Abstract: A game maze for playing war games, combat games and the like is erected from a series of inflatable wall modules which can be deflated for transportation and storage. The wall modules are grouped together as desired to form passageways or cells within the maze. Some of the modules are formed with door openings through which game players can pass and window openings through which game players can view other parts of the maze and other participants.
The present invention relates to a game system for playing war games, combat games, and the like, capable of being set up in a wide range of different, and easily changeable, configurations.

According to the present invention there is provided a game system comprising a series of wall modules each erectable from a flattened state by inflation and locatable on a surface to form a game maze, at least some of the wall modules having at least one wall with an opening therein to permit passage of a game player from one side of the wall to the other.

A game maze can thereby be set up in a desired form using a group of such modules to provide pathways for the game players.

In one form, the wall modules are inflatable to form a free-standing wall structure comprising at least two walls directed transversely one to the other.

In an alternative, some or all of the modules consist of a single wall whereby two or more modules can be releasably connected after inflation to form a free-standing structure of L-shaped configuration, T-shaped configuration, or rectangular configuration.

It is also preferred that some of the modules have a window-like opening to permit viewing from one side of the wall to the other.

In one particularly preferred form, the module consists of an inflatable core within a separate outer cover which protects the core and provides a relatively flat appearance for the opposed surfaces of the or each wall of the module.

Preferably the exposed surfaces of the modules are printed with, or otherwise carry, indicia to provide a visual rendition applicable to a game situation.
The exposed surface of each module is preferably low-reflective with respect to infra-red light to facilitate the use of infra-red toy weapons during game play. Other toy weapons which can be used during game play include paintball markers and airsoft toy weapons.

The game system also preferably includes scenery props of inflatable structure to be secured to the ground within the maze, these props simulating, for example, fallen trees, pipes or sandbags.

It is also particularly preferred that the game system includes roof sheeting to be applied across some or all of a maze formed by the assembled wall modules. The roof sheeting is preferably a combination of two or more of the following: light-transmitting, non light-transmitting, or restricted light-transmitting, so as to provide the possibility of different illumination levels in different parts of the maze. Roof sheeting applied across a rectangular cell or a passageway for example, may be partially or wholly of non light-transmitting form or of restricted light-transmitting capacity. Roof sheeting for outside use will include drain holes to permit drainage of rain into the maze and when setting up the maze the drain holes can, if appropriate, be located in positions to enhance the sense of reality through the use of dripping or running rain water.

The present invention also provides a game maze constructed from a system as defined above, the game maze providing pathways for the game players and, preferably, cells into which the players can enter. Some of the pathways may be blocked to prevent passage and some of the cells may or may not have a separate exit.

The invention will now be further described by way of example only with reference to the accompanying drawings in which:

Figure 1 shows a basic wall module of L-shape;

Figure 2 shows a wall module of L-shape but configured to replicate a partially demolished wall;

Figure 3 shows a wall module of T-shape and configured to replicate a partially demolished wall;
Figure 4 shows an example of indicia which can be applied to the external surface of the wall module of Figure 2 for added realism;

Figures 5A and 5B illustrate different forms of roof sheeting;

Figure 6 shows an inflatable barrier which replicates a stack of sandbags;

Figure 7 shows a range of basic modules each providing a single, straight, wall;

Figure 8 shows how modules of the type shown in Figure 7 can be connected to form a rectangular cell; and

Figures 9 and 10 are examples of different forms of maze which can be set-up from modules of the type shown in Figure 7.

The game system of a first embodiment is composed of a range of wall modules formed from flexible sheet material which are erected by being inflated to form free-standing units. In their deflated states each module can be collapsed "flat" and can be folded into a low volume configuration for transportation and storage. The modules when inflated provide at least two walls, one transverse to the other, preferably one at right angles to the other, so that the wall module is freestanding. Each wall is composed of sheets of robust plastic material impervious to air, vinyl for example, and welded or otherwise fused or sealed together and including internal reinforcement so that when the wall is inflated it will assume a predetermined shape with opposed front and rear sides and a wide edge connecting those sides so that in appearance the wall portion can replicate a wall of brick or stone, for example. A standard form of wall module 1 is shown in Figure 1 and is of L-shaped configuration to provide two walls 2, 4. A wall module of this shape can be incorporated in a game maze either to stand on its own or to be assembled to other similar modules, for example to form a rectangular cell or room. Within its interior, each wall defines one or more air chambers which may be interconnected with the air chamber(s) of the other wall, or the air chambers of the two walls may be separate. Figure 1 illustrates schematically internal webbing 6 extending between the opposite sides of each wall and internal reinforcement 7 at their inside faces, to maintain the shape of the wall when inflated. The lower half of each wall can also be formed of material of increased thickness for greater stability. This internal structure is given by way of example only and many variations are possible. As the technology for constructing inflatable structures of
predetermined shape is itself well known it does not need to be described in detail here.

The modules for use in the game system may be of different configurations to provide versatility in the design of a game maze which can be assembled from the modules. However a basic module will either be of L-shaped configuration such as that shown at 1 in Figure 1 or T-shaped configuration to provide a long wall and a shorter wall extending at right angles from the mid point of the longer wall. At least some of the walls of at least some of the modules are formed with an opening which is either a window opening 8 or an opening at window height and/or a door-like opening 10 to enable a participant in the game to move from one side of the wall to the other. Some of the modules might not include any opening in their walls.

Although some of the L-shaped and T-shaped modules may have rectangular walls of the same height (as shown in the module of Figure 1) to facilitate the mounting of a roof as will be described, in some of the modules the walls may be shaped to replicate a wall that has been partially demolished or destroyed (see the L-shaped module 1a in Figure 2, and the T-shaped module 11 in Figure 3). The opposed surfaces of the wall may be printed with indicia for added realism, for example bricks, bullet holes, camouflage and so forth. This is illustrated, by way of example, in Figure 4 with reference to the module of Figure 2.

The game system will be provided with a multiplicity of the L-shaped and T-shaped modules which can be laid out and combined in almost an infinite variety of different ways to create a maze of rooms/cells and passages through which participants can move into, out of, and through when playing the game; the window-like openings permit participants to view other sections of the maze to see their allies and adversaries.

The walls of each module are provided with a series of rings or loops 12 adjacent their side edges to permit adjacent modules to be coupled together, for example by elastic or other ties. This will be required, for example, when two modules are assembled together to form a rectangular room or cell or other structure. Alternatively, the side edge of the module
can include a short projecting flap with eyelets for receiving an elastic or other tie for coupling two modules together. Similar fittings are provided along the upper edges of the walls for securing a roof sheet across the walls and at the lower edges of the walls for securing the modules to the ground. In an alternative, adjacent wall modules can be coupled or connected by high strength zips and a similar method of connection can be used for connecting roof sheeting to the modules.

A maze formed by a group of modules can either be erected outside, on grass for example, or inside in which case it is erected on a floor, for example of heavy duty multi-purpose matting possibly faced with an artificial grass layer. When used outside it is preferred that the modules are anchored against the ground by weighted bags, for example by sand bags, to which the lower edges of the walls are tied by elastic or other ties. The weighted bags can themselves be covered with a skin which is printed with indicia to replicate an appearance appropriate to the battle situation, for example fallen debris, camouflage netting and so forth.

For inside use, the flooring is itself provided in modules, for example ten metres by two metres, which are laid on the ground and tied together to provide a playing field of a required size which might typically be tens of metres long by tens of metres wide. Each floor module is provided with fixing holes distributed over its length and width to enable the wall modules to be arranged on the flooring at desired locations and secured thereto by elastic or other ties extending between the fixing holes on the flooring and the fixings provided along the lower edges of the walls of the modules.

When roof sheeting is applied across the tops of the walls it is secured in a similar way by elastic or other ties between the sheeting and the fixings along the upper edges of the walls. For inside use, the roof sheeting may be used just over selected parts of the maze to darken some sections, for example to create a dark room or dark passage. However it is possible for the entire maze to be covered to heighten the sense of reality to those playing the game, by obscuring the roof or ceiling structure of the building. In that case the roof sheeting is likely to include both light-transmitting and non light-transmitting portions.
The roof sheeting is preferably provided in a range of different sizes and types (ie. light-transmitting, non light-transmitting, or both) to enable the desired effects to be achieved. Figure 5A shows by way of example light-transmitting roof sheeting and Figure 5B shows roof sheeting of different size to that of Figure 5A and which is predominantly non light-transmitting but with an insert 20 of light-transmitting material so that when placed over a room, cell or passageway defined by the modules it will darken the interior space but reduced illumination will still be present. For outside use the roof sheeting will also be used to provide a degree of protection of inclement weather. The inclusion of roof sheeting to an outside structure not only helps protect against inclement weather it also renders the structure more stable to resist wind. Each sheet is provided with drain holes 22 for rainwater and although the water will drain from the sheet into the maze itself, this will add to the realism. If appropriate, the drain holes can be positioned over sections of the maze which simulate passageways or outside pathways, to further add to the sense of reality.

A wide range of different game mazes can be set up, principally defined by the L-shaped and T-shaped wall modules which can be configured in any desired way. Barriers of inflatable construction can be placed on the playing surface and secured in position to further refine the maze; for example an inflatable barrier of cylindrical form may be configured to simulate a fallen tree or a large pipe - Figure 6 shows an inflatable barrier 24 which replicates a wall of sandbags. These are held to the ground in the same manner as the wall modules. A further barrier can be formed by a low wall which is straight (rather than of angled configuration as shown in Figure 6); in that case, to ensure that the wall is free-standing, it widens progressively from the top to the bottom, and for added stability ballast can be added to a flap at the bottom of the wall; the flap with ballast may be tucked beneath the bottom of the wall.

The wall modules are also provided with small fixing loops or rings 30 (see Figure 1) distributed over their surface for attaching items to the surfaces to further "theme" the maze, for example signs, debris, and curtains over the windows.
Although each module includes internal webbing and internal reinforcement to maintain
the shape of the walls when the module is inflated, as a result of the inherent flexibility of
the material from which the module is formed, there will inevitably be a degree of bulging
or ballooning of the material in zones between adjacent internal webs and as a result the
walls will not be entirely flat but instead will have the shape of a series of alternating
shallow troughs and ridges. While this still provides a satisfactory product particularly
when the module is printed with theming indicia, nevertheless for added realism it is
preferred for the walls to have a substantially flat appearance. For this purpose it is
preferred that each module is of two layer construction comprising an inflatable inner layer
or core corresponding to the modules previously described and which fits loosely within an
outer layer of a tough material such as canvas and which forms a cover for the core. When
the module is erected by inflating the inner core, the cover will provide the opposed sides
of the wall and the edges of the wall with the cover being supported in the required shape
by the inflated core; however as the cover is not itself inflated, its opposed sides which
form the opposed sides of the module will tend to hang substantially flat to provide a more
realistic appearance of a solid wall.

The outer surface of the cover may be of a plain colour or printed with or otherwise carry a
design which has versatility for use in many simulated battle situations, particularly by
"theming" the set up by attachment of signs and other articles to the walls in a similar
manner to that previously described except that the attachment points will be provided on
the cover. The use of the cover, which is of a robust material, is of further advantage as it
tends to protect the inflatable core and can readily be replaced if damaged.

When the covers are provided, as is preferred, the covers carry eyelets, loops or other
fittings for connecting adjacent modules in the maze. It is to be noted that these fittings
and also the corresponding fittings provided on a basic inflatable module absent the cover
can be used also as an anchor point to tie the module to an external anchorage which could
be formed by a tree, a fence, or a vehicle for example and this is of particular benefit when
the maze is set up for outdoor use and will be subject to the effects of wind. The outer
surface of the basic wall module and also that of any covers therefor is such as to minimise
reflection of infra-red light which is of significance when the game players are using infra-red weapons.

The maze can be erected and dismantled relatively quickly and can easily be transported from one venue to the next; when outer covers are provided as discussed above, the core when deflated will remain within the cover to facilitate easy erection of the entire module when next required. The ease of erection also means that the layout can easily be changed from one game to the next in the same venue. Depending on the design, the entire pathway through the maze can be changed just by changing the configuration of relatively few of the wall modules within the maze.

Although the invention has been described thus far with reference to the use of basic modules of L-shape or T-shape and thereby free-standing and connectable to provide a variety of different configurations, some or all of the modules consist of just a single straight wall whereby, after inflation, two or more such modules can be releasably connected to form free-standing structures of L-shape, T-shape or rectangular, for example. The use of a simplified module of this form reduces the carrying weight of the module which is desirable in many situations. Figure 7 shows a range of simplified modules and comprising a module 30 with a door-like opening, a module 32 with a window-like opening, a module 34 providing a tall wall of a height corresponding to that of the modules 30 and 32, and a module 36 providing a low wall. The wall modules 34 and 36 may be produced in a range of different lengths including a length equivalent to that of the modules 30 and 32 so that rectangular cells can be produced using any combination of the four modules. It is to be understood that the modules 30 and 32 can also be produced in a range of different lengths and for modules longer than those shown in Figure 7, for example twice that length, the door or window openings can either be centrally located or located closer to one end.

The opposed sides and ends of each module are provided with rings, loops or other fixing points to permit adjacent modules to be coupled together, for example by elastic or other ties. When the modules are of two layer construction consisting of inflatable core and
outer cover as previously described, the fixing points are provided on the covers. For security of coupling, the fixing points are arranged adjacent the upper and lower edges of each module and for the taller modules such as the modules 30, 32, 34 a further set of fixing points may be arranged at an intermediate point along the height of the module. For versatility in setting up the modules to form a maze it is envisaged that each module will usually have sets of fixing points along its end edges and at each of its sides adjacent to each of the end edges so that the end edge of one module can be abutted against and releasably secured to the side of an adjacent module at right angles thereto. Longer wall modules may also have a set of fixing points at each side midway along its length to permit two modules to be releasably connected in T-shaped relation. In any given set up, there will be unused fixing points available by which the module can be tied to external fixed structure such as previously described.

Figure 8 shows a series of four modules which could be longer versions of the modules 32 - 36 assembled to form a rectangular cell. The fixing points at which the adjacent modules are attached are shown schematically as loops 40; it will be seen that in this form, sets of fixing points are also provided at intermediate positions along the length of each module.

Figures 9 and 10 show by way of example different mazes which can be set up using the modules of Figure 7. It is to be understood that these are illustrative of many different maze set ups which can be provided.

The embodiments have been described by way of example only and modifications are possible within the scope of the invention.

Throughout this specification, unless the context requires otherwise, the word "comprise", and variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or group of integers or steps but not the exclusion of any other integer or group of integers.
CLAIMS

1. A game system comprising a series of wall modules each erectable from a flattened state by inflation and locatable on a surface to form a game maze, at least some of the wall modules having at least one wall with an opening therein to permit passage of a game player from one side of the wall to the other.

2. A game system according to claim 1, wherein at least some of the wall modules are inflatable to form a free-standing wall structure comprising at least two walls directed transversely one to the other.

3. A game system according to claim 1 wherein at least some of the modules consist of a single wall whereby two or more modules can be releasably connected after inflation to form a free-standing structure of L-shaped configuration, T-shaped configuration, or rectangular configuration.

4. A game system according to claim 2 or 3, wherein respective modules have fixing points on their sides and ends for co-operation with the fixing points of other modules whereby two modules can be coupled with the end of one module abutting the side of the other module.

5. A game system according to claim 4, wherein the fixing points are in the form of eyelets or loops to receive a tie to connect the fixing points.

6. A game system according to any one of claims 1 to 5, wherein at least some of the modules have at least one wall with a window-like opening to permit viewing from one side of the wall to the other.

7. A game system according to any one of claims 1 to 6, wherein some modules of the system have one or more openings for passage of a game player and/or one or more window-like openings, and other modules of the system have no such openings.
8. A game system according to any one of claims 1 to 7, wherein the walls carry indicia to provide a visual rendition appropriate to a game situation.

9. A game system according to any one of claims 1 to 8, wherein each module comprises an inflatable core within a separate outer cover of flexible material such that when the core is inflated the cover is supported from the core and provides opposed sides of the module which are substantially flat.

10. A game system according to claim 9, wherein the cover is separate from the module.

11. A game system to any one of claims 1 to 10, wherein the exposed surface of each wall is low-reflective with respect to infra-red light.

12. A game system according to any one of claims 1 to 11, further including scenery of inflatable structure to be secured to the ground within the maze.

13. A game system according to any one of claims 1 to 12, wherein some of the walls are shaped along an upper edge to replicate a partially demolished wall.

14. A game system according to any one of claims 1 to 13, further including roof sheeting to be applied across part of, or all of, a maze formed by the wall modules.

15. A game system according to claim 14, wherein the roof sheeting is a combination of two or more of the following: light-transmitting, non light-transmitting, or restricted light-transmitting, so as to provide the possibility of different illumination levels in different parts of the maze.

16. A game maze constructed from a system according to any one of claims 1 to 15, the game maze providing pathways for the game players.
17. A game maze formed by a temporary structure erected from a series of walls providing pathways for game players and cells into which players can enter, the walls being formed by a series of separate inflatable modules.

18. A game maze according to claim 17, wherein at least some of the inflatable modules provide a single straight wall, and groups of such modules are in right angled relation to form a series of rectangular cells within the maze.

19. A game maze according to claim 18, wherein adjacent modules are releasably connected by ties extending between fixing points on each of the modules.

20. A game maze according to any one of claims 17 to 19, wherein at least some of the walls have door and/or window openings.

21. A game maze according to any one of claims 17 to 20 having roof sheeting applied to the tops of the walls to cover at least part of the maze.

22. A game maze according to claim 21, wherein the roof sheeting is non-light transmitting and/or of restricted light transmitting characteristics.

23. A game maze according to claim 21, wherein the roof sheeting is light transmitting.

24. A game maze according to any one of claims 21 to 23, wherein the roof sheeting has drain holes therein to permit drainage of rainwater into the maze.

25. A game maze according to any one of claims 17 to 24, wherein at least some of the modules comprise an inflatable core within a separate outer cover which provides substantially flat sides for the wall when the core is inflated.

26. A game maze according to any one of claims 17 to 25, wherein the walls carry
indicia relevant to the game being played.

27. A game maze according to claim 19 or any claim dependent on claim 19, wherein the fixing points act as anchor points by which some of the modules are tied to structure externally of the maze.

28. A game maze for playing war games, combat games and the like, wherein the maze is erected from a series of inflatable wall modules which can be deflated for transportation and storage, the wall modules being grouped together to form passageways and cells within the maze, some of the modules being formed with door openings through which game players can pass, and others of the modules being formed with window openings through which game players can view other parts of the maze and other participants.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

A63B 71/02 (2006.01)  E04B 2/00 (2006.01)  E04H 15/20 (2006.01)
A63B 67/00 (2006.01)  E04G 11/04 (2006.01)

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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 database and, where practical, search terms used)

DWPI: Keywords: game, combat, skirmish, training, maze, assault, building, wall, module, panel, window, door, opening, path, player, tag, obstacle, arena, laser, lazer, gun, warfare, battle, simulation & similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
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<th>Relevant to claim No.</th>
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<tr>
<td>A</td>
<td>US 5906373 A (SANDERS) 25 May 1999</td>
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Futher documents are listed in the continuation of Box C

See patent family annex

Date of the actual completion of the international search

23 January 2007

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International application No.
PCT/au2006/001979

Form PCT/ISA/210 (second sheet) (April 2005)
This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX