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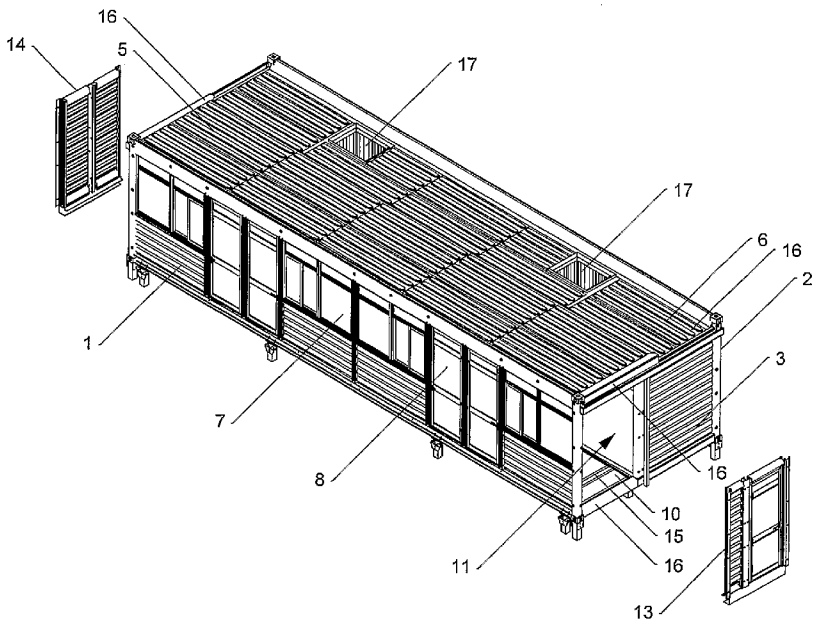
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(54) Title: A BUILDING



(57) Abstract: A portable building has a first side wall 1, a second side wall 2, a pair of end walls 3 and 4, a floor, and overlapping roof parts 5 and 6. The first side wall 1 is able to move in a direction away from the second side wall 2 with the result that space within the building is substantially increased. The building is formed such that as the first side wall 1 moves the overlap between the roof parts 5 and 6 reduces so as to accommodate the increased space within the building. Movement of the first side wall 1 creates substantial wall openings between the first side wall 1 and the end walls 3 and 4. The openings are closed off with doors, a panels, windows, or any combination of these, in each case made to match the wall openings.

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TITLE

A Building.

FIELD OF INVENTION

This invention relates to a building. A preferred form of the invention relates to portable building with a wall which can move outwards to increase the floor space of the building.

BACKGROUND

Portable buildings of various types are known. These are used in certain applications and have varying degrees of utility depending on their design. It is an object of at least one form of the present invention to provide a portable building which can be conveniently freighted on or in a seagoing vessel in much the same way as a standard shipping container, or to at least provide the public with a useful choice.

The term "comprising" or derivatives thereof (eg "comprises"), if and when used herein, should be interpreted non-exclusively – eg if used in relation to a specific combination of features they should not be taken to exclude the possibility of additional unspecified features.

SUMMARY OF INVENTION

According to one aspect of the invention there is provided a portable building comprising a first side wall, a second side wall, a pair of end walls, a floor, and overlapping roof parts, the building having transfer means which enables the first side wall to move in a direction away from the second side wall with the result that space within the building is substantially increased, the building formed such that as

the first side wall moves as set out above the overlap between the roof parts reduces so as to accommodate the increased space within the building, and wherein movement of the first side wall as above creates substantial wall openings between the first side wall and the end walls, and the building has one or more of a door, a panel, a window, or any combination of these, made to match the wall openings and which can be installed to substantially close off said wall openings.

Preferably when the first side wall has moved as above a floor opening or floor openings is/are created between the first side wall and the floor, and the building has a floor extension which can be installed to close the floor opening or openings.

Optionally the floor extension incorporates floor framing connected with the first side wall so that the floor framing moves when the first side wall is moved as above, with the result that the floor framing provides a supportive structure for extending the floor.

Optionally the floor extension incorporates a section pivotally attached at or adjacent to the first side wall and which can pivot downwards to close the floor opening when the first side wall has moved as above.

Optionally there is end wall framing connected with the first side wall so that the end wall framing moves when the first side wall is moved as above, with the result that the end wall framing provides a supportive structure for extending the end walls.

Preferably the overlapping roof parts maintain an effective weather seal before, during, and after movement of the first side wall as above.

Preferably the side and/or end walls have spaces for accommodating window joinery and said window joinery forms part of the building.

Preferably the building has internal wall parts suitable for use in creating internal walls of the building.

Preferably the portable building is formed so that prior to movement of the first side wall as above it is substantially in the form of a standard ISO shipping container (for example a 40 foot container).

Preferably the portable building is formed so that prior to movement of the first side wall as above the building has sufficient strength to enable it to be stacked and crane handled in a manner normal for an ISO freight container in a freight container shipping context.

Preferably the first side wall is formed so that, prior to its movement as above, it provides sufficient structural integrity to enable the building to withstand the weight of one or more standard ISO 40 foot containers stacked on top of the building without damaging the building so that the building can be safely sea freighted in the manner of a stacked ISO container, without the need for temporary bracing along the longitudinal dimension of the first side wall.

According to a further aspect of the invention there is provided a portable building comprising a first side wall, a second side wall, a pair of end walls, a floor, and overlapping roof parts, the building having transfer means which enables the first side wall to move in a direction away from the second side wall with the result that space within the building is substantially increased, the building formed such that as

the first side wall moves as set out above the overlap between the roof parts reduces so as to accommodate the increased space within the building, and wherein movement of the first side wall as above creates a substantial wall opening between the first side wall and an end wall, and the building has one or more of a door, a panel, a window, or any combination of these, made to match the wall opening and which can be installed to substantially close off said wall opening.

BRIEF DESCRIPTION OF THE DRAWINGS

Some preferred forms of the invention will now be described by way of example and with reference to the accompanying drawings, of which:

Figure 1	is a front perspective view of a portable building in a substantially un-installed state,
Figure 2	is a rear perspective view of the building of figure 1,
Figure 3	is a front perspective view of the building when partly installed,
Figures 4-6	are perspective views of the building in a more advanced stage of installation,
Figure 7	is a front perspective view of the building when substantially installed,
Figure 8	is a rear perspective view of the building when substantially installed with side panels in place,
Figures 9 and 10	are front and rear perspective views of the building, respectively, when fully installed, and
Figure 11	is on overhead viewing showing an optional internal layout of the building when in use.

DETAILED DESCRIPTION

Referring to figures 1 and 2, the portable building is shown generally in the shape of a standard 40 foot ISO "high top" shipping container. It has a substantially metallic superstructure and can be crane lifted and stacked in a manner normal for an ISO container. The portable building has a first side wall 1, a second side wall 2, a pair of end walls 3 and 4, and overlapping roof parts 5 and 6. As shown, there are window and door openings 7 and 8 for receiving window and door joinery during or prior to installation of the building.

As will be appreciated, the normal width of a standard ISO container does not allow for a great deal of floor space. To address this shortcoming the first side wall 1 can be moved away from the second side wall 2 as indicated in figure 3 by arrow 9. Preferably the first side wall 1 moves in this way as one, ie as opposed to moving in sections. Referring to figures 3 and 4, as the first side wall 1 moves away from the second side wall 2 the amount of overlap between the roof parts 5 and 6 reduces, or in other words the roof parts collectively extend to accommodate the greater area within the building. As indicated in figure 3, foundation piles and bearers are arranged in front of the side wall 1 to support that wall when it moves and also to support and the building generally when the wall reaches its installed disposition.

Figures 5-8 also show the building with the first side wall 1 fully extended. As will be appreciated, such extension leaves a floor opening 10 adjacent the first side wall 1. It also leaves wall openings 11 between the first side wall 1 and the end walls 3 and 4. Referring to figures 5 and 6, to close the floor opening 10 a planar floor extension 12 pivots downwards from the first side wall 1. The main floor of the container combines with the floor extension 12 in a substantially seamless manner as is evident from figure 7.

Referring to figures 7 and 8, the wall openings 11 are closed by way of doors and/or windows, and/or wall panels as desired. A wall panel 13 / 14, for example, may or may not incorporate a door or a window. In some cases more than one door, wall panel or window, or a combination of these, may be used to close off each opening 11. The fact that the wall openings 11 emerge during the extension process, and are subsequently closed, simplifies the design of the building. Preferably the side walls 1 and 2 can receive window joinery, doors, fill-in panels, or any combination of these, depending on personal preferences.

To facilitate movement of the first side wall as described above the building incorporates transfer means, which may simply be anything which substantially or significantly facilitates the movement. For example the transfer means may comprise parts such as wheels and runners for facilitating and guiding movement of the first side wall 1.

In preferred forms of the invention the building has a series of support beams, metallic or otherwise, which are drawn out as the first side wall 1 moves in the manner described above. For example, as shown in figure 5 the first side wall 1 is connected to a series of floor joists which slide outwards with the first side wall 1. Similarly, the first side wall 1 is connected to end wall framing 16 which slides outwards with the first side wall 1. When the building is in a disassembled state the joists and framing 17 are completely or generally within the footprint of the building.

Referring to figures 9 and 10, the roof part 6 may incorporate skylights 17 to allow for more light into the building. In transit the skylights 17 are protected by the overlapping roof part 5. As shown, the building may be fitted with decks or landings.

The drawings do not show a full set of foundation piles but these would of course be employed in a normal in-use situation.

An advantage of preferred forms of the building is that they can be produced in low cost manufacturing countries and shipped to the desired destination. The building is formed of sufficient strength to enable it to be crane lifted and stacked in the same way as a standard ISO 40 foot container. This means that preferred forms of the building can be readily transported without prohibitive freight costs.

Preferably the first side wall 1 is formed so that, prior to its movement as above, it provides sufficient structural integrity to enable the building to withstand the weight of one or more standard ISO 40 foot containers stacked on top of the building without damaging the building so that the building can be safely sea freighted in the manner of a stacked ISO container, without the need for temporary bracing along the longitudinal dimension of the first side wall. The first side wall 1 is thus significantly structurally supportive regardless of whether the building is in a transportable state or an installed 'ready to use' state.

The building can be installed with internal wall partitions to create separate rooms or spaces, can be connected to plumbing and electrical services, or can be fitted with a self contained power source and plumbing system, for example a generator, a rain water tank, and a gas powered sewage disposal unit. In this regard figure 11 is a cut-away overhead view showing an optional layout for the building having internal dividing walls to create four distinct rooms. The internal dividing walls may be made up of panels which can be moved to form a variety of layouts as desired. In the case of figure 11 each room has its own bathroom facilities and each has an

external door. This configuration may, for example, be suitable as private accommodation for workers operating in remote areas.

In some embodiments of the invention the second side wall 2 may be arranged to move in the same manner as the first side wall 1, ie so that overall floor space can be extended from both sides of the building.

While some preferred forms of the invention have been described by way of example it should be appreciated that modifications and improvements can occur without departing from the scope of the appended claims.

CLAIMS

1. A portable building comprising a first side wall, a second side wall, a pair of end walls, a floor, and overlapping roof parts, the building having transfer means which enables the first side wall to move in a direction away from the second side wall with the result that space within the building is substantially increased, the building formed such that as the first side wall moves as set out in this claim the overlap between the roof parts reduces so as to accommodate the increased space within the building, and wherein movement of the first side wall as set out in this claim creates substantial wall openings between the first side wall and the end walls, and the building has one or more of a door, a panel, a window, or any combination of these, made to compliment the wall openings and which can be installed to substantially close off said wall openings.

2. A building according to claim 1, formed so that when the first side wall has moved as above a floor opening or floor openings is/are created between the first side wall and the floor, and the building has a floor extension which can be installed to close the floor opening or openings.

3. A building according to claim 2, formed so that the floor extension incorporates floor framing connected with the first side wall so that the floor framing moves when the first side wall is moved as above, with the result that the floor framing provides a supportive structure for extending the floor.

4. A building according to claim 2 or 3, wherein the floor extension incorporates a section pivotally attached at or adjacent to the first side wall and which can pivot downwards to close the floor opening when the first side wall has moved as set out in claim 1.

5. A building according to any one of the preceding claims, wherein there is end wall framing connected with the first side wall so that the end wall framing moves when the first side wall is moved as set out in claim 1, with the result that the end wall framing provides a supportive structure for extending the end walls.

6. A building according to any one of the preceding claims, formed so that the overlapping roof parts maintain an effective weather seal before, during, and after movement of the first side wall as set out in claim 1.

7. A building according to any one of the preceding claims, formed so that the side and/or end walls have spaces for accommodating window joinery and said window joinery forms part of the building.

8. A building according to any one of the preceding claims, having internal wall parts suitable for use in creating internal walls of the building.

9. A building according to any one of the preceding claims, formed so that prior to movement of the first side wall as per claim 1 the building is substantially in the form of a standard ISO shipping container.

10. A building according to any one of the preceding claims, formed so that prior to movement of the first side wall as in claim 1 it has sufficient strength to enable it to be stacked and crane handled in a manner normal for an ISO freight container in a freight container shipping context.

11. A building according to any one of the preceding claims, wherein the first side wall is formed so that, prior to its movement as set out in claim 1, that wall provides sufficient structural integrity to enable the building to withstand the weight of one or more standard ISO 40 foot containers stacked on top of the building without damaging the building so that the building can be safely sea freighted in the manner of a stacked ISO container, without the need for temporary bracing along the longitudinal dimension of the first side wall.

12. A building substantially as herein described with reference to the accompanying drawings

13. A portable building comprising a first side wall, a second side wall, a pair of end walls, a floor, and overlapping roof parts, the building having transfer means which enables the first side wall to move in a direction away from the second side wall with the result that space within the building is substantially increased, the building formed such that as the first side wall moves as set out in this claim the overlap between the roof parts reduces so as to accommodate the increased space within the building, and wherein movement of the first side wall as set out in this claim creates a substantial wall opening between the first side wall and an end wall, and the building has one or more of a door, a panel, a window, or any combination of these, made to match the wall opening and which can be installed to substantially close off said wall opening.

Figure 1

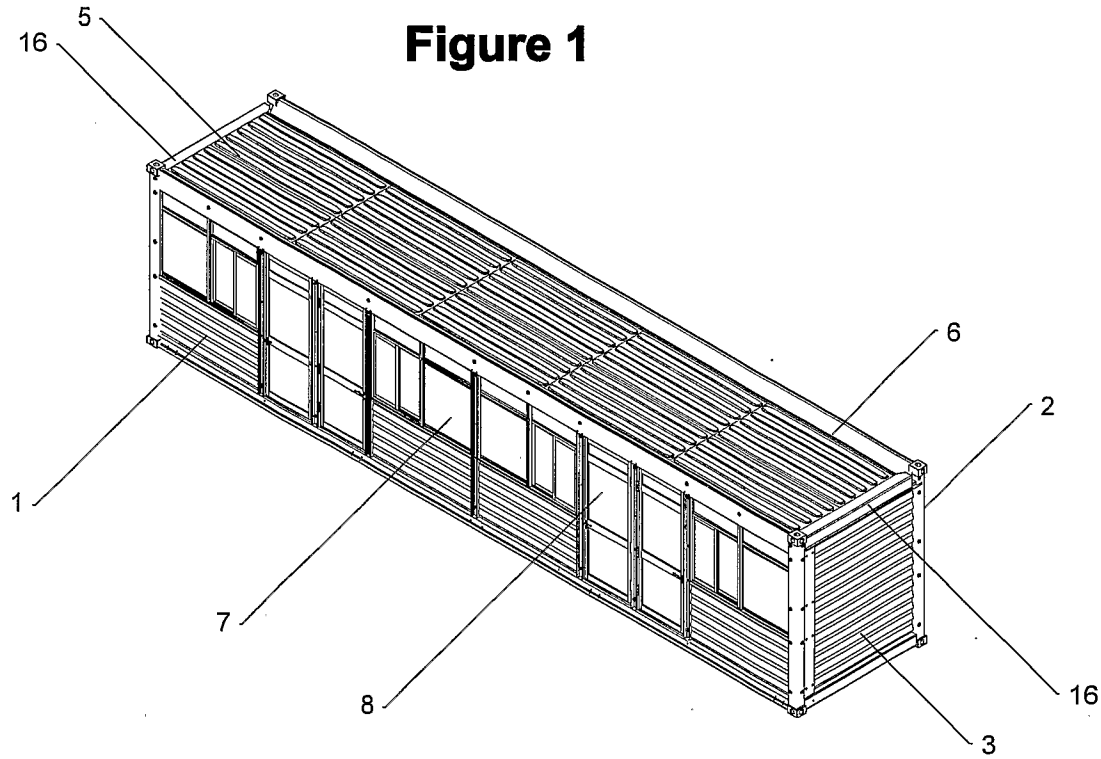


Figure 2

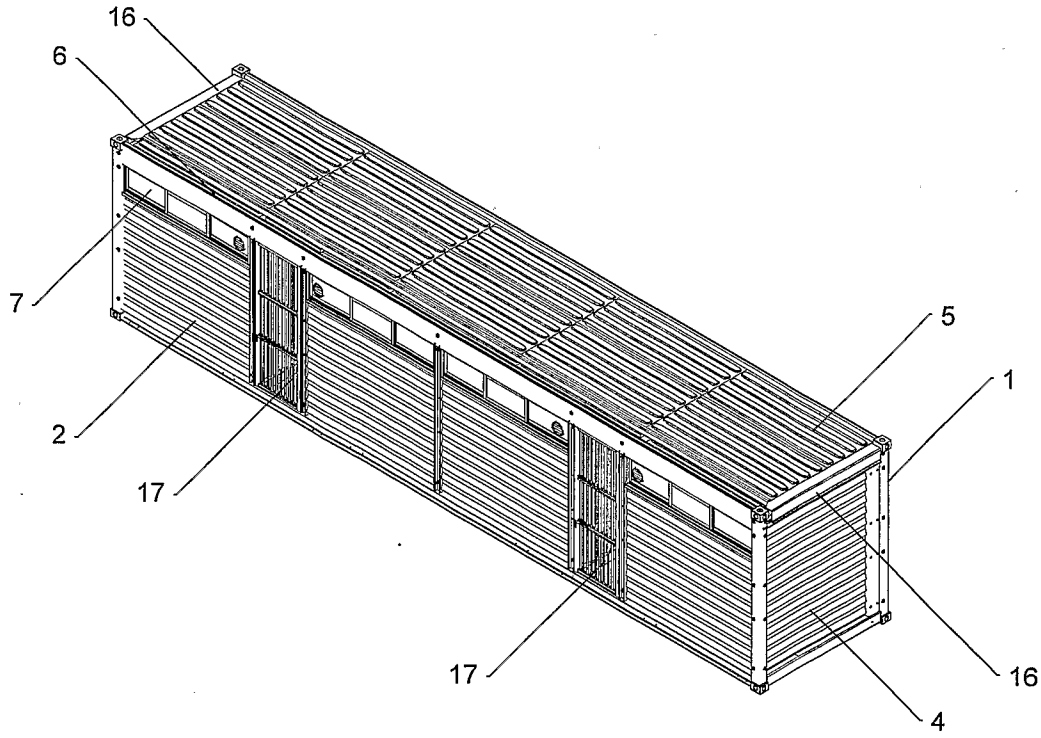


Figure 3

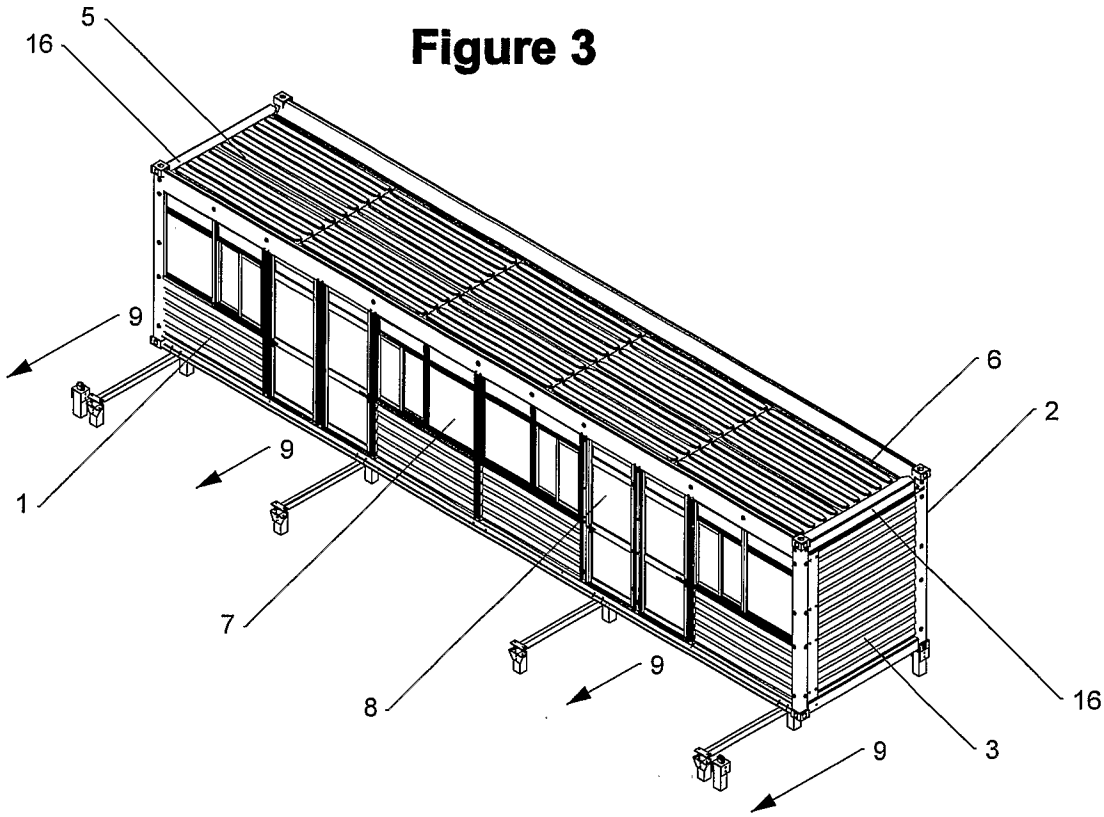


Figure 4

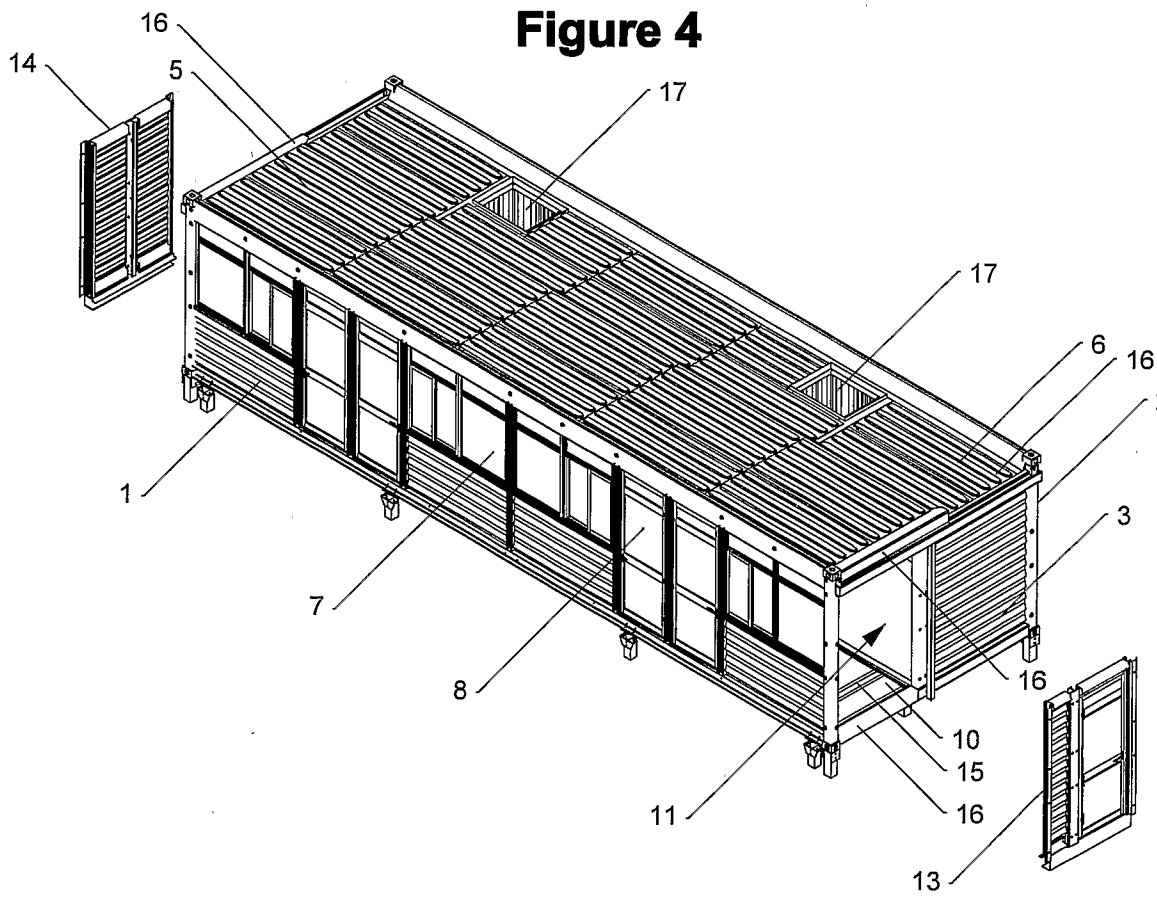


Figure 5

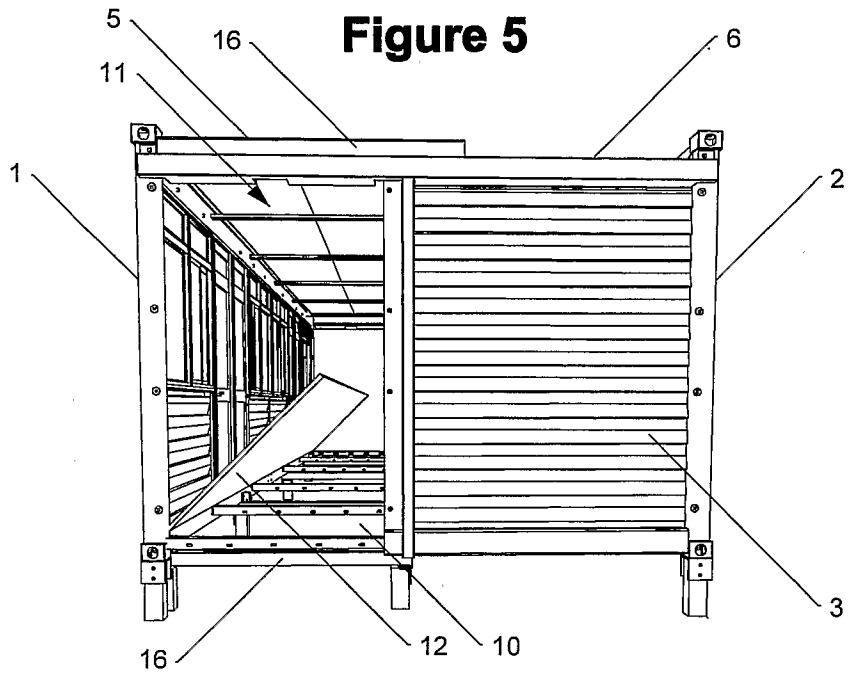


Figure 6

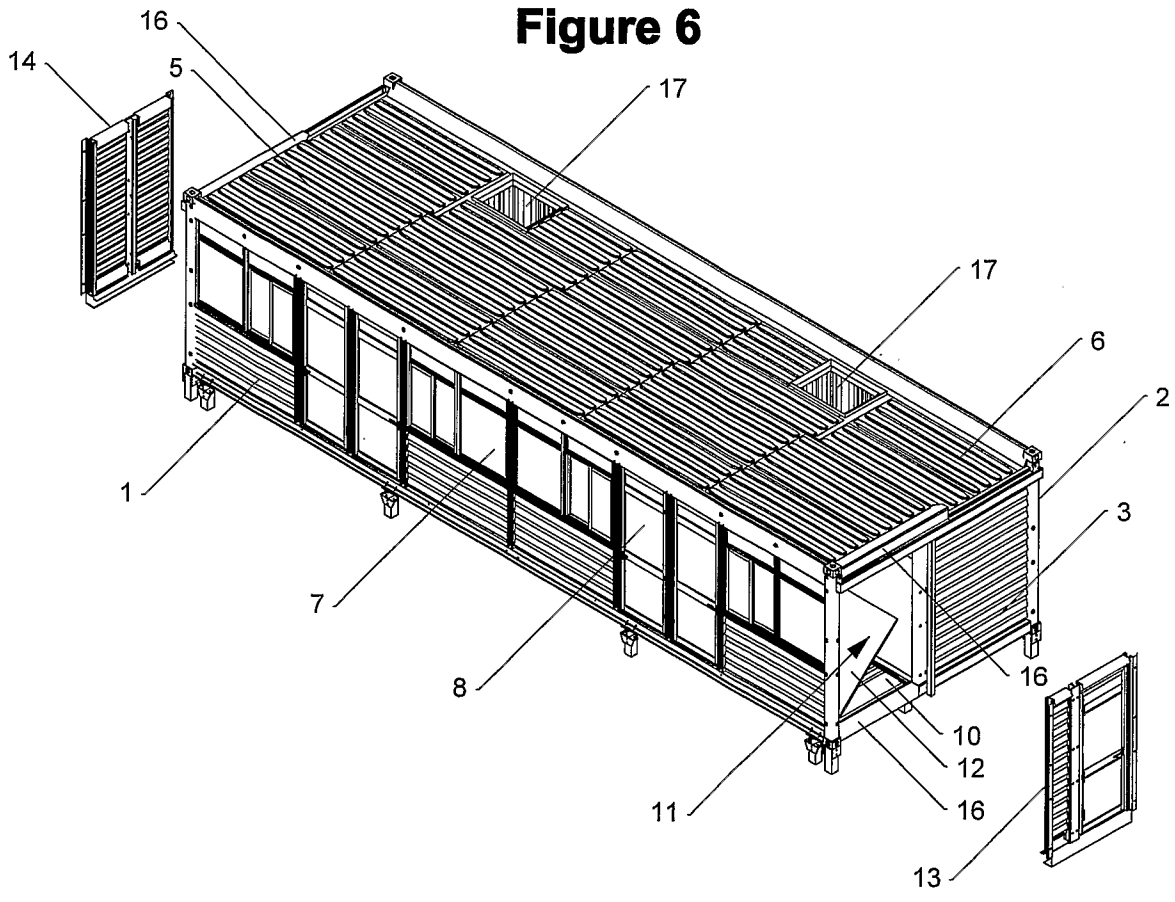


Figure 7

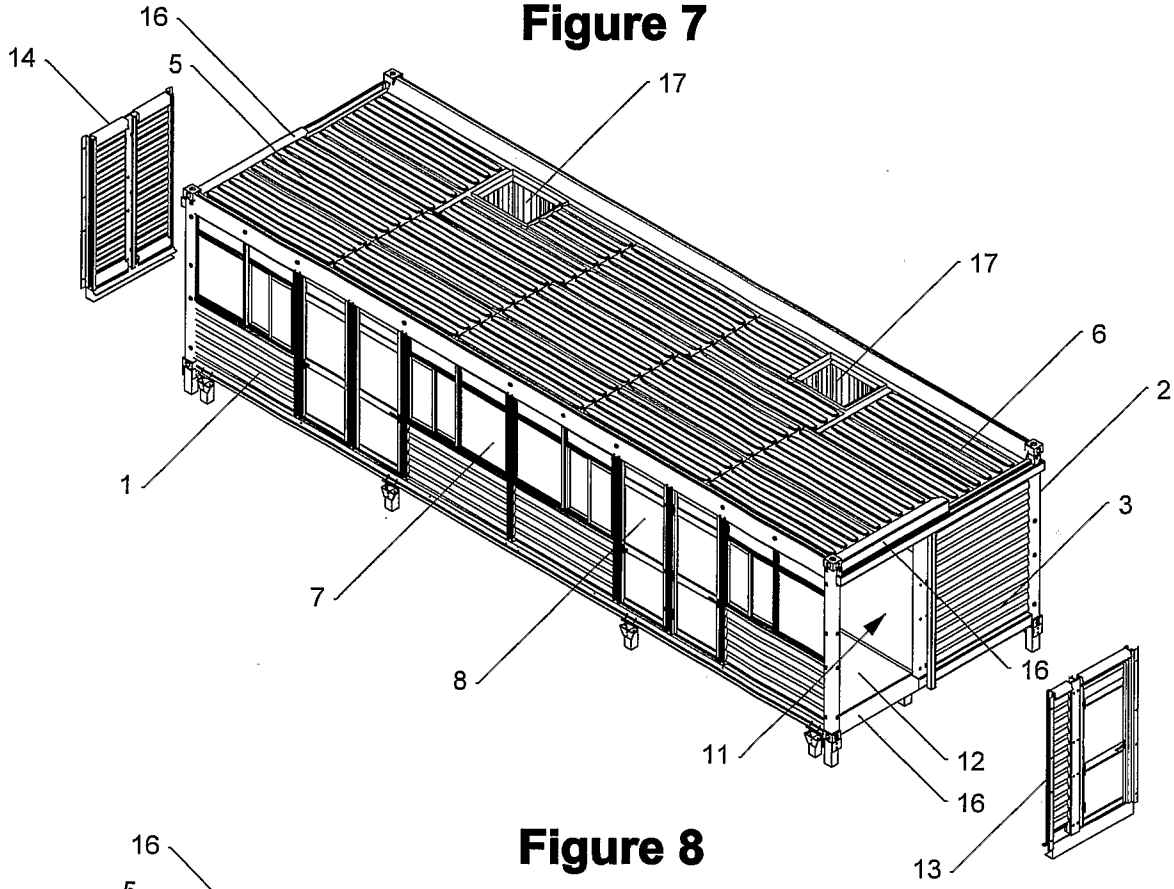


Figure 8

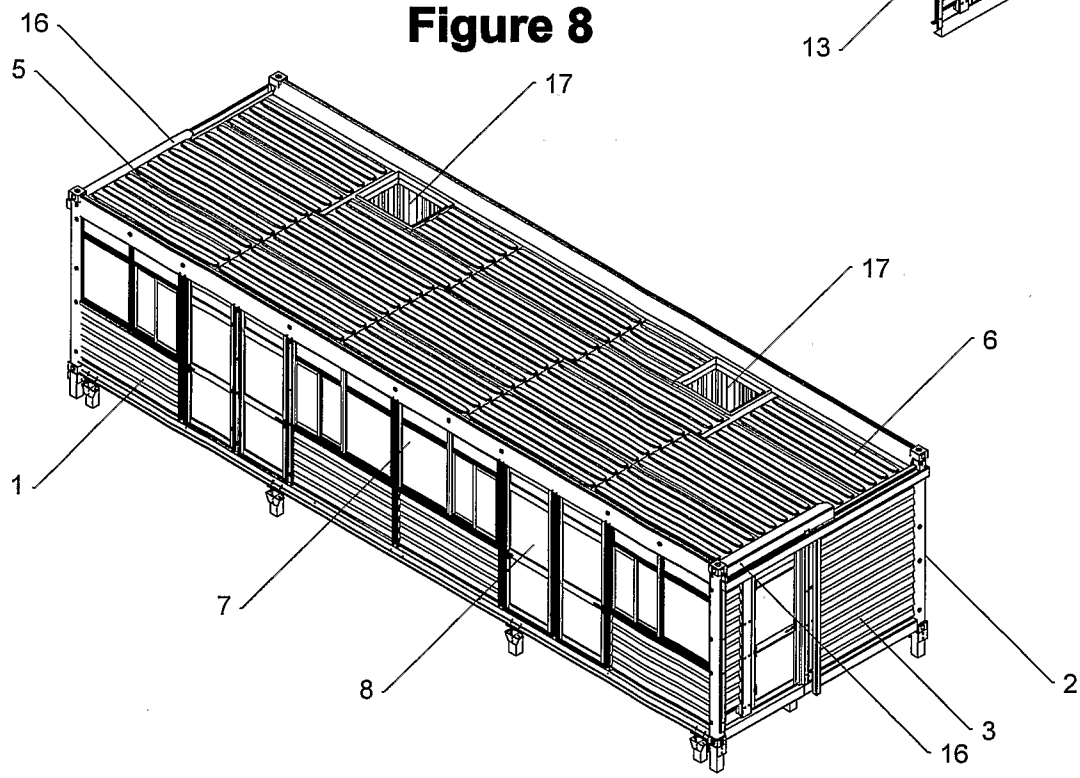


Figure 9

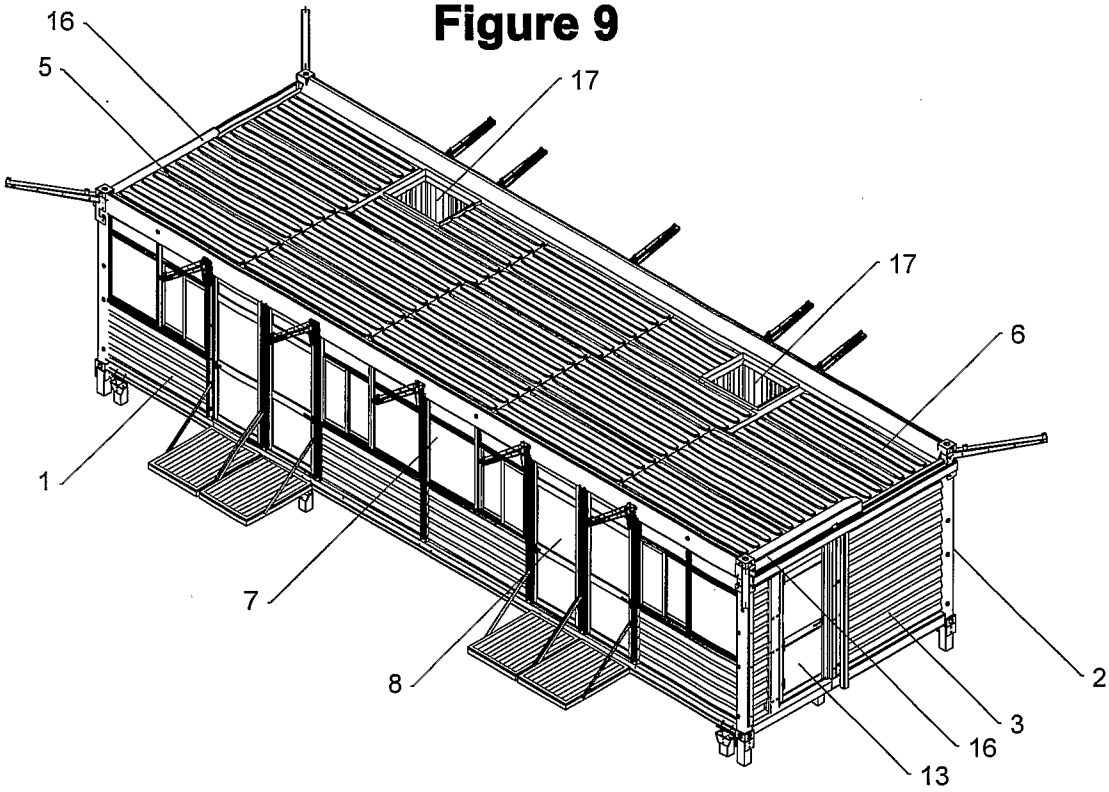


Figure 10

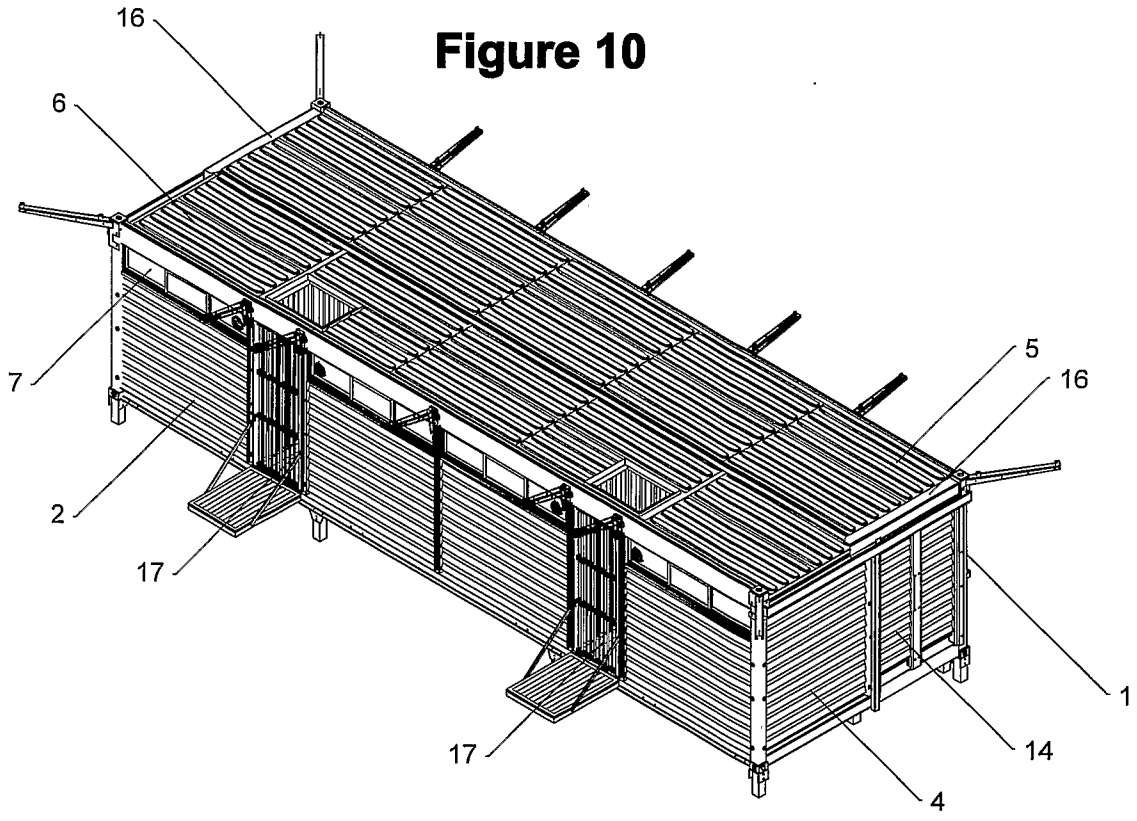
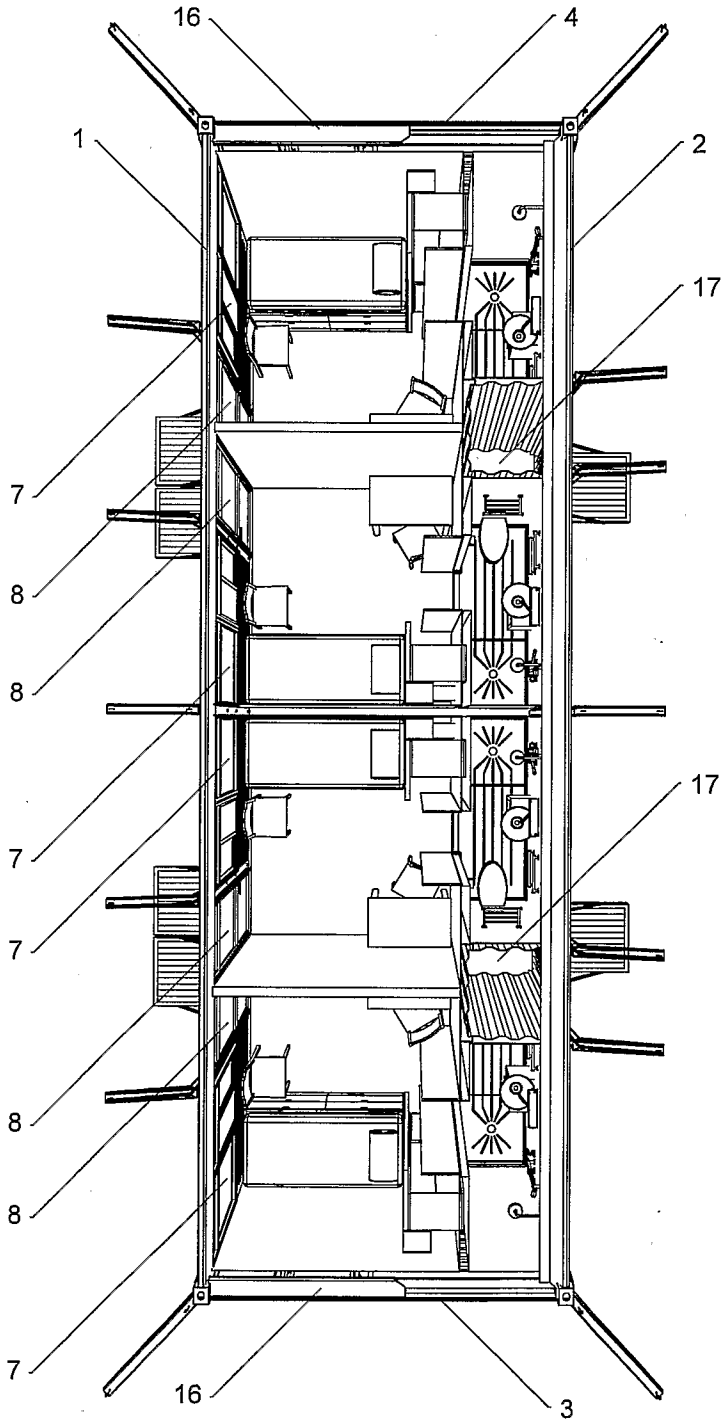


Figure 11



INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2007/000108

A. CLASSIFICATION OF SUBJECT MATTER

E04B 1/343(2006.01)i, E04B 2/74(2006.01)i

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)

IPC 8 : E04B

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

KR, JP : IPC as above

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

eKIPASS (KIPO-Internal) & keywords:building, portable, wall

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2004-347234 A (SUMIYA HISASH) 09 December 2004 See Figs. 3, 4.	1
A	JP 10-183956 A (MATSUI NOBORU) 14 July 1998 See Fig. 2.	1
A	JP 2005-273167 A (INOUE NORIAKI) 06 October 2005 See Fig. 1.	1
A	JP 2003-074885 A (TANOOKA HIKOKI) 12 March 2003 See Fig. 6.	1

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 OCTOBER 2007 (10.10.2007)	**10 OCTOBER 2007 (10.10.2007)**

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LEE, Won Jae

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/NZ2007/000108

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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