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(54) **ASSEMBLEABLE AND MODULAR HOUSING UNIT EXHIBITING POWDER IMPRESSION MOLDED CONSTRUCTION**

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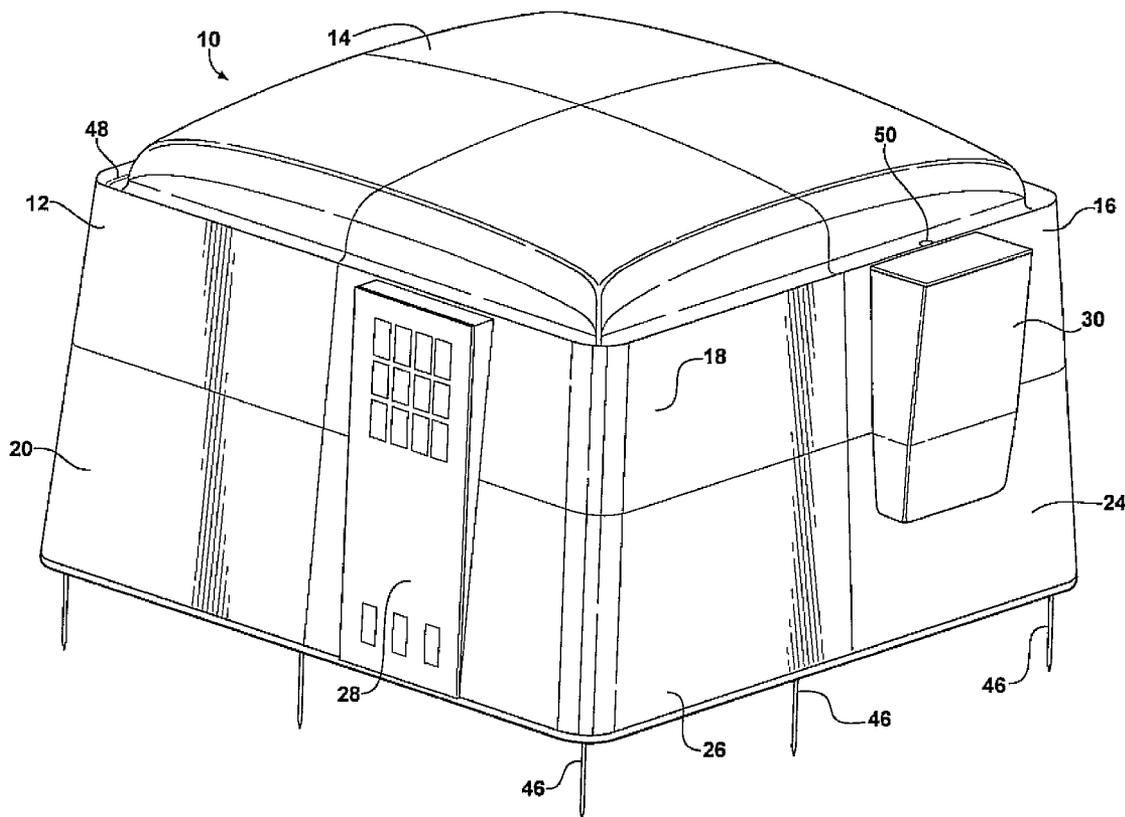
(57) **ABSTRACT**

A modularizable and assembleable structure including a plurality of individual and three-dimensional shaped components, each being interengageable along oppositely extending edges in order to establish a three-dimensional and internally accessible structure. The components include a roof, a plurality of walls and a floor, each exhibiting an impression molded plasticized/polymer based construction with an aggregate filler material incorporated therein.

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Related U.S. Application Data

(60) Provisional application No. 60/719,688, filed on Sep. 22, 2005.



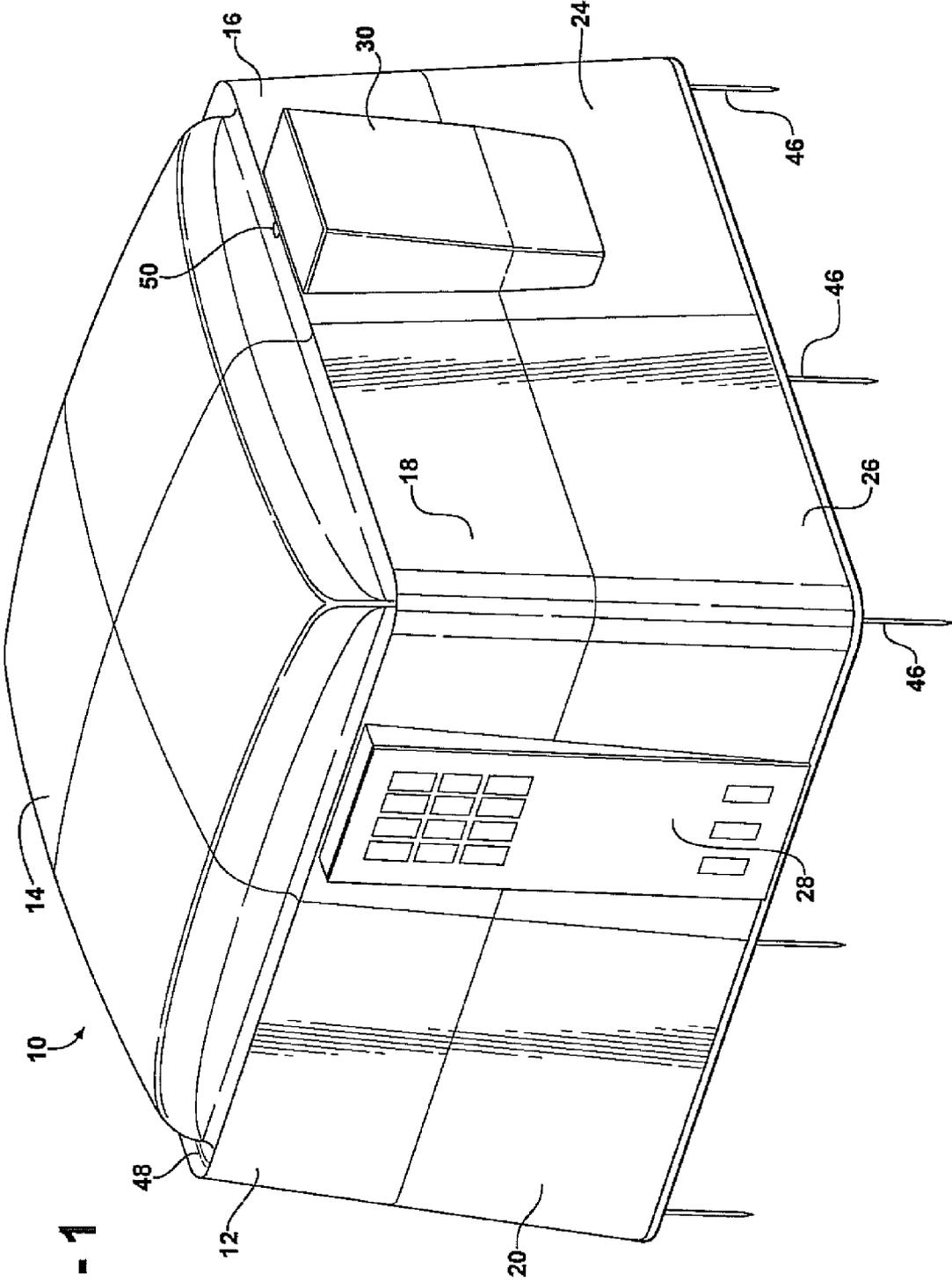


FIG - 1

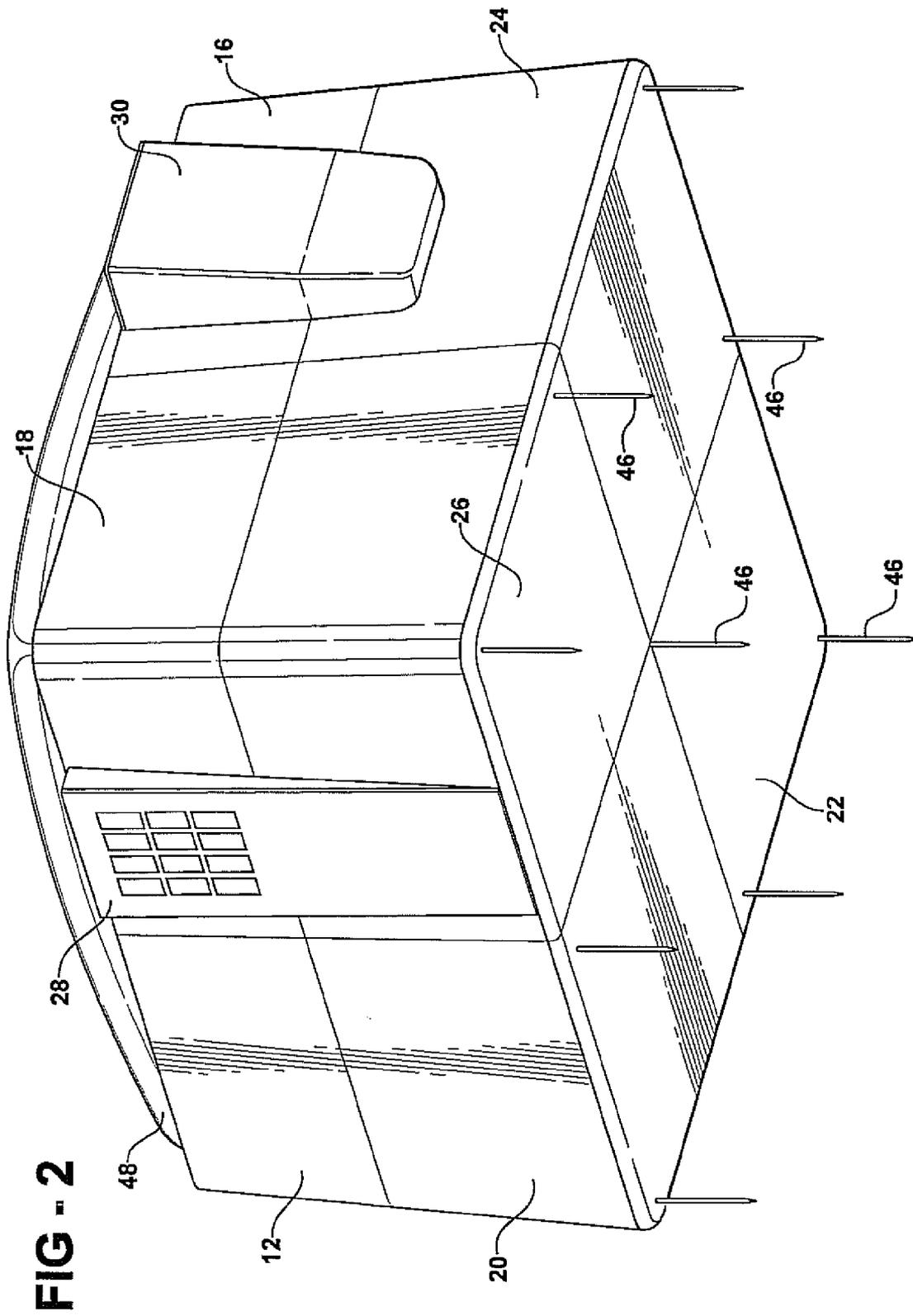
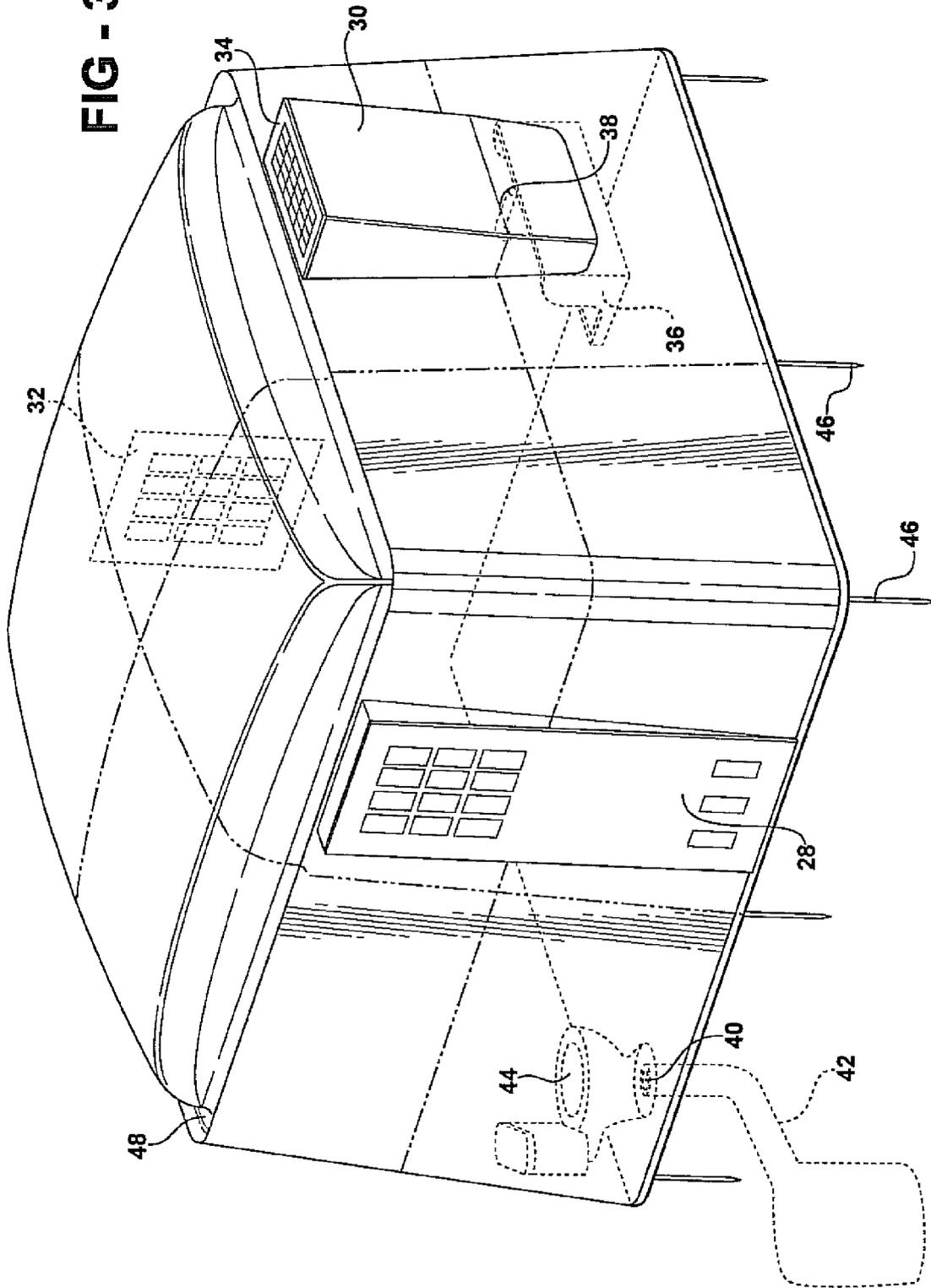


FIG - 3



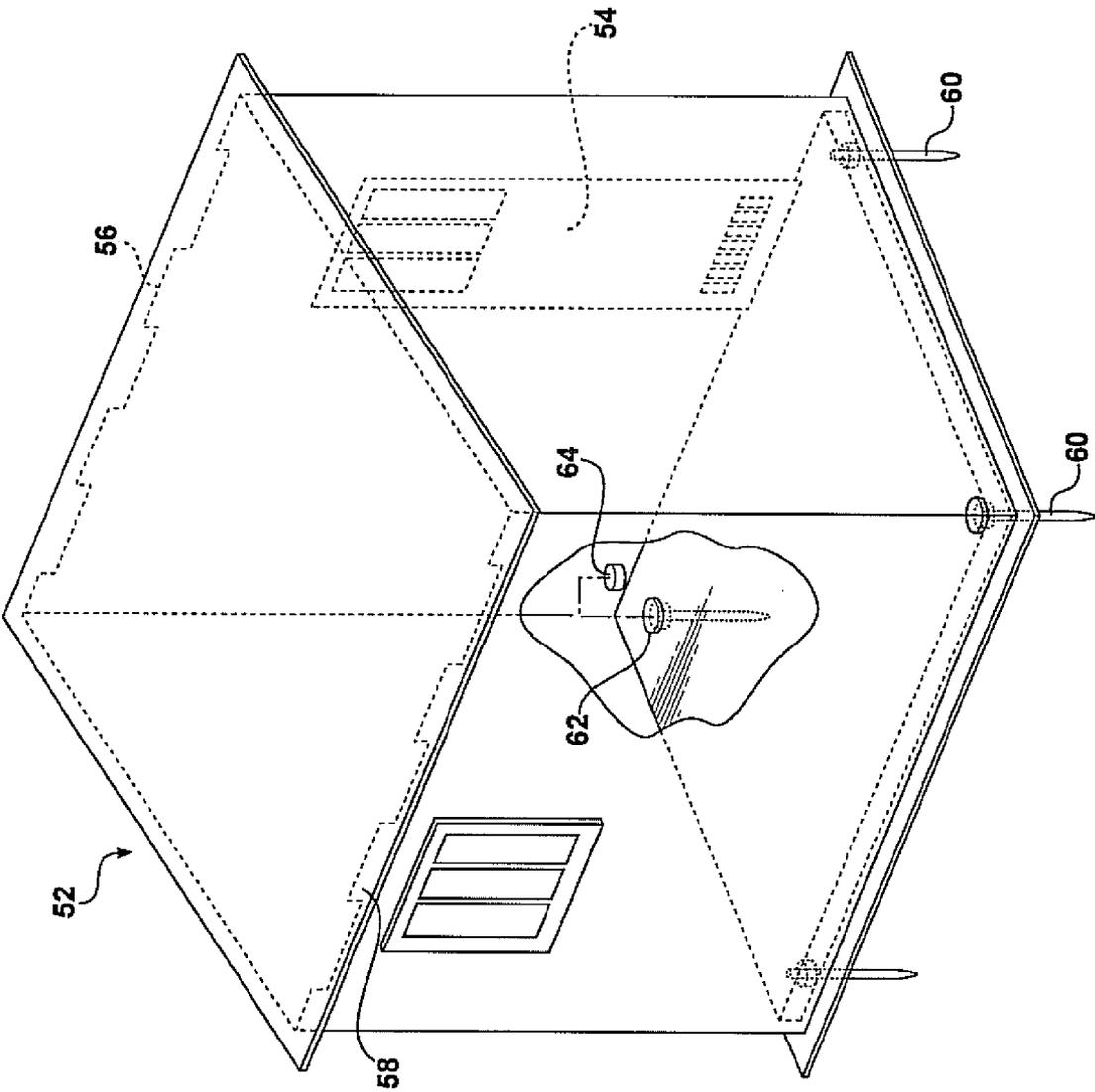


FIG - 4

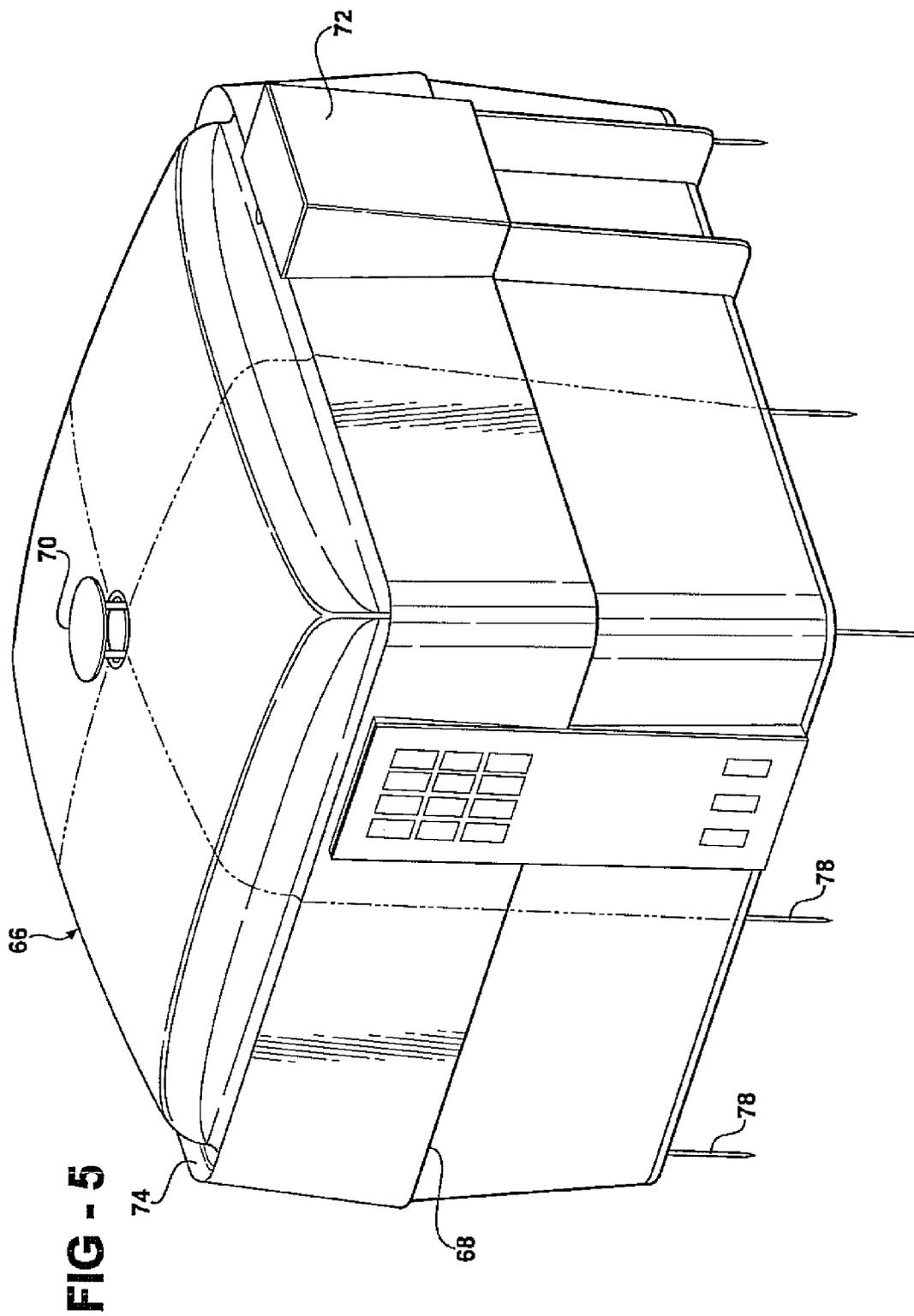


FIG - 6

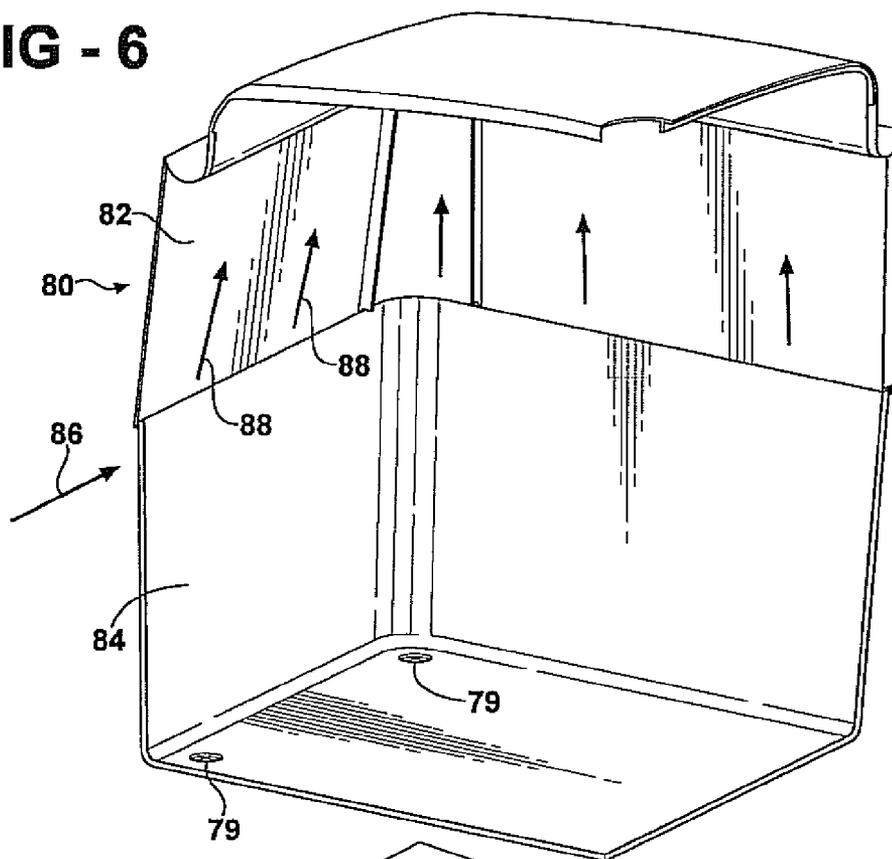
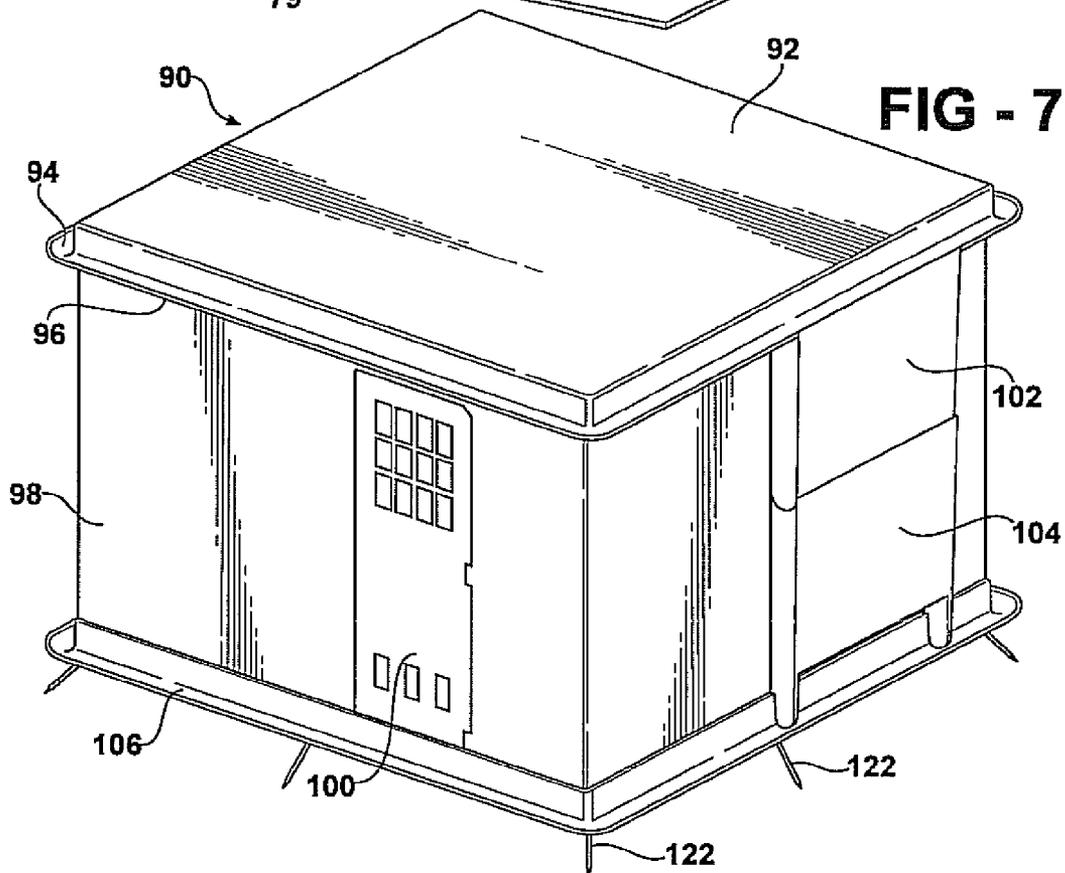


FIG - 7



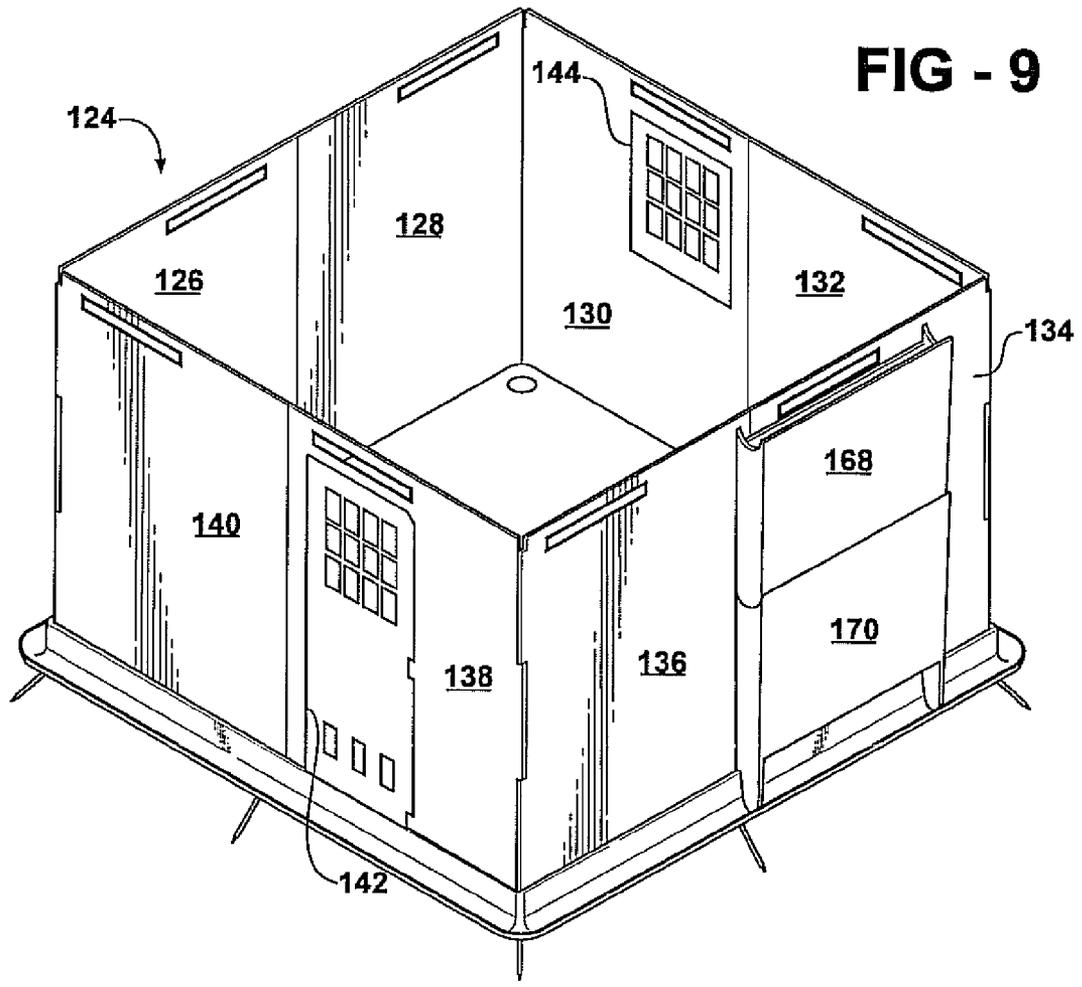
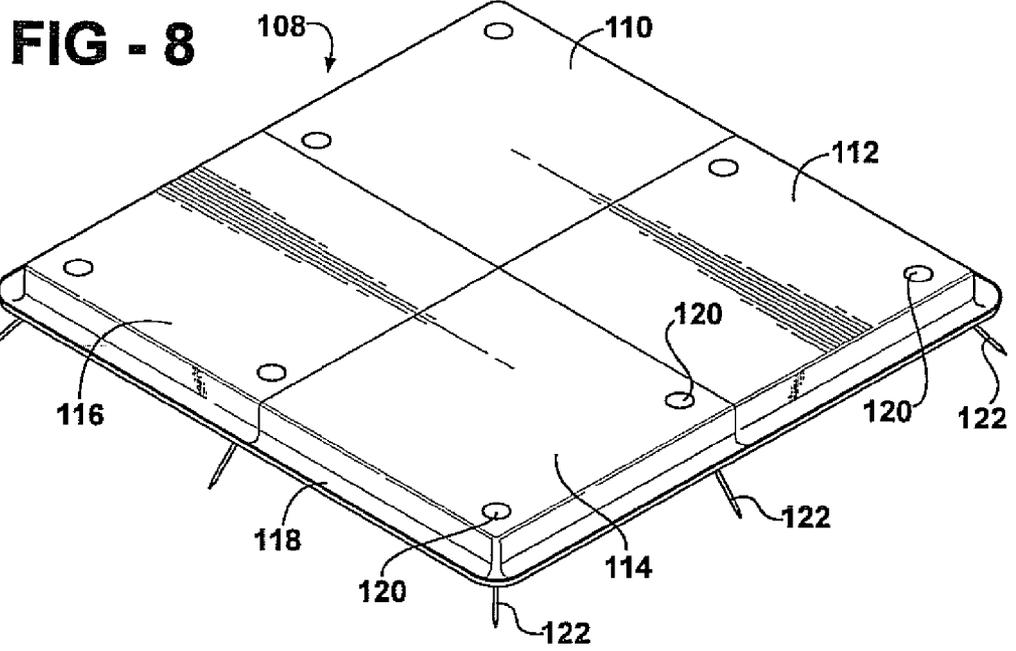


FIG - 10

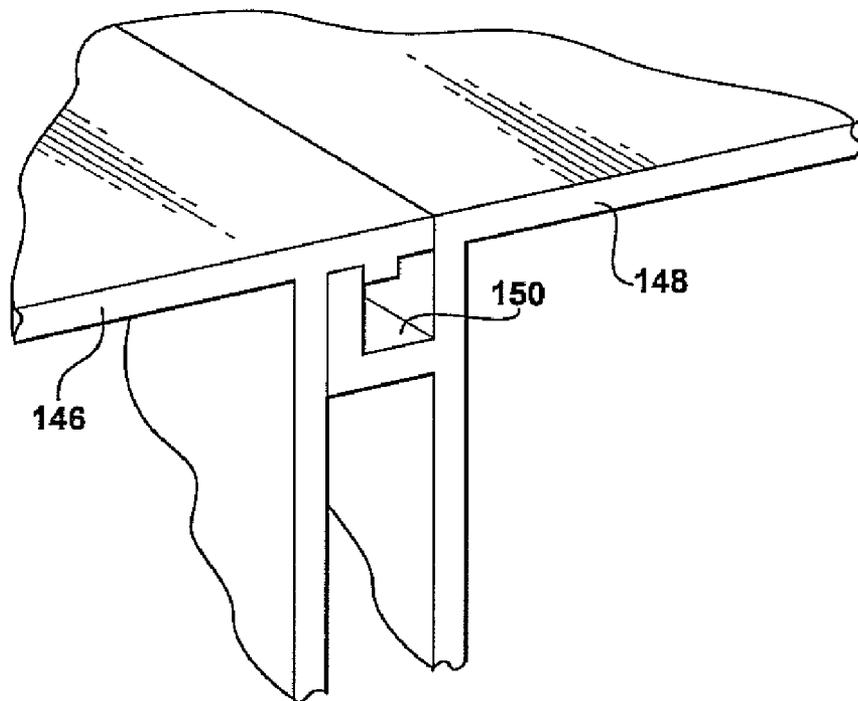


FIG - 11

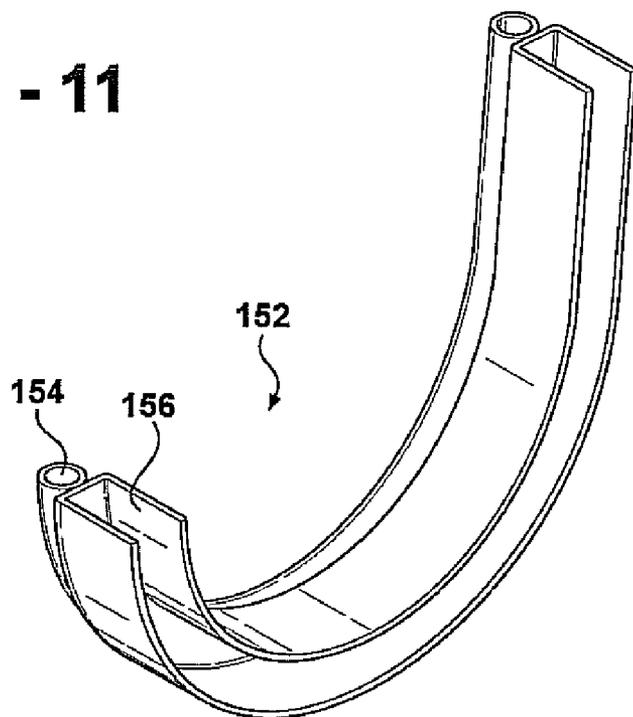


FIG - 12

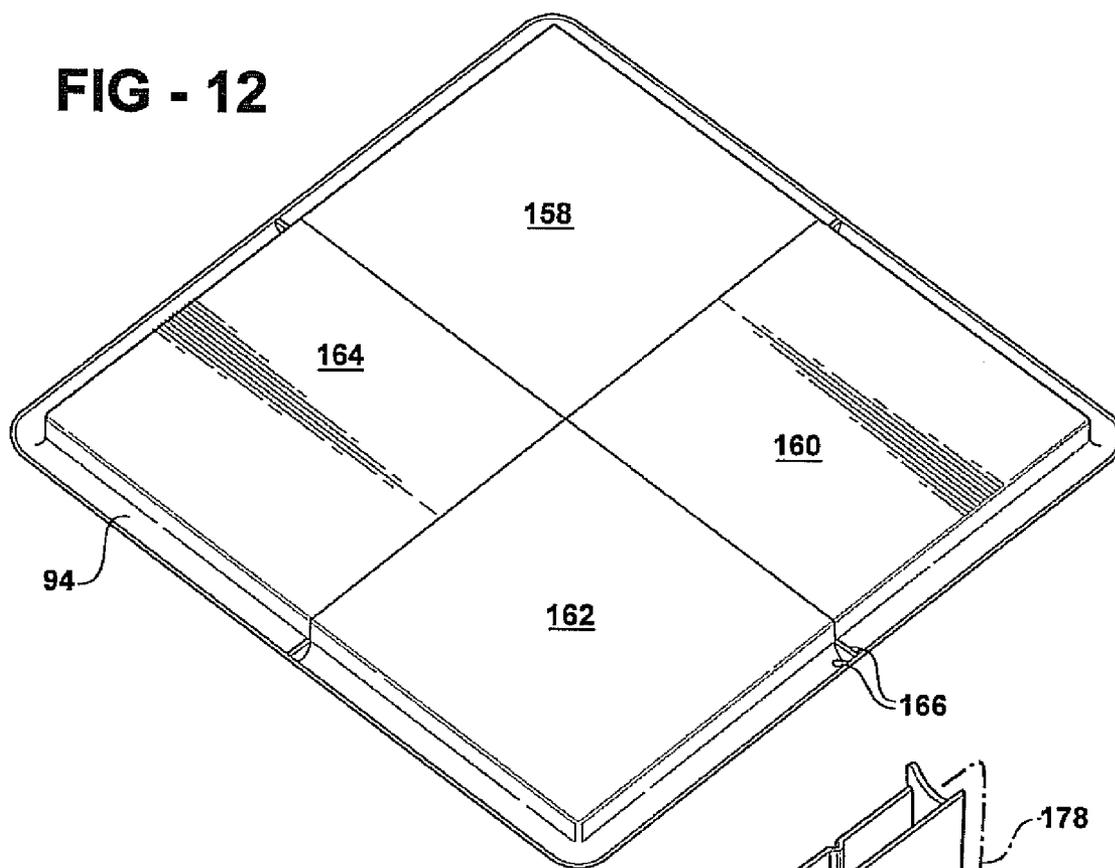


FIG - 13

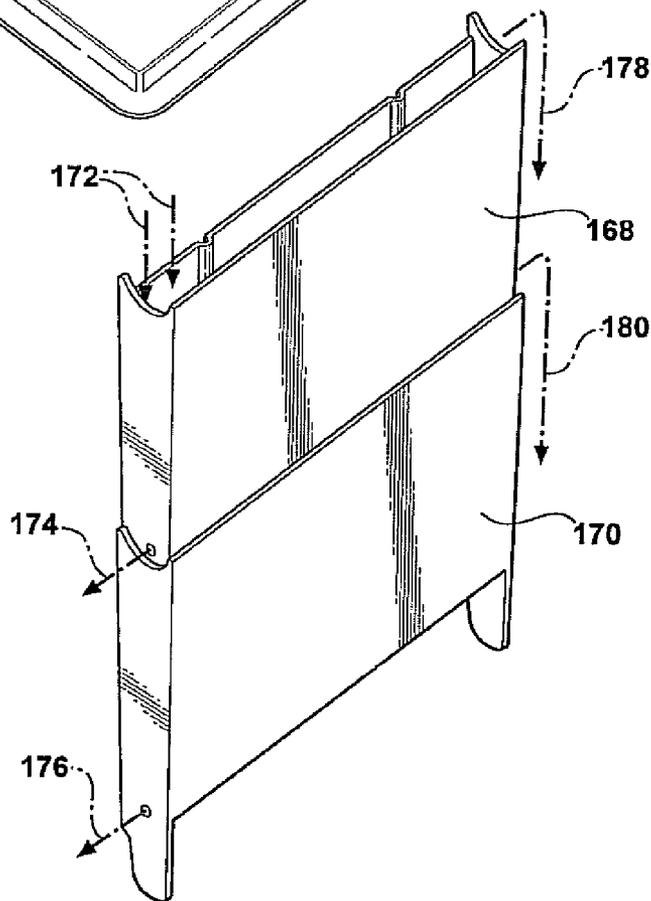


FIG - 14

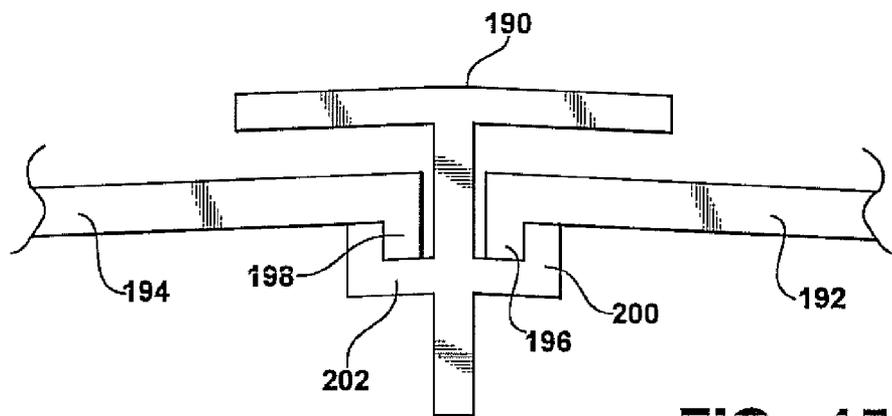
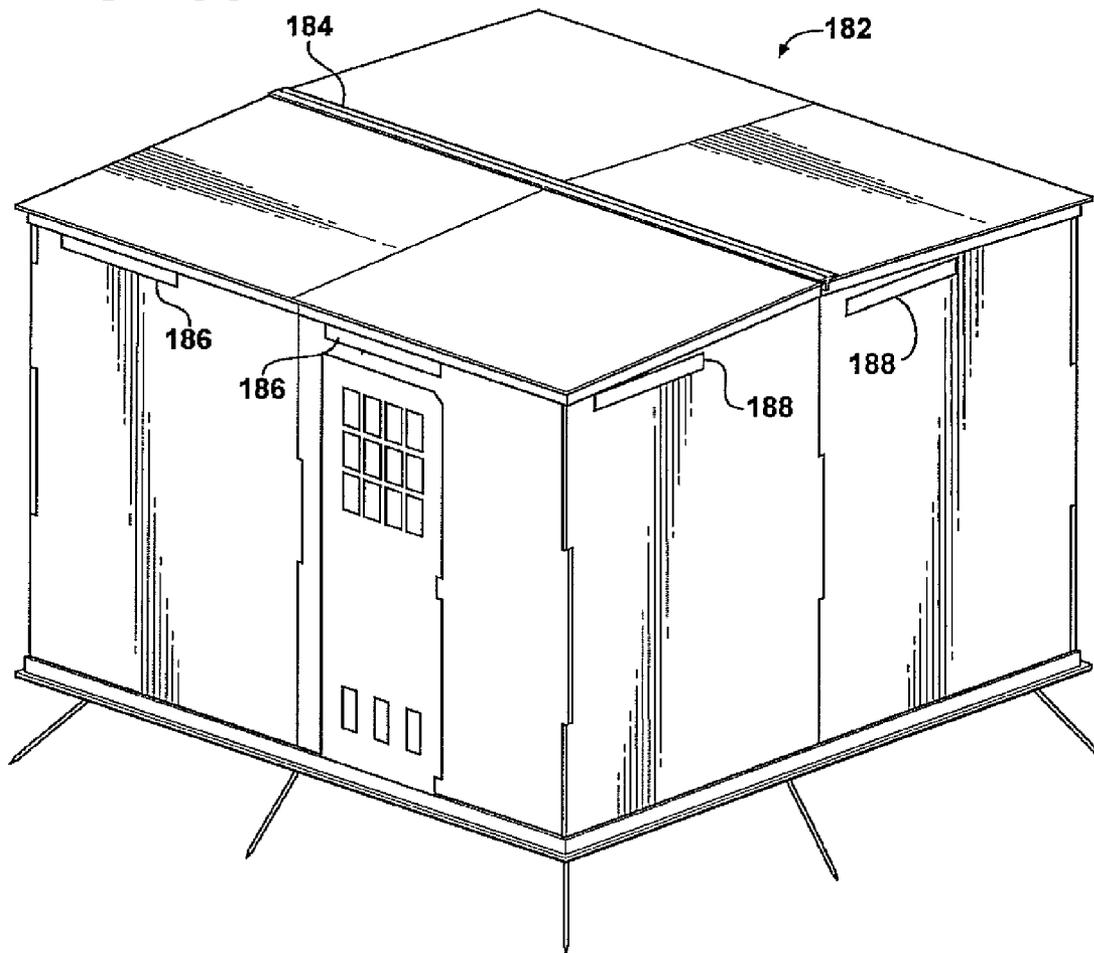


FIG - 15

FIG - 16

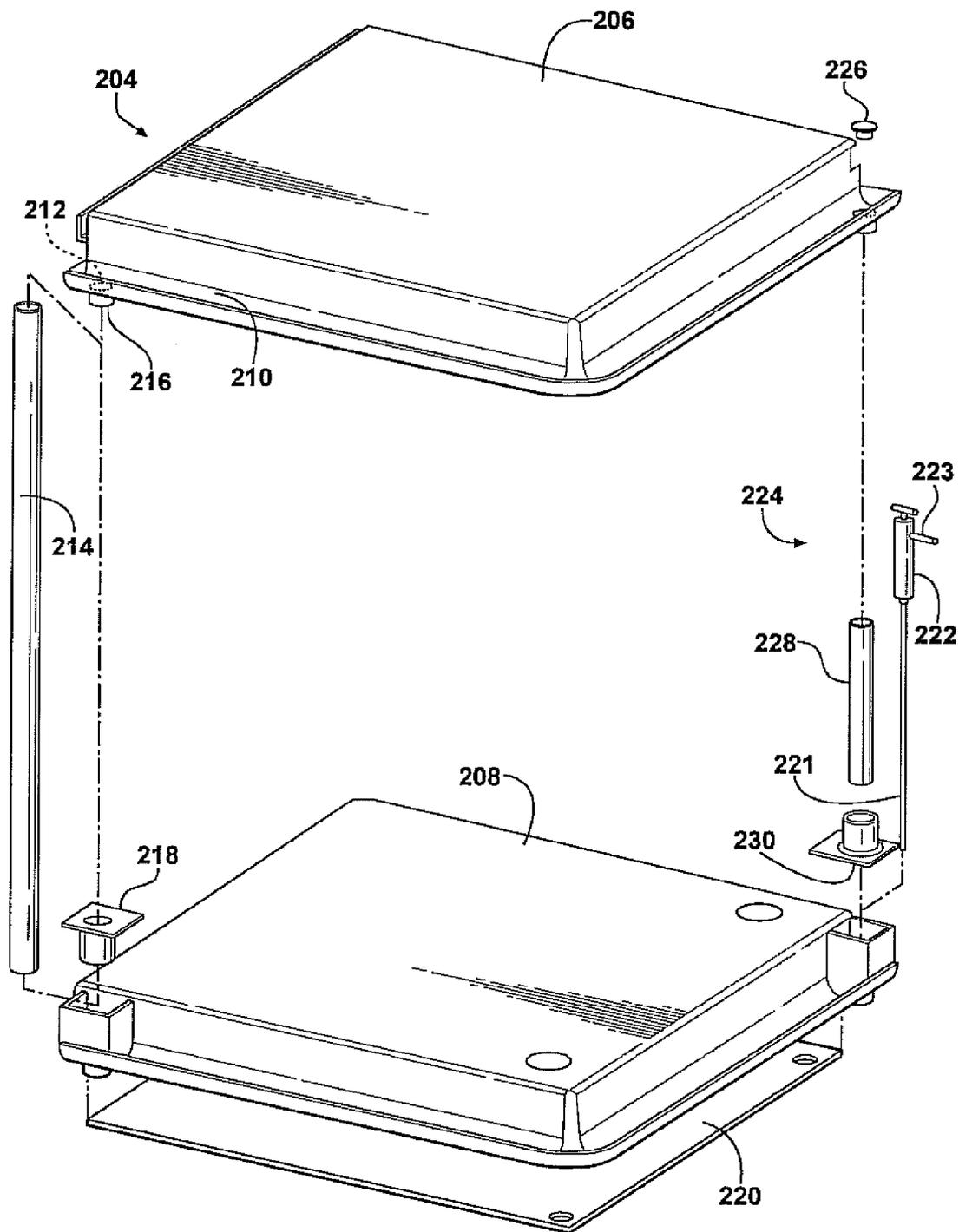


FIG - 17

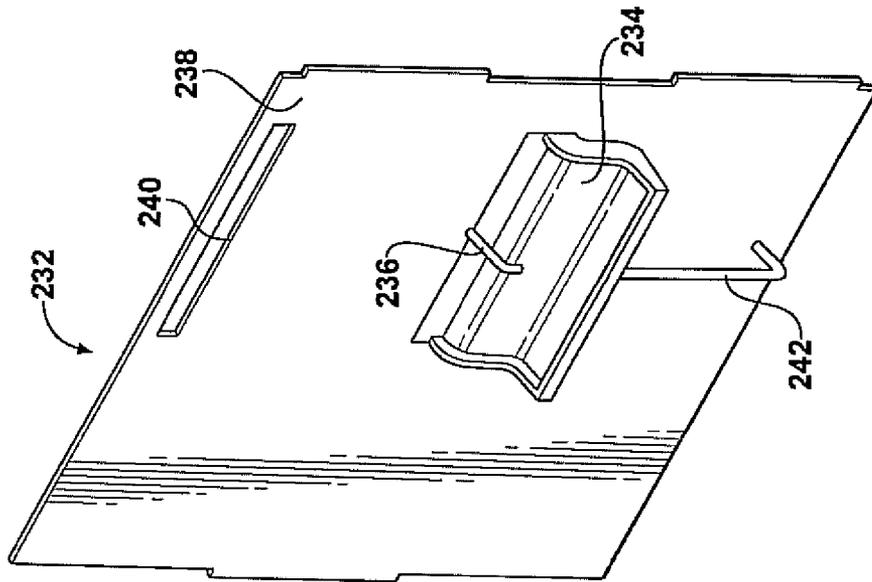
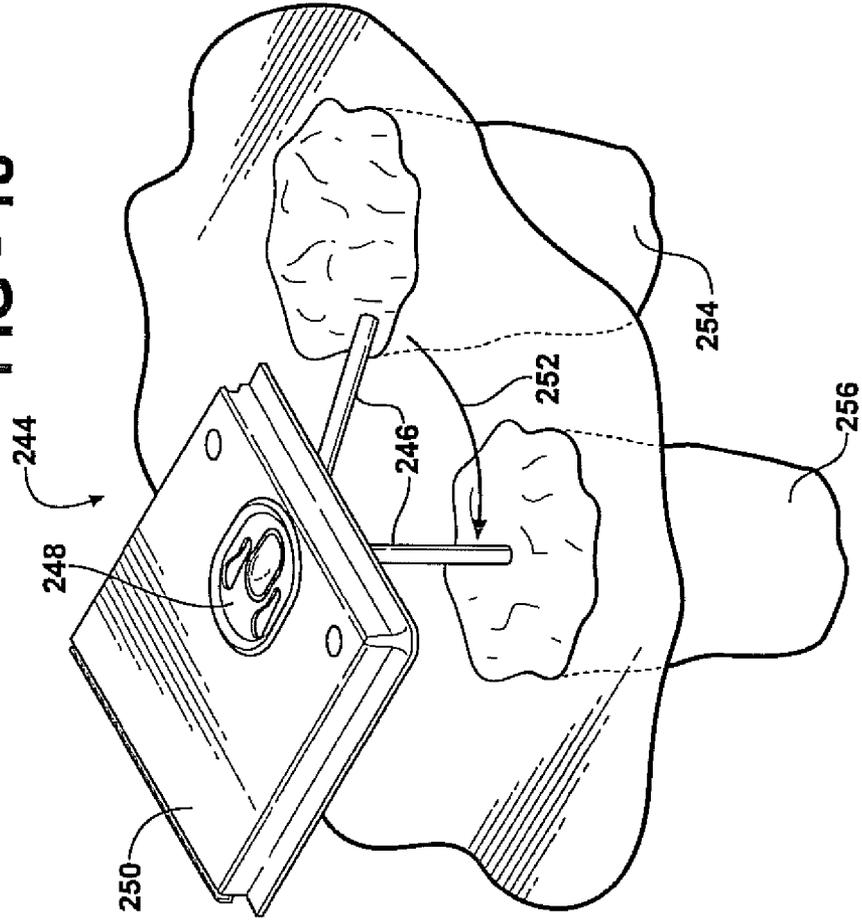


FIG - 18



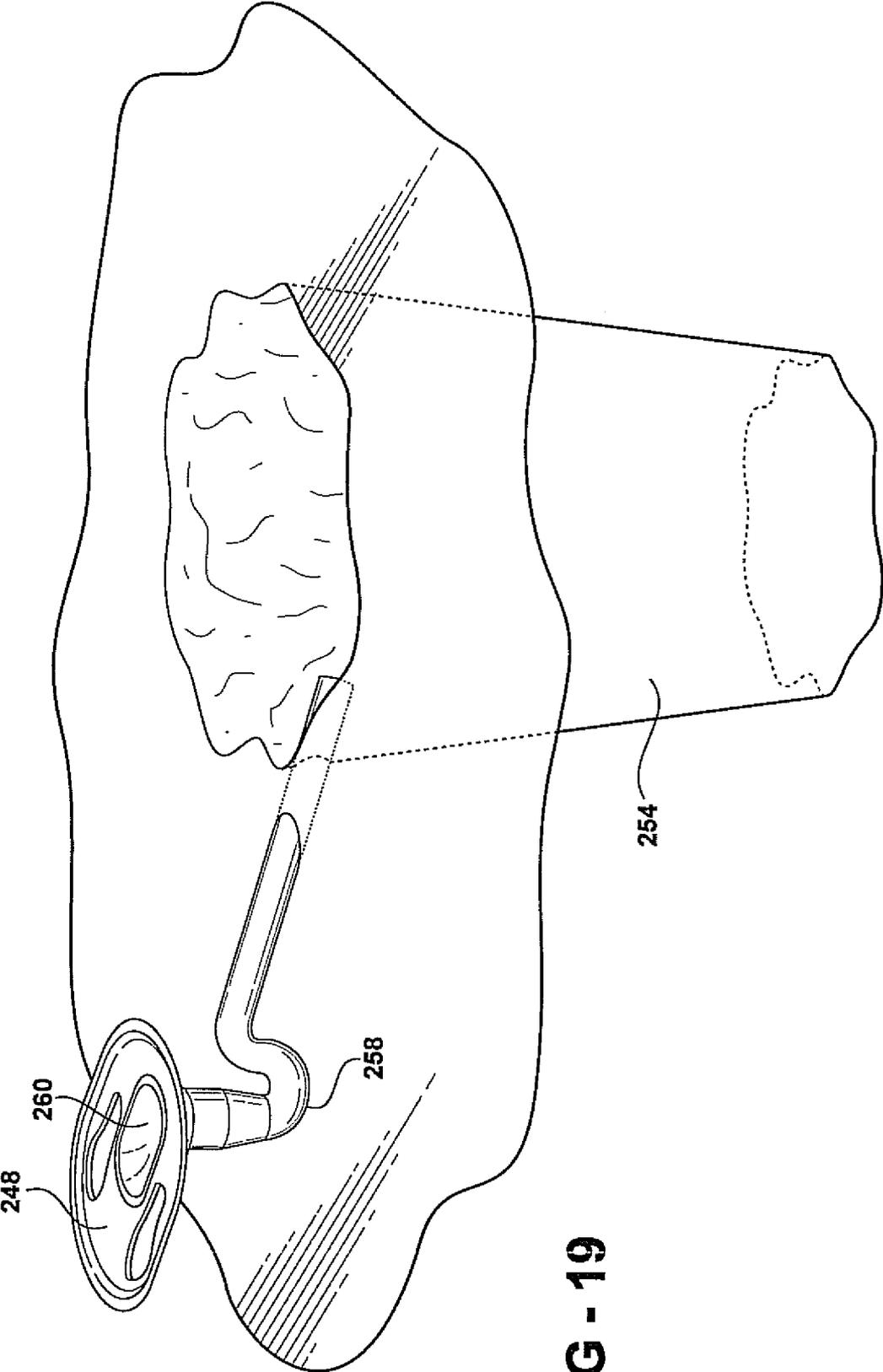
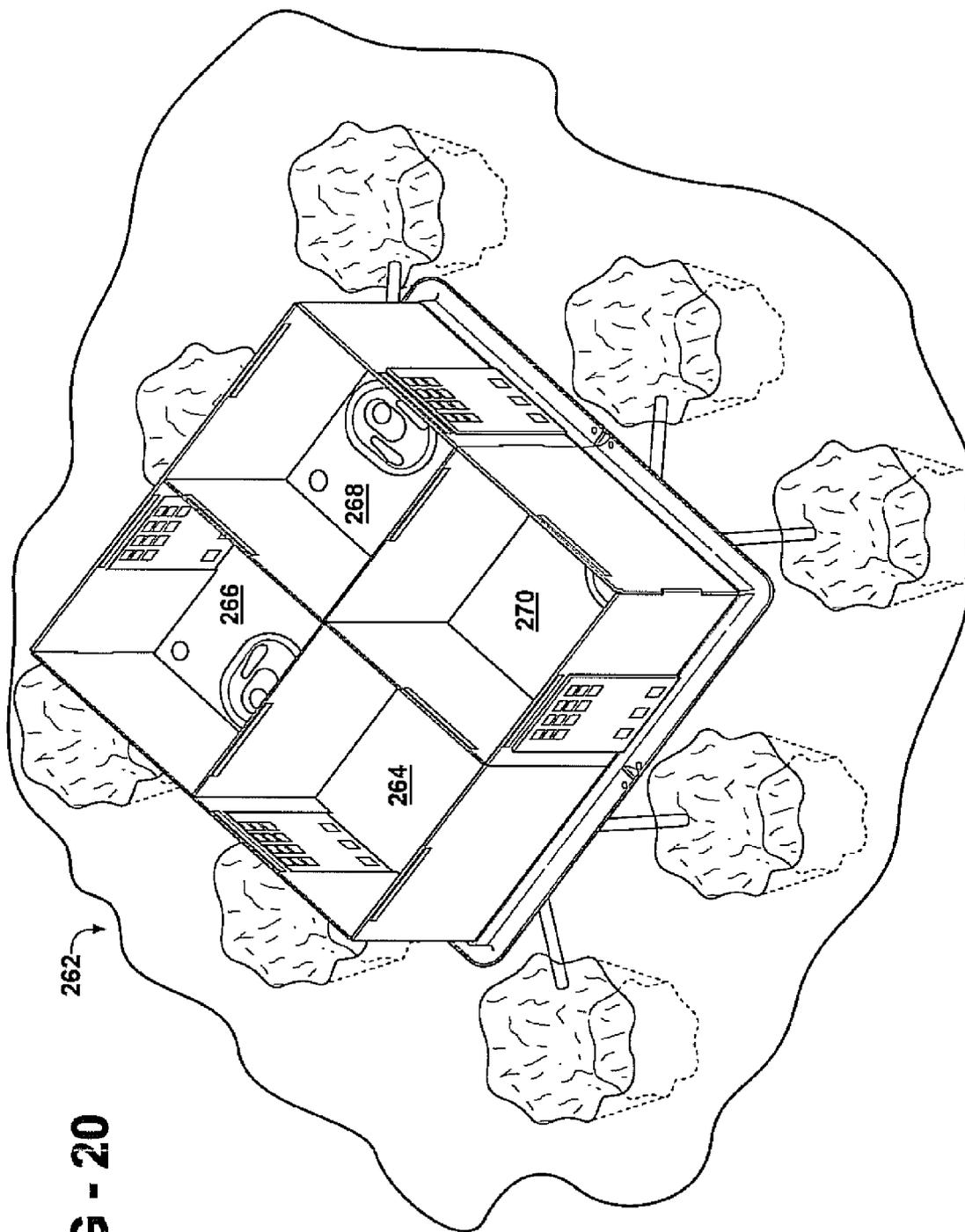


FIG - 19



262 →

FIG - 20

FIG - 21

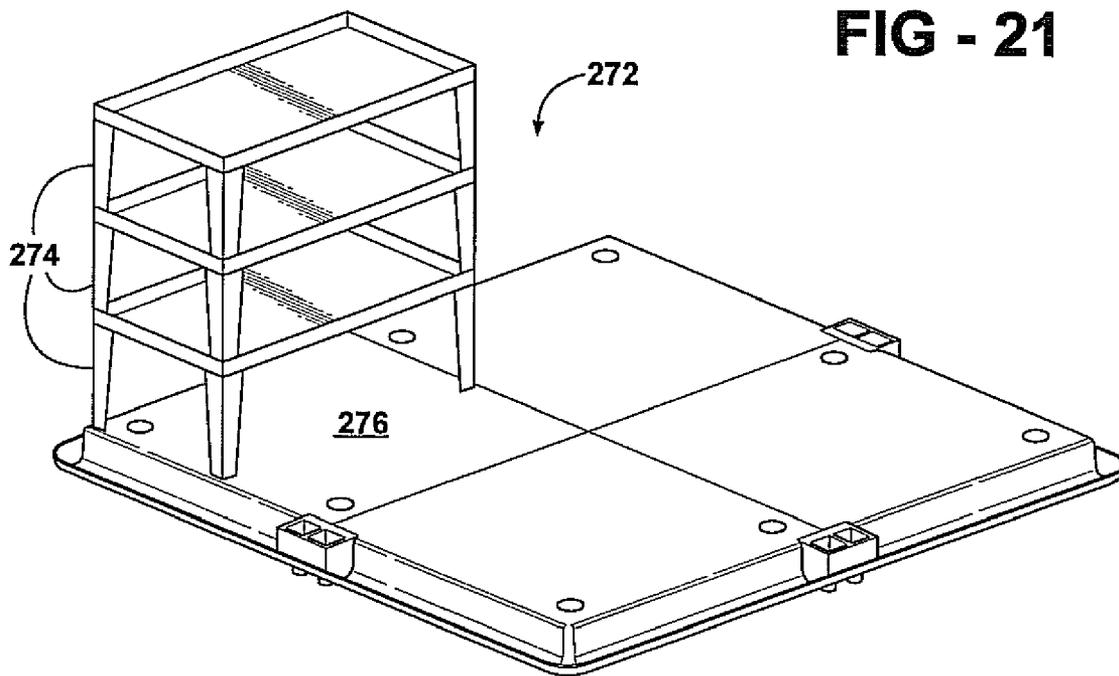
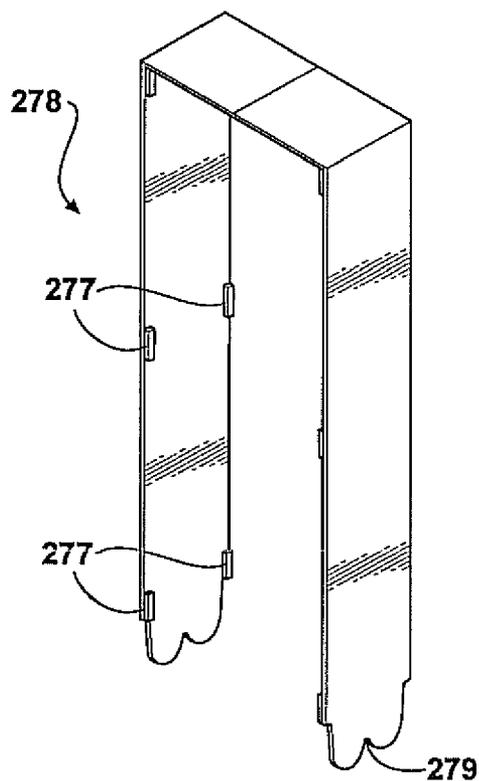


FIG - 22



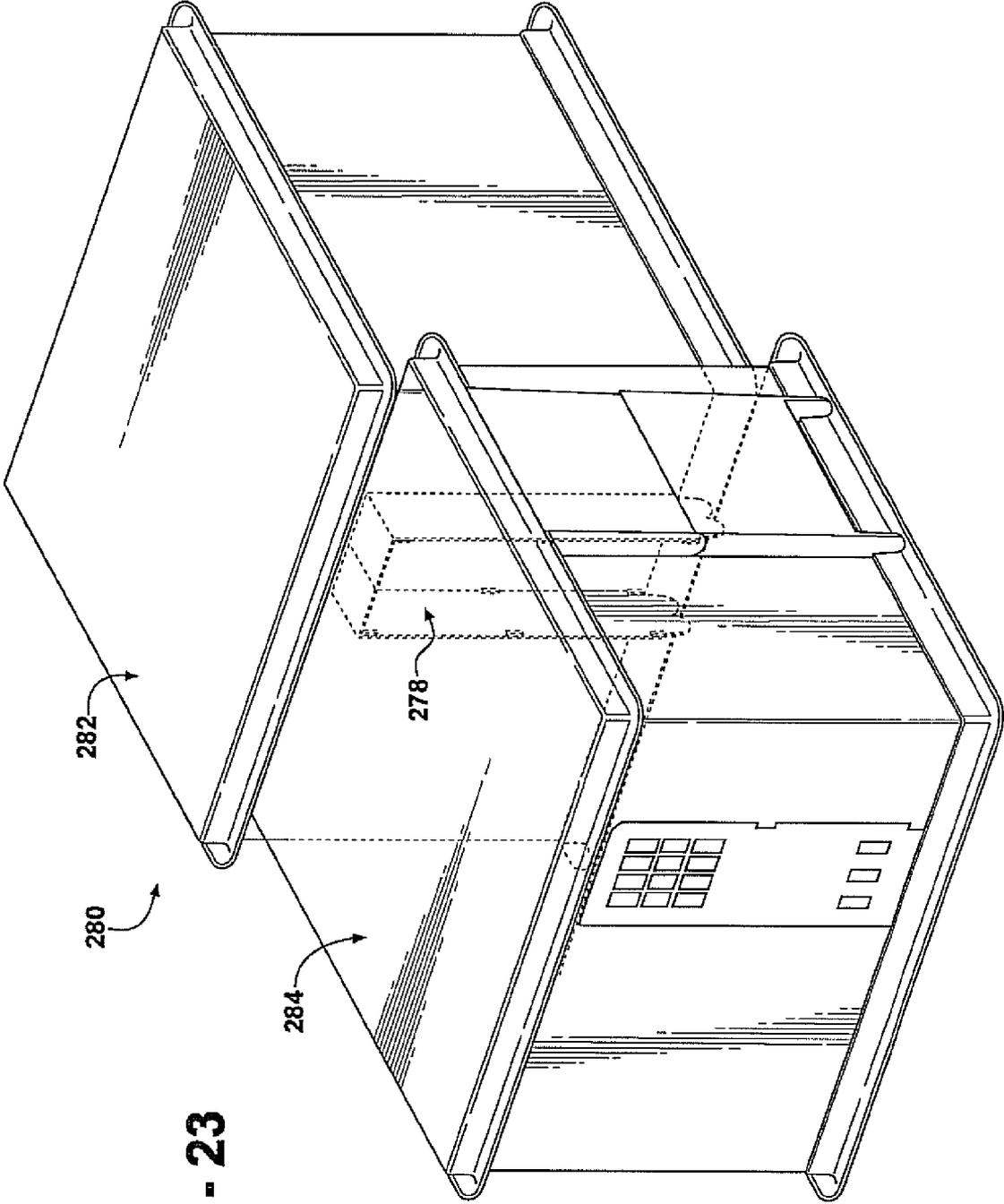


FIG - 23

FIG - 24

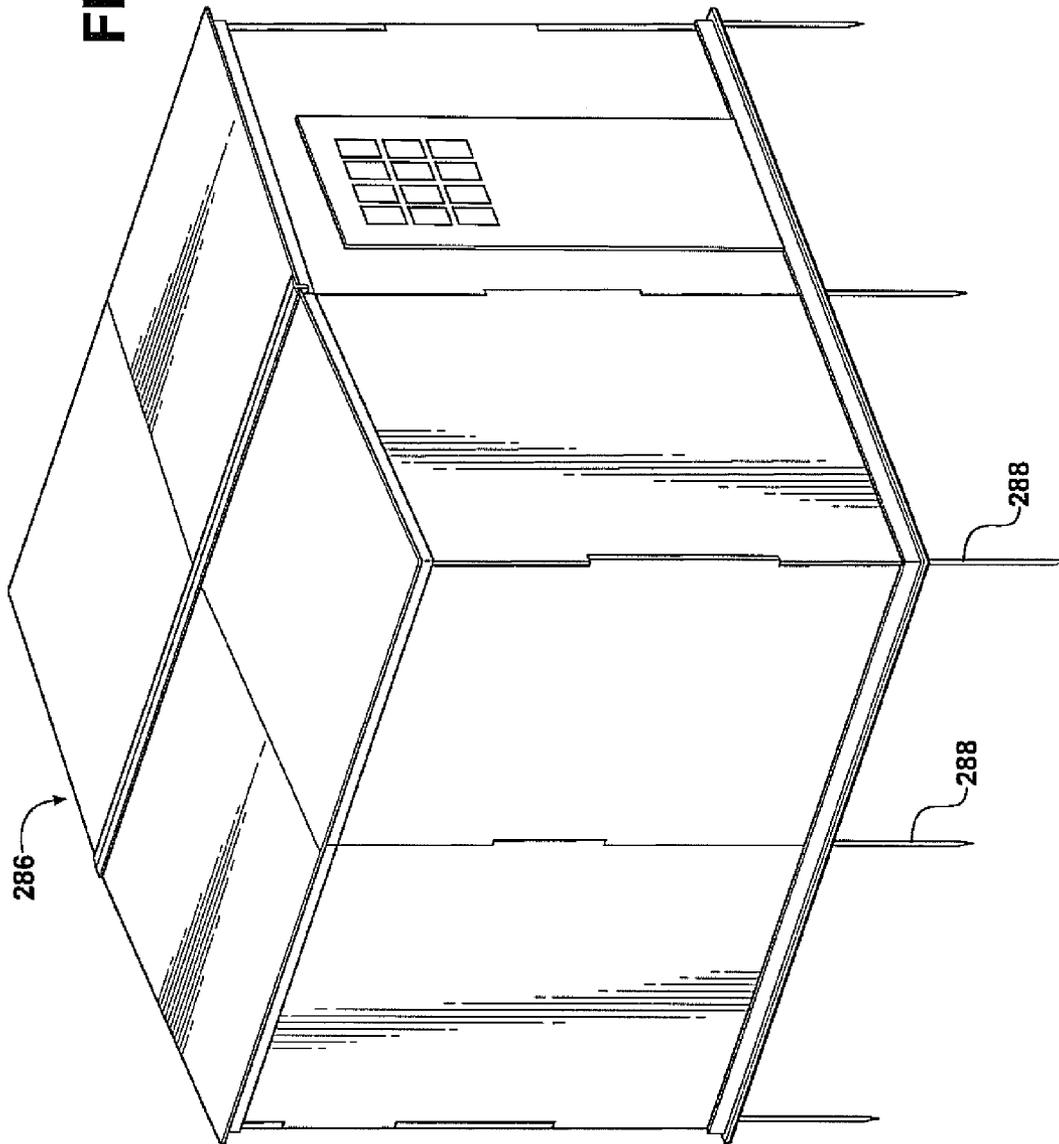


FIG - 25B

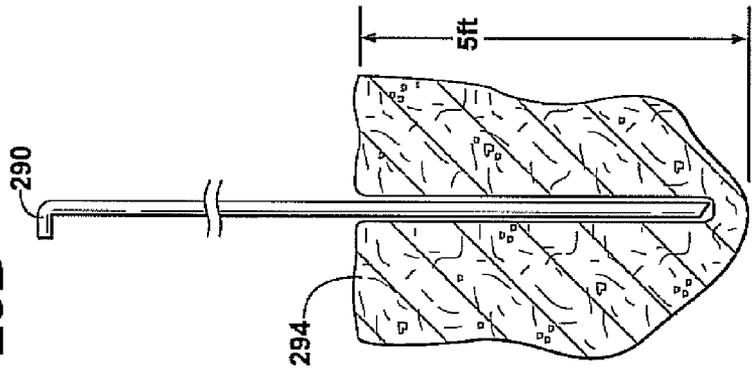
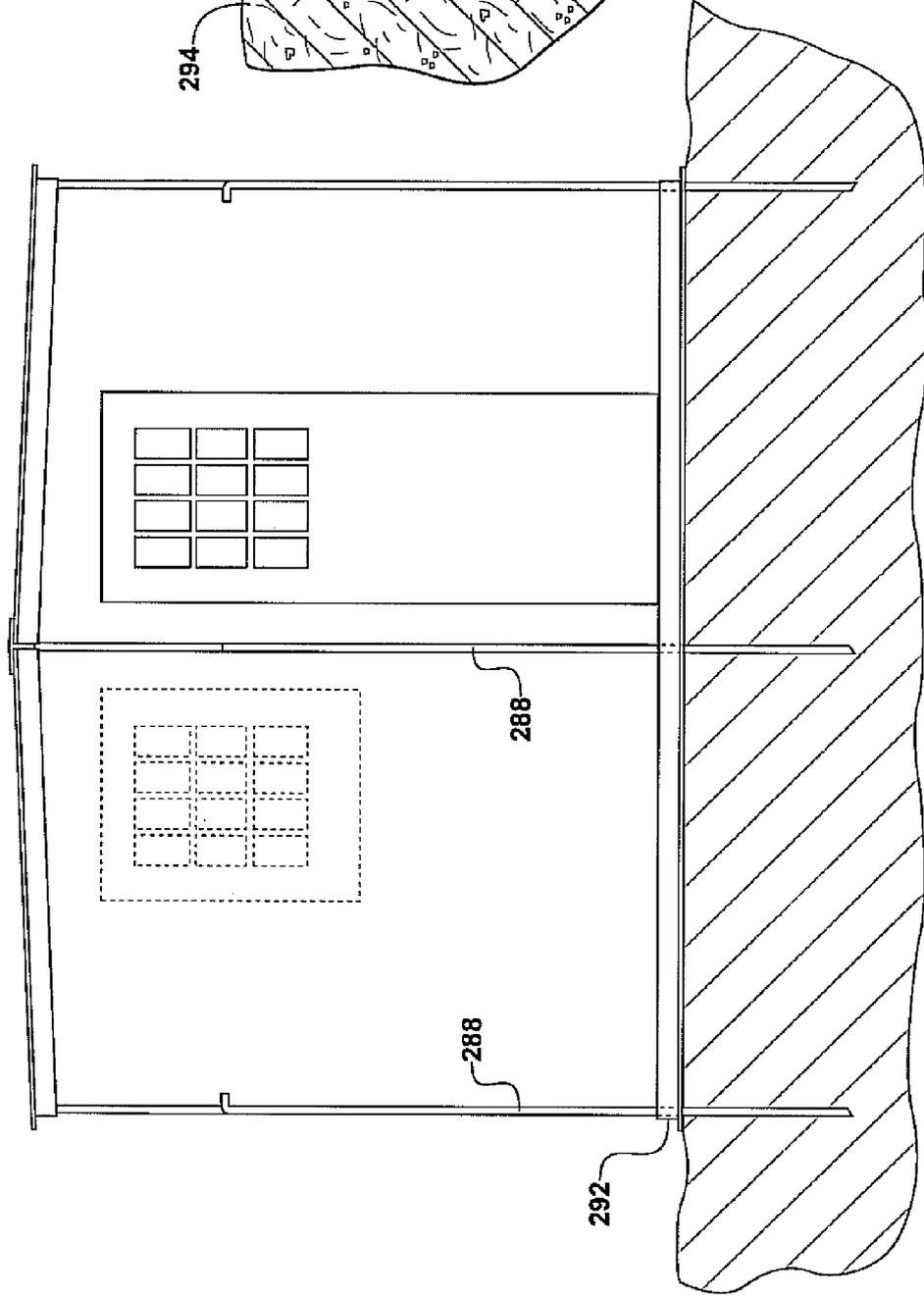


FIG - 25A



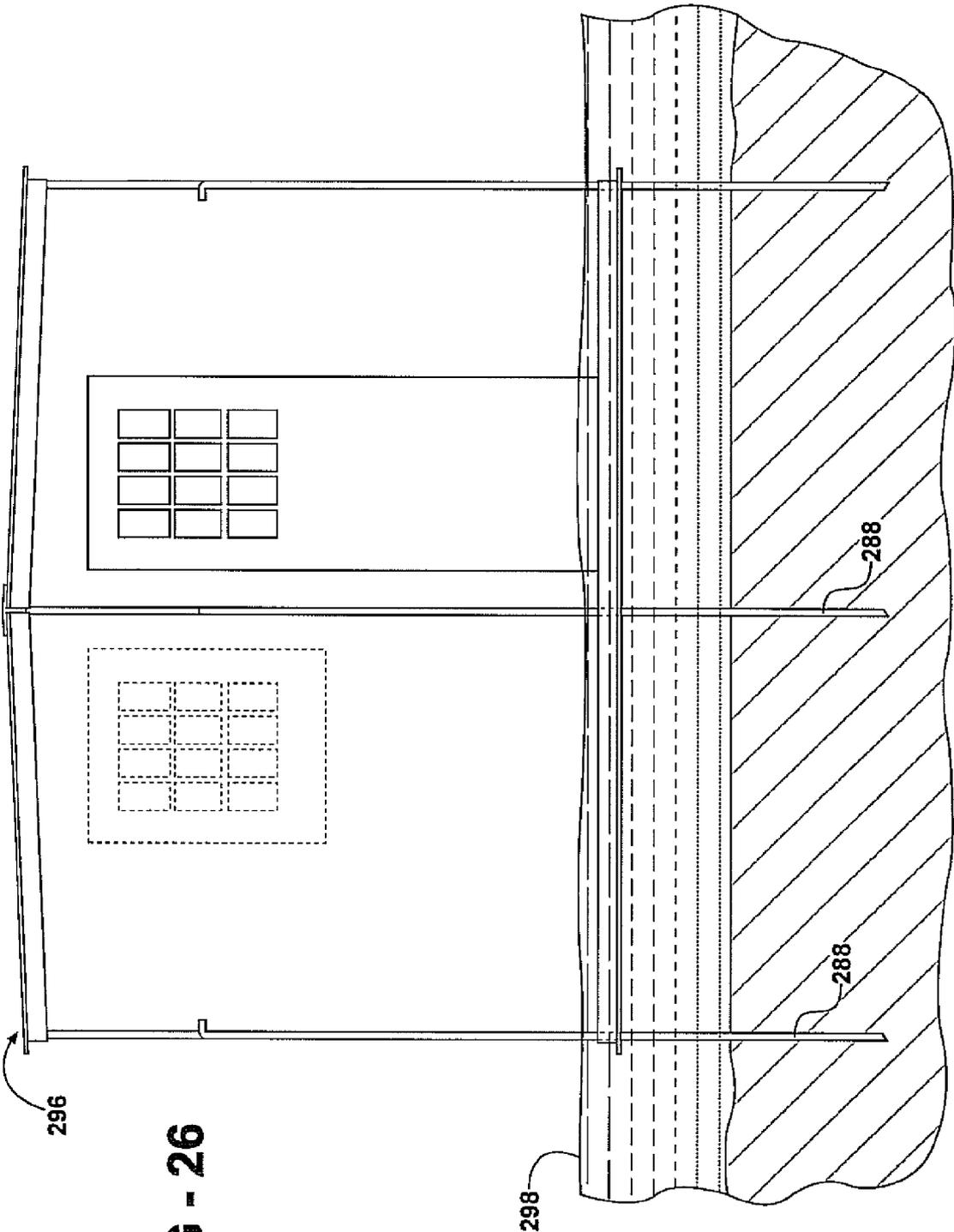


FIG - 26

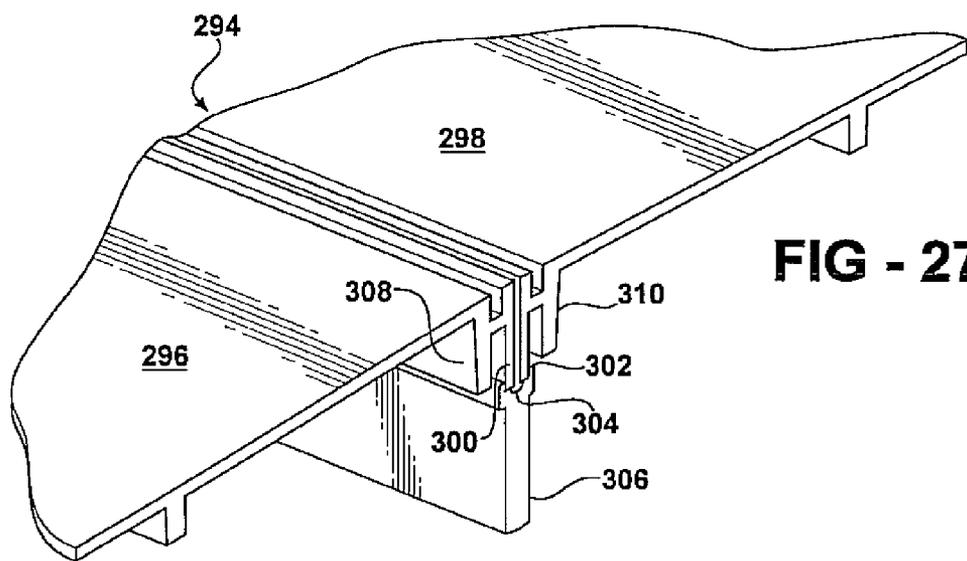


FIG - 28

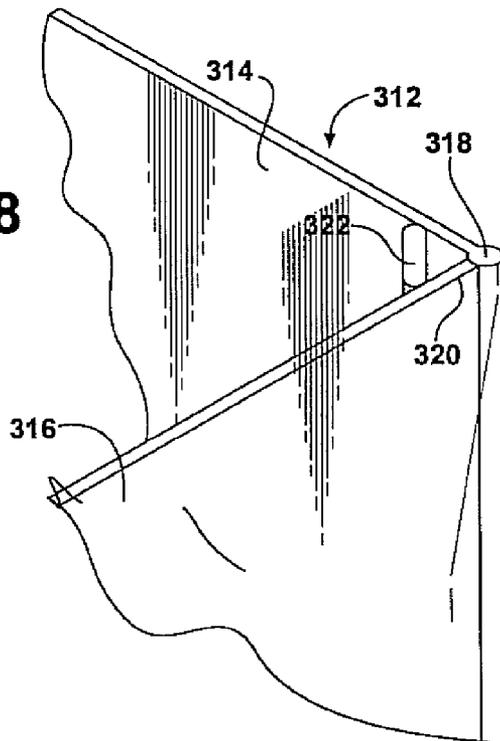
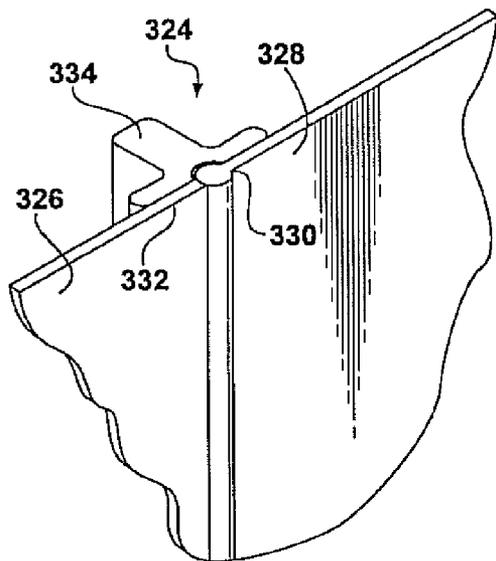


FIG - 29



ASSEMBLEABLE AND MODULAR HOUSING UNIT EXHIBITING POWDER IMPRESSION MOLDED CONSTRUCTION

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the priority of U.S. Provisional Patent Application Ser. No. 60/719,688, filed Sep. 22, 2005, and entitled "Assembleable and Modular Housing Unit Exhibiting Powder Impression Molded Construction."

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates generally to modularized and assembleable housing constructions. More specifically, the present invention teaches a multiple (eight) piece assembly of individual and assembleable members for creating a modular structure, such as for use as housing in third world environments.

[0004] 2. Description of the Prior Art

[0005] The prior art is documented with varying types of modularized or component based housing structures. The objective of such assemblies is to quickly and effectively construct a three-dimensional enclosure, and in contrast to the requirements of having to assemble a permanent structure in conventional fashion.

[0006] A first example selected from the prior art is set forth in U.S. Pat. No. 3,778,528, to Heifetz et al., and which teaches a prefabricated building module of substantially all plastic construction and which can comprise an entire housing unit of one or more rooms. The module includes walls, floor and ceiling and may include interior partitions to section the unit into a plurality of rooms and to house plumbing, as well as windows, doorways and doors. The walls, floor and ceiling are formed from inner and outer shells of molded reinforced plastic material. An insulating core of polyurethane foam material is sandwiched between the shells. All of the electrical, heating, ventilation, air-conditioning and/or gas conduits, junction boxes, terminals and the like can be provided in the insulated core in place and ready for connection and use at the building site.

[0007] U.S. Pat. No. 6,981,347, issued to Walburger, teaches a modular emergency shelter system including a sleeping and storage module having a rectangular box-like structure with curved interior side walls defining a sleeping area, and exterior sidewalls extending to an opposing end defining a separate storage area. The box-like structure is preferably fabricated of molded plastic filled with fire resistant and sound dampening foam, and is watertight to keep out the rain and facilitate hosing out after use. The module further includes electronic locking doors operable from inside or outside the module. The module is configured for securing together a number of similar structures including additional shelter modules stacked one atop another, or vertically-oriented modular utility units such as toilets, showers and dressing rooms.

[0008] U.S. Pat. No. 5,487,240, issued to Miller, teaches a compact sleeping unit which can be mated with similarly configured sleeping units to form a grouping for use in a

wide range of situations and settings. Each unit includes a horizontal platform and mattress for the compact sleeping of an occupant and a vertically oriented area for dressing and changing which is accessible to each sleeping area through a passage. The compact sleeping unit of the present invention provides a safe, clean, secure, private, inexpensive, portable and easily erected structure to service humans in a wide range of applications.

[0009] Finally, U.S. Pat. No. 3,724,142, issued to Worthington, teaches a modular building structure including a plurality of prefabricated modular units arranged to branch outwardly from a common central area and connected together to form a central room. Each modular unit has an open inner end and terminates in an outer end wall. A horizontally disposed floor member partitions each modular unit into an upper room and a lower space. The modular units are conveniently arranged side by side or one on another to provide building structures of a desired size.

SUMMARY OF THE PRESENT INVENTION

[0010] The present invention therefore discloses a novel and nonobvious assembly for creating a modularizable and quickly constructed living shelter, such as in use in third world locations. In one non-limiting embodiment, the present invention discloses a multiple (eight) piece assembly of individual and assembleable members for creating a modular structure. The modularized housing assembly provides a habitable environment satisfying the basic needs of an insulating and sheltered environment, and additional to being configured to collect and retain rainwater, as well provide access for waste discharge.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Reference will now be made to the attached drawings, when read in combination with the following detailed description, wherein like reference numerals refer to like parts throughout the several views, and in which:

[0012] FIG. 1 is a perspective view of an assembled modular housing unit according to the present invention;

[0013] FIG. 2 is an underside perspective of the modular housing unit illustrated in FIG. 1;

[0014] FIG. 3 is a perspective line drawing of the modular housing unit illustrated in FIG. 1 illustrating interior features associated with the present design;

[0015] FIG. 4 is a line art drawing of a modular housing unit according to a further preferred variant and which includes a plurality of door and roof vents for providing interior ventilation;

[0016] FIG. 5 is a perspective illustration of an assembled modular housing unit according to a further preferred embodiment of the present invention and incorporating a sixteen piece modular construction with additional features such as updraft vents formed in the wall joint construction, as well as an open/closable exhaust roof vent;

[0017] FIG. 6 is a cutaway interior illustration of a quadrant corner of the housing unit of FIG. 5 and illustration the airflow path generated by the gap venting between the upper and lower parts;

[0018] FIG. 7 is an illustration of a further variant of a modular housing unit and incorporating additional features

such as primary and overflow water tanks, insect and small creature inhibitors, and fluid retaining base;

[0019] FIG. 8 is a sectional illustration of the interconnecting floor panel base according to the present invention;

[0020] FIG. 9 is a succeeding illustration to that of FIG. 7 and showing the window, door and upper/lower water retaining tanks mounted in place;

[0021] FIG. 10 is an illustration of attachable roof sections;

[0022] FIG. 11 is a line art illustration of a gutter seal for door and window sides;

[0023] FIG. 12 is a further illustration of a plurality of interconnected roof sections with interior drainage capability;

[0024] FIG. 13 is a further illustration of the water tank system and illustrating both upper and lower overflow capabilities;

[0025] FIG. 14 is a perspective illustration of an assembled modular housing unit according to a still further preferred embodiment of the present invention;

[0026] FIG. 15 is a sectional illustration of a ridge beam component securing together a seam edge established between adjacent roof panels;

[0027] FIG. 16 is an exploded perspective illustrating the water collection and retention capabilities established between the ceiling and floor components of the present invention;

[0028] FIG. 17 is a sectional inside perspective illustrating an interior positioned sink in fluidic communication with the exterior positioned water tank;

[0029] FIG. 18 is a sectional perspective of a third world style toilet, incorporated into a modular housing unit according to the present invention, and including pivoting sewage pipe for selectively accessing exterior excavated waste collection sites;

[0030] FIG. 19 is a partial illustration of the toilet in FIG. 31 and illustrating the collection trap and flush pail features;

[0031] FIG. 20 is an illustration of an optional variant of the modular housing unit (with roof removed) and incorporating a plurality of individual lavatories;

[0032] FIG. 21 is a sectional perspective of a plurality of stackable beds incorporated into a variant of the modular housing unit;

[0033] FIG. 22 is a sectional illustration of an optional wall joiner, in substitution for removable doors, for interconnecting a plurality of housing units;

[0034] FIG. 23 is an illustration of a double housing unit created with the interconnecting wall joiner of FIG. 22;

[0035] FIG. 24 is an illustration similar to that previously shown in FIG. 14 and illustrating an alternate arrangement whereby the waterproof and buoyant housing unit is elevatable in response to flooding conditions;

[0036] FIG. 25A is a plan view illustration of the housing unit of FIG. 24 in a ground supported condition;

[0037] FIG. 25B is a partial environmental illustration of a selected ground embedded stake which permits elevation of the modular housing unit secured thereupon;

[0038] FIG. 26 is a succeeding illustration of the housing unit in a flooded, elevated and supported fashion;

[0039] FIG. 27 is a sectional illustration of one possible interconnection scheme, such as which is established between first and second roof components;

[0040] FIG. 28 is a further sectional illustration of a corner interconnection scheme; and;

[0041] FIG. 29 is a yet further sectional illustration of an intermediate wall interconnection scheme according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0042] Referring to FIGS. 1-3, an assembleable and modularized housing assembly is illustrated generally at 10 according to the present invention. As previously described, the present invention according to one non-limiting embodiment discloses a multiple (eight) piece assembly of individual and assembleable members for creating a modular structure, such as for use as housing in third world environments. The assembleable construction provides the basic need of an insulating and sheltered environment, additional to being configured to collect and retain rainwater, as well provide access for waste discharge.

[0043] According to a preferred embodiment, the present invention is constructed from a plurality of eight individual sections, although it is further understood that any plurality of sections can be interconnected in a manner to erect the construction according to illustration 10. In the embodiment illustrated, a total of eight inter-assembleable sections are provided and include a first upper four plurality of sections 12, 14, 16 and 18, layered upon a second lower four plurality of sections 20, 22 (hidden from view in FIG. 1 but shown in the rotated underside perspective of FIG. 2), 24 and 26.

[0044] Of note, it is understood that associated portions of the roof and floor are incorporated into each of the upper 12-18 and lower 20-26 pluralities of sections. It is further understood that the roof and floor can, alternatively, be incorporated into separate assembleable sections within the scope of the present invention.

[0045] Each of the assembleable sections is constructed of a three-dimensional, durable and insulating material, such as in one variant including an impression molded plasticized/polymer based construction. In one preferred embodiment, a powder impression molded (PIM) material is provided and which is constructed of a lightweight and durable material, this in a preferred embodiment exhibiting the necessary properties of strength, weight, resiliency and durability, and such as including certain types of plastics or polymers.

[0046] In a preferred variant, the powder impression molding (PIM) process includes a powdered thermoplastic resin, fused together with any of a range of reinforcing materials (typically provided in a particulate or granulate form), and the result of which is a strengthened plastic composite exhibiting properties comparable to those of steel. As described above, the PIM process can be employed to create a lightweight and durable three-dimensional com-

ponent which incorporates into its construction scrap plastic (and such as in particular which is reground and recast with a foam agent).

[0047] The molded component is typically coated with a waterproof and antimicrobial material, such as a higher grade plastic. It is also again understood that the individual and assembleable sections can also be constructed of other materials, outside of the PIM process generated materials described above.

[0048] Although not shown, it is understood that each of the individual sections is interconnected along opposing edges by such as clips, screw/bolt fasteners or the like. To assist in creating a solid and unitary structure, it is also envisioned that interengageable locations established between the individual sections may also include clamps, cam-actuated surfaces, or other types of tensioning/compressing structure. It is further understood that the housing construction is capable of being quickly delivered and assembled, in one variant without the use of tools, in order to provide immediate and effective shelter, such as for the benefit of individuals located in third world regions or areas devastated by disaster.

[0049] As illustrated throughout the several views, additional features associated with the construction 10 include the provision of a doorway, window, and rainwater collection unit. These are illustrated in additional detail at 28 (doorway), 30 (rain collection unit) and 32 (window in FIG. 3) throughout the several illustrations.

[0050] It is important to note that the items 28, 30 and 32 are, in the preferred variant, incorporated into the individual and assembleable pieces 12-18 and 20-26, it being also understood that these may consist of additional attachable components. The doorway 28 and window 32 components are additionally shown in the line art view of FIG. 3 and the rainwater collection unit 30 may include a 55 gallon collection unit exhibiting a top collection area 34, see FIG. 3, and such as further including a grate covering.

[0051] An interior and fluid accessible location of the rainwater collection unit 30 may also include a sink 36 and a faucet 38. An aperture 40 defined in a corner floor location of the assembled construction, see again in FIG. 6, may define an access point for a waste discharge line 42, and such that a toilet unit 44 or the like can be placed thereupon.

[0052] As further illustrated throughout the several views, the assembled floor further exhibits a plurality of spaced apart and downwardly projecting spikes 46, these permitting the assembled structure to be securably embedded within a round location. As previously described, a typical installation application of the present invention contemplates the initial four (lower) attachable components 20, 22, 24 and 26 being aligned relative to one another and driven downward into a substantially level ground location. Following this, they are assembled together, again through the use of fasteners, clips, tensioning clamps, and the like. At this point, the upper four components 12, 14, 16 and 18 are stacked in place upon the lower assembled components 20-26 and likewise interengaged both together and thereupon utilizing additional fasteners.

[0053] Additional features include the provision of a rain gutter edge formed along an upper facing and outer perimeter edge (see at 48 in FIG. 1) and such as which includes

a perimeter located aperture 50 (also in FIG. 1) communicable with and emptying additional rainwater volumes into the collection unit 30. As will be subsequently described in additional detail, it is further contemplated that the assembly can utilize a plurality of interconnecting sections, and such as in order to be modularizable to create larger sized or irregular shaped housing enclosures.

[0054] Referring now to FIG. 4, a line art drawing is illustrated at 52 of a modular housing unit according to a further preferred variant and which includes a plurality of door 54 and roof (both front 56 and rear 58) vents for providing interior ventilation. The vents are emplaced such that they permit interior flow in a waterproof fashion. Ground stakes are illustrated at 60 and, in the embodiment illustrated, are hammered or otherwise driven downward through interior collars 62 extending through the floor of the unit 52. Upon downwardly driving the stakes 60 so that its annular head seats upon a recessed surface associated with each interior collar, plugs 64 (such as rubberized in construction) are secured in place to seal the floor of the housing unit.

[0055] FIG. 5 shows, at 66, a perspective illustration of an assembled modular housing unit according to a further preferred embodiment of the present invention and incorporating an enlarged modular construction, and in comparison to the variant disclosed in FIG. 1. While not specifying an actual number of assembleable components, it is understood that an equal (as shown) or even greater number of assembleable pieces (up to sixteen or more) may be employed in creating the structure 66. Additional features illustrated in this embodiment include such as updraft vents 68 formed in the wall joint construction, in addition to the provision of openable/closable exhaust roof vent 707 in-molded fluid (water) retaining tank 72, and in addition to such previously disclosed features as a top-edge encircling gutter 74, such as collecting through aperture 76 into the in-molded tank 72, as well as again a plurality of ground engaging stakes 78 arrayed around a circumference of the floor support (see associated floor disposed apertures 79 in FIG. 6 for permitting passage therethrough of the ground supporting stakes) associated with the enclosure.

[0056] Illustrated at 80 in FIG. 6 is a cutaway interior illustration of a quadrant corner of the housing unit of FIG. 5, and illustrating in particular the airflow path generated by the gap venting between upper 82 and lower 84 connecting portions. Exterior air currents (see directional arrow 86) are illustrated and which, upon entering through the updraft vents 68, travel upwardly within the structure interior (see additional directional arrows at 88).

[0057] FIG. 7 is an illustration 90 of a further variant of a modular housing unit. As will be described in further detail with reference to the succeeding embodiments, features of this design include a three-dimensional top 92 with an edgewise extending rainwater collecting trough 94 and with proximately located and underside venting (optionally screened) 96 location. Interconnected sides (by example at 98) are again illustrated, typically four, and within which are formed a screened door 100, an opposite screened window not shown, and both primary 102 and overflow 104 interconnected water tanks, insect and small creature inhibitors 106 (extending about a lower extending edge), and a fluid retaining and three-dimensional base (not shown), this typi-

cally being fluidly interconnected to the water collecting top **94** and side retaining tanks (**102** and **104**) and in order to store collected volumes of such as rain water. It is further understood that a pump (either electric or manual) is employed to withdraw volumes of fluid from within the base on an as-needed basis, and such as for delivery through a hose, tap or faucet located on either an interior/exterior facing side of the unit **90**.

[**0058**] Illustrated at **108** in FIG. **8** is a sectional illustration of the interconnecting floor panel base and shown by four interconnecting sections **110**, **112**, **114** and **116**. Features associated with the base include a stepped outer and perimeter extending edge **118** (such as for supporting the interconnecting and upwardly extending walls) and interior collar shaped apertures **120**, for seating therethrough the downward/ angled spike portions **122**.

[**0059**] FIG. **9** illustrates, at **124**, a further sectional view of the floor with eight interconnected wall panels **126-140**, two per side, and with the roof portion removed. The wall panels are interconnected along suitable hinged edges, such as through the provision of slid down wall pins extending through joints, a doorway opening **142** being formed in a first panel **138**, whereas a window opening **144** is formed in a substantially opposite wall portion **130**. Although not shown, it is further understood that a four piece roof section can be secured in place, these typically being placed first upon the interconnected wall structure, following which mounting seals are applied to opposite extending edges of the gutters and prior to the installation of the remaining roof sections.

[**0060**] Referring to FIG. **10**, an illustration is shown of selected and attachable roof (as well as intermediate wall) sections **146** and **148** and by which an interior and crosswise extending thru joint **150** is formed for permitting water to drain out to the outer annular extending gutter edge (as previously illustrated). FIG. **11** further illustrates, at **152**, a line art depiction of a gutter seal applied to the door and window sides of the modular housing unit. In particular, the gutter seal includes a first rounded seal side **154** and an opposite and interiorly channeled attaching side **156**. The arrangement and configuration of the gutter seal facilitates collection and conveyance of such as rainwater to the storage tank associated with the modular housing unit.

[**0061**] Referring further to FIG. **12**, a further illustration is rendered of the plurality of interconnected roof sections **158**, **160**, **162** and **164**, and exhibiting its interior drainage capability. Specifically, drainage apertures **166** are illustrated along proximate edge locations established between selected interconnected panels **160** and **122** and provide for communication of the rainwater collected by the outer perimeter extending trough **94** (as also previously identified in FIG. **7**) with the reservoir containing tanks and/or the fluid holding floor/base.

[**0062**] FIG. **13** is a further illustration of the water tank system previously shown (see FIG. **9**), including an upper tank **168** and lower interconnecting tank **170**, and illustrating both upper and lower overflow capabilities associated with the design. In particular, arrows **172** illustrate rainwater collecting from drainage apertures (see as previously shown at **166** in FIG. **12**). The arrangement of FIG. **13** includes additional directional arrows referencing, respectively, a top tank filtered spigot **174**, as well as a lower tank filtered

spigot **176**. Other features include the provision of a full tank overflow **178** into the secondary tank and a secondary tank overflow **180** to around.

[**0063**] Referring now to FIG. **14**, a perspective illustration is shown at **182** of an assembled modular housing unit according to a still further preferred embodiment of the present invention. The design includes the features previously recited and further including a top attachable strip **184** for sealing the interconnecting roof sections (similar in configuration to those previously described), as well as front **186** and side **188** vents for providing interior ventilation to the modular structure.

[**0064**] FIG. **15** expands upon the illustration of FIG. **14**, previously described, and includes, in section, a ridge beam component **190** securing together a scam edge established between selected and adjacent roof panels, see as identified at **192** and **194**, and to include downwardly angled interior edges **196** and **198**. The ridge beam established thereby further includes recessed and lengthwise extending supports **200** and **202** for seating, respectively, the downwardly turned inner edges **196** and **198**, as well as the corresponding and extending edges associated with the other top panels illustrated.

[**0065**] FIG. **16** is an exploded perspective **204** illustrating the water collection and retention capabilities established between the ceiling and floor components of the present invention. Specifically, sample roof **206** and floor/base **208** components are illustrated, the roof **206** exhibiting a portion of an extending outer gutter edge **710** through which a drainage aperture **212** is formed.

[**0066**] A downspout (vertically extending run of conduit) **214** connects to a collar **216** at the upper end as well as to a lower mounted cap **218** communicating with a fluid inlet of the three-dimensional and fluid holding base **208**. A tank cover **220** secures to an underside of the three-dimensional base **208** to close off the assembly and in order to provide it with its fluid holding capabilities.

[**0067**] A further optional sub-assembly includes the ability to evacuate fluid from the water retaining base, and discloses a hand pump **222** metered to withdraw such as in 8 oz or 16 oz strokes, e.g. through a tube **221** for evacuation out of a spigot **223**. The pump is illustrated in reference to a further fluid evacuation sub-assembly generally referenced at **224** and including an upper closed downspout plug **226** and interconnecting pipe end fitting **228** and lower end cap mount **230**. In this fashion, the assembly makes possible the ability to store, for extended periods Of time, uncontaminated rainwater within the sealed three-dimensional base and for selective withdrawal later on.

[**0068**] FIG. **17** illustrates at **232** a sectional inside perspective of an interior positioned sink **234** in fluidic communication with the exterior positioned water tank, such as via spigot **236** extending through associated wall section **238** and to exterior located water supply tank (not shown). Other features shown include upper positioned and air ventilation slot **240** and lower extending drain pipe **242** exiting through wall and under the outside lower tank (also not shown).

[**0069**] Referring to FIG. **18**, a sectional perspective **244** explains the operation of a third world style toilet, incorporated into a modular housing unit according to the present invention. This design assists in the prevention of disease,

given the limited sanitary resources, and includes the provision of a pivoting sewage pipe **246** extending from a floor situated toilet **248** (in the manner previously described) and forming a part of an interconnecting floor section **250** associated with the modularized housing unit. The swivelability of the pipe **246** (see as referenced by arrow **252**) renders possible the selective accessing of exterior and individually excavated Waste collection sites **254**, **256**, et seq. In this fashion, and upon a given site being filled with human waste, the hole is filled in and the sewer pipe rotated to a succeeding dump site.

[0070] FIG. **19** is an enlarged and partial illustration of the toilet in FIG. **18** and illustrating the collection trap and flush pail features. In particular, a trap **258** is provided as is known in the relevant art and to prevent undesirable odors from the exterior excavation site from accessing the modular structure interior. A pail of water (not shown) is poured into a central aperture. **260** associated with the floor mounted toilet (and over which a user squats to relieve him/herself) and in order to discharge human waste through the tube and into the designated waste collection site **254**.

[0071] FIG. **20** is an illustration **262** of an optional variant of the modular housing unit (with roof removed) and incorporating a plurality of individual subdivided locations **264**, **266**, **268** and **270**, each corresponding to a given lavatory and which accesses either of a pair of designated and exterior excavated waste collection sites.

[0072] FIG. **21** further shows, at **272**, a sectional perspective of a plurality of stackable beds **274**, incorporated into a variant of the modular housing unit. The beds **274** are secured upon an assembled floor (generally referenced at **276**) in order to increase the housing capability of the design.

[0073] FIG. **22** illustrates at **278** an optional wall joiner, this being in substitution of the removable doors, and for interconnecting together any plurality of housing units. The joiner operates to achieve multiple layouts by installing along a wall location in order to create a pathway between adjacent structures. The joiner further includes pairs of wall locating tabs, in addition to a floor channel location **279** seating between adjacent and abutting floors. FIG. **93** is an illustration **280** of an interconnected double housing unit, see individual units **282** and **284**, created with the use of the interconnecting wall joiner **278** of FIG. **22** and further illustrated in phantom in FIG. **23**.

[0074] FIG. **24** is an illustration **286** similar to that previously shown in FIG. **14** of a multipiece assembleable modular unit and illustrating an alternate arrangement whereby a waterproof and buoyant housing unit is elevatable, upon each of a plurality of downwardly extending and vertically displaceable rods **288** are actuated in response to a degree of flooding condition. As will be described infra, the elongated and displaceable rods substitute for the ground stakes previously described.

[0075] FIG. **25** is a succeeding plan view illustration of the housing unit **286** of FIG. **24**, in a first ground supported condition and by which each of the displaceable rods **288** are illustrated in a most-withdrawn condition, and by which upper angled ends **290** (see FIG. **25B**) of each of the rods **288** are inwardly turned in engaging fashion into apertures formed into height approximate locations of the wall com-

ponents and the lower ends of the rods project approximately 5' (in one non-limiting valiant) downward from a floor **292** of the structure into associated and excavated ground apertures, see further as shown by inset **294** on FIG. **25B**.

[0076] Referring further to FIG. **26**, a succeeding illustration is shown at **296** of the housing unit in a first flooded (see water level **298**) and elevated/supported fashion. In this condition, each of the rods **288** are rotated so that the upper angled ends **290** unseat from within the associated and height dependent locations defined in the wall components.

[0077] The base **292** rises as a function of the water level and the buoyancy of the modular unit, the rods **288** each being displaced downwardly to maintain a seating condition within the ground excavated apertures (these also being understood to include lengths of hollow PVC or pipe embedded into the ground) and prior to the rods **288** each being re-engaged into lower positioned wall situated apertures. It is also appreciated that the rods **288** can each vertically displaceable by means of channels vertically formed into the interconnected sides, as well as mechanically attached clips or the like within the scope of the invention.

[0078] FIG. **27** is a sectional illustration at **294** of one possible interconnection scheme, such as which is established between first and second roof components **296** and **298**. In particular, an underside channel arrangement is provided for engaging underside extending and mating locations **300** and **302** of the roof components **296** and **298**, these being seated within a top face groove **304** associated with an underside extending (typically wall) support **306**. The underside channel configuration associated with the roof components may further include outer spaced vertical supports **308** and **310**, these preventing disengagement or misalignment of the roof components when supported upon the vertically extending support **306**.

[0079] Referring further to FIG. **28**, a further sectional illustration **312** is shown of a corner interconnection scheme. In particular, first **314** and second **316** wall sections are provided and by which a first extending corner configuration **318**, associated with the first wall section **314**, is seatingly engaged against a corresponding corner configuration **320**, associated with the second wall section **316**. An angled corner support **322** is provided (and which can be either integrally formed in half sections with given interior locations of each wall section **314** and **316** or alternatively provided as a separate extending piece and engaged in a mechanical or biasing fashion to hold the wall sections together at the corner location).

[0080] Finally, and referring to FIG. **29**, a yet further sectional illustration is shown at **324** of an intermediate wall interconnection scheme and which may include additional wall sections **326** and **328** which are interconnected by a similar ball and socket arrangement (see as shown at **330** and **332** for opposing edges of sections **326** and **328** and corresponding to that shown at **318** and **320** in the valiant of FIG. **28**). A further configured reinforcing or connecting piece, see at **334**, may extend vertically along an inside adjoining location of the wall sections **326** and **328**.

[0081] The present invention therefore discloses a novel and nonobvious assembly for creating a modularizable and quickly constructed living shelter, such as in use in third

world locations. Having described my invention, other and additional preferred embodiments will become apparent to those skilled in the art to which it pertains, and without deviating from the scope of the appended claims.

I claim:

1. A modularizable and assembleable structure, comprising:

a plurality of individual and three-dimensional shaped components, each of said components further comprising an impression molded plasticized/polymer based construction, an aggregate filler material incorporated into said impression molded construction; and

each of said components being interengageable along opposingly extending edges in order to establish a three-dimensional and internally accessible structure.

2. The structure as described in claim 1, further comprising upper and lower pluralities of assembleable components defining, collectively, a roof, a plurality of walls, and a floor.

3. The structure as described in claim 2, further comprising a plurality of ground embedding spikes projecting downwardly from said floor.

4. The structure as described in claim 2, further comprising at least one of a window, a doorway and an exteriorly configured rainwater collection unit integrally formed with said assembleable components.

5. The structure as described in claim 2, further comprising a waste access drainage hole defined in said floor.

6. The structure as described in claim 4, further comprising a sink and faucet communicating with an interior accessible location of said rainwater collection unit.

7. The structure as described in claim 3, further comprising a plurality of interiorly accessible apertures defined in said floor through which is forcibly embedded said spikes.

8. The structure as described in claim 2, further comprising at least one of an exhaust roof vent and updraft vents defined in said roof and walls, respectively.

9. The structure as described in claim 4, said exteriorly configured rainwater collection unit further comprising primary and overflow collections tanks.

10. The structure as described in claim 2, said plurality of walls further comprising interengaging and vertically disposed pins defined along adjoining edges.

11. The structure as described in claim 4, further comprising a perimeter extending gutter collection edge associated with said roof and for redirecting collected rainwater into said collection unit.

12. The structure as described in claim 11, said roof further comprising drainage apertures redirecting water to said collection unit.

13. The structure as described in claim 11, said collection unit further comprising a fluid retaining base, said drainage apertures communicating said roof with said base.

14. The structure as described in claim 13, further comprising a hand pump for withdrawing volumes of fluid from within said base.

15. The structure as described in claim 2, further comprising third world style toilet, incorporated into said floor of

said modular housing unit, and including pivoting sewage pipe for selectively accessing at least one exterior excavated waste collection site.

16. The structure as described in claim 2, further comprising a plurality of stackable beds defined in said floor.

17. The structure as described in claim 2, further comprising a wall joining component for interconnecting together at pair of proximately located units.

18. The structure as described in claim 2, further comprising and buoyant housing unit is elevatable, upon each of a plurality of downwardly extending and vertically displaceable rods, actuated in response to a degree of flooding condition.

19. A modularizable and assembleable structure, comprising:

a plurality of individual and three-dimensional shaped components collectively defining a roof, walls and a floor, each of said components further comprising an impression molded plasticized/polymer based construction, an aggregate filler material incorporated into said impression molded construction;

at least one of a window, a doorway and an exteriorly configured rainwater collection unit being integrally formed with said assembleable components;

each of said components being interengageable along opposingly extending edges in order to establish a three-dimensional and internally accessible structure; and

a plurality of interiorly accessible apertures defined in said floor, through which are inserted a plurality of ground stakes for forcibly embedding into an underlying ground location.

20. A modularizable and assembleable structure, comprising:

a plurality of individual and three-dimensional shaped components collectively defining a roof, walls and a floor, each of said components further comprising an impression molded plasticized/polymer based construction within which is incorporated an aggregate filler material;

each of said components being interengageable along opposingly extending edges in order to establish a three-dimensional and internally accessible structure;

a perimeter extending gutter collection edge associated with said roof and for redirected collected rainwater into a collection unit being integrally formed with at least one of said assembleable components, said collection unit communicating with an interior sink and faucet secured to a selected wall; and

a waste access drainage hole defined in said floor, a further plurality of interiorly accessible apertures being defined in said floor, through which are inserted a plurality of ground stakes for forcibly embedding into an underlying ground location.

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