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(54) Title: BUILDING STRUCTURE AND METHOD

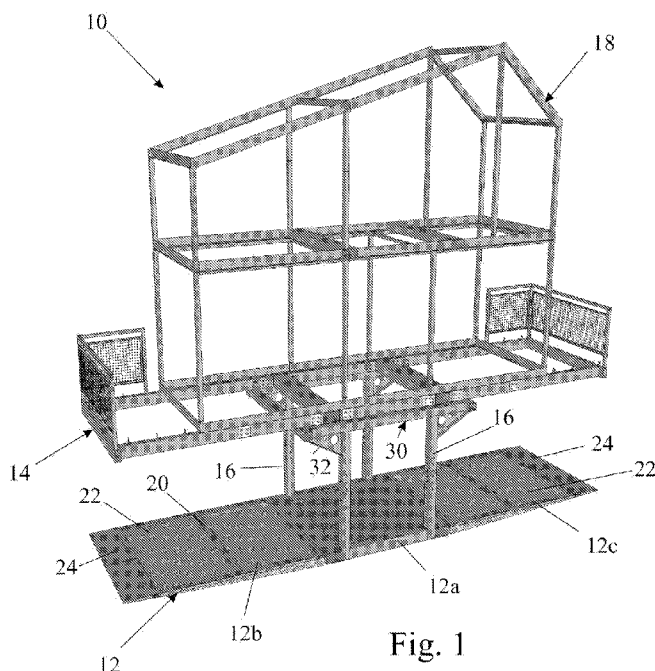


Fig. 1

(57) Abstract: A building structure 10 is disclosed which comprises a first platform 12 resting on the ground and made up of a rectangular central section 12 and two end sections 12b and 12c. Support columns 16 extending upwards from the central section of the first platform to support a rigid second platform 14. A building 18 offering enclosed accommodation is supported by the second platform 14. The second platform has at least one cantilever supported region that extends beyond the central section 12a of the first platform to overlie an end section 12b of the first platform and thereby provide between the two platforms a covered parking bay onto which a vehicle may be driven without being impeded by the support columns. The building structure 10 has no footings extending beneath the surface of the ground and, wind forces on the structure are opposed only by the weight of the sections of the first platform 12.



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BUILDING STRUCTURE AND METHOD

Field of the invention

5 The present invention is concerned with a building structure and method of constructing the same.

Object of the invention

10 The aim of the invention is to provide conveniently located inexpensive accommodation by making better use of available land, in particular areas of land already in use for parking vehicles or hardstanding.

Summary of the invention

15 In a first aspect of the invention, there is provided a building structure erected on compacted ground, which structure comprises a first platform resting on the ground and having a rectangular central section and two end sections, upwardly extending support columns secured to the central section of the first platform, a rigid second platform resting
20 on the support columns, and a building offering enclosed accommodation supported by the second platform, the second platform having at least one cantilever supported region extending beyond the central section of the first platform to overlie an end section of the first platform and thereby provide between the two platforms a covered parking bay onto which a vehicle may be driven without being impeded by the support columns, wherein
25 the structure has no footings extending beneath the surface of the ground, wind forces on the structure being opposed only by the weight of the sections of the first platform.

 The present invention is predicated on the realisation that there are large areas of land that are currently used only as car parks, vacant hardstandings or cleared construction
30 sites awaiting development, such areas often being located near city centres and other locations where real estate is expensive. The invention allows any existing car park or hardstanding that has already had its surface compacted sufficiently to bear the weight of any current four wheeled motorised vehicle to serve as a building plot without detracting from its current function. The number of available parking bays may need to be reduced
35 fractionally but the parking facility will be improved as all parking bays will be covered and parked vehicles will be sheltered from the elements.

It is a well known problem that some institutions, such as hospitals and schools, have difficulty in hiring key staff because of the cost of housing in the vicinity of the institutions is prohibitively high. Such institutions often have staff and visitor car parks which may, with the aid of the present invention, be used to mitigate the problem of providing staff accommodation. There are also other situations where building of accommodation over an existing car park or undeveloped construction site, or garage plot would be of benefit. For example, some university towns have very restricted parking facilities and therefore advise visitors to “park and ride”. Such out of town car parks can be used to provide low cost accommodation for university teaching staff.

Importantly, the building structure of the invention has no footings nor foundations. As a result, the car park or garage plot or compacted hardstanding surface does not need to be disturbed and a building structure can be erected that simply rests on the existing surface.

Embodiments of the invention enable at least the framework of the building and the two platforms to be pre-assembled off site, and erected in a short time using no more lifting equipment than forklift trucks or a small mobile crane.

The weight of the building structure is spread over a large area defined by the central section of the first platform. As a result, the pressure exerted by the building structure on the compacted surface of the existing car park need be no more than that exerted on the ground by a vehicle. Consequently, should the building structure ever need to be dismantled or moved, the ground on which it rests would not require major repair.

To enable the weight of the first platform to be sufficiently great to withstand wind forces on the building supported by the second platform, it is desirable to construct the different sections of the first platform as open frames, preferably made up of box-section or I-section beams, surrounding a tray that is filled with ballast.

Each tray is preferably made of a welded mesh and may be filled with compacted hardcore, such as crushed bricks, rocks or rubble, which may conveniently be sourced locally to act as ballast.

Alternatively, each tray may be formed as a structural container capable of holding a ballast in the form of a liquid, such as water, or a flowable granular material, such as sand.

The mass of this ballast material both enables the proposed structure to withstand the overturning moments of wind forces at the same time as supporting the weight of any parked vehicle and raising the vehicle above the structural raft members sitting above the compacted ground surface.

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It is of course important that when laid down, at least the central section of the first platform should be horizontal. In situations where the car park surface is not horizontal, durable resilient shims may be placed beneath the central section to compensate for any unevenness of the compacted ground surface.

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To avoid the need for the ground to be level over the entire length of the first platform, in some embodiments of the invention, the end sections of the first platform may be pivotably connected to the central section. Such a pivotal connection offers the further advantage that the three sections, together with the support columns, may form a sub-

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Despite the pivotal connection between the sections of the first platform, it provides sufficient weight to withstand wind loads in all directions. When wind is blowing laterally, the weight of all three sections of the first platform is effective in opposing the wind load. When the wind blows lengthways, the wind load is opposed by the weight of the central section and only one end section of the first platform, but this is nonetheless sufficient to withstand the load because of the lesser sail area of the building end face.

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Conveniently, a ramp, formed for example of compressed rubber, may be provided to enable wheeled vehicles to pass from the level of the existing car park surface onto the height of the parking bay.

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The size of the central section of the first platform, and therefore the positioning of the support columns, is selected to minimise obstruction while a vehicle is being manoeuvred into each parking bay and to allow the doors of parked vehicle to be opened. At the same time, the positioning of the support columns aims to maintain the cantilever loads on the second platform within manageable limits.

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A parking bay needs to be of a size capable of accommodating at least a standard car. In the UK, parking bays are required to be at least 2.4m wide and 4.8m long. To allow parking of sports utility vehicles (SUV's), and allow their tailgates to be opened, the

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height of the bay should also preferably be in excess of 2.4m. The structure can be easily tailored to accommodate wider parking bays as required by specific locations.

A building structure of the invention need only cover an area of ground slightly wider than a single bay of the existing car park and as long as two parking bays. Such a structure on its own, however, would not provide a way of accessing the second platform. A dedicated structure (herein termed an access structure) overlying two adjacent parking bays would be required alongside the building structure to provide stair access to the second platform and services (electricity, water, sewage) to the building.

In embodiments of the invention, the framework for the building structure, and preferably also the access structure, is formed of factory manufactured sub-assemblies capable of being mounted on site one above the other. If the building is formed of two floors, the upper floor of the building may be formed as a first sub-assembly. The second platform and the first floor of the building may then be formed as a second sub-assembly and the first platform and support columns for the second platform may constitute a third sub-assembly.

In practice, a narrow building structure overlying only two parking bays would not usually be constructed to stand alone and would instead be only one of a plurality of modules that are connected to one another side by side to form a block. The second platforms of the different modules of a block when joined to one another will define a plot on which buildings can be erected and walk ways provided in the same way as any other plot of land. One or more access structures would in such a case be required for each block, depending on national fire regulations and statutory escape travel distances.

The building is not limited to having only two floors and, especially when a block is constructed from many individual building structures arranged side by side, it is envisaged that the building may have three or possibly four floors above the existing ground surface.

In accordance with a second aspect of the invention, there is provided a method of constructing on compacted ground a building structure having no footings that extend beneath the surface of the ground, which method comprises erecting or placing directly on the compacted ground a first sub-assembly that includes a first platform, having a rectangular central section, two end sections, and upwardly extending support columns secured to the central section, and mounting on the support columns a second sub-

assembly that includes a rigid platform and a building offering enclosed accommodation, the second platform having at least one cantilever supported region extending beyond the central section of the first platform to overlie an end section of the first platform and thereby provide between the two platforms a covered parking bay.

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The building that forms part of the second sub-assembly may itself be of two floors that are themselves each formed as a sub-assembly and mounted one above the other after arriving on site. In this way, a building structure may be erected of three factory assembled sub-assemblies, of which the first comprises the second floor of the building, the second comprises the first floor of the building and the second platform and the third comprises the first platform and the support columns for the second platform and the building.

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Each of the sub-assemblies may have incorporated therein forklift sleeves or craneage suspension connections as well inter-engaging formations and a locking mechanism capable of withstanding wind uplift. In this way, the entire building structure may be erected on site using no more than a forklift truck or a small mobile crane to raise each sub-assembly onto the one below it, the inter-engaging formations serving to prevent relative movement between the different sub-assemblies.

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Brief description of the drawing

The invention will now be described further, by way of example, with reference to the accompanying drawing, in which:-

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Figure 1 is a perspective view of the framework, or metal skeleton, of a building structure of the present invention,

Figures 2, 3 and 4 show respectively first, second and third factory manufactured sub-assemblies used in the erection of the framework shown in Figure 1,

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Figure 5 is a perspective view of the framework of an access structure to be erected alongside the framework shown in Figure 1,

Figure 6 shows the access structure of Figure 5 positioned alongside the framework of Figure 1,

Figure 7 is a photograph of a building structure of which the framework is shown in Figure 6, and

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Figure 8 is a view of a car park on which two rows of building structures of the invention have been erected and a covered communal space has been constructed over the access road between the rows.

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Detailed description of the drawing

Referring first to Figure 1, a building structure 10 of the invention comprises a first horizontal platform 12 that lies above, and rests on, the ground, a rigid second horizontal platform 14 supported by upright support columns 16 above the first platform 12 and a building 18, providing covered accommodation, constructed above the second support platform 14.

The length of the platforms 12 and 14 is equal to the length of two parking bays arranged end to end, typically between 12 m and 15 m, though possibly longer. The width of the platforms 12 and 14 is slightly wider than the width of a parking bay, typically between 3 m and 4 m. Increasing the width of the platforms 12 and 14 allows the construction of a wider building 18 but at the cost of reducing the number of parking bays. The illustrated building structure provides two parking bays between the two platforms 12 and 14, and the vertical distance between them is comparable with the ceiling height of a multi-storey car park, typically between 2.4 m and 3 m.

Whereas the second platform 14 is formed as a single rigid unit, the first platform 12 is constructed from a central section 12a that is connected to the support columns 16 and two end sections 12b and 12c, that are pivotably connected to the central section 12a by means of strong hinges. The end sections 12b and 12c define the parking bays onto which vehicles may be driven. It will be noted that the support columns 16 are significantly inset from the ends of the first platform 12, so that a motor vehicle being driven into a parking bay is not impeded by the support columns 16. The positioning of the beams 16 also enables the vehicle doors to be opened without obstruction.

In embodiments of the invention, the distance of the support columns 16 from the ends of the first platform 12 is at least 1m, or 1.5m, or 2m, or 2.5m or 3m 3.5m. The greater the distance, the less will be the obstruction to drivers when parking and when opening car doors. However, as the distance is increased, so is the load on the cantilever supported region of the second platform 14 increased and in practice the chosen distance will be a compromise between driver convenience and structural stability. The term "cantilever supported regions" refers to the regions of the second platform that lie beyond the rectangular area having the four support columns 16 at its corners.

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The sections of the platform 12 and the platform 14 are formed by open rectangular frames having longer sides welded to shorter ends. The sides and ends of the frames of the

two platforms are formed of box-section beams that are welded to one another. In addition to the sides and ends, the end sections 12b and 12c of the first platform 12 have reinforcement crossbars 20 that lie parallel to the ends of the frames, the latter also being constructed as box-section beams.

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As shown in Figure 1, mesh 22 is welded to the sides, ends and reinforcement bars of all three sections of the first platform 12 to form a plurality of trays. These trays are filled with crushed rock or rubble to act as ballast and enable the building structure to withstand uplift wind forces. Alternatively, each tray may be formed as a structural
10 container capable of holding a ballast in the form of a liquid, such as water, or a flowable granular material, such as sand.

The height of the beams of the central section 12a of the first platform 12 may need to be quite significant to enable the trays to hold the amount of ballast needed to resist the wind load on the building. Because of this, there may be a significant height
15 difference between the level of the compacted surface of the existing car park and the ground level between the support columns. For this reason, it is desirable for the side beams of the end sections 12b and 12c of the first platform 12 and the ballast retaining trays secured to them, to have a tapering height, so that the two end sections themselves
20 act a ramps. All the beams of the second platform 14 and of the central section 12a of the first platform are of uniform height.

Even if the end sections of the first platform have tapering sides, there will remain a small step at the termination of the end sections. Ramps 24, made for example of high
25 density rubber, may be provided adjacent the ends of the platform 12 to allow wheeled vehicles to be driven smoothly onto the raised parking bays.

As well as serving as ballast, when compacted hardcore is used to fill the trays it provides a low maintenance parking surface that can readily be repaired, for example if a
30 vehicle should leak oil onto it. It is also porous and allows surface water to drain onto the original car park surface.

It is important that the central section 12a of the first platform 12 should be accurately horizontal. As the car park surface may be uneven or not perfectly horizontal,
35 shims and/or cementitious grout may be placed under the sides of the central section 12a to ensure verticality of the support columns 16. It is preferred to form the shims of a conformable material, such as high density pads or rubber compound.

Because the end sections 12b and 12c are pivotably connected to the central section, it is not essential for the ground to be horizontal over the entire length of the first platform 12. It is important, however, that the hinges used to connect the sections of the first platform 12 to one another should be sufficiently strong to support the weight of each end section, even when it is filled with ballast, as the weight of the end sections is also relied upon to resist uplift wind forces.

While the upper ends of the support columns 16 may be directly connected to the second platform 14, this would complicate erection of the building structure on site. Instead, as best shown in Figure 4, the upper ends of the support columns are connected to a support frame 30 that is shorter than the length of the second platform 14. The central section 12a of the first support platform 12, the columns 16 and the support frame 30 together form a rigid cube that is strengthened by corner pieces 32 to prevent it from racking in the longitudinal plane of the building structure. Additional corner pieces, or other bracing may, if necessary, be provided to prevent racking in a transverse plane.

The sub-assembly shown in Figure 4 can be factory manufactured and need not be assembled on site. The end sections can be pivoted upwards and secured temporarily to the support frame 30 thus allowing the sub-assembly to be folded into a more compact configuration for transportation. The end beams 34 of the central section 12a may be formed as, or connected to, forklift sleeves 34 to allow the assembly to be raised and lowered using only a forklift truck.

The building structure of Figure 1 is constructed using two further factory manufactured sub-assemblies shown in Figures 2 and 3, respectively. The first sub-assembly 40, shown in Figure 2, is the framework of the upper floor of the building 18. Two of the cross beams 42 of this sub-assembly 40 are again formed as forklift sleeves to permit the entire sub-assembly to be raised and lowered using only a forklift truck, although a small mobile crane can be used on hard to access plots.

The second sub-assembly 50, shown in Figure 3, comprises the second platform 14 and the framework of the lower floor of the building 18. Once again, two of the cross beams 52 of this sub-assembly are formed as forklift sleeves.

To assemble the framework shown in Figure 1, the sub-assembly of Figure 4 is first delivered to the installation site and the central section 12a of the first platform 12 is placed on the ground while the end sections 12b and 12c remain temporarily tied to the

support frame 30. Suitable conformable shims are placed beneath the beams of the central section 12a to ensure that it rests horizontally. The end sections 12b and 12c are then lowered to rest on the ground and once again shims may be needed to ensure ground contact around the entire first platform 12. The trays of the three sections of the first platform are then filled with ballast and compacted to form a heavy and stable base on which the remainder of the building structure can rest.

The sub-assembly of Figure 2 is next lifted by means of a forklift truck and lowered onto the sub-assembly of Figure 3. Last, the sub-assemblies of both Figure 2 and Figure 3 are lifted together by means of a forklift truck engaging the forklift sleeves 52 and lowered onto the support frame 30.

As an alternative to using a forklift truck, it may in some cases be necessary to use a small crane. In such a case, the sub-assemblies may have hitching points in addition to, or in place of the forklift sleeves.

All three sub-assemblies have inter-engaging locating formations to prevent them from moving relative to one another once they have been correctly aligned. For example, ball-ended posts 54 may be provided on one sub-assembly to be received in sleeves (not shown) provided on the mating sub-assembly. While such formations will prevent relative movement in a horizontal plane, additional locking devices are required to prevent relative vertical uplift movement, as may be caused by wind. A locking ball hitch, as used for towing, can serve both purposes.

This completes the construction of the framework of Figure 1 and it can be seen from the above description that the operation can be completed on site very rapidly. It then remains only to install walls, roofing, flooring and fittings but all such operations can be carried out without interfering with the use of the car park. Some panelling or flooring may be factory mounted on the upper sub-assemblies but this increases their weight.

The framework of the building 18, which is formed by the whole of the first sub-assembly (shown in Figure 2) and by part of the second sub-assembly (shown in Figure 3), is not required to have the same structural rigidity as the two platforms 10 and 12, as it is later strengthened by the panelling that is used to form the walls and the roof and also by the flooring.

The structure of Figure 1 cannot stand alone as it provides no access to the second platform 14 nor to the building 18. Such access is provided by a dedicated access structure 60 as shown in Figure 5 which is constructed in much the same way as the structure of Figure 1 using three factory manufactured sub-assemblies, and in addition includes a staircase 62. When, as shown in Figure 6, such an access structure 60 is erected alongside a building structure of Figure 1, it allows access to the building 18 and to the walkways at the front and rear of the building.

The photograph of Figure 7 shows a completed building structure based on the framework shown in Figure 6. As can be seen, the structure occupies four parking bays but three of the parking bays remain usable after erection of the structure, one of these bays being shown occupied by a vehicle 70. The only unusable bay is that occupied by the staircase 62 of the access structure 60.

While providing a single building structure 10 would only sacrifice one parking bay out of four, it is envisaged, as shown in Figure 8, that several structures 10 of the invention would be constructed next to each other to form a block. In this case, only one parking bay may need to be sacrificed in each block to provide access to the second platforms 14 supporting the building modules. Furthermore, it is possible, as shown, to enclose the area overlying the access road between rows of structures to form a communal sheltered space 80 between the rows of building modules. The roof of the space 80 may comprise clear panels 82 and a walk on gutter 80 may be provided to allow access to roof and roof lights 86 of the individual building structures 10, when required for cleaning and repair.

As earlier mentioned, the positioning of the upright columns 16 results in regions of the second platform 14 being cantilever supported. For this reason, care is taken to ensure that the centre of gravity of the building 18 should not lie over a cantilever supported region of the second platform 14 but at a point between the upright support columns 16.

Even when a building constructed on the raised second platform is no wider than a parking bay, it can afford adequate living accommodation as it can have an internal area of about 40 to 60 m² spread over two floors. However, if several platforms 14 are erected side by side to cover a large area of a car park, they form between them a plot on which any building can be constructed and its dimensions need not be related to the parking bays. Furthermore, one can, as shown in Figure 8, provide walkways to allow access to the

different buildings. Such walkways are preferably disposed around the perimeter of the platforms 14, as illustrated, to minimise the cantilever loads.

5 While the invention is primarily intended to provide living accommodation, there is nothing to preclude buildings constructed on a raised platform above a car park from being used to house offices or shops.

The following are some of the advantages offered by the invention:

- 10 • Accommodation can be provided over an existing car park with a minimal reduction in the number of parking bays.
- The existing car park surface does not need to be disturbed and the absence of foundations results in significant cost savings.
- The absence of footings allows construction to take place with minimal disturbance and once the raised platforms have been erected, use of the car park may
15 be resumed while erection of the buildings is in progress.
- The car park surface is not damaged in the event that the building structure should even need to be removed.
- No cranes are needed on site in the erection of the accommodation, forklift trucks being sufficient for all construction operations that require heavy lifting –
20 although some smaller sites with obstructions such as trees or existing buildings may require small mobile cranes.

CLAIMS

1. A building structure erected on compacted ground, which structure comprises a first platform resting on the ground and having a rectangular central section and two end sections, upwardly extending support columns secured to the central section of the first platform, a rigid second platform resting on the support columns, and a building offering enclosed accommodation supported by the second platform, the second platform having at least one cantilever supported region extending beyond the central section of the first platform to overlie an end section of the first platform and thereby provide between the two platforms a covered parking bay onto which a vehicle may be driven without being impeded by the support columns, wherein the structure has no footings extending beneath the surface of the ground, wind forces on the structure being opposed only by the weight of the sections of the first platform.
2. A building structure as claimed in claim 1, wherein each of the sections of the first platform is constructed as an open frame surrounding a tray that is filled with ballast.
3. A building structure as claimed in claim 2, wherein each tray is made of a welded mesh.
4. A building structure as claimed in claim 2, wherein the tray is formed as a structural container capable of holding a ballast in the form of a liquid or flowable granular material.
5. A building structure as claimed in claim 2, 3 or 4, wherein a ramp is provided to enable wheeled vehicles to pass from the level of the compacted ground on which the building structure rests onto the ballast filled tray of each end section.
6. A building structure as claimed in any preceding claim, wherein shims are placed beneath at least the central section to compensate for any unevenness of the ground and to ensure verticality of the support columns.
7. A building structure as claimed in any preceding claim, wherein the end sections of the first platform are pivotably connected to the central section by hinge.

8. A building structure as claimed in any preceding claim, wherein the structure has a framework formed of factory manufactured sub-assemblies capable of being mounted one above the other on site.

5 9. A building structure as claimed in claim 8, wherein each of the sub-assemblies has incorporated therein forklift sleeves to enable the sub-assembly to be raised and lowered by means of a forklift truck.

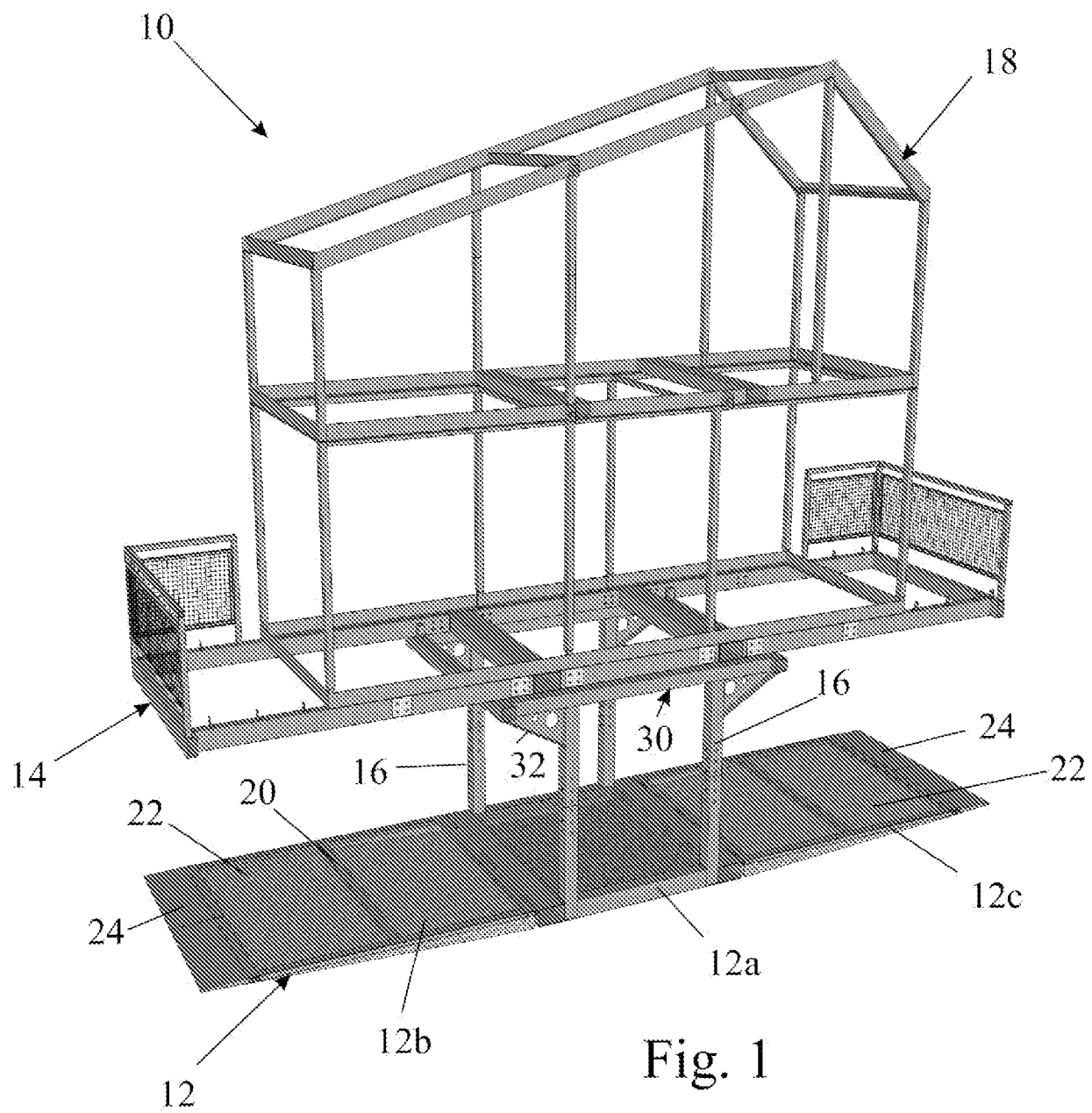
10 10. A building structure as claimed in claim 8 or 9, wherein inter-engaging locating members and locking members are provided on mating sub-assemblies to prevent the sub-assemblies from moving horizontally and from moving vertically relative to one another.

15 11. In combination, a building structure as claimed in any preceding claim and an access structure located alongside the building structure to provide stair access to the second platform and to the building disposed on the second platform.

20 12. A plurality of building structures secured to one another to form an accommodation block and an access structure located alongside the accommodation block to provide stair access to the second platform and to the building disposed on the second platform.

25 13. A method of constructing on compacted ground a building structure having no footings that extend beneath the surface of the ground, which method comprises erecting or placing directly on the compacted ground a first sub-assembly that includes a first platform, having a rectangular central section, two end sections, and upwardly extending support columns secured to the central section, and mounting on the support columns a second sub-assembly that includes a rigid platform and a building offering enclosed accommodation, the second platform having at least one cantilever supported region extending beyond the central section of the first platform to overlie an end section
30 of the first platform and thereby provide between the two platforms a covered parking bay.

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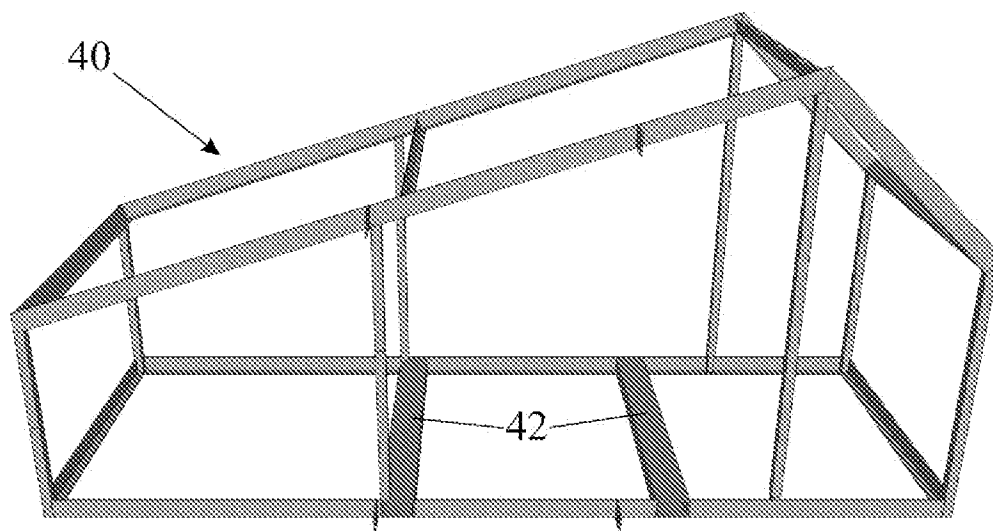


Fig. 2

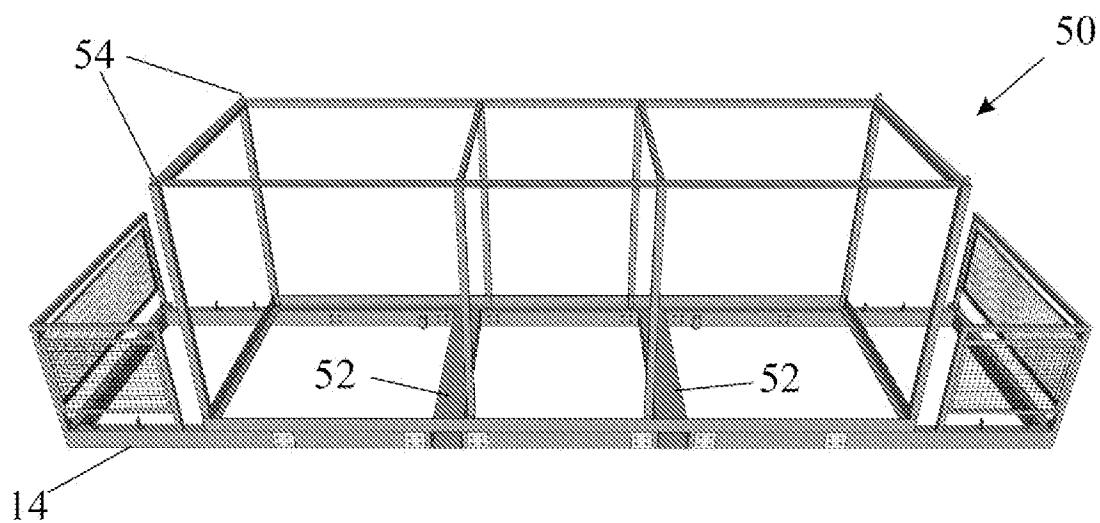
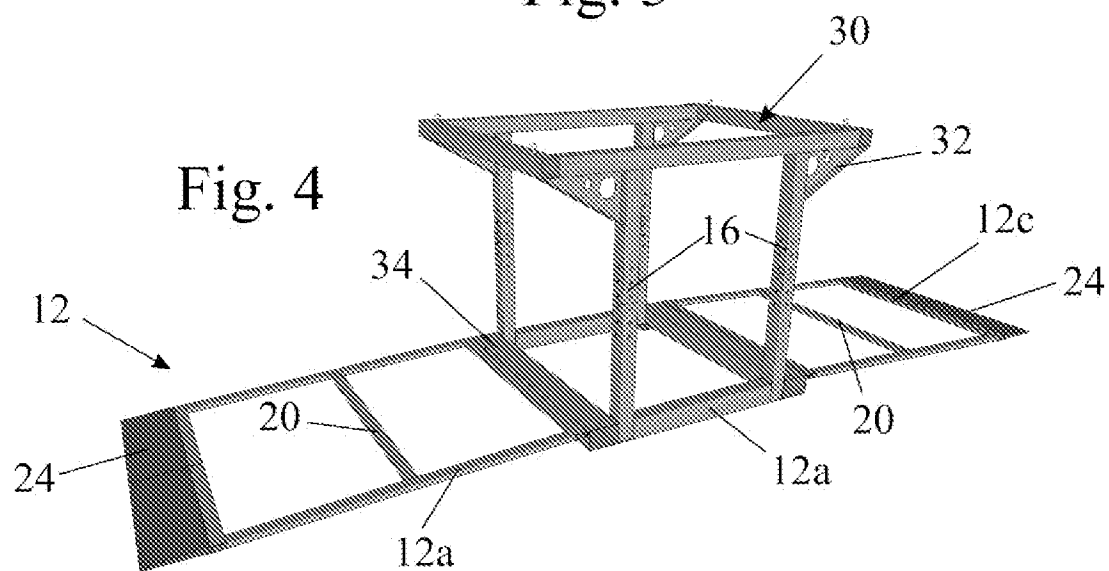


Fig. 3



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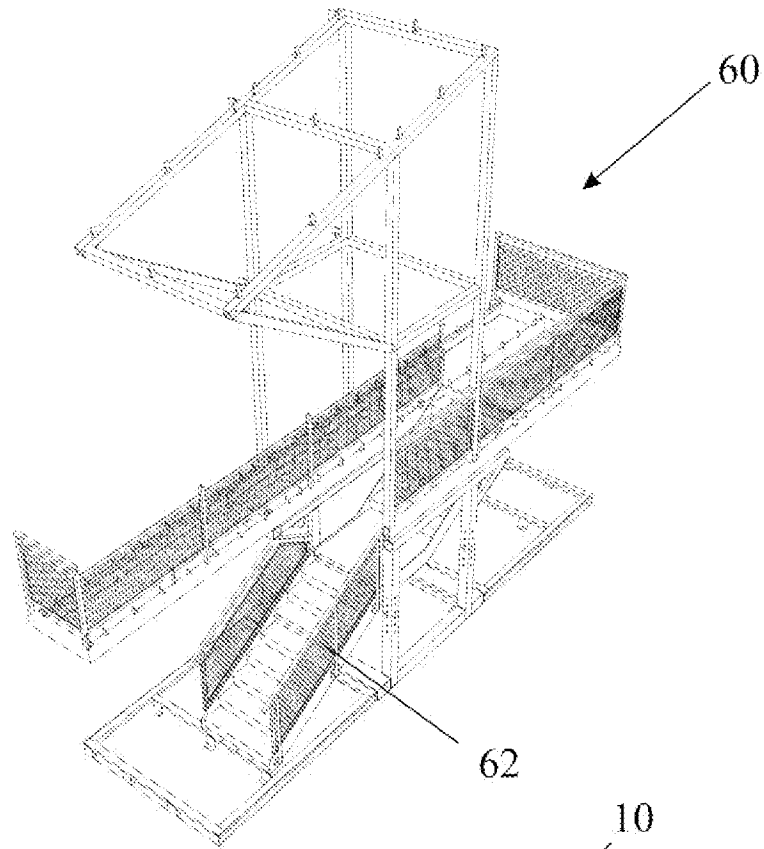


Fig. 5

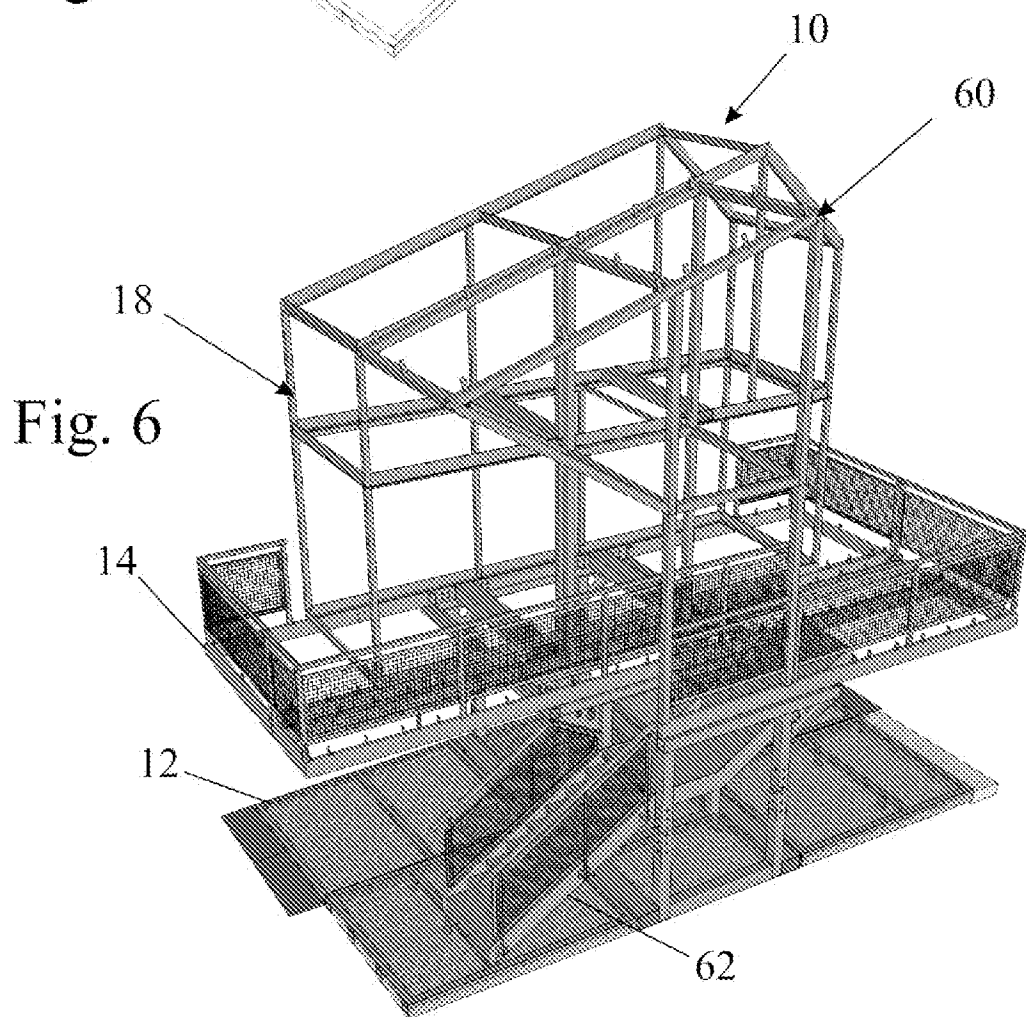


Fig. 6

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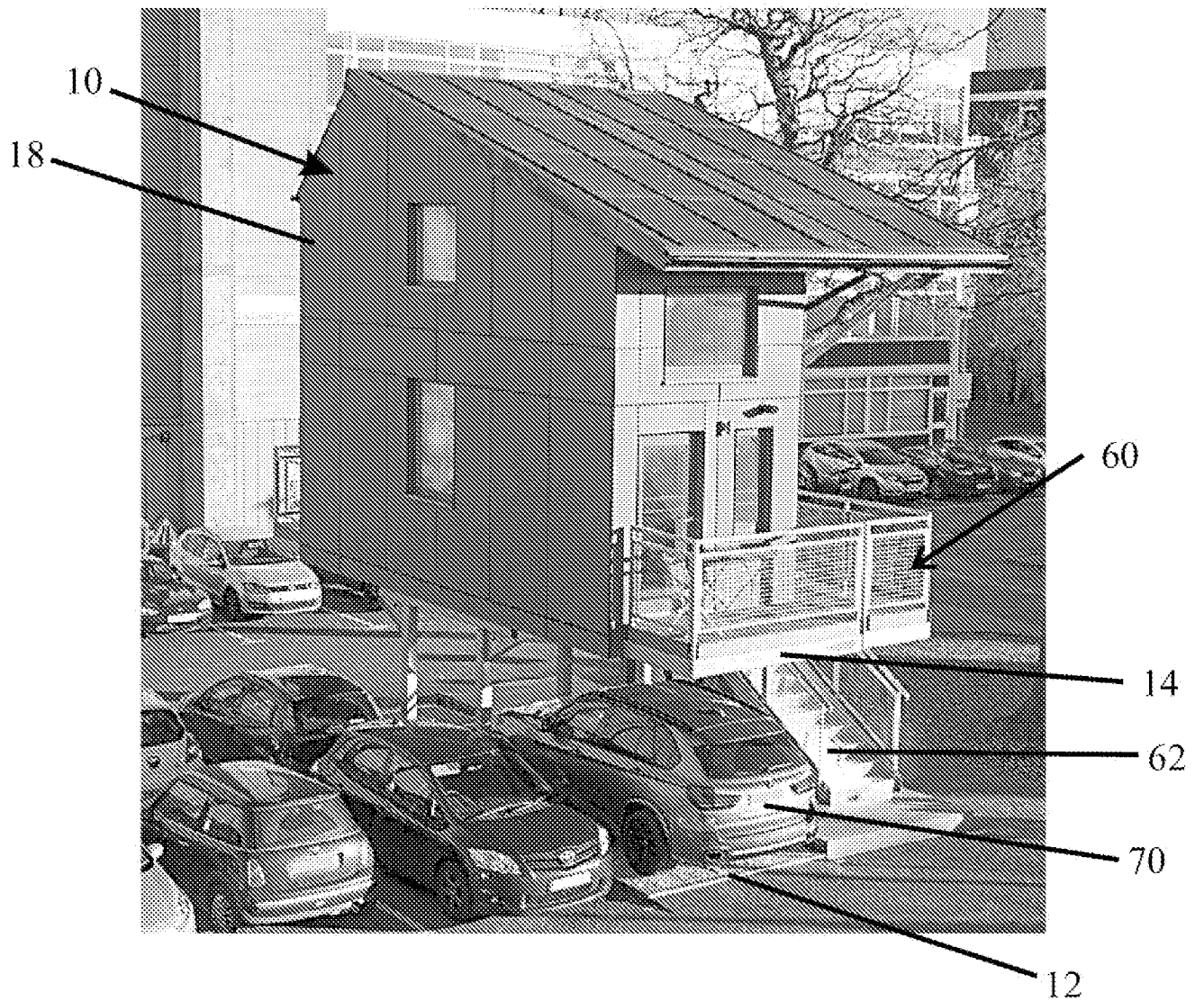


Fig. 7

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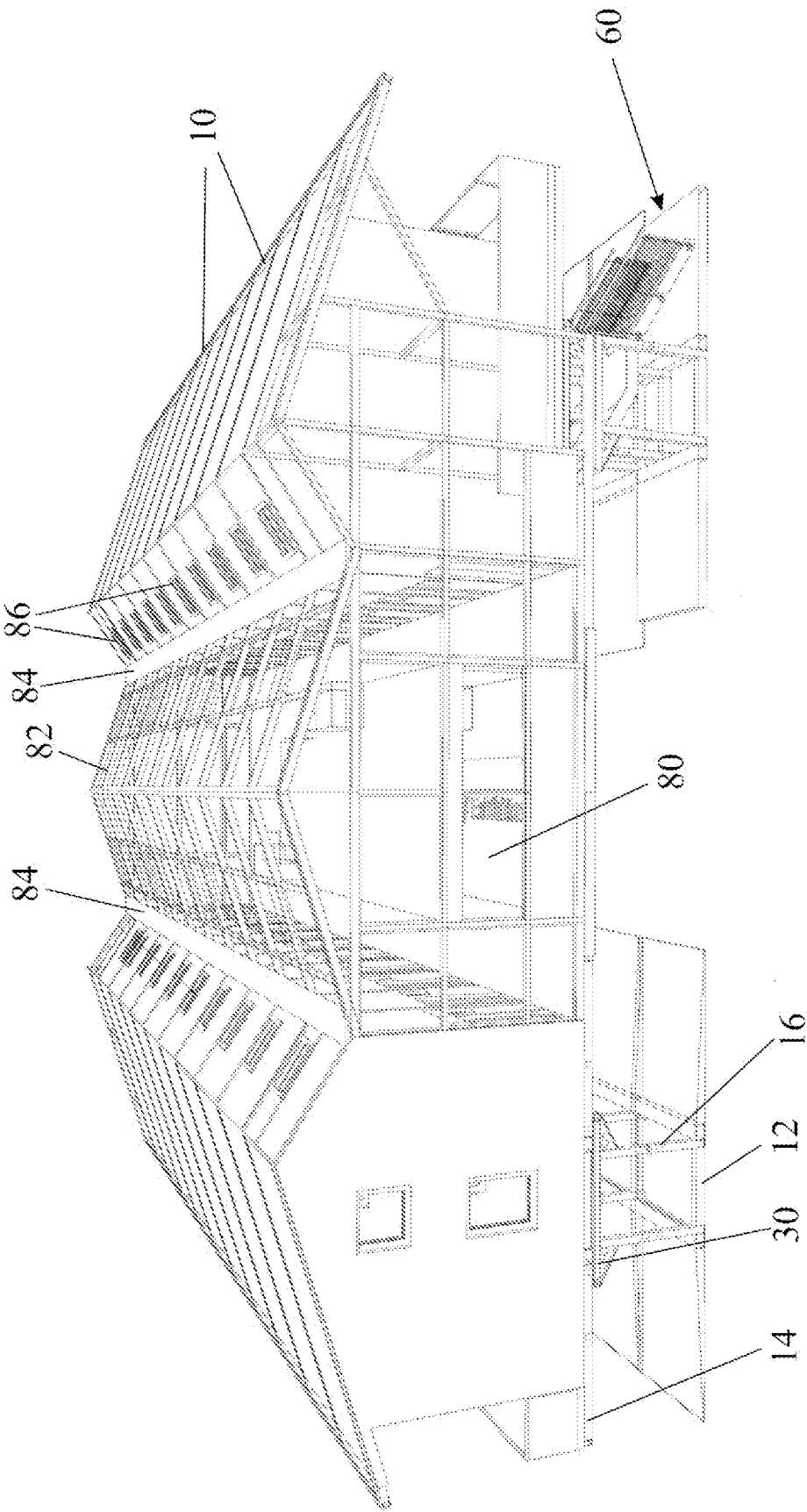


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2017/051147

A. CLASSIFICATION OF SUBJECT MATTER
INV. E04H1/12 E04B1/34 E04H6/02
ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E04H E04B

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2013 133624 A (INDEX JAPAN KK) 8 July 2013 (2013-07-08)	1,6,8-13
A	figures 4, 5 paragraph [0029]	2-5,7
A	----- US 3 452 493 A (MIMS PHILIP B) 1 July 1969 (1969-07-01) figure 2	1-13
A	----- CN 201 137 309 Y (SHANGHAI FENGSHI ENTPR MAN CO [CN]) 22 October 2008 (2008-10-22) figure 6	1-13
A	----- JP S57 125801 U (.) 5 August 1982 (1982-08-05) figure 1	1-13
	----- -/-	



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search

31 May 2017

Date of mailing of the international search report

10/07/2017

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Authorized officer

Brucksch, Carola

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2017/051147

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP H06 47519 U (.) 28 June 1994 (1994-06-28) figure 1 -----	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2017/051147

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2013133624	A	08-07-2013	NONE	
US 3452493	A	01-07-1969	NONE	
CN 201137309	Y	22-10-2008	NONE	
JP S57125801	U	05-08-1982	JP S6118083 Y2 JP S57125801 U	02-06-1986 05-08-1982
JP H0647519	U	28-06-1994	NONE	