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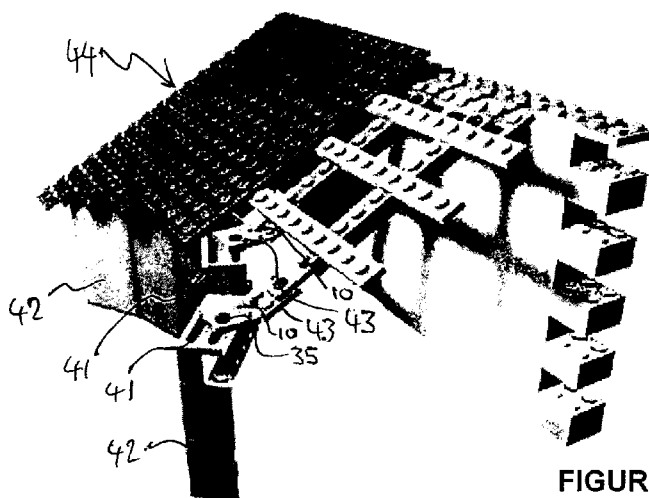


FIGURE 18

(57) Abstract: A toy construction system comprising a releasably connectable tendon or tether ("tendon") to connect to at least two building blocks. The tendon being resiliently deformable and providing a range of motion for each of at least two blocks, relative to each other, in at least two Cartesian axes. The tendon having an engagement, and each block having a corresponding receiving element.

FIELD OF THE INVENTION

[0001] The present invention relates to a toy construction block system and in particular to a connection system for linking toy building blocks.

BACKGROUND TO THE INVENTION

[0002] Toy construction system known in the prior art generally include a number of building blocks that can be assembled into structures. These blocks are either assembled by simply stacking them, or are configured with a top surface having an array of projections, and a bottom surface having a similar array of recesses adapted to connect to the projections of another building block. A structure is assembled by interconnecting the top and bottom of the building blocks. However, such building blocks are limited in versatility as the structures may only be extended vertically by stacking the blocks or laterally by overlapping stacked building blocks.

[0003] In this specification, where reference has been made to external sources of information, including patent specifications and other documents, this is generally for the purpose of providing a context for discussing the features of the present invention. Unless stated otherwise, reference to such sources of information is not to be construed, in any jurisdiction, as an admission that such sources of information are prior art or form part of the common general knowledge in the art.

[0004] It is an object of the present invention to provide a toy construction block system which overcomes or at least ameliorates some of the abovementioned disadvantages or which at least provides the public with a useful choice.

[0005] Other objects of the invention may become apparent from the following description which is given by way of example only.

SUMMARY OF THE INVENTION

[0006] According to a first aspect the invention consists in a toy construction system comprising a releasably connectable tendon or tether ("tendon") to connect to at least two building blocks, the tendon being resiliently deformable and providing a range of motion for each at least two blocks, relative to each other, in at least two Cartesian axes, the tendon having an engagement, and each block having a corresponding receiving element.

[0007] Preferably the at least two building blocks have a plurality of projections extending upward from a top surface, and a plurality of recesses in a lower surface, the recesses shaped to frictionally engage the projections of another building block.

- [0008] Preferably the tendon has a plurality of engagements.
- [0009] Preferably the engagements are enlarged portions of the tendon.
- [0010] Preferably the receiving element is a recess in a building block.
- [0011] Preferably the plurality of engagements are located on angularly separated surfaces.
- [0012] Preferably the engagements are shaped complimentary to the receiving elements, and engage by an interference fit.
- [0013] Preferably the engagements are held in the receiving elements by one or more lugs.
- [0014] Preferably the toy construction system further comprises a building block having at least one elongate slotted aperture, another building block having at least one aperture, and a pin to engage through an aperture on at least two building blocks to thereby facilitate a connection that is hinged about the axis of the pin and slideable about the axis of slot elongation.
- [0015] Preferably the at least one aperture is located on a projection that extends from a side surface.
- [0016] Preferably the at least one aperture extends from a top to a bottom surface
- [0017] Preferably the pin has a head portion, and shaft portion extending downward from the head portion and a flared portion located at the base of the shaft portion.
- [0018] According to a second broad aspect the invention consists in a toy construction system comprising a first building block having at least one elongate slotted aperture.
- [0019] Preferably the elongation axis projects along a surface plane of the building block.
- [0020] Preferably the aperture extends from a top to a bottom surface of the building block.
- [0021] Preferably the toy construction system further comprises a second building block having at least one aperture.
- [0022] Preferably the toy construction system further comprises a pin to engage through an aperture on each of the first and second building blocks to thereby facilitate a connection that is hinged about the axis of the pin

[0023] Preferably the toy construction system further comprises a pin to engage through an aperture on each of the first and second building blocks to thereby facilitate a connection that is slideable about the axis of slot elongation.

[0024] Preferably the aperture of the second building block is located on a projection that extends from a side surface.

[0025] Preferably the pin has a head portion, and shaft portion extending downward from the head portion and a flared portion located at the base of the shaft portion.

[0026] Preferably the first, or the second, or both building blocks has a plurality of projections extending upward from a top surface, and a plurality of recesses in a lower surface, the recesses shaped to frictionally engage the projections of another building block.

[0027] Preferably the first, or the second, or both building blocks has a plurality of receiving elements.

[0028] Preferably the receiving element is a recess in a building block.

[0029] Preferably the toy construction system further comprises a releasably connectable tendon to connect to at least two building blocks, the tendon being resiliently deformable and providing a range of motion for each at least two blocks, relative to each other, in at least two Cartesian axis, the tendon having an engagement, and each block having a corresponding receiving element.

[0030] Preferably the body of the tendon has an angular portion.

[0031] Preferably the tendon has a plurality of engagements.

[0032] Preferably the engagements are enlarged portions of the tendon.

[0033] Preferably the plurality of engagements are located on angularly separated surfaces.

[0034] Preferably the engagements are shaped complimentary to the receiving element, and engage by an interference fit.

[0035] Preferably the engagements are held in the receiving elements by one or more lugs.

[0036] In another aspect the invention consists in a block having an outset profile and an inset profile whereby like blocks can be interconnected; wherein there is provided set down from the outset profile a recess to anchor a tendon or tether that is to project outwardly of the block.

[0037] Preferably the recess is defined to restrict rotation in the recess of a complementary tendon or tether.

[0038] In another aspect the invention consists in such a block together with such a tendon or tether.

[0039] In another aspect the invention consists in, in combination or assembly,

a first block,

a second block, the first and second blocks optionally having features whereby they can, if desired, be interconnected onto the other, and

a tether engageable to each block whereby, if desired, the blocks whether separate or mutually interconnected, can be linked by the tether.

[0040] Preferably the tether is flexible.

[0041] Preferably the tether is resilient.

[0042] Preferably each of the blocks has an opening or other docking feature into which an anchorable end of the tether can be retained.

[0043] In another aspect the invention is a block suitable for such a combination or assembly.

[0044] In still another aspect the invention is a tether suitable for such a combination or assembly.

[0045] In another aspect the invention consists in a block and/or tether of any of the kinds substantially as shown in any one or more of the accompanying drawings.

[0046] The following embodiments may relate to any of the above aspects.

[0047] Other aspects of the invention may become apparent from the following description which is given by way of example only and with reference to the accompanying drawings.

[0048] In this specification where reference has been made to patent specifications, other external documents, or other sources of information, this is generally for the purpose of providing a context for discussing the features of the invention. Unless specifically stated otherwise, reference to such external documents is not to be construed as an admission that such documents, or such sources of information, in any jurisdiction, are prior art, or form part of the common general knowledge in the art.

[0049] The term “comprising” as used in this specification means “consisting at least in part of”. When interpreting statements in this specification which include that term, the features, prefaced by that term in each statement or claim, all need to be present but other features can also be present. Related terms such as “comprise” and “comprised” are to be interpreted in the same manner.

[0050] To those skilled in the art to which the invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the scope of the invention as defined in the appended claims. The disclosures and the descriptions herein are purely illustrative and are not intended to be in any sense limiting. Brief description of the drawings

[0051] The invention will now be described by way of example only and with reference to the drawings in which:

[0052] Figure 1 shows a tendon made of a resiliently deformable material.

[0053] Figure 2 shows a tendon having multiple arms.

[0054] Figure 3 shows the top side of a building block a plurality of projections from the top surface.

[0055] Figure 4 shows the bottom side of the building block of Figure 3 having a plurality of recesses adapted to receive the projections of another building block.

[0056] Figures 5a, 5b and 5c illustrate a pair of building blocks as shown in Figures 3 and 4 connected by a plurality of tendons as shown in Figure 1.

[0057] Figures 6a, 6b and 6c show a tendon interconnecting a pair of the building blocks shown in figure 3 and 4.

[0058] Figure 7 shows a tendon in accordance with another embodiment of the invention.

- [0059] Figures 8a and 8b show a plurality of tendons interconnecting a pair of building blocks.
- [0060] Figure 9 shows a tendon having a plurality of connection heads.
- [0061] Figure 10 shows the use of a tendon to interconnect a pair of building blocks.
- [0062] Figure 11 shows a building block having a slotted aperture.
- [0063] Figure 12 shows a connecting pin for engaging the slotted aperture of the building block shown in Figure 11.
- [0064] Figure 13 shows a connecting member for use with the pin of Figure 12 and the slotted aperture of Figure 11.
- [0065] Figure 14 shows a connecting member for use with the pin of Figure 12 and the slotted aperture of Figure 11.
- [0066] Figure 15 shows a plurality of pins engaged with a building block and connecting members.
- [0067] Figure 16 shows a plurality of pins engaged with a building block and connecting members.
- [0068] Figure 17 shows a plurality of pins engaged with a building block, connecting members and a plurality of tendons.
- [0069] Figure 18 shows an experimental implementation of components that illustrates possible building planes that are not constrained by conventional building block connection mechanisms.
- [0070] Figure 19 shows another experimental implementation of components resembling a trampoline both in appearance and scale functionality.
- [0071] Figure 20 shows another experimental implementation of the described components of the invention used as a suspension mechanism that lies between a vehicle body and the wheel.
- [0072] Figure 21 shows the tendon of Figure 1 which a moulded helical arm section.
- [0073] Figure 22 shows a tendon having engagements on multiple surfaces.
- [0074] Figure 23 shows the tendon of Figure 1 having a moulded curved arm section.

DETAILED DESCRIPTION OF THE INVENTION

[0075] The invention relates to a toy construction system having a releasably connectable tendon to interconnect at least two building blocks. The construction system of the invention is intended to be compatible with other connectable type systems, for example the Lego or Megablock construction block systems, or non-connectable systems such as Haba block systems to thereby enhance the complexity of structures that can be assembled.

[0076] In accordance with a first embodiment of the invention Figure 1 shows a tether or tendon 10 that is made of a resiliently deformable material. Preferably the tendon 10 has an engagement, such as at least two connector heads 11 separated by an arm 14. Other forms of the tendon 10 may include those having a moulded tendon arm 14 having a helical section such as shown in Figure 21, or a curved arm section 14 such as shown in Figure 23, or some combination of twisted and curved type shapes to angularly offset the engagements 11. The tendon may also feature multiple arms 13 and engagements as shown by the tendon 12 in Figure 2, or it may have engagements on multiple surfaces such as shown in Figure 22.

[0077] Figure 3 and Figure 4 show a building block 15 having a top surface with a plurality of projections 17 and a bottom surface having a similar array of recesses 18 adapted to receive the projections of another building block. The building block 15 also features a plurality of receiving elements interspersed below the projections 17, shown as a second plurality of recesses 16. Preferably the recesses 16 are aligned along the edges of the block 15 and are shaped to receive a connector head 11 of a tendon 10.

[0078] It should be noted the recesses 16 could be applied to a building block having any number of connecting projection 17 and recesses 18, or to a block that has no other connecting mechanism. The block may also be of any thickness or shape. Preferably where the block has projections 17 and recesses 18, they are quantised to a predefined separation pitch that enables compatibility with other building block genres.

[0079] To interconnect a plurality of building blocks 15, one head 11 of a tendon 10 is pressed into the recess 16 of a building block and another head 11 is pressed into a recess 16 of a second building block. Preferably the engagement between each connector head 11 and recess 16 is an interference fit, or at least frictional so as to provide a connection that is stable, yet releasable. The tendon 10 and building block 15 are separated by lifting the connector head 11 from the recess 16 as desired.

[0080] Alternatively, the tendon head 11 may be pressed into a recess 16 where the recess has one or more protrusions, or lugs 40 as shown in Figure 3, that partially enclose the tendon. The tendon compresses to pass through the one or more lugs 40 and expands once it has entered the recess 16. To remove the tendon, the tendon arm portion adjacent the tendon head 11 is compressed and lifted past the lugs 40. The lugs 40 provide a stable connection that allows moderate forces to be applied to the tendon or building block, in any direction, while restraining the tendon within the recess 16.

[0081] Alternatively still, the tendon could be held in place by the placement of another building block on top. The lower surface of that block closes the opening to the recess and prevents the tendon from being withdrawn.

[0082] The tendon 10 provides a range of motion between building blocks 15 to which it connects. Figures 5a, 5b and 5c illustrate a pair of building blocks 15 connected by a plurality of tendons 10. The tendon 10 facilitates a range of motion between the blocks in multiple axes. For example, the blocks can be drawn away from each other by forcing the tendon to be stretched. In another example, the tendons can be twisted. In another example, the tendons can be bent. Figures 5b and 5c illustrate how the tendon can be deformed to change the alignment of the building blocks 15. The creation of a variable angle between interconnected building blocks allow for the planes to which the building blocks are normally aligned to deviate to a range of non-quantised alignments.

[0083] The preferred properties of tendon 10 are that it must be made of a resilient material. That is, it is deformable by force and will substantially restore to its original size, shape and orientation when it is not deformed beyond the limits of material integrity, further the material could be said to have a memory. The tendon is preferably substantially inelastic so as to avoid substantial forces that would produce pulling or pushing loads when deformed, or otherwise store significant mechanical energy. It is further preferable that deformation of the tendon does not require significant force so that deformation is easily achieved by a child. A material suitable for manufacturing the tendon includes, but is not limited to, silicone rubber.

[0084] More preferably the tendon 10 provides alignment of interconnected building blocks in at least two Cartesian axes. The tendon 10 advantageously allows for a combination of two or more of drawing, bending and twisting forces to be applied to the building blocks to angular and rotational alignments, or at least allows at least two degrees of freedom between interconnected building blocks. Two or more building blocks 15 can therefore be positioned in a variety of complex configurations by allowing building block alignment planes to be expanded, rotated, and arched or a combination thereof, or a number of other variations. When connected to two or more building

blocks, the tendon therefore provides a range of motion for each of those blocks, relative to each other, in at least two Cartesian axes. However, the resilience of the tendon biases it toward its natural state when deformed.

[0085] Preferably the tendon arm section 14 is of varying length, stiffness and angular shape. For example, Figures 6a, 6b and 6c show a tendon 10 interconnecting two building blocks 15 and having a short arm section. The short arm section of the tendon allows a closer positioning of adjacent building blocks while maintaining the ability to provide a variable alignment between the building blocks.

[0086] Figure 7 shows a tendon 20 in accordance with another embodiment of the invention. The tendon 20 has a plurality of connection heads 22 and an arm section 21. As shown, the connection heads 22 may be moulded on angularly separated surfaces. However, the arm section may alternatively be moulded to include an angular portion. The particular angle between the connection heads is preferably, but not limited to, a 90 degree angle. The width of the tendon preferably corresponds to the width between protrusions 17 on the building block 15 to allow a plurality of similarly shaped tendons to be adjacently aligned.

[0087] Figures 8a and 8b show a plurality of tendons 20 abutted to interconnect a pair of building blocks 15. A single connection between building blocks can be facilitated, or, a plurality of tendons may be abutted about faces 24 to form many connections for additional rigidity. The building blocks are shown aligned such that tangential planes are available on which to connect further building blocks. Figure 9 shows an alternatively shaped tendon 23 having a plurality of connection heads 22 along the arm section 25. Figure 10a and 10b illustrate the use of the tendon 23 to interconnect a pair of building blocks 15. Preferably the symmetry of the tendon connector head allows relative reversal of building block orientations. For example, the building blocks of Figure 10b are shown to be reversed orientation to the building blocks shown in Figure 10a.

[0088] In accordance with another embodiment of the invention a system of components is shown in Figures 11 to 15. Figure 11 shows a building block 30 having a plurality of projections 17, a plurality of recesses 16 and an elongate aperture or slot 31 running a substantial length of the top surface. Figures 13 and 14 show elongate connecting members 38, 39 having projections 17 extending from the top surface and a tab 34 projecting from each end surface. Each tab 34 has an aperture 32, 33. A pin 35, as shown in Figure 12, has a head portion 37, a shaft portion 36 and an enlarged portion 40 at the base of the shaft, or flare. The pin 35 acts to connect the connecting members 38, 39 to the slot 31 of the building block 30 by the insertion of the pin shaft 36 through an aperture 32, 33 and through the slot 31. Preferably the enlarged portion of the shaft 40 is

marginally larger than the apertures 32, 33 and the width of slot 31 to ensure the pin can be forced through each of the openings to thereby be retained without freely disengaging.

[0089] In an alternative form, the pin may have a flared or enlarged end together with split end portion, or thin slot extending axially from the tip of the pin some way down the shaft portion 36. The split end portion allows for a slight crushing, or inward bending of the portions of the pin adjacent the split or thin slot, as the pin is forced through the slot, where the crushed portion will uncrush or unbend having passed through the slot.

[0090] In a further alternative form, the pin may be made of a resiliently deformable material. The deformable material has a flared end and bullet nosed tip for engaging with the aperture. The pin deforms as it passes through the slot and reforms to its substantially original shape having passed through the slot.

[0091] In a further alternative form, the pin may be stiff and rigid. Preferably the shaft portion of the pin 36 is narrower than the span of the slot to allow free movement. Preferably the pin engages with the aperture with an interference fit.

[0092] Figure 15a and 15b illustrate a pair of pins 35 engaged with the building block 30 and a pair of connecting members 38, 39. The pin 35 provides a slideable connection between the connecting members 38, 39 of the building block 30 by allowing lateral movement along the length of the slot 31. The pin 35 also provides a rotational coupling between the building block 30 and the connecting members 38, 39 by allowing the member to rotate about the pin axis. Preferably the tabs 34 are aligned to either an upper or a lower end of the block side 38 to facilitate a connection beneath the slot 31 as shown in Figure 15a, or below the slot 31 as shown in Figure 15b to allow a range of relative building block heights to be selected.

[0093] Figure 16 shows a building block 39 having multiple slots 31. Each slot 31 allows for a plurality of connecting members 38 to be attached via a pin 35. Each connecting member 38 is able to pivot about the pin to allow for complex geometrical shapes, hinging mechanisms and angular connections to be formed.

[0094] Figure 17 shows a pair of building blocks 30 linked by a pair of tendons 10. Each building block 30 has a pair of connecting members 38 attached via a pin 35 to the slot 31. The tendons 10 form a hinged connection between the building blocks 30. Each of the connecting members 38 extending from the building blocks 30 provides for the attachment of further construction blocks at a variety of angles and building planes.

[0095] Figure 18 shows an experimental implementation of the described components of the invention. A house type structure is shown having walls and a roof extending from the top of the wall. The walls are aligned in a curved orientation and heightened by stacking a plurality of wall members 42. The wall members 42 are stacked by engaging a plurality of projections from a top surface of each block with a plurality of recesses in the bottom surface of each block. A slotted building block 41 is connected to the top of the wall members 42. Pins 35 engage with the slotted building block 42 and an aperture in another plurality of building blocks 43 to form a connection. The plurality of building blocks 43 are interconnected by a tendon 10 thereby allowing a non planer connection. The slotted blocks 41 pin 35, building blocks 43 and tendon 10 allow for a surface 44 to project from the wall member 43 in a direction and pitch independent from that normally dictated by the connection mechanism of the wall member 42. A structure can therefore be formed with building planes unconstrained by connection mechanism offered by the blocks 42.

[0096] Figure 19 shows another experimental implementation of the described components of the invention. A plurality of short tendons 10 interconnect a plurality of square shaped building blocks 45 to form a surface 46. The inherent flexibility of the tendons 10 allows the surface 46 to bend and flex. The surface is suspended inside an encircling plurality of construction blocks 15 by a plurality of long tendons 10 and raised by further building blocks 47. The formed structure resembled a trampoline both in appearance and scale functionality.

[0097] Figure 20 shows another experimental implementation of the described components of the invention. An axle carrier building block 54 is rotationally connected to an axle 55 and a wheel 56. The top of the axle carrier 54 is connected to a first block 51. A first end of a pair of tendons 52, 53 are connected at opposing ends of the first block 51. The second end of the tendons 52, 53 are connected to a second block 52 that is positioned substantially above the first block. The tendons 52, 53 align the first and second building blocks 51, 50 by being bent approximately 180 degrees. The first tendon 52 is longer than the second tendon 53 so that one end of the second building block is positioned higher than the opposing end. In this way, a vehicle body can be attached to the upper surface of the second building block 50 and the tendon 52 used as a suspension mechanism that lies between the vehicle body and the wheel 56. The suspension characteristics are provided by the resilient properties tendon.

[0098] a tendon 52 attached to one end, and the opposing end of the tendon is connected to a second building block 50. The opposing end of the first block 51 has a second tendon 53, where the opposing end of the

[0099] The building blocks shown in the figures are provided as examples of possible building blocks that could be used with the described connection mechanisms. It should be appreciated that any combination of the described connection mechanisms could be combined with any of the described building blocks or other building blocks without departing from the scope of the invention.

[00100] Where in the foregoing description reference has been made to elements or integers having known equivalents, then such equivalents are included as if they were individually set forth. Although the invention has been described by way of example and with reference to particular embodiments, it is to be understood that modifications and/or improvements may be made without departing from the scope or spirit of the invention.

CLAIMS

1. A toy construction system comprising a releasably connectable tendon or tether ("tendon") to connect to at least two building blocks, the tendon being resiliently deformable and providing a range of motion for each at least two blocks, relative to each other, in at least two Cartesian axes, the tendon having an engagement, and each block having a corresponding receiving element.
2. A toy construction system as claimed in claim 1, wherein the at least two building blocks have a plurality of projections extending upward from a top surface, and a plurality of recesses in a lower surface, the recesses shaped to frictionally engage the projections of another building block.
3. A toy construction system as claimed in claim 1 or claim 2, wherein the tendon has a plurality of engagements.
4. A toy construction system as claimed in claim 3, wherein the engagements are enlarged portions of the tendon.
5. A toy construction system as claimed in any one of claims 1 to 4, wherein the receiving element is a recess in a building block.
6. A toy construction system as claimed in claim 4 or claim 5, wherein the plurality of engagements are located on angularly separated surfaces.
7. A toy construction system as claimed in any one of claims 4 to 6, wherein the engagements are shaped complimentary to the receiving elements, and engage by interference fit.
8. A toy construction system as claimed in any one of claims 4 to 7, wherein the engagements are held in the receiving elements by one or more lugs.
9. A toy construction system as claimed in any one of claims 1 to 8, wherein the toy construction system further comprises a building block having at least one elongate slotted aperture, another building block having at least one aperture, and a pin to engage through an aperture on at least two building blocks to thereby facilitate a connection that is hinged about the axis of the pin and slideable about the axis of slot elongation.

10. A toy construction system as claimed in claim 9, wherein the at least one aperture is located on a projection that extends from a side surface.
11. A toy construction system as claimed in claim 9 or claim 10, wherein the at least one aperture extends from a top to a bottom surface
12. A toy construction system as claimed in any one of claims 9 to 11, wherein the pin has a head portion, and shaft portion extending downward from the head portion and a flared portion located at the base of the shaft portion.
13. A toy construction system comprising a first building block having at least one elongate slotted aperture.
14. A toy construction system as claimed in claim 13, wherein the elongation axis projects along a surface plane of the building block.
15. A toy construction system as claimed in claim 13 or claim 14, wherein the aperture extends from a top to a bottom surface of the building block.
16. A toy construction system as claimed in any one of claims 13 to 15, wherein the toy construction system further comprises a second building block having at least one aperture.
17. A toy construction system as claimed in claim 16, wherein the toy construction system further comprises a pin to engage through an aperture on each of the first and second building blocks to thereby facilitate a connection that is hinged about the axis of the pin.
18. A toy construction system as claimed in claim 16, wherein the toy construction system further comprises a pin to engage through an aperture on each of the first and second building blocks to thereby facilitate a connection that is slideable about the axis of slot elongation.
19. A toy construction system as claimed claim 17 or claim 18, wherein the aperture of the second building block is located on a projection that extends from a side surface.
20. A toy construction system as claimed in any one of claims 17 to 19, wherein the pin has a head portion, and shaft portion extending downward from the head portion and a flared portion located at the base of the shaft portion.
21. A toy construction system as claimed in any one of claims 16 to 20, wherein the first, or the second, or both building blocks has a plurality of projections extending upward from a top

surface, and a plurality of recesses in a lower surface, the recesses shaped to frictionally engage the projections of another building block.

22. A toy construction system as claimed in any one of claims 16 to 21, wherein the first, or the second, or both building blocks has a plurality of receiving elements.
23. A toy construction system as claimed in claim 22, wherein the receiving element is a recess in a building block.
24. A toy construction system as claimed in any one of claims 13 to 23, wherein the toy construction system further comprises a releasably connectable tendon to connect to at least two building blocks, the tendon being resiliently deformable and providing a range of motion for each at least two blocks, relative to each other, in at least two Cartesian axis, the tendon having an engagement, and each block having a corresponding receiving element.
25. A toy construction system as claimed in claim 24, wherein the body of the tendon has an angular portion.
26. A toy construction system as claimed in any one of claim 24 or claim 25, wherein the tendon has a plurality of engagements.
27. A toy construction system as claimed in any one of claims 24 to 26, wherein the engagements are enlarged portions of the tendon.
28. A toy construction system as claimed in claim 26 or claim 27, wherein the plurality of engagements are located on angularly separated surfaces.
29. A toy construction system as claimed in any one of claims 26 to 28, wherein the engagements are shaped complimentary to the receiving element, and engage by an interference fit.
30. A toy construction system as claimed in any one of claims 26 to 29, wherein the engagements are held in the receiving elements by one or more lugs.
31. A block having an outset profile and an inset profile whereby like blocks can be interconnected; wherein there is provided set down from the outset profile a recess to anchor a tendon or tether that is to project outwardly of the block.
32. A block as claimed in claim 31, wherein the recess is defined to restrict rotation in the recess of a complementary tendon or tether.

33. A block together with such a tendon or tether.
34. A toy construction system, in combination or assembly, comprising:
 - a first block,
 - a second block, the first and second blocks optionally having features whereby they can, if desired, be interconnected onto the other, and
 - a tether engageable to each block whereby, if desired, the blocks whether separate or mutually interconnected, can be linked by the tether.
35. A toy construction system as claimed in claim 34, wherein the tether is flexible.
36. A toy construction system as claimed in claim 34 or claim 35, wherein the tether is resilient.
37. A toy construction system as claimed in any one of claims 34 to 36, wherein each of the blocks has an opening or other docking feature into which an anchorable end of the tether can be retained.
38. A block suitable for such a combination or assembly with components of any one or more of the preceding claims.
39. A tether suitable for such a combination or assembly with components of any one or more of the preceding claims.
40. A block and/or tether of any of the kinds substantially as shown in any one or more of the accompanying drawings.

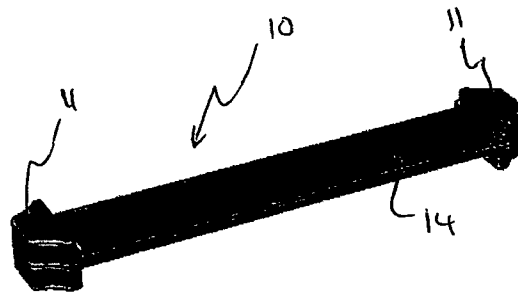


FIGURE 1

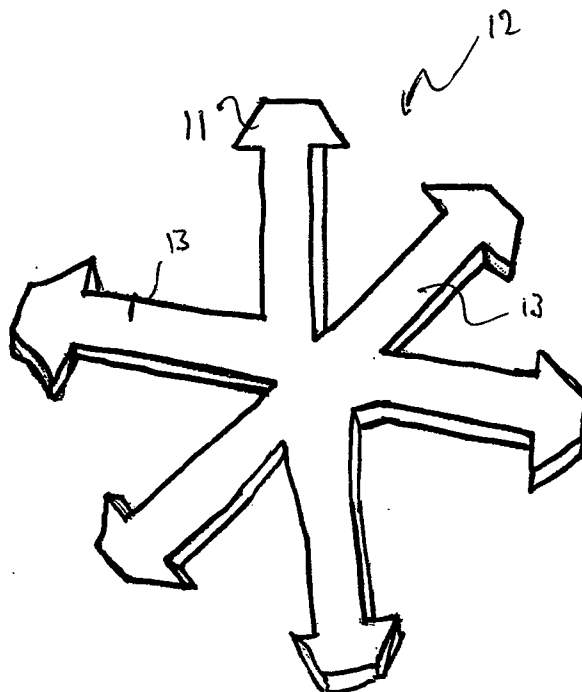


FIGURE 2

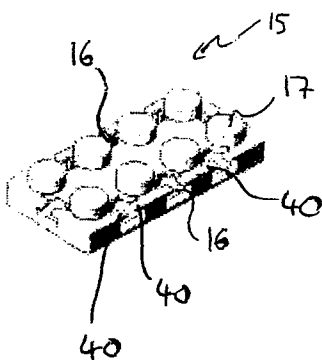


Figure 3

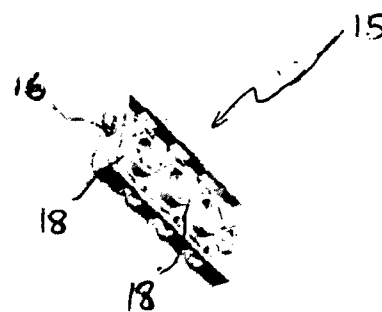


Figure 4

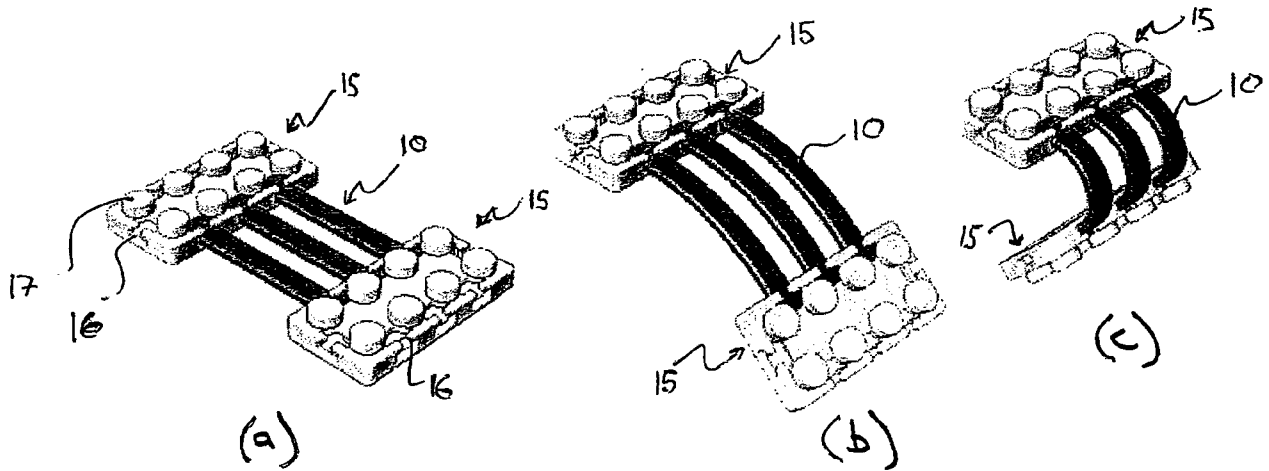


FIGURE 5

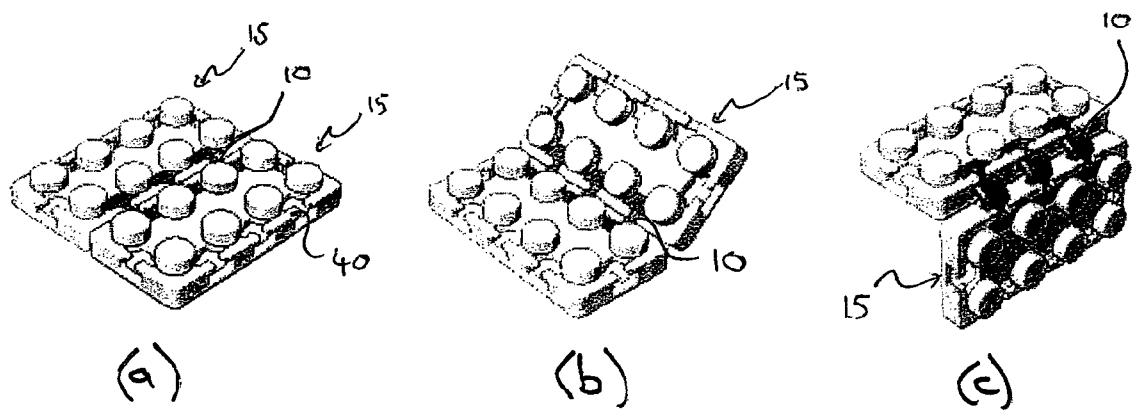


FIGURE 6

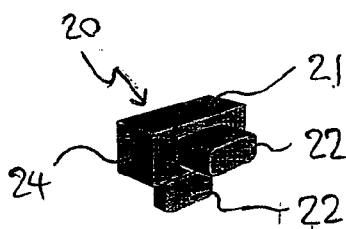


Figure 7

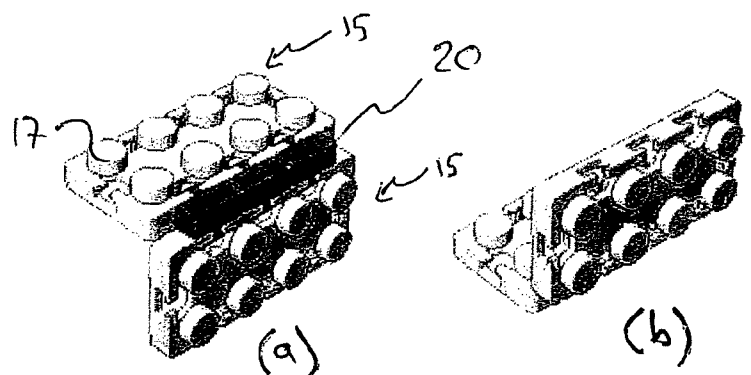


FIGURE 8

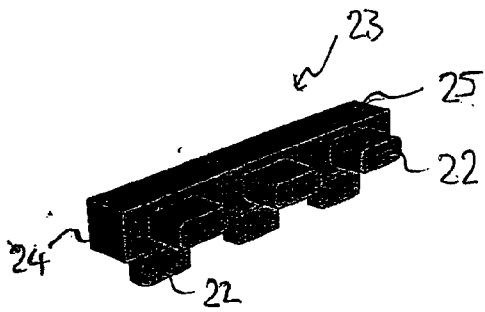
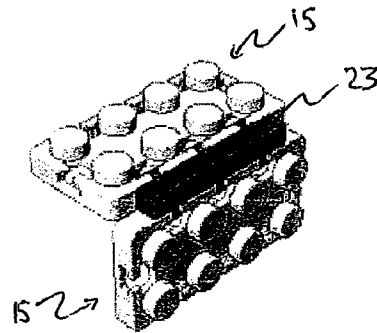
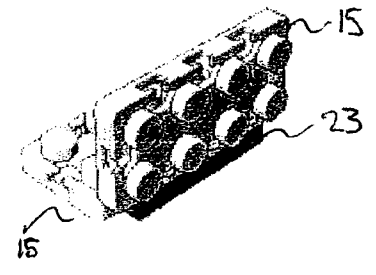


Figure 9



(a)



(b)

FIGURE 10

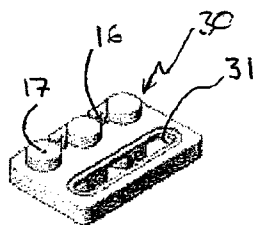


Figure 11

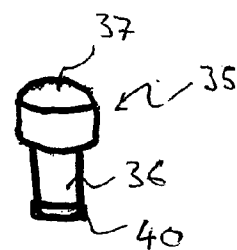


Figure 12

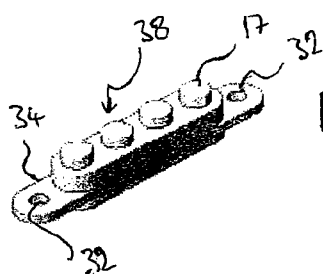


Figure 13

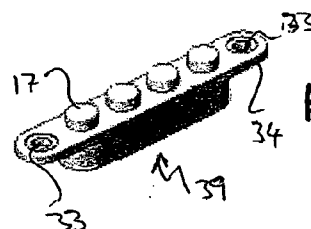


Figure 14

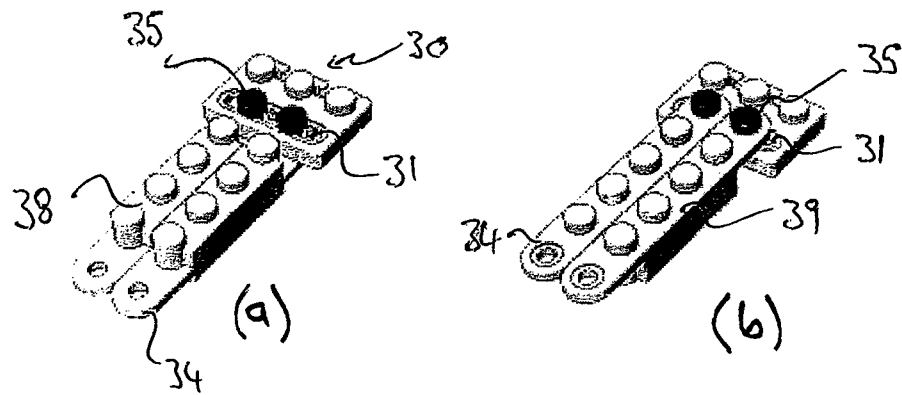


FIGURE 15

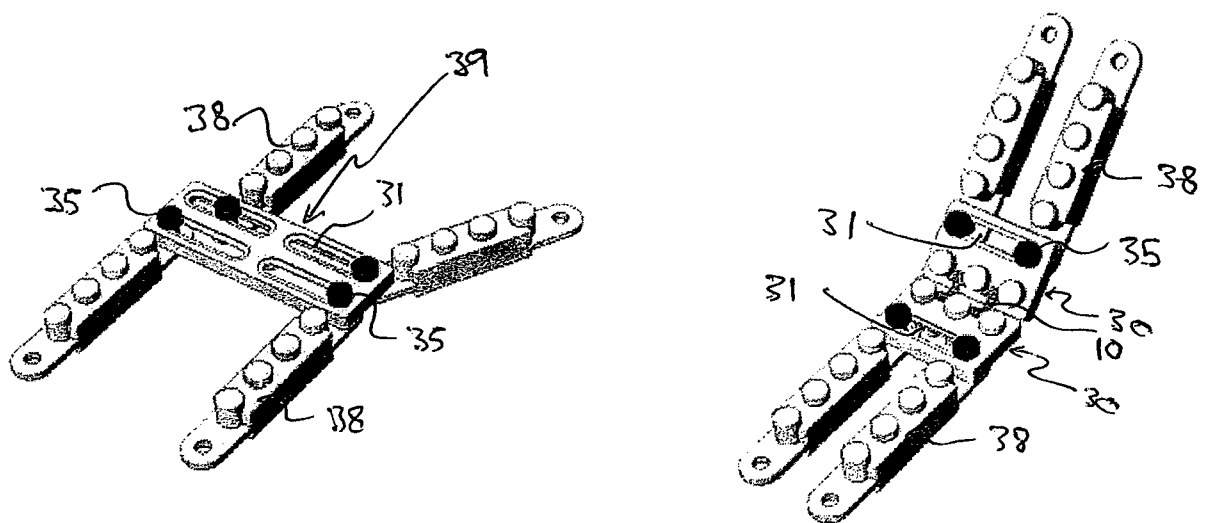


Figure 16

FIGURE 17

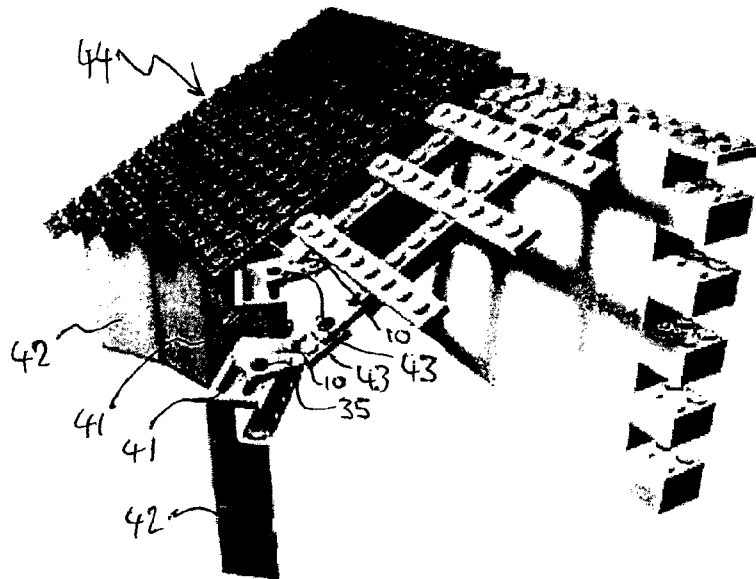


FIGURE 18

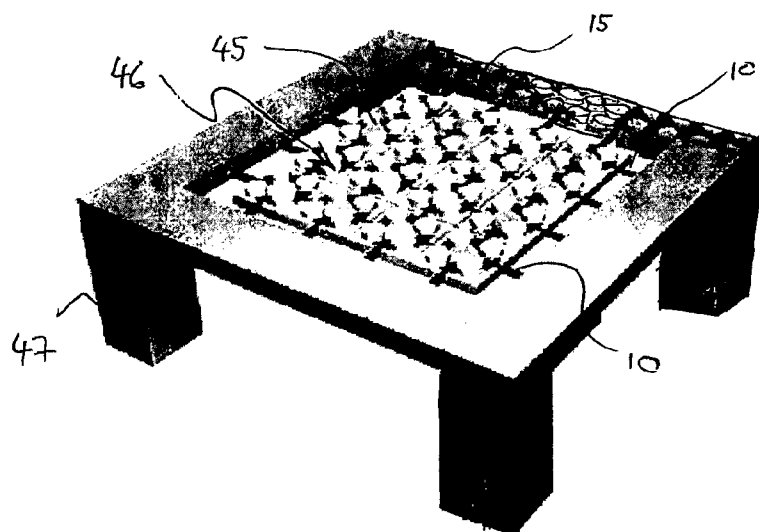


FIGURE 19

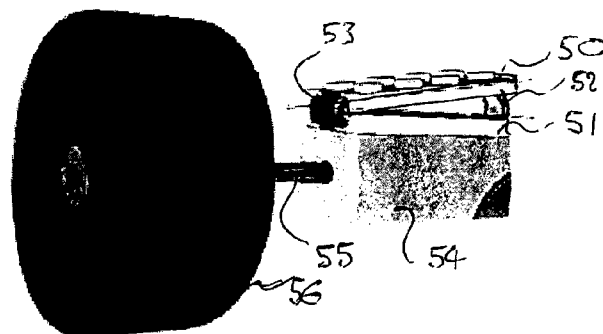


FIGURE 20

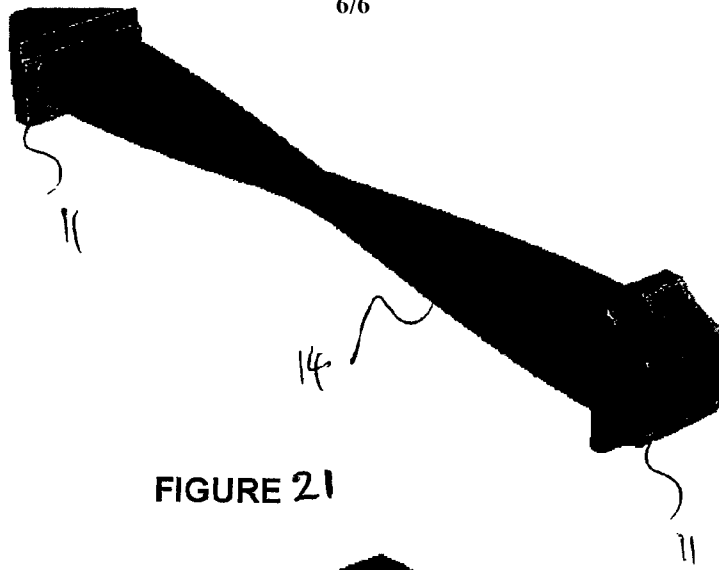


FIGURE 21

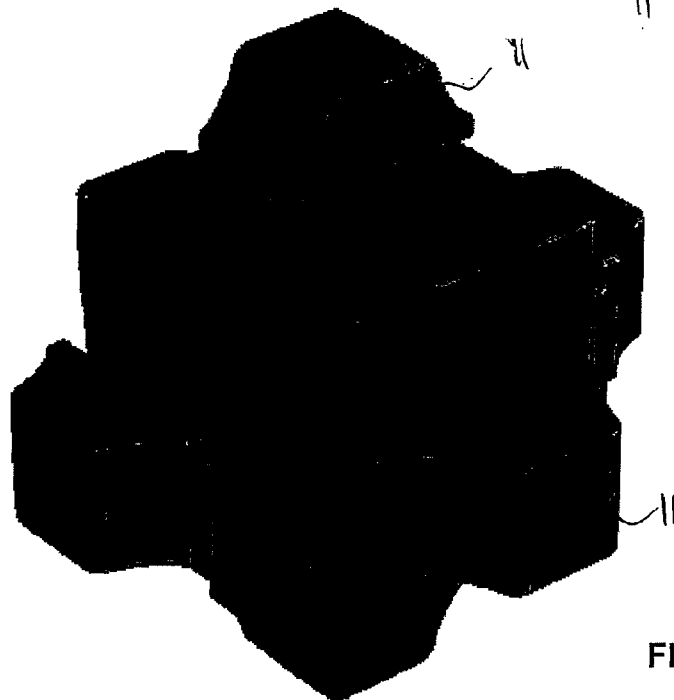


FIGURE 22

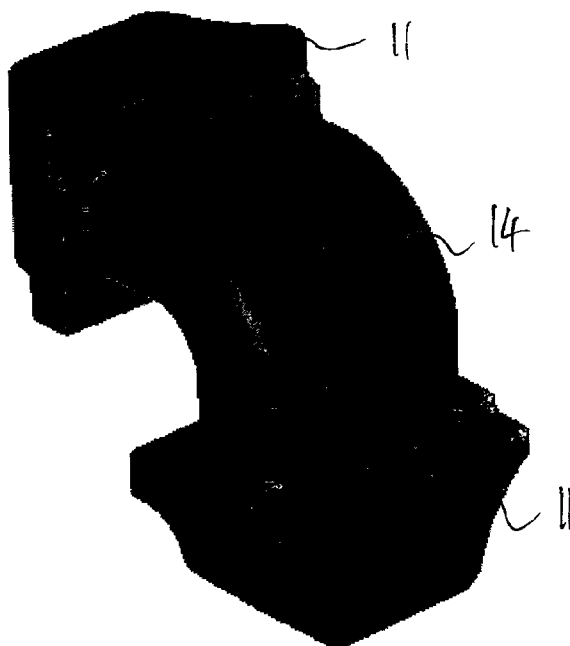


FIGURE 23

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ2011/000264

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl.		
A63H 33/10 (2006.01)		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
WPI, EPODOC, Google Patents, Patent Lens & Patentscope, IPC: A63H, Keywords (toy, block, tendon, flexible, connector) and like terms		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/096039 A1 (HOTTI, NILO) 14 August 2008 (Abstract, Pages 1-3 & 5-15)	1-39
X	WO 2005/110571 A1 (BARCELO, NATHALIE) 24 November 2005 (Abstract, Pages 2-3 & 14-24)	1-39
☐ Further documents are listed in the continuation of Box C ☒ See patent family annex		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 16 May 2012		Date of mailing of the international search report 18 May 2012
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. +61 2 6283 7999		Authorized officer CHIRAG MEHTA AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : +61 2 6283 2807

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ2011/000264

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 40
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
The claim does not comply with Rule 6.2(a) because they rely on references to the description and/or drawings
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/NZ2011/000264

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.

Patent Document Cited in Search Report				Patent Family Member			
WO	2008096039	EP	2117664	FI	20075073	US	2010009593
WO	2005110571	CA	2569032	EP	1755757	US	2008045116
		US	7798884	US	2011059674		
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.							
END OF ANNEX							