

Jan. 12, 1960

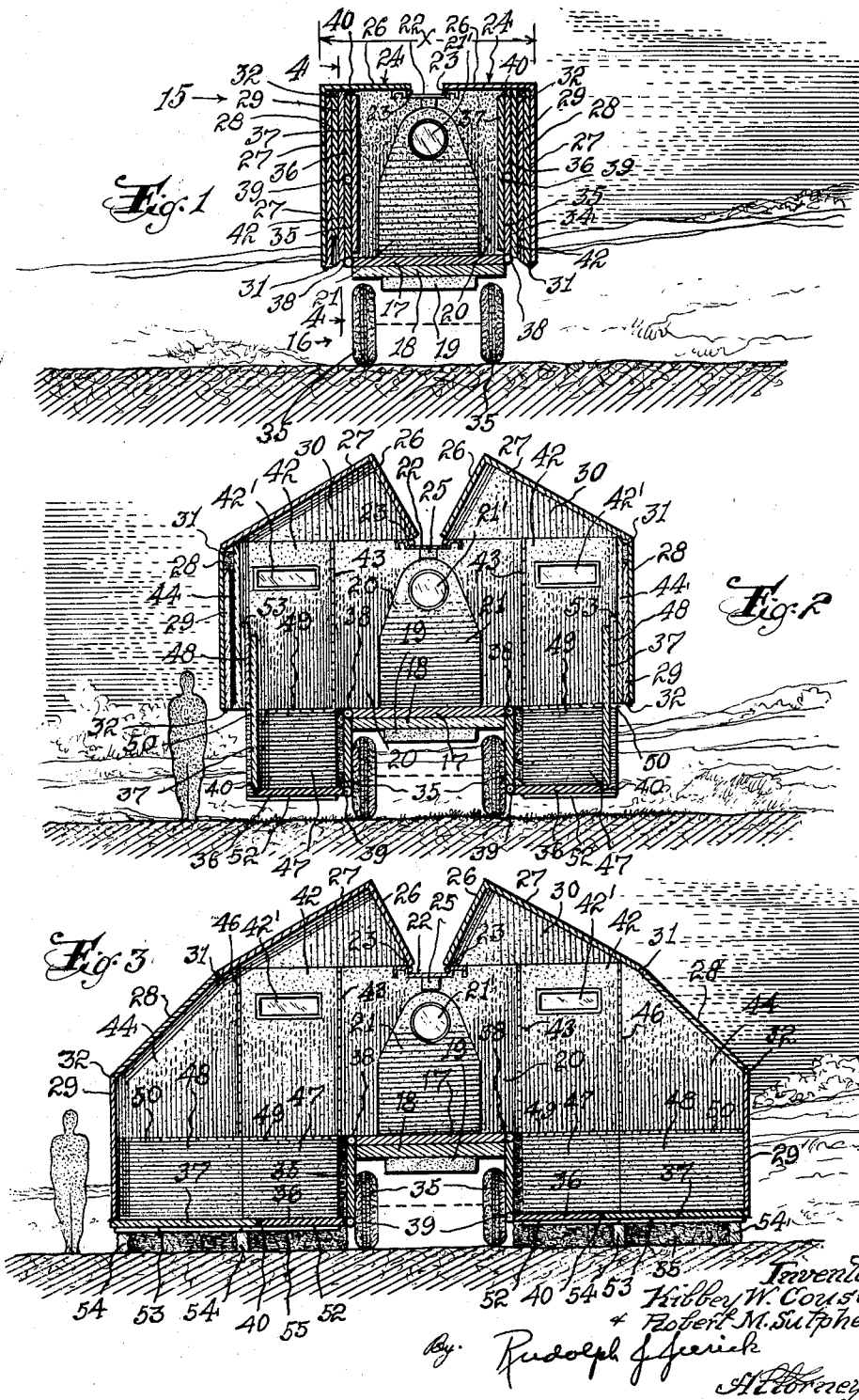
K. W. COUSE ET AL

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EXPANSIBLE BUILDING STRUCTURE

Filed May 1, 1957

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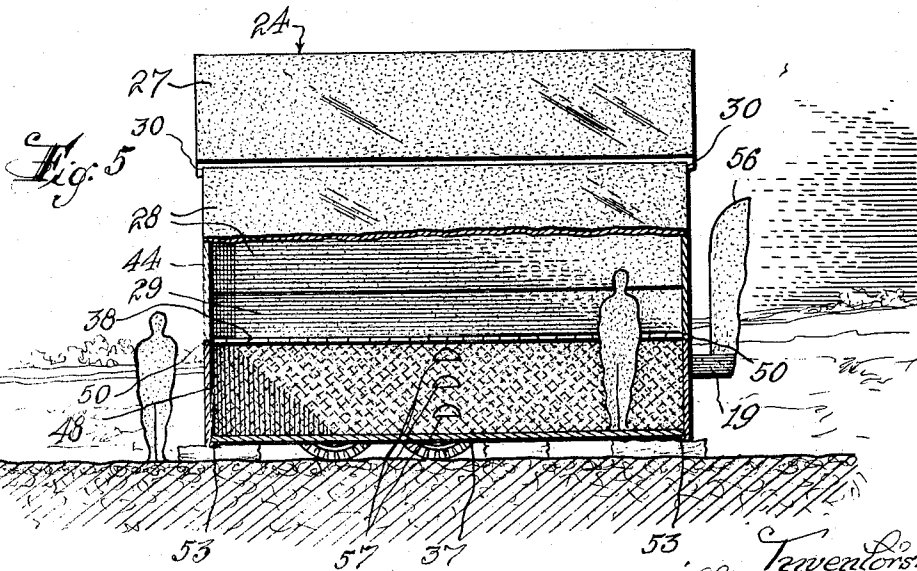
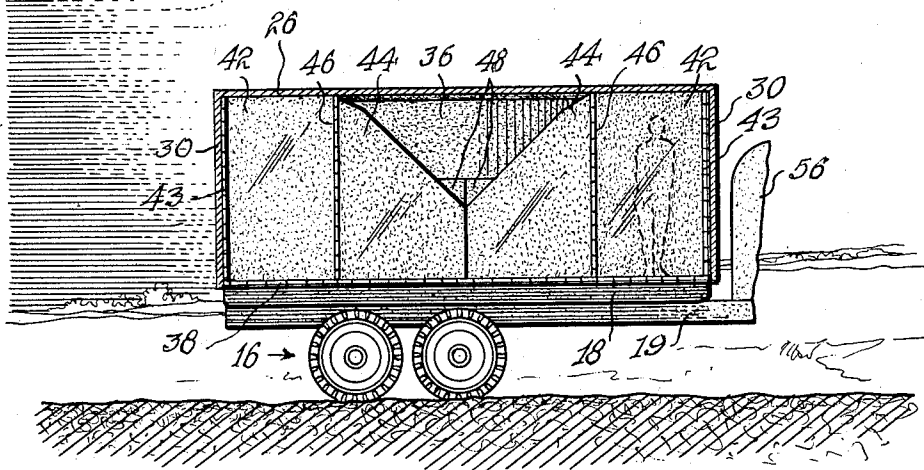
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EXPANSIBLE BUILDING STRUCTURE

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Fig. 4



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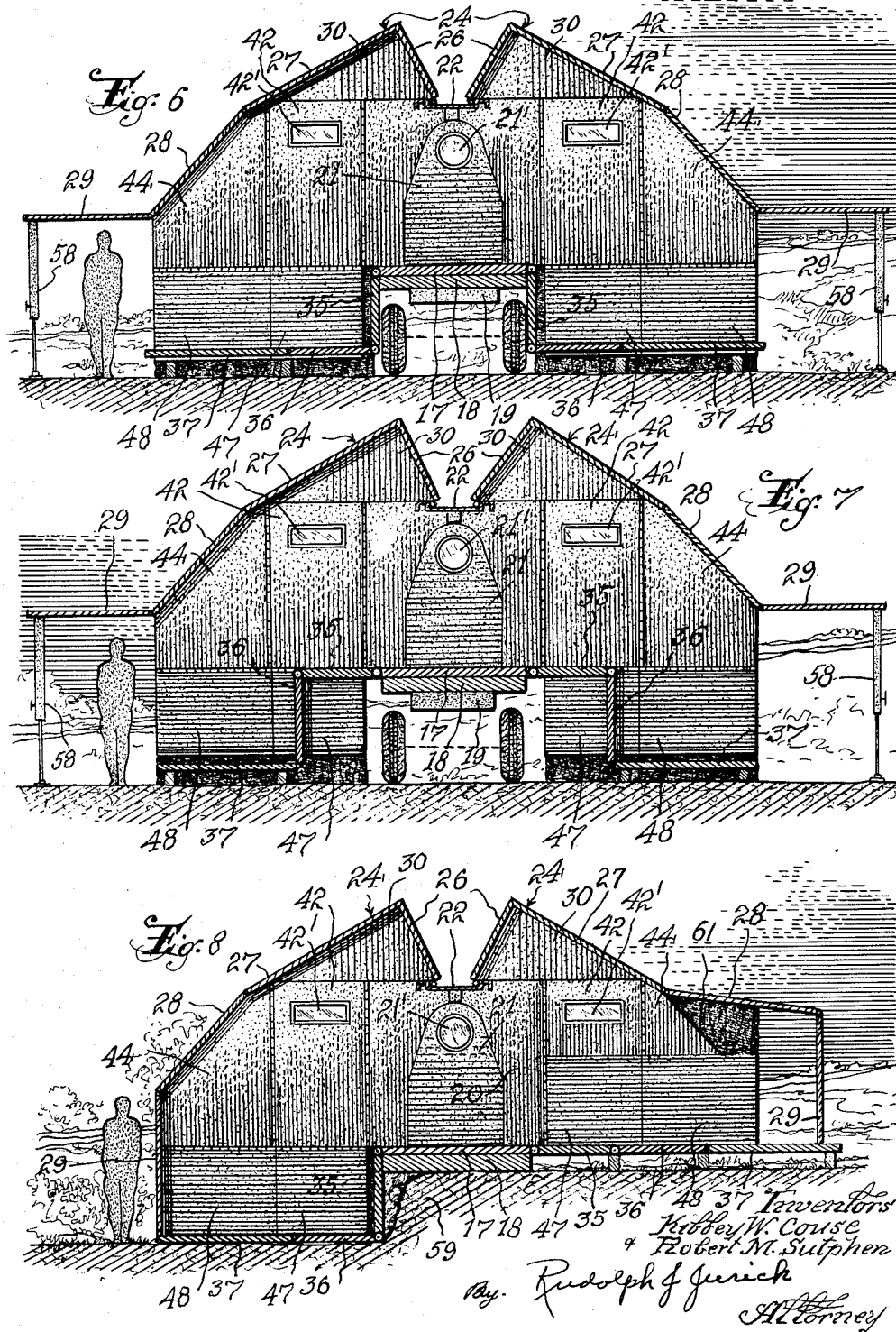
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EXPANSIBLE BUILDING STRUCTURE

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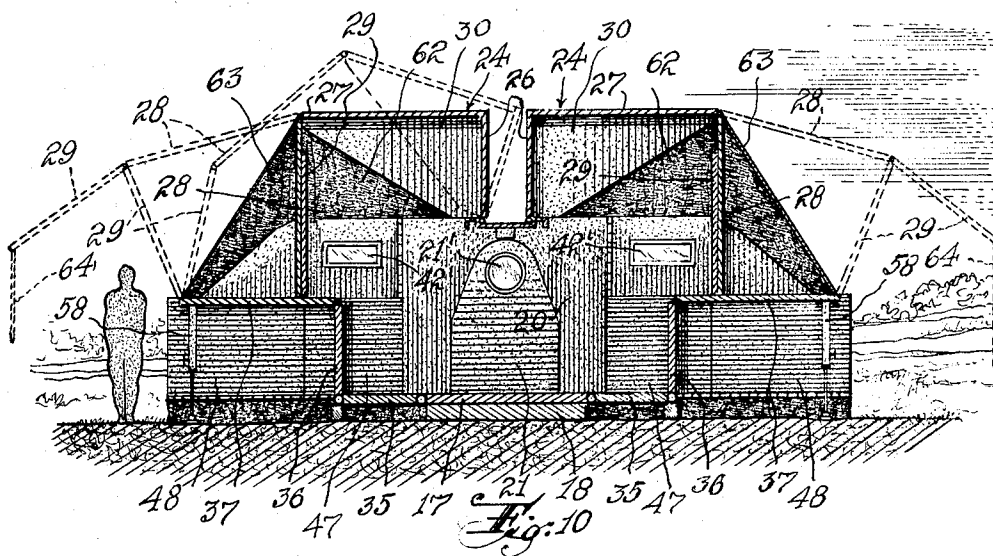
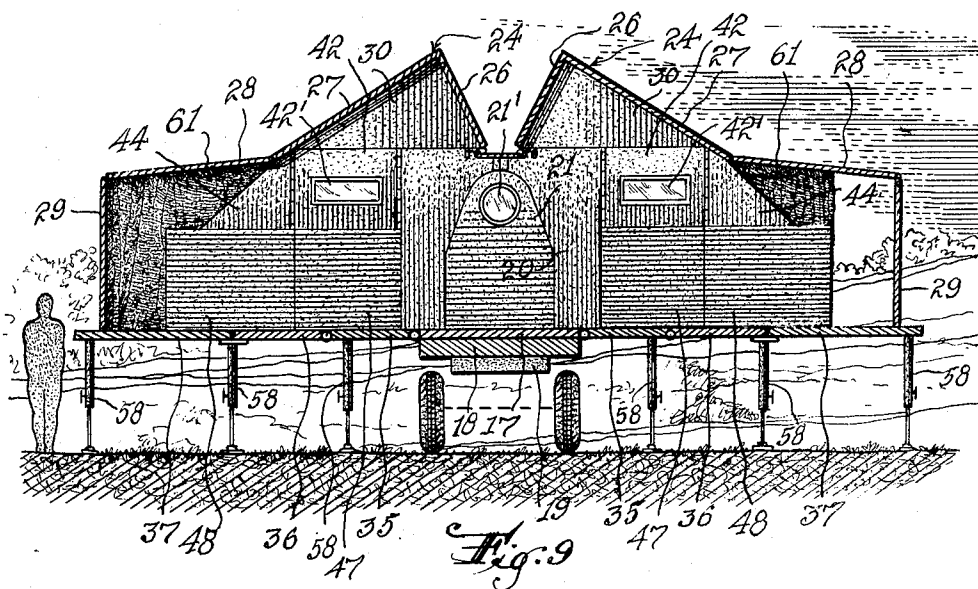
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EXPANSIBLE BUILDING STRUCTURE

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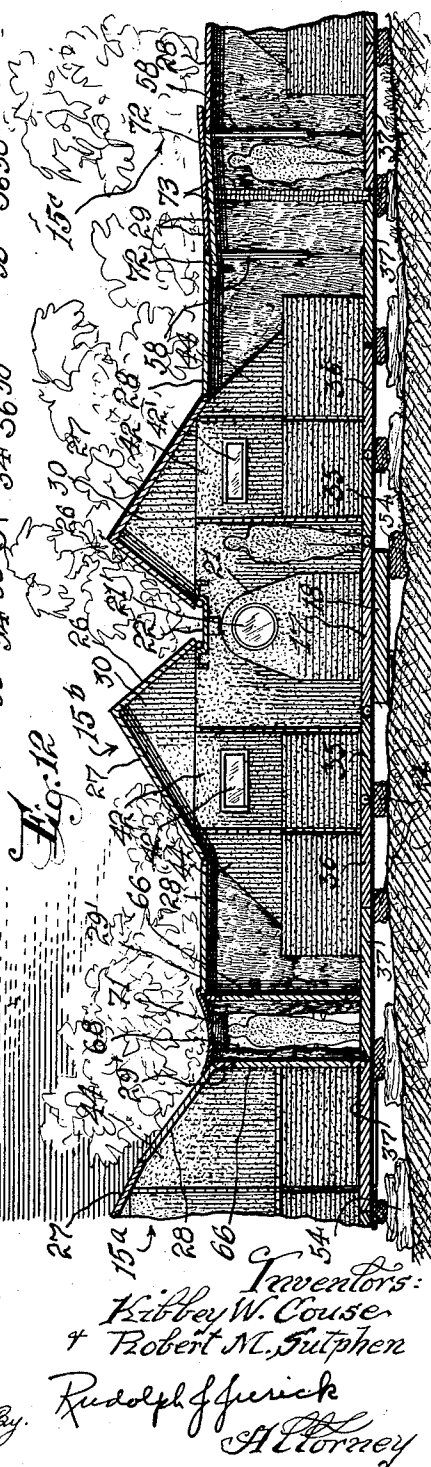
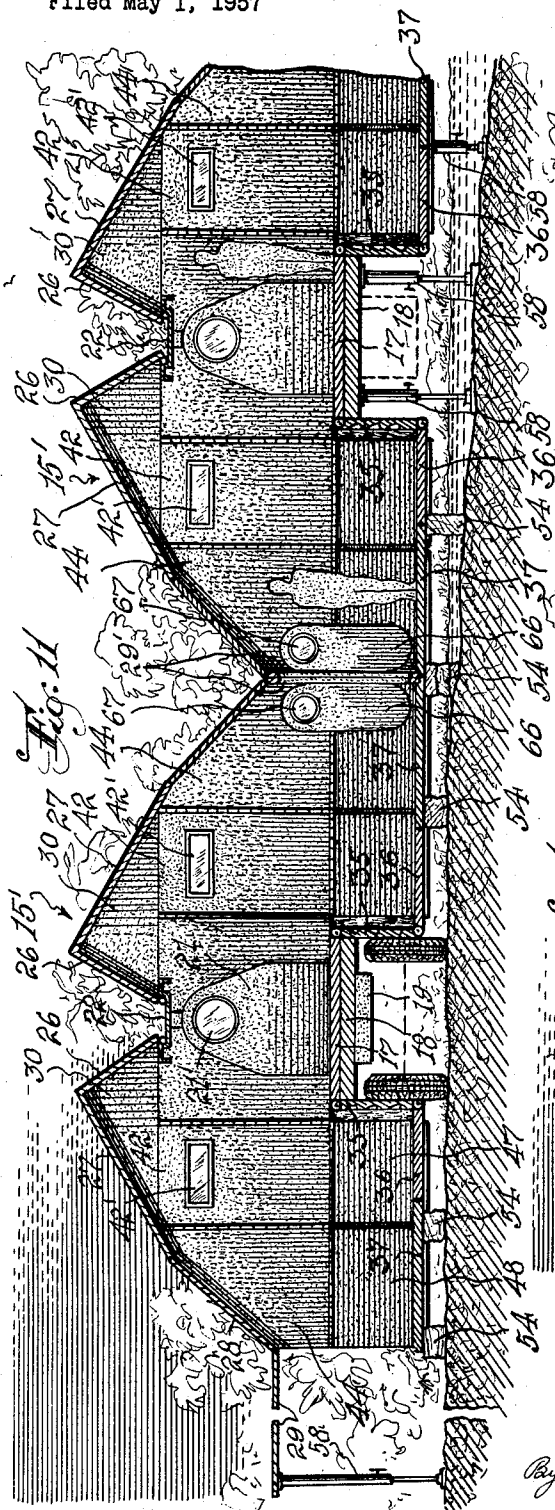
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EXPANSIBLE BUILDING STRUCTURE

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5 Sheets-Sheet 5



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2,920,920

EXPANSIBLE BUILDING STRUCTURE

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Application May 1, 1957, Serial No. 656,249

5 Claims. (Cl. 296—26)

This invention relates to a building structure and more particularly to an expansible building structure formed with a plurality of hingedly mounted extensible panel members.

The expansible building structure of our invention is of the portable type which may be easily and readily moved from one location to another. If desired, the structure may be mounted upon a truck chassis whereby the mobility is further increased. In the closed, or unexpanded, condition the structure is small enough to meet the road requirements for use on the public highways. In the expanded condition, the floors, roof and bulkheads are greatly increased in size, thereby providing an extremely large sheltered area.

In our expansible structure, a plurality of expansible floor panel members are hinged to the side of the floor of the building, and are normally folded upwardly therefrom in a stored condition. A roof is supplied by a pair of pivotally mounted roof units, and roof extension panels hingedly attached thereto. Building bulkheads are mounted on the floor adjacent the ends of the structure, and bulkhead extension panels are hingedly fastened to the vertical edges thereof.

The floor area of the structure may be expanded by unfolding one or more of the hinged floor panels into alignment with the floor, and if the structure is vehicular mounted, an expanded floor area results, which is several feet above the ground. A building floor, which is several feet above the ground, is not, however, always desirable. An individual inadvertently stepping or backing, off the edge of the floor could be seriously injured in a fall to the ground. In the expansible building structure of our invention, means are provided whereby the floor extension panels may, if desired, be folded outwardly in a manner wherein they are positioned only a short distance above the ground, while the floor of the structure remains mounted on the vehicle chassis. By positioning the floor only a short distance above the ground, the danger involved in inadvertently stepping off the extended floor area is minimized.

In the above-described lowered condition of the floor extension panels, a further advantage results; i.e., the raised floor of the building may be utilized as a work bench and the lower extended floor extension panels used as a solid floor adjacent opposite sides thereof. When used as a work shop, tools and machinery, such as lathes and drill presses, may be permanently mounted on the building floor, which serves as the work bench. Enclosing roof and bulkheads for the expanded building are provided by the roof units, roof extension panels, bulkheads and bulkhead extension panels. The bulkhead extension panels are provided with pivotally attached bulkhead extension panel flaps, which are normally positioned adjacent the bulkhead extension panels. In the above-described expanded condition, the bulkhead extension panel flaps are swung downwardly, thereby forming prolongations of the bulkhead extension panels adjacent the ends of the floor extension panels. Flange,

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or edge members, on the bulkhead extension panel flaps engage the bottom surface of the floor extension panels, thereby supporting the same in the horizontal position.

Each side of the expansible building structure of our invention functions independently of the other side. The one side may, for example, be left in the normal closed position, while the other side is opened to an expanded condition. The various hinged floor, roof and bulkhead extension panels at each side of the building are capable of being swung into numerous expanded positions.

In certain of the expanded conditions of the expansible building structure, the building is adapted to be grouped with other expansible building structures of substantially identical design, thereby providing an extremely large enclosed area limited only by the number of individual expansible building structures which are grouped together.

An object of this invention is the provision of an expansible building structure which is adapted for use as a machine shop, work shop, storage area, or the like.

An object of this invention is the provision of an expansible structure having hingedly connected floor, roof and bulkhead panel members which are adapted to be unfolded into various extending positions.

An object of this invention is the provision of a portable, expansible, building structure which, in the closed or folded condition, is small enough to be transported over the road, and in the open, or expanded, condition forms an extremely large sheltered area.

An object of this invention is the provision of an expansible structure which is adapted to be mounted on a vehicle chassis frame, which expansible structure, in the closed condition, meets all the requirements, as to size, for use on public highways, which may be expanded while mounted on the said chassis frame, and which may be removed from the chassis frame for use on the ground, if desired.

An object of this invention is the provision of an expansible, vehicular-mounted, truck body having a floor member and pivotally mounted floor extension panels attached thereto, the said floor extension panels being adapted to be folded outwardly below the level of the said floor member whereby the said floor may be used as a work bench, or the like, and the floor extension panels used as a solid walk adjacent thereto.

An object of this invention is the provision of an expansible building structure which is adapted to be used in conjunction with other expansible building structures of similar design to form an extremely large enclosed area.

These and other objects and advantages will become apparent from the following description when taken with the accompanying drawings. It will be understood that the drawings are for purposes of illustration and are not to be construed as defining the scope or limits of the invention, reference being had for the latter purposes to the appended claims.

In the drawings wherein like reference characters denote like parts in the several views:

Figure 1 is a transverse vertical sectional view of the expansible structure in normal folded condition;

Figure 2 is a view which is similar to Figure 1 only showing the structure in a partially expanded condition;

Figure 3 is a view which is similar to Figure 2 only showing the structure in a fully expanded condition;

Figure 4 is a fragmentary longitudinal vertical sectional view taken on line 4—4 of Figure 1;

Figure 5 is a fragmentary side view of a vehicular mounted expansible structure opened to an expanded position; parts being shown broken away for clarity;

Figure 6 is a view which is similar to Figure 3 only

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showing a pair of roof extension panels supported in a horizontal position;

Figure 7 is a view which is similar to Figure 6 only showing first and second pairs of floor extension panels supported in different positions;

Figure 8 is a transverse vertical sectional view of the expansible building positioned on the ground and showing one side expanded in a lowered position and the other side expanded horizontally outwardly;

Figure 9 is a view which is similar to Figure 1 only showing the expansible building opened to a raised and level floor expanded condition;

Figure 10 is a view which is similar to Figure 8 only showing the building located on level ground and opened to an expanded position wherein side floor extension panels are at a higher level than the floor of the building;

Figure 11 is a transverse vertical sectional view of two vehicular mounted expansible bodies opened to an expanded condition and grouped together in a side-by-side position; and

Figure 12 is a view which is similar to Figure 11 only showing a first expansible building and fragmentary portions of two other similar expansible buildings grouped together in a side-by-side position.

Reference is now made to Figure 1 of the drawings wherein there is shown a transverse sectional view of an expansible structure designated generally by the reference numeral 15. The building structure 15 forms an expansible truck body when mounted upon road wheels shown diagrammatically at 16. The expansible body 15 is shown in a closed, or unexpanded, condition and, as such, is adapted for travel on a road. In the closed position shown, the body conforms in size to a normal unexpanded truck body of required length, width and height to meet the road requirements. By way of example, the distance designated x in Figure 1, which is the width of the closed body, is preferably eight (8) feet.

The expansible body 15 is similar in construction to the Super-Expansible Vehicular Body described in the co-pending Patent Application Serial No. 447,453 of Kibbey W. Couse, and filed August 3, 1954, now Patent No. 2,793,067. The expansible building herein disclosed, differs from the above-mentioned co-pending application, however, in that the building of our present invention is provided with additional folding floor, bulkhead, and roof extension panels, and other features, which permit expansion of the body into new and novel expanded positions, described in detail below.

As seen in Figure 1, the expansible body 15 includes a floor panel 17, which is secured to a bed plate 18 which, in turn, is supported upon a chassis frame 19. The chassis frame 19 is suitably secured through the usual resilient suspension system (not shown in the drawings) to the road wheels 16. In order to permit the expansible body 15 to be firmly and quickly fastened to the chassis frame 19, the floor panel 17 and bed plate 18 are bolted to the chassis frame 19 by bolt fastening means not shown in the drawings. The entire truck body and bed plate may be lifted free of the chassis frame for any reason or purpose.

Fixed front and rear bulkheads 20 (only the rear bulkhead 20 being visible in the drawings) are suitably secured to the ends of the floor panel 17. To permit entry into the structure when the body is in a closed position, or expanded positions described below, doors 21 are fastened by any suitable means, to the bulkheads. (Only the door 21 in the rear bulkhead 20 is visible in the drawing.) The doors are provided with windows 21' for the admission of light to the body. It will be understood that when the body is vehicular mounted, as shown in Figure 1, a door in the front bulkhead may be of no utility if the front bulkhead abuts, or is positioned closely adjacent the vehicle cab. If such is the case, the front bulkhead is often constructed without a door.

The bulkheads 20 are joined together at their upper

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ends by a roof supporting ridge member 22. The floor, front and rear bulkheads and ridge member form the general foundation unit of the expansible building structure. The roof ridge member 22 acts not only as a ridge member between the bulkheads 20, but also forms a firm base member for hinges 23 to which roof units 24 are pivotally attached. Further, the roof ridge member supports a crane supporting member longitudinally of the building structure, which crane supporting member, in turn, is adapted to support a crane arm 25 slidably therewithin. A crane within the building is particularly useful when the building is used as a machine shop, or the like.

Each roof unit 24 comprises a right-angular-shaped panel having a short-length section 26 and an integral long section 27. The elongated free edge of each short-length section 26 is hingedly attached to the ridge member 22 by the hinge members 23. In the closed position of the body, the short length sections 26 form a horizontal roof portion and the sections 27 form the outer side walls of the body.

The roof units 24 are adapted to be pivoted about the hinge members 23 into an open position, as shown in Figures 2 and 3. In Figure 2 of the drawings, the body is shown in a partially expanded position, while in Figure 3, the body is fully expanded. Referring to Figures 2 and 3, it will be noted, that in both the partially and fully expanded condition, the roof units 24 are raised to a position wherein the short-length sections 26 and long sections 27 form a double peaked roof structure for the body. The short and long sections 26 and 27, respectively, are joined together at their end edges by triangular-shaped flap members 30. In the closed position of the body (Figure 1) the flap members overlap the bulkheads 20, thereby providing a sealed, weather-resistant, construction at the ends of the building.

First and second roof extension panels 28 and 29, respectively, are attached to the outer free edge of each long roof section; the first roof extension panels 28 being pivotally attached to the roof sections 27 by hinge members 31, and the second roof extension panels 29 being attached to the other longitudinally extending edges of the first roof extension panels by hinge members 32. The first and second roof extension panels 28 and 29 are folded inside, and behind, the long sections 27, when the body is in normal road condition, as shown in Figure 1. In the partially expanded condition (Figure 2) the second roof extension panel 29 is folded inside the first roof extension panel, and the adjacent panels extended vertically downwardly from the long section 27 of the roof. In the fully expanded condition (Figure 3) the first roof extension panels 28 are unfolded outwardly to form prolongations of the long roof sections 27, and the second roof extension panels 29 are positioned vertically downwardly from the first roof extension panels 28, thereby forming side walls for the building.

First, second and third floor extension panels 35, 36 and 37, respectively, are attached to the side edges of the floor panel 17; the first floor extension panels 35 being pivotally attached to the floor 17 by hinge members 38, the second floor extension panels 36 being attached to the other longitudinal edge of the first floor extension panels 35 by hinge members 39, and the third floor extension panels 37 being attached to the other longitudinal edge of the second floor extension panels 36 by hinge members 40. The long roof sections 27, first and second roof extension panels 28 and 29, respectively, and first, second and third floor extension panels 35, 36 and 37, respectively, extend from bulkhead to bulkhead, and in the normal folded condition of the body (Figure 1), extend vertically at right angles to the floor panel 17. It will be noted that the first and second floor extension panels 35 and 36, respectively, are approximately one-half the width of the third floor extension panel 37. In the folded condition of the body, the first and second

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floor extension panels are positioned in the same vertically extending plane, while the third floor extension panels are folded down adjacent thereto.

In the opened position of the body, the floor extension panels are adapted to be extended into various unfolded positions. In the partially-opened position of Figure 2, for example, the first floor extension panels 35 are swung from the upright vertical position through 180 degrees to a downwardly extending vertical position. The second floor extension panels 36 are pivoted into a horizontal position, outwardly extending from the lowered first floor extension panels, and the third floor extension panels are extended vertically upwardly from the outer edge of the second floor extension panels. A narrow walk-way is thus created at both sides of the body adjacent the floor 17. In the fully-expanded condition of Figure 3, the first and second floor extension panels 35 and 36, respectively, are in the same positions as in the partially-opened position of Figure 2. The third floor extension panels 37 are, however, swung into a horizontal position to form prolongations of the second floor extension panels 36. In the fully expanded condition, the catwalk area adjacent the floor 17 is more than doubled by the third floor extension panels 37.

A plurality of bulkhead extension panels, having bulkhead extension panel flaps pivotally attached thereto, are pivotally attached to the vertical edges of the bulkheads 20. The bulkhead extension panels and flaps are best seen in the fully expanded condition of Figure 3. Referring again to Figure 3, it will be seen that first bulkhead extension panels 42 are pivotally attached to the vertical free edges of the bulkheads 20 by hinge members 43; only the rear bulkhead and bulkhead extension panels being visible in the sectional view of Figure 3. Windows 42' may be provided in the first bulkhead extension panels 42. In the expanded position of the panels, the windows are adapted to transmit light from outside the building to the inside thereof. Second bulkhead extension panels 44 are pivotally attached by hinge members 46 to the outer free vertical edges of the first bulkhead extension panels 42. In the fully expanded position of the body, the second bulkhead extension panels 44 extend outwardly in the plane of the first bulkhead extension panels 42 forming prolongations thereof. It will be noted that the upper edge of the second bulkhead extension panels 44 are inclined. An inclined roof portion results, as shown, in the fully expanded condition, as the first roof extension panels 28 rest upon the inclined edge of the second bulkhead extension panels. The second roof extension panels 29 abut the free vertical edge of the second bulkhead extension panels and extend downwardly to the extended third floor extension panels.

First and second bulkhead extension panel flaps 47 and 48 are pivotally attached to the lower horizontal edges of the first and second bulkhead extension panels by hinge members 49 and 50, respectively, and provide vertical, downwardly extending, prolongations of the first and second bulkhead extension panels in the fully expanded condition of the body of Figure 3.

The horizontal free edges of the first and second bulkhead extension panel flaps 47 and 48 are provided with upstanding flange members, or edges, 52 and 53, respectively. In the expanded condition of the body, the edges extend horizontally beneath the ends of the outer floor extension panels and provide support thereto. It will be seen, then, that the bulkhead extension panel flaps 47 and 48 not only provide portions of the end bulkheads in the expanded position of the body, but the flange members thereon also serve to help support the floor extension panels. If the floor extension panels must sustain a great weight, blocks 54 are provided on the ground beneath the floor extension panels in supporting engagement therewith.

As seen in Figure 3, canvas members 55 may be hung from the building adjacent the ends thereof for added

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protection against wind, rain, cold and other adverse weather conditions.

The positioning of the bulkhead extension panels and flaps in the semi-opened position of Figure 2 is now believed to be apparent. The first bulkhead extension panels and flaps 42 and 47, respectively, are in the same position as in the fully expanded position of Figure 3 described above. The second bulkhead extension panel flaps 48 are folded upwardly adjacent the second bulkhead extension panels 44; and both are folded into a longitudinal position with the body into a nesting position between the second roof extension panels 29 and the third floor extension panels 37.

In any of the expanded positions of the body where the first floor extension panels hang downwardly of the floor, as seen in Figures 2 and 3, for example, the first floor extension panels 35 abut the tires in the road wheels 16. This construction provides a firm support behind the panels and adds rigidity to the entire expanded structure.

In the closed position of the expansible body (Figure 1), the first and second bulkhead extension panels and the first and second bulkhead extension panel flaps are nested between the second roof extension panels 29 and the first and second floor extension panels 35 and 36, respectively, and in juxtaposition therewith. In Figure 1 only the first bulkhead extension panels 42 are shown. The nested position of the bulkhead extension panels in the closed position of the body is best seen in the sectional view of Figure 4, taken on line 4—4 of Figure 1. Referring now to Figure 4, it will be noted that in the closed condition, the first and second bulkhead extension panels 42 and 44 at one side of the body are in a coplanar position and of such widths that the vertical free edges of the second bulkhead extension panels 44 abut. (It will be noted that the bulkhead extension panels 42 of Figure 4 are not provided with windows). The first and second bulkhead extension panel flaps 47 and 48 are folded upwardly behind their respective bulkhead extension panels (only portions of the flaps 48 being visible in Figure 4). In Figure 4 (and also in Figure 5) a fragmentary portion of the vehicle cab, designated 56, is shown.

In the folded condition of the body, as shown in Figures 1 and 4, it will be noted that the floor area is completely clear. Equipment, machine tools, and the like, may therefore be permanently attached to the floor 17, and not interfere with the opening or closing, of the body.

Reference is now made to Figure 5 of the drawings wherein there is shown a fragmentary side view of a vehicular-mounted expansible body in the expanded position; parts being shown broken away for clarity. In the fully expanded condition, it will be seen that the bulkheads, bulkhead extension panels and bulkhead extension panel flaps at each end of the body are in co-planar relation, and positioned beneath the long roof section 27 and the roof extension panels, providing support thereto. Further, the overlapping relation of the triangular end flaps 30 is clearly shown. In Figure 5, semi-circular indentations 57 are visible on the face of the first floor extension panels 35. The indentations provide steps between the raised floor panel 17 (positioned behind the hinge member 38 and not visible in Figure 5) and the lowered second and third floor extension panels 36 and 37. (The second floor extension panel 36, is positioned directly behind the third floor extension panel 37 and, likewise, is not visible in Figure 5.) The indentations are of sufficient depth to provide a firm toe support.

In the expanded positions of Figures 2, 3 and 5, it will be noted that the floor extension panels provide a solid floor adjacent the floor panel 17, and that the floor panel 17 is at a convenient height for use as a work bench, or the like. The structure may be used, therefore, as a portable work bench having a solid floor area adjacent thereto.

It will here be noted that the expansible building structure may be made of any suitable material, such as wood, plastic, metal, or the like. Plastic is a particularly desirable material for use in the construction of our expansible structures, as it is light-weight and strong. Further, if the structures are to be used in extremely hot or cold regions, as in the tropics or arctic region, for example, plastic material exhibits excellent insulating properties which are desirable. Further, the low coefficient of expansion exhibited by many plastics, is desirable when extreme temperature ranges are encountered.

In the closed, partially opened, and fully expanded position of the structure, as shown in Figures 1, 2 and 3, respectively, it will be noted that a substantially completely enclosed structure results. Such a structure is easily heated or cooled with suitable air conditioning equipment installed therein. In expansible building structures which rely upon canvas enclosures, for portions of the roof or sidewalls, suitable air conditioning of the structure is virtually impossible.

A larger sheltered area than is provided by the expanded body of Figure 3 may be obtained by folding the second roof extension panels 29 upwardly and outwardly as illustrated in Figure 6. Referring to Figure 6, the second roof extension panels 29 are shown supported in a horizontal extending position upon adjustable jacks 58 of any suitable design. (The first roof extension panels 28 require no additional support as they rest upon and are supported by, the upper inclined edge of the extended second bulkhead extension panels 44, as seen in Figure 5, and described above.) When the second roof extension panels 29 are supported in the horizontal position shown in Figure 6, the entire length of the sides of the structure are open, and sheltered entrance-ways thereby provided adjacent thereto.

The expansible body of our invention is not limited to one or two expanded conditions as are many contemporary expansible bodies. Various other expanded conditions of an individual expansible structure are shown in Figures 7 through 10. Referring first to Figure 7, the expansible body therein shown is in an expanded condition which is similar to the expanded condition of the body shown in Figure 6. Additional raised floor space, and less lowered floor space is provided by extending the first floor extension panels 35 horizontally outwardly from the edges of the floor panel 17. The second floor extension panels 36 then form vertical side walls which extend downwardly from the outer edges of the first floor extension panels 35. The extended work bench area which results from the plane floor panel 17 and first floor extension panels 35 is particularly well suited to accommodate large panels or sheets of material being worked upon.

As mentioned above, the expansible building structure of our invention is mounted upon road wheels for increased mobility. It is not necessary, however, to have the structure mounted upon the road wheels; it may rest directly upon the ground, if desired. Reference is now made to Figure 8 of the drawings wherein there is shown an expansible building positioned directly upon the ground. The building is positioned directly over an embankment, designated 59, whereby a split-level structure results. The bed plate 18 of the building rests upon the ground adjacent the embankment and the left-hand side of the building, as viewed in Figure 8, is opened into the same expanded position as illustrated in Figure 3 and described above. The right side, however, is opened to a position wherein the first, second and third floor extension panels 35, 36 and 37, respectively, form prolongations of the floor panel 17. The first and second bulkhead extension panels 42 and 44, at the right side of the building, are extended outwardly from the bulkheads 20, and the first and second bulkhead extension panel flaps 47 and 48, respectively, are left folded upwardly adjacent the first and second bulkhead exten-

sion panels to form double-thickness end walls thereat. An entrance-way to the building, at the right side thereof, is provided by supporting the second roof extension panel 29 in a vertical position on the third floor extension panel 37. The second roof extension panel thereby supports the first roof extension panel 28 in an inclined roof forming position. If desired, canvas members 61 may be hung from the ends of the second roof extension panels. The split-level type expansible building is particularly suited for location over the natural contours or embankments encountered in nature.

A maximum of solid and level floor area is obtained with our expansible building structure by extending the first, second and third floor extension panels outwardly in the plane of the floor panel 17 extended. Reference is now made to Figure 9 of the drawings, wherein a vehicular-mounted body is shown expanded to the above-described maximum level floor condition. The first, second and third floor extension panels 35, 36 and 37, respectively, are supported upon adjustable jacks 58 to the level of the floor 17. If the terrain is rough, the individual jacks may be adjusted to desired heights to produce a level floor area. Both the left and right sides of the body are expanded to the position illustrated by the right side of the body of Figure 8 described above. In the building shown in Figure 9, the canvas cover 61 to the left is shown extended outwardly to the second roof extension panels 29. The floor area of the expanded building of Figure 9 is substantially four (4) times greater than the floor area of the body in the folded condition.

Reference is now made to Figure 10 of the drawings wherein there is shown an expansible building positioned directly upon the ground. The first floor extension panels 35 are unfolded into a horizontal position adjacent the floor panel 17. The second floor extension panels 36 are extended vertically upwardly from the first floor extension panels, and the third floor extension panels extended horizontally outwardly therefrom. Adjustable jacks 58 provide support for the third floor extension panels adjacent the ends thereof. The first and second bulkhead extension panels are extended outwardly of the bulkheads, and the bulkhead panel flaps left folded adjacent thereto; all in the same position as shown in Figure 9, and described above. The roof units 24 are shown pivoted open to a position ninety (90) degrees from the closed condition to the point wherein the long roof sections 27 extend horizontally of the structure. (In this roof position the generally triangular shape of the flap members 30 is seen.) The second roof extension panels 29 are folded inside, and adjacent, the first roof extension panels 28; the first roof extension panels extending vertically downwardly from the said long roof sections and supported upon the third floor extension panels 37. Canvas members 62 may be used to enclose the ends of the building and canvas members 63 may be extended along the sides thereof; the canvas members form generally triangular-shaped storage areas at both sides thereof. The resulting storage areas are raised off the ground thereby providing excellent storage for food supplies and the like. In the expanded position shown in Figure 10, a relatively narrow shelf, or ledge, is created within the structure by a portion of the third floor extension panels 37.

The roof units and roof extension panels may, if desired, be positioned so as to cover all of the floor extension panels completely, thereby eliminating the triangular-shaped storage areas at the building sides, and the need for the canvas members 63. Two alternative positions for the first and second roof extension panels 28 and 29 are shown at the right side of the building, as viewed in Figure 10. In one of the alternative positions, the free horizontal edge of the second roof extension members 29 is supported adjacent the free edge of the third floor extension panel 37. In the other alternative position, the second roof extension member 29 is suitably sup-

ported in an outwardly extending manner to form an overhanging inclined roof area. Canvas members 64 may be used as side walls at the ends thereof. The two alternative positions, above described, are also illustrated at the left side of the building. A third alternative position for one of the roof units 24 and the attached roof extension panels is also shown at the left side of the body. This position is easily obtained from the above-described first alternative position by rotating one of the roof units 24 through more than ninety (90) degrees and suitably supporting the same on the extended roof extension panels 28 and 29; the second roof extension panel 29 being supported adjacent the edge of the third floor extension panel 37.

The different opened positions of the body, shown in Figures 2 through 10, and described above, illustrate a representative number of the myriad of possible expanded positions. The expansible body of our invention is extremely versatile, and, therefore, adapted for many uses. When the building is made of light-weight plastic, or the like, the opening and closing thereof may be accomplished easily by one or two men.

Although our expansible building, when unfolded, is extremely large, circumstance may dictate the need for still larger enclosed areas. The expansible building of our invention is adapted to be grouped with other, similar expansible buildings, in adjacent relation therewith, in order to provide larger enclosed areas. The extent to which an area may be enclosed is limited only to the number of available expansible building units. In Figures 11 and 12 of the drawings, two different groupings of buildings are shown. Reference is first made to Figure 11, wherein two expansible bodies 15', are shown opened to fully expanded positions, and grouped together in side-by-side position. The body to the left is vehicular-mounted while the body to the right is mounted upon jacks 58. The irregular contour of the terrain is compensated for by the adjustability of the jacks and the various heights of supporting blocks 54 used beneath the floor extension panels. The expansible building structures 15', shown in Figure 11, are of modified form, and differ from the bodies 15 described above in the inclusion of doors 66 in the second roof extension panels designated 29'. The doors 66 have windows 67 therein. Passage between the adjacent expanded expansible buildings is provided through the doors 66.

Reference is now made to the second grouping of expansible bodies shown in Figure 12 of the drawings. The portions of the bodies therein shown are positioned upon blocks 54. For purposes of description, the expansible buildings (or portions thereof) shown in Figure 12, are designated, generally 15a, 15b and 15c. The right side of the building 15a is opened to the normal fully expanded position as shown in Figure 3 and described above. The left side of the building 15b is opened into an expanded position similar to that shown in Figure 9 and described above. The edges of the adjacent third floor extension panels 37 of the buildings 15a and 15b are positioned in an abutting relation, and a narrow passageway 68 is thus formed between these buildings. Entrance to the buildings from the passageway 68 is possible through doors 66 in the second roof extension panels 29'. Canvas members 71 may be suitably secured over the top and ends of the passageway.

The third floor extension panels 37 between the buildings 15b and 15c are also positioned in an abutting relation. A roof over the extended floor panels is provided by overlapping the second roof extension panels 29, as shown, and supporting the same on adjustable jacks 58. Canvas members 72, having zippered edge members 73 form end walls through which access may be had to the buildings.

Having now described our invention in detail, in accordance with the patent statutes, various changes and modifications will suggest themselves to those skilled in

this art. It is intended that such changes and modifications shall fall within the spirit and scope of this invention as recited in the following claims.

We claim:

1. An expansible building structure comprising an elongated rigid floor; means supporting the said floor a spaced distance above the ground; first, second and third pairs of floor extension panels hinged together along horizontally extending side edges, the said first floor extension panels being hingedly fastened to the long side edges of the said floor; bulkheads fixed to and extending upwardly from the ends of the said floor, the said bulkheads having vertically extending side edges; first and second bulkhead extension panels hinged together along vertically extending edges, the said first bulkhead extension panels being hingedly fastened to the vertical side edges of the said bulkheads; first and second bulkhead extension panel flaps hingedly connected to the lower edge of the said first and second bulkhead extension panels, respectively; the said first, second and third floor extension panels, first and second bulkhead extension panels, and first and second bulkhead extension panel flaps constituting the side walls of the building structure in the normal closed condition thereof; the said first pair of floor extension panels being positioned vertically downwardly from the said floor, the said second and third pairs of floor extension panels being positioned horizontally outwardly from the lower edge of the said first bulkhead extension panels, the said first and second bulkhead extension panels forming prolongations of the bulkheads, and the said first and second bulkhead extension panel flaps extending vertically downwardly from the said first and second bulkhead extension panels in the expanded condition of the said building structure.

2. The invention as recited in claim 1 wherein the said means supporting the said floor comprises road wheels suitably attached thereto, the said first floor extension panels abutting the said road wheels in the expanded condition of the said building structure.

3. The invention as recited in claim 1 including flange members on the free edge of the said first and second bulkhead extension panel flaps, the said flange members extending beneath the said second and third floor extension panels in supporting relation therewith in the expanded condition of the said building structure.

4. The invention as recited in claim 1 including a pair of roof units each having a short section and a long section angularly related to the said short section, each short section being connected at a free edge to the said bulkheads to swing on a horizontal axis extending longitudinally of the said floor intermediate the width thereof; first and second roof extension panels hingedly connected together along longitudinally extending edges, the said first bulkhead extension panels being hingedly fastened to the longitudinal free edges of the said long sections; the said long sections of the said roof units, and first and second roof extension panels constituting additional side wall members when the said roof units are in folded condition; the said roof structures and first roof extension panels forming a roof, and the said second roof extension panels forming side walls in the expanded condition of the said building structure.

5. An expansible building structure comprising an elongated rigid floor; means comprising road wheels suitably attached to the floor and supporting the said floor a spaced distance above the ground; first and second pairs of plane floor extension panels hingedly fastened together, the said first pair of floor extension panels being hingedly fastened to the long side edges of the said floor, the said hinge fastening between the said first and second floor extension panels extending longitudinally of the said building; bulkheads fixed to and extending upwardly from the ends of the said floor, the said bulkheads having vertically extending side edges; bulkhead extension panels hingedly fastened to the vertical side edges of the said

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bulkheads; bulkhead extension panel flaps hingedly connected to the lower edge of the said bulkhead extension panels; flange members on the free edge of the said bulkhead extension panel flaps; the first and second floor extension panels normally extending vertically upwardly from the said floor and constituting the side walls of the building in the normal closed condition thereof; the said first pair of floor extension panels being positioned vertically downwardly from the said floor and abutting the said road wheels in the expanded condition of the said building structure, the said second floor extension panels being positioned horizontally outwardly from the said first pair of floor extension panels in the expanded condition of the said building structure; the said bulkhead extension panels and bulkhead extension panel flaps normally extending parallel with, and adjacent to the said first and second floor extension panels in the normal closed condition of the said building structure; the said bulkhead extension panels forming prolongations of the

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bulkheads, and the said bulkhead extension panel flaps extending downwardly from the said bulkhead extension panels in the expanded condition of the said building structure, the said flange members on the said bulkhead extension panel flaps extending beneath the said second floor extension panels in supporting relation therewith in the expanded condition of the said building structure.

References Cited in the file of this patent

UNITED STATES PATENTS

1,850,638	Schioler	Mar. 22, 1932
2,755,517	Sickel	July 24, 1956
2,832,637	Decosse	Apr. 29, 1958

FOREIGN PATENTS

902,131	France	Nov. 27, 1944
302,346	Switzerland	Dec. 16, 1954