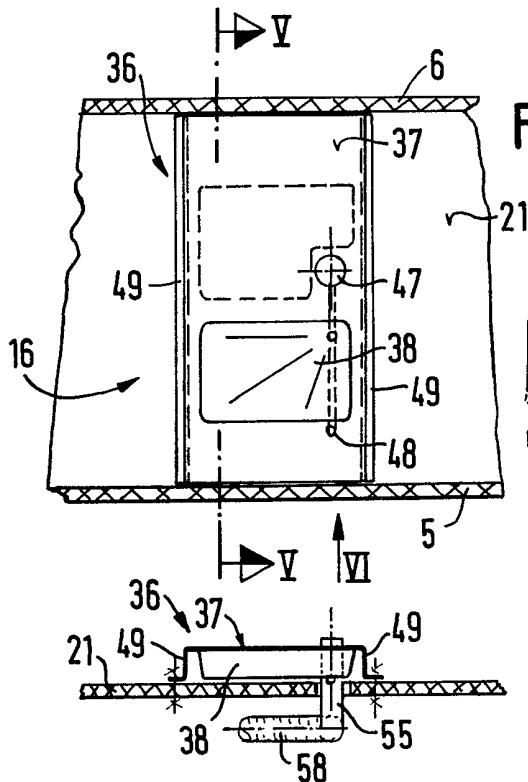
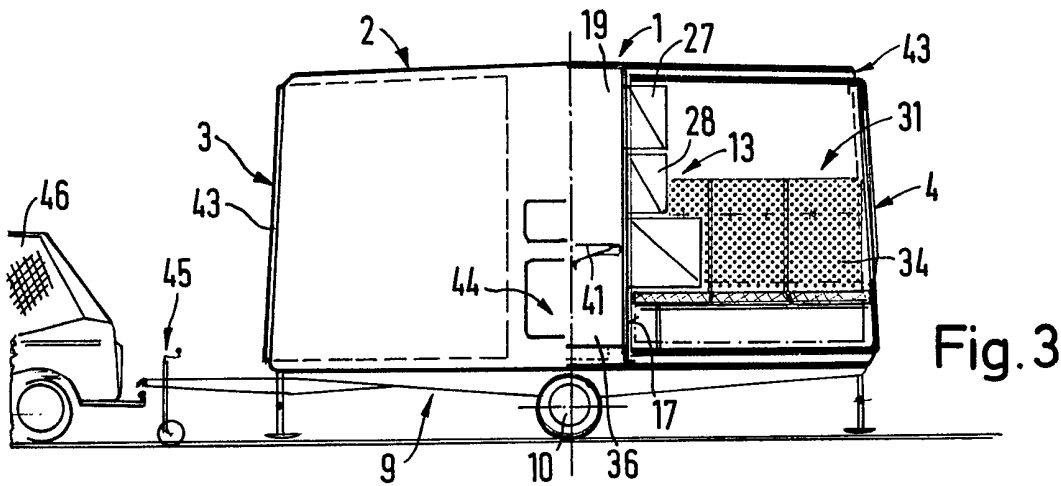
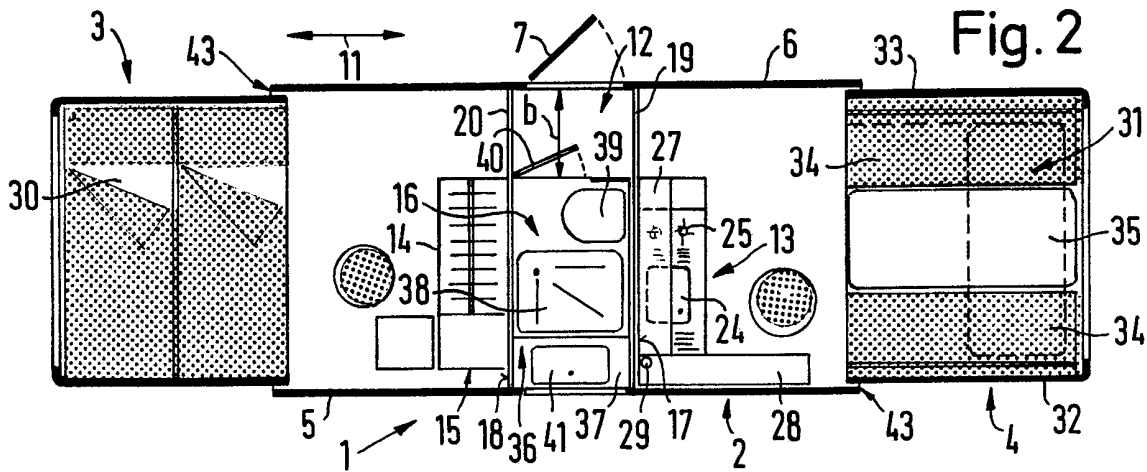


Fig. 4

Fig. 5

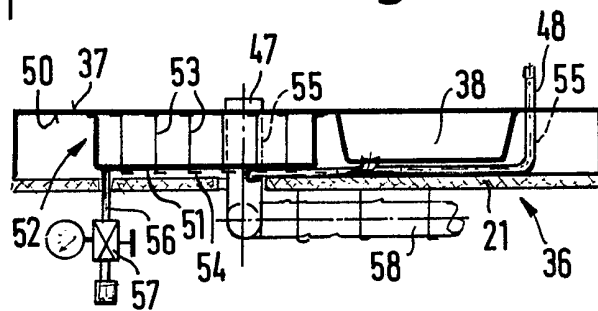
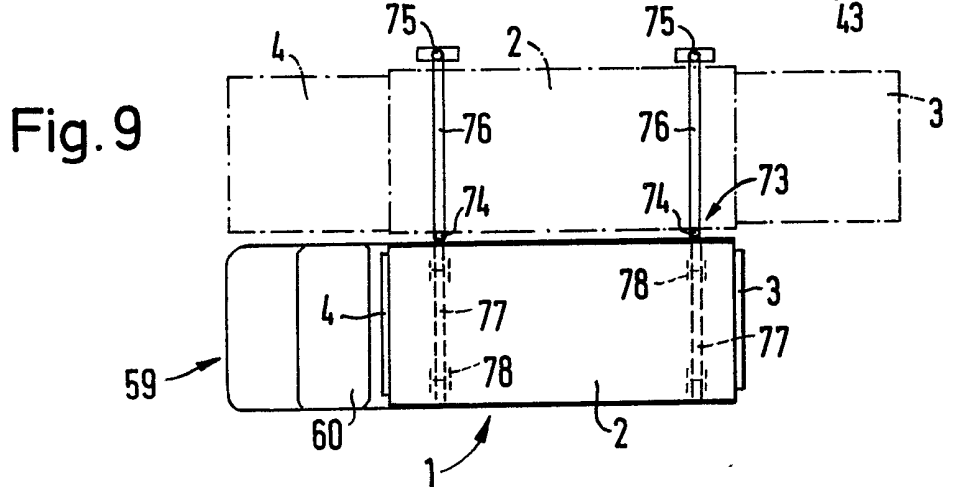
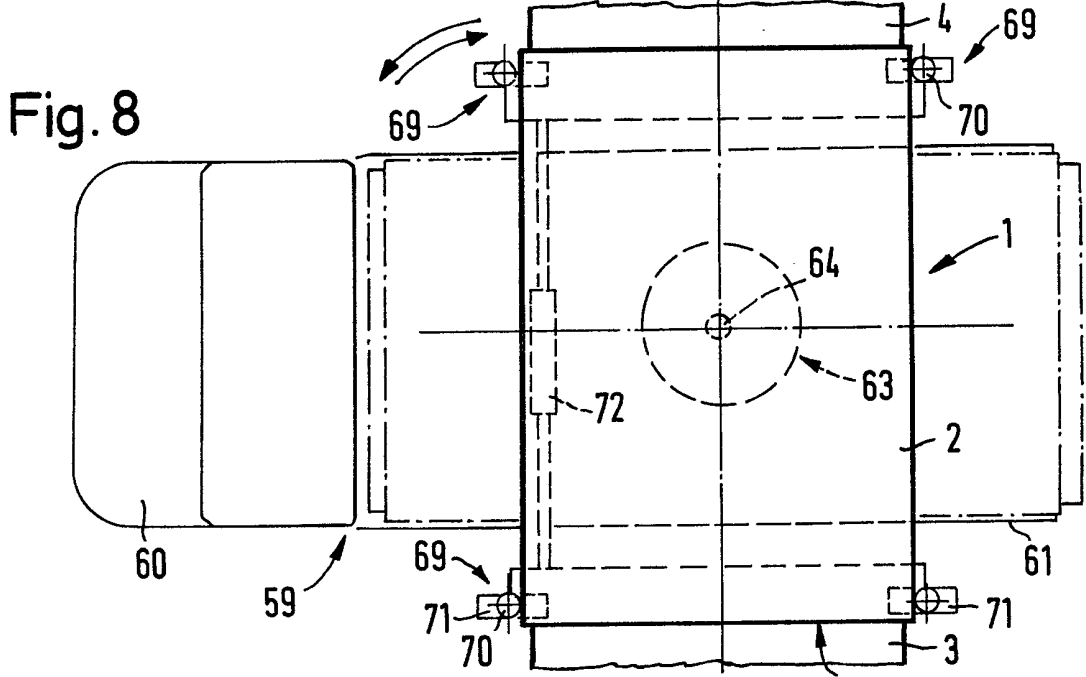
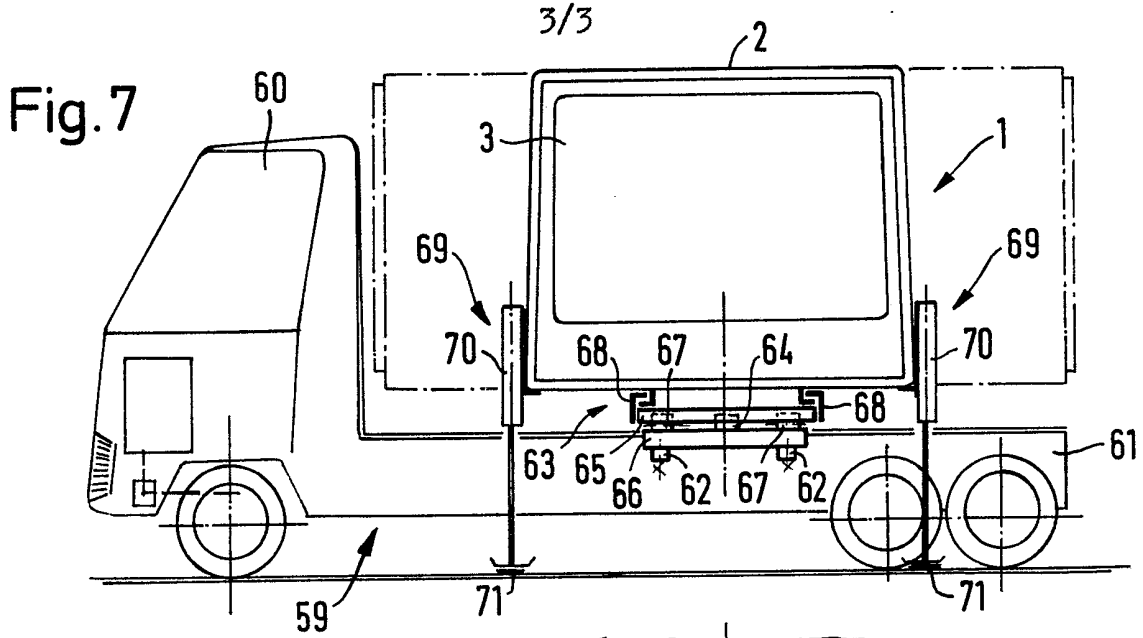


Fig. 6



SPECIFICATION

A vehicle superstructure more particularly with a variable interior space

5 This invention relates to a vehicle superstructure, more particularly with a variable interior space, comprising a cylindrical middle compartment and two frusto-cylindrical extension compartments arranged on either side thereof which are mounted for displacement on longitudinal guides relative to one another and to the central compartment longitudinally of the central compartment.

15 Vehicle superstructures of the above-mentioned type have been known for some time, particularly for use in mobile homes. Thus, mobile homes *inter alia* are already known in which the interior space of the vehicle superstructure may be enlarged by extending or unfolding wall elements or parts of the vehicle superstructure. In mobile homes of this type, i.e. with a variable interior space, it is always difficult on the one hand to enlarge and, on the other hand, to reduce the interior space, as required for transport, with as little effort as possible and with minimal rearrangement of interior fittings.

25 Thus, German Offenlegungsschrift No. 2,622,775 describes a mobile home where beds which fold automatically during reduction or enlargement of the interior space are provided in the variable interior space of the vehicle superstructure. A special cable mechanism with cables guided along a substantially Z-shaped path is provided for guiding the frusto-cylindrical extension compartment extendable from a central compartment. Although this solution has proved to be effective for the special category of mobile homes with a variable interior space, it also involves the use of a relatively complicated mechanism which on the one hand enables the beds to be folded and, on the other hand, requires considerable effort for returning and extending the extension compartment from the central compartment on account of this additional folding of the beds. Further difficulties in the construction and use of variable-interior vehicle superstructures lie in the installation of the power supply lines, particularly for the provision of central heating, and also in the accommodation of the electrical appliances and cables, sanitary facilities and gas lines. The gas lines in particular, due to the use of bottled gas, are subject to extremely strict regulations which, in many cases, prohibit the use of long flexible lines. On the other hand, provision has to be made for adequate ventilation of the gas bottles or their holders so that the bottles or their holders frequently have to be accommodated in a separate protective housing above the towbar. Accordingly, the supply of gas to the galley, which is generally situated in the middle of the vehicle, involves a number of problems.

60 The object of the present invention is to provide a vehicle superstructure with an interior space of variable size in which the size of the interior space may easily be varied with little, if any, need to rearrange interior fittings and supply systems in order in particular to enable to length of the vehicle

superstructure to be adapted to the required conditions of use.

70 According to the invention, this object is achieved in that a supply unit consisting of a sanitary block, galley and storage space is arranged substantially in the longitudinal centre of the middle compartment in a plane perpendicular to the longitudinal direction, this supply unit being provided at a distance from one of the two vertical longitudinal side walls of the middle compartment which is large enough to allow people to pass through.

75 Through the provision and arrangement of the supply unit according to the invention, it is possible surprisingly easily, in a vehicle superstructure comprising a cylindrical middle compartment and two extension compartments arranged on either side thereof, to manage with a minimum of power supply lines and fittings which have to be rearranged for reducing and increasing the interior space of the vehicle superstructure. In spite of this, it is ensured that, even when the interior space is reduced, i.e. closed, the supply unit remains operative so that the facilities required for the sustenance of the passengers may still be used, particularly during journeys from (one) stopover point to another. At the same time, provision is surprisingly made for an extremely favourable central load where an axle is arranged in the middle of the central compartment because the camping facilities which are both heavy in their construction and also extensive in regard to the supply units associated with them may be arranged immediately above the axle in the central region of the middle compartment.

80 According to another very important feature of the invention, the supply unit consists of two end walls which are spaced apart from one another in the longitudinal direction of the central compartment and which are connected to the central compartment through supports carrying roller arrangements of the longitudinal guide assembly. Through the ingenious connection of the guides to the supply unit, the living space is not disturbed by the technical means required for extension and constructional elements which are necessary in any case may be used for effectively designing the interior space.

85 In one particularly preferred embodiment of the invention, the sanitary block is arranged between the end walls so that the two end walls connected to the supports may advantageously be used for separating the sanitary space from the rest of the vehicle superstructure.

90 According to the invention, however, it is also possible for the end walls to be formed by rear walls, designed to rest on the supports, of box arrangements or cooking facilities facing the extension compartments. In this way, the necessary load-bearing intermediate walls may be used for carrying the guides and their stable construction for carrying the box arrangements so that there is no need for any additional expensive constructional elements for the erection of box arrangements and storage spaces.

95 Another advantageous embodiment of the invention is characterised in that the box arrangement or cooking facility is arranged at a distance from the

two longitudinal side walls of the central compartment which is sufficient for accommodating at least the outer shell of the extension compartments and, optionally, objects, for example cupboards, mounted on their longitudinal side walls. In this way, the inner space present between the end walls of the supply unit may be fully utilised and a very short overall length of the vehicle superstructure obtained when the extension compartments are retracted. In addition, it is now possible to leave for example fixedly mounted seating benches unchanged in the extension compartments during their retraction without the overall depth of the box arrangements mounted on the end walls in any way shortening the retraction depth.

It is also of advantage for the length of the extension compartment in the longitudinal direction of the central compartment to correspond substantially to the distance between the end region of the central compartment and that end wall of the supply unit which faces this end region. In this way, an optically favourable form of the vehicle superstructure, which in many cases is a critical sales feature, is obtained, particularly during in-transit journeys, i.e. with the extension compartments retracted.

In addition, it is also possible for the distance between the end wall of the supply unit and that end of the central compartment which faces the end wall to be greater than the overall retractable length of the extension compartment, so that windows may be provided, for example even in the longitudinal side walls of the extension compartments, particularly in that part which is not retracted into the central compartment, thereby improving light conditions in the extended condition, i.e. with the interior space enlarged, in which the vehicle is mainly used for living purposes.

According to another particularly advantageous embodiment of the invention, a seating bench and/or bunk-bed unit is provided in each extension compartment. By virtue of this practical arrangement of the seating benches and bunk-bed units in the extension compartments, the space required for extending, but more particularly for retracting the extension compartments is only required as living space, i.e. for walking and standing and general freedom of movement, and may therefore be used without inconvenience for retracting the extension compartments during the in-transit journey from one stopover point to another during which the vehicle is of course not occupied.

According to another extremely favourable embodiment of the invention, the seating unit consisting of two seating benches arranged on the vertical longitudinal side walls of the extension compartment is designed to be displaced and folded transversely of the longitudinal direction of the compartment and may be used either as a seating facility or as a sleeping facility. This transversely displaceable arrangement is distinguished by the fact that one seating unit is present on each of the two longitudinal side walls with the result that, overall, more seating space is available than in the case of a bench arrangement extending transversely of the extension part. In addition, a table may advantageously be

arranged between these two seating arrangements, even when the extension compartment is retracted.

According to another advantageous embodiment of the invention, the central sanitary block of the supply unit is formed by a wash stand arranged in the region of one of the vertical longitudinal side walls of the central compartment and by a door arranged opposite this washstand at a distance from the opposite longitudinal side wall of the central compartment, and in that the cooking facility on one of the two end walls consists of a sink unit, cooker and fridge/freezer combination and the box arrangement arranged on the opposite end wall is designed for storage. The construction of the sanitary block with the washstand arrangement opposite doors enables this sanitary compartment to be very conveniently used. At the same time, the loads applied by the box arrangement arranged on one side of one end wall through the clothing provided therein and the cooking units arranged on the other end wall substantially cancel one another out so that these load-bearing central parts are substantially centrally loaded.

According to another advantageous aspect of the invention, the cooking facility comprises a cupboard section arranged at a distance above the worktop and, between this cupboard section and the cooker or sink, a cabinet, particularly a drinks cupboard, mounted for rotation about a pivot bearing on one end wall is designed to be swung into a transport position from the service position in which it adjoins the longitudinal side wall of the central compartment when the extension compartment is in use. In this way, the wall surface of the central compartment which is free in the extended position may be provided for optical relief with a cupboard at little cost and without further reducing the reduced interior space of extension compartments retracted into the central compartment.

Another advantageous embodiment of the invention is characterised in that a showerbasin and a lavatory of which the longitudinal axis is substantially aligned with or perpendicularly of the longitudinal axis of the central compartment are arranged between the washstand and the door of the sanitary block. This arrangement of the elements required for the basic sanitation of a vehicle superstructure one behind the other transversely of the longitudinal direction of the vehicle superstructure enables the entire interior space available to be very comfortably used both in the retracted position and also in the extended position.

In one particularly favourable embodiment, the sanitary block comprises a cover plate which is arranged at a distance above the floor of the central compartment via supports and which is in the form of a walk-on floor panel and which is provided with a depression in the form of a shower basin and with retaining and connecting devices, particularly for a lavatory, and in that a water tank together with the associated delivery and discharge pipes is arranged on the underneath of the cover plate facing the floor of the central compartment. The sanitary block may be erected as a prefabricated unit independently of the construction of the vehicle superstructure, thus shortening the amount of time required to assemble

the vehicle superstructure. In addition, this provides for uniform production and assembly of the sanitary block, so that, in the event of any damage, the sanitary block may be quickly repaired or even
 5 completely replaced. The favourable utilisation of the space below the cover plate of the sanitary block also enables a water tank to be arranged inside the compartment without taking up valuable interior space, so that this water tank is protected against the
 10 effects of high and low temperatures prevailing outside the vehicle.

In another advantageous embodiment, the cover plate and the supports are integrally formed, for example from aluminium or glass-fibre-reinforced
 15 plastic, particularly with a substantially U-shaped cross-sectional profile. This integral formation provides for a high load bearing capacity and for a self-contained construction of the sanitary block.

According to the invention, it is also possible for
 20 part of the cover plate and, optionally, the supports - in the region adjacent the shower basin - to form outer walls of the water tank and for the base plate of the water tank to be fixed at a distance from the cover plate by means of spacer members distributed
 25 over its surface. The use of the cover plate as an outer wall of the water tank in conjunction with its connection to the base plate of the water tank through the spacer members provides for an extremely strong, cavity-like cross-sectional profile
 30 which is more resistant, even to spot loads applied for example by very heavy people, by virtue of the additional support through the spacer members.

In this connection, one advantageous embodiment of the sanitary block is characterised in that the
 35 spacer members are fixedly mounted, for example laminated, on the cover plate and those parts of the spacer members which are aligned substantially perpendicularly of the cover plate and which project through and beyond the base plate are designed to
 40 be applied to that side of the base plate which is remote from the cover plate and to be connected thereto, for example with a glass-fibre-reinforced plastic resistant to water under pressure, the spacer members preferably being formed by aluminium
 45 profiles. Through the use of the spacer members, this construction eliminates the need for an additional pressure tank because the flat-surface plates are prevented from bulging by the spacer members, even in cases where liquids under pressure are
 50 introduced.

According to another particularly advantageous embodiment of the invention, a holder accessible from outside is provided below the washstand of the sanitary block for the energy supply sources, for
 55 example gas bottles, batteries and the like, so that the empty space present beneath the washstand may advantageously be used for accommodating the energy supply packs, an additional advantage of this arrangement arising out of the fact that the
 60 generally very heavy parts of the power supply packs, such as gas bottles and batteries, are arranged above the axles in camping vehicles provided with their own axles and are situated in a central position which is very favourable in regard to
 65 the stressing of the central compartment.

According to another advantageous aspect of the invention, the two extension compartments are guided by roller arrangements mounted on the supports and cables of the longitudinal guide system
 70 which follow a substantially Z-shaped path and which are aligned in the longitudinal direction of the central compartment, the supports being connected to the central compartments in a force-locking and/or form-locking manner. By virtue of the fact
 75 that the supporting forces are diverted through the supports arranged in the middle of the central compartment, the constructional parts used for anchoring the supply unit may be doubly used. This reduces the overall weight of the superstructure and
 80 the outlay involved in its construction.

According to another advantageous aspect of the invention, an axle of an undercarriage which takes the weight of the compartments and which is designed to be coupled to a towing vehicle is
 85 arranged below the supply unit in the middle region of the central compartment, particularly between its end walls. this construction of the vehicle superstructure, in conjunction with the arrangement of the axle of an undercarriage, provides for the first time
 90 for central loading. This applied not only during the in transit journey of the vehicle superstructure from one stopover point to another, but also when the vehicle is parked during a stopover because, even then, central loading is guaranteed by the use of two
 95 extension compartments.

The invention also enables a vehicle superstructure, particularly with a variable interior space, comprising a cylindrical central compartment and, on either side thereof, two frusto-cylindrical extension compartments which are connected for displacement relative to one another and to the central compartment via longitudinal guides in the longitudinal direction of the central compartment, to be
 100 universally used in a variety of different vehicles. This is made possible by the fact that the central compartment is designed to be supported substantially at its longitudinal centre on the chassis of a vehicle, particularly a self-propelled vehicle, for example a light truck, track vehicle or the like, via a
 105 pivot bearing arrangement or via a transverse carriage for rotation or displacement transversely of the longitudinal axis of the vehicle superstructure and substantially parallel to the floor of the central compartment. The provision of a pivot bearing
 110 arrangement or of a transverse carriage enables both extension compartments to be used even in the event of brief interruptions in the travel of the vehicle superstructure from one stopover point to another, because the rotation or transverse displacement of
 115 the vehicle superstructure enables the two extension compartments to be freely extended. In addition, this measure makes the vehicle superstructure much easier to set down or park, so that, in the case of a motor caravan for example, the chassis with the
 120 driving compartment can be used for excursions. In cases such as these where the vehicle superstructure is arranged on a chassis, it is of particular advantage for the pivot bearing arrangement or transverse carriage to be fixedly mounted on the
 125 underneath of the central compartment and to be
 130

provided with holding elements designed to be clamped fast to the chassis and for supports, particularly vertically adjustable supports, for example hydraulic or pneumatic cylinder-and-piston assemblies provided with ground support plates, to be associated with the central compartment. This construction of the vehicle superstructure enables the central compartment to be readily installed independently of the particular vehicle and/or if necessary after only minor adaptations to or arrangements of receiving mechanisms on the chassis. In this way, it is even possible if necessary to load the vehicle superstructure onto flatbed trucks or the like with flat loading surfaces. Through the provision of the adjustable supports, it is also possible in the rest position to lower the vehicle superstructure to a required level above ground surface so that the vehicle superstructure can be entered without any need for ladders or additional climbing aids.

According to the invention, the vehicle superstructure is further simplified to a considerable extent by virtue of the fact that the central compartment is provided with holders or clamps for connection as required to the pivot bearing arrangement or transverse carriage arranged on a chassis. In this way, the overall weight of the vehicle superstructure can be decreased and its production costs considerably reduced. This embodiment has proved to be particularly suitable for vehicle superstructures which rarely change their parking place.

Finally, it is of advantage in accordance with the invention for the drives and the locking and release mechanisms of the pivot bearing arrangement and/or the transverse carriage and/or the supports to be controlled from a central drive provided on the vehicle superstructure, for example a compressor, hydraulic unit or the like, because in this way the vehicle superstructure can be loaded onto different vehicles and set down for parking independently of the units and systems of the vehicle with the result that, even if the vehicle breaks down for example, the vehicle superstructure remains fully useable or may be transferred under its own power to another vehicle.

Examples of embodiment of the invention are described in detail in the following with reference to the accompanying drawings, wherein:

Figure 1 is a perspective slanting view of a vehicle superstructure according to the invention.

Figure 2 is a plan view on a smaller scale of the vehicle superstructure shown in *Figure 1*.

Figure 3 is a side elevation of the vehicle superstructure shown in *Figure 2* with the extension compartments retracted.

Figure 4 is a plan view of part of the sanitary block of the vehicle superstructure according to the invention.

Figure 5 is a front elevation of a section through this part on the lines IV-IV in *Figure 4*.

Figure 6 is a front elevation of this part in the direction of the arrow VI in *Figure 4*.

Figure 7 is a side elevation of a self-propelled vehicle with a vehicle superstructure designed in accordance with the invention to be supported on its

chassis via a pivot bearing arrangement.

Figure 8 is a plan view of the vehicle and the vehicle superstructure shown in *Figure 7*.

Figure 9 is a plan view of a variant for the arrangement of a vehicle superstructure on a vehicle via a transverse carriage.

Figure 1 shows a vehicle superstructure 1 comprising a central compartment 2 and two extension compartments 3, 4. The front longitudinal side wall 5 of the central compartment 2 and also those of the extension compartments 3, 4 as well as the roof of all three compartments 2,3,4 have been shown as transparent in order better to illustrate the layout of the interior space of the vehicle superstructure 1. In that longitudinal side wall 6 of the central compartment which is opposite the longitudinal side wall 5, there is a door 7 for access to the interior space of the vehicle superstructure. As diagrammatically illustrated solely for the extension compartment 4 in the interests of clarity, each of the two extension compartments 3, 4 is held in the central compartment 2 via a longitudinal guide 8 which enables it to be retracted into the central compartment. The vehicle superstructure 1 is mounted on an undercarriage 9 with a single axle 10 and, with the extension compartments 3, 4 retracted into the central compartment 2, is able to travel on this undercarriage 9 under the power of a towing vehicle.

A supply unit 12 is arranged substantially at the centre of the central compartment 2 in the longitudinal direction of the central compartment indicated by the arrow 11. This supply unit 12 comprises a cooking facility 13, a storage space 15 formed by a box arrangement 14 and a sanitary block 16. This supply unit 12 consists essentially of two end walls 17, 18 which are connected through supports 19, 20 of the longitudinal guides 8 for the two extension compartments 3, 4 to the central compartments 2 in the vicinity of the roof and also to the floor 21 of the central compartment. The supports 19, 20 of the longitudinal guides 8 are used to accommodate roller arrangements 22 for guiding the cables 23 which follow a substantially Z-shaped path.

As can also be seen from *Figure 1*, the supply unit 12 is arranged at a distance b , for example 50 cm, from the longitudinal side wall 6 of the central compartment 2 in the vicinity of the door 7 which is large enough to allow people to pass through. The sanitary block 16 is arranged between the end walls 17, 18 of the supply unit 12, whilst the cooking facility is arranged on that end wall 17 facing the extension compartment 4 and the box arrangement 14 on that end wall 18 facing the extension compartment 3. The box arrangement 14, of which the rear wall is formed by the end wall 18, comprises for example shelves for pieces of washing and at least one bar for receiving clothes hangers. As can be seen more clearly from the cooking facility 13 arranged on the end wall 17, this cooking facility is separated both from the floor 21 of the central compartment and also from the two longitudinal side walls 5 and 6 and the roof by a distance which at least corresponds to the wall thickness of the extension compartment 4. In the example of embodiment illustrated, the cooking facility consists of a

sink unit 24, a cooker 25 and a fridge/freezer 26 and comprises a cupboard section 27 arranged at a distance above the cooker 25 and sink 24. Between the worktop of the cooking facility 13 in the vicinity of the sink 24 and cooker 25 and the cupboard section 27 there is a cupboard 28 which is mounted for rotation, again on the end wall 17, via a diagrammatically indicated pivot bearing 29 and which can be swung from its service position on the longitudinal side wall 5 in the extended position of the extension compartment 4 into a rest position for retraction of the extension compartment 4.

In addition, a bunk-bed unit 30 is provided in the extension compartment 3 and a bench unit 31 in the extension compartment 4. This bench unit 31 consists of two seating benches 34 which are arranged on the vertical longitudinal side walls 32, 33 of the extension compartment 4 and which are designed to be displaced or unfolded transversely of the longitudinal axis of the compartment to serve either as a seating facility or, after removal or lowering of the rotatable, raisable and/or lowerable table 35, as a sleeping facility. It should be added at this juncture that the distance separating the cooking facility 13 and the box arrangement 14 from the longitudinal side walls 5, 6 and from the floor 21 of the central compartment is measured in such a way that the vertically and horizontally aligned upholstered parts of the benches 34 and the bunk-bed unit 30 are accommodated below and laterally between the cooking facility 13 and the box arrangement 14 and between the longitudinal side walls 5, 6 and the floor 21 of the central compartment when the extension compartments 3, 4 are in the retracted position. In this case, the table may be turned about an axis extending substantially perpendicularly of the floor 21 of the central compartment, as indicated in chain lines in Figure 1.

The layout of the sanitary block 16 is shown more clearly in Figure 2. The sanitary block 16 comprises a one-piece structural component 36 which is designed to be placed on the floor 21 of the central compartment between the two end walls 17 and 18 and of which the cover plate or panel 37 is provided with a depression in the form of a shower basin 38. At the same time, a lavatory 39 is provided on this cover panel 37. On that side of the sanitary block 16 which faces the door 7 of the central compartment 2 there is a door 40 and, on the side opposite this door, a washstand arrangement 41 (Figure 1). In addition, a holder for a shower 42 (Figure 1) is provided for example on the end wall 18. Figure 2 also shows more clearly how the cupboard 28 can be applied in its service position to the longitudinal side wall 5 of the central compartment 2.

Figure 3 shows the vehicle superstructure 1 with extension compartments 3, 4 retracted into the central compartment 2. As can be seen from that part of the central compartment facing the extension compartment 4, in the region of which the longitudinal side walls 6 and 33 of the central compartment 2 and the extension compartment 4 have been omitted, the distance between the end wall 17 and the end wall region 43 of the central compartment 2 corresponds to the overall retractable length of the

extension compartment 4. The seating benches 34 of the extension compartment 4 are retracted between the longitudinal side walls 5, 6 or the floor 21 and the cooking facility 13 of the central compartment 2. The reference 44 denotes an externally accessible storage container for power-supply packs, such as gas bottles, batteries and the like. As shown more clearly in Figure 1, this storage container 44 is arranged below the washstand 41 so that the interior space available is not significantly limited in this way.

After the supports lowered for parking have been raised (these supports may be vertically adjustable through a manually operable nut-and-spindle arrangement), the vehicle superstructure 1 may be coupled to a towing vehicle 46, for example a motor car fitted with a trailer coupling, by the coupling unit 45 of the undercarriage 9.

Figure 4 shows the structural component 36 of the sanitary block 16 on a larger scale. This structural component consists of the cover panel 37 provided with the shower basin 38 and the holding and connecting elements 47, 48 for the connection of the lavatory 39, the washstand arrangement 41 and the shower 42. For supporting the cover panel 37 at the correct distance above the floor 21 of the central compartment, supports 49 are connected to the cover panel 37 to form the one-piece structural component 36.

Figure 5 shows the water tank 52 which is arranged on the underneath 50 of the cover panel and provided with a base plate 51 and of which the cover plate may be formed by the cover panel 37 which may consist of glass-fibre-reinforced plastic or an extruded aluminium panel. The cover plate 51, which is preferably integrally formed with the side walls of the tank, is additionally connected through spacer members 53 to the cover panel 37 to prevent the cover plate and base plate from bulging when water under pressure is introduced into the water tank 52. In order to absorb these pressure forces, the parts 54 which project through the base plate 52 and which are bent over for application thereto are tightly connected to the base plate 51. Like the sealing of the bores through which the spacer members 53 are guided through the base plate 51, this connection may be established by welding or bonding or by the application of an additional laminate layer of glass-fibre-reinforced plastic. Similarly, the spacer members 53 may be secured to the cover panel 37 by welding or bonding or by any other form-locking fixing technique, for example even by laminating on the spacer members 53. In addition, water feed and discharge pipes 55 are arranged on the underneath 50 of the cover panel. A pressure-limiting valve 57 is provided in the feed pipe 56 for introducing water under pressure into the water tank 52. For the purposes of adjustment, this valve 57 may be at least periodically connected to a manometer. The water discharge pipes 55 guided through the structural component 36 open into a flexible hose 58 which is externally provided on the underneath of the central compartment 2 or rather its floor 21 and which, when rolled up, is secured by means of holders to the floor 21 of the central compartment. The length and diameter of this hose

58 are gauged in such a way that the total on-board water supply plus a small reserve, particularly for the quantities of water taken up in the lavatory, can be taken up and, on arrival at the next disposal station, run off into the drainage system or to a treatment plant using the flexible hose.

As can be seen from the front elevation in Figure 6, the supports 49 and the cover panel 37 form the one-piece structural component 36 which has a substantially U-shaped or cap-like cross-section. In addition, Figure 6 shows that the water tank 52 extends over the entire width of the structural component 36 so that, providing suitable materials are employed, the supports 49 may simultaneously be used as side walls of the water tank 52.

Figure 7 shows a self-propelled vehicle 59 equipped with its own drive motor, a driving compartment 60 and a chassis 61. A pivot bearing arrangement 63 is mounted on and designed to be at least periodically connected to the chassis 61, for example through retaining members 62 formed by screw arrangements. The pivot bearing arrangement 63 consists of two guide plates 65, 66 which are displaceable relative to one another and connected through a guide pin 64, the guide plate 65 resting on the guide plate 66 for example through ball-like roller arrangements 67. In addition, the guide plate 65 is connected to the floor 21 of the central compartment or to a locking mechanism arranged thereon through holding and clamping elements 68 which may be formed for example by mechanically operable pincer-like grippers, bayonet catches or the like. As can be seen, supports 69 are provided on the two longitudinal side walls 5, 6 of the central compartment 2 (shown in the service or loading position turned through 90° relative to the longitudinal axis of the vehicle) in the vicinity of its ends 43. These supports 69 may be formed by hydraulic or pneumatic piston-and-cylinder assemblies 70 and supporting plates 71 designed to be lowered onto the ground. By means of this pivot bearing arrangement 63, the vehicle superstructure 1 may be turned from its in-transit position (shown in chain lines), where its central longitudinal axis is parallel to the longitudinal axis of the vehicle, into the unloading or service position (solid lines) illustrated which runs transversely of that axis.

The object of this construction is to provide a vehicle superstructure on a self-propelled vehicle which has a relatively short overall length in the in-transit position and as long a length as possible in the service position and which can be quickly and easily brought from the service position into the in-transit position.

This object is achieved through the provision of the pivot bearing arrangement 63 insofar as it is now possible to use a vehicle superstructure with extension compartments 3,4 provided on either side of a central compartment 2. By virtue of the fact that an extension compartment 3 or 4 may be provided at either end 43 of the central compartment 2 by turning for example through 90° without hindrance by the driving compartment 60, it is possible to avoid the numerous disadvantages of collapsible vehicle superstructures through the retraction and exten-

sion of fully functional dwelling units.

Figure 8 shows the vehicle superstructure in the service position. In addition, it can be seen from this Figure that, after loosening of the holding and clamping element 68 and the retaining members 62, the entire vehicle superstructure 1 can be lifted off the chassis 61 of the vehicle 59 by means of the supports 69.

Through the provision of a central drive 72, for example in the vicinity of the central compartment 2 of the vehicle superstructure 1, the cylinder-and-piston assemblies 70 may be supplied with pressure medium independently of the vehicle 59 so that, after the vehicle supporting the vehicle superstructure 1 has been driven away, the entire vehicle superstructure may be lowered onto suitable supports or concrete foundations or to any required level above the ground to prevent the penetration of damp.

Figure 9 shows a variant of the invention in which a transverse carriage 73 is provided for extending extension compartments 3, 4 on either side 43 of a central compartment 2. This transverse carriage 73 comprises, laterally of the chassis 60 of a vehicle 59, guide rails 76 provided with ground supports 75 and pivotable about a substantially vertical shaft 74 arranged on the chassis 60. In their extended position, these guide rails 76 provide for a continuous rail connection with rail sections 77 fixedly arranged on the chassis.

The vehicle superstructure 1 is designed to travel on these rails 76, 77, for example through double flanged rollers 78, so that it may be laterally displaced relative to the vehicle 59, the longitudinal axis of the vehicle and the longitudinal axis of the superstructure remaining substantially parallel to one another. In this way, it is possible to obtain substantially the same advantages as those mentioned in reference to the embodiment illustrated in Figures 7 and 8 and it is further on by a given corresponding vertical adjustment of the ground supports 75 and the resulting inclination of the guide rails 76, possible to unload the vehicle superstructure without the assistance of any additional supports.

The construction of the vehicle superstructure according to the invention as described in the foregoing lends itself to various uses, i.e. it need not necessarily be used solely for camping vehicles and caravans. Thus, these superstructures may be used without undercarriages for emergency accommodation purposes and as workshops, offices, emergency hospitals, demonstration vehicles and the like either on undercarriages or on self-propelled vehicles. In this connection, it is of particular advantage in accordance with Austrian Patent No. (Application A 4183/78) to use sandwich panels joined by supports for the vehicle superstructure or rather for the central and extension compartments 2,3,4. In this way, good insulation is obtained and the weight of the vehicle superstructure reduced.

CLAIMS

1. A vehicle superstructure, more particularly

with a variable interior space, comprising a cylindrical central compartment and, on either side thereof, two frusto-cylindrical extension compartments which are mounted for displacement relative to one another and to the central compartment on longitudinal guides in the longitudinal direction of the central compartment, characterised in that a supply unit (12) formed by a sanitary block (16), a cooking facility (13) and a storage space (15) is arranged substantially at the longitudinal centre of the central compartment (2) in a plane perpendicular to the longitudinal direction, this supply unit being arranged at a distance (b) from one (6) of the two vertical longitudinal side walls (5,6) of the central compartment (2) which is large enough to allow people to pass through.

2. A vehicle superstructure as claimed in Claim 1, characterised in that the supply unit (12) consists of two end walls (17, 18) which are spaced apart from one another in the longitudinal direction of the central compartment and which are connected to the central compartment (2) through supports (19,20) accommodating roller arrangements (22) of the longitudinal guide (8).

3. A vehicle superstructure as claimed in Claim 1 or 2, characterised in that the sanitary block (16) is arranged between the end walls (17, 18).

4. A vehicle superstructure as claimed in any of Claims 1 to 3, characterised in that the end walls (17, 18) are formed by rear walls, supportable on the supports (19, 20), of box arrangements and cooking facilities (13,14) facing the extension compartments (3, 4).

5. A vehicle superstructure as claimed in any of Claims 1 to 4, characterised in that the box arrangement and cooking facility (13,14) are arranged at a distance from the two longitudinal side walls (5, 6) of the central compartment (2) which is sufficient to accommodate at least the outer shell of the extension compartments (3,4) and, optionally, utility fittings, for example a cupboard (28), mounted on their longitudinal side walls (32, 33).

6. A vehicle superstructure as claimed in any of Claims 1 to 5, characterised in that the length of the extension compartments (3,4) in the longitudinal direction of the central compartment substantially corresponds to the distance between the end region (43) of the central compartment and that end wall (17,18) of the supply unit (12) which faces this end region.

7. A vehicle superstructure as claimed in any of Claims 1 to 6, characterised in that the distance between the end wall (17, 18) of the supply unit (12) and the end region (43) of the central compartment (2) facing this end wall is greater than the overall retractable length of the extension compartments (3, 4).

8. A vehicle superstructure as claimed in any of Claims 1 to 7, characterised in that a bench unit (31) and/or a bunk-bed unit (30) is provided in each of the extension compartments (3, 4).

9. A vehicle superstructure as claimed in any of Claims 1 to 8, characterised in that the bench unit (31) consisting of two seating benches (34) arranged on the vertical longitudinal side walls (32, 33) of the

extension compartment (4) is designed for displacement or folding transversely of the longitudinal direction of the compartment and may be used either as a seating facility or as a sleeping facility.

10. A vehicle superstructure as claimed in any of Claims 1 to 9, characterised in that the central sanitary block (16) of the supply unit (12) is formed by a washstand (41) arranged in the vicinity of one (5) of the vertical longitudinal side walls of the central compartment (2) and by a door (40) arranged opposite the washstand at a distance from the opposite longitudinal side wall (6) of the central compartment (2), and in that the cooking facility (16) on one of the two end walls (17) consists of a sink (24), a cooker (25) and a fridge/freezer (26) whilst the box arrangement (14) arranged on the opposite end wall (18) is designed to serve as storage space.

11. A vehicle superstructure as claimed in Claim 10, characterised in that the cooking facility (16) comprises a cupboard section (27) arranged at a distance above its worktop and in that, between this cupboard section (27) and the cooker and sink (25, 24), a cupboard (28), particularly a drinks cupboard, mounted to pivot about a pivot bearing (25) arranged on one end wall (17) is designed to be swung from the service position adjoining the longitudinal side wall (5) of the central compartment when the extension compartment (4) is extended into a transport position.

12. A vehicle superstructure as claimed in any of Claims 1 to 11, characterised in that a shower basin (38) and a lavatory (39), of which the longitudinal axis extends in or perpendicularly of the longitudinal direction of the central compartment, are arranged between the washstand (41) and the door (40) of the sanitary block (16).

13. A vehicle superstructure as claimed in any of Claims 1 to 12, characterised in that the sanitary block (16) comprises a cover panel (37) in the form of a walk-on base plate which is arranged at a distance above the floor (21) of the central compartment via supports (49) and which is provided with a depression in the form of a shower basin (38) and with holding and connecting elements (47,48), more particularly for a lavatory (39), and in that a water tank (52) and the feed and discharge pipes (55) are arranged on the underneath (50) of the cover panel facing the floor (21) of the central compartment.

14. A vehicle superstructure as claimed in any of Claims 1 to 13, characterised in that the cover panel (37) and the supports (49) are in the form of a one-piece structural component (36), for example of aluminium or glass-fibre-reinforced plastic, more particularly with a substantially U-shaped cross-sectional profile.

15. A vehicle superstructure as claimed in any of Claims 1 to 14, characterised in that part of the cover panel (37) and optionally the supports (49) - in the region adjacent the shower basin(38) - forms outer walls of the water tank (52) and its base plate (51) is fixed at a distance from the cover panel (37) by means of spacer members (53) distributed over its surface.

16. A vehicle superstructure as claimed in any of Claims 1 to 15, characterised in that the spacer

members (53) are fixedly mounted, for example laminated, on the cover panel (37) and those parts (54) thereof which extend substantially perpendicularly of the cover panel (37) and which project through and beyond the base plate (51) are designed to be applied to that side of the base plate (51) which is remote from the cover panel (37) and to be connected thereto in pressure-water-resistant manner, for example through glass-fibre-reinforced plastic, the spacer members (53) preferably being formed by aluminium profiles.

17. A vehicle superstructure as claimed in any of Claims 1 to 16, characterised in that an externally accessible storage container (44) for the power-supply packs, for example gas bottles, batteries and the like, is provided below the washstand (41) of the sanitary block (16).

18. A vehicle superstructure as claimed in any of Claims 1 to 17, characterised in that the two extension compartments (3, 4) are guided by roller arrangements (22) arranged on the supports (19,20) and cables (23) of the longitudinal guide (8) which follows a substantially Z-shaped path in the longitudinal direction of the central compartment, the supports (19, 20) being connected to the central compartment (2) in force-locking and/or form-locking manner.

19. A vehicle superstructure as claimed in any of Claims 1 to 18, characterised in that an axle (9) of an under-carriage (10) supporting the compartments (2,3,4) and designed to be coupled to a towing vehicle (46) is arranged below the supply unit (12) in the central region of the central compartment (2), more particularly between its end walls (17,18).

20. A vehicle superstructure, more particularly with a variable interior space, comprising a cylindrical central compartment and, on either side thereof, two frusto-cylindrical extension compartments which are connected for displacement relative to one another and to the central compartment via longitudinal guides in the longitudinal direction of the central compartment, more particularly as claimed in Claims 1 to 19, characterised in that the central compartment (2) is designed to be supported for rotation or displacement transversely of the longitudinal axis of the superstructure and substantially parallel to the floor (21) of the central compartment on the chassis (61) of a vehicle, more particularly a self-propelled vehicle (59), for example a light truck, track car or the like, via a pivot bearing arrangement (63) or a transverse carriage (73) substantially at its longitudinal centre.

21. A vehicle superstructure as claimed in Claim 20, characterised in that the pivot bearing arrangement (20) of the carriage (63,73) is fixedly mounted on the underneath of the central compartment (2) and is equipped with retaining elements (62) designed to be clamped fast to the chassis (61) and in that supports (69), more particularly vertically adjustable supports, for example hydraulic or pneumatic cylinder-and-piston assemblies (70) provided with ground support plates (71), are associated with the central compartment (2).

22. A vehicle superstructure as claimed in Claim 20 or 21, characterised in that the central compart-

ment (2) is provided with holding or clamping elements (68) for connection as required to the pivot bearing arrangement (63) or transverse carriage (73) mounted on a chassis (61).

23. A vehicle superstructure as claimed in any of Claims 20 to 22 characterised in that the drives and locking and release mechanisms of the pivot bearing arrangement (63) and/or the transverse carriage (73) and/or the supports (69) are designed to be activated and controlled from a central drive (72), for example a compressor, hydraulic unit or the like, provided in the vehicle superstructure (1).

24. A vehicle superstructure substantially as hereinbefore described with reference to Figures 1 to 6 of the accompanying drawings.

25. A self-propelled vehicle and superstructure substantially as hereinbefore described with reference to Figures 7 and 8 of the accompanying drawings.

26. A self-propelled vehicle and superstructure substantially as hereinbefore described with reference to Figure 9 of the accompanying drawings.